

# Package ‘psychReport’

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**Description**

Helper functions for producing reports in Psychology (Reproducible Research). Provides required formatted strings (APA style) for use in 'Knitr'/Latex' integration within \*.Rnw files.

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## R topics documented:

psychReport-package . . . . .	2
addDataDF . . . . .	2
aovDispMeans . . . . .	3
aovDispTable . . . . .	4
aovEffectSize . . . . .	5
aovJackknifeAdjustment . . . . .	6
aovRoundDigits . . . . .	7
aovSphericityAdjustment . . . . .	8
aovTable . . . . .	9
ciStrT . . . . .	11
createDF . . . . .	12

dat . . . . .	12
effectsizeValueString . . . . .	13
errDist . . . . .	14
exampleRnwFiles . . . . .	15
fValueString . . . . .	16
mathString . . . . .	17
meanStrAov . . . . .	18
meanStrT . . . . .	19
numValueString . . . . .	20
printAovMeans . . . . .	21
printTable . . . . .	22
pValueString . . . . .	23
pValueSummary . . . . .	24
requiredPackages . . . . .	24
rtDist . . . . .	25
sphericityValueString . . . . .	26
statStrAov . . . . .	27
statStrT . . . . .	28
tValueString . . . . .	29

---

**Index** **31**

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psychReport-package    *psychReport*

---

**Description**

Helper functions for producing reports in Psychology (Reproducible Research). Provides required formatted strings (APA style) for use in 'Sweave'/'Knitr' 'Latex' integration within \*.Rnw files.

---

addDataDF                    *addDataDF*

---

**Description**

Add simulated ex-gaussian reaction-time (RT) data and binary error (Error = 1, Correct = 0) data to dataframe. This function can be used to create simulated dataframes.

**Usage**

```
addDataDF(dat, RT = NULL, Error = NULL)
```

**Arguments**

dat	DataFrame created from createDF
RT	Parameters for the call to rtDist function
Error	Parameters for the call to errDist function

**Value**

DataFrame with RT and Error columns

**Examples**

```

library(psychReport)
# Example 1: default dataframe
dat <- createDF()
dat <- addDataDF(dat)
hist(dat$RT, 100)
table(dat$Error)

# Example 2: defined overall RT parameters
dat <- createDF(nVP = 50, nTrl = 50,
               design = list("Comp" = c("comp", "incomp")))
dat <- addDataDF(dat, RT = c(500, 150, 100))
boxplot(dat$RT ~ dat$Comp)
table(dat$Comp, dat$Error)

# Example 3: defined RT + Error parameters across conditions
dat <- createDF(nVP = 50, nTrl = 50,
               design = list("Comp" = c("comp", "incomp")))
dat <- addDataDF(dat,
               RT = list(list(c("Comp:comp"), vals = c(500, 80, 100)),
                        list(c("Comp:incomp"), vals = c(550, 80, 140))),
               Error = list(list(c("Comp:comp"), vals = c(5)),
                            list(c("Comp:incomp"), vals = c(10))))
boxplot(dat$RT ~ dat$Comp)
table(dat$Comp, dat$Error)

# Example 4:
# create dataframe with defined RT + Error parameters across different conditions
dat <- createDF(nVP = 50, nTrl = 50,
               design = list("Comp" = c("comp", "incomp")))
dat <- addDataDF(dat,
               RT = list(list(c("Comp:comp"), vals = c(500, 150, 150)),
                        list(c("Comp:incomp"), vals = c(550, 150, 100))),
               Error = list(list(c("Comp:comp"), vals = c(5, 4, 2, 2, 1)),
                            list(c("Comp:incomp"), vals = c(25, 8, 5, 2, 2))))
boxplot(dat$RT ~ dat$Comp)
table(dat$Comp, dat$Error)

```

---

aovDispMeans

*aovDispMeans*


---

**Description**

Displays marginal means from model.tables in the command window.

