

Package ‘itns’

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BugReports <https://github.com/gitrman/itns/issues>

Description The itns package contains numerous datasets from psychology studies used in book Introduction to the New Statistics by Geoff Cumming and Robert Calin-Jageman, published by Routledge in late 2016. The datasets can be used to replicate analyses that appear in Introduction to the New Statistics, and to work through the book's end-of-chapter exercises. Also included is a function to compute Cohen's d for repeated measures designs.

Depends R (>= 3.1.0), stats

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License GPL-3

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Suggests knitr, rmarkdown

NeedsCompilation no

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itns-package

Datasets for the book Introduction to the New Statistics

Description

The itns package contains datasets from psychology studies used in book *Introduction to the New Statistics* by Geoff Cumming and Robert Calin-Jageman, published by Routledge in late 2016.

Details

The original source of the datasets is a series of Excel files found on the *Introduction to the New Statistics* website. Those Excel files have been converted to R data frames and bundled together in the itns package. In addition:

- All variable names have been converted to lower case.
- For some data sets, variable names have been altered in order to conform with R data naming rules (e.g., some variable names in the Excel files started with a number, which is not allowed in R).
- Some datasets have been tidied using the `tidyr` package in order to facilitate analyses in R.

The datasets can be used to replicate analyses that appear in *Introduction to the New Statistics*, and to work through the book's end-of-chapter exercises.

Also included is a function to compute Cohen's d effect size for paired samples.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

altruism_happiness	<i>Regression Example - Altruism and Happiness</i>
--------------------	--

Description

An example dataset used in Chapter 12 of the book *Introduction to the New Statistics*.

Usage

altruism_happiness

Format

A data frame with 50 rows and 7 variables:

state Factor with 50 levels

well_being_2010 Well being score in 2010

kidney_rate Rate of non-directed kidney donation (# donations / total state population) from 1999-2010

well_being_2013 Well being score in 2013

well_being_2010_rounded Well Being score from 2010 rounded to two decimal places

kidney_rate_per1000 *kidney_rate* variable rescaled so that the donation rate is expressed per thousand people

wb_change Change in well being from 2010 to 2013. Note that the rounded values were used to compute this variable, for consistency with the Excel file from which this dataset was extracted.

Source

Most of the data comes from:

Brethel-Haurwitz, K. M., & Marsh, A. a. (2014). Geographical differences in subjective well-being predict extraordinary altruism. *Psychological Science*, 25, 762-771. <http://doi.org/10.1177/0956797613516148>

Data were extracted from Figure 1 using <http://arohatgi.info/WebPlotDigitizer/app/>

Some data are from a 2013 Gallup poll, not the Brethel-Haurwitz et al paper.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

 anchor_estimate

 Two Independent Groups - Anchor Adjust Effect

Description

An example of data from a study with a two independent groups design used in Chapter 7 of the book *Introduction to the New Statistics*.

Usage

anchor_estimate

Format

A data frame with 90 rows and 8 variables:

sessionid Respondent identifier

location Lab that ran the study. Equal to "ithaca" for all participants in this dataset.

babies_anchor Babies Anchor: "lowanchor" (100) or "highanchor" (50,000)

babies_est Participants' estimate of number of babies born per day

chicago_anchor Chicago Anchor: "low anchor" (200,000) or "high anchor" (5,000,000)

chicago_est Participants' estimate of the population of Chicago

everest_anchor Everest Anchor: "low anchor" (2,000 feet) or "high anchor" (45,000 feet)

everest_est Participants' estimate of height of Mt Everest (in feet)

Details

Psychological research suggests that how a question is worded can influence people's judgements. This is known as the 'anchor-adjustment' effect. A team of psychologists conducted a multi-site study attempting to replicate this phenomenon. Participants were asked to estimate three different quantities (number of babies born in the U.S. each day; population of Chicago; height of Mount Everest). For each question, though, participants were either given a low or high numerical anchor (see below). For example, they were told either that the number of babies born in the U.S. was more than 200,000 (low anchor) or less than 5,000,000 (high anchor). The primary research question was: to what extent does having a low or high anchor in mind influence the estimate made?

The anchors were as follows:

Babies

Low: More than 100 babies are born per day in the United States. How many babies do you think are born in the U.S. each day?

High: Less than 50,000 babies are born per day in the United States. How many babies do you think are born in the U.S. each day?

Population

Low: The population of Chicago is more than 200,000. What do you think the population of Chicago is?

High: The population of Chicago is less than 5,000,000. What do you think the population of Chicago is?

Everest

High: Mount Everest is shorter than 45,500 feet. How tall do you think Mount Everest is?

Low: Mount Everest is taller than 2,000 feet. How tall do you think Mount Everest is?

Source

The data is available online at <https://osf.io/wx7ck/> and is from one replication site (Ithaca) of the following study:

Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Bahník, S., Bernstein, M. J., ... & Nosek, B. A. (2014). Investigating Variation in Replicability. *Social Psychology*, 45, 142-152. <http://doi.org/10.1027/1864-9335/a000178>

The original study exploring this effect is: Jacowitz, K. E., & Kahneman, D. (1995). Measures of Anchoring in Estimation Tasks. *Personality and Social Psychology Bulletin*, 21, 1161-1166. <http://doi.org/10.1177/01461672952111004>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

anchor_estimate_ma	<i>Meta-Analysis Example - Anchor Estimate</i>
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Description

An example dataset used in Chapter 9 of the book *Introduction to the New Statistics*.

