setwd("C:/Users/USER/jeewon")

library(readxl)

res <- read\_excel("results.xlsx")

colnames(res)[9]<- "rmse.m2"

**## DV: rmse**

dv<- c(res$rmse.m1, res$rmse.m2)

# simulation conditions

model<- c(rep("m1",**36**),rep("m2",**36**))

nperson <- factor(**rep**(c(rep(30명, 18),rep(50명, 18)),**2**)) **---> factor: 범주형 데이터**

nitem <- factor(**rep**(c(rep(10문제,9),rep(20문제,9)),**4**))

fixed <- factor(rep(c(0,0,0,25,25,25,50,50,50),8))

random <- factor(rep(c("equal","small","large"),24), levels=c("equal","small","large"))

## data.frame

dat<- data.frame(dv,nperson,nitem,fixed,random, model)

#

library(ggplot2)

ggplot(data=dat,

aes(x=random, y=dv)) +

geom\_point(aes(**color=model**, **shape=nitem**)) +

facet\_wrap(nperson~fixed) ---> 면분할의 기준: 사람수, 고정효과개수

**##### DV: Type 1 error rate**

rate<- c(res$rate.m1,res$rate.m2)

dv<- rate[fixed==0]

model<- c(rep("m1",36),rep("m2",36))[fixed==0]

nperson <- factor(rep(c(rep(30,18),rep(50,18)),2))[fixed==0]

nitem <- factor(rep(c(rep(10,9),rep(20,9)),4))[fixed==0]

random <- factor(rep(c("equal","small","large"),24),

levels=c("equal","small","large"))[fixed==0]

## data.frame

dat<- data.frame(dv,nperson,nitem,random, model)

ggplot(data=dat,

aes(x=random, y=dv)) +

geom\_point(aes(color=model)) +

facet\_wrap(nperson~nitem)

**#### DV: Power**

rate<- c(res$rate.m1,res$rate.m2)

**dv**<- rate[fixed!=0] <--------------------------??????

model<- c(rep("m1",36),rep("m2",36))[fixed!=0]

nperson <- factor(rep(c(rep(30,18),rep(50,18)),2))[fixed!=0]

nitem <- factor(rep(c(rep(10,9),rep(20,9)),4))[fixed!=0]

random <- factor(rep(c("equal","small","large"),24),

levels=c("equal","small","large"))[fixed!=0]

fixed <- factor(rep(c(25,25,25,50,50,50),8))

## data.frame

dat<- data.frame(dv,nperson,nitem,random, model)

ggplot(data=dat,

aes(x=random, y=dv)) +

geom\_point(aes(color=model, shape=fixed)) +

facet\_wrap(nperson~nitem)