**Usage**

```
aovDispMeans(ezObj, value = "value", caption = sys.call())
```

**Arguments**

ezObj	Output from ezANOVA (NB. ezANOVA must be called with <code>\\"return_aov = TRUE\\""</code> )
value	String for column name
caption	Required for heading

**Examples**

```
library(psychReport)
requiredPackages(c("ez"))
# Example 1:
# create dataframe
dat <- createDF(nVP = 50,
               nTrl = 1,
               design = list("Comp" = c("comp", "incomp")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 100, 100)),
                               list(c("Comp:incomp"), vals = c(520, 100, 100))))

aovRT <- ezANOVA(dat, dv=. (RT), wid = . (VP), within = . (Comp),
                 return_aov = TRUE, detailed = TRUE)
aovRT <- aovTable(aovRT)
aovDispMeans(aovRT)
```

---

aovDispTable

*aovDispTable*


---

**Description**

Display formatted ANOVA table in command window.

**Usage**

```
aovDispTable(ezObj, caption = sys.call())
```

**Arguments**

ezObj	Output from ezANOVA
caption	Required for heading

**Examples**

```

library(psychReport)
requiredPackages(c("ez"))
# Example 1:
# create dataframe
dat <- createDF(nVP = 6,
               nTrl = 1,
               design = list("Comp" = c("comp", "incomp")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 150, 100)),
                               list(c("Comp:incomp"), vals = c(520, 150, 100))))

aovRT <- ezANOVA(dat, dv=. (RT), wid = . (VP), within = . (Comp), return_aov = TRUE, detailed = TRUE)
aovDispTable(aovRT)

```

---

aovEffectSize

*aovEffectSize*


---

**Description**

Add partial eta squared (pes) or eta-squared (es) effect size measures to ezANOVA table.

**Usage**

```
aovEffectSize(ezObj, effectSize)
```

**Arguments**

ezObj	Output from ezANOVA
effectSize	"ges" vs. pes"

**Value**

list

**Examples**

```

library(psychReport)
requiredPackages(c("ez", "dplyr"))
# Example 1:
# create dataframe with 2(Comp: comp vs. incomp) and 2(Side: left vs. right) factors/levels
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp"),
                             "Side" = c("left", "right")))

dat <- addDataDF(dat,
                 RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 150)),

```

```

      list(c("Comp:comp", "Side:right"), vals = c(500, 150, 150)),
      list(c("Comp:incomp", "Side:left"), vals = c(500, 150, 150)),
      list(c("Comp:incomp", "Side:right"), vals = c(500, 150, 150)))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt), wid = .(VP), within = .(Comp, Side),
              return_aov = TRUE, detailed = TRUE)
aovRT <- aovEffectSize(aovRT, "ges")
aovRT <- aovEffectSize(aovRT, "pes")
aovDispTable(aovRT)

```

---

aovJackknifeAdjustment

*adjustJackknifeAdjustment*

---

## Description

Adjust ezANOVA table with corrected F ( $F_c = F/(n-1)^2$ ) and p values for jackknifed data (see Ulrich and Miller, 2001. Using the jackknife-based scoring method for measuring LRP onset effects in factorial designs. *Psychophysiology*, 38, 816-827.)

## Usage

```
aovJackknifeAdjustment(ezObj, numVPs)
```

## Arguments

ezObj	Output from ezANOVA
numVPs	The number of participants

## Value

list

## Examples

```

library(psychReport)
requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe with 2(Comp: comp vs. incomp) and 2(Side: left vs. right) factors/levels
dat <- createDF(nVP = 20,
               nTr1 = 50,

```

```

design = list("Comp" = c("comp", "incomp"),
             "Side" = c("left", "right"))

dat <- addDataDF(dat,
                RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 150)),
                          list(c("Comp:comp", "Side:right"), vals = c(500, 150, 150)),
                          list(c("Comp:incomp", "Side:left"), vals = c(500, 150, 150)),
                          list(c("Comp:incomp", "Side:right"), vals = c(500, 150, 150))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt, wid = .(VP), within = .(Comp, Side),
                 return_aov = TRUE, detailed = TRUE)
aovDispTable(aovRT)
aovRT <- aovJackknifeAdjustment(aovRT, length(unique(datAggVP$VP)))
aovDispTable(aovRT)

```

---

aovRoundDigits

*aovRoundDigits*


---

## Description

Round digits to n decimal places in ezANOVA table

## Usage

```
aovRoundDigits(ezObj, nsmall = 2)
```

## Arguments

ezObj	Output from ezANOVA
nsmall	Number of small digits to round to within ANOVA table

