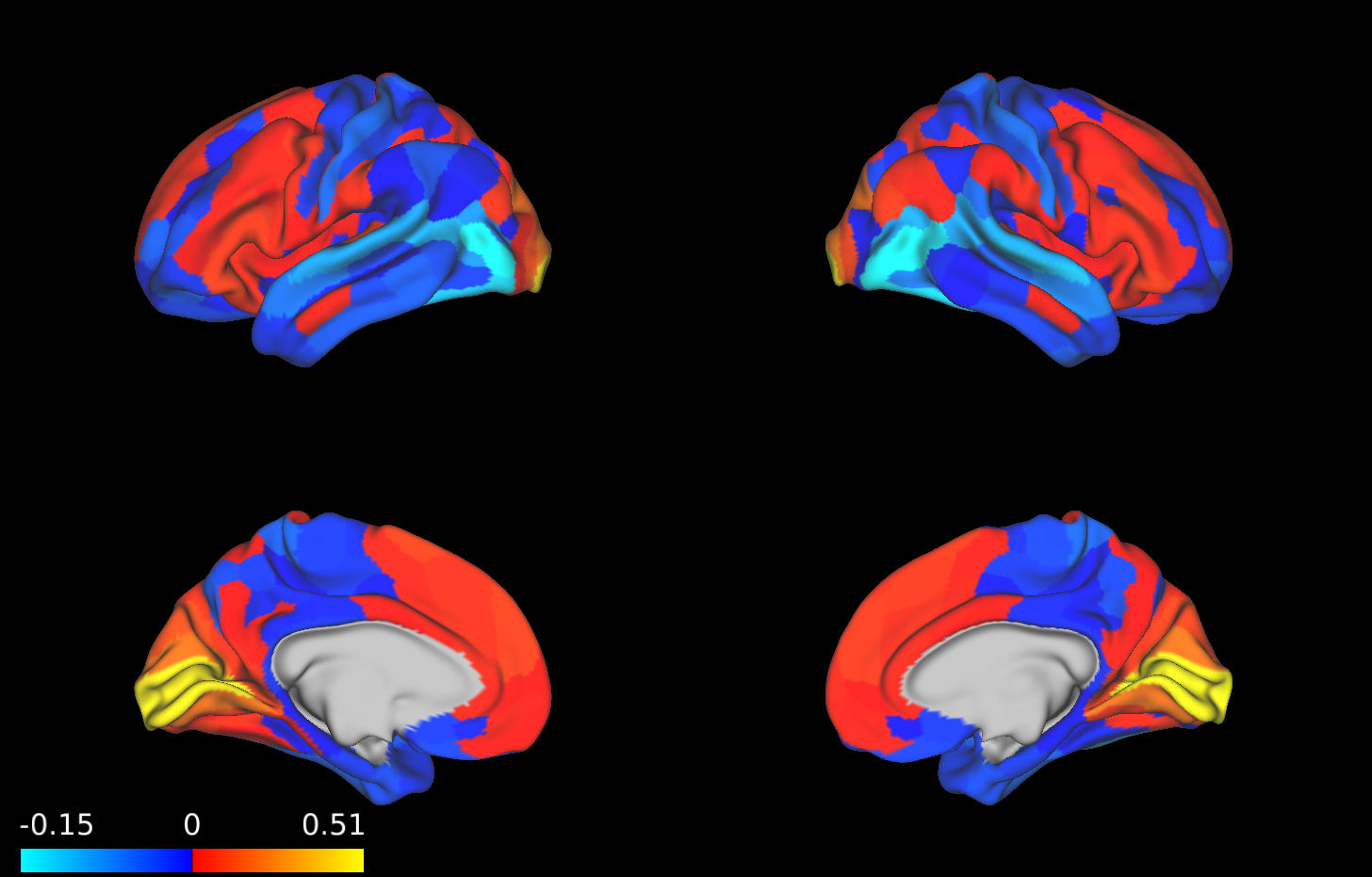
Prob Graphs

# How to add images from elsewhere



IC12

library(ggplot2)  
library(ggpubr)

## Warning: package 'ggpubr' was built under R version 3.5.2

## Loading required package: magrittr

library(plyr)

##   
## Attaching package: 'plyr'

## The following object is masked from 'package:ggpubr':  
##   
## mutate

library(tidyverse)

## ── Attaching packages ─────────────────────────────────────────────────────────────────── tidyverse 1.2.1 ──

## ✔ tibble 1.4.2 ✔ purrr 0.2.5  
## ✔ tidyr 0.8.2 ✔ dplyr 0.7.7  
## ✔ readr 1.1.1 ✔ stringr 1.3.1  
## ✔ tibble 1.4.2 ✔ forcats 0.3.0

## ── Conflicts ────────────────────────────────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::arrange() masks plyr::arrange()  
## ✖ purrr::compact() masks plyr::compact()  
## ✖ dplyr::count() masks plyr::count()  
## ✖ tidyr::extract() masks magrittr::extract()  
## ✖ dplyr::failwith() masks plyr::failwith()  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::id() masks plyr::id()  
## ✖ dplyr::lag() masks stats::lag()  
## ✖ dplyr::mutate() masks plyr::mutate(), ggpubr::mutate()  
## ✖ dplyr::rename() masks plyr::rename()  
## ✖ purrr::set\_names() masks magrittr::set\_names()  
## ✖ dplyr::summarise() masks plyr::summarise()  
## ✖ dplyr::summarize() masks plyr::summarize()

library(reshape)

##   
## Attaching package: 'reshape'

## The following object is masked from 'package:dplyr':  
##   
## rename

## The following objects are masked from 'package:tidyr':  
##   
## expand, smiths

## The following objects are masked from 'package:plyr':  
##   
## rename, round\_any

## Possible outcomes

80-20 == 12 70-30 == 34 60-40 == 56

sub1<-read.table("~/Documents/bevel\_choice/by\_participant\_txtfiles/50.txt", sep="\t", header=F)  
head(sub1)

## V1 V2 V3 V4 V5 V6 V7 V8  
## 1 50 run01 AB A 1 reward matched 1.584442  
## 2 50 run01 CD C 2 punish mismatched 1.617742  
## 3 50 run01 CD Miss Miss Miss Miss Miss  
## 4 50 run01 CD D 2 reward mismatched 1.582638  
## 5 50 run01 EF F 1 punish matched 1.597288  
## 6 50 run01 EF E 1 reward matched 1.597700

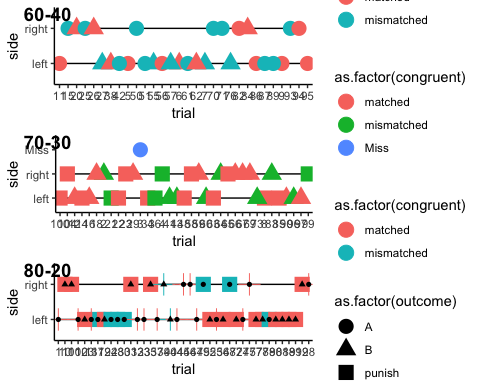
names(sub1)<-c("sub\_num","run","type","choice","side","outcome","congruent","RT")  
head(sub1)

## sub\_num run type choice side outcome congruent RT  
## 1 50 run01 AB A 1 reward matched 1.584442  
## 2 50 run01 CD C 2 punish mismatched 1.617742  
## 3 50 run01 CD Miss Miss Miss Miss Miss  
## 4 50 run01 CD D 2 reward mismatched 1.582638  
## 5 50 run01 EF F 1 punish matched 1.597288  
## 6 50 run01 EF E 1 reward matched 1.597700

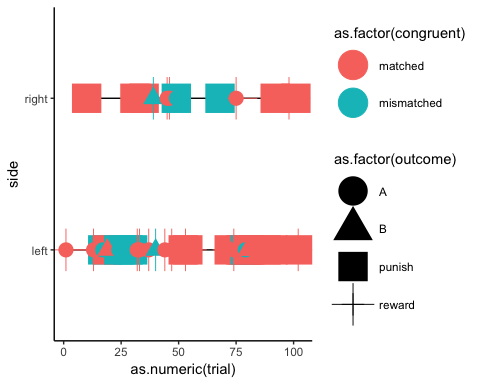
sub1$side<-as.factor(sub1$side)  
sub1$side<-revalue(sub1$side, c("1"="left", "2"="right"))  
sub1$trial<-row.names(sub1)  
head(sub1)

