Spearman–Brown Split-Half Reliability

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# Note: Analyses without outliers identified and removed

# Load packages  
library(splithalfr)

# Turn off scientific notation  
options(scipen = 999)

# 1 Minute

# Read data  
data <- read.csv("60s.csv")

# GEV  
# Without Outliers Removed  
spearman\_brown(data$even\_60s\_A\_gev, data$odd\_60s\_A\_gev)

## [1] 0.730955

spearman\_brown(data$even\_60s\_B\_gev, data$odd\_60s\_B\_gev)

## [1] 0.7982339

spearman\_brown(data$even\_60s\_C\_gev, data$odd\_60s\_C\_gev)

## [1] 0.8093643

spearman\_brown(data$even\_60s\_D\_gev, data$odd\_60s\_D\_gev)

## [1] 0.8631483

spearman\_brown(data$even\_60s\_F\_gev, data$odd\_60s\_F\_gev)

## [1] 0.6929412

# Duration  
# Without Outliers Removed  
spearman\_brown(data$even\_60s\_A\_duration, data$odd\_60s\_A\_duration)

## [1] 0.4708707

spearman\_brown(data$even\_60s\_B\_duration, data$odd\_60s\_B\_duration)

## [1] 0.4553124

spearman\_brown(data$even\_60s\_C\_duration, data$odd\_60s\_C\_duration)

## [1] 0.5528097

spearman\_brown(data$even\_60s\_D\_duration, data$odd\_60s\_D\_duration)

## [1] 0.734415

spearman\_brown(data$even\_60s\_F\_duration, data$odd\_60s\_F\_duration)

## [1] 0.3239038

# Coverage  
# Without Outliers Removed  
spearman\_brown(data$even\_60s\_A\_coverage, data$odd\_60s\_A\_coverage)

## [1] 0.7372798

spearman\_brown(data$even\_60s\_B\_coverage, data$odd\_60s\_B\_coverage)

## [1] 0.7712455

spearman\_brown(data$even\_60s\_C\_coverage, data$odd\_60s\_C\_coverage)

## [1] 0.8366659

spearman\_brown(data$even\_60s\_D\_coverage, data$odd\_60s\_D\_coverage)

## [1] 0.8356465

spearman\_brown(data$even\_60s\_F\_coverage, data$odd\_60s\_F\_coverage)

## [1] 0.6495909

# Occurrence  
# Without Outliers Removed  
spearman\_brown(data$even\_60s\_A\_occurrence, data$odd\_60s\_A\_occurrence)

## [1] 0.746188

spearman\_brown(data$even\_60s\_B\_occurrence, data$odd\_60s\_B\_occurrence)

## [1] 0.7140477

spearman\_brown(data$even\_60s\_C\_occurrence, data$odd\_60s\_C\_occurrence)

## [1] 0.7364195

spearman\_brown(data$even\_60s\_D\_occurrence, data$odd\_60s\_D\_occurrence)

## [1] 0.74049

spearman\_brown(data$even\_60s\_F\_occurrence, data$odd\_60s\_F\_occurrence)

## [1] 0.6002131

# 2 Minute

# Read data  
data <- read.csv("120s.csv")

# GEV  
# Without Outliers Removed  
spearman\_brown(data$even\_120s\_A\_gev, data$odd\_120s\_A\_gev)

## [1] 0.7842155

spearman\_brown(data$even\_120s\_B\_gev, data$odd\_120s\_B\_gev)

## [1] 0.9099972

spearman\_brown(data$even\_120s\_C\_gev, data$odd\_120s\_C\_gev)

## [1] 0.8326158

spearman\_brown(data$even\_120s\_D\_gev, data$odd\_120s\_D\_gev)

## [1] 0.9174807

spearman\_brown(data$even\_120s\_F\_gev, data$odd\_120s\_F\_gev)

## [1] 0.7397542

# Duration  
# Without Outliers Removed  
spearman\_brown(data$even\_120s\_A\_duration, data$odd\_120s\_A\_duration)

## [1] 0.5998091

spearman\_brown(data$even\_120s\_B\_duration, data$odd\_120s\_B\_duration)

## [1] 0.6890645

spearman\_brown(data$even\_120s\_C\_duration, data$odd\_120s\_C\_duration)

## [1] 0.6724139

spearman\_brown(data$even\_120s\_D\_duration, data$odd\_120s\_D\_duration)

## [1] 0.8641976

spearman\_brown(data$even\_120s\_F\_duration, data$odd\_120s\_F\_duration)

## [1] 0.4561921

# Coverage  
# Without Outliers Removed  
spearman\_brown(data$even\_120s\_A\_coverage, data$odd\_120s\_A\_coverage)

## [1] 0.7339867

spearman\_brown(data$even\_120s\_B\_coverage, data$odd\_120s\_B\_coverage)

## [1] 0.9035107

spearman\_brown(data$even\_120s\_C\_coverage, data$odd\_120s\_C\_coverage)

