取消文化之現象分析

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Table 1: 變數解釋

Variables	Explanation	remark
q1	性別	1: 男性, 2: 女性
q2	出生年 (民國)	
q3	出生縣市	
q4	教育程度	
q5	週上網天數	
q6	上網時數 (工作、學習)	
q7	上網時數 (娛樂、休閒)	
q8	上網原因	
q9	使用的即時通訊軟體	
q10	使用的社群媒體	
q11	使用的影音平台	
q12	了解疫情消息的管道	
q13_01	使用網路平台關注疫情消息的頻率	
q13_02	疫情相關留言的言論種類	
q13_03	疫情相關留言對自己的幫助	
q13_04	疫情相關留言的負面性質	
q13_05	疫情相關留言對自己的負面影響	
q14_01	社群媒體上的來源	
q14_02	Line 上的來源	
q14_03	YT 上的來源	
q15_01	疫情期間是否減少出門	
q15_02	減少出門時的休閒活動	
q15_03	政府疫情處置的滿意度	
q16	是否參與過不會對人造成傷害的網路惡搞	
q17_01	是騙人的不會對人造成傷害的網路惡搞	
q17_02	不是騙人的不會對人造成傷害的網路惡搞	
q18	是否參與過會對人造成傷害的網路惡搞	
q19_01	是騙人的會對人造成傷害的網路惡搞	
q19_02	不是騙人的會對人造成傷害的網路惡搞	
q20	主動激化傾向	
q21_a	注意力偵測	專心: 只選第六項並填寫已讀二字 分心: 其他情況
q22	他人攻擊傾向	
q23	自己攻擊傾向	
q24	回聲室效應	
q25	被攻擊的接受度	

Variables	Explanation	remark
q26	推測他人攻擊意圖	
q27	抵制意圖	
q28	採取過的社群媒體抵制行為種類	
q29	抵制的原因	
q30	抵制行為的有效程度	
q31	抵制前的同理心	
q32	抵制行為的對名人的傷害程度	
q33	抵制行為的對自己的重要程度	
q34	抵制成本	
q35	抵制規模感知	
q36	抵制的社會壓力	
q37_a	注意力偵測	專心: 彩虹有七個顏色 分心: otherwise
q38_01	生活滿意度	
q38_02	社會滿意度	
q39	生活品質	
q40	國民黨喜好程度	
q41	民進黨喜好程度	
q42	意識形態	0~10: 台獨 ~ 統一

```
library(haven)            #read sav file
library(labelled)       #remove attribute of sav data
library(Hmisc)          #describe
library(showtext)       #show zw-tw in ggplot2
library(dplyr);library(ggplot2);library(MASS)
library(rlang)          #for building function
#DB.sav <-read_sav("DisruptiveBehavior.sav")
#write.csv(DB.sav,file= "DisruptiveBehavior.csv", row.names= FALSE)
DB.csv <-read.csv("DisruptiveBehavior.csv")
showtext_auto()
```

```
DB.csv <- DB.csv[,-c(1:4)]
#DataExplorer::plot_missing(DB.csv[,1:20])
```

```
#latex(describe(DB.csv),title="",file="")
```

```
# 第四題沒有人選其他
DB.csv$q4_88_text <- NULL

# 教育程度重新劃分為四個等級
DB.csv$q4[DB.csv$q4<=8] <- 1
DB.csv$q4[DB.csv$q4!=1 & DB.csv$q4<=15] <- 2
DB.csv$q4[DB.csv$q4>2 & DB.csv$q4<=19] <- 3
DB.csv$q4[DB.csv$q4>3] <- 4

# 時間統一單位（分）
DB.csv$q6 <- DB.csv$q6_h*60+DB.csv$q6_m
DB.csv$q7 <- DB.csv$q7_h*60+DB.csv$q7_m

# 第八題沒有人選其他
DB.csv$q8_88 <- NULL
DB.csv$q8_88_text <- NULL
```

```
# 第九題簡化（使用哪些通訊軟體 改成 使用幾個通訊軟體）
DB.csv$q9 <- rowSums(DB.csv[,18:25], na.rm = TRUE) + sapply(DB.csv[,27], function(entry_i){
  temp <- gsub(" ","",entry_i)
  return(length(unlist(strsplit(temp,",|、及"))))
})

# 移除疫情相關的問題
DB.csv[,match("q12_1", colnames(DB.csv)):match("q15_03_1", colnames(DB.csv))] <- NULL

# 移除注意力偵測題
DB.csv[,match("q21a_1", colnames(DB.csv)):match("q21a_6_text", colnames(DB.csv))] <- NULL
DB.csv$q37a <- NULL
DB.csv$rq21a <- NULL
DB.csv$rq37a <- NULL
DB.csv$r <- NULL
DB.csv$qrq2 <- NULL
DB.csv$q2 <- DB.csv$rrq2  # 第二題改成年齡的區段
DB.csv$rrq2 <- NULL
```

```
# 有無抵制行為（1: 有,0: 沒有）
DB.csv$q28_5[DB.csv$q28_5==1] <- 0
DB.csv$q28_5[is.na(DB.csv$q28_5)] <- 1

# 歸類 28 題的選項
DB.csv[DB.csv$q28_4_text==" 會破壞我對他（她）的形象",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 從來都不關注",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 若名人不自我反省就會抵制，但是通常名人都會願意出來面對錯誤",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 未來此人所說的話均會產生疑問",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 用選票來抵制",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 很多時候都是立場不同、換位思考一下後，就可以消弭一些爭議。",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 看看就好",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 拒買相關商品",c('q28_4','q28_4_text')] <- c(NA,"")

DB.csv[DB.csv$q28_4_text==" 沒意見",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q28_4_text==" 看看就好，自己會有自己的判斷",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),
```

```
DB.csv[DB.csv$q28_4_text==" 與親朋好友說明事實真相",
                  c('q28_4','q28_4_text')] <- c(NA,"")
DB.csv[DB.csv$q28_4_text==" 要看是什麼原因決定一時間這麼做還是永久",
                  c('q28_4','q28_4_text')] <- c(NA,"")

DB.csv[DB.csv$q28_4_text==" 指正他的錯誤",
                  c('q28_4','q28_4_text')] <- c(NA,"")
DB.csv[
  DB.csv$q28_4_text==" 每個人有合法的言論自由，我只會拒絕觀看有問題違法的影片，不會一竿子打翻一條船。",
  c('q28_2','q28_4','q28_4_text')] <- c(1,NA,"")
DB.csv[
  DB.csv$q28_4_text==" 減少看他們的發文或影片",
  c('q28_2','q28_4','q28_4_text')] <- c(1,NA,"")
DB.csv[
  DB.csv$q28_4_text==" 轉發相關的指正或譴責文章",
  c('q28_4','q28_4_text')] <- c(NA,"")
# 歸類 29 題的選項
#29 的第五選項改定義為 錯誤資訊、不當言論
DB.csv$q29_5_text[DB.csv$q29_5_text==" 錯誤資訊"] <- ""

DB.csv[DB.csv$q29_5_text==" 道不同不相為謀不理他們",
       c('q29_2','q29_5','q29_5_text')] <- c(1,NA,"")

DB.csv[DB.csv$q29_5_text==" 沒有此情況",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv$q29_5_text[DB.csv$q29_5_text==" 發表錯誤資訊且不更改"] <- ""

DB.csv[DB.csv$q29_5_text==" 不會抵制",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 我沒有特別抵制過呢",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 從來沒有",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 不明白指的是什麼",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 過於私人或主觀意識的回答會讓我反感進而抵制收看",
       c('q29_2','q29_5','q29_5_text')] <- c(1,NA,"")

DB.csv[DB.csv$q29_5_text==" 已讀",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv$q29_5_text[DB.csv$q29_5_text==" 纔罵"] <- ""

DB.csv[DB.csv$q29_5_text==" 不理他們",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv$q29_5_text[DB.csv$q29_5_text==" 指鹿為馬，不實言論，刻意誤導輿論方向。"] <- ""
DB.csv$q29_5_text[DB.csv$q29_5_text==" 不當發言"] <- ""
```

```
DB.csv$q29_5_text[
  DB.csv$q29_5_text==" 假名人之姿發表利己損害公眾利益的言論，企圖影響他人判斷的言論者。"] <- ""

DB.csv$q29_5_text[DB.csv$q29_5_text==" 散播不正確消息且不認錯"] <- ""
DB.csv[DB.csv$q29_5_text==" 不予置評",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 無",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 不會做無聊的事情",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 目前沒有",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 味全黑心油事件",
       c('q29_5','q29_5_text')] <- c(NA,"")

DB.csv$q29_5_text[
  DB.csv$q29_5_text==" 對動物議題留下錯誤言論，對疫情走向發出錯誤言論（去年康健發文說嬰幼兒不會染疫，被我指正

DB.csv[DB.csv$q29_5_text==" 不曾",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 沒遇過要抵制的事",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[
  DB.csv$q29_5_text==" 說謊話（至少是我覺得他在說謊），做錯事不負責還甩鍋給別人。",
  c('q29_5','q29_5_text')] <- c(NA,"")

# 有兩個 沒有
DB.csv[match(" 沒有",DB.csv$q29_5_text),
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[match(" 沒有",DB.csv$q29_5_text),
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv[DB.csv$q29_5_text==" 有些事情的看法 做法不同",
       c('q29_2','q29_5','q29_5_text')] <- c(1,NA,"")

DB.csv[DB.csv$q29_5_text==" 違反當初自己宣揚的理念",
       c('q29_4','q29_5','q29_5_text')] <- c(1,NA,"")

DB.csv[
  DB.csv$q29_5_text==" 泛指公眾人物沒有責任表態但有義務不支持通稱反人類行為，私領域不要太誇張都沒差",
  c('q29_4','q29_5','q29_5_text')] <- c(1,NA,"")

DB.csv[DB.csv$q29_5_text==" 沒有抵制過",
       match("q28_1", colnames(DB.csv)):match("q36_1", colnames(DB.csv))] <- c(rep(NA,4),"",0,rep(NA,5),

DB.csv$q29_5_text[DB.csv$q29_5_text==" 誤導"] <- ""
```

```r
DB.csv$q29_5_text <- NULL
DB.csv$q28_4_text <- NULL
```

```r
DB.csv$q16_18[DB.csv$q16 == 2 & DB.csv$q18 == 2] <- 0 # 沒有惡搞
DB.csv$q16_18[DB.csv$q17_02==1] <- 1                  # 有惡搞但不騙人不傷害
DB.csv$q16_18[DB.csv$q17_01==1] <- 2                  # 有惡搞有騙人沒傷害
DB.csv$q16_18[DB.csv$q19_02==1] <- 3                  # 有惡搞沒騙人有傷害
DB.csv$q16_18[DB.csv$q19_01==1] <- 4                  # 有惡搞有騙人有傷害

DB.csv$q22_total <- rowSums(DB.csv[,c("q22_01_1", "q22_02_1", "q22_03_1", "q22_04_1", "q22_05_1")])
DB.csv$q23_total <- rowSums(DB.csv[,c("q23_01_1", "q23_02_1", "q23_03_1", "q23_04_1", "q23_05_1")])
DB.csv$q24_total <- rowSums(DB.csv[,c("q24_01_1", "q24_02_1", "q24_03_1", "q24_04_1", "q24_05_1")])
DB.csv$q25_total <- rowSums(DB.csv[,c("q25_01_1", "q25_02_1", "q25_03_1", "q25_04_1")])
DB.csv$q26_total <- rowSums(DB.csv[,c("q26_01_1", "q26_02_1", "q26_03_1")])
DB.csv$q38_total <- rowSums(DB.csv[,c("q38_01_1", "q38_02_1")])

DB.csv$q40_cat <- cut(DB.csv$q40_1,
                      breaks = c(0, 20, 40, 60, 80, 100),
                      labels = c(1, 2, 3, 4, 5),
                      right = TRUE)
DB.csv$q40_cat[is.na(DB.csv$q40_cat)] <- 1
DB.csv$q41_cat <- cut(DB.csv$q41_1,
                      breaks = c(0, 20, 40, 60, 80, 100),
                      labels = c(1, 2, 3, 4, 5),
                      right = TRUE)
DB.csv$q41_cat[is.na(DB.csv$q41_cat)] <- 1
```