## sub\_num run type choice side outcome congruent RT trial  
## 1 50 run01 AB A left reward matched 1.584442 1  
## 2 50 run01 CD C right punish mismatched 1.617742 2  
## 3 50 run01 CD Miss Miss Miss Miss Miss 3  
## 4 50 run01 CD D right reward mismatched 1.582638 4  
## 5 50 run01 EF F left punish matched 1.597288 5  
## 6 50 run01 EF E left reward matched 1.597700 6

cbPalette <- c("00900","FF3300")  
  
plot1<-ggplot(subset(sub1, type == "EF"), aes(trial,side, group=as.factor(side)))+  
 geom\_line()+  
 geom\_point(aes(color=as.factor(congruent), shape=as.factor(outcome)), size=5)+  
 scale\_fill\_manual(cbPalette)+  
 theme\_classic()  
  
  
plot2<-ggplot(subset(sub1, type == "CD"), aes(trial,side, group=as.factor(side)))+  
 geom\_line()+  
 geom\_point(aes(color=as.factor(congruent), shape=as.factor(outcome)), size=5)+  
 scale\_fill\_manual(cbPalette)+  
 theme\_classic()  
  
plot3<-ggplot(subset(sub1, type == "AB"), aes(trial,side, group=as.factor(side)))+  
 geom\_line()+  
 geom\_point(aes(color=as.factor(congruent), shape=as.factor(outcome)), size=5)+  
 geom\_point(aes(shape=as.factor(choice)))+  
 theme\_classic()+  
 scale\_fill\_manual(cbPalette)  
  
ggarrange(plot1,plot2,plot3,   
 labels = c("60-40", "70-30","80-20"),  
 ncol = 1, nrow = 3)



plot3<-ggplot(subset(sub1, type == "AB"), aes(as.numeric(trial),side, group=as.factor(side)))+  
 geom\_line()+  
 geom\_point(aes(color=as.factor(congruent), shape=as.factor(outcome)), size=10)+  
 geom\_point(aes(shape=as.factor(choice), color=as.factor(congruent)), size=5)+  
 theme\_classic()+  
 scale\_fill\_manual(cbPalette)  
plot3

 Left right, not informative.

x<-subset(sub1, type == "AB")  
summary(as.factor(x$choice))

## A B C D E F Miss   
## 21 18 0 0 0 0 0

summary(x)

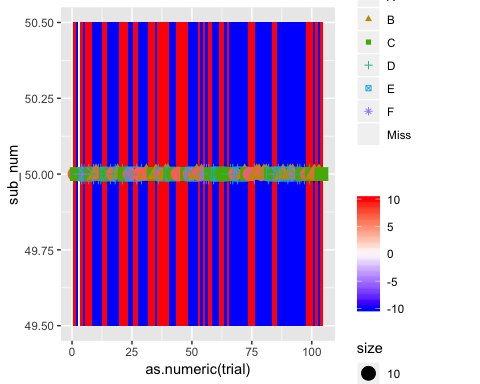
## sub\_num run type choice side outcome   
## Min. :50 run01: 6 AB:39 A :21 left :27 Miss : 0   
## 1st Qu.:50 run02:15 CD: 0 B :18 right:12 punish:23   
## Median :50 run03: 8 EF: 0 C : 0 Miss : 0 reward:16   
## Mean :50 run04:10 D : 0   
## 3rd Qu.:50 E : 0   
## Max. :50 F : 0   
## Miss: 0   
## congruent RT trial   
## matched :30 1.567835: 1 Length:39   
## mismatched: 9 1.581710: 1 Class :character   
## Miss : 0 1.583164: 1 Mode :character   
## 1.583882: 1   
## 1.584442: 1   
## 1.584814: 1   
## (Other) :33

data$ov\_ob[BMI<18.5]<-“Underweight”

sub1$outcome0[sub1$outcome == "Miss"] <- 0  
sub1$outcome0[sub1$outcome == "punish"] <- -10  
sub1$outcome0[sub1$outcome == "reward"] <- 10  
  
hm1<-ggplot(sub1,aes(as.numeric(trial), sub\_num ,fill=outcome0))+  
 geom\_tile()+  
 scale\_fill\_gradient2(low="blue", high="red", na.value="black", name="")+  
 geom\_point(aes(shape=as.factor(choice), size=10, color=as.factor(choice)))  
hm1

## Warning: The shape palette can deal with a maximum of 6 discrete values  
## because more than 6 becomes difficult to discriminate; you have 7.  
## Consider specifying shapes manually if you must have them.

## Warning: Removed 1 rows containing missing values (geom\_point).



# Super clever function to read in a shit ton of data

#sub1<-read.table("~/Google Drive/bevel\_task\_behavior/by\_participant\_txt\_left\_and\_right/by\_participant\_txtfiles/50.txt", sep="\t", header=F)  
library(data.table)

##   
## Attaching package: 'data.table'

## The following object is masked from 'package:reshape':  
##   
## melt

## The following objects are masked from 'package:dplyr':  
##   
## between, first, last

## The following object is masked from 'package:purrr':  
##   
## transpose

readdata <- function(fn){  
 dt\_temp <- fread(fn, sep="\t")  
# keycols <- c("ID", "date")  
# setkeyv(dt\_temp,keycols) # Notice there's a "v" after setkey with multiple keys  
 return(dt\_temp)  
  
}  
  
all.files <- list.files(path = "~/Documents/bevel\_choice/by\_participant\_txtfiles/",pattern = ".txt", full.names = TRUE)  
mylist <- lapply(all.files, readdata)  
mydata <- rbindlist( mylist )  
  
names(mydata)<-c("sub\_num","run","type","choice","side","outcome","congruent","RT")  
mydata$side<-as.factor(mydata$side)  
mydata$side<-revalue(mydata$side, c("1"="left", "2"="right"))  
  
mydata <- mydata %>%  
 group\_by(.dots=c("sub\_num")) %>%  
 mutate(Count=row\_number())  
  
head(mydata)

## # A tibble: 6 x 9  
## # Groups: sub\_num [1]  
## sub\_num run type choice side outcome congruent RT Count  
## <int> <chr> <chr> <chr> <fct> <chr> <chr> <chr> <int>  
## 1 1 run01 EF F left reward mismatched 1.569796 1  
## 2 1 run01 CD D right punish matched 1.601124 2  
## 3 1 run01 CD D right punish matched 1.600702 3  
## 4 1 run01 CD Miss Miss Miss Miss Miss 4  
## 5 1 run01 AB A right reward matched 1.580793 5  
## 6 1 run01 AB B right reward mismatched 1.564219 6

mydata$sub\_num

## [1] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  
## [24] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  
## [47] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  
## [70] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  
## [93] 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2  
## [116] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  
## [139] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  
## [162] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  
## [185] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  
## [208] 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  
## [231] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  
## [254] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  
## [277] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  
## [300] 3 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4  
## [323] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  
## [346] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  
## [369] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  
## [392] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  
## [415] 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5  
## [438] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5  
## [461] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5  
## [484] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6  
## [507] 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6  
## [530] 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6  
## [553] 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6  
## [576] 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6  
## [599] 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  
## [622] 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  
## [645] 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  
## [668] 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  
## [691] 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 8 8 8 8 8 8 8 8  
## [714] 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  
## [737] 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  
## [760] 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  
## [783] 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  
## [806] 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  
## [829] 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  
## [852] 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  
## [875] 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  
## [898] 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 10 10 10 10 10 10 10  
## [921] 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10  
## [944] 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10  
## [967] 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10  
## [990] 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10  
## [1013] 10 10 10 10 10 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11  
## [1036] 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11  
## [1059] 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11  
## [1082] 11 11 11 11 11 11 11 11 11 11 11 11 11 11 12 12 12 12 12 12 12 12 12  
## [1105] 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12  
## [1128] 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12  
## [1151] 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12  
## [1174] 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12  
## [1197] 12 12 12 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13  
## [1220] 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13  
## [1243] 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13  
## [1266] 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13  
## [1289] 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 14 14 14 14 14 14 14 14  
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## [1335] 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14  
## [1358] 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14  
## [1381] 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14  
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## [1473] 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15  
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## [1542] 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16  
## [1565] 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16  
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## [1634] 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17  
## [1657] 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17  
## [1680] 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17  
## [1703] 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17 18 18 18 18 18 18 18  
## [1726] 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18 18  
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## [1933] 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20  
## [1956] 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20  
## [1979] 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20  
## [2002] 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20  
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## [2301] 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24  
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## [2347] 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24  
## [2370] 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24  
## [2393] 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25  
## [2416] 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25  
## [2439] 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25  
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## [2577] 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26 26  
## [2600] 26 26 26 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27  
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## [3359] 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34  
## [3382] 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34  
## [3405] 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 34 35  
## [3428] 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35  
## [3451] 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35  
## [3474] 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35  
## [3497] 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35  
## [3520] 35 35 35 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36  
## [3543] 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36  
## [3566] 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36  
## [3589] 36 36 36 36 36 37 37 37 37 37 37 37 37 37 37 37 37 37 37 37 37 37 37  
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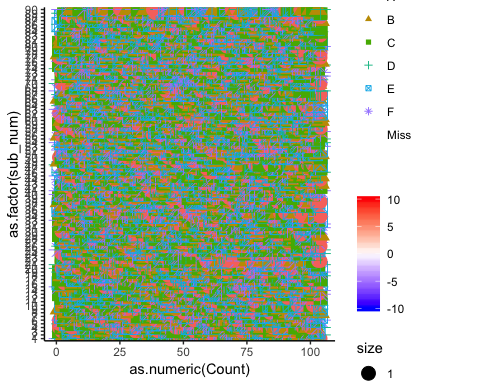
mydata$outcome0[mydata$outcome == "Miss"] <- 0

