

Package ‘eatGADS’

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applyChangeMeta	<i>Apply Meta Data Changes.</i>
-----------------	---------------------------------

Description

Function to apply meta data changes to a GADSdat object specified by a change table extracted by [getChangeMeta](#).

Usage

```
applyChangeMeta(changeTable, GADSdat)
```

Arguments

changeTable	Change table as provided by getChangeMeta .
GADSdat	GADSdat object imported via eatGADS.

Details

Values for which the change columns contain NA remain unchanged.

Value

Returns the modified GADSdat object.

Examples

```
# Change a variable name and label
varChangeTable <- getChangeMeta(pisa, level = "variable")
varChangeTable[1, c("varName_new", "varLabel_new")] <- c("IDstud", "Person ID")
pisa2 <- applyChangeMeta(varChangeTable, GADSdat = pisa)
```

applyLookup	<i>Recode via lookup table.</i>
-------------	---------------------------------

Description

Recode one or multiple variables based on a lookup table created via [createLookup](#) (and potentially formatted by [collapseColumns](#)).

Usage

```
applyLookup(GADSdat, lookup, suffix = NULL)
```

Arguments

GADSdat	A GADSdat object.
lookup	Lookup table created by createLookup and - if necessary - collapsed by collapseColumns . Column names must be c("variable", "value", "value_new").
suffix	Suffix to add to the existing variable names. If NULL, the old variables will be overwritten.

Details

If there are missing values in the column value_new, NAs are inserted as new values and a warning is issued.

The complete work flow when using a lookup table to recode multiple variables in a GADSdat could be: (0) optional: Recode empty strings to NA (necessary, if the look up table is written to excel). (1) create a lookup table with [createLookup](#). (2) Save the lookup table to .xlsx with [write_xlsx](#) from [eatAnalysis](#). (3) fill out the lookup table via Excel. (4) Import the lookup table back to R via [read_excel](#) from [readxl](#). (5) Apply the final lookup table with [applyLookup](#).

See [applyLookup_expandVar](#) for recoding a single variable into multiple variables.

Value

Returns a recoded GADSdat.

Examples

```
## create an example GADSdat
iris2 <- iris
iris2$Species <- as.character(iris2$Species)
gads <- import_DF(iris2)

## create Lookup
lu <- createLookup(gads, recodeVars = "Species")
lu$value_new <- c("plant 1", "plant 2", "plant 3")

## apply lookup table
gads2 <- applyLookup(gads, lookup = lu, suffix = "_r")

## only recode some values
lu2 <- createLookup(gads, recodeVars = "Species")
lu2$value_new <- c("plant 1", "plant 2", NA)
gads3 <- applyLookup(gads, lookup = lu2, suffix = "_r")
```

applyLookup_expandVar *Recode via lookup table into multiple variables.*

Description

Recode one or multiple variables based on a lookup table created via [createLookup](#). In contrast to [applyLookup](#), this function allows the creation of multiple resulting variables from a single input variable. All variables in lookup except variable and value are treated as recode columns.

Usage

```
applyLookup_expandVar(GADSdat, lookup)
```

Arguments

GADSdat	A GADSdat object.
lookup	Lookup table created by createLookup .

Details

If a variable contains information that should be split into multiple variables via manual recoding, `applyLookup_expandVar` can be used. If there are missing values in any recode column, NAs are inserted as new values. A warning is issued only for the first column.

The complete work flow when using a lookup table to expand variables in a GADSdat based on manual recoding could be: (1) create a lookup table with [createLookup](#). (2) Save the lookup table to .xlsx with `write_xlsx` from `eatAnalysis`. (3) fill out the lookup table via Excel. (4) Import the lookup table back to R via `read_excel` from `readxl`. (5) Apply the final lookup table with `applyLookup_expandVar`.

See [applyLookup](#) for simply recoding variables in a GADSdat.

Value

Returns a recoded GADSdat.

Examples

```
## create an example GADSdat
example_df <- data.frame(ID = 1:6,
  citizenship = c("germ", "engl", "germ, usa", "china",
    "austral, morocco", "nothin"),
  stringsAsFactors = FALSE)
gads <- import_DF(example_df)

## create Lookup
lu <- createLookup(gads, recodeVars = "citizenship", addCol = c("cit_1", "cit_2"))
lu$cit_1 <- c("German", "English", "German", "Chinese", "Australian", NA)
lu$cit_2 <- c(NA, NA, "USA", NA, "Morocco", NA)
```

```
## apply lookup table
gads2 <- applyLookup_expandVar(gads, lookup = lu)
```

applyNumCheck	<i>Apply recodes according to a numerical check data.frame.</i>
---------------	---

Description

Applies recodes as specified by a numCheck data.frame, as created by [createNumCheck](#).

Usage

```
applyNumCheck(GADSdat, numCheck)
```

Arguments

GADSdat	A GADSdat object.
numCheck	A data.frame as created by createNumCheck .

Details

This function is currently under development.

Value

A recoded GADSdat.

Examples

```
# tbd
```

changeMissings	<i>Change missing code.</i>
----------------	-----------------------------

Description

Change or add missing codes of a variable as part of a GADSdat or all_GADSdat object.

Usage

```
changeMissings(GADSdat, varName, value, missings)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Character string of a variable name.
value	Numeric values.
missings	Character string of the new missing codes, either "miss" or "valid".

Details

Applied to a GADSdat or all_GADSdat object, this function is a wrapper of [getChangeMeta](#) and [applyChangeMeta](#).

Value

Returns the GADSdat object with changed meta data.

Examples

```
# Set a specific value to missing
pisa2 <- changeMissings(pisa, varName = "computer_age",
                        value = 5, missings = "miss")

# Set multiple values to missing
pisa3 <- changeMissings(pisa, varName = "computer_age",
                        value = 1:4,
                        missings = c("miss", "miss", "miss", "miss"))

# Set a specific value to not missing
pisa4 <- changeMissings(pisa2, varName = "computer_age",
                        value = 5, missings = "valid")
```

changeSPSSformat	<i>Change SPSS format.</i>
------------------	----------------------------

Description

Change the SPSS format of a variable as part of a GADSdat or all_GADSdat object.

Usage

```
changeSPSSformat(GADSdat, varName, format)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Character string of variable names.
format	A single string containing the new SPSS format, for example 'A25' or 'F10'.

Details

Applied to a GADSdat or all_GADSdat object, this function is a wrapper of [getChangeMeta](#) and [applyChangeMeta](#).

Value

Returns the GADSdat object with changed meta data..

Examples

```
pisa2 <- changeSPSSformat(pisa, varName = "idstud",
                          format = "F10.0")
```

changeValLabels	<i>Change value labels.</i>
-----------------	-----------------------------

Description

Change or add value labels of a variable as part of a GADSdat or all_GADSdat object.