Usage

anchor_estimate_ma

Format

A data frame with 30 rows and 9 variables:

location Name of the lab

m_lowanchor Mean for those given the low anchor

sd_lowanchor Standard deviation for those given the low anchor

n_lowanchor Sample size for those given the low anchor

m_highanchor Mean for those given the high anchor

sd_highanchor Standard deviation for those given the high anchor

n_highanchor Sample size for those given the high anchor

subset Factor indicating whether the study was conducted in the USA or not

country Factor with 12 levels indicating the country where the study was conducted

Details

To what extent does the wording of a question influence one's judgement? This data investigates a specific type of wording influence: a numerical anchor. Participants were asked to estimate three different quantities (number of babies born in the U.S. each day; population of Chicago; height of Mount Everest). For each question, though, participants were either given a low or high numerical anchor. For example, they were told either that the number of babies born in the U.S. was more than 200,000 (low anchor) or less than 5,000,000 (high anchor). The question is: to what extent does having a low or high anchor in mind influence the estimate made?

This dataset provides summaries for 30 of the 36 different labs that tried to replicate this classic effect. This is the data for the estimated number of babies born/day in the U.S.

Source

This data is available online at <https://osf.io/wx7ck> from this study: Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Bahník, S., Bernstein, M. J., ... & Nosek, B. A. (2014). Investigating Variation in Replicability. *Social Psychology*, 45, 142-152. <http://doi.org/10.1027/1864-9335/a000178>

The original study exploring this effect is: Jacowitz, K. E., & Kahneman, D. (1995). Measures of Anchoring in Estimation Tasks. *Personality and Social Psychology Bulletin*, 21(11), 1161-1166. <http://doi.org/10.1177/01461672952111004>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

body_well

Correlated Data - Body Wellness

Description

An example of correlated data used in Chapter 11 of the book *Introduction to the New Statistics*.

Usage

body_well

Format

A data frame with 106 rows and 3 variables:

sex *female* or *male*

bodysat Body Satisfaction score

wellbeing Wellbeing score

Details

This dataset contains body satisfaction and wellbeing scores for a sample of 106 college students. The *bodysat* variable is the mean rating of how satisfied a person is (from 1 = very dissatisfied to 5 = very satisfied) with various aspects of their body (e.g. satisfaction with one's face, muscle tone, weight, etc.). It is a subscale of the Multidimensional Body Self-Relations Questionnaire (MBSRQ). The *wellbeing* variable is the mean rating of strength of agreement (from 1 = strongly disagree to 7 = strongly agree) with a number of statements about a person's feeling of wellbeing.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

campus_involvement	<i>Correlated Data - Campus Involvement</i>
--------------------	---

Description

An example of correlated data used in Chapter 11 of the book *Introduction to the New Statistics*.

Usage

campus_involvement

Format

A data frame with 113 rows and 6 variables:

responseid Respondent Identifier

gender *Female or Male*

gpa Grade Point Average

commuter Variable indicating whether student lived on campus (*resident*) or off campus (*commuter*)

swb Average score on Diener's Subjective Wellbeing Scale. Scores should range from 1 to 5.

campus_involvement Average of an 8-item scale of campus involvement. Scores should range between 1 and 5.

Details

The data were collected as part of an online survey of college students.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

clean_moral_johnson	<i>Two Independent Groups - Clean Moral Replication Study</i>
---------------------	---

Description

An example of data from a study with a two independent groups design used in Chapter 7 of the book *Introduction to the New Statistics*.

Usage

clean_moral_johnson

Format

A data frame with 208 rows and 3 variables:

participant Respondent identifier

condition Type of words unscrambled: *neutral priming* or *clean priming*

moral_judgements Average of moral judgement scale, 6 items, all ranked from 0-9

Details

This data comes from a replication of the study described in [clean_moral_schall](#)

After publication of that study, Cheung, Donnellan & Johnson (2014) attempted a close replication, using the same manipulation and the same measure of moral judgement.

Source

The dataset is available online at: <https://osf.io/apidb> and is Study 1 from:

Johnson, D. J., Cheung, F., & Donnellan, M. B. (2014). Does cleanliness influence moral judgments?: A direct replication of Schnall, Benton, and Harvey (2008). *Social Psychology*, 45, 209-215. doi:[10.1027/1864-9335/a000186](https://doi.org/10.1027/1864-9335/a000186)

Note that this a cleaned up version of the dataset - all participants excluded for various reasons (e.g. experimenter error) have been deleted.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[clean_moral_schall](#)

clean_moral_schall	<i>Two Independent Groups - Clean Moral Original Study</i>
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Description

An example of data from a study with a two independent groups design used in Chapter 7 of the book *Introduction to the New Statistics*.

Usage

clean_moral_schall

Format

A data frame with 40 rows and 3 variables:

participant Respondent identifier

condition Type of words unscrambled: *neutral priming* or *clean priming*

moral_judgements Average of moral judgement scale, 6 items, all ranked from 0-9

Details

Some researchers believe that moral judgements are based not only on rational considerations but on one's current emotional state. To what extent can recent emotional experiences influence moral judgements? Schnall et al. (2008) examined this question by manipulating feelings of cleanliness and purity and then observing if this changes how harshly participants judged the morality of others. Participants completed a word scramble task with either neutral words (neutral priming) or words related to cleanliness (cleanliness prime). All students then completed a set of moral judgements about controversial scenarios

Source

The dataset is available online <https://osf.io/4cs3k> and is Study 1 from:

Schnall, S., Benton, J., & Harvey, S. (2008). With a Clean Conscience: Cleanliness Reduces the Severity of Moral Judgments. *Psychological Science*, 19, 1219-1222. <http://doi.org/10.1111/j.1467-9280.2008.02227.x>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[clean_moral_johnson](#), which is a replication of the Schnall et al study

cohensd_rm	<i>Cohen's d standardized mean change effect size for repeated measures designs</i>
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Description

Computes Cohen's d effect size for repeated measures designs (paired samples), using the standardizer recommended by Cumming (2012). In other words, the standardizer is the average of the pre and post-treatment standard deviations, rather than the standard deviation of the change scores. An approximate noncentral-t confidence interval is computed using the method proposed by Algina & Keselman (2003), Equations 7 to 9. The effect size estimate can be corrected for sample bias (see Cumming, 2012, p.294) by setting the *Unbiased* argument to *TRUE*.