## Warning: Unknown or uninitialised column: 'outcome0'.

mydata$outcome0[mydata$outcome == "punish"] <- -10  
mydata$outcome0[mydata$outcome == "reward"] <- 10  
  
hmTOTAL<-ggplot(mydata,aes(as.numeric(Count), as.factor(sub\_num) ,fill=outcome0))+  
 geom\_tile()+  
 scale\_fill\_gradient2(low="blue", high="red", na.value="black", name="")+theme\_classic()+  
 geom\_point(aes(shape=as.factor(choice), size=1, color=as.factor(choice)))  
hmTOTAL

## Warning: The shape palette can deal with a maximum of 6 discrete values  
## because more than 6 becomes difficult to discriminate; you have 7.  
## Consider specifying shapes manually if you must have them.

## Warning: Removed 482 rows containing missing values (geom\_point).



more\_data<-read.table("~/Documents/bevel\_choice/clean\_bevel.csv",header=T, sep=",")  
more\_data$sub\_num<-row.names(more\_data)  
head(more\_data$sub\_num)

## [1] "1" "2" "3" "4" "5" "6"

data0<-merge(mydata, more\_data, by="sub\_num")  
head(data0)

## sub\_num run type choice side outcome congruent RT Count  
## 1 1 run01 EF F left reward mismatched 1.569796 1  
## 2 1 run01 CD D right punish matched 1.601124 2  
## 3 1 run01 CD D right punish matched 1.600702 3  
## 4 1 run01 CD Miss Miss Miss Miss Miss 4  
## 5 1 run01 AB A right reward matched 1.580793 5  
## 6 1 run01 AB B right reward mismatched 1.564219 6  
## outcome0 ID intials date weight height BMI BMI\_cat hba1c  
## 1 10 Bevel01 JRS 3/19/18 77.6 178 24.5 HW 4.5  
## 2 -10 Bevel01 JRS 3/19/18 77.6 178 24.5 HW 4.5  
## 3 -10 Bevel01 JRS 3/19/18 77.6 178 24.5 HW 4.5  
## 4 0 Bevel01 JRS 3/19/18 77.6 178 24.5 HW 4.5  
## 5 10 Bevel01 JRS 3/19/18 77.6 178 24.5 HW 4.5  
## 6 10 Bevel01 JRS 3/19/18 77.6 178 24.5 HW 4.5  
## bloodglucose bitter age DOB hispanic race1 sex mens\_date  
## 1 94 2 24 5/5/93 non-hispanic caucasian male   
## 2 94 2 24 5/5/93 non-hispanic caucasian male   
## 3 94 2 24 5/5/93 non-hispanic caucasian male   
## 4 94 2 24 5/5/93 non-hispanic caucasian male   
## 5 94 2 24 5/5/93 non-hispanic caucasian male   
## 6 94 2 24 5/5/93 non-hispanic caucasian male   
## mens\_length sensitivity\_reward sensitivity\_punish test\_result\_group  
## 1 0.5555556 0.8333333 learner  
## 2 0.5555556 0.8333333 learner  
## 3 0.5555556 0.8333333 learner  
## 4 0.5555556 0.8333333 learner  
## 5 0.5555556 0.8333333 learner  
## 6 0.5555556 0.8333333 learner  
## preTTfullness preTThunger preTTthirst hourssincelastmeal sweetstim\_level  
## 1 -70 65 23 NA 2  
## 2 -70 65 23 NA 2  
## 3 -70 65 23 NA 2  
## 4 -70 65 23 NA 2  
## 5 -70 65 23 NA 2  
## 6 -70 65 23 NA 2  
## sweetstim\_pleasent sweetstim\_desire sweetstim\_intense sweetstim\_bitter  
## 1 21 25 14 14  
## 2 21 25 14 14  
## 3 21 25 14 14  
## 4 21 25 14 14  
## 5 21 25 14 14  
## 6 21 25 14 14  
## sweetstim\_sweet bitterstim\_level bitterstim\_pleasent bitterstim\_desire  
## 1 12 2 -39 -63  
## 2 12 2 -39 -63  
## 3 12 2 -39 -63  
## 4 12 2 -39 -63  
## 5 12 2 -39 -63  
## 6 12 2 -39 -63  
## bitterstim\_intense bitterstim\_bitter bitterstim\_sweet sweet1pleasent  
## 1 51 52 -17 3  
## 2 51 52 -17 3  
## 3 51 52 -17 3  
## 4 51 52 -17 3  
## 5 51 52 -17 3  
## 6 51 52 -17 3  
## sweet1desire sweet1intense sweet1bitter sweet1sweet sweet2pleasent  
## 1 4 -35 -19 -24 21  
## 2 4 -35 -19 -24 21  
## 3 4 -35 -19 -24 21  
## 4 4 -35 -19 -24 21  
## 5 4 -35 -19 -24 21  
## 6 4 -35 -19 -24 21  
## sweet2desire sweet2intense sweet2bitter sweet2sweet sweet3pleasent  
## 1 25 14 14 12 27  
## 2 25 14 14 12 27  
## 3 25 14 14 12 27  
## 4 25 14 14 12 27  
## 5 25 14 14 12 27  
## 6 25 14 14 12 27  
## sweet3desire sweet3intense sweet3bitter sweet3sweet sweet4pleasent  
## 1 35 33 18 23 44  
## 2 35 33 18 23 44  
## 3 35 33 18 23 44  
## 4 35 33 18 23 44  
## 5 35 33 18 23 44  
## 6 35 33 18 23 44  
## sweet4desire sweet4intense sweet4bitter sweet4sweet sweet1rank  
## 1 43 3 0 -1 NA  
## 2 43 3 0 -1 NA  
## 3 43 3 0 -1 NA  
## 4 43 3 0 -1 NA  
## 5 43 3 0 -1 NA  
## 6 43 3 0 -1 NA  
## sweet2rank sweet3rank sweet4rank bitter1pleasent bitter1desire  
## 1 NA NA NA -11 -15  
## 2 NA NA