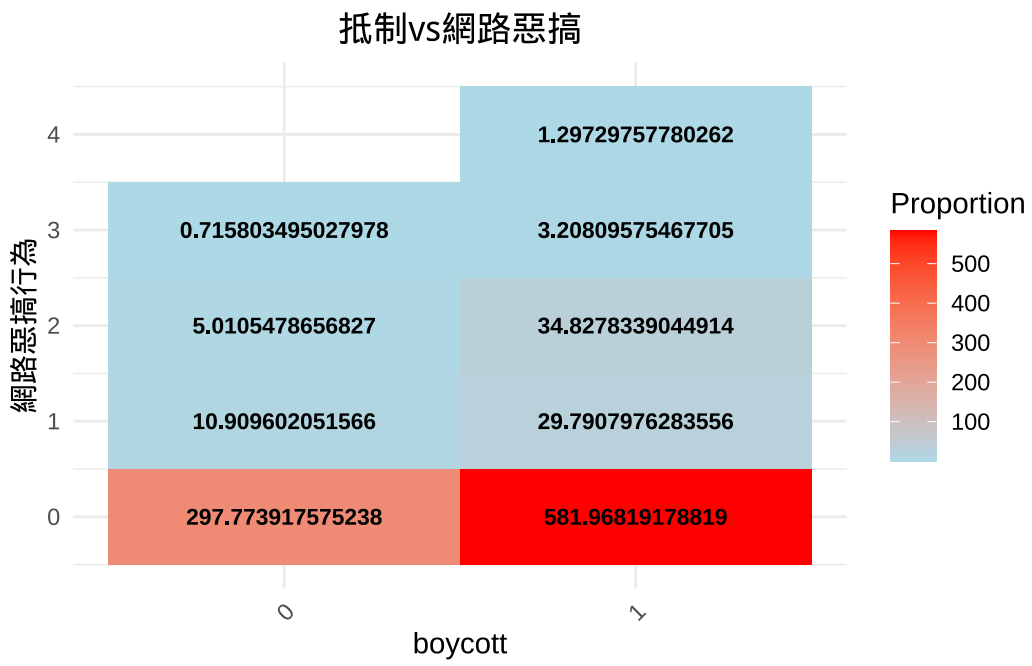
```r
myCount_q28 <- function(din, target_label){
  din %>%
    group_by(q28_5, !!sym(target_label)) %>%
    summarise(count = sum(weight))
}

counts_16_18 <- DB.csv %>%
  group_by(q28_5, q16_18) %>%
  summarise(count = sum(weight))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

```r
# 圖
ggplot(counts_16_18, aes(x = as.factor(q28_5), y = q16_18, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_16_18$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 網路惡搞", x = "boycott", y = " 網路惡搞行為", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))  # 旋轉 x 軸刻度標籤，以避免重疊
```

```
Warning: Removed 2 rows containing missing values or values outside the scale range
(`geom_tile()`).
```

```
Warning: Removed 2 rows containing missing values or values outside the scale range
(`geom_text()`).
```



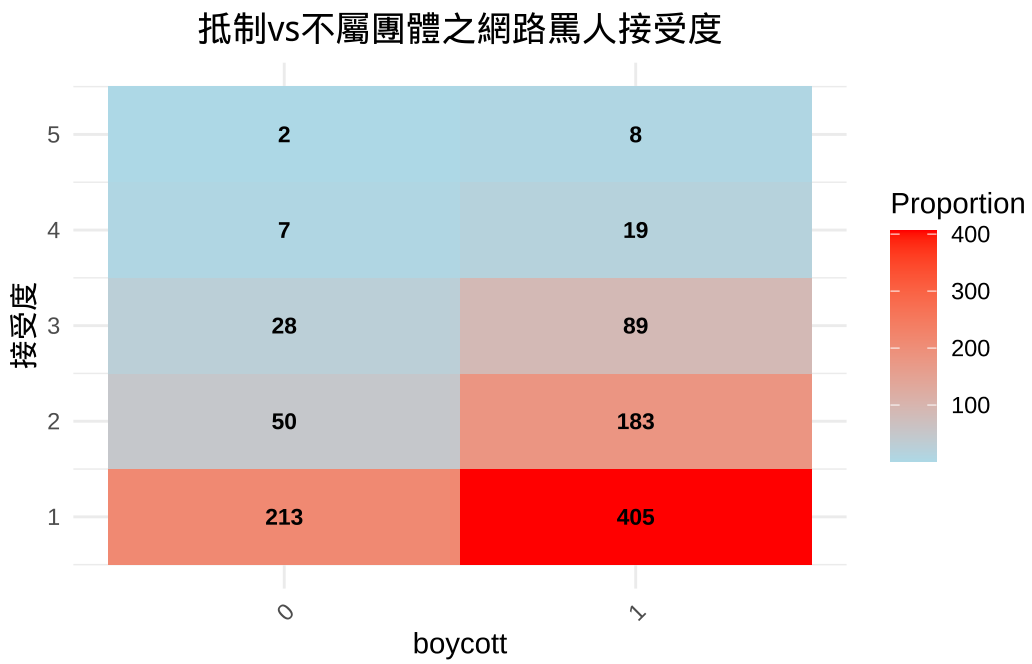

```
which(is.na(DB.csv$q16_18))
```

```
 [1]  37  89 167 174 191 236 238 287 304 375 390 416 422 434 510 561 562 566 580
[20] 595 602 607 652 709 726 776 789 802 847 849 874 875 936 938 944 948 949 970
[39] 974 991 994
```

```
# 為了讓討厭的人知道他不屬於您的團體，在網路上罵他，您覺得可不可以接受? 計數
counts_20_01 <- DB.csv%>%
  group_by(q28_5,q20_01_1)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

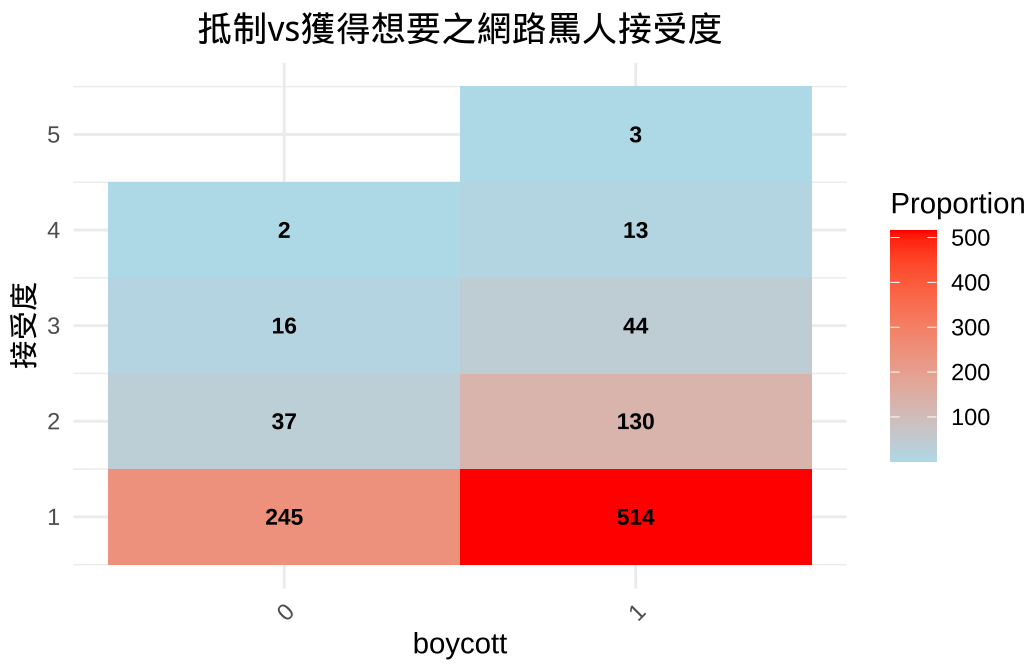
```
# 圖
ggplot(counts_20_01, aes(x = as.factor(q28_5), y = q20_01_1, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_20_01$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 不屬團體之網路罵人接受度", x = "boycott", y = " 接受度", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))  # 旋轉 x 軸刻度標籤，以避免重疊
```




```
# 為了獲得想要的，在網路上罵人，您覺得可不可以接受? 計數
counts_20_02 <- DB.csv%>%
  group_by(q28_5,q20_02_1)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

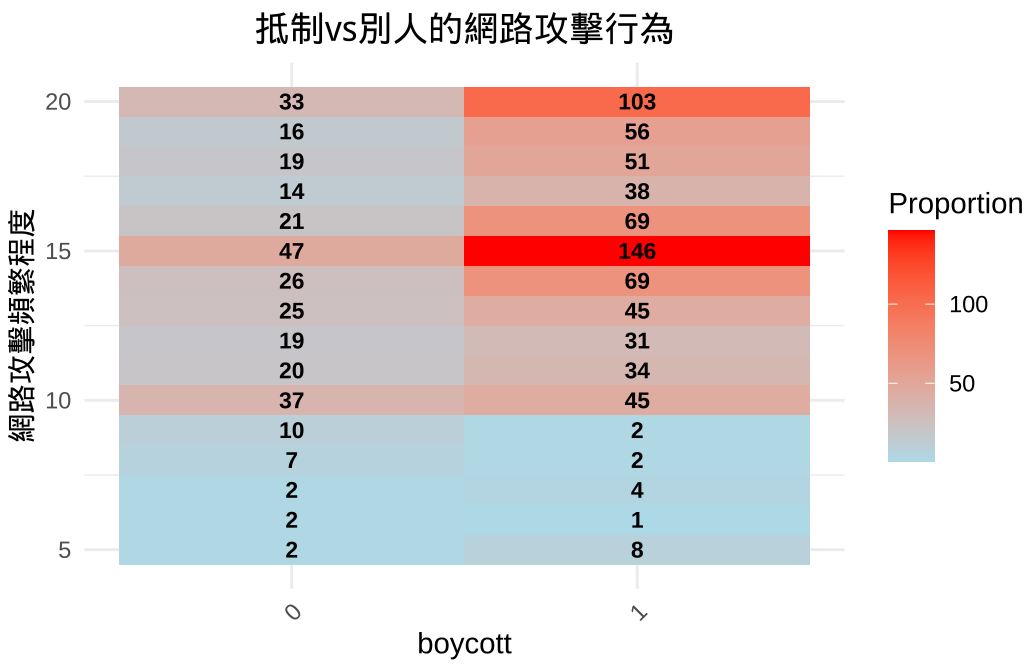
```
ggplot(counts_20_02, aes(x = as.factor(q28_5), y = q20_02_1, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_20_02$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 獲得想要之網路罵人接受度", x = "boycott", y = " 接受度", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))  # 旋轉 x 軸刻度標籤，以避免重疊
```




```
# 網路世界看到別人的網路攻擊行為

counts_22 <- DB.csv%>%
  group_by(q28_5,q22_total)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