Usage

```
cohensd_rm(x, y, ci = 95, unbiased = FALSE)
```

Arguments

x	Numeric vector of observations at time 1 (e.g., pre-test)
y	Numeric vector of observations at time 2 (e.g., post-test)
ci	Confidence level. Default is 95 (for a 95 percent CI).
unbiased	Logical. If TRUE, the estimated effect size is corrected for small-sample bias. Default is FALSE.

Value

A numeric vector of length three comprising the estimated effect size (est), lower limit of the confidence interval (ll), and upper limit of the confidence interval (ul).

References

Algina, J. A., & Keselman, H. J. (2003). Approximate Confidence Intervals for Effect Sizes. *Educational and Psychological Measurement*, 63, 537-553.

Cumming, G. (2012). *Understanding The New Statistics: Effect Sizes, Confidence Intervals, and Meta-Analysis*. Routledge; New York.

Examples

```
## Not run:
  cohensd_rm(x = thomason1$pre, y = thomason1$post)

## End(Not run)
```

college_survey1

Describing Data Example - College Student Attitude Survey 1

Description

An example of data from a college survey used in Chapters 3 and 5 of the book *Introduction to the New Statistics*.

Usage

```
college_survey1
```

Format

A data frame with 243 rows and 20 variables:

id Participant identifier

gender *Female* or *Male*

age Age in years

school_year 5 level school year

transfer Transfer status: *No* if student did not transfer to the current school, *Yes* if student transferred to the current school

student_athlete 3-level student athlete code

student_athlete_code 2-level student athlete code

wealth_sr Self-rating of perceived wealth, rated on scale from 1 (well below average) to 5 (well above average).

gpa Self reported GPA on a 0-4point scale.

act Self-reported ACT score.

subjective_well_being Average of 5-item satisfaction with life scale.

positive_affect Average score on a 10-item scale of frequency of experiencing positive emotions over the past week.

negative_affect Average score on a 10-item scale of frequency of experiencing negative emotions over the past week.

relationship_confidence Average of a 7-item scale of confidence in having romantic relationships, rated on a scale from 1 (not at all characteristic of me) to 5 (very characteristic of me).

exercise Exercise score on the Godin Leisure-Time Exercise Questionnaire. This asks participants to rate how often during a regular week they engage in strenuous, moderate, or light exercise.

academic_motivation_intrinsic Average score on a 6-item measure of intrinsic reasons for going to college.

academic_motivation_extrinsic Average score on a 7-item measure of extrinsic reasons for going to college.

academic_motivation_amotivation Average score on a 2-item measure of feeling unmotivated about college

intelligence_value Measure of the degree to which participant values intelligence, rated on a scale from 1 (strongly agree) to 5 (strongly disagree).

raven_score Percentage correct out of 8 items on the Raven Progressive Matrix Scale, a scale of logical thinking / IQ.

Details

This data comes from a survey of college students on a range of psychological variables.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

college_survey2

Describing Data Example - College Student Attitude Survey 2

Description

An example of data from a college survey used in Chapters 3 and 5 of the book *Introduction to the New Statistics*.

Usage

college_survey2

Format

A data frame with 138 rows and 14 variables:

id Participant identifier

gender *Female* or *Male*

age Age in years

wealth_sr Self-rating of perceived wealth, rated on scale from 1 (well below average) to 5 (well above average).

school_year 5 level school year

transfer *No* if student did not transfer to current school, *Yes* if student transferred to current school

gpa Self-reported GPA on a 0-4point scale.

subjective_well_being Average of 5-item satisfaction with life scale.

positive_affect Average of a 10-item scale of frequency of experiencing positive emotions over the past week.

negative_affect Average of a 10-item scale of frequency of experiencing negative emotions over the past week.

academic_engagement Average of a 5-item scale of academic work, measured on scale from 1 ((0 hours per week) to 8 (more than 30 hours a week).

religious_meaning Average of a 6-item scale in belief in a meaning to life based on religious ideas. Rated on a scale from 1 (Strongly Disagree) to 4 (Strongly Agree).

health Average of 4-item scale of health, rating from 1 (Definitely false) to 5 (definitely true) for statements such as "I am as healthy as anybody I know" and "My health is excellent"

emotion_recognition Percentage correct on a 20-item test of recognizing different facial expressions. Scored out of the number attempted, as many participants abandoned the survey during the test due to its length.

Details

This data comes from a survey of college students on a range of psychological variables.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

dana

Impact of Outliers - Target Contact

Description

An example of independent groups data with outliers used in Chapters 16 of the book *Introduction to the New Statistics*.

Usage

dana

Format

A data frame with 38 rows and 2 variables:

group Independent variable: *group one* or *group two*

contact Dependent variable: Contact time in seconds

Details

The data come from a study by Dana (1990, cited in Wilcox 2009) in which individuals tried to keep an apparatus in contact with a target. There was one experimental condition with two levels (group one and group two). The dependent variable is the number of seconds participants could keep in contact with the target.

Source

Wilcox, R. R. (2009). *Basic statistics: Understanding conventional methods and modern insights*. New York: Oxford University Press.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

emotion_hearttrate	<i>Two Dependent Groups - Emotion and Heart rate</i>
--------------------	--

Description

An example of data from a study with a two dependent groups design used in Chapter 8 of the book *Introduction to the New Statistics*.

Usage

```
emotion_hearttrate
```

Format

A data frame with 68 rows and 5 variables:

id Respondent identifier

first_emotion *anger* or *happiness*, determined by coin flip

hr_baseline Heart rate measured in beats per minute during baseline period prior to emotion recall

hr_anger Heart rate measured in beats per minute during recall of times of intense anger

sr_anger Self-reported intensity of feeling angry during angry recall, scale from 0 - 8

Details

To what extent do emotional responses alter heart rate? To find out, participants were asked to recall memories of intense happiness or anger. Heart rate was measured using a cell phone app in beats per minute. Heart rate was measured for each participant before emotion recall (**hr_baseline**), during anger recall (**hr_anger**), and during happiness recall (**hr_happiness**). The order of emotion recall was counterbalanced.