NA -11 -15  
## 3 NA NA NA -11 -15  
## 4 NA NA NA -11 -15  
## 5 NA NA NA -11 -15  
## 6 NA NA NA -11 -15  
## bitter1intense bitter1bitter bitter1sweet bitter2pleasent bitter2desire  
## 1 -22 -23 -23 -39 -63  
## 2 -22 -23 -23 -39 -63  
## 3 -22 -23 -23 -39 -63  
## 4 -22 -23 -23 -39 -63  
## 5 -22 -23 -23 -39 -63  
## 6 -22 -23 -23 -39 -63  
## bitter2intense bitter2bitter bitter2sweet bitter3pleasent bitter3desire  
## 1 51 52 -17 -35 -26  
## 2 51 52 -17 -35 -26  
## 3 51 52 -17 -35 -26  
## 4 51 52 -17 -35 -26  
## 5 51 52 -17 -35 -26  
## 6 51 52 -17 -35 -26  
## bitter3intense bitter3bitter bitter3sweet bitter4pleasent bitter4desire  
## 1 19 49 44 -26 -17  
## 2 19 49 44 -26 -17  
## 3 19 49 44 -26 -17  
## 4 19 49 44 -26 -17  
## 5 19 49 44 -26 -17  
## 6 19 49 44 -26 -17  
## bitter4intense bitter4bitter bitter4sweet bitter1rank bitter2rank  
## 1 -23 18 -30 1 4  
## 2 -23 18 -30 1 4  
## 3 -23 18 -30 1 4  
## 4 -23 18 -30 1 4  
## 5 -23 18 -30 1 4  
## 6 -23 18 -30 1 4  
## bitter3rank bitter4rank FFQ1 FFQ2 FFQ3 FFQ4 FFQ5 FFQ6 FFQ7 FFQ8 FFQ9  
## 1 2 3 3 2 3 2 1 4 4 3 4  
## 2 2 3 3 2 3 2 1 4 4 3 4  
## 3 2 3 3 2 3 2 1 4 4 3 4  
## 4 2 3 3 2 3 2 1 4 4 3 4  
## 5 2 3 3 2 3 2 1 4 4 3 4  
## 6 2 3 3 2 3 2 1 4 4 3 4  
## FFQ10 FFQ11 FFQ12 FFQ13 FFQ14 FFQ15 FFQ16 FFQ17 FFQ18 FFQ19 FFQ20 FFQ21  
## 1 3 2 1 3 3 3 2 3 1 3 4 4  
## 2 3 2 1 3 3 3 2 3 1 3 4 4  
## 3 3 2 1 3 3 3 2 3 1 3 4 4  
## 4 3 2 1 3 3 3 2 3 1 3 4 4  
## 5 3 2 1 3 3 3 2 3 1 3 4 4  
## 6 3 2 1 3 3 3 2 3 1 3 4 4  
## FFQ22 FFQ23 FFQ24 FFQ25 FFQ26 FFQ27 FFQ28 FFQ29 FFQ30 FFQ31 FFQ32 FFQ33  
## 1 4 2 1 1 2 1 1 1 3 3 3 1  
## 2 4 2 1 1 2 1 1 1 3 3 3 1  
## 3 4 2 1 1 2 1 1 1 3 3 3 1  
## 4 4 2 1 1 2 1 1 1 3 3 3 1  
## 5 4 2 1 1 2 1 1 1 3 3 3 1  
## 6 4 2 1 1 2 1 1 1 3 3 3 1  
## FFQ34 FFQ35 FFQ36 FFQ37 FFQ38 FFQ39 FFQ40 FFQ41 FFQ42 FFQ43 FFQ44 FFQ45  
## 1 2 2 2 1 3 3 1 1 1 2 1 2  
## 2 2 2 2 1 3 3 1 1 1 2 1 2  
## 3 2 2 2 1 3 3 1 1 1 2 1 2  
## 4 2 2 2 1 3 3 1 1 1 2 1 2  
## 5 2 2 2 1 3 3 1 1 1 2 1 2  
## 6 2 2 2 1 3 3 1 1 1 2 1 2  
## FFQ46 FFQ47 FFQ48 FFQ49 FFQ50 FFQ51 FFQ52 FFQ53 FFQ54 FFQ55 FFQ56 FFQ57  
## 1 4 5 1 3 4 3 1 3 1 2 1 5  
## 2 4 5 1 3 4 3 1 3 1 2 1 5  
## 3 4 5 1 3 4 3 1 3 1 2 1 5  
## 4 4 5 1 3 4 3 1 3 1 2 1 5  
## 5 4 5 1 3 4 3 1 3 1 2 1 5  
## 6 4 5 1 3 4 3 1 3 1 2 1 5  
## FFQ58 FFQ59 FFQ60 BIQ1 BIQ2 BIQ3 BIQ4 BIQ5 BIQ6 BIQ7 BIQ8 BIQ9 BIQ10  
## 1 2 3 1 1 1 6 5 2 1 3 3 2 1  
## 2 2 3 1 1 1 6 5 2 1 3 3 2 1  
## 3 2 3 1 1 1 6 5 2 1 3 3 2 1  
## 4 2 3 1 1 1 6 5 2 1 3 3 2 1  
## 5 2 3 1 1 1 6 5 2 1 3 3 2 1  
## 6 2 3 1 1 1 6 5 2 1 3 3 2 1  
## BIQ11 BIQ12 BIQ13 BIQ14 BIQ15 BIQ16 SPSRQ1 SPSRQ2 SPSRQ3 SPSRQ4 SPSRQ5  
## 1 1 3 1 1 2 1 2 3 1 4 1  
## 2 1 3 1 1 2 1 2 3 1 4 1  
## 3 1 3 1 1 2 1 2 3 1 4 1  
## 4 1 3 1 1 2 1 2 3 1 4 1  
## 5 1 3 1 1 2 1 2 3 1 4 1  
## 6 1 3 1 1 2 1 2 3 1 4 1  
## SPSRQ6 SPSRQ7 SPSRQ8 SPSRQ9 SPSRQ10 SPSRQ11 SPSRQ12 SPSRQ13 SPSRQ14  
## 1 2 2 2 2 4 1 4 1 4  
## 2 2 2 2 2 4 1 4 1 4  
## 3 2 2 2 2 4 1 4 1 4  
## 4 2 2 2 2 4 1 4 1 4  
## 5 2 2 2 2 4 1 4 1 4  
## 6 2 2 2 2 4 1 4 1 4  
## SPSRQ15 SPSRQ16 SPSRQ17 SPSRQ18 SPSRQ19 SPSRQ20 DEBQ1 DEBQ2 DEBQ3 DEBQ4  
## 1 1 5 1 4 2 4 2 2 2 3  
## 2 1 5 1 4 2 4 2 2 2 3  
## 3 1 5 1 4 2 4 2 2 2 3  
## 4 1 5 1 4 2 4 2 2 2 3  
## 5 1 5 1 4 2 4 2 2 2 3  
## 6 1 5 1 4 2 4 2 2 2 3  
## DEBQ5 DEBQ6 DEBQ7 DEBQ8 DEBQ9 DEBQ10 DEBQ11 DEBQ12 DEBQ13 DEBQ14 DEBQ15  
## 1 3 1 2 2 1 2 3 2 2 1 1  
## 2 3 1 2 2 1 2 3 2 2 1 1  
## 3 3 1 2 2 1 2 3 2 2 1 1  
## 4 3 1 2 2 1 2 3 2 2 1 1  
## 5 3 1 2 2 1 2 3 2 2 1 1  
## 6 3 1 2 2 1 2 3 2 2 1 1  
## DEBQ16 DEBQ17 DEBQ18 DEBQ19 DEBQ20 DEBQ21 DEBQ22 DEBQ23 DEBQ24 DEBQ25  
## 1 1 2 3 2 2 2 2 2 3 4  
## 2 1 2 3 2 2 2 2 2 3 4  
## 3 1 2 3 2 2 2 2 2 3 4  
## 4 1 2 3 2 2 2 2 2 3 4  
## 5 1 2 3 2 2 2 2 2 3 4  
## 6 1 2 3 2 2 2 2 2 3 4  
## DEBQ26 DEBQ27 DEBQ28 DEBQ29 DEBQ30 DEBQ31 DEBQ32 DEBQ33 BISBAS1 BISBAS2  
## 1 4 4 3 4 3 2 2 4 2 2  
## 2 4 4 3 4 3 2 2 4 2 2  
## 3 4 4 3 4 3 2 2 4 2 2  
## 4 4 4 3 4 3 2 2 4 2 2  
## 5 4 4 3 4 3 2 2 4 2 2  
## 6 4 4 3 4 3 2 2 4 2 2  
## BISBAS3 BISBAS4 BISBAS5 BISBAS7 BISBAS8 BISBAS9 BISBAS10 BISBAS11  
## 1 1 1 1 1 3 1 2 