Usage

```
changeValLabels(GADSdat, varName, value, valLabel)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Character string of a variable name.
value	Numeric values.
valLabel	Character string of the new value labels.

Details

Applied to a GADSdat or all_GADSdat object, this function is a wrapper of [getChangeMeta](#) and [applyChangeMeta](#).

Value

Returns the GADSdat object with changed meta data.

Examples

```
# Change existing value labels
pisa2 <- changeValLabels(pisa, varName = "repeated",
                        value = c(1, 2),
                        valLabel = c("no grade repetition", "grade repetition"))
```

changeVarLabels	<i>Change the variable label.</i>
-----------------	-----------------------------------

Description

Change the variable label of a variable as part of a GADSdat or all_GADSdat object.

Usage

```
changeVarLabels(GADSdat, varName, varLabel)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Character string of variable names.
varLabel	Character string of the new variable labels.

Details

Applied to a GADSdat or all_GADSdat object, this function is a wrapper of [getChangeMeta](#) and [applyChangeMeta](#).

Value

Returns the GADSdat object with changed meta data.

Examples

```
# Change one variable label
pisa2 <- changeVarLabels(pisa, varName = "repeated",
                        varLabel = c("Has a grade been repeated?"))
```

changeVarNames	<i>Change Variable Names.</i>
----------------	-------------------------------

Description

Change variable names of a GADSdat or all_GADSdat object.

Usage

```
changeVarNames(GADSdat, oldNames, newNames)
```

Arguments

GADSDat	GADSDat object imported via eatGADS.
oldNames	Vector containing the old variable names.
newNames	Vector containing the new variable names, in identical order as oldNames.

Details

Applied to a GADSDat or all_GADSDat object, this function is a wrapper of [getChangeMeta](#) and [applyChangeMeta](#)

Value

Returns the GADSDat object with changed variable names.

Examples

```
# Change multiple variable name
pisa2 <- changeVarNames(pisa, oldNames = c("idstud", "idschool"),
                        newNames = c("IDstud", "IDSchool"))
```

checkLEStructure	<i>Checks compatibility of GADS data bases with a linking error data base.</i>
------------------	--

Description

This function checks if a linking error data base is compatible with the two trend eatGADS data bases. For checking the compatibility of two eatGADS data bases see [checkTrendStructure](#).

Usage

```
checkLEStructure(filePath1, filePath2, lePath)
```

Arguments

filePath1	Path of the first eatGADS .db file.
filePath2	Path of the second eatGADS .db file.
lePath	Path of the linking error eatGADS .db file.

Details

This function inspects whether all linking error variables correspond to variables in the eatGADS data base and if the key variables also correspond to existing variables in the trend eatGADS data bases.

Value

Returns a report list.

checkMissings	<i>Check and Adjust Missing Coding</i>
---------------	--

Description

Function to check if missings are coded and labeled correctly in a GADSdat object.

Usage

```
checkMissings(  
  GADSdat,  
  missingLabel = "missing",  
  addMissingCode = TRUE,  
  addMissingLabel = FALSE  
)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
missingLabel	Single string indicating how missing labels are commonly named in the value labels.
addMissingCode	If TRUE, missing codes are added according to occurrence of "missingLabel" in "valLabel".
addMissingLabel	If TRUE, "generic missing" is added according to occurrence of "mis" in "missings". As often various value labels for missings are used, this argument should be used with great care.

Details

The function compares value labels "valLabels" and missing codes "missings" of a GADSdat object and its meta data information. Mismatches are reported and can be automatically adjusted.

Value

Returns a GADSdat object.

Examples

```
# Change example data set (create a value label with incorrect missing code)  
pisa2 <- changeValLabels(pisa, varName = "computer_age",  
  value = 5, valLabel = "missing: No computer use")  
  
pisa3 <- checkMissings(pisa2)
```

checkTrendStructure *Checks compatibility of two eatGADS data bases.*

Description

This function checks if both data bases perform identical joins via foreign keys, if they contain the same variable names and if these variables have the same value labels. Results of this comparison are reported on data table level as messages and as an output list.

Usage

```
checkTrendStructure(filePath1, filePath2)
```

Arguments

filePath1	Path of the first eatGADS .db file.
filePath2	Path of the second eatGADS .db file.

Details

An error is thrown if the key structure or the data table structure differs between the two data bases. Differences regarding meta data for missing value labels and for variables labels (and formatting) are ignored.

Value

Returns a report list.

checkValue *Check for a specific value*

Description

Function to look for occurrences of a specific value in a GADSdat.

Usage

```
checkValue(GADSdat, value)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
value	Single string indicating how missing labels are commonly named in the value labels.

Details

The function checks occurrences of a specific value in all variables in the GADSdat and outputs a message containing a list of variables in which the value occurs.

Value

Returns NULL.

Examples

```
# Example data set
#to be done
```

checkVarNames	<i>Check names for SQLite conventions.</i>
---------------	--

Description

Applies variable names changes to GADSdat or all_GADSdat objects.

Usage

```
checkVarNames(GADSdat)
```

Arguments

GADSdat GADSdat or all_GADSdat object imported via eatGADS.

Details

Illegal names in a SQLite data base include SQLite keywords (see [sqlite_keywords](#)) and names with a "." in it.

Value

Returns the original object with updated variable names.

Examples

```
# Change example data set (create an invalid variable name)
pisa2 <- changeVarNames(pisa, oldNames = "computer_age",
                        newNames = "computer.age")

pisa3 <- checkVarNames(pisa2)
```

clean_cache	<i>Clean temporary cache.</i>
-------------	-------------------------------

Description

Deprecated. The cached data base is now cleaned when the R sessions ends automatically.

Usage

```
clean_cache(tempPath = tempdir())
```

Arguments

tempPath	Local directory in which the data base was temporarily be stored.
----------	---

Details

Cleans the temporary cache, specified by `tempdir()`. This function had to be executed at the end of an R session if `getGADS_fast` or `getTrendGADS` with `fast = TRUE` had been used.

Value

Returns nothing.

collapseColumns	<i>Collapse two columns of a lookup table.</i>
-----------------	--

Description

Collapse two columns or format a single column of a lookup table created by `createLookup`.

Usage

```
collapseColumns(lookup, recodeVars, prioritize)
```

Arguments

lookup	For example a lookup table data.frame as created via <code>createLookup</code> .
recodeVars	Character vector of variable names which should be collapsed (currently only up to two variables are supported).
prioritize	Character vector of length 1. Which of the variables in <code>recodeVars</code> should be prioritized, if multiple values are available? If <code>recodeVars</code> is of length 1, this argument can be omitted.

Details

If a lookup table is created by `createLookup`, different recoding columns can be specified by the `addCols` argument. This might be the case if two raters suggest recodes or one rater corrects recodes by another rater in a separate column. After the recoding columns have been filled out, `collapseColumns` can be used to either:

- (a) Collapse two recoding columns into one recoding column. This might be desirable, if the two columns contain missing values. `prioritize` can be used to specify, which of the two columns should be prioritized if both columns contain valid values.
- (b) Format the lookup table for `applyLookup`, if `recodeVars` is a single variable. This simply renames the single variable specified under `recodeVars`.

Value

Returns a `data.frame` that can be used for `applyLookup`, with the columns:

<code>variable</code>	Variable names
<code>value</code>	Old values
<code>value_new</code>	New values. Renamed and/or collapsed column.

