R Notebook

```
if (!("ggplot2" %in% installed.packages())){
  .libPaths("~/R/lib")
  install.packages("ggplot2")
}
if (!("gghighlight" %in% installed.packages())) install.packages("gghighlight")
if (!("patchwork" %in% installed.packages())) install.packages("patchwork")
if (!("paletteer" %in% installed.packages())) install.packages("paletteer")
if (!("ggsci" %in% installed.packages())) install.packages("ggsci")

library("ggplot2")
library("dplyr")
```

```
##
##     'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library("gghighlight")
library("patchwork")
library("paletteer")
library("ggsci")

library("tidyverse")
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --

## v tibble  3.1.6     v purrr   0.3.4
## v tidyr   1.2.0     v stringr 1.4.0
## v readr   2.1.2     v forcats 0.5.1

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
path_persistance <- file.path(getwd(),"persistance")


multi_calc_frame_exp <- read.csv(file.path(path_persistance,file="multi_calc_frame_stefan_exp_64.csv"),
multi_calc_frame_health <- read.csv(file.path(path_persistance,file="multi_calc_frame_stefan_health_64.
```

```r
health_names <- c(
  "Percent_Category",
  "Percent_ConceptualLevelResponse",
  "Percent_Correct",
  "Percent_npr_e",
  "Percent_pr",
  "Percent_pr_e",
  "Percent_FailureToMaintainSet"
  )
new_names <- c(
  "CAT",
  "CLR",
  "TC",
  "NPE",
  "PR",
  "PE",
  "FMS"
  )

exp_group = c("exp","health")

rownames(multi_calc_frame_exp)[match(health_names,rownames(multi_calc_frame_exp))] <- new_names
rownames(multi_calc_frame_health)[match(health_names,rownames(multi_calc_frame_health))] <- new_names


multi_calc_frame_exp <- multi_calc_frame_exp[new_names,]
multi_calc_frame_health <- multi_calc_frame_health[new_names,]

multi_calc_frame_exp <-  multi_calc_frame_exp %>% mutate(
  rownames=rownames(multi_calc_frame_exp),
  frame_type = 'exp')

multi_calc_frame_health <-  multi_calc_frame_health %>% mutate(
  rownames=rownames(multi_calc_frame_health),
  frame_type = 'health')

multi_calc_frame <-  rbind(multi_calc_frame_exp,multi_calc_frame_health)

multi_calc_frame$frame_type <-  factor(multi_calc_frame$frame_type,levels=exp_group %>% rev())
multi_calc_frame$rownames <-  factor(multi_calc_frame$rownames,levels=new_names %>% rev())

multi_calc_frame %>% knitr::kable()
```

	Mean	SD	first_second	ddd_median	permuted_median	permuted_lower	permuted_upper	monte_carlo_median	monte_carlo_lower	monte_carlo_upper	rownames	frame_type
CAT	0.0489	0.0200	0.7288	1.0000	0.9185	0.8776	0.9544	0.9258	0.8882	0.9574	CAT	exp
CLR	0.5090	0.1502	0.7178	0.9614	0.8446	0.7646	0.9100	0.8685	0.7975	0.9198	CLR	exp
TC	0.7348	0.1213	0.6797	0.8674	0.8119	0.7170	0.8891	0.8462	0.7703	0.9153	TC	exp
NPE	0.1488	0.0968	0.7546	0.7599	0.8117	0.7101	0.8925	0.8451	0.7579	0.9160	NPE	exp
PR	0.1234	0.0548	-0.1742	0.6045	0.4587	0.1848	0.6869	0.6553	0.4730	0.8012	PR	exp
PE	0.1164	0.0469	-0.0849	0.4412	0.2930	-0.0468	0.6069	0.5947	0.3974	0.7798	PE	exp