1  
## 2 1 1 1 1 3 1 2 1  
## 3 1 1 1 1 3 1 2 1  
## 4 1 1 1 1 3 1 2 1  
## 5 1 1 1 1 3 1 2 1  
## 6 1 1 1 1 3 1 2 1  
## BISBAS12 BISBAS13 BISBAS14 BISBAS15 BISBAS16 BISBAS17 BISBAS18 BISBAS19  
## 1 2 3 2 1 3 2 2 2  
## 2 2 3 2 1 3 2 2 2  
## 3 2 3 2 1 3 2 2 2  
## 4 2 3 2 1 3 2 2 2  
## 5 2 3 2 1 3 2 2 2  
## 6 2 3 2 1 3 2 2 2  
## BISBAS20 BISBAS21 BISBAS22 BISBAS23 BISBAS24 IPAQ1 IPAQ2 IPAQ3 IPAQ4  
## 1 1 1 2 2 3 NA <NA> <NA> <NA>  
## 2 1 1 2 2 3 NA <NA> <NA> <NA>  
## 3 1 1 2 2 3 NA <NA> <NA> <NA>  
## 4 1 1 2 2 3 NA <NA> <NA> <NA>  
## 5 1 1 2 2 3 NA <NA> <NA> <NA>  
## 6 1 1 2 2 3 NA <NA> <NA> <NA>  
## IPAQ5 IPAQ6 IPAQ7 IPAQ8 IPAQ9 IPAQ10 IPAQ11 IPAQ12 IPAQ13 IPAQ14 IPAQ15  
## 1 <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> NA <NA>  
## 2 <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> NA <NA>  
## 3 <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> NA <NA>  
## 4 <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> NA <NA>  
## 5 <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> NA <NA>  
## 6 <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> NA <NA>  
## IPAQ16 IPAQ17 IPAQ18 IPAQ19 IPAQ20 IPAQ21 IPAQ22 IPAQ23 IPAQ24 IPAQ25  
## 1 <NA> <NA> <NA> <NA> <NA> <NA> NA <NA> <NA> <NA>  
## 2 <NA> <NA> <NA> <NA> <NA> <NA> NA <NA> <NA> <NA>  
## 3 <NA> <NA> <NA> <NA> <NA> <NA> NA <NA> <NA> <NA>  
## 4 <NA> <NA> <NA> <NA> <NA> <NA> NA <NA> <NA> <NA>  
## 5 <NA> <NA> <NA> <NA> <NA> <NA> NA <NA> <NA> <NA>  
## 6 <NA> <NA> <NA> <NA> <NA> <NA> NA <NA> <NA> <NA>  
## IPAQ26 IPAQ27 IPAQ28 IPAQ29 IPAQ30 IPAQ31 IPAQ32 IPAQ33 IPAQ34 IPAQ35  
## 1 <NA> <NA> <NA> <NA> NA <NA> <NA> <NA> <NA> <NA>  
## 2 <NA> <NA> <NA> <NA> NA <NA> <NA> <NA> <NA> <NA>  
## 3 <NA> <NA> <NA> <NA> NA <NA> <NA> <NA> <NA> <NA>  
## 4 <NA> <NA> <NA> <NA> NA <NA> <NA> <NA> <NA> <NA>  
## 5 <NA> <NA> <NA> <NA> NA <NA> <NA> <NA> <NA> <NA>  
## 6 <NA> <NA> <NA> <NA> NA <NA> <NA> <NA> <NA> <NA>  
## IPAQ36 IPAQ37 IPAQ38 IPAQ39 IPAQ40 IPAQ41 IPAQ42 IPAQ43 IPAQ44 IPAQ45  
## 1 <NA> <NA> NA <NA> <NA> <NA> <NA> <NA> <NA> <NA>  
## 2 <NA> <NA> NA <NA> <NA> <NA> <NA> <NA> <NA> <NA>  
## 3 <NA> <NA> NA <NA> <NA> <NA> <NA> <NA> <NA> <NA>  
## 4 <NA> <NA> NA <NA> <NA> <NA> <NA> <NA> <NA> <NA>  
## 5 <NA> <NA> NA <NA> <NA> <NA> <NA> <NA> <NA> <NA>  
## 6 <NA> <NA> NA <NA> <NA> <NA> <NA> <NA> <NA> <NA>  
## IPAQ46 IPAQ47 IPAQ48 IPAQ49 total\_MET PA\_category HAND1 HAND2 HAND3  
## 1 <NA> <NA> <NA> <NA> NA <NA> 2 2 2  
## 2 <NA> <NA> <NA> <NA> NA <NA> 2 2 2  
## 3 <NA> <NA> <NA> <NA> NA <NA> 2 2 2  
## 4 <NA> <NA> <NA> <NA> NA <NA> 2 2 2  
## 5 <NA> <NA> <NA> <NA> NA <NA> 2 2 2  
## 6 <NA> <NA> <NA> <NA> NA <NA> 2 2 2  
## HAND4 HAND5 HAND6 HAND7 HAND8 HAND9 HAND10 HAND11 HAND12 sleep\_qual  
## 1 2 2 2 2 1 2 2 2 2 2  
## 2 2 2 2 2 1 2 2 2 2 2  
## 3 2 2 2 2 1 2 2 2 2 2  
## 4 2 2 2 2 1 2 2 2 2 2  
## 5 2 2 2 2 1 2 2 2 2 2  
## 6 2 2 2 2 1 2 2 2 2 2  
## prescanfullness prescanhunger prescanthirst SPSRQ\_punishment  
## 1 -63 46 -61 14  
## 2 -63 46 -61 14  
## 3 -63 46 -61 14  
## 4 -63 46 -61 14  
## 5 -63 46 -61 14  
## 6 -63 46 -61 14  
## SPSRQ\_reward BISBAS1\_rev BISBAS3\_rev BISBAS4\_rev BISBAS5\_rev BISBAS7\_rev  
## 1 36 3 4 4 4 4  
## 2 36 3 4 4 4 4  
## 3 36 3 4 4 4 4  
## 4 36 3 4 4 4 4  
## 5 36 3 4 4 4 4  
## 6 36 3 4 4 4 4  
## BISBAS8\_rev BISBAS9\_rev BISBAS10\_rev BISBAS11\_rev BISBAS12\_rev  
## 1 2 4 3 4 3  
## 2 2 4 3 4 3  
## 3 2 4 3 4 3  
## 4 2 4 3 4 3  
## 5 2 4 3 4 3  
## 6 2 4 3 4 3  
## BISBAS13\_rev BISBAS14\_rev BISBAS15\_rev BISBAS16\_rev BISBAS17\_rev  
## 1 2 3 4 2 3  
## 2 2 3 4 2 3  
## 3 2 3 4 2 3  
## 4 2 3 4 2 3  
## 5 2 3 4 2 3  
## 6 2 3 4 2 3  
## BISBAS18\_rev BISBAS19\_rev BISBAS20\_rev BISBAS21\_rev BISBAS23\_rev  
## 1 3 3 4 4 3  
## 2 3 3 4 4 3  
## 3 3 3 4 4 3  
## 4 3 3 4 4 3  
## 5 3 3 4 4 3  
## 6 3 3 4 4 3  
## BISBAS24\_rev bas\_drive bas\_funseeking bas\_rewardresponsiveness bas  
## 1 2 3.75 3.75 3.4 3.633333  
## 2 2 3.75 3.75 3.4 3.633333  
## 3 2 3.75 3.75 3.4 3.633333  
## 4 2 3.75 3.75 3.4 3.633333  
## 5 2 3.75 3.75 3.4 3.633333  
## 6 2 3.75 3.75 3.4 3.633333  
## bis DRES