Examples

```
## (a) Collapse two columns
# create example recode data.frame
lookup_raw <- data.frame(variable = c("var1"), value = c("germa", "German", "dscherman"),
  recode1 = c(NA, "English", "German"),
  recode2 = c("German", "German", NA), stringsAsFactors = FALSE)

# collapse columns
lookup <- collapseColumns(lookup_raw, recodeVars = c("recode1", "recode2"), prioritize = "recode2")

## (b) Format one column
# create example recode data.frame
lookup_raw2 <- data.frame(variable = c("var1"), value = c("germa", "German", "dscherman"),
  recode1 = c("German", "German", "German"), stringsAsFactors = FALSE)

# collapse columns
lookup2 <- collapseColumns(lookup_raw2, recodeVars = c("recode1"))
```

collapseMC_Text

Recode a multiple choice variable according to a character variable.

Description

Recode an labeled integer variable (based on an multiple choice item), according to a character variable (e.g. an open answer item).

Usage

```
collapseMC_Text(
  GADSdat,
  mc_var,
  text_var,
  mc_code4text,
  var_suffix = "_r",
  label_suffix = "(recoded)"
)
```

Arguments

GADSdat	A GADSdat object.
mc_var	The variable name of the multiple choice variable.
text_var	The variable name of the text variable.
mc_code4text	The value label in mc_var that indicates that information from the text variable should be used.
var_suffix	Variable name suffix for the newly created variables. If NULL, variables are overwritten.
label_suffix	Variable label suffix for the newly created variable (only added in the meta data). If NULL no suffix is added.

Details

Multiple choice variables can be represented as labeled integer variables in a GADSdat. Multiple choice items with a forced choice frequently contain an open answer category. However, sometimes open answers overlap with the existing categories in the multiple choice item. collapseMC_Text allows recoding the multiple choice variable based on the open answer variable.

mc_code4text indicates when entries in the text_var should be used. Additionally, entries in the text_var are also used when there are missings on the mc_var. New values for the mc_var are added in the meta data, while preserving the initial ordering of the value labels. Newly added value labels are sorted alphabetically.

For more details see the help vignette: vignette("recoding_forcedChoice", package = "eatGADS").

Value

Returns a GADSdat containing the newly computed variable.

Examples

```
# Example gads
example_df <- data.frame(ID = 1:5, mc = c("blue", "blue", "green", "other", "other"),
  open = c(NA, NA, NA, "yellow", "blue"),
  stringsAsFactors = FALSE)
example_df$mc <- as.factor(example_df$mc)
gads <- import_DF(example_df)
```



```
# recode
gads2 <- collapseMC_Text(gads, mc_var = "mc", text_var = "open",
                        mc_code4text = "other")
```

collapseMultiMC_Text *Recode multiple choice variable with multiple variables.*

Description

Recode multiple variables (representing a single multiple choice item) based on multiple character variables (representing a text field).

Usage

```
collapseMultiMC_Text(
  GADSdat,
  mc_vars,
  text_vars,
  mc_var_4text,
  var_suffix = "_r",
  label_suffix = "(recoded)",
  invalid_miss_code = -98,
  invalid_miss_label = "Missing: Invalid response",
  notext_miss_code = -99,
  notext_miss_label = "Missing: By intention"
)
```

Arguments

GADSdat	A GADSdat object.
mc_vars	A character vector with the variable names of the multiple choice variable. Names of the character vector are the corresponding values that are represented by the individual variables. Creation by matchValues_varLabels is recommended.
text_vars	A character vector with the names of the text variables which should be collapsed.
mc_var_4text	The name of the multiple choice variable that signals that information from the text variable should be used. This variable is recoded according to the final status of the text variables.
var_suffix	Variable suffix for the newly created GADSdat. If an empty character, the existing variables are overwritten.
label_suffix	Suffix added to variable label for the newly created or modified variables in the GADSdat.
invalid_miss_code	Missing code which is given to new character variables if all text entries were recoded into the dichotomous variables.

invalid_miss_label
Value label for invalid_miss_code.

notext_miss_code
Missing code which is given to empty character variables.

notext_miss_label
Value label for notext_miss_code.

Details

If a multiple choice item can be answered with ticking multiple boxes, multiple variables in the data set are necessary to represent this item. In this case, an additional text field for further answers can also contain multiple values at once. However, some of the answers in the text field might be redundant to the dummy variables. `collapseMultiMC_Text` allows to recode multiple MC items of this kind based on multiple text variables. The recoding can be prepared by expanding the single text variable (`createLookup` and `applyLookup_expandVar`) and by matching the dummy variables to its underlying values stored in variable labels (`matchValues_varLabels`).

The function recodes the dummy variables according to the character variables. Additionally, the `mc_var_4text` variable is recoded according to the final status of the `text_vars` (exception: if the text variables were originally NA, `mc_var_4text` is left as it was).

Missing values in the character variables can be represented either by NAs or by empty characters. The multiple choice variables specified with `mc_vars` can only contain the values 0, 1 and missing codes. The value 1 must always represent "this category applies". If necessary, use `recodeGADS` for recoding.

For cases for which the `text_vars` contain only values that can be recoded into the `mc_vars`, all new `text_vars` are given specific missing codes (see `invalid_miss_code` and `invalid_miss_label`). All remaining NAs on the character variables are given a specific missing code (`notext_miss_code`).

Value

Returns a GADSdat containing the newly computed variables.

Examples

```
# Prepare example data
mt2 <- data.frame(ID = 1:4, mc1 = c(1, 0, 0, 0), mc2 = c(0, 0, 0, 0), mc3 = c(0, 1, 1, 0),
  text1 = c(NA, "Eng", "Aus", "Aus2"), text2 = c(NA, "Franz", NA, "Ger"),
  stringsAsFactors = FALSE)
mt2_gads <- import_DF(mt2)
mt3_gads <- changeVarLabels(mt2_gads, varName = c("mc1", "mc2", "mc3"),
  varLabel = c("Lang: Eng", "Aus spoken", "other"))

## All operations (see also respective help pages of functions for further explanations)
mc_vars <- matchValues_varLabels(mt3_gads, mc_vars = c("mc1", "mc2", "mc3"),
  values = c("Aus", "Eng", "Eng"), label_by_hand = c("other" = "mc3"))

out_gads <- collapseMultiMC_Text(mt3_gads, mc_vars = mc_vars,
  text_vars = c("text1", "text2"), mc_var_4text = "mc3")

out_gads2 <- multiChar2fac(out_gads, vars = c("text1_r", "text2_r"))
```

```
final_gads <- remove2NAchar(out_gads2, vars = c("text1_r_r", "text2_r_r"),
                             max_num = 1, na_value = -99, na_label = "missing: excessive answers")
```

createGADS	<i>Create an eatGADS data base.</i>
------------	-------------------------------------

Description

Creates a relational data base containing hierarchically stored data with meta information (e.g. value and variable labels).

Usage

```
createGADS(allList, pkList, fkList, filePath)
```

Arguments

allList	An object created via mergeLabels .
pkList	List of primary keys.
fkList	List of foreign keys.
filePath	Path to the db file to write (including name); has to end on '.db'.

Details

Uses [createDB](#) from the eatDB package to create a relational data base. For details on how to define keys see the documentation of [createDB](#).

Value

Creates a data base in the given path, returns NULL.

Examples

```
# see createDB vignette
```

createLookup	<i>Extract values for recoding.</i>
--------------	-------------------------------------

Description

Extract unique values from one or multiple variables of a GADSdat object for recoding (e.g. via an Excel spreadsheet).