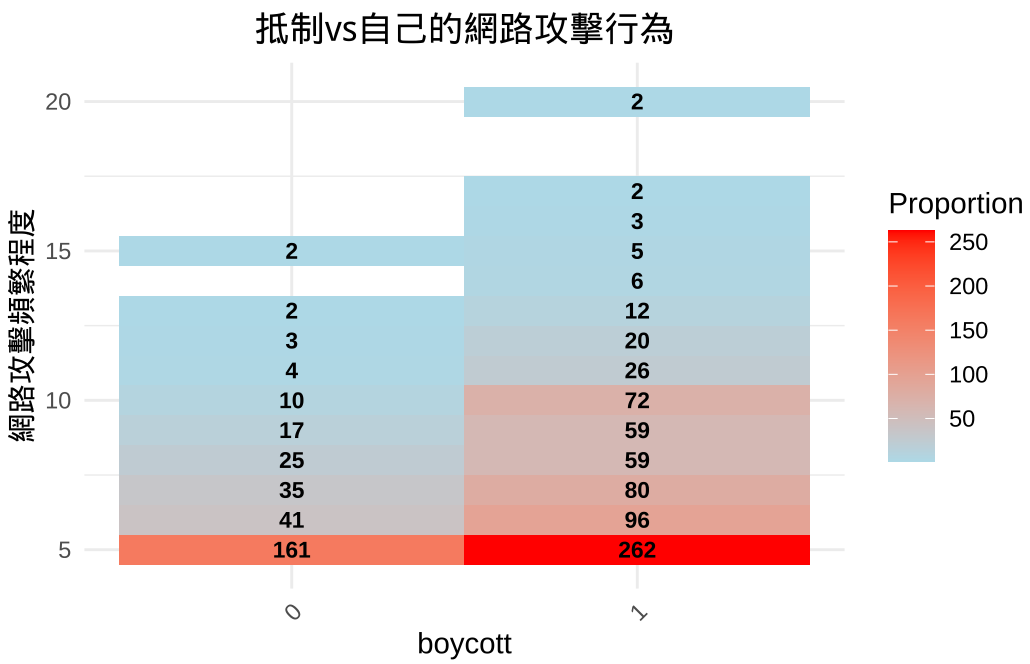
```
# 圖
ggplot(counts_22, aes(x = as.factor(q28_5), y = q22_total, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_22$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 別人的網路攻擊行為", x = "boycott", y = " 網路攻擊頻繁程度", fill = "Proportion")
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))  # 旋轉 x 軸刻度標籤，以避免重疊
```




```
# 網路世界自己做出的網路攻擊行為

counts_23 <- DB.csv%>%
  group_by(q28_5,q23_total)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

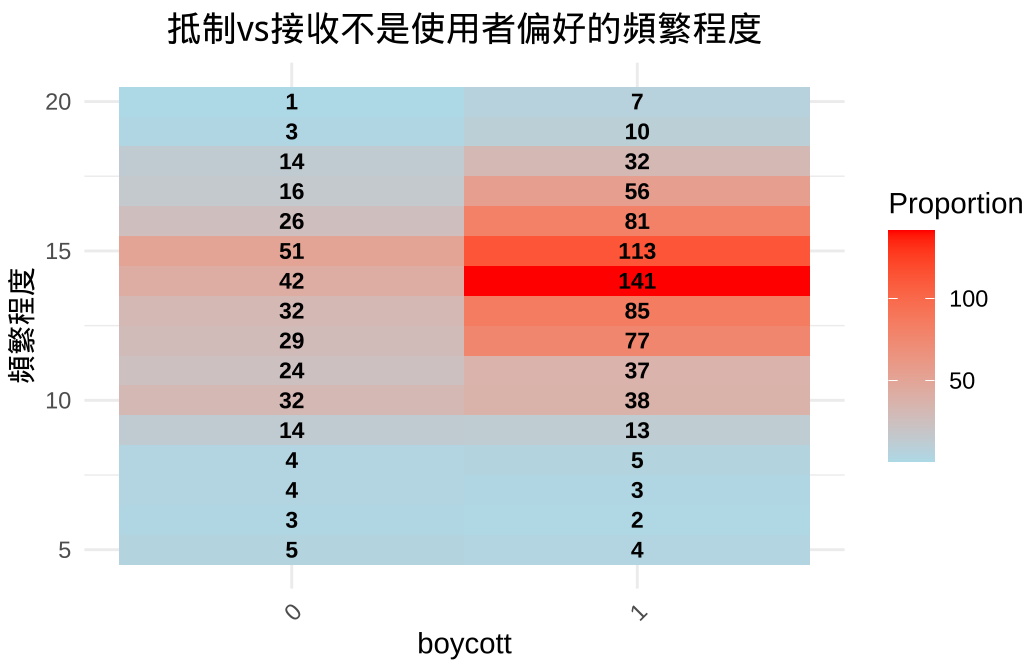
```
# 圖
ggplot(counts_23, aes(x = as.factor(q28_5), y = q23_total, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_23$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 自己的網路攻擊行為", x = "boycott", y = " 網路攻擊頻繁程度", fill = "Proportion")
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))  # 旋轉 x 軸刻度標籤，以避免重疊
```




```
# 越容易接收到不是使用者偏好的訊息

counts_24 <- DB.csv%>%
  group_by(q28_5,q24_total)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

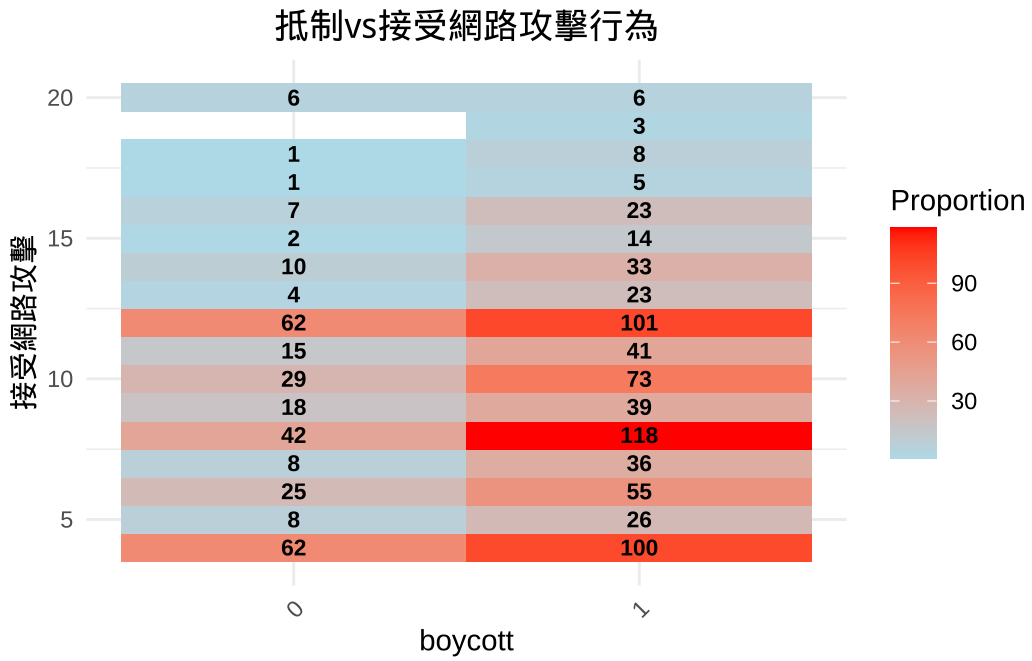
```
# 圖
ggplot(counts_24, aes(x = as.factor(q28_5), y = q24_total, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_24$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 接收不是使用者偏好的頻繁程度", x = "boycott", y = " 頻繁程度", fill = "Proportion
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 越能接受網路攻擊

counts_25 <- DB.csv%>%
  group_by(q28_5,q25_total)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

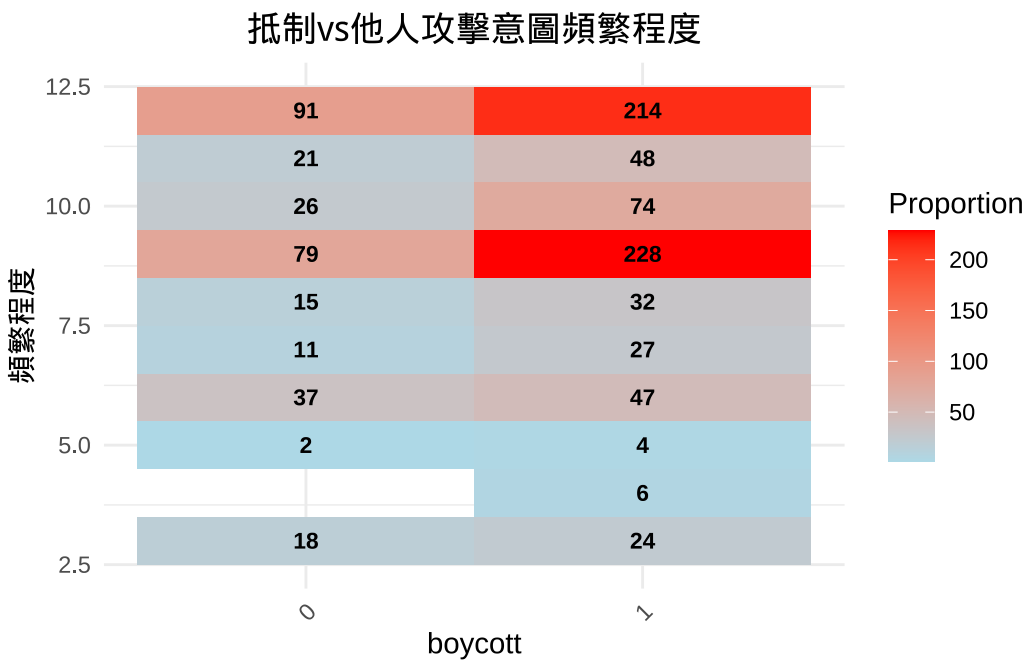
```
# 圖
ggplot(counts_25, aes(x = as.factor(q28_5), y = q25_total, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_25$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 接受網路攻擊行為", x = "boycott", y = " 接受網路攻擊", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 推測他人的攻擊意圖

counts_26 <- DB.csv%>%
  group_by(q28_5,q26_total)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

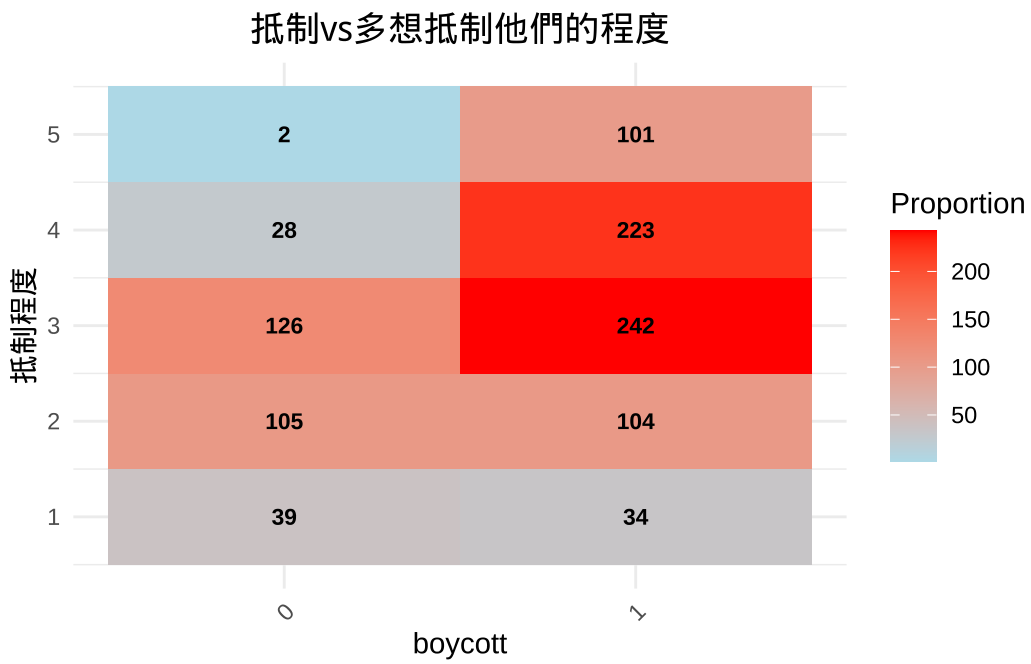
```
# 圖
ggplot(counts_26, aes(x = as.factor(q28_5), y = q26_total, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_26$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 他人攻擊意圖頻繁程度", x = "boycott", y = " 頻繁程度", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 當名人說不該說的話、做不該做的事，您多想透過社群媒體抵制他們？
counts_27 <- DB.csv%>%
  group_by(q28_5,q27_1)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

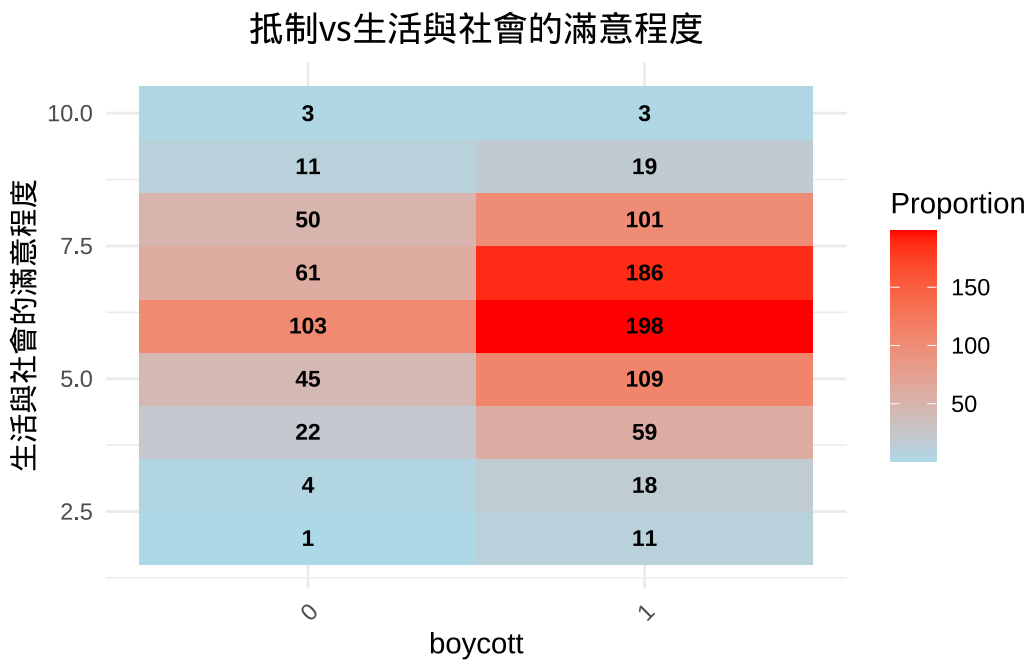
```
ggplot(counts_27, aes(x = as.factor(q28_5), y = q27_1, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_27$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 多想抵制他們的程度", x = "boycott", y = " 抵制程度", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 心理幸福感

counts_38 <- DB.csv%>%
  group_by(q28_5,q38_total)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