As a manipulation check, participants also rated how intensely they were able to feel each emotion during the recall task on a scale from 0 (absolutely not intense) to 8 (extremely intense) .

This is a simplified dataset that has data only for baseline and anger. The data for happiness is not included here. Also, participants who had missing heart rate data due to data collection errors have been deleted.

Source

This data is from:

Lakens, D. (2013). Using a Smartphone to Measure Heart Rate Changes during Relived Happiness and Anger. *IEEE Transactions on Affective Computing*, 4, 238-241. <http://doi.org/10.1109/T-AFFC.2013.3>

and it is available online at: <https://data.3tu.nl/download/uuid:ab52261c-206b-4bed-a59d-026a16c04144>

This original experiment that inspired this conceptual replication is:

Ekman, P., Levenson, R. W., & Friesen, W. V. (1983). Autonomic nervous system activity distinguishes among emotions. *Science*, 221(4616), 1208-1210. <http://doi.org/10.1126/science.6612338>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

exam_scores

Correlated Data - Exam Scores

Description

An example of correlated data used in Chapter 11 of the book *Introduction to the New Statistics*.

Usage

exam_scores

Format

A data frame with 9 rows and 3 variables:

id Respondent ID

exam1 Exam score - first occasion

exam_final Exam score - last occasion

Details

This is a set of exam scores from students in an introductory psychology course. Student IDs are fake, but the data is real. Scores are expressed as a percentage, where 0 = no correct and 100 = all correct.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

flag_priming_ma	<i>Meta-Analysis Example - Replication of Flag Priming and Conservatism</i>
-----------------	---

Description

An example dataset used in Chapter 9 of the book *Introduction to the New Statistics*.

Usage

flag_priming_ma

Format

A data frame with 25 rows and 7 variables:

location Name of the lab that ran the study

m_flagprimed Mean conservatism score for flag-primed group. Score can range from 1 to 7, low scores indicate liberal attitudes, high scores indicate conservative attitudes.

sd_flagprimed Standard deviation for those given the flag-primed group

n_flagprimed Sample size for flag-primed group

m_neutralprimed Mean conservatism score for neutral group

sd_neutralprimed Standard deviation for those given the neutral group

n_neutralprimed Sample size for neutral group

Details

To what extent can subtle cues influence political attitudes? In this study, participants were asked to look at photos to estimate the time of day they were taken. For some participants, 2 of the 4 photos were of the U.S.A. flag ("flag prime"). For the rest, all 4 photos were of neutral objects ("no prime").

Next, for what seemed like an unrelated study, participants completed a short 8-item questionnaire about political beliefs (each rated on a scale from 1-7, where higher numbers represent more conservative attitudes).

The research question is: to what extent does flag exposure alter political attitudes?

This is summary data from a number of different labs which attempted to replicate this project. The data is for U.S. labs only, as priming with the U.S. flag may not have the same effect in other countries:

Source

This data is available online at <https://osf.io/wx7ck> from this study: Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Bahník, S., Bernstein, M. J., ... & Nosek, B. A. (2014). Investigating Variation in Replicability. *Social Psychology*, 45, 142-152. <http://doi.org/10.1027/1864-9335/a000178>

The original study exploring this effect is: Carter, T. J., Ferguson, M. J., & Hassin, R. R. (2011). A Single Exposure to the American Flag Shifts Support Toward Republicanism up to 8 Months Later. *Psychological Science*, 22, 1011-1018. <http://doi.org/10.1177/0956797611414726>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

home_prices

Regression Example - Home Prices

Description

An example dataset used in Chapter 12 of the book *Introduction to the New Statistics*.

Usage

home_prices

Format

A data frame with 300 rows and 7 variables:

mls Multiple listing service number for the house (unique ID)

location City/town where the house is located (factor with 27 levels)

price Most recent listing price of the house (in dollars)

bedrooms Number of bedrooms

bathrooms Number of bathrooms

size Size of the house in square feet

status Type of sale - *Foreclosure* or *Short Sale*

Details

This dataset contains a collection of real estate listings in San Luis Obispo county in California, United States.

Source

This is a subset of the first 300 rows of the full dataset, which can be found at <https://wiki.csc.calpoly.edu/datasets/wiki/Houses>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

home_prices_holdout	<i>Regression Example - Home Prices Holdout</i>
---------------------	---

Description

An example dataset used in Chapter 12 of the book *Introduction to the New Statistics*.

Usage

home_prices_holdout

Format

A data frame with 10 rows and 3 variables:

new_case Identifier

size Size of the house in square feet

asking_price Asking price in dollars

Details

This is a holdout sample of an additional 10 cases from the Houses dataset. See [home_prices](#) for more info.

Source

This is a subset of data that can be found at <https://wiki.csc.calpoly.edu/datasets/wiki/Houses>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[home_prices](#)

labels_flavor	<i>Two Dependent Groups - Beverage Labels and Flavour</i>
---------------	---

Description

An example of data from a study with a two dependent groups design used in Chapter 8 of the book *Introduction to the New Statistics*.

