ICC

1 Info

Procedure used here is based Muraki et al. (2022)

- Muraki, E. J., Abdalla, S., Brysbaert, M., & Pexman, P. M. (2022). Concreteness ratings for 62,000 English multiword expressions. Behavior Research Methods. https://doi.org/10.3758/s13428-022-01912-6

2 Imports

```r
knitr::opts_chunk$set(echo = TRUE)
library(tidyverse)
library(moments)
library(tm)#Function to remove strings
library(reshape2)#for data manipulation
library(nlme)#for ICC
library(multilevel)#for ICC
library(arsenal)#for dataframe comparisons
library(jtools)#for theme_apa function for plots
library(apaTables)#for APA format tables
library(fuzzyjoin)
```

3 GSD (sentences, gold standard)

3.1 Load data

```r
dir0 <- "../../data/u1001_gold_standard_nlp_bert/"
if0 <- "long.csv"

ratings_icc <- read_csv(file = file.path(dir0, if0))
spec(ratings_icc)
ratings_icc
```

```
indexing long.csv [========================================] 18.31GB/s, eta:  0s

Rows: 9000 Columns: 3
  Column specification
Delimiter: ","
chr (1): PID
dbl (2): SENT, EVAL

  Use `spec()` to retrieve the full column specification for this data.
  Specify the column types or set `show_col_types = FALSE` to quiet this message.
cols(
  PID = col_character(),
  SENT = col_double(),
  EVAL = col_double()
)
# A tibble: 9,000 × 3
    PID                        SENT  EVAL
    <chr>                     <dbl> <dbl>
 1 6282ac6bddcf580b46bdef2d      1    -2
 2 5b737a81f80f680001b60f85      1    -2
 3 5997e57d6b939900012da0e2      1     0
 4 5ba8ba00d9c1080001fa4193      1     0
 5 6110ce792276c9f74115dbd2      1     0
 6 56220229ed6e5a0005c7fac1      1     1
 7 5e346dedaf532102529ce9da      1    -1
 8 5edbaae1b9f9f68349ce80f3      1    -2
 9 63f779120de2ae5b2620ce9b      1     0
10 63ed42100168a762350b416f      1     1
#   8,990 more rows
#   Use `print(n = ...)` to see more rows
```

3.2 ICC

```r
#Calculate ICC based on function from psychometric package but customized optimizer (see Brysbaert
#Run multilevel model with optimizer set to optim
attach(ratings_icc)
mod <- lme(EVAL ~ 1, random = ~1 | SENT, na.action = na.omit, control = lmeControl(opt = "optim"))
detach(ratings_icc)
#Extract intercept variance
t0 <- as.numeric(VarCorr(mod)[1,1])
#Extract residual variance
sig2 <- as.numeric(VarCorr(mod)[2,1])
#Calculate ICC based on intercept and residual variance
icc1 <- t0/(t0 + sig2)
#Calculate mean ICC across all group ICCs
# icc2 <- mean(GmeanRel(mod)$MeanRel)
icc2 <- mean(gmeanrel(mod)$MeanRel)
paste(icc1)
paste(icc2)
```

```
[1] "0.720399837021778"
[1] "0.987221876053856"
```

References

Muraki, E. J., Abdalla, S., Brysbaert, M., & Pexman, P. M. (2022). Concreteness ratings for 62,000 English multiword expressions. *Behavior Research Methods.* https://doi.org/10.3758/s13428-022-01912-6 (cit. on p. 1)