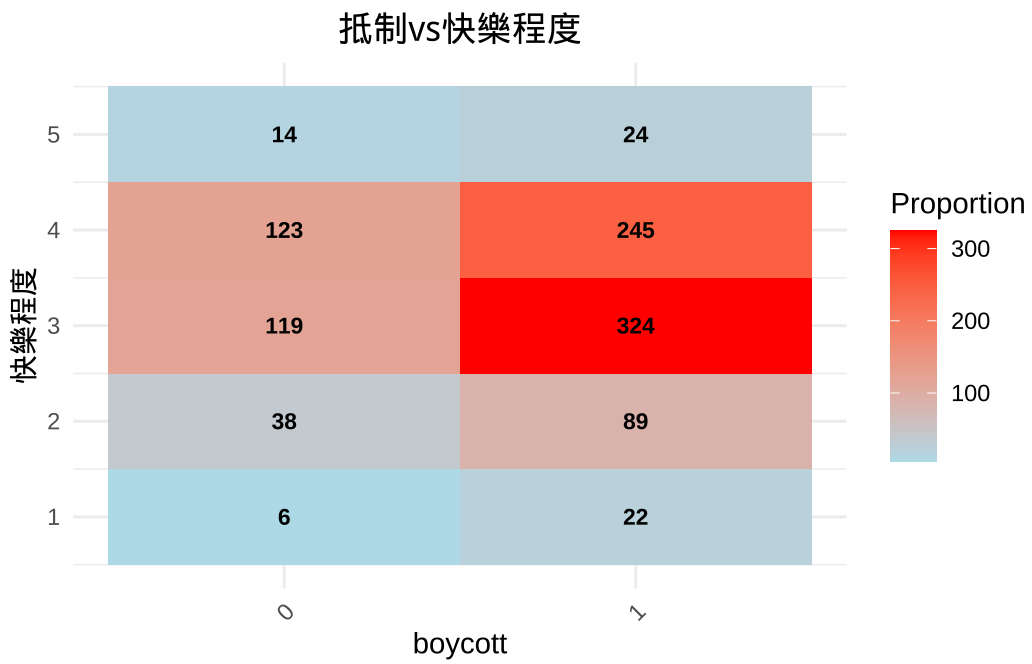
```
ggplot(counts_38, aes(x = as.factor(q28_5), y = q38_total, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_38$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 生活與社會的滿意程度", x = "boycott", y = " 生活與社會的滿意程度", fill = "Proport
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 您覺得目前的日子過得快不快樂？
counts_39 <- DB.csv%>%
  group_by(q28_5,q39_1)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

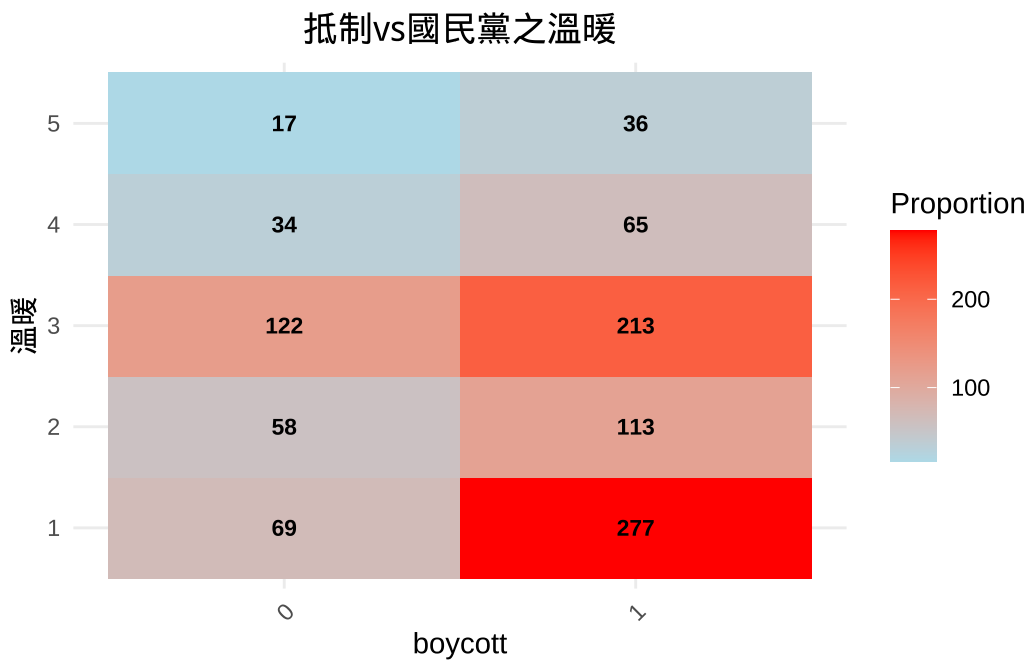
```
ggplot(counts_39, aes(x = as.factor(q28_5), y = q39_1, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_39$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 快樂程度", x = "boycott", y = " 快樂程度", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 國民黨讓你感到溫暖的程度，再區分為 5 個範圍

counts_40 <- DB.csv%>%
  group_by(q28_5,q40_cat)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

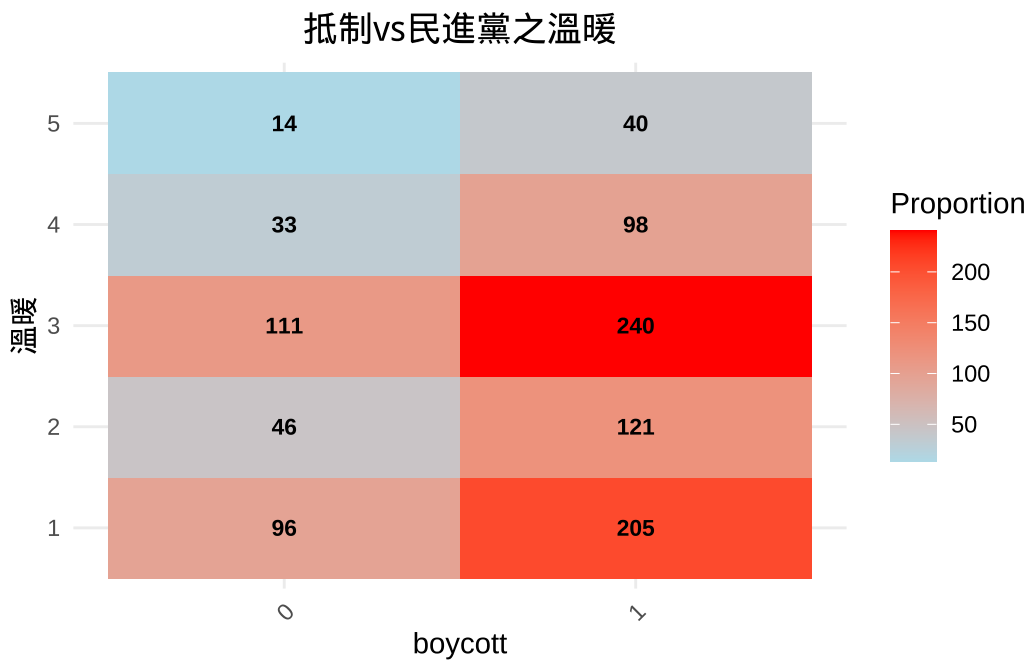
```
ggplot(counts_40, aes(x = as.factor(q28_5), y = q40_cat, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_40$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 國民黨之溫暖", x = "boycott", y = " 溫暖", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 民進黨讓你感到溫暖的程度，再區分為 5 個範圍

counts_41 <- DB.csv%>%
  group_by(q28_5,q41_cat)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

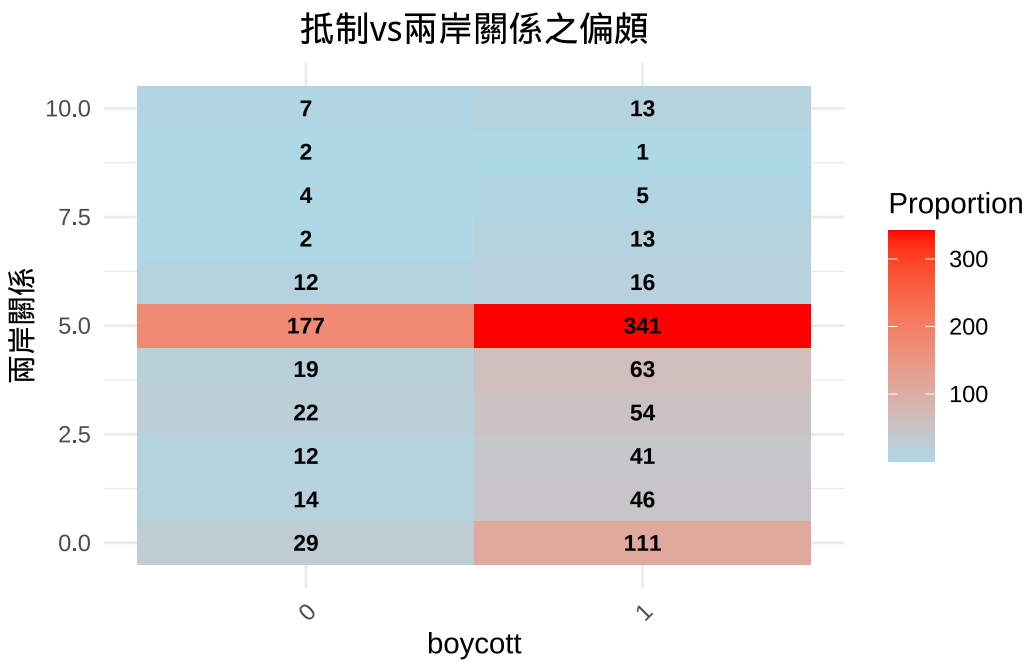
```
ggplot(counts_41, aes(x = as.factor(q28_5), y = q41_cat, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_41$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 民進黨之溫暖", x = "boycott", y = " 溫暖", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
# 兩岸關係
counts_42 <- DB.csv%>%
  group_by(q28_5,q42_1)%>%
  summarise(count = n())
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```

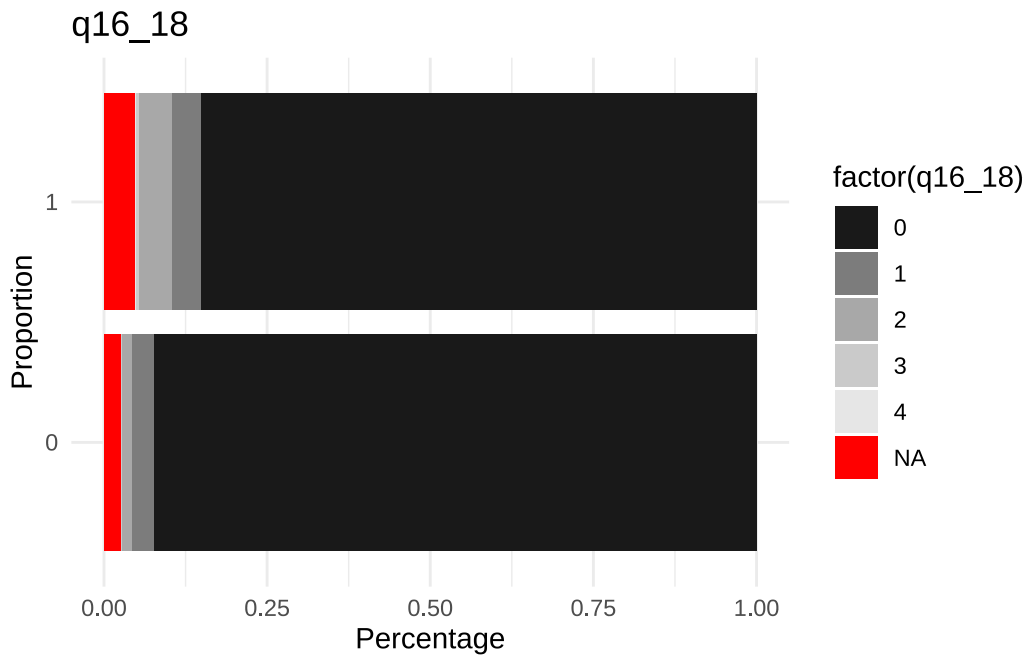
```
ggplot(counts_42, aes(x = as.factor(q28_5), y = q42_1, fill = count)) +
  geom_tile() +
  scale_fill_gradient(low = "lightblue", high = "red") +
  geom_text(label=counts_42$count,size = 3, color = "black", fontface = "bold")+
  labs(title = " 抵制 vs 兩岸關係之偏頗", x = "boycott", y = " 兩岸關係", fill = "Proportion") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        plot.title = element_text(hjust = 0.5))
```




```
Barplot.p <- function(din){
  split_label<-colnames(din)[1]
  cat_label <- colnames(din)[2]
  c_label <- colnames(din)[3]
  temp <- din %>%
    group_by(!!sym(split_label)) %>%
    mutate(proportion = !!sym(c_label) / sum(!!sym(c_label))) %>%
    ungroup()
  ggplot(temp, aes(x = factor(!!sym(split_label)), y = proportion, fill = factor(!!sym(cat_label)))) +
    geom_bar(stat = "identity", position = "stack") +
    labs(x = "Proportion", y = "Percentage") +
    scale_fill_grey(start = 0.1, end = 0.9) +
    ggtitle(label = cat_label)+
    theme_minimal() +
    coord_flip()
}
```