Usage

```
createLookup(GADSdat, recodeVars, sort_by = NULL, addCols = c("value_new"))
```

Arguments

GADSdat	A GADSdat object.
recodeVars	Character vector of variable names which should be recoded.
sort_by	By which column (variable and/or value) should the long format data.frame be sorted? If NULL, no sorting is performed.
addCols	Character vector of additional column names for recoding purposes.

Details

If recoding of one or multiple variables is more complex, a lookup table can be created for later application via [applyLookup](#) or [applyLookup_expandVar](#). The function allows the extraction of the values of multiple variables and sorting of these unique values via variable and/or values. If addCols are specified the lookup table has to be formatted via [collapseColumns](#), before it can be applied to recode data.

Value

Returns a data frame in long format with the following variables:

variable	Variables as specified in recodeVars
value	Unique values of the variables specified in recodeVars
value_new	This is the default for addCols. If different additional column names are supplied, this column is missing.

Examples

```
# create example GADS
dat <- data.frame(ID = 1:4, var1 = c(NA, "Eng", "Aus", "Aus2"),
                 var2 = c(NA, "French", "Ger", "Ita"),
                 stringsAsFactors = FALSE)
gads <- import_DF(dat)

# create Lookup table for recoding
lookup <- createLookup(gads, recodeVars = c("var1", "var2"), sort_by = c("value", "variable"))
```

```
# create Lookup table for recoding by multiple recoders
lookup2 <- createLookup(gads, recodeVars = c("var1", "var2"), sort_by = c("value", "variable"),
  addCols = c("value_recoder1", "value_recoder2"))
```

createNumCheck	<i>Create data.frame for specification of numerical plausibility checks.</i>
----------------	--

Description

All numerical variables without value labels in a GADSdat are selected and a data.frame is created, which allows the specification of minima and maxima.

Usage

```
createNumCheck(GADSdat)
```

Arguments

GADSdat A GADSdat object.

Details

This function is currently under development.

Value

A data.frame with the following variables:

variable	All numerical variables in the GADSdat
varLabel	Corresponding variable labels
min	Minimum value for the specific variable.
max	Maximum value for the specific variable.
value_new	Which value should be inserted if values exceed the specified range?

Examples

```
# tbd
```

eatGADS	<i>eatGADS: Data management of hierarchical SPSS files via R and SQLite</i>
---------	---

Description

The eatGADS package provides various groups of functions: importing data (mainly sav-files), handling and modifying meta data on variable level, creating a fixed form SQLite data base and using the SQLite data base.

Importing data

SPSS data can be imported via [import_spss](#), R data.frames via [import_DF](#).

Creating the GADS

Hierarchical data sets are combined via [mergeLabels](#) and the data base is created via [createGADS](#). For this, the package eatDB is utilized. See also [createDB](#).

Using the GADS

The content of a data base can be obtained via [namesGADS](#). Data is extracted from the data base via [getGADS](#) for a single GADS and via [getTrendGADS](#) for trend analysis. The resulting object is a GADSdat object. Meta data can be extracted via [extractMeta](#), either from the GADSdat object or directly from the data base. Data can be extracted from the GADSdat object via [extractData](#).

export_tibble	<i>Transform a GADSdat to a tibble</i>
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Description

haven's [read_spss](#) stores data together with meta data (e.g. value and variable labels) in a tibble with attributes on variable level. This function transforms a GADSdat object to such a tibble.

Usage

```
export_tibble(GADSdat)
```

Arguments

GADSdat GADSdat object imported via eatGADS.

Details

This function is mainly intended for internal use.

Value

Returns a tibble.

Examples

```
pisa_tbl <- export_tibble(pisa)
```

extractData

Extract Data

Description

Extract data . frame from a GADSdat object for analyses in R. For extracting meta data see [extractMeta](#).

Usage

```
extractData(  
  GADSdat,  
  convertMiss = TRUE,  
  convertLabels = "character",  
  dropPartialLabels = TRUE,  
  convertVariables  
)
```

Arguments

GADSdat	A GADSdat object.
convertMiss	Should values coded as missing values be recoded to NA?
convertLabels	If "numeric", values remain as numerics. If "factor" or "character", values are recoded to their labels. Corresponding variable type is applied.
dropPartialLabels	Should value labels for partially labeled variables be dropped? If TRUE, the partial labels will be dropped. If FALSE, the variable will be converted to the class specified in convertLabels.
convertVariables	Character vector of variables names, which labels should be applied to. If not specified (default), value labels are applied to all variables for which labels are available. Variable names not in the actual GADS are silently dropped.

Details

A GADSdat object includes actual data (GADSdat\$dat) and the corresponding meta data information (GADSdat\$labels). `extractData` extracts the data and applies relevant meta data (missing conversion, value labels), so the data can be used for analyses in R.

If factors are extracted via `convertLabels == "factor"`, the underlying integers will be tried to be preserved. If this is not possible, a warning is issued. As SPSS has almost no limitations regarding the underlying values of labeled integers and R's factor format is very strict (no 0, only integers increasing by + 1), this procedure can lead to frequent problems.

Value

Returns a data frame.

Examples

```
# Extract Data for Analysis
dat <- extractData(pisa)

# convert labeled variables to factors
dat <- extractData(pisa, convertLabels = "factor")

# convert only some variables to factor
dat <- extractData(pisa, convertLabels = "factor", convertVariables = c("schtype", "ganztage"))
```

extractGADSdat	<i>Extract single GADSdat from all_GADSdat</i>
----------------	--

Description

Function to extract a single GADSdat from an all_GADSdat object.

Usage

```
extractGADSdat(all_GADSdat, name)
```

Arguments

all_GADSdat	all_GADSdat object
name	A character vector with length 1 with the name of the GADSdat

Details

GADSdat objects can be merged into a single all_GADSdat object via [mergeLabels](#). This function, performs the reverse action, extracting a single GADSdat object.

Value

Returns an GADSdat object.

Examples

```
# see createGADS vignette
```

 extractMeta

Get Meta Data

Description

Extract meta data (e.g. variable and values labels) from an eatGADS object. This can be a GADSdat, an all_GADSdat, a labels data.frame, or the path to an existing data base.

Usage

```
extractMeta(GADSobject, vars = NULL)
```

Arguments

GADSobject	Either a GADSdat object or a path to an existing eatGADS data base.
vars	A character vector containing variable names. If NULL (default), all available meta information is returned.

Details

Meta data is stored tidily in all GADSdat objects as a separate long format data frame. This information can be extracted for a single or multiple variables.

Value

Returns a long format data frame with meta information.

Examples

```
# Extract Meta data from data base
db_path <- system.file("extdata", "pisa.db", package = "eatGADS")
extractMeta(db_path, vars = c("schtype", "sameteach"))

# Extract Meta data from loaded/imported GADS
extractMeta(pisa, vars = c("schtype", "sameteach"))
```

 extractVars

Extract or remove variables from a GADSdat.

Description

Extract or remove variables and their meta data from a GADSdat object.

Usage

```
extractVars(GADSdat, vars)
```

```
removeVars(GADSdat, vars)
```

Arguments

GADSdat GADSdat object.

vars A character vector containing the variables names in the GADSdat.