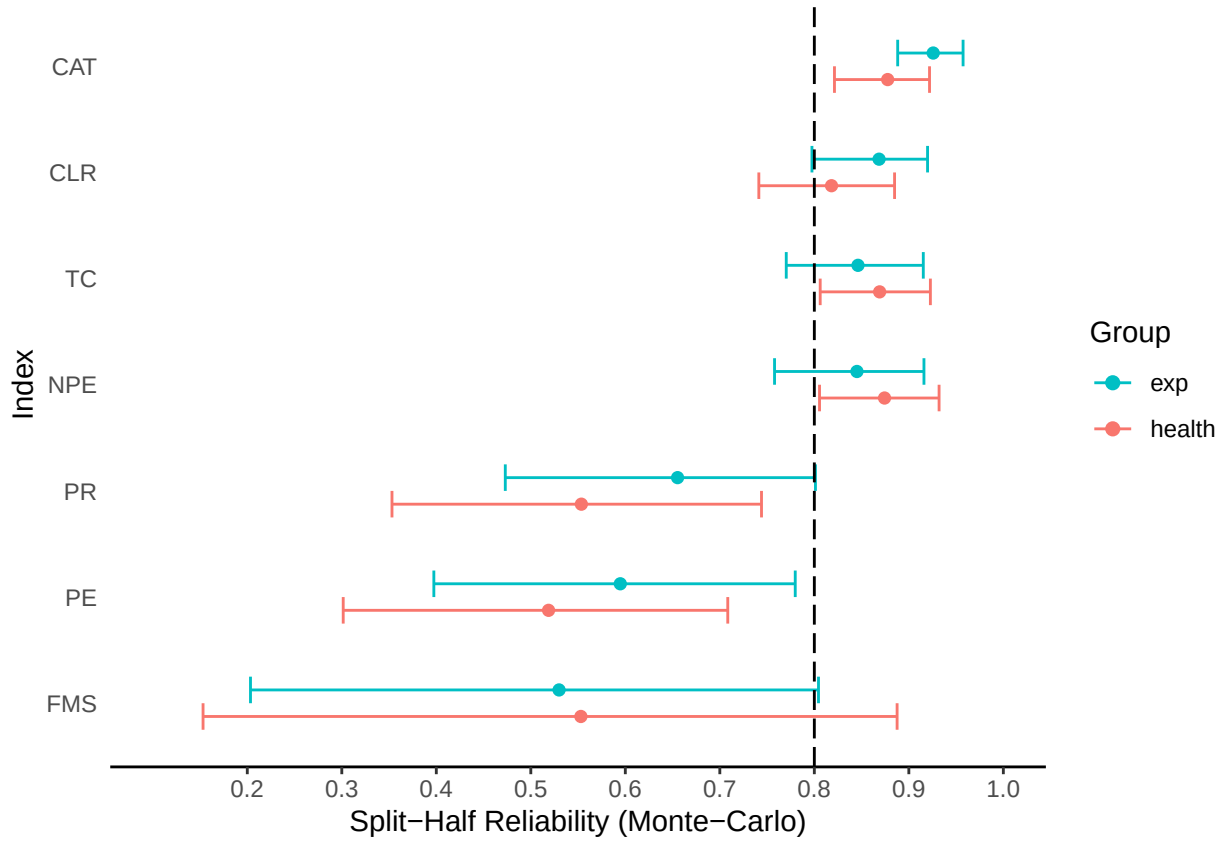
	Mean	SD	first_second	odd_even	median_permuted	permuted_lower	permuted_upper	monte_carlo_median	monte_carlo_lower	monte_carlo_upper	rownames	frame_type
FMS	0.0082	0.0113	0.1024	-0.3301	0.0757	-0.3414	0.4927	0.5299	0.2034	0.8044	FMS	exp
CAT1	0.0673	0.0147	0.6423	1.0000	0.8582	0.7978	0.9126	0.8776	0.8213	0.9219	CAT	health
CLR1	0.6314	0.1220	0.7137	0.9805	0.7739	0.6725	0.8574	0.8182	0.7413	0.8849	CLR	health
TC1	0.8291	0.1131	0.7876	0.9587	0.8461	0.7773	0.9023	0.8691	0.8062	0.9228	TC	health
NPE1	0.0896	0.0865	0.7391	0.9117	0.8530	0.7762	0.9132	0.8743	0.8055	0.9320	NPE	health
PR1	0.0832	0.0374	0.3831	0.7105	0.1709	-0.2051	0.4770	0.5535	0.3531	0.7441	PR	health
PE1	0.0813	0.0346	0.4716	0.5910	0.0433	-0.3579	0.4066	0.5188	0.3015	0.7084	PE	health
FMS1	0.0032	0.0071	-0.2095	-0.2095	NA	-0.2095	0.2441	0.5530	0.1532	0.8876	FMS	health

```r
#make plot
p <- ggplot(multi_calc_frame, aes(x=monte_carlo_median, y=rownames, group=frame_type, color=frame_type,
  geom_errorbar(aes(xmin = monte_carlo_lower, xmax = monte_carlo_upper), width = 0.5,position = positio
  geom_point(size = 2,position = position_dodge(0.5)) +
  labs(x="Split-Half Reliability (Monte-Carlo)", y = "Index") +
        scale_x_continuous(breaks=seq(0.2,1,0.1), limits = c(0.1,1)) +
  scale_color_manual(values = c("#6699ff", "#3B80B9")) +
  # scale_colour_brewer(palette = "Set1") +
  scale_shape_manual(values= c(16,16,16,16,16,16,16,16,16,16,16,16,16))+
  guides(
    colour=guide_legend(title = "Group"),
    shape=FALSE
    )+
  scale_color_discrete(breaks=exp_group)+
  theme_classic() +
  geom_vline(xintercept = 0.8, linetype = "longdash") +
  theme(axis.line.y = element_blank(),
        axis.ticks.y = element_blank())
```

```
## Warning: `guides(<scale> = FALSE)` is deprecated. Please use `guides(<scale> =
## "none")` instead.

## Scale for 'colour' is already present. Adding another scale for 'colour',
## which will replace the existing scale.
```

```r
p
```


CAT
CLR
TC
NPE
PR
PE
FMS
Index
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Split−Half Reliability (Monte−Carlo)
Group
exp
health