## [1] 0.8018173

spearman\_brown(data$even\_120s\_D\_coverage, data$odd\_120s\_D\_coverage)

## [1] 0.9238615

spearman\_brown(data$even\_120s\_F\_coverage, data$odd\_120s\_F\_coverage)

## [1] 0.7480058

# Occurrence  
# Without Outliers Removed  
spearman\_brown(data$even\_120s\_A\_occurrence, data$odd\_120s\_A\_occurrence)

## [1] 0.7663588

spearman\_brown(data$even\_120s\_B\_occurrence, data$odd\_120s\_B\_occurrence)

## [1] 0.8021294

spearman\_brown(data$even\_120s\_C\_occurrence, data$odd\_120s\_C\_occurrence)

## [1] 0.8210423

spearman\_brown(data$even\_120s\_D\_occurrence, data$odd\_120s\_D\_occurrence)

## [1] 0.9124906

spearman\_brown(data$even\_120s\_F\_occurrence, data$odd\_120s\_F\_occurrence)

## [1] 0.7822356

# 3 Minute

# Read data  
data <- read.csv("180s.csv")

# GEV  
# Without Outliers Removed  
spearman\_brown(data$even\_180s\_A\_gev, data$odd\_180s\_A\_gev)

## [1] 0.912885

spearman\_brown(data$even\_180s\_B\_gev, data$odd\_180s\_B\_gev)

## [1] 0.8679448

spearman\_brown(data$even\_180s\_C\_gev, data$odd\_180s\_C\_gev)

## [1] 0.9030708

spearman\_brown(data$even\_180s\_D\_gev, data$odd\_180s\_D\_gev)

## [1] 0.9436558

spearman\_brown(data$even\_180s\_F\_gev, data$odd\_180s\_F\_gev)

## [1] 0.8732711

# Duration  
# Without Outliers Removed  
spearman\_brown(data$even\_180s\_A\_duration, data$odd\_180s\_A\_duration)

## [1] 0.7153521

spearman\_brown(data$even\_180s\_B\_duration, data$odd\_180s\_B\_duration)

## [1] 0.7418764

spearman\_brown(data$even\_180s\_C\_duration, data$odd\_180s\_C\_duration)

## [1] 0.7892994

spearman\_brown(data$even\_180s\_D\_duration, data$odd\_180s\_D\_duration)

## [1] 0.8130408

spearman\_brown(data$even\_180s\_F\_duration, data$odd\_180s\_F\_duration)

## [1] 0.7138899

# Coverage  
# Without Outliers Removed  
spearman\_brown(data$even\_180s\_A\_coverage, data$odd\_180s\_A\_coverage)

## [1] 0.8797871

spearman\_brown(data$even\_180s\_B\_coverage, data$odd\_180s\_B\_coverage)

## [1] 0.8399404

spearman\_brown(data$even\_180s\_C\_coverage, data$odd\_180s\_C\_coverage)

## [1] 0.8956114

spearman\_brown(data$even\_180s\_D\_coverage, data$odd\_180s\_D\_coverage)

## [1] 0.943138

spearman\_brown(data$even\_180s\_F\_coverage, data$odd\_180s\_F\_coverage)

## [1] 0.8687298

# Occurrence  
# Without Outliers Removed  
spearman\_brown(data$even\_180s\_A\_occurrence, data$odd\_180s\_A\_occurrence)

## [1] 0.890953

spearman\_brown(data$even\_180s\_B\_occurrence, data$odd\_180s\_B\_occurrence)

## [1] 0.8690588

spearman\_brown(data$even\_180s\_C\_occurrence, data$odd\_180s\_C\_occurrence)

## [1] 0.8744384

spearman\_brown(data$even\_180s\_D\_occurrence, data$odd\_180s\_D\_occurrence)

## [1] 0.8868407

spearman\_brown(data$even\_180s\_F\_occurrence, data$odd\_180s\_F\_occurrence)

## [1] 0.8436339

# 4 Minute

# Read data  
data <- read.csv("240s.csv")

# GEV  
# Without Outliers Removed  
spearman\_brown(data$even\_240s\_A\_gev, data$odd\_240s\_A\_gev)

## [1] 0.9223457

spearman\_brown(data$even\_240s\_B\_gev, data$odd\_240s\_B\_gev)

## [1] 0.9293242

spearman\_brown(data$even\_240s\_C\_gev, data$odd\_240s\_C\_gev)

## [1] 0.9293216

spearman\_brown(data$even\_240s\_D\_gev, data$odd\_240s\_D\_gev)

## [1] 0.948629

spearman\_brown(data$even\_240s\_F\_gev, data$odd\_240s\_F\_gev)

## [1] 0.9497289

# Duration  
# Without Outliers Removed  
spearman\_brown(data$even\_240s\_A\_duration, data$odd\_240s\_A\_duration)

## [1] 0.7237164

spearman\_brown(data$even\_240s\_B\_duration, data$odd\_240s\_B\_duration)