Details

Both functions simply perform the variable removal or extraction from the underlying `data.frame` in the GADSdat object followed by calling [updateMeta](#).

Value

Returns a GADSdat object.

Examples

```
## create an example GADSdat
example_df <- data.frame(ID = 1:4,
                        age = c(12, 14, 16, 13),
                        citizenship1 = c("German", "English", "Polish", "Chinese"),
                        citizenship2 = c(NA, "German", "Chinese", "Polish"),
                        stringsAsFactors = TRUE)
gads <- import_DF(example_df)

## remove variables from GADSdat
gads2 <- removeVars(gads, vars = c("citizenship2", "age"))

## extract GADSdat with specific variables
gads3 <- extractVars(gads, vars = c("ID", "citizenship1"))
```

getChangeMeta

Extract table for Meta Data Changes.

Description

Function to obtain a data frame from a GADSdat object for for changes to meta data on variable or on value level.

Usage

```
getChangeMeta(GADSdat, level = "variable")
```

Arguments

GADSdat GADSdat object imported via eatGADS.
 level 'variable' or 'value'.

Details

Changes on variable level include variable names (`varName`), variable labels (`varLabel`), SPSS format (`format`) and display width (`display_width`). Changes on value level include values (`value`), value labels (`valLabel`) and missing codes (`missings`).

Value

Returns the meta data sheet for all variables including the corresponding change columns.

Examples

```
# For changes on variable level
varChangeTable <- getChangeMeta(pisa, level = "variable")

# For changes on value level
valChangeTable <- getChangeMeta(pisa, level = "value")
```

getGADS *Get data from GADS data base.*

Description

Extracts variables from a GADS data base. Only the specified variables are extracted. Note that this selection determines the format of the `data.frame` that is extracted.

Usage

```
getGADS(vSelect = NULL, filePath)
```

Arguments

vSelect Character vector of variable names.
 filePath Path of the existing eatGADS data base file.

Details

See [createDB](#) and [dbPull](#) for further explanation of the query and merging processes.

Value

Returns a GADSdat object.

Examples

```
# Use data base within package
db_path <- system.file("extdata", "pisa.db", package = "eatGADS")
pisa_gads <- getGADS(db_path, vSelect = c("schtype", "sameteach"))
```

getGADS_fast	<i>Get data from GADS data base fast from server directory.</i>
--------------	---

Description

Extracts variables from a eatGADS data base. Only the specified variables are extracted. Note that this selection determines the format of the data. frame that is extracted. CAREFUL: This function uses a local temporary directory to speed up loading the data base from a server and caches the data base locally for a running R session. The temporary data base is removed automatically when the running R session is terminated.

Usage

```
getGADS_fast(vSelect = NULL, filePath, tempPath = tempdir())
```

Arguments

vSelect	Character vector of variable names.
filePath	Path of the existing eatGADS data base file.
tempPath	Local directory in which the data base can temporarily be stored. Using the default is recommended.

Details

A random temporary directory is used for caching the data base and is removed, when the R sessions terminates. See [createDB](#) and [dbPull](#) for further explanation of the query and merging processes.

Value

Returns a GADSdat object.

getTrendGADS	<i>Get data for trend reports.</i>
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Description

Extracts variables from two eatGADS data bases and a linking error data base. Data can then be extracted from the GADSdat object via [extractData](#). For extracting meta data from a data base or a GADSdat object see [extractMeta](#). To speed up the data loading, [getGADS_fast](#) is used per default.

Usage

```
getTrendGADS(
  filePath1,
  filePath2,
  lePath = NULL,
  vSelect = NULL,
  years,
  fast = TRUE,
  tempPath = tempdir()
)
```

Arguments

filePath1	Path of the first eatGADS db file.
filePath2	Path of the second eatGADS db file.
lePath	Path of the linking error db file. If NULL, no linking errors are added to the data.
vSelect	Variables from both GADS to be selected (as character vector).
years	A numeric vector of length 2. The first elements corresponds to filePath1, the second element to filePath2.
fast	Should getGADS_fast be used for data loading instead of getGADS ? Using the default is heavily recommended.
tempPath	The directory, in which both GADS will be temporarily stored. Using the default is heavily recommended.

Details

This function extracts data from two GADS data bases and a linking error data base. All data bases have to be created via [createGADS](#). The two GADS are joined via `rbind` and a variable `year` is added, corresponding to the argument `years`. If `lePath` is specified, linking errors are also extracted and then merged to the GADS data. Make sure to also extract the key variables necessary for merging the linking errors (the domain variable for all linking errors, additionally the competence level variable for linking errors for competence levels). The GADSdat object can then further be used via [extractData](#). See [createDB](#) and [dbPull](#) for further explanation of the querying and merging processes.

Value

Returns a GADSDat object.

Examples

```
# See getGADS vignette
```

import_convertLabel *Import an object imported via convertLabel*

Description

Function to import a data.frame object created by convertLabel for use in eatGADS. If possible, importing data via [import_spss](#) should always be preferred.

Usage

```
import_convertLabel(df, checkVarNames = TRUE)
```

Arguments

df A data.frame.

checkVarNames Should variable names be checked for violations of SQLite and R naming rules?

Details

convertLabel from R package eatAnalysis converts an object imported via read.spss (from the foreign package) to a data.frame with factors and variable labels stored in variable attributes.

Value

Returns a list with the actual data dat and a data frame with all meta information in long format labels.

import_DF	<i>Import R data.frame</i>
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Description

Function to import a `data.frame` object for use in eatGADS while extracting value labels from factors.

Usage

```
import_DF(df, checkVarNames = TRUE)
```

Arguments

`df` A `data.frame`.

`checkVarNames` Should variable names be checked for violations of SQLite and R naming rules?

Details

Factors are integers with labeled variable levels. `import_DF` extracts these labels and stores them in a separate meta data `data.frame`. See [import_spss](#) for detailed information.

Value

Returns a list with the actual data `dat` and a data frame with all meta information in long format labels.

Examples

```
dat <- import_DF(iris, checkVarNames = FALSE)

# Inspect Meta data
extractMeta(dat)

# Extract Data
dat <- extractData(dat, convertLabels = "character")
```

import_raw	<i>Import R data frame with explicit meta data sheets</i>
------------	---

Description

Function to import a `data.frame` object for use in eatGADS while adding explicit variable and value meta information through separate `data.frames`.

Usage

```
import_raw(df, varLabels, valLabels = NULL, checkVarNames = TRUE)
```

Arguments

<code>df</code>	A <code>data.frame</code> .
<code>varLabels</code>	A <code>data.frame</code> containing the variable labels. All variables in the data have to have exactly one column in this <code>data.frame</code> .
<code>valLabels</code>	A <code>data.frame</code> containing the value labels. All referenced variables have to appear in the data, but not all variables in the data have to receive value labels. Can be omitted.
<code>checkVarNames</code>	Should variable names be checked for violations of SQLite and R naming rules?

Details

The argument `varLabels` has to contain exactly two variables, namely `varName` and `varLabel`. `valLabels` has to contain exactly four variables, namely `varName`, `value`, `valLabel` and `missings`. The column `value` can only contain numerical values. The column `missings` can only contain the values "valid" and "miss". Variables of type factor are not supported in any of the `data.frames`.