Usage

labels_flavor

Format

A data frame with 51 rows and 6 variables:

participant_id Respondent identifier

enjoy_generic Degree of enjoyment of the juice sample with the Generic label, 1-10

enjoy_organic Degree of enjoyment of the juice sample with the Organic label, 1-10

pay_generic Price willing to pay for the with the Generic label, marked as \$1-10 dollars in whole dollar amounts

pay_organic Price willing to pay for the with the Organic label, marked as \$1-10 dollars in whole dollar amounts

suspicious Factor with two levels - *suspicious* and *not suspicious*

Details

To what extent does the label on a beverage influence your enjoyment of the beverage? To find out, participants were asked to take part in a taste-test for grape juice. Each participant was poured 3 samples of grape juice: one from a bottle of Welch's Grape Fruit (a mid-level brand), one from a bottle of Generic Grape Fruit (a low-price brand), and one from a bottle of Whole Foods Organic Grape Juice (a high-priced brand). The trick was: it was all the same grape juice! Prior to the start of the project, the experimenters had poured out the original contents and poured the same Welch's grape juice into each bottle.

After each sample, participants rated their enjoyment of that juice (scale from 1 to 10). They also reported how much they would pay for a 1 gallon bottle of that juice (\$1-10, whole dollar amounts). Finally, participants were debriefed about the study. Participants who expressed some suspicion during the debriefing that all the juices were actually the same were marked as *suspicious*; participants who expressed no suspicion were marked *not suspicious*.

This is a simplified dataset which contains data for only 2 of the 3 juice labels: Organic and Generic.

Source

The data is from a student research project conducted by Sylvia Floretta-Schiller, Barbar Berent, and Gabriela Salinas in the Psychology Department at Dominican University.

The project was inspired by the following paper:

Robinson, T. N., Borzekowski, D. L. G., Matheson, D. M., & Kraemer, H. C. (2007). Effects of Fast Food Branding on Young Children's Taste Preferences. *Archives of Pediatrics and Adolescent Medicine*, 161, 792-797.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

math_gender_iat	<i>Two Independent Groups - Math Gender IAT</i>
-----------------	---

Description

An example of data from a study with a two independent groups design used in Chapter 7 of the book *Introduction to the New Statistics*.

Usage

math_gender_iat

Format

A data frame with 243 rows and 4 variables:

sessionid Respondent identifier

location The lab that collected the data (ithaca or sdsu)

gender *male* or *female*

iat_score The score on the IAT test, where higher scores represent stronger negative bias towards math and negative scores represent stronger negative bias towards art.

Details

To what extent is gender related to implicit attitudes about bias? To find out, Nosek and colleagues asked male and female students to complete an Implicit Association Test (IAT) that measured how easily negative ideas could be connected to art or to mathematics. The data shown here records the participants' gender and their IAT score. Positive scores indicate an easier time linking negative ideas with mathematics, negative scores indicate an easier time linking positive ideas with mathematics. The data is from 2 different labs (Ithaca and SDSU), both part of a large-scale collaboration in which the same studies were run in multiple labs all over the world.

Source

This data is available online at <https://osf.io/wx7ck> and is from:

Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Bahník, S., Bernstein, M. J., ... & Nosek, B. A. (2014). Investigating Variation in Replicability. *Social Psychology*, 45, 142-152. <http://doi.org/10.1027/1864-9335/a000178>

Data from participants that had to be excluded due to high error rates or slow responses has already been deleted.

The original study to investigate this effect is: Nosek, B. a, Banaji, M. R., & Greenwald, A. G. (2002). Math = male, me = female, therefore math not = me. *Journal of Personality and Social Psychology*, 83, 44-59. <http://doi.org/10.1037/0022-3514.83.1.44>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

math_gender_iat_ma	<i>Meta-Analysis Example - Replication of gender difference in implicit attitudes about math</i>
--------------------	--

Description

An example dataset used in Chapter 9 of the book *Introduction to the New Statistics*.

Usage

math_gender_iat_ma

Format

A data frame with 30 rows and 9 variables:

location Name of the lab

m_male Mean IAT score for males

sd_male Standard deviation for males on IAT

n_male Sample size for males

m_female Mean IAT score for females

sd_female Standard deviation for females on IAT

n_female Sample size for females on IAT

subset Factor indicating whether the study was conducted in the USA or not

country Factor with 12 levels indicating the country where the study was conducted

Details

To what extent is gender related to implicit attitudes about bias? To find out, Nosek and colleagues as male and female students to complete an Implicit Association Test (IAT) that measured how easily negative ideas could be connected to art or to mathematics. Higher scores indicate higher levels of bias against mathematics.

Note that all participants collected who had to be excluded due to high error rates or slow responses were excluded prior to creating this summary. Data were omitted from these sites: uva vcu wisc wku wl wpi

Source

This data is available online at <https://osf.io/wx7ck> from this study: Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Bahník, S., Bernstein, M. J., ... & Nosek, B. A. (2014). Investigating Variation in Replicability. *Social Psychology*, 45, 142-152. <http://doi.org/10.1027/1864-9335/a000178>

The original study exploring this effect is: Nosek, B. a, Banaji, M. R., & Greenwald, A. G. (2002). Math = male, me = female, therefore math not = me. *Journal of Personality and Social Psychology*, 83(1), 44-59. <http://doi.org/10.1037/0022-3514.83.1.44>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

natsal*Impact of Outliers - Sexual Partners*

Description

An example of independent groups data with outliers used in Chapters 16 of the book *Introduction to the New Statistics*.

Usage

natsal

Format

A data frame with 95 rows and 2 variables:

sex *female* or *male*

partners Number of sexual partners

Details

This is a subset of data from a British survey of sexual behaviours and attitudes that can be used to illustrate the impact of outliers on estimates of central tendency. The participants in this subset were all 21 years of age. The independent variable is sex and the dependent variable is the lifetime number of sexual partners.

Source

National Centre for Social Research et al. (2005), *National Survey of Sexual Attitudes and Lifestyles II, 2000-2001 [computer file]*. Colchester, Essex: UK Data Archive [distributor], August 2005. SN: 5223.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

organic_moral*One Way Design - Organic Foods and Moral Judgements*

Description

An example dataset used in Chapter 14 of the book *Introduction to the New Statistics*.