## Value

dataframe

## Examples

```

library(psychReport)
requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe with 2(Comp: comp vs. incomp) and 2(Side: left vs. right) factors/levels

```

```

dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp"),
                             "Side" = c("left", "right")))

dat <- addDataDF(dat,
                RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 150)),
                          list(c("Comp:comp", "Side:right"), vals = c(500, 150, 150)),
                          list(c("Comp:incomp", "Side:left"), vals = c(500, 150, 150)),
                          list(c("Comp:incomp", "Side:right"), vals = c(500, 150, 150))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt, wid = .(VP), within = .(Comp, Side),
                 return_aov = TRUE, detailed = TRUE)
aovDispTable(aovRT)
aovRT <- aovRoundDigits(aovRT, 2)
aovDispTable(aovRT)

```

---

aovSphericityAdjustment

*aovSphericityAdjustment*

---

## Description

Adjust ezANOVA table with corrections for sphericity (Greenhouse-Geisser or Huynh-Feldt). Called by default within aovTable

## Usage

```
aovSphericityAdjustment(ezObj, type = "GG")
```

## Arguments

ezObj	The returned object from a call to ezANOVA
type	"GG" (Greenhouse-Geisser) or "HF" (Huynh-Feldt)

## Value

list



**Examples**

```

requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe with 3(Comp: neutral vs. comp vs. incompet) factors/levels
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("neutral", "comp", "incomp")))

dat <- addDataDF(dat,
                RT = list(list(c("Comp:neutral"), vals = c(510, 150, 100)),
                          list(c("Comp:comp"), vals = c(500, 150, 100)),
                          list(c("Comp:incomp"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt, wid = .(VP), within = .(Comp),
                 return_aov = TRUE, detailed = TRUE)
aovDispTable(aovRT)
aovRT <- aovSphericityAdjustment(aovRT)
aovDispTable(aovRT)

```

---

aovTable

*aovTable*


---

**Description**

Adjust ezANOVA table output. Options include calculation of alternative effect sizes (eta squared, partial eta squared), the calculation of marginal means and formatting options for the ANOVA table (e.g., detailed, rounding).

**Usage**

```

aovTable(ezObj, effectSize = "pes", sphericityCorrections = TRUE,
         sphericityCorrectionType = "GG", marginalMeans = TRUE,
         removeSumSquares = TRUE, removeIntercept = TRUE,
         roundDigits = TRUE, numDigits = 2, dispAovTable = TRUE,
         dispAovMeans = FALSE, caption = NULL)

```

**Arguments**

ezObj                    Output from ezANOVA (NB. ezANOVA must be called with detailed = TRUE)  
effectSize                "ges" (generalized eta-squared), "es" (eta-squared), or "pes" (partial eta-squared)

```

sphericityCorrections
    TRUE/FALSE
sphericityCorrectionType
    "GG" (default) vs. "HF"
marginalMeans  Return marginal means via model.tables (NB. ezANOVA must be called with
                return_aov = TRUE)
removeSumSquares
    TRUE/FALSE Remove SSn/SSd columns from the ANOVA table
removeIntercept
    TRUE/FALSE Remove intercept row from the ANOVA table
roundDigits    TRUE/FALSE Round numerical values to numDigits
numDigits      The number of digits to round to if roundDigits = TRUE
dispAovTable   Display the ANOVA table in the command window
dispAovMeans   Display the marginal means in the command window
caption        Table caption

```

**Value**

```
list
```

**Examples**

```

library(psychReport)
requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe with 2(Comp: comp vs. incomp) and 2(Side: left vs. right) factors/levels
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp"),
                             "Side" = c("left", "right")))

dat <- addDataDF(dat,
                RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 150)),
                          list(c("Comp:comp", "Side:right"), vals = c(500, 150, 150)),
                          list(c("Comp:incomp", "Side:left"), vals = c(500, 150, 150)),
                          list(c("Comp:incomp", "Side:right"), vals = c(500, 150, 150))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt, wid = .(VP), within = .(Comp, Side),
                 return_aov = TRUE, detailed = TRUE)
aovRT <- aovTable(aovRT)

```

---

ciStrT	<i>ciStrT</i>
--------	---------------

---

### Description

Returns a string with the 95% CI from a t.test in Latex format.