Value

Returns a list with the actual data `dat` and with all meta information in long format labels.

Examples

```
dat <- data.frame(ID = 1:5, grade = c(1, 1, 2, 3, 1))
varLabels <- data.frame(varName = c("ID", "grade"),
                        varLabel = c("Person Identifier", "School grade Math"),
                        stringsAsFactors = FALSE)
valLabels <- data.frame(varName = c("grade", "grade", "grade"),
                        value = c(1, 2, 3),
                        valLabel = c("very good", "good", "sufficient"),
                        missings = c("valid", "valid", "valid"),
                        stringsAsFactors = FALSE)

gads <- import_raw(df = dat, varLabels = varLabels, valLabels = valLabels, checkVarNames = FALSE)

# Inspect Meta data
```



```

extractMeta(gads)

# Extract Data
dat <- extractData(gads, convertLabels = "character")

```

import_raw2

Import R data frame with a explicit meta data sheet

Description

Function to create a GADSdat object based on a dat data.frame and a labels data.frame.

Usage

```
import_raw2(dat, labels)
```

Arguments

dat	A dat data.frame containing all actual data.
labels	A labels data.frame containing all meta data.

Details

A GADSdat is basically a list with two elements: a dat and a labels data.frame. If these elements are separated, they can be cleanly tied together again by import_raw2. The function performs extensive checks on the integrity of the resulting GADSdat object. See [import_spss](#) and [import_raw](#) for further details.

Value

Returns a GADSdat object.

Examples

```

dat <- data.frame(ID = 1:5, grade = c(1, 1, 2, 3, 1))
varLabels <- data.frame(varName = c("ID", "grade"),
                        varLabel = c("Person Identifier", "School grade Math"),
                        stringsAsFactors = FALSE)
valLabels <- data.frame(varName = c("grade", "grade", "grade"),
                        value = c(1, 2, 3),
                        valLabel = c("very good", "good", "sufficient"),
                        missings = c("valid", "valid", "valid"),
                        stringsAsFactors = FALSE)

gads <- import_raw(df = dat, varLabels = varLabels, valLabels = valLabels, checkVarNames = FALSE)

# separate the GADSdat object
dat <- gads$dat

```

```

labels <- gads$labels

# rejoin it
dat <- import_raw2(dat, labels)

```

import_RDS	<i>Import RDS file</i>
------------	------------------------

Description

Function to import a data.frame stored as a .RDS file while extracting value labels from factors.

Usage

```
import_RDS(filePath, checkVarNames = TRUE)
```

Arguments

filePath Source file location, ending on .RDS.
checkVarNames Should variable names be checked for violations of SQLite and R naming rules?

Details

Factors are integers with labeled variable levels. import_RDS extracts these labels and stores them in a separate meta data data.frame. See [import_DF](#) for detailed information. This function is a wrapper around [import_DF](#).

Value

Returns a list with the actual data dat and a data frame with all meta information in long format labels.

import_spss	<i>Import SPSS data</i>
-------------	-------------------------

Description

Function to import .sav files while extracting meta information, e.g. variable and value labels.

Usage

```
import_spss(filePath, checkVarNames = TRUE, labeledStrings = FALSE)
```

Arguments

- filePath Source file location, ending on .sav.
- checkVarNames Should variable names be checked for violations of SQLite and R naming rules?
- labeledStrings Should strings as labeled values be allowed? This possibly corrupts all labeled values.

Details

SPSS files (.sav) store variable and value labels and assign specific formatting to variables. `import_spss` imports data from SPSS, while storing this meta-information separately in a long format data frame. Value labels and missing labels are used to identify missing values (see [checkMissings](#)). Time and date variables are converted to character.

Value

Returns a list with the actual data `dat` and a data frame with all meta information in long format `labels`.

Examples

```
# Use spss data from within package
spss_path <- system.file("extdata", "pisa.zsav", package = "eatGADS")
pisa_gads <- import_spss(spss_path)
```

labelsGADS

Labels from relational eatGADS data base.

Description

Returns the variable and value labels of all variables in the eatGADS data base.

Usage

```
labelsGADS(filePath)
```

Arguments

- filePath Path of the existing eatGADS data base.

Details

Variable, value and missing labels as stored in the original SPSS-files and factors from R files are converted to long format for storage in the data base. `labelsGADS` returns them as a long format data frame.

Value

Returns a long format data frame including variable names, labels, values, value labels and missing labels.

Examples

```
# Extract Meta data from data base
db_path <- system.file("extdata", "pisa.db", package = "eatGADS")
metaData <- labelsGADS(db_path)
```

matchValues_varLabels *Match regular expressions and variable names.*

Description

Using variable labels, matchValues_varLabels matches a vector of regular expressions to a set of variable names.

Usage

```
matchValues_varLabels(GADSdat, mc_vars, values, label_by_hand = character(0))
```

Arguments

GADSdat	A GADSdat object.
mc_vars	A vector containing the names of the variables, which should be matched according to their variable labels.
values	A character vector containing the regular expressions for which the varLabel column should be searched.
label_by_hand	Additional value - mc_var pairs. Necessary, if for some mc_vars no value exists.

Details

Multiple choice items can be stored as multiple dichotomous variables with the information about the variable stored in the variable labels. The function [collapseMultiMC_Text](#) can be used to collapse such dichotomous variables and a character variable, but requires a character vector with variables names of the multiple choice variables. matchValues_varLabels creates such a vector based on matching regular expressions (values) to variable labels.

Note that all variables in mc_vars have to be assigned exactly one value (and vice versa). If a variable name is missing in the output, an error will be thrown. In this case, the label_by_hand argument should be used to specify the regular expression variable name pair manually.

Value

Returns a named character vector. Values of the vector are the variable names in the GADSdat, names of the vector are the regular expressions.

Examples

```
# Prepare example data
mt2 <- data.frame(ID = 1:4, mc1 = c(1, 0, 0, 0), mc2 = c(0, 0, 0, 0), mc3 = c(0, 1, 1, 0),
  text1 = c(NA, "Eng", "Aus", "Aus2"), text2 = c(NA, "Franz", NA, NA),
  stringsAsFactors = FALSE)

mt2_gads <- import_DF(mt2)

mt3_gads <- changeVarLabels(mt2_gads, varName = c("mc1", "mc2", "mc3"),
  varLabel = c("Lang: Eng", "Aus spoken", "other"))

out <- matchValues_varLabels(mt3_gads, mc_vars = c("mc1", "mc2", "mc3"),
  values = c("Aus", "Eng", "Eng"),
  label_by_hand = c("other" = "mc3"))
```

merge.GADSdat

Merge two GADSdat objects into a single GADSdat object.

Description

Is a secure way to merge the data and the meta data of two GADSdat objects. Currently, only limited merging options are supported.

Usage

```
## S3 method for class 'GADSdat'
merge(x, y, by, all = TRUE, all.x = all, all.y = all, ...)
```

Arguments

x	GADSdat object imported via eatGADS.
y	GADSdat object imported via eatGADS.
by	A character vector.
all	A character vector (either a full join or an inner join).
all.x	See merge.
all.y	See merge.
...	Further arguments are currently not supported but have to be included for R CMD checks.