external\_eating emotional\_eating HAND1\_new HAND2\_new  
## 1 2.166667 2 3.1 1.9 1 1  
## 2 2.166667 2 3.1 1.9 1 1  
## 3 2.166667 2 3.1 1.9 1 1  
## 4 2.166667 2 3.1 1.9 1 1  
## 5 2.166667 2 3.1 1.9 1 1  
## 6 2.166667 2 3.1 1.9 1 1  
## HAND3\_new HAND4\_new HAND5\_new HAND6\_new HAND7\_new HAND8\_new HAND9\_new  
## 1 1 1 1 1 1 -1 1  
## 2 1 1 1 1 1 -1 1  
## 3 1 1 1 1 1 -1 1  
## 4 1 1 1 1 1 -1 1  
## 5 1 1 1 1 1 -1 1  
## 6 1 1 1 1 1 -1 1  
## HAND10\_new HAND11\_new HAND12\_new Handedness\_score Handedness\_cat  
## 1 1 1 1 10 right  
## 2 1 1 1 10 right  
## 3 1 1 1 10 right  
## 4 1 1 1 10 right  
## 5 1 1 1 10 right  
## 6 1 1 1 10 right  
## TOTAL\_KCAL TOTAL\_G\_FAT TOTAL\_G\_SUGAR PERC\_KCAL\_FAT PERC\_KCAL\_SUG  
## 1 1975.5 86.8 43.7 0.396 0.088  
## 2 1975.5 86.8 43.7 0.396 0.088  
## 3 1975.5 86.8 43.7 0.396 0.088  
## 4 1975.5 86.8 43.7 0.396 0.088  
## 5 1975.5 86.8 43.7 0.396 0.088  
## 6 1975.5 86.8 43.7 0.396 0.088  
## PORTIONS\_SSB nback\_accuracy nback\_accuracy\_SD nback\_avg\_RT  
## 1 2.5 0.8875 0.27875 787.611  
## 2 2.5 0.8875 0.27875 787.611  
## 3 2.5 0.8875 0.27875 787.611  
## 4 2.5 0.8875 0.27875 787.611  
## 5 2.5 0.8875 0.27875 787.611  
## 6 2.5 0.8875 0.27875 787.611  
## nback\_avg\_RT\_SD taste\_reinforcers reward reward\_expected  
## 1 78.7985 96 51 34  
## 2 78.7985 96 51 34  
## 3 78.7985 96 51 34  
## 4 78.7985 96 51 34  
## 5 78.7985 96 51 34  
## 6 78.7985 96 51 34  
## reward\_unexpected punish punish\_expected punish\_unexpected RT\_run1  
## 1 17 45 32 17 1.595  
## 2 17 45 32 17 1.595  
## 3 17 45 32 17 1.595  
## 4 17 45 32 17 1.595  
## 5 17 45 32 17 1.595  
## 6 17 45 32 17 1.595  
## RT\_run2 RT\_run3 RT\_run4 RT\_ab RT\_cd RT\_ef X.\_correct X.correct\_run1  
## 1 1.598 1.609 1.592 1.597 1.604 1.595 49.0% 52.2%  
## 2 1.598 1.609 1.592 1.597 1.604 1.595 49.0% 52.2%  
## 3 1.598 1.609 1.592 1.597 1.604 1.595 49.0% 52.2%  
## 4 1.598 1.609 1.592 1.597 1.604 1.595 49.0% 52.2%  
## 5 1.598 1.609 1.592 1.597 1.604 1.595 49.0% 52.2%  
## 6 1.598 1.609 1.592 1.597 1.604 1.595 49.0% 52.2%  
## X.correct\_run2 X.correct\_run3 X.correct\_run4 X.correct\_ab\_run1  
## 1 54.2% 34.6% 56.5% 63.6%  
## 2 54.2% 34.6% 56.5% 63.6%  
## 3 54.2% 34.6% 56.5% 63.6%  
## 4 54.2% 34.6% 56.5% 63.6%  
## 5 54.2% 34.6% 56.5% 63.6%  
## 6 54.2% 34.6% 56.5% 63.6%  
## X.correct\_ab\_run2 X.correct\_ab\_run3 X.correct\_ab\_run4 trials\_AB\_run1  
## 1 57.1% 25.0% 54.5% 11  
## 2 57.1% 25.0% 54.5% 11  
## 3 57.1% 25.0% 54.5% 11  
## 4 57.1% 25.0% 54.5% 11  
## 5 57.1% 25.0% 54.5% 11  
## 6 57.1% 25.0% 54.5% 11  
## trials\_AB\_run2 trials\_AB\_run3 trials\_AB\_run4 X.correct\_cd\_run1  
## 1 7 12 11 44.4%  
## 2 7 12 11 44.4%  
## 3 7 12 11 44.4%  
## 4 7 12 11 44.4%  
## 5 7 12 11 44.4%  
## 6 7 12 11 44.4%  
## X.correct\_cd\_run2 X.correct\_cd\_run3 X.correct\_cd\_run4 trials\_cd\_run1  
## 1 50.0% 42.9% 66.7% 9  
## 2 50.0% 42.9% 66.7% 9  
## 3 50.0% 42.9% 66.7% 9  
## 4 50.0% 42.9% 66.7% 9  
## 5 50.0% 42.9% 66.7% 9  
## 6 50.0% 42.9% 66.7% 9  
## trials\_cd\_run2 trials\_cd\_run3 trials\_cd\_run4 X.correct\_ef\_run1  
## 1 10 7 6 33.3%  
## 2 10 7 6 33.3%  
## 3 10 7 6 33.3%  
## 4 10 7 6 33.3%  
## 5 10 7 6 33.3%  
## 6 10 7 6 33.3%  
## X.correct\_ef\_run2 X.correct\_ef\_run3 X.correct\_ef\_run4 trials\_ef\_run1  
## 1 57.1% 42.9% 50.0% 3  
## 2 57.1% 42.9% 50.0% 3  
## 3 57.1% 42.9% 50.0% 3  
## 4 57.1% 42.9% 50.0% 3  
## 5 57.1% 42.9% 50.0% 3  
## 6 57.1% 42.9% 50.0% 3  
## trials\_ef\_run2 trials\_ef\_run3 trials\_ef\_run4 taste\_run1 taste\_run2  
## 1 7 7 6 23 24  
## 2 7 7 6 23 24  
## 3 7 7 6 23 24  
## 4 7 7 6 23 24  
## 5 7 7 6 23 24  
## 6 7 7 6 23 24  
## taste\_run3 taste\_run4 notes alpha\_pos alpha\_neg criteria\_met  
## 1 26 23 good 0.3505628 0.6387845 0  
## 2 26 23 good 0.3505628 0.6387845 0  
## 3 26 23 good 0.3505628 0.6387845 0  
## 4 26 23 good 0.3505628 0.6387845 0  
## 5 26 23 good 0.3505628 0.6387845 0  
## 6 26 23 good 0.3505628 0.6387845 0  
## training\_slope  
## 1 neg\_slope  
## 2 neg\_slope  
## 3 neg\_slope  
## 4 neg\_slope  
## 5 neg\_slope  
## 6 neg\_slope