### Usage

```
ciStrT(tObj, numDigits = 0, unit = "")
```

### Arguments

tObj	The returned object from a call to t.test
numDigits	The number of digits to round to
unit	"" vs. "ms" vs. "mv" vs. "%"

### Value

character

### Examples

```
requiredPackages(c("dplyr"))
# Example 1:
# create dataframe and add data with 2(Comp: comp vs. incomp) levels
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 150, 100)),
                              list(c("Comp:incomp"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp) %>%
  summarize(N = n(),
            rt = mean(RT))

tObj <- t.test(datAggVP$rt[datAggVP$Comp == "comp"],
              datAggVP$rt[datAggVP$Comp == "incomp"],
              paired = TRUE)

ciString <- ciStrT(tObj, unit = "ms")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{ciString}
## End(Not run)
```

---

 createDF

*createDF*


---

### Description

Create dataframe in which to subsequently add simulated data.

### Usage

```
createDF(nVP = 20, nTrl = 50, design = list(A = c("A1", "A2"), B =
  c("B1", "B2")))
```

### Arguments

nVP	Number of participants
nTrl	Number of trials per factor/level for each participant
design	Factors and levels

### Value

dataframe

### Examples

```
library(psychReport)
# Example 1:
dat <- createDF()

# Example 2:
dat <- createDF(nVP = 50, nTrl = 50,
  design = list("Comp" = c("comp", "incomp")))

# Example 3:
dat <- createDF(nVP = 50, nTrl = 50,
  design = list("Comp" = c("comp", "incomp"),
    "Side" = c("left", "right")))
```

---

 dat

*dat*


---

### Description

Behavioural data (reaction time and error rate) from standard Eriksen Flanker Task with compatible (e.g., <<) and incompatible (e.g., <>) trial types.



```

dat <- addDataDF(dat, RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 100)),
                               list(c("Comp:comp", "Side:right"), vals = c(500, 150, 100)),
                               list(c("Comp:incomp", "Side:left"), vals = c(520, 150, 100)),
                               list(c("Comp:incomp", "Side:right"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt), wid = .(VP), within = .(Comp, Side),
                return_aov = TRUE, detailed = TRUE)
aovRT <- aovTable(aovRT)

pesString <- effectsizeValueString(aovRT, "Comp") # partial eta squared
pesString <- effectsizeValueString(aovRT, "Comp:Side")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{pesString}
## End(Not run)

```

---

errDist

*errDist*


---

## Description

Returns a random vector of 0's (correct) and 1's (incorrect) with defined proportions (default = 10% errors).

## Usage

```
errDist(n = 10000, proportion = 10)
```

## Arguments

n	Number
proportion	Approximate proportion of errors in percentage

## Value

double

**Examples**

```
# Example 1: approx 10% errors
x <- errDist(1000)
table(x)

# Example 2: approx 20% errors
x <- errDist(1000, 20)
table(x)
```

---

exampleRnwFiles	<i>exampleRnwFiles(number)</i>
-----------------	--------------------------------

---

**Description**

Open example \*.Rnw files.

**Usage**

```
exampleRnwFiles(exampleNumber = 1)
```

**Arguments**

exampleNumber Example file to open

**Value**

Creates a copy of an example \*.Rnw file and opens it in the current working directory. The report be generated via either: 1) Compile PDF option within RStudio 2) Command line: Step 1) R CMD Sweave filename.Rnw (creates the \*.tex file) Step 2) pdflatex filename.tex (creates the \*.pdf file)

**Examples**

```
library(psychReport)
# Example 1:
exampleRnwFiles(1)
```

---

fValueString	<i>fValueString</i>
--------------	---------------------

---

### Description

Returns required Latex formatted string for  $F(df1, df2) = XXX$  for R/Sweave integration. For example,  $F(1, 23) = 3.45$ .