Details

If there are duplicate variables (except the variables specified in the by argument), these variables are removed from y. The meta data is joined for the remaining variables via rbind.

Value

Returns a GADSdat object.

`mergeLabels`*Prepare data and metadata*

Description

Transform multiple GADSdat objects into a list ready for data base creation.

Usage

```
mergeLabels(...)
```

Arguments

... GADSdat objects, as named arguments in the correct merge order.

Details

The function `createGADS` takes multiple GADSdat objects as input. The function preserves the ordering in which the objects are supplied, which is then used for the merging order in `createGADS`. Additionally, the separate lists of meta information for each GADSdat are merged and a data frame unique identifier is added.

Value

Returns an `all_GADSdat` object, which consists of list with a list of all data frames "datList" and a single data frame containing all meta data information "allLabels".

Examples

```
# see createGADS vignette
```

`miss2NA`*Recode Missings to NA*

Description

Recode Missings to NA according to missing labels in label data.frame.

Usage

```
miss2NA(GADSdat)
```

Arguments

GADSdat A GADSdat object.

Details

Missings are imported as their values via [import_spss](#). Using the value labels in the labels `data.frame`, `miss2NA` recodes these missings codes to NA. This function is mainly intended for internal use.

Value

Returns a `data.frame` with NA instead of missing codes.

multiChar2fac	<i>Transform multiple character variables to factors with identical levels.</i>
---------------	---

Description

Convert multiple character variables to factors, while creating a common set of value labels, which is identical across variables.

Usage

```
multiChar2fac(GADSdat, vars, var_suffix = "_r", label_suffix = "(recoded)")
```

Arguments

GADSdat	A <code>data.frame</code> or GADSdat object.
vars	A character vector with all variables that should be transformed to factor.
var_suffix	Variable suffix for the newly created GADSdat. If an empty character, the existing variables are overwritten.
label_suffix	Suffix added to variable label for the newly created variable in the GADSdat.

Details

If a set of variables has the same possible values, it is desirable that these variables share the same value labels, even if some of the values do not occur on the individual variables. This function allows the transformation of multiple character variables to factors while assimilating the value labels. The SPSS format of the newly created variables is set to F10.0.

If necessary, missing codes can be set after transformation via [checkMissings](#) for setting missing codes depending on value labels for all variables or [changeMissings](#) for setting missing codes for specific values in a specific variable.

Value

Returns a GADSdat containing the newly computed variable.

Examples

```
## create an example GADSdat
example_df <- data.frame(ID = 1:4,
  citizenship1 = c("German", "English", "missing by design", "Chinese"),
  citizenship2 = c("missing", "German", "missing by design", "Polish"),
  stringsAsFactors = FALSE)
gads <- import_DF(example_df)

## transform multiple strings
gads2 <- multiChar2fac(gads, vars = c("citizenship1", "citizenship2"))

## set values to missings
gads3 <- checkMissings(gads2, missingLabel = "missing")
```

namesGADS

Variables names of a GADS.

Description

Variables names of a GADSdat object, a all_GADSdat object or a eatGADS data base.

Usage

```
namesGADS(GADS)
```

Arguments

GADS A GADSdat object, a all_GADSdat or the path to an existing eatGADS data base.

Details

If the function is applied to a GADSdat object, a character vector with all variable names is returned. If the function is applied to a all_GADSdat object or to the path of a eatGADS data base, a named list is returned. Each list entry represents a data table in the object.

Value

Returns a character vector or a named list of character vectors.

Examples

```
# Extract variable names from data base
db_path <- system.file("extdata", "pisa.db", package = "eatGADS")
namesGADS(db_path)

# Extract variable names from loaded/imported GADS
namesGADS(pisa)
```

orderLike	<i>Order the variables in a GADSdat.</i>
-----------	--

Description

Order the variables in a GADSdat according to a character vector. If there are discrepancies between the two sets, a warning is issued.

Usage

```
orderLike(GADSdat, newOrder)
```

Arguments

GADSdat	A GADSdat object.
newOrder	A character vector containing the order of variables.

Details

The variables in the dat and in the labels section are ordered. Variables not contained in the character vector are moved to the end of the data.

Value

Returns a GADSdat object.

pisa	<i>PISA Plus Example Data</i>
------	-------------------------------

Description

A small example data set from the German PISA Plus campus files as distributed by the Forschungsdatenzentrum, IQB.

Usage

```
pisa
```

Format

A data.frame with 500 rows and 133 variables, including:

- idstud** Person ID variable
- idschool** School ID variable
- sctype** School type
- ...

Source

Research Data Center at the Institute for Educational Quality Improvement (2020). Programme for International Student Assessment - Plus 2012, 2013 (PISA Plus 2012-2013) - Campus File (Version 1) [Data set]. Berlin: Institute for Educational Quality Improvement. doi: [10.5159/IQB_PISA_Plus_201213_CF_v1](https://doi.org/10.5159/IQB_PISA_Plus_201213_CF_v1)

 recodeGADS

Recode a labeled variable.

Description

Recode a labeled variable as part of a GADSdat or all_GADSdat object.

Usage

```
recodeGADS(GADSdat, varName, oldValues, newValues, newValueLabels = NULL)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Name of the variable to be recoded.
oldValues	Vector containing the old values.
newValues	Vector containing the new values (in the respective order as oldValues).
newValueLabels	[optional] Named vector containing new value labels for the new values. All new values have to get labels. Very experimental implementation.

Details

Applied to a GADSdat or all_GADSdat object, this function is a wrapper of [getChangeMeta](#) and [applyChangeMeta](#). oldValues and newValues are matched by ordering in the function call.

Functionality including newValueLabels is still very experimental. The argument can be used to simultaneously change value labels. However, all existing (new) values need to be assigned a new label.

For recoding character variables, using lookup tables via [createLookup](#) is recommended.

Value

Returns a GADSdat.

Examples

```
# Example gads
example_df <- data.frame(ID = 1:5, color = c("blue", "blue", "green", "other", "other"),
  animal = c("dog", "Dog", "cat", "hors", "horse"),
  age = c(NA, 16, 15, 23, 50),
  stringsAsFactors = FALSE)
example_df$animal <- as.factor(example_df$animal)
gads <- import_DF(example_df)

# simple recode
gads2 <- recodeGADS(gads, varName = "animal",
  oldValues = c(3, 4), newValues = c(2, 5))

# recode while changing value labels
gads3 <- recodeGADS(gads, varName = "animal",
  oldValues = c(1, 3, 4), newValues = c(1, 2, 5),
  newValueLabels = c('1' = "cats", '2' = "dogs", '5' = "horses"))
```

recodeString2NA	<i>Recode a string to NA.</i>
-----------------	-------------------------------

Description

Recode a string in multiple variables in a GADSdat to NA.

Usage