Usage

organic_moral

Format

A data frame with 106 rows and 2 variables:

food Three levels - *comfort*, *control*, or *organic*

judge Moral Judgement rating

Details

Do organic foods make us morally smug? To what extent? To find out, Eskine (2013) asked participants to rate images of organic food, neutral (control) food, or comfort food. Next, all participants completed a moral judgements scale in which they read different moral scenarios and judged how wrong they were (scale of 1-7).

The original study examining this phenomenon was Eskine (2013). The primary research questions were: (i) Does judgmentalness increase after organic food exposure compared to control food, and (ii) Does judgmentalness decrease after comfort food exposure compared to control food?

Moery & Calin-Jageman (under review) conducted a close replication of the study. The same research questions were asked in the close replication. The data here comes from the Moery and Calin-Jagerman replication study.

Source

Moery, E. & Calin-Jageman, R.J. (In Revision). Direct and conceptual replications of Eskine (2013): Organic food exposure has little to no effect on moral judgements. Under consideration at *Social Psychological and Personality Science*.

The data is available at <https://osf.io/atkn7>

The original study investigating this phenomenon was:

Eskine, K. J. (2013). Wholesome Foods and Wholesome Morals?: Organic Foods Reduce Prosocial Behavior and Harshen Moral Judgments. *Social Psychological and Personality Science*, 4, 251-254. <http://doi.org/10.1177/1948550612447114>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

pen_laptop1

Two Independent Groups - Pen vs Laptop Study 1

Description

An example of data for the two independent groups design used in Chapters 2 and 7 of the book *Introduction to the New Statistics*.

Usage

pen_laptop1

Format

A data frame with 65 rows and 2 variables:

group Independent variable: *Laptop* or *Pen*

transcription Dependent variable: Transcription score

Details

Mueller and Oppenheimer (2014) studied whether students learned more after taking notes by hand rather than using a computer. They conducted a study in which students were randomly assigned to take notes using a pen or by typing on a laptop. The study found that students learned more after taking notes in longhand than after typing notes. The researchers wondered whether writing encouraged expression of concepts in the students' own words, whereas typing encouraged relatively mindless transcription that led to relatively poor learning. To investigate, the researchers devised a transcription score, the percentage of notes that was verbatim transcription from the lecture.

Source

Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological Science*, 25, 1159-1168. <http://doi.org/10.1177/0956797614524581>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[pen_laptop2](#)

pen_laptop2

Two Independent Groups - Pen vs Laptop Study 2

Description

An example of data for the two independent groups design used in Chapter 7 of the book *Introduction to the New Statistics*.

Usage

pen_laptop2

Format

A data frame with 151 rows and 2 variables:

group Independent variable: *Laptop* or *Pen*

transcription Dependent variable: Transcription score

Details

This data is for a second study from Mueller and Oppenheimer (2014). See [pen_laptop1](#) for details.

Source

Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological Science*, 25, 1159-1168. <http://doi.org/10.1177/0956797614524581>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[pen_laptop1](#)

power_performance_ma *Meta-Analysis Example - Power and Performance*

Description

An example dataset used in Chapter 9 of the book *Introduction to the New Statistics*.

Usage

```
power_performance_ma
```

Format

A data frame with 8 rows and 14 variables:

country Factor with 2 levels indicating the country where the study was conducted

sample Factor indicating if the sample was drawn from an undergrad population or from an online site

difficulty Factor indicating if the task was of normal difficulty or high difficulty

manipulation If power was manipulated by memory recall or by word search

dvtype Factor indicating whether the DV was a motor task or a cognitive task

dv Factor indicating whether the dependent variable was golf, darts, mirror-tracing, or word production

study Factor indicating the name of the study

m_control Mean score for the control group

sd_control Standard deviation for the control group

m_power Mean score for the power group

sd_power Standard deviation for the power group

cohensd Standardized effect size difference comparing control to power groups where positive numbers indicate an advantage for the power group

n_control Sample size for control group

n_power Sample size for power group

Details

To what extent can feeling powerful improve your performance? To find out, Burgmer and Englich (2012) manipulated power by: (i) Asking participants to recall either a neutral memory or a time when they had power over others (Experiment 1); (ii) Asking participants to complete a word search where the words were either neutral or related to power (Experiment 2). Next, participants were asked to perform a motor task: either golf (Experiment 1) or darts (Experiment 2). In both studies, participants primed to feel powerful performed substantially better than the control group. This study was conducted in Germany. Cusack et al. (2015) conducted a series of replications in the U.S. to better understand how much power might affect performance. In addition to a close replication of Burgmer & Englich's first study (Experiment 1) they tried a number of variations. Specifically, they tried different ways of manipulating power (memory and word-search), different types of tasks (golf, mirror tracing, and a cognitive word-production task), different sample types (online or undergrads), and different difficulties (normal or hard).

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

rattan

One Way Design - Rattan

Description

An example dataset used in Chapter 14 of the book *Introduction to the New Statistics*.

Usage

```
rattan
```

Format

A data frame with 51 rows and 2 variables:

group Factor with three levels - *challeng*, *comfort*, *control*

motivation Student motivation score (dependent variable)

Details

How do you think you would react to feedback that gave encouragement and reassurance, or, instead, encouragement and challenge? Carol Dweck and her colleagues have investigated many such questions about how people respond to different types of feedback. This data set comes from Dweck's research group. Rattan et al. (2012) asked their college student participants to imagine they were undertaking a math course and had just received a low score (65 first test of the year). Participants were assigned randomly into three groups, which received different feedback along with the low score. The Comfort group received positive encouragement and also reassurance, the Challenge group received positive encouragement and also challenge, and the Control group received just the positive encouragement. Participants then responded to a range of questions about how they felt about the course and their professor. The dependent variable included here is ratings of their own motivation towards mathematics after they had received the feedback.