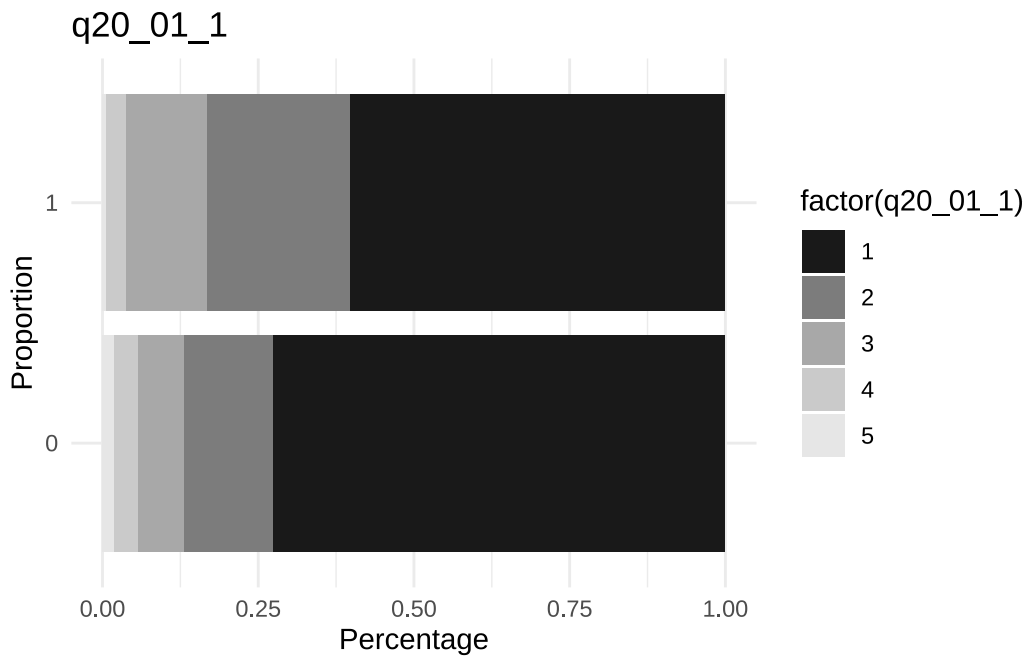
```
Barplot.p(din=myCount_q28(DB.csv, "q16_18"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



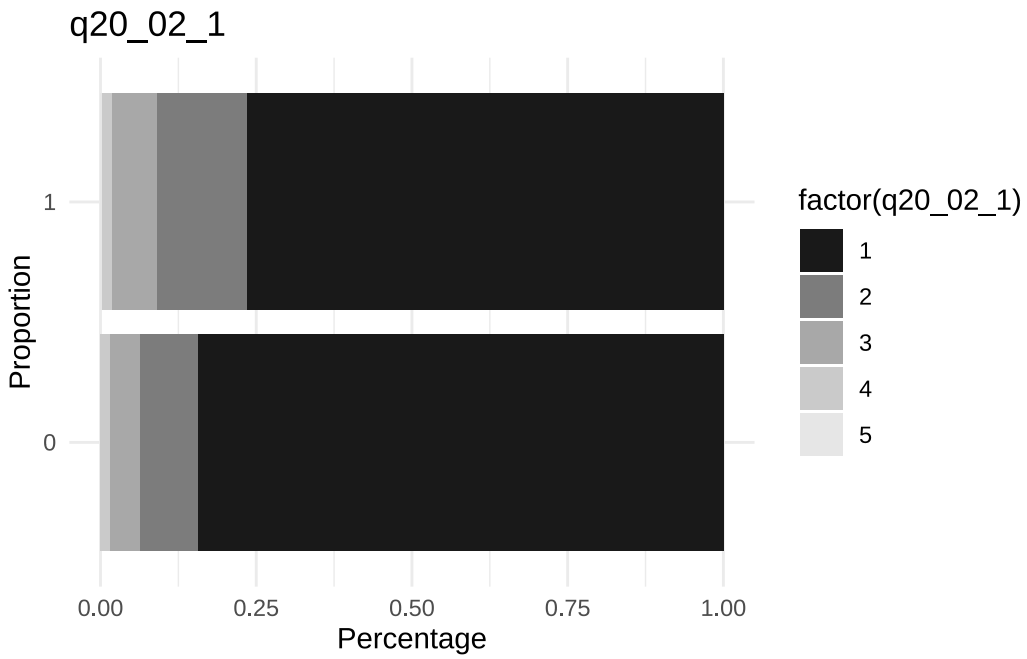

```
Barplot.p(din=myCount_q28(DB.csv, "q20_01_1"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



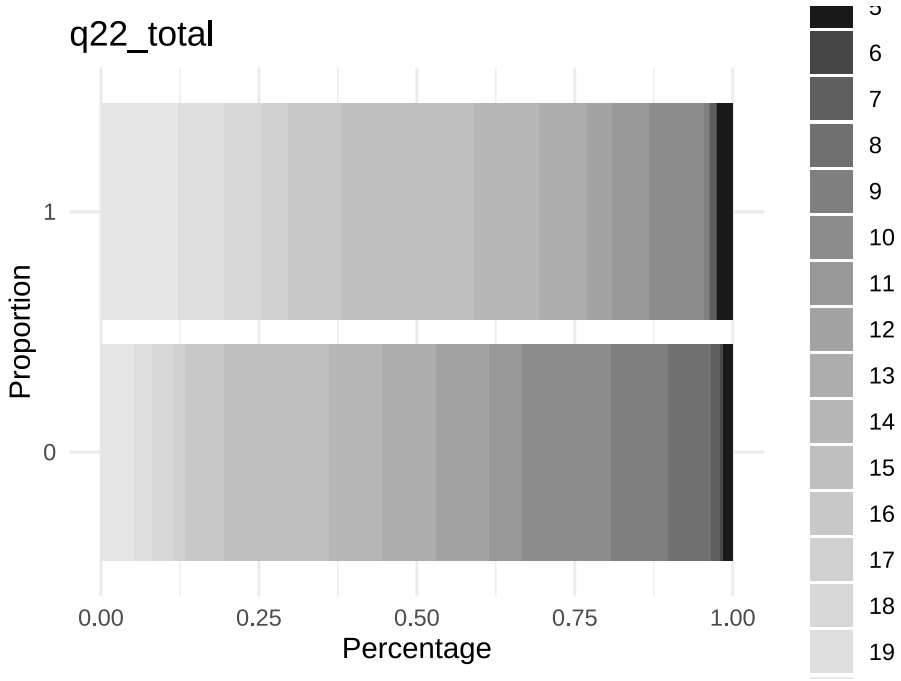

```
Barplot.p(din=myCount_q28(DB.csv, "q20_02_1"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



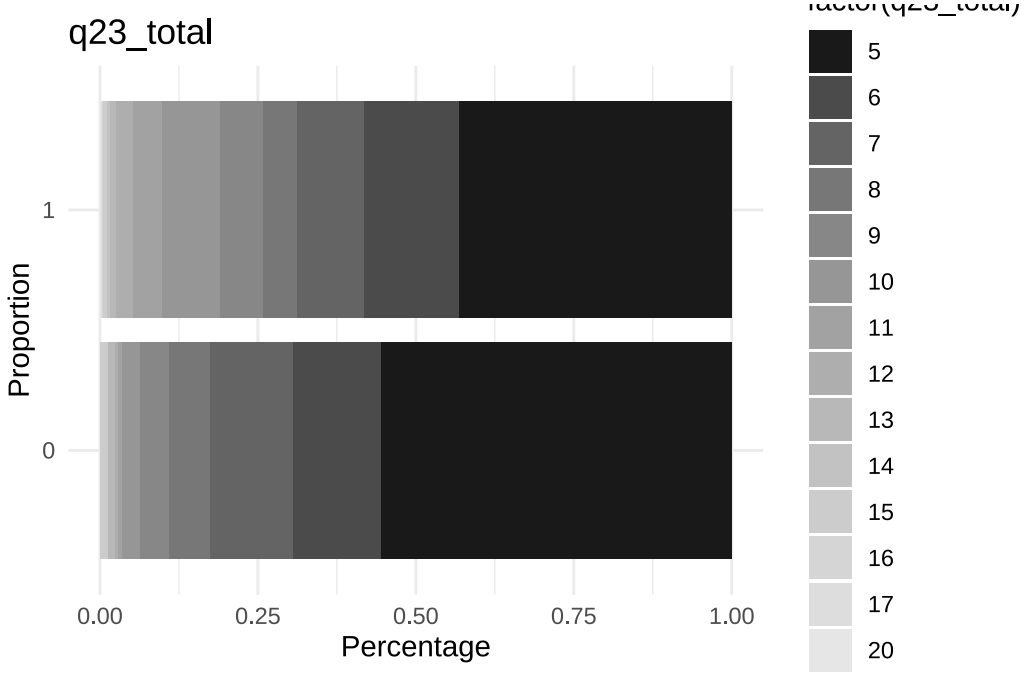

```
Barplot.p(din=myCount_q28(DB.csv, "q22_total"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



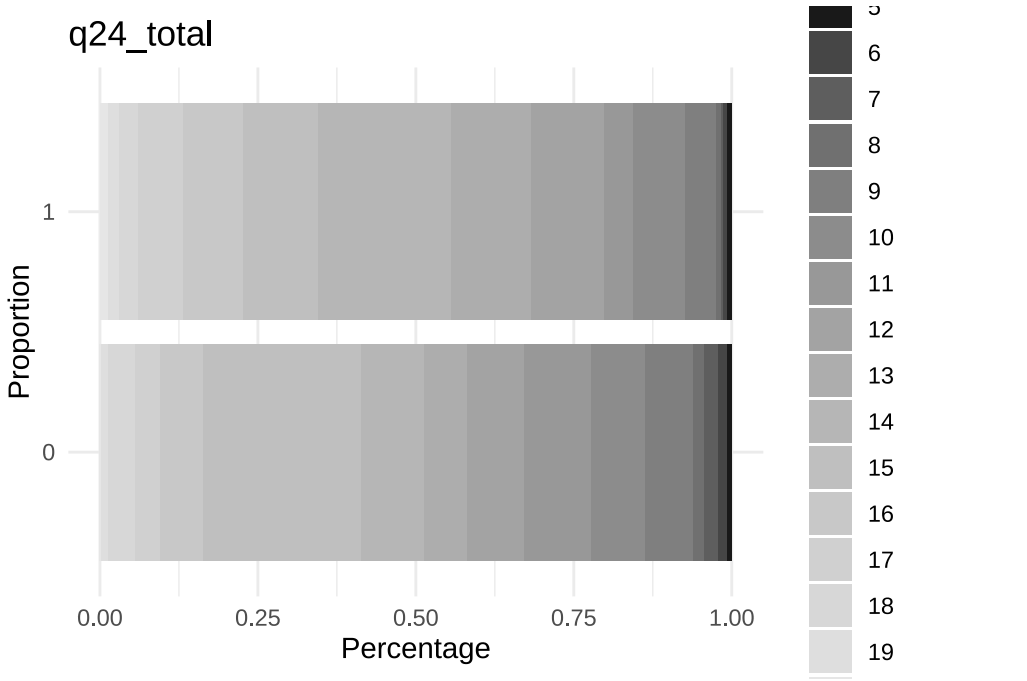

```
Barplot.p(din=myCount_q28(DB.csv, "q23_total"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



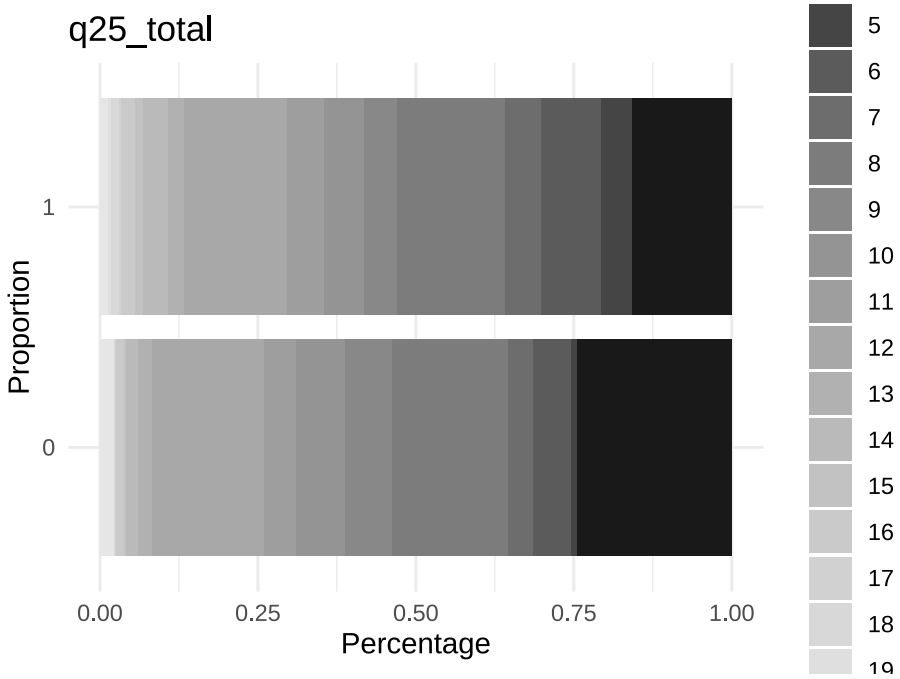