names(data0)

## [1] "sub\_num" "run"   
## [3] "type" "choice"   
## [5] "side" "outcome"   
## [7] "congruent" "RT"   
## [9] "Count" "outcome0"   
## [11] "ID" "intials"   
## [13] "date" "weight"   
## [15] "height" "BMI"   
## [17] "BMI\_cat" "hba1c"   
## [19] "bloodglucose" "bitter"   
## [21] "age" "DOB"   
## [23] "hispanic" "race1"   
## [25] "sex" "mens\_date"   
## [27] "mens\_length" "sensitivity\_reward"   
## [29] "sensitivity\_punish" "test\_result\_group"   
## [31] "preTTfullness" "preTThunger"   
## [33] "preTTthirst" "hourssincelastmeal"   
## [35] "sweetstim\_level" "sweetstim\_pleasent"   
## [37] "sweetstim\_desire" "sweetstim\_intense"   
## [39] "sweetstim\_bitter" "sweetstim\_sweet"   
## [41] "bitterstim\_level" "bitterstim\_pleasent"   
## [43] "bitterstim\_desire" "bitterstim\_intense"   
## [45] "bitterstim\_bitter" "bitterstim\_sweet"   
## [47] "sweet1pleasent" "sweet1desire"   
## [49] "sweet1intense" "sweet1bitter"   
## [51] "sweet1sweet" "sweet2pleasent"   
## [53] "sweet2desire" "sweet2intense"   
## [55] "sweet2bitter" "sweet2sweet"   
## [57] "sweet3pleasent" "sweet3desire"   
## [59] "sweet3intense" "sweet3bitter"   
## [61] "sweet3sweet" "sweet4pleasent"   
## [63] "sweet4desire" "sweet4intense"   
## [65] "sweet4bitter" "sweet4sweet"   
## [67] "sweet1rank" "sweet2rank"   
## [69] "sweet3rank" "sweet4rank"   
## [71] "bitter1pleasent" "bitter1desire"   
## [73] "bitter1intense" "bitter1bitter"   
## [75] "bitter1sweet" "bitter2pleasent"   
## [77] "bitter2desire" "bitter2intense"   
## [79] "bitter2bitter" "bitter2sweet"   
## [81] "bitter3pleasent" "bitter3desire"   
## [83] "bitter3intense" "bitter3bitter"   
## [85] "bitter3sweet" "bitter4pleasent"   
## [87] "bitter4desire" "bitter4intense"   
## [89] "bitter4bitter" "bitter4sweet"   
## [91] "bitter1rank" "bitter2rank"   
## [93] "bitter3rank" "bitter4rank"   
## [95] "FFQ1" "FFQ2"   
## [97] "FFQ3" "FFQ4"   
## [99] "FFQ5" "FFQ6"   
## [101] "FFQ7" "FFQ8"   
## [103] "FFQ9" "FFQ10"   
## [105] "FFQ11" "FFQ12"   
## [107] "FFQ13" "FFQ14"   
## [109] "FFQ15" "FFQ16"   
## [111] "FFQ17" "FFQ18"   
## [113] "FFQ19" "FFQ20"   
## [115] "FFQ21" "FFQ22"   
## [117] "FFQ23" "FFQ24"   
## [119] "FFQ25" "FFQ26"   
## [121] "FFQ27" "FFQ28"   
## [123] "FFQ29" "FFQ30"   
## [125] "FFQ31" "FFQ32"   
## [127] "FFQ33" "FFQ34"   
## [129] "FFQ35" "FFQ36"   
## [131] "FFQ37" "FFQ38"   
## [133] "FFQ39" "FFQ40"   
## [135] "FFQ41" "FFQ42"   
## [137] "FFQ43" "FFQ44"   
## [139] "FFQ45" "FFQ46"   
## [141] "FFQ47" "FFQ48"   
## [143] "FFQ49" "FFQ50"   
## [145] "FFQ51" "FFQ52"   
## [147] "FFQ53" "FFQ54"   
## [149] "FFQ55" "FFQ56"   
## [151] "FFQ57" "FFQ58"   
## [153] "FFQ59" "FFQ60"   
## [155] "BIQ1" "BIQ2"   
## [157] "BIQ3" "BIQ4"   
## [159] "BIQ5" "BIQ6"   
## [161] "BIQ7" "BIQ8"   
## [163] "BIQ9" "BIQ10"   
## [165] "BIQ11" "BIQ12"   
## [167] "BIQ13" "BIQ14"   
## [169] "BIQ15" "BIQ16"   
## [171] "SPSRQ1" "SPSRQ2"   
## [173] "SPSRQ3" "SPSRQ4"   
## [175] "SPSRQ5" "SPSRQ6"   
## [177] "SPSRQ7" "SPSRQ8"   
## [179] "SPSRQ9" "SPSRQ10"   
## [181] "SPSRQ11" "SPSRQ12"   
## [183] "SPSRQ13" "SPSRQ14"   
## [185] "SPSRQ15" "SPSRQ16"   
## [187] "SPSRQ17" "SPSRQ18"   
## [189] "SPSRQ19" "SPSRQ20"   
## [191] "DEBQ1" "DEBQ2"   
## [193] "DEBQ3" "DEBQ4"   
## [195] "DEBQ5" "DEBQ6"   
## [197] "DEBQ7" "DEBQ8"   
## [199] "DEBQ9" "DEBQ10"   
## [201] "DEBQ11" "DEBQ12"   
## [203] "DEBQ13" "DEBQ14"   
## [205] "DEBQ15" "DEBQ16"   
## [207] "DEBQ17" "DEBQ18"   
## [209] "DEBQ19" "DEBQ20"   
## [211] "DEBQ21" "DEBQ22"   
## [213] "DEBQ23" "DEBQ24"   
## [215] "DEBQ25" "DEBQ26"   
## [217] "DEBQ27" "DEBQ28"   
## [219] "DEBQ29" "DEBQ30"   
## [221] "DEBQ31" "DEBQ32"   
## [223] "DEBQ33" "BISBAS1"   
## [225] "BISBAS2" "BISBAS3"   
## [227] "BISBAS4" "BISBAS5"   
## [229] "BISBAS7" "BISBAS8"   
## [231] "BISBAS9" "BISBAS10"   
## [233] "BISBAS11" "BISBAS12"   
## [235] "BISBAS13" "BISBAS14"   
## [237] "BISBAS15" "BISBAS16"   
## [239] "BISBAS17" "BISBAS18"   
## [241] "BISBAS19" "BISBAS20"   
## [243] "BISBAS21" "BISBAS22"   
## [245] "BISBAS23" "BISBAS24"   
## [247] "IPAQ1" "IPAQ2"   
## [249] "IPAQ3" "IPAQ4"   
## [251] "IPAQ5" "IPAQ6"   
## [253] "IPAQ7" "IPAQ8"   
## [255] "IPAQ9" "IPAQ10"   
## [257] "IPAQ11" "IPAQ12"   
## [259] "IPAQ13" "IPAQ14"   
## [261] "IPAQ15" "IPAQ16"   
## [263] "IPAQ17" "IPAQ18"   
## [265] "IPAQ19" "IPAQ20"   
## [267] "IPAQ21" "IPAQ22"   
## [269] "IPAQ23" "IPAQ24"   
## [271] "IPAQ25" "IPAQ26"   
## [273] "IPAQ27" "IPAQ28"   
## [275] "IPAQ29" "IPAQ30"   
## [277] "IPAQ31" "IPAQ32"   
## [279] "IPAQ33" "IPAQ34"   
## [281] "IPAQ35" "IPAQ36"   
## [283] "IPAQ37" "IPAQ38"   
## [285] "IPAQ39" "IPAQ40"   
## [287] "IPAQ41" "IPAQ42"   
## [289] "IPAQ43" "IPAQ44"   
## [291] "IPAQ45" "IPAQ46"   
## [293] "IPAQ47" "IPAQ48"   
## [295] "IPAQ49" "total\_MET"   
## [297] "PA\_category" "HAND1"   
## [299] "HAND2" "HAND3"   
## [301] "HAND4" "HAND5"   
## [303] "HAND6" "HAND7"   
## [305] "HAND8" "HAND9"   
## [307] "HAND10" "HAND11"   
## [309] "HAND12" "sleep\_qual"   
## [311] "prescanfullness" "prescanhunger"   
## [313] "prescanthirst" "SPSRQ\_punishment"   
## [315] "SPSRQ\_reward" "BISBAS1\_rev"   
## [317] "BISBAS3\_rev" "BISBAS4\_rev"   
## [319] "BISBAS5\_rev" "BISBAS7\_rev"   
## [321] "BISBAS8\_rev" "BISBAS9\_rev"   
## [323] "BISBAS10\_rev" "BISBAS11\_rev"   
## [325] "BISBAS12\_rev" "BISBAS13\_rev"   
## [327] "BISBAS14\_rev" "BISBAS15\_rev"   
## [329] "BISBAS16\_rev" "BISBAS17\_rev"   
## [331] "BISBAS18\_rev" "BISBAS19\_rev"   
## [333] "BISBAS20\_rev" "BISBAS21\_rev"   
## [335] "BISBAS23\_rev" "BISBAS24\_rev"   
## [337] "bas\_drive" "bas\_funseeking"   
## [339] "bas\_rewardresponsiveness" "bas"   
## [341] "bis" "DRES"   
## [343] "external\_eating" "emotional\_eating"   
## [345] "HAND1\_new" "HAND2\_new"   
## [347] "HAND3\_new" "HAND4\_new"   
## [349] "HAND5\_new" "HAND6\_new"   
## [351] "HAND7\_new" "HAND8\_new"   
## [353] "HAND9\_new" "HAND10\_new"   
## [355] "HAND11\_new" "HAND12\_new"   
## [357] "Handedness\_score" "Handedness\_cat"   
## [359] "TOTAL\_KCAL" "TOTAL\_G\_FAT"   
## [361] "TOTAL\_G\_SUGAR" "PERC\_KCAL\_FAT"   
## [363] "PERC\_KCAL\_SUG" "PORTIONS\_SSB"   
## [365] "nback\_accuracy" "nback\_accuracy\_SD"   
## [367] "nback\_avg\_RT" "nback\_avg\_RT\_SD"   
## [369] "taste\_reinforcers" "reward"   
## [371] "reward\_expected" "reward\_unexpected"   
## [373] "punish" "punish\_expected"   
## [375] "punish\_unexpected" "RT\_run1"   
## [377] "RT\_run2" "RT\_run3"   
## [379] "RT\_run4" "RT\_ab"   
## [381] "RT\_cd" "RT\_ef"   
## [383] "X.\_correct" "X.correct\_run1"   
## [385] "X.correct\_run2" "X.correct\_run3"   
## [387] "X.correct\_run4" "X.correct\_ab\_run1"   
## [389] "X.correct\_ab\_run2" "X.correct\_ab\_run3"   
## [391] "X.correct\_ab\_run4" "trials\_AB\_run1"   
## [393] "trials\_AB\_run2" "trials\_AB\_run3"   
## [395] "trials\_AB\_run4" "X.correct\_cd\_run1"   
## [397] "X.correct\_cd\_run2" "X.correct\_cd\_run3"   
## [399] "X.correct\_cd\_run4" "trials\_cd\_run1"   
## [401] "trials\_cd\_run2" "trials\_cd\_run3"   
## [403] "trials\_cd\_run4" "X.correct\_ef\_run1"   
## [405] "X.correct\_ef\_run2" "X.correct\_ef\_run3"   
## [407] "X.correct\_ef\_run4" "trials\_ef\_run1"   
## [409] "trials\_ef\_run2" "trials\_ef\_run3"   
## [411] "trials\_ef\_run4" "taste\_run1"   
## [413] "taste\_run2" "taste\_run3"   
## [415] "taste\_run4" "notes"   
## [417] "alpha\_pos" "alpha\_neg"   
## [419] "criteria\_met" "training\_slope"