### Usage

```
fValueString(ezObj, effect)
```

### Arguments

ezObj	The returned object from a call to ezANOVA
effect	The effect within the ANOVA table to return

### Value

character

### Examples

```
library(psychReport)
requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe and add data with 2(Comp: comp vs. incomp) and 2(Side: left vs. right)
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp"),
                             "Side" = c("left", "right")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 100)),
                               list(c("Comp:comp", "Side:right"), vals = c(500, 150, 100)),
                               list(c("Comp:incomp", "Side:left"), vals = c(520, 150, 100)),
                               list(c("Comp:incomp", "Side:right"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt), wid = .(VP), within = .(Comp, Side),
                return_aov = TRUE, detailed = TRUE)
aovRT <- aovTable(aovRT)

fString <- fValueString(aovRT, "Comp")
```



```
fString <- fValueString(aovRT, "Comp:Side")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{fString}
## End(Not run)
```

---

mathString

*mathString*


---

### Description

Returns formatted string following addition/subtraction.

### Usage

```
mathString(str1, str2, operation = "-", numDigits = 0, unit = "ms")
```

### Arguments

str1	string
str2	string
operation	"+", "-", "*", "/"
numDigits	number 0 (default)
unit	"ms", "mV", "mv", or "%"

### Examples

```
# Example 1:
string <- mathString("550 ms", "480 ms", "-")

# Example 2:
string <- mathString("2.34", "1.65", "+", numDigits = 2, unit = "mV")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{string}
## End(Not run)
```

---

 meanStrAov

*meanStrAov*


---

### Description

Returns marginal means from ezANOVA object for requested effect in Latex format. Assumes means added to aovObj (e.g., aovObj\$means <- model.tables(aovObj\$aov, type = "mean").

### Usage

```
meanStrAov(ezObj, effect, level, unit = "ms", numDigits = 0)
```

### Arguments

ezObj	Output from ezANOVA called with "return_aov = TRUE"
effect	Effect to return
level	Level of effect
unit	"ms" vs. "mv" vs. "%"
numDigits	"ms" vs. "mv" vs. "%"

### Value

character

### Examples

```
requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe and add data with 2(Comp: comp vs. incomp) and 2(Side: left vs. right)
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp"),
                             "Side" = c("left", "right")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 100)),
                               list(c("Comp:comp", "Side:right"), vals = c(500, 150, 100)),
                               list(c("Comp:incomp", "Side:left"), vals = c(520, 150, 100)),
                               list(c("Comp:incomp", "Side:right"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt, wid = .(VP), within = .(Comp, Side),
                 return_aov = TRUE, detailed = TRUE)
```

```

aovRT <- aovTable(aovRT)

meanString <- meanStrAov(aovRT, "Comp", "comp")
meanString <- meanStrAov(aovRT, "Comp:Side", "incomp:left")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{meanString}
## End(Not run)

```

---

meanStrT

*meanStrT*


---

## Description

Returns a string with the mean value from a t.test in Latex format.

## Usage

```
meanStrT(tObj, numDigits = 0, unit = "")
```

## Arguments

tObj	The returned object from a call to t.test
numDigits	The number of digits to round to
unit	"" vs. "ms" vs. "mv" vs. "%"

## Value

character

## Examples

```

library(psychReport)
requiredPackages(c("dplyr"))
# Example 1:
# create dataframe and add data
dat <- createDF(nVP = 10,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 150, 100)),
                              list(c("Comp:incomp"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp) %>%
  summarize(N = n(),

```

```

rt = mean(RT)

tObj <- t.test(datAggVP$rt[dat$Comp == "comp"],
              datAggVP$rt[dat$Comp == "incomp"],
              paired = TRUE)

tString <- meanStrT(tObj, numDigits = 0, unit = "ms")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{tString}
## End(Not run)

```

---

numValueString	<i>numValueString</i>
----------------	-----------------------

---

### Description

Returns numerical value with requested unit in Latex format with numDigits number of decimal places and unit symbol.