```
Barplot.p(din=myCount_q28(DB.csv, "q24_total"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



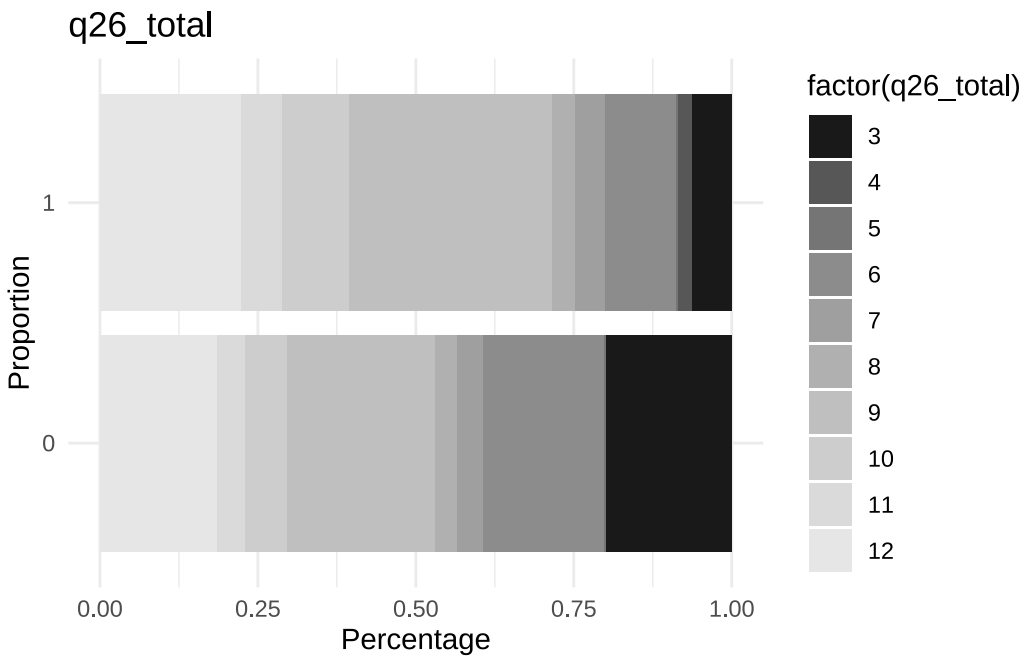

```
Barplot.p(din=myCount_q28(DB.csv, "q25_total"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



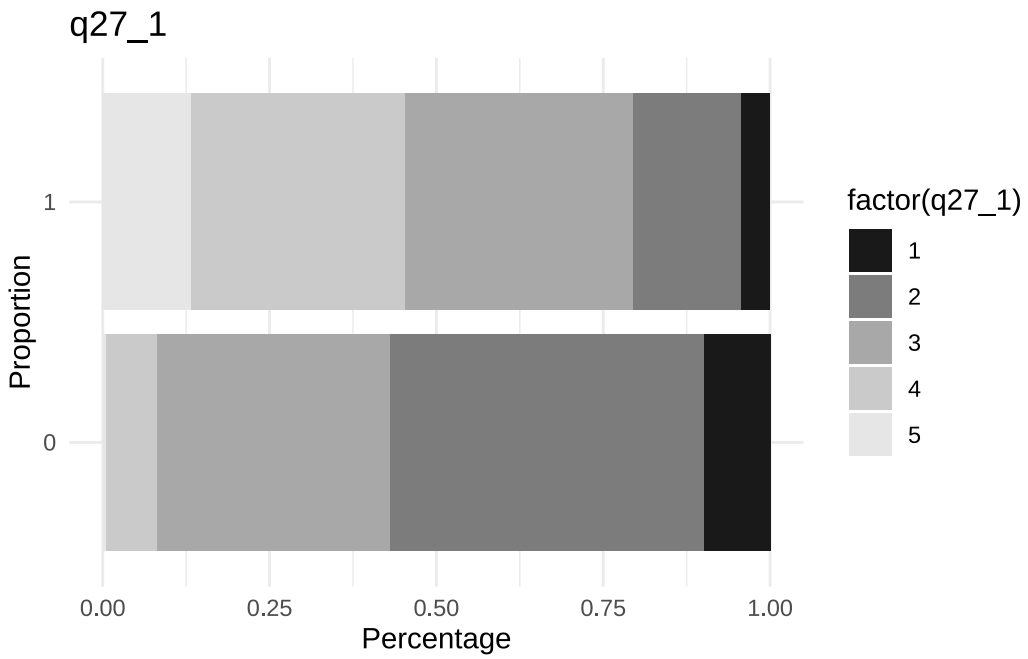

```
Barplot.p(din=myCount_q28(DB.csv, "q26_total"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



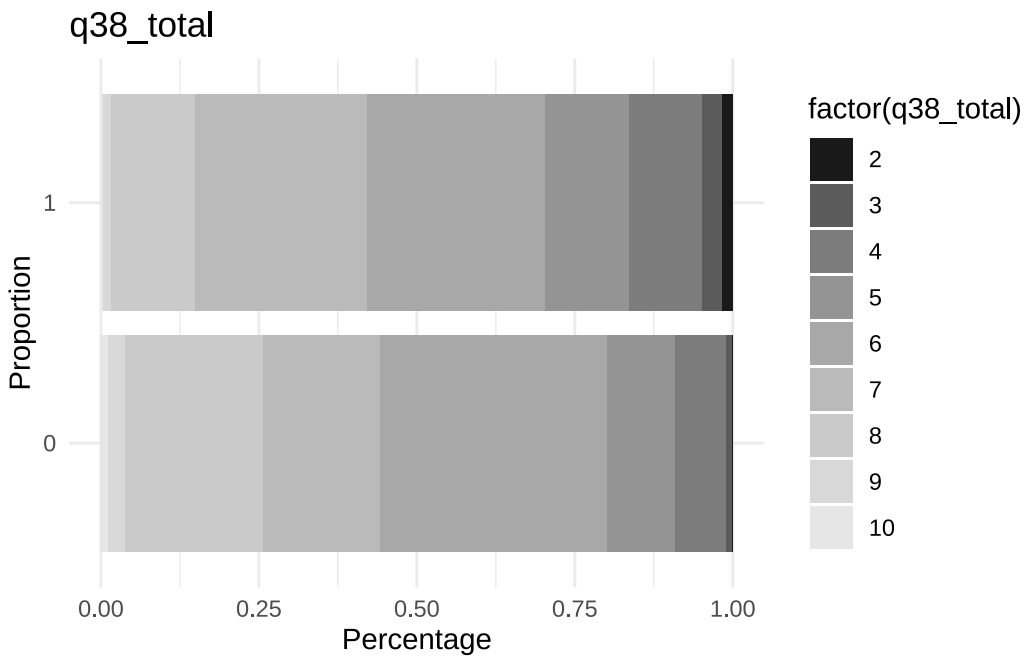

```
Barplot.p(din=myCount_q28(DB.csv, "q27_1"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



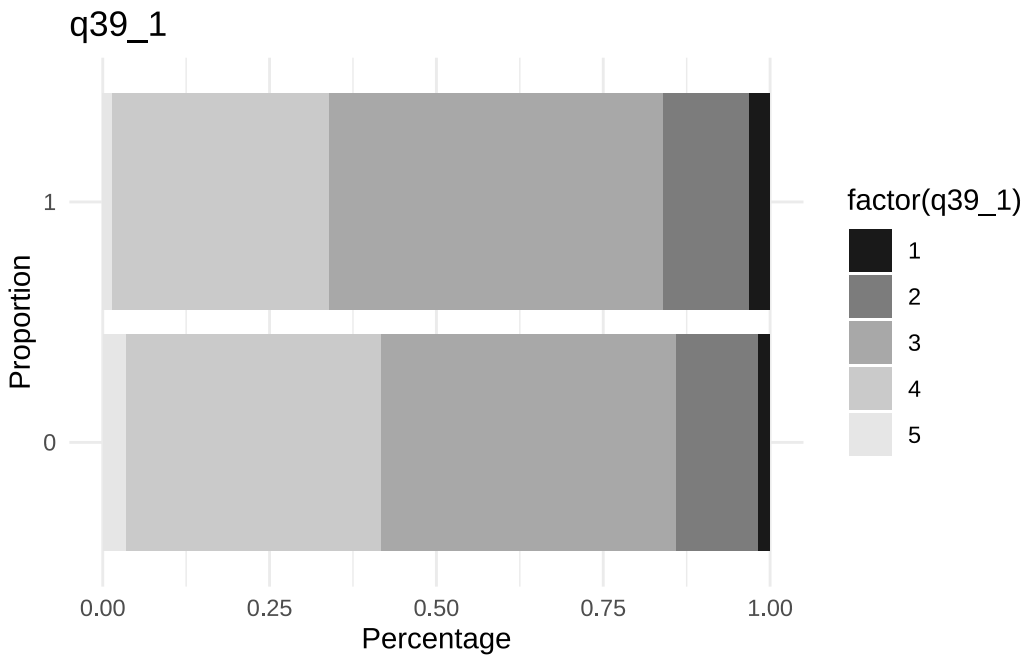

```
Barplot.p(din=myCount_q28(DB.csv, "q38_total"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