summary(data0$sensitivity\_reward)

## Min. 1st Qu. Median Mean 3rd Qu. Max. NA's   
## 0.2917 0.4444 0.5000 0.5096 0.5789 0.7500 104

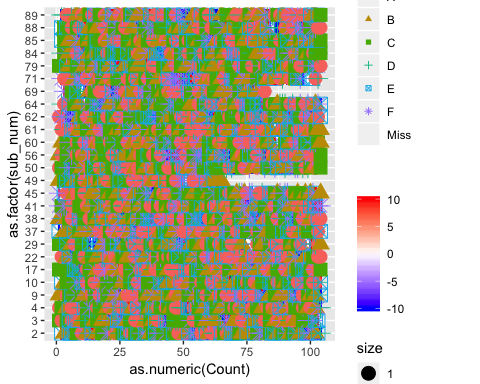
data0$learn[data0$sensitivity\_reward < 0.444]<- "didn't learn"  
data0$learn[data0$sensitivity\_reward >= 0.444 & data0$sensitivity\_reward < 0.5 ]<- "meh"  
data0$learn[ data0$sensitivity\_reward >= 0.5 & data0$sensitivity\_reward < 0.57 ]<- "ok"  
data0$learn[ data0$sensitivity\_reward >= 0.57]<- "pretty pretty good"  
summary(as.factor(data0$learn))

## didn't learn meh ok   
## 2211 1541 2609   
## pretty pretty good NA's   
## 2643 104

hmTOTALgood<-ggplot(subset(data0, learn == "pretty pretty good"),aes(as.numeric(Count), as.factor(sub\_num) ,fill=outcome0))+  
 geom\_tile()+  
 scale\_fill\_gradient2(low="blue", high="red", na.value="black", name="")+  
 geom\_point(aes(shape=as.factor(choice), size=1, color=as.factor(choice)))  
hmTOTALgood

## Warning: The shape palette can deal with a maximum of 6 discrete values  
## because more than 6 becomes difficult to discriminate; you have 7.  
## Consider specifying shapes manually if you must have them.

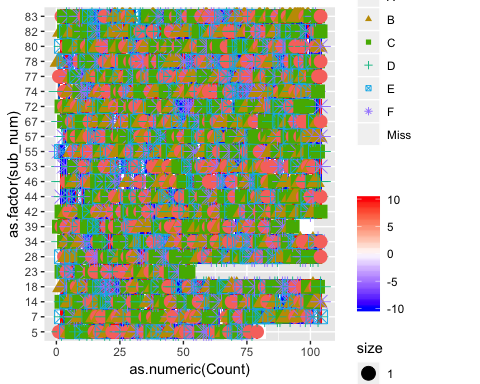
## Warning: Removed 115 rows containing missing values (geom\_point).



hmTOTALbad<-ggplot(subset(data0, learn == "didn't learn"),aes(as.numeric(Count), as.factor(sub\_num) ,fill=outcome0))+  
 geom\_tile()+  
 scale\_fill\_gradient2(low="blue", high="red", na.value="black", name="")+  
 geom\_point(aes(shape=as.factor(choice), size=1, color=as.factor(choice)))  
hmTOTALbad

## Warning: The shape palette can deal with a maximum of 6 discrete values  
## because more than 6 becomes difficult to discriminate; you have 7.  
## Consider specifying shapes manually if you must have them.

## Warning: Removed 116 rows containing missing values (geom\_point).



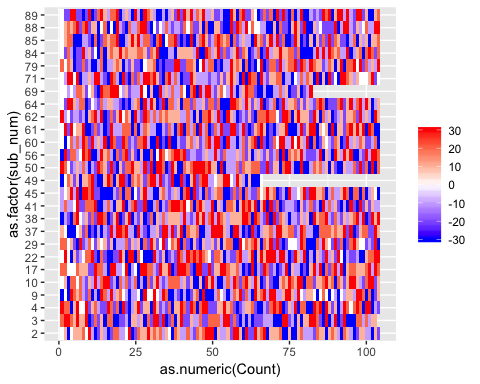
test<-ggarrange(hmTOTALbad,hmTOTALgood,   
 labels = c("bad", "good"),  
 ncol = 1, nrow = 2)

## Warning: The shape palette can deal with a maximum of 6 discrete values  
## because more than 6 becomes difficult to discriminate; you have 7.  
## Consider specifying shapes manually if you must have them.  
  
## Warning: Removed 116 rows containing missing values (geom\_point).

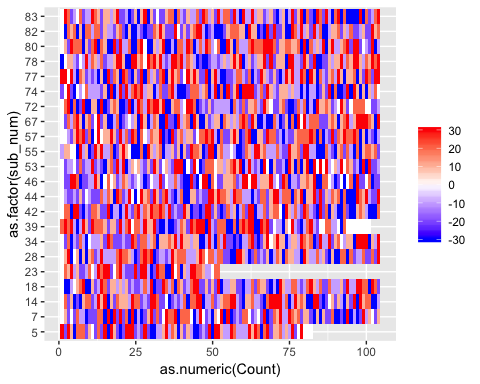
## Warning: The shape palette can deal with a maximum of 6 discrete values  
## because more than 6 becomes difficult to discriminate; you have 7.  
## Consider specifying shapes manually if you must have them.

## Warning: Removed 115 rows containing missing values (geom\_point).

data0$choice0[data0$choice == "Miss"] <- 0  
# good  
data0$choice0[data0$choice == "A"] <- 30  
data0$choice0[data0$choice == "C"] <- 20  
data0$choice0[data0$choice == "E"] <- 10  
# bad  
data0$choice0[data0$choice == "B"] <- -30  
data0$choice0[data0$choice == "D"] <- -20  
data0$choice0[data0$choice == "F"] <- -10  
  
hmTOTALgood\_flip<-ggplot(subset(data0, learn == "pretty pretty good"),aes(as.numeric(Count), as.factor(sub\_num) ,fill=choice0))+  
 geom\_tile()+  
 scale\_fill\_gradient2(low="blue", high="red", na.value="black", name="")  
 #geom\_point(aes(shape=as.factor(outcome), size=1, color=as.factor(outcome)))  
hmTOTALgood\_flip



hmTOTALbad\_flip<-ggplot(subset(data0, learn == "didn't learn"),aes(as.numeric(Count), as.factor(sub\_num) ,fill=choice0))+  
 geom\_tile()+  
 scale\_fill\_gradient2(low="blue", high="red", na.value="black", name="")  
 #geom\_point(aes(shape=as.factor(outcome), size=1, color=as.factor(outcome)))  
hmTOTALbad\_flip



test<-ggarrange(hmTOTALbad\_flip,hmTOTALgood\_flip,   
 labels = c("bad", "good"),  
 ncol = 1, nrow = 2)

mytable <- xtabs(~choice+learn, data=data0)  
ftable(mytable) # print table

## learn didn't learn meh ok pretty pretty good  
## choice   
## A 362 248 417 460  
## B 331 242 420 441  
## C 359 236 401 425  
## D 353 240 413 377  
## E 332 224 410 407  
## F 358 270 384 418  
## Miss 116 81 164 115

summary(mytable) # chi-square test of indepedence

## Call: xtabs(formula = ~choice + learn, data = data0)  
## Number of cases in table: 9004   
## Number of factors: 2   
## Test for independence of all factors:  
## Chisq = 23.464, df = 18, p-value = 0.1734

mytable <- xtabs(~outcome+learn, data=data0)  
ftable(mytable) # print table

## learn didn't learn meh ok pretty pretty good  
## outcome   
## Miss 116 81 164 115  
## punish 1032 717 1218 1227  
## reward 1063 743 1227 1301

summary(mytable) # chi-square test of indepedence

## Call: xtabs(formula = ~outcome + learn, data = data0)  
## Number of cases in table: 9004   
## Number of factors: 2   
## Test for independence of all factors:  
## Chisq = 10.656, df = 6, p-value = 0.09961

mytable <- xtabs(~congruent+learn, data=data0)  
ftable(mytable) # print table

## learn didn't learn meh ok pretty pretty good  
## congruent   
## matched 1489 997 1734 1777  
## mismatched 606 463 711 751  
## Miss 116 81 164 115

summary(mytable) # chi-square test of indepedence

## Call: xtabs(formula = ~congruent + learn, data = data0)  
## Number of cases in table: 9004   
## Number of factors: 2   
## Test for independence of all factors:  
## Chisq = 13.713, df = 6, p-value = 0.03301

## Ah ha moment

There is a difference between the number of mismatched trials in the “learners” and “non learners.” Those who “don’t learn” have more mismatches.