### Usage

```
numValueString(value, numDigits = 2, unit = "")
```

### Arguments

value	number
numDigits	number 2 (default)
unit	"ms", "mv", "mV", or "%" or "" (default)

### Value

character

### Examples

```

# Example 1:
string <- numValueString(100.341, 0, "ms")

# Example 2:
string <- numValueString(2.3412, 2, "mv")

# Example 3:
string <- numValueString(63.9812, 2, "")

```

---

printAovMeans	<i>printAovMeans</i>
---------------	----------------------

---

### Description

Returns Latex formatted table of marginal means from model.tables. Uses printTable (xtable) latex package with some basic defaults. For more examples, see R package xtable

### Usage

```
printAovMeans(..., caption = "Mean", digits = 3, dv = "ms")
```

### Arguments

...	Output from ezANOVA (NB. ezANOVA must be called with <code>\return_aov = TRUE</code> )
caption	Title for the table
digits	Number of digits to round to
dv	Name of the dependent variable (e.g., "ms", "%")

### Value

character

### Examples

```
library(psychReport)
requiredPackages(c("ez"))
# Example 1:
# create dataframe
dat <- createDF(nVP = 6,
               nTrl = 1,
               design = list("Comp" = c("comp", "incomp")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 150, 100)),
                               list(c("Comp:incomp"), vals = c(520, 150, 100))))

aovRT <- ezANOVA(dat, dv=. (RT), wid = . (VP), within = . (Comp), return_aov = TRUE, detailed = TRUE)
aovRT <- aovTable(aovRT)
printAovMeans(aovRT, digits = 0, dv = "mV") # latex formatted

## Not run:
# Example use in *.Rnw Sweave file inside R chunk
# << printTable, echo = FALSE, results = tex >>=
# printAovMeans(aovRT, caption = "ANOVA Table")
# @
## End(Not run)
```

---

printTable	<i>printTable</i>
------------	-------------------

---

### Description

Returns Latex formatted table from dataframe or ezANOVA ANOVA table. Uses xtable latex package with some basic defaults. For more examples, see R package xtable

### Usage

```
printTable(obj, caption = "DF", digits = 3, onlyContents = FALSE,
           formatStatsSymbols = TRUE)
```

### Arguments

obj	Dataframe/ezANOVA object to print
caption	Title of the dataframe
digits	Number of digits to round to NB. length can be 1, or vector with length equal to the number of numeric columns
onlyContents	TRUE/FALSE
formatStatsSymbols	TRUE/FALSE

### Value

character

### Examples

```
requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe
dat <- createDF(nVP = 6, nTr1 = 1,
               design = list("Comp" = c("comp", "incomp")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 150, 100)),
                              list(c("Comp:incomp"), vals = c(520, 150, 100))))
printTable(dat) # latex formatted

aovRT <- ezANOVA(dat, dv=. (RT), wid = . (VP), within = . (Comp),
                return_aov = TRUE, detailed = TRUE)
aovRT <- aovTable(aovRT)
printTable(aovRT$ANOVA) # latex formatted

## Not run:
# Example use in *.Rnw Sweave file inside R chunk
# << printTable, echo = FALSE, results = tex >>=
# printTable(aovRT$ANOVA, caption = "ANOVA Table")
```

```
# @  
## End(Not run)
```

---

pValueString

*pValueString*

---

### Description

Returns Latex formatted string from a p-value required for R/Sweave integration. For example,  $p = 0.11$  or  $p < 0.01$  Returns values to 2 sig decimal places if p-value  $\geq 0.05$ .

### Usage

```
pValueString(pVal, nsmall = 2)
```

### Arguments

pVal	p-value between 0 and 1
nsmall	Number of small digits to round to

### Value

character

### Examples

```
# Example 1:  
pString <- pValueString(0.67)  
  
# Example 2:  
pString <- pValueString(0.1234, 3)  
  
# Example 3:  
pString <- pValueString("0.03")  
  
## Not run:  
# Example use in *.Rnw Sweave file  
# \Sexpr{pString}  
## End(Not run)
```

pValueSummary      *pValueSummary*

---

**Description**

Returns p-values summarized using \*\*\*, \*\*, \*, or exact value when  $p > .05$  (default 2 significant decimal places).

**Usage**

```
pValueSummary(pVal, nsmall = 2)
```

**Arguments**

pVal                  vector with p-value between 0 and 1  
nsmall                Number of small digits to round to

**Value**

character

**Examples**

```
# Example 1:  
psum <- pValueSummary(0.0067)  
  
# Example 2:  
psum <- pValueSummary(c(0.6712, 0.1, 0.0001), nsmall = 3)
```

---

requiredPackages      *requiredPackages*

---

**Description**

Installs (default if required) and loads specified packages.