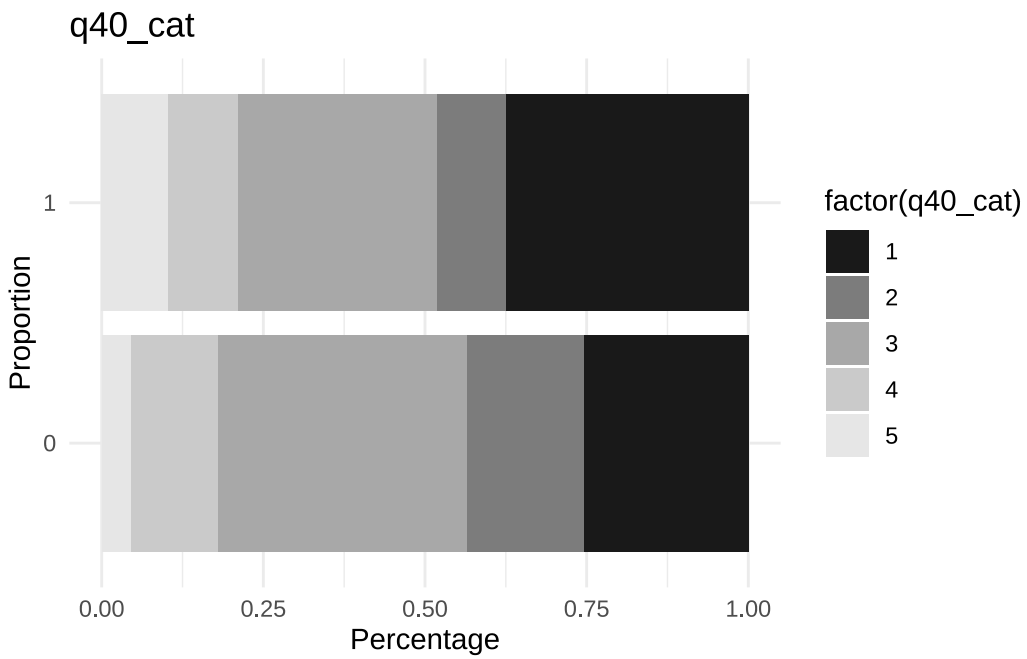

```
Barplot.p(din=myCount_q28(DB.csv, "q39_1"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



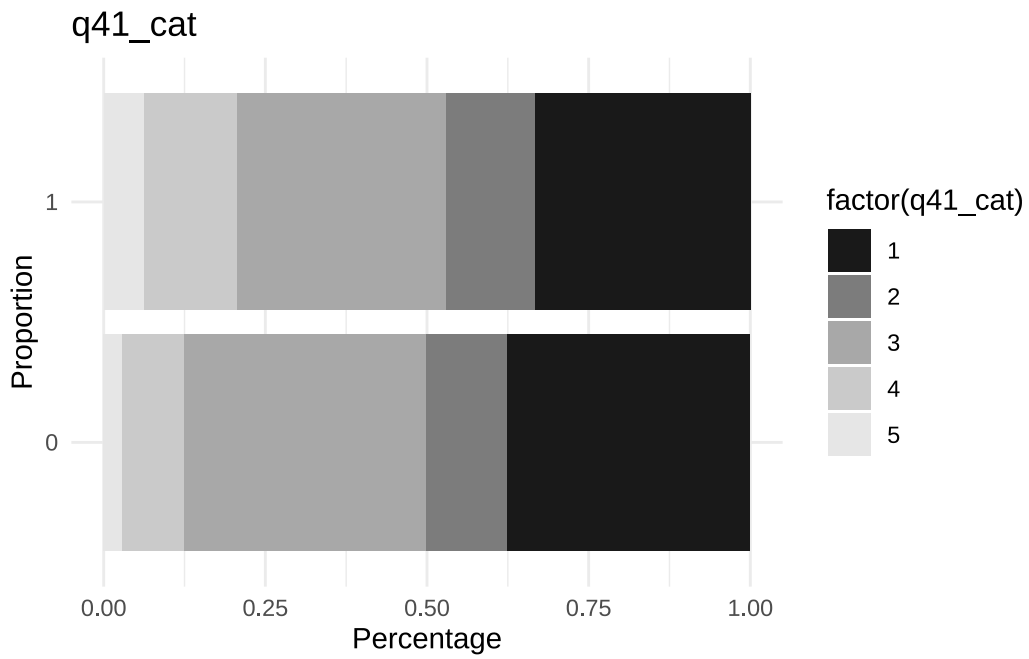

```
Barplot.p(din=myCount_q28(DB.csv, "q40_cat"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```



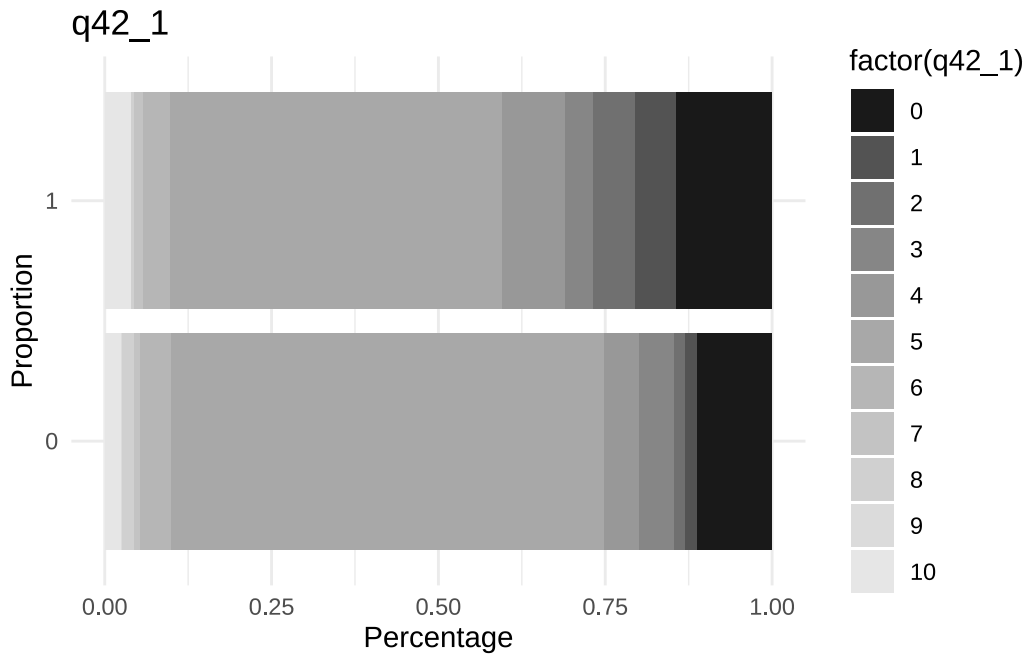

```
Barplot.p(din=myCount_q28(DB.csv, "q41_cat"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```




```
Barplot.p(din=myCount_q28(DB.csv, "q42_1"))
```

```
`summarise()` has grouped output by 'q28_5'. You can override using the
`.groups` argument.
```




```
ks.test(counts_16_18$count[counts_16_18$q28_5==1],
        counts_16_18$count[counts_16_18$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test
```

```
data:  counts_16_18$count[counts_16_18$q28_5 == 1] and counts_16_18$count[counts_16_18$q28_5 == 0]
D = 0.46667, p-value = 0.474
alternative hypothesis: two-sided
```

```
ks.test(counts_20_01$count[counts_20_01$q28_5==1],
        counts_20_01$count[counts_20_01$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_20_01$count[counts_20_01$q28_5 == 1] and counts_20_01$count[counts_20_01$q28_5 == 0]
D = 0.4, p-value = 0.873
alternative hypothesis: two-sided
```

```
ks.test(counts_20_02$count[counts_20_02$q28_5==1],
        counts_20_02$count[counts_20_02$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_20_02$count[counts_20_02$q28_5 == 1] and counts_20_02$count[counts_20_02$q28_5 == 0]
D = 0.35, p-value = 0.873
alternative hypothesis: two-sided
```

```
ks.test(counts_22$count[counts_22$q28_5==1],
        counts_22$count[counts_22$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_22$count[counts_22$q28_5 == 1] and counts_22$count[counts_22$q28_5 == 0]
D = 0.5, p-value = 0.03418
alternative hypothesis: two-sided
```

```
ks.test(counts_23$count[counts_23$q28_5==1],
        counts_23$count[counts_23$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_23$count[counts_23$q28_5 == 1] and counts_23$count[counts_23$q28_5 == 0]
D = 0.32857, p-value = 0.444
alternative hypothesis: two-sided
```

```
ks.test(counts_24$count[counts_24$q28_5==1],
        counts_24$count[counts_24$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_24$count[counts_24$q28_5 == 1] and counts_24$count[counts_24$q28_5 == 0]
D = 0.375, p-value = 0.1927
alternative hypothesis: two-sided
```

```
ks.test(counts_25$count[counts_25$q28_5==1],
        counts_25$count[counts_25$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_25$count[counts_25$q28_5 == 1] and counts_25$count[counts_25$q28_5 == 0]
D = 0.39338, p-value = 0.1059
alternative hypothesis: two-sided
```

```
ks.test(counts_26$count[counts_26$q28_5==1],
        counts_26$count[counts_26$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_26$count[counts_26$q28_5 == 1] and counts_26$count[counts_26$q28_5 == 0]
D = 0.36667, p-value = 0.4425
alternative hypothesis: two-sided
```

```
ks.test(counts_27$count[counts_27$q28_5==1],
        counts_27$count[counts_27$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_27$count[counts_27$q28_5 == 1] and counts_27$count[counts_27$q28_5 == 0]
D = 0.4, p-value = 0.873
alternative hypothesis: two-sided
```

```
ks.test(counts_38$count[counts_38$q28_5==1],
        counts_38$count[counts_38$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_38$count[counts_38$q28_5 == 1] and counts_38$count[counts_38$q28_5 == 0]
D = 0.33333, p-value = 0.7001
alternative hypothesis: two-sided
```

```
ks.test(counts_39$count[counts_39$q28_5==1],
        counts_39$count[counts_39$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_39$count[counts_39$q28_5 == 1] and counts_39$count[counts_39$q28_5 == 0]
D = 0.4, p-value = 0.873
alternative hypothesis: two-sided
```

```
ks.test(counts_40$count[counts_40$q28_5==1],
        counts_40$count[counts_40$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_40$count[counts_40$q28_5 == 1] and counts_40$count[counts_40$q28_5 == 0]
D = 0.4, p-value = 0.873
alternative hypothesis: two-sided
```

```
ks.test(counts_41$count[counts_41$q28_5==1],
        counts_41$count[counts_41$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_41$count[counts_41$q28_5 == 1] and counts_41$count[counts_41$q28_5 == 0]
D = 0.6, p-value = 0.3571
alternative hypothesis: two-sided
```

```r
ks.test(counts_42$count[counts_42$q28_5==1],
        counts_42$count[counts_42$q28_5==0])
```

```
    Exact two-sample Kolmogorov-Smirnov test

data:  counts_42$count[counts_42$q28_5 == 1] and counts_42$count[counts_42$q28_5 == 0]
D = 0.45455, p-value = 0.1778
alternative hypothesis: two-sided
```

```r
fit.logistic <- glm(
  factor(q28_5)~q24_01_1+q24_02_1+q24_03_1+q24_04_1+q24_05_1,
  data = DB.csv,
  family = binomial
)
summary(fit.logistic)
```

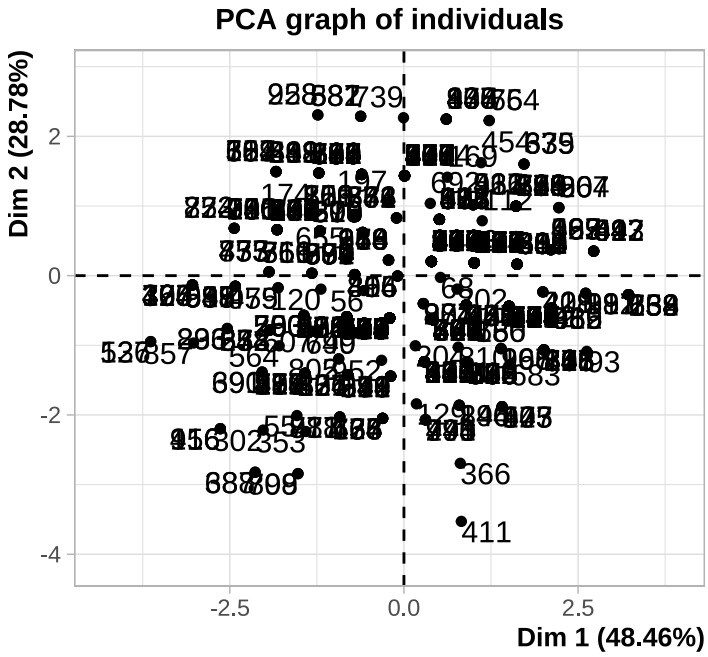
```

Call:
glm(formula = factor(q28_5) ~ q24_01_1 + q24_02_1 + q24_03_1 +
    q24_04_1 + q24_05_1, family = binomial, data = DB.csv)

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept) -0.69296    0.36589  -1.894  0.05824 .
q24_01_1    -0.11558    0.10408  -1.110  0.26680
q24_02_1     0.13269    0.10414   1.274  0.20261
q24_03_1     0.01697    0.09101   0.186  0.85209
q24_04_1     0.32045    0.11420   2.806  0.00502 **
q24_05_1     0.21229    0.10128   2.096  0.03606 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1224.6  on 1003  degrees of freedom
Residual deviance: 1194.9  on  998  degrees of freedom
AIC: 1206.9

Number of Fisher Scoring iterations: 4
```

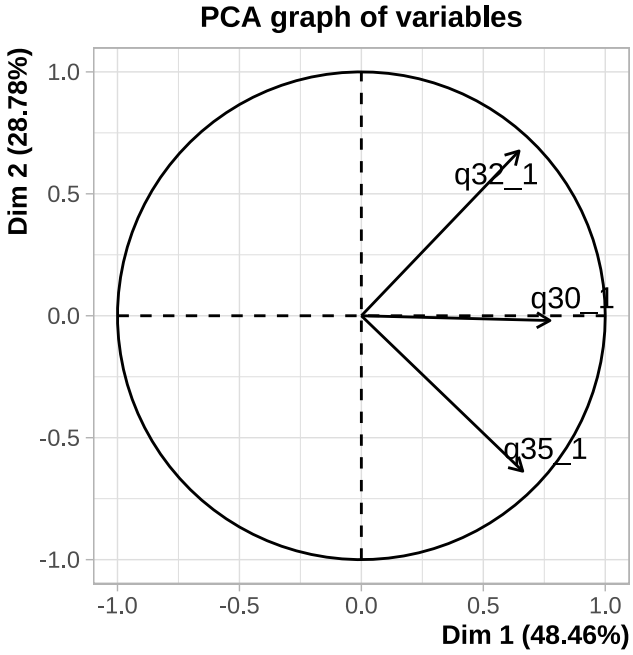
```r
library(ggplot2)
library(dplyr)
library(showtext)
showtext_auto()
# 把有抵制活動的拉出來變一個新的 data
boycott <- subset(DB.csv, q28_5 == 1)
boycott[, 94:100] <- lapply(boycott[, 94:100], as.numeric)
```