```
recodeString2NA(GADSdat, recodeVars = namesGADS(GADSdat), string = "")
```

Arguments

GADSdat	A GADSdat object.
recodeVars	Character vector of variable names which should be recoded.
string	Which string should be recoded to NA?

Details

A check is performed, whether there are no value labels given to the specified string. Number of recodes per variable are reported.

If a data set is imported from `.sav` character variables frequently contain empty strings. Especially if parts of the data are written to `.xlsx` this can cause problems (e.g. as look up tables from [createLookup](#)), as most function which write to `.xlsx` convert empty strings to NAs. `recodeString2NA` can be used to recode all empty strings to NA beforehand.

Value

Returns the recoded GADSdat.

Examples

```
# create example GADS
dat <- data.frame(ID = 1:4, var1 = c("", "Eng", "Aus", "Aus2"),
                  var2 = c("", "French", "Ger", "Ita"),
                  stringsAsFactors = FALSE)
gads <- import_DF(dat)

# recode empty strings
gads2 <- recodeString2NA(gads)
```

remove2NAchar

Shorten multiple text variables while giving NA codes.

Description

Shorten text variables from a certain number on while coding overflowing answers as complete missings.

Usage

```
remove2NAchar(GADSdat, vars, max_num = 2, na_value, na_label)
```

Arguments

GADSdat	A GADSdat object.
vars	A character vector with the names of the text variables.
max_num	Maximum number of text variables. Additional text variables will be removed and NA codes given accordingly.
na_value	Which NA value should be given in cases of too many values on text variables.
na_label	Which value label should be given to the na_value.

Details

In some cases, multiple text variables contain the information of one variable (e.g. multiple answers to an open item). If this is a case, sometimes the number text variables displaying this variable should be limited. `remove2NAchar` allows shortening multiple character variables, this means character variables after `max_num` are removed from the GADSdat. Cases, which had valid responses on these removed variables are coded as missings (using `na_value` and `na_label`).

Value

Returns the modified GADSdat.

Examples

```
## create an example GADSdat
example_df <- data.frame(ID = 1:4,
  citizenship1 = c("German", "English", "missing by design", "Chinese"),
  citizenship2 = c(NA, "German", "missing by design", "Polish"),
  citizenship3 = c(NA, NA, NA, "German"),
  stringsAsFactors = FALSE)
gads <- import_DF(example_df)

## shorten character variables
gads2 <- remove2NAchar(gads, vars = c("citizenship1", "citizenship2", "citizenship3"),
  na_value = -99, na_label = "missing: too many answers")
```

removeValLabels	<i>Remove value labels.</i>
-----------------	-----------------------------

Description

Remove value labels of a variable as part of a GADSdat or all_GADSdat object.

Usage

```
removeValLabels(GADSdat, varName, value)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Character string of a variable name.
value	Numeric values.

Value

Returns the GADSdat object with changed meta data.

Examples

```
# Example data set
#to be done
```

reuseMeta

Use meta data for a variable from another GADSdat.

Description

Transfer meta information from one GADSdat to another.

Usage

```
reuseMeta(
  GADSdat,
  varName,
  other_GADSdat,
  other_varName = NULL,
  missingLabels = NULL,
  addValueLabels = FALSE
)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Name of the variable that should get the new meta data.
other_GADSdat	GADSdat object imported via eatGADS including the desired meta information. Can also be a GADS db or an all_GADSdat object.
other_varName	Name of the variable that should get the new meta data in the other_GADSdat.
missingLabels	How should meta data for missing values be treated? If NULL, missing values are transferred as all other labels. If "drop", missing labels are dropped (useful for imputed data). If "leave", missing labels remain untouched.
addValueLabels	Should only value labels be added and all other meta information retained?

Details

Transfer of meta information can mean substituting the complete meta information, only adding value labels, or adding only "valid" missing labels. See the arguments missingLabels and addValueLabels for further information.

Value

Returns the original object with updated meta data.

Examples

```
# see createGADS vignette
```

splitGADS	<i>Split GADSdat into hierarchy levels.</i>
-----------	---

Description

Split a GADSdat into multiple, specified hierarchical levels.

Usage

```
splitGADS(GADSdat, nameList)
```

Arguments

GADSdat	A GADSdat object.
nameList	A list of character vectors. The names in the list correspond the the hierarchy levels.

Details

The function takes a GADSdat object and splits it into its desired hierarchical levels (a all_GADSdat object). Hierarchy level of a variable is also accessible in the meta data via the column `data_table`. If not all variable names are included in the `nameList`, the missing variables will be dropped.

Value

Returns an all_GADSdat object, which consists of list with a list of all data frames "datList" and a single data frame containing all meta data information "allLabels". For more details see also [mergeLabels](#).

Examples

```
# see createGADS vignette
```

stringAsNumeric	<i>Transform string to numeric.</i>
-----------------	-------------------------------------

Description

Transform a string variable within a GADSdat or all_GADSdat object to a numeric variable.

Usage

```
stringAsNumeric(GADSdat, varName)
```

Arguments

GADSdat	GADSdat object imported via eatGADS.
varName	Character string of a variable name.

Details

Applied to a GADSdat or all_GADSdat object, this function uses [asNumericIfPossible](#) to change the variable class and changes the format column in the meta data.

Value

Returns the GADSdat object with with the changed variable.

updateMeta	<i>Update meta data.</i>
------------	--------------------------

Description

Update the meta data of a GADSdat or all_GADSdat object according to the variables in a new data object.

Usage

```
updateMeta(GADSdat, newDat)
```

Arguments

GADSdat	GADSdat or all_GADSdat object.
newDat	data.frame or list of data.frames with the modified data. tibbles and data.tables are currently not supported and need to be transformed to data.frames beforehand.

Details

If the data of a GADSdat or a all_GADSdat has changed (supplied via newDat), updateMeta assimilates the corresponding meta data set. If variables have been removed, the corresponding meta data is also removed. If variables have been added, empty meta data is added for these variables. Factors are transformed to numerical and their levels added to the meta data set.

Value

Returns the original object with updated meta data (and removes factors from the data).

Examples

```
# see createGADS vignette
```

write_spss	<i>Write a GADSdat object to sav</i>
------------	--------------------------------------

Description

Write a GADSdat object, which contains meta information as value and variable labels to an SPSS file (sav). See 'details' for some important limitations.

Usage

```
write_spss(GADSdat, filePath)
```

Arguments

GADSdat	A GADSdat object.
filePath	Path of sav file to write.

Details

The provided functionality relies on havens [write_sav](#) function. Currently known limitations are: (a) Missing codes for all character variables are dropped, (b) value labels for long character variables (> A10) are dropped, (c) under specific conditions very long character variables (> A254) are incorrectly displayed as multiple character variables in SPSS. Furthermore, `write_spss` currently does not support exporting date or time variables.

Value

Writes sav file to disc, returns NULL.

Examples

```
tmp <- tempfile(fileext = ".sav")
write_spss(pisa, tmp)
```

write_spss2	<i>Write a GADSdat object to txt and SPSS syntax</i>
-------------	--

Description

Write a GADSdat object to a text file (txt) and an accompanying SPSS syntax file containing all meta information (e.g. value and variable labels).

Usage

```
write_spss2(GADSdat, filePath, syntaxPath)
```

Arguments

GADSdat	A GADSdat object.
filePath	Path of .txt file to write.
syntaxPath	Path of .sps file to write.

Details

This function is based on eatPreps writeSpss function and is currently under development.

Value

Writes sav file to disc, returns NULL.

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