**Usage**

```
requiredPackages(packages, installPackages = FALSE,  
  lib = .libPaths()[1], repos = "http://cran.us.r-project.org")
```



**Arguments**

packages	A list of packages
installPackages	TRUE/FALSE Install package if not installed
lib	character vector giving the library directories where to install the packages. Recycled as needed. If missing, defaults to the first element of <code>.libPaths()</code>
repos	character vector, the base URL(s) of the repositories to use, e.g., the URL of a CRAN mirror such as "https://cloud.r-project.org". For more details on supported URL schemes see <code>url</code> . Can be NULL to install from local files, directories or URLs: this will be inferred by extension from <code>pkgs</code> if of length one.

**Examples**

```
# Example 1:
library(psychReport)
## Not run:
requiredPackages(c("tidyverse", "ez"), installPackages=FALSE)

## End(Not run)
```

---

rtDist

*rtDist*


---

**Description**

Returns a distribution appropriate to simulate reaction times. The distribution is a combined exponential and gaussian distribution called an exponentially modified Gaussian (EMG) distribution or ex-gaussian distribution.

**Usage**

```
rtDist(n = 10000, gaussMean = 600, gaussSD = 50, expRate = 200)
```

**Arguments**

n	Number
gaussMean	Mean of the gaussian distribution
gaussSD	SD of the gaussian distribution
expRate	Rate of the exponential function

**Value**

double

**Examples**

```
# Example 1:
x <- rtDist()
hist(x, 100)

# Example 2:
x <- rtDist(n=20000, gaussMean=800, gaussSD=50, expRate=100)
hist(x, 100)
```

---

sphericityValueString *sphericityValueString*

---

**Description**

Returns required Latex formatted string for sphericity epsilon values (HF, GG) = XXX for R/Sweave integration. Returns values to 2 sig decimal places.

**Usage**

```
sphericityValueString(ezObj, effect)
```

**Arguments**

ezObj	The returned object from a call to ezANOVA
effect	The effect within the ANOVA table to return

**Value**

character

**Examples**

```
requiredPackages(c("dplyr", "ez"))
# Example 1
# create dataframe and add data with 3(Comp: neutral vs. comp vs. incomp) levels
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("neutral", "comp", "incomp")))

dat <- addDataDF(dat, RT = list(list(c("Comp:neutral"), vals = c(510, 150, 100)),
                              list(c("Comp:comp"), vals = c(500, 150, 100)),
                              list(c("Comp:incomp"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp) %>%
  summarize(N = n(),
            rt = mean(RT))
```

```

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt, wid = .(VP), within = .(Comp),
                return_aov = TRUE, detailed = TRUE)
# adjustAovTableSphericity called by default within adjusutAovTableOptions
aovRT <- aovTable(aovRT)

sphericityValue <- sphericityValueString(aovRT, "Comp")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{sphericityValue}
## End(Not run)

```

---

statStrAov

*statStrAov*


---

### Description

Returns Latex formatted string from ANOVA required for R/Sweave integration. For example,

$$F(1, 20) = 8.45, p < 0.01, \text{pes} = 0.45$$

Returns values to 2 sig decimal places and  $< 0.01$ ,  $< 0.001$  for p values.

### Usage

```
statStrAov(ezObj, effect)
```

### Arguments

ezObj	Output from ezANOVA (NB. ezANOVA must be called with detailed = TRUE)
effect	The effect required from the anova table

### Examples

```

library(psychReport)
requiredPackages(c("dplyr", "ez"))
# Example 1:
# create dataframe and add data with 2(Comp: comp vs. incomp) and 2(Side: left vs. right)
dat <- createDF(nVP = 20,
               nTrl = 50,
               design = list("Comp" = c("comp", "incomp"),
                             "Side" = c("left", "right")))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp", "Side:left"), vals = c(500, 150, 100)),
                              list(c("Comp:comp", "Side:right"), vals = c(500, 150, 100)),
                              list(c("Comp:incomp", "Side:left"), vals = c(520, 150, 100)),
                              list(c("Comp:incomp", "Side:right"), vals = c(520, 150, 100))))