## [1] 0.6979673

spearman\_brown(data$even\_240s\_C\_duration, data$odd\_240s\_C\_duration)

## [1] 0.7232593

spearman\_brown(data$even\_240s\_D\_duration, data$odd\_240s\_D\_duration)

## [1] 0.8959439

spearman\_brown(data$even\_240s\_F\_duration, data$odd\_240s\_F\_duration)

## [1] 0.7562501

# Coverage  
# Without Outliers Removed  
spearman\_brown(data$even\_240s\_A\_coverage, data$odd\_240s\_A\_coverage)

## [1] 0.877683

spearman\_brown(data$even\_240s\_B\_coverage, data$odd\_240s\_B\_coverage)

## [1] 0.8990235

spearman\_brown(data$even\_240s\_C\_coverage, data$odd\_240s\_C\_coverage)

## [1] 0.8890166

spearman\_brown(data$even\_240s\_D\_coverage, data$odd\_240s\_D\_coverage)

## [1] 0.9444414

spearman\_brown(data$even\_240s\_F\_coverage, data$odd\_240s\_F\_coverage)

## [1] 0.9167532

# Occurrence  
# Without Outliers Removed  
spearman\_brown(data$even\_240s\_A\_occurrence, data$odd\_240s\_A\_occurrence)

## [1] 0.8900132

spearman\_brown(data$even\_240s\_B\_occurrence, data$odd\_240s\_B\_occurrence)

## [1] 0.8713884

spearman\_brown(data$even\_240s\_C\_occurrence, data$odd\_240s\_C\_occurrence)

## [1] 0.8700949

spearman\_brown(data$even\_240s\_D\_occurrence, data$odd\_240s\_D\_occurrence)

## [1] 0.9148434

spearman\_brown(data$even\_240s\_F\_occurrence, data$odd\_240s\_F\_occurrence)

## [1] 0.8600078

# 5 Minute

# Read data  
data <- read.csv("300s.csv")

# GEV  
# Without Outliers Removed  
spearman\_brown(data$even\_300s\_A\_gev, data$odd\_300s\_A\_gev)

## [1] 0.9400566

spearman\_brown(data$even\_300s\_B\_gev, data$odd\_300s\_B\_gev)

## [1] 0.9348774

spearman\_brown(data$even\_300s\_C\_gev, data$odd\_300s\_C\_gev)

## [1] 0.9182179

spearman\_brown(data$even\_300s\_D\_gev, data$odd\_300s\_D\_gev)

## [1] 0.9666621

spearman\_brown(data$even\_300s\_F\_gev, data$odd\_300s\_F\_gev)

## [1] 0.9455461

# Duration  
# Without Outliers Removed  
spearman\_brown(data$even\_300s\_A\_duration, data$odd\_300s\_A\_duration)

## [1] 0.8252244

spearman\_brown(data$even\_300s\_B\_duration, data$odd\_300s\_B\_duration)

## [1] 0.8724226

spearman\_brown(data$even\_300s\_C\_duration, data$odd\_300s\_C\_duration)

## [1] 0.7631416

spearman\_brown(data$even\_300s\_D\_duration, data$odd\_300s\_D\_duration)

## [1] 0.9282386

spearman\_brown(data$even\_300s\_F\_duration, data$odd\_300s\_F\_duration)

## [1] 0.87385

# Coverage  
# Without Outliers Removed  
spearman\_brown(data$even\_300s\_A\_coverage, data$odd\_300s\_A\_coverage)

## [1] 0.9440852

spearman\_brown(data$even\_300s\_B\_coverage, data$odd\_300s\_B\_coverage)

## [1] 0.9293766

spearman\_brown(data$even\_300s\_C\_coverage, data$odd\_300s\_C\_coverage)

## [1] 0.9075257

spearman\_brown(data$even\_300s\_D\_coverage, data$odd\_300s\_D\_coverage)

## [1] 0.9527508

spearman\_brown(data$even\_300s\_F\_coverage, data$odd\_300s\_F\_coverage)

## [1] 0.9213768

# Occurrence  
# Without Outliers Removed  
spearman\_brown(data$even\_300s\_A\_occurrence, data$odd\_300s\_A\_occurrence)

## [1] 0.928368

spearman\_brown(data$even\_300s\_B\_occurrence, data$odd\_300s\_B\_occurrence)

## [1] 0.9125456

spearman\_brown(data$even\_300s\_C\_occurrence, data$odd\_300s\_C\_occurrence)

## [1] 0.8924792

spearman\_brown(data$even\_300s\_D\_occurrence, data$odd\_300s\_D\_occurrence)

## [1] 0.9245544

spearman\_brown(data$even\_300s\_F\_occurrence, data$odd\_300s\_F\_occurrence)

## [1] 0.9211539