Source

You can find the materials and data on the Open Science Framework: <https://osf.io/xtkve>

References

- Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.
- Rattan, A., Good, C., & Dweck, C. S. (2012). "It's ok - Not everyone can be good at math": Instructors with an entity theory comfort (and demotivate) students. *Journal of Experimental Social Psychology*, 48, 731-737.

religion_sharing

One-Way Independent Groups Design Example - Religious Parenting

Description

Summary data used in Chapter 14 of the book *Introduction to the New Statistics*.

Usage

religion_sharing

Format

A data frame with 3 rows and 4 variables:

statistic Character string indicating whether the statistic is the sample size (n), Mean (m), or Standard Deviation(s)

non_religious_parents Statistics for the non religious parents group

christian_parents Statistics for the christian parents group

muslim_parents Statistics for the muslim parents group

Details

To what extent does being raised in a religious family relate to prosocial or altruistic behavior. To investigate, Decety et al. (2015) collected data from a large, international sample (N = 1,170 with families recruited from the U.S., Canada, Jordan, Turkey, South Africa, and China.). Parents reported their religious belief (Non-religious, Christian, Muslim, Buddhist, Jewish, Hindu, or other). In addition, children played a game in which they were given 10 stickers but then asked if they would share some of these stickers with another child who hadn't been able to make it to the lab to play the game. The measure of altruism/sharing is the number of stickers given (out of 10).

Summary data from this study are provided in the data frame.

The researchers asked two questions:

- Do children raised by Christian parents differ in sharing/altruism relative to children raised by Muslim parents?
- Do children raised by non-religious parents differ in sharing/altruism relative to children raised by religious parents (Christian or Muslim).

Source

The summary data comes from:

Decety, J., Cowell, J. M., Lee, K., Mahasneh, R., Malcolm-Smith, S., Selcuk, B., & Zhou, X. (2015). The Negative Association between Religiousness and Children's Altruism across the World. *Current Biology*, 1-5. doi:10.1016/j.cub.2015.09.056

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

religious_belief	<i>Describing Data Example - Study of Religious Belief</i>
------------------	--

Description

An example of data from a study of religious beliefs used in Chapter 3 of the book *Introduction to the New Statistics*.

Usage

religious_belief

Format

A data frame with 413 rows and 4 variables:

response_id Respondent identifier

condition Experimental condition: *discus* if participants had viewed 3 images of a discus thrower sculpture, *thinker* if participants had viewed 3 images of the thinker sculpture

belief_in_gd Rating of how strongly participants believed in god, from 0 (certain that god does not exist) ot 100 (certain that God exists)

age Age in years

Details

This is a subset of data from an attempt to replicate Study 2 of Gervais & Norenzayan (2012). The project details can be found at <https://osf.io/qc6rh/>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

Gervais, W. M., & Norenzayan, a. (2012). Analytic Thinking Promotes Religious Disbelief. *Science*, 336(6080), 493-496. doi:10.1126/science.1215647

self_explain_time *Two Way Design - Self Explain Time*

Description

An example dataset used in Chapter 15 of the book *Introduction to the New Statistics*.

Usage

self_explain_time

Format

A data frame with 138 rows and 5 variables:

id Participant ID

condition Between groups factor with 3 levels

grade Grade level of child

time Within groups factor with 2 levels - *pre* and *post*

knowledge Score on conceptual knowledge test

Details

Self-explaining is a study strategy where students explain material to themselves as they learn. McEldoon, Durkin & Rittle-Johnson (2013) examined the benefits of self-explaining for grade school students learning math. Students first took a pre-test for conceptual knowledge, then studied, then took a post-test for conceptual knowledge. Some students were randomly assigned to normal study, others to self-explain. However, self-explaining takes longer than traditional study, so a third set of children completed regular study + additional practice.

Data from all 3 conditions is provided here, graciously shared by the authors. The scores are the percentage correct on each phase of testing. There were additional measures made in this study that are not in this simplified data set.

Source

McEldoon, K. L., Durkin, K. L., & Rittle-Johnson, B. (2013). Is self-explanation worth the time? A comparison to additional practice. *The British Journal of Educational Psychology*, 83, 615-632. <http://doi.org/10.1111/j.2044-8279.2012.02083.x>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

sleep_beauty	<i>Correlated Data - Sleep and Beauty</i>
--------------	---

Description

An example of correlated data used in Chapter 11 of the book *Introduction to the New Statistics*.

Usage

sleep_beauty

Format

A data frame with 70 rows and 2 variables:

nightly_sleep_hours Typical hours of nightly sleep (0 to 12)

rated_attractiveness Level of attractiveness rated on a scale from 1-10

Details

This is a fake dataset created for the purposes of teaching / illustration.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

stickgold	<i>Single Group - Stickgold Sleep Deprivation Study</i>
-----------	---

Description

An example dataset used in Chapter 6 of the book *Introduction to the New Statistics* to demonstrate how to calculate a confidence interval for the mean of a single group.

Usage

stickgold

Format

A data frame with 21 rows and 2 variables:

sleep Factor with one level: *deprived*

improvement Changes in learning score

Details

Does learning a new skill require a regular sleep pattern? Stickgold, James, and Hobson (2000) trained 11 participants on a new skill. That night all participants were sleep deprived. The data are the changes in learning scores from before training to after: 0 represents no change, positive scores represent improvement, and negative scores decline.

Source

This is a subset of a dataset is available online <https://www.statcrunch.com/app/index.php?dataid=1053539>

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

study_strategies	<i>One-Way Independent Groups Design Example - Study Strategy Effectiveness</i>
------------------	---

Description

Summary data used in Chapter 14 of the book *Introduction to the New Statistics*.