```

```

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp, Side) %>%
  summarize(N = n(),
            rt = mean(RT))

# repeated measures ANOVA using ezANOVA
aovRT <- ezANOVA(datAggVP, dv=.rt, wid = .(VP), within = .(Comp, Side),
                 return_aov = TRUE, detailed = TRUE)
aovRT <- aovTable(aovRT)

aovString <- statStrAov(aovRT, "Comp")
aovString <- statStrAov(aovRT, "Comp:Side")

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{aovString}
## End(Not run)

```

---

statStrT

*statStrT*


---

### Description

Returns required Latex formatted string T-test required for R/Sweave integration. For example,  $t(11) = 3.45, p < 0.05$ .

### Usage

```
statStrT(tObj)
```

### Arguments

tObj            The returned object from a call to t.test

### Value

character

### Examples

```

library(psychReport)
requiredPackages(c("dplyr"))
# Example 1:
# create dataframe and add data with 2(Comp: comp vs. incomp) levels
dat <- createDF(nVP = 20,
               nTr1 = 50,
               design = list("Comp" = c("comp", "incomp")))

```

```

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 150, 100)),
                               list(c("Comp:incomp"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp) %>%
  summarize(N = n(),
            rt = mean(RT))

tObj <- t.test(datAggVP$rt[datAggVP$Comp == "comp"],
              datAggVP$rt[datAggVP$Comp == "incomp"],
              paired = TRUE)

statStrT <- statStrT(tObj)

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{statStrT}
## End(Not run)

```

---

tValueString

*tValueString*


---

## Description

Returns required Latex formatted string for  $t(df) = XXX$  for R/Sweave integration. Returns values to 2 sig decimal places.

## Usage

```
tValueString(tObj)
```

## Arguments

tObj                    The returned object from a call to t.test

## Value

character

## Examples

```

library(psychReport)
requiredPackages(c("dplyr"))
# Example 1:
# create dataframe and add data with 2(Comp: comp vs. incomp) levels
dat <- createDF(nVP = 20,
               nTr1 = 50,

```

```
design = list("Comp" = c("comp", "incomp"))

dat <- addDataDF(dat, RT = list(list(c("Comp:comp"), vals = c(500, 150, 100)),
                               list(c("Comp:incomp"), vals = c(520, 150, 100))))

# aggregate dat across trials
datAggVP <- dat %>%
  group_by(VP, Comp) %>%
  summarize(N = n(),
            rt = mean(RT))

tObj <- t.test(datAggVP$rt[datAggVP$Comp == "comp"],
              datAggVP$rt[datAggVP$Comp == "incomp"],
              paired = TRUE)

tString <- tValueString(tObj)

## Not run:
# Example use in *.Rnw Sweave file
# \Sexpr{tString}
## End(Not run)
```

# Index

\*Topic **data(dat)**  
dat, [12](#)

\*Topic **datasets**  
dat, [12](#)

[addDataDF](#), [2](#)  
[aovDispMeans](#), [3](#)  
[aovDispTable](#), [4](#)  
[aovEffectSize](#), [5](#)  
[aovJackknifeAdjustment](#), [6](#)  
[aovRoundDigits](#), [7](#)  
[aovSphericityAdjustment](#), [8](#)  
[aovTable](#), [9](#)

[ciStrT](#), [11](#)  
[createDF](#), [12](#)

[dat](#), [12](#)

[effectsizeValueString](#), [13](#)  
[errDist](#), [14](#)  
[exampleRnwFiles](#), [15](#)

[fValueString](#), [16](#)

[mathString](#), [17](#)  
[meanStrAov](#), [18](#)  
[meanStrT](#), [19](#)

[numValueString](#), [20](#)

[printAovMeans](#), [21](#)  
[printTable](#), [22](#)  
[psychReport](#) (psychReport-package), [2](#)  
[psychReport-package](#), [2](#)  
[pValueString](#), [23](#)  
[pValueSummary](#), [24](#)

[requiredPackages](#), [24](#)  
[rtDist](#), [25](#)

[sphericityValueString](#), [26](#)

[statStrAov](#), [27](#)  
[statStrT](#), [28](#)

[tValueString](#), [29](#)