Usage

study_strategies

Format

A data frame with 9 rows and 5 variables:

dv Character string giving the dependedent variable

statistic Character string indicitaing whether the statistic is the sample size (n), Mean (m), or Standard Deviation(s)

self_explain Statistics for the self explain group

elaborative_interrogation Statistics for the elaborative interrogation group

repetition_control Statistics for the repetition control group

Details

To what extent does study strategy influence learning. To investigate, students were asked to study 27 facts about the circulatory system. Students viewed each fact one-at-a-time on a computer screen and were prompted to use different study stratgies:

- Self-explanation - for each fact, students were asked "Explain what the sentence means to you. That is, what new information does the sentence provide for you? And how does it relate to what you already know?"
- Elaborative interrogation - for each fact, students were asked "Why does it make sense that...?"
- Repetition control - these students were simply asked to repeat each fact out loud and spent the same amount of time studying each fact as students in the other two groups.

Notice that self-explanation and elaborative interrogation seem quite similar. However, elaborative interrogation seems to ask students to use their own judgement of why the fact makes sense, whereas self-explanation focuses more on the new information provided.

A number of measures were collected:

- Before studying, student rated their prior knowledge of the circulatory system on a scale from 5-20.
- After studying, students completed a memory test in which they had to fill in key words for each fact (fill-in-blank) with a word bank available.
- After studying and testing, students rated how easy they felt it was to use the study strategy on a scale from 1-5.

Source

The summary data comes from:

O'Reilly, T., Symons, S., & MacLachy-Gaudet, H. (1998). A Comparison of Self-Explanation and Elaborative Interrogation. *Contemporary Educational Psychology*, 23, 434-445. doi:10.1006/ceps.1997.0977

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

thomason1

Two Dependent Groups - Thomason Study 1

Description

An example of data for the repeated measures design used in Chapter 8 of the book *Introduction to the New Statistics*.

Usage

thomason1

Format

A data frame with 12 rows and 2 variables:

pre Pre-treatment LSAT score

post Post-treatment LSAT score

Details

Many colleges require a course in critical thinking, but such courses are not particularly effective. Courses based on argument mapping, however, are more effective. Argument mapping is a graphical technique for representing and critiquing an argument. Thomason et al. (2014) reported 7 studies evaluating a promising approach to teaching critical thinking that combines argument mapping with a form of mastery learning. Studies were conducted in the U.S., Canada, and the U.K., and each study used a single group of students. Students were tested on various well-established measures of critical thinking, both before (the Pre-test) and after (the Post-test) training. Group sizes ranged from 7 to 39. All the Thomason studies compared the two conditions, Pretest and Posttest, within participants, and therefore used a paired design. The first Thomason study, Thomason 1, used a group of N = 12 students, whose critical thinking ability was assessed at Pretest and Posttest using the Logical Reasoning section of the Law School Aptitude Test (LSAT).

Source

Thomason, N. R., Adajian, T., Barnett, A. E., Boucher, S., van der Brugge, E., Campbell, J., Knorpp, W., Lempert, R., Lengbeyer, L., Mandel, D. R., Rider, Y., van Gelder, T., & Wilkins, J. (2014). *Critical thinking final report*. The University of Melbourne, N66001-12-C-2004.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[thomason2](#) [thomason3](#)

thomason2	<i>Two Dependent Groups - Thomason Study 2</i>
-----------	--

Description

An example of data for the repeated measures design used in Chapter 8 of the book *Introduction to the New Statistics*.

Usage

thomason2

Format

A data frame with 16 rows and 2 variables:

pre Pre-treatment LSAT score

post Post-treatment LSAT score

Details

This is data for the second study by Thomason et al investigating techniques to improve critical thinking. See [thomason1](#) for more details.

Source

Thomason, N. R., Adajian, T., Barnett, A. E., Boucher, S., van der Brugge, E., Campbell, J., Knorpp, W., Lempert, R., Lengbeyer, L., Mandel, D. R., Rider, Y., van Gelder, T., & Wilkins, J. (2014). *Critical thinking final report*. The University of Melbourne, N66001-12-C-2004.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[thomason1](#) [thomason3](#)

thomason3*Two Dependent Groups - Thomason Study 3*

Description

An example of data for the repeated measures design used in Chapter 8 of the book *Introduction to the New Statistics*.

Usage

thomason3

Format

A data frame with 39 rows and 2 variables:

pre Pre-treatment HCTA score

post Post-treatment HCTA score

Details

This is data for the third study by Thomason et al investigating techniques to improve critical thinking. This study used the HCTA measure of critical thinking, and a paired design with $N = 39$. See [thomason1](#) for more details.

Source

Thomason, N. R., Adajian, T., Barnett, A. E., Boucher, S., van der Brugge, E., Campbell, J., Knorpp, W., Lempert, R., Lengbeyer, L., Mandel, D. R., Rider, Y., van Gelder, T., & Wilkins, J. (2014). *Critical thinking final report*. The University of Melbourne, N66001-12-C-2004.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

See Also

[thomason1](#) [thomason2](#)

videogame_aggression *Two Way Design - Video game Aggression*

Description

An example dataset used in Chapter 15 of the book *Introduction to the New Statistics*.

Usage

videogame_aggression

Format

A data frame with 224 rows and 3 variables:

violence Independent variable with two levels - *nonviolent* or *violent*

difficulty Independent variable with two levels - *easy* or *hard*

aggression Aggression score, rated from 0 seconds to 80 seconds in 10s increments

Details

Hilgard (2015) asked male participants to play a video game for 15 minutes. The game was customized so that it could vary in violence (shooting zombies or helping aliens) and difficulty (targets controlled by tough AI or dumb AI). After the game, players were provoked by being given an insulting evaluation by a confederate. Participants then got to decide how long the confederate should hold their hand in painfully cold ice water (0-80s in 10s increments), and this was taken as a measure of aggressive behavior.

Source

This is a simplified data set from Hilgard (2015). You can find the materials and analysis plan for this study on the Open Science Framework: <https://osf.io/cwenz>

Hilgard, J. (2015). *Game violence, game difficulty, and 2D:4D digit ratio as predictors of aggressive behavior*. University of Missouri-Columbia.

References

Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics*. New York; Routledge.

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