```
library(FactoMineR)
library(factoextra)
```

```
Welcome! Want to learn more? See two factoextra-related books at https://goo.gl/ve3WBa
```

```
pca_result <- PCA(boycott[, c(94,96,99)], row.w = boycott$weight, scale.unit = TRUE)# 選這三個因為好解釋
```






```
pc1_loadings <- pca_result$var$coord[, 1]
pc1_loadings
```

```
    q30_1     q32_1     q35_1
```

```
0.7732249 0.6466082 0.6617590
```

```r
pc1_explained_variance <- pca_result$eig[1, 2]
pc1_explained_variance
```

```
[1] 48.46346
```

```r
# 把 pc 分數加到資料中
pc1_scores <- pca_result$ind$coord[, 1]
boycott$pc1<-pc1_scores



# 缺失值轉 0
boycott$q28_1[is.na(boycott$q28_1)] <- 0
boycott$q28_2[is.na(boycott$q28_2)] <- 0
boycott$q28_3[is.na(boycott$q28_3)] <- 0
boycott$q28_4[is.na(boycott$q28_4)] <- 0
boycott$q29_1[is.na(boycott$q29_1)] <- 0
boycott$q29_2[is.na(boycott$q29_2)] <- 0
boycott$q29_3[is.na(boycott$q29_3)] <- 0
boycott$q29_4[is.na(boycott$q29_4)] <- 0
boycott$q29_5[is.na(boycott$q29_5)] <- 0
boycott[, 84:93] <- lapply(boycott[, 84:93], as.numeric)
dt<- boycott[, c(84,85,86,89,90,91,92,93)]
#lm
fit1 <- lm(
  pc1~(q28_1+q28_2+q28_3+q29_1+q29_2+q29_3+q29_4+q29_5)^2,
  data = boycott
)
summary(fit1)
```

```
Call:
lm(formula = pc1 ~ (q28_1 + q28_2 + q28_3 + q29_1 + q29_2 + q29_3 +
    q29_4 + q29_5)^2, data = boycott)

Residuals:
    Min      1Q  Median      3Q     Max
-3.9738 -0.7598  0.0830  0.8288  3.9207

Coefficients: (1 not defined because of singularities)
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -2.01853    0.90315  -2.235 0.025749 *
q28_1        2.43767    0.87229   2.795 0.005346 **
q28_2        1.75872    0.87118   2.019 0.043908 *
q28_3        2.91718    0.77509   3.764 0.000182 ***
q29_1       -0.45339    0.41797  -1.085 0.278427
q29_2       -1.19618    0.42364  -2.824 0.004891 **
q29_3       -0.53671    0.48322  -1.111 0.267096
q29_4        0.01202    0.45031   0.027 0.978705
q29_5        5.40235    1.98896   2.716 0.006775 **
q28_1:q28_2 -1.88264    0.83161  -2.264 0.023903 *
q28_1:q28_3 -0.45589    0.51980  -0.877 0.380775
q28_1:q29_1  0.25067    0.21597   1.161 0.246195
q28_1:q29_2  0.01200    0.23329   0.051 0.958996
```

```
q28_1:q29_3  0.01805    0.29971   0.060 0.951993
q28_1:q29_4 -0.32136    0.31079  -1.034 0.301500
q28_1:q29_5 -1.30939    1.18652  -1.104 0.270183
q28_2:q28_3 -1.93292    0.64684  -2.988 0.002909 **
q28_2:q29_1  0.01521    0.27173   0.056 0.955366
q28_2:q29_2  0.74368    0.29843   2.492 0.012945 *
q28_2:q29_3  0.09977    0.38612   0.258 0.796189
q28_2:q29_4  0.35147    0.35381   0.993 0.320879
q28_2:q29_5 -2.70647    1.69595  -1.596 0.110998
q28_3:q29_1  0.32979    0.45544   0.724 0.469258
q28_3:q29_2 -0.63208    0.39796  -1.588 0.112694
q28_3:q29_3  0.06992    0.39955   0.175 0.861141
q28_3:q29_4 -0.87763    0.42490  -2.065 0.039264 *
q28_3:q29_5 -2.00137    1.44661  -1.383 0.166977
q29_1:q29_2  0.19152    0.22071   0.868 0.385836
q29_1:q29_3  0.16299    0.29018   0.562 0.574519
q29_1:q29_4  0.40366    0.32116   1.257 0.209224
q29_1:q29_5 -2.31552    1.58224  -1.463 0.143817
q29_2:q29_3  0.36160    0.29063   1.244 0.213860
q29_2:q29_4  0.28317    0.32536   0.870 0.384439
q29_2:q29_5       NA         NA      NA       NA
q29_3:q29_4 -0.07665    0.33216  -0.231 0.817578
q29_3:q29_5  1.60860    3.41920   0.470 0.638179
q29_4:q29_5 -2.21791    1.22235  -1.814 0.070054 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.167 on 668 degrees of freedom
Multiple R-squared:  0.1256,    Adjusted R-squared:  0.0798
F-statistic: 2.742 on 35 and 668 DF,  p-value: 5.402e-07
```

```r
# 試試把 pc 分數轉成五個 ordinal 分數，做 ordinal logistic，結果一樣爛
library(dplyr)
boycott$pcgroup <- ntile(boycott$pc1, 5)
library(VGAM)
```

```
Loading required package: stats4

Loading required package: splines
```

```r
model <- vglm(pcgroup~.,family=cumulative(parallel=TRUE),data=data.frame(pcgroup = boycott$pcgroup, dt))
summary(model)
```

```
Call:
vglm(formula = pcgroup ~ ., family = cumulative(parallel = TRUE),
    data = data.frame(pcgroup = boycott$pcgroup, dt))

Coefficients:
              Estimate Std. Error z value Pr(>|z|)
(Intercept):1 -0.26098    0.26656  -0.979 0.327543
(Intercept):2  0.76009    0.26698   2.847 0.004414 **
(Intercept):3  1.61105    0.27225   5.918 3.27e-09 ***
(Intercept):4  2.63099    0.28227   9.321  < 2e-16 ***
q28_1         -0.57949    0.15859  -3.654 0.000258 ***
q28_2         -0.32536    0.19268  -1.689 0.091298 .
```

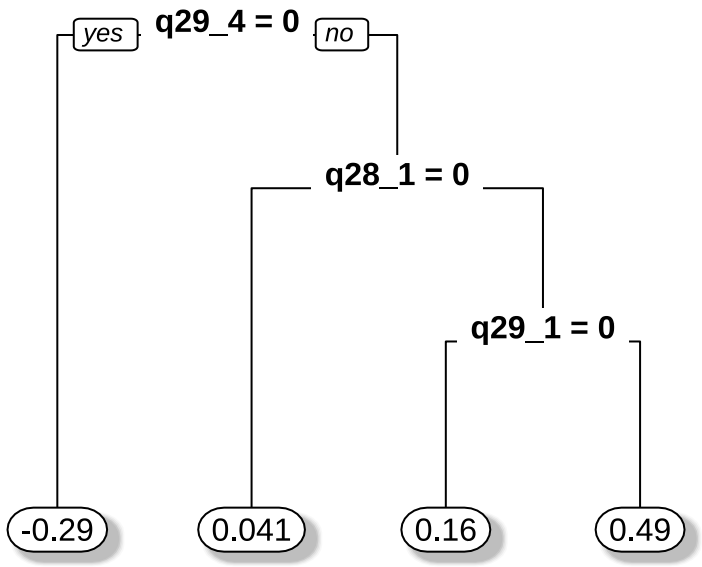
```
q28_3         -0.10757    0.25891  -0.415 0.677801
q29_1         -0.14288    0.14049  -1.017 0.309133
q29_2          0.21853    0.14830   1.474 0.140612
q29_3          0.09527    0.18674   0.510 0.609943
q29_4         -0.59461    0.19882  -2.991 0.002783 **
q29_5         -1.27470    0.62524  -2.039 0.041476 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Names of linear predictors: logitlink(P[Y<=1]), logitlink(P[Y<=2]),
logitlink(P[Y<=3]), logitlink(P[Y<=4])

Residual deviance: 2225.053 on 2804 degrees of freedom

Log-likelihood: -1112.526 on 2804 degrees of freedom

Number of Fisher scoring iterations: 8

No Hauck-Donner effect found in any of the estimates


Exponentiated coefficients:
    q28_1     q28_2     q28_3     q29_1     q29_2     q29_3     q29_4     q29_5
0.5601860 0.7222692 0.8980157 0.8668552 1.2442411 1.0999532 0.5517804 0.2795161
```

```r
# 沒辦法直接算 r squared 所以算一些其他的 r squared
calc_pseudo_r2 <- function(model) {
  # 取得概似函數值
  loglik_model <- logLik(model)[1]
  loglik_null <- logLik(update(model, . ~ 1))[1]

  # McFadden's R²
  mcfadden <- 1 - loglik_model/loglik_null

  # Nagelkerke's R²
  n <- nobs(model)
  nagelkerke <- (1 - exp((2/n) * (loglik_null - loglik_model))) /
                (1 - exp(2/n * loglik_null))

  # Cox & Snell R²
  cox_snell <- 1 - exp(2 * (loglik_null - loglik_model) / n)

  # 整理結果
  results <- data.frame(
    Measure = c("McFadden R²", "Nagelkerke R²", "Cox & Snell R²"),
    Value = c(mcfadden, nagelkerke, cox_snell)
  )

  return(results)
}

pseudo_r2 <- calc_pseudo_r2(model)
pseudo_r2
```

```
          Measure      Value
```

```
1    McFadden R² 0.01810623
2  Nagelkerke R² 0.05897472
3 Cox & Snell R² 0.05661572
```

```r
# 決策樹（我還沒調參）
library(rpart)
library(rpart.plot)
#library(RWeka)
cart.model <- rpart(pc1 ~ .,
                    data = data.frame(pc1 = boycott$pc1, dt),
                    method = "anova")

prp(cart.model,          # 模型
    faclen=0,            # 呈現的變數不要縮寫
    fallen.leaves=TRUE, # 讓樹枝以垂直方式呈現
    shadow.col="gray",  # 最下面的節點塗上陰影
    # number of correct classifications / number of observations in that node
    extra=0)
```

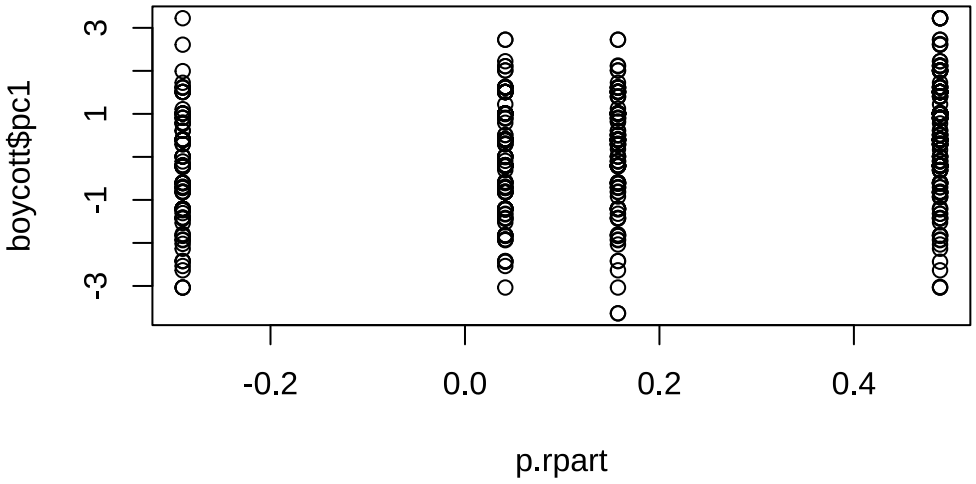



```r
summary(cart.model)
```

```
Call:
rpart(formula = pc1 ~ ., data = data.frame(pc1 = boycott$pc1,
    dt), method = "anova")
  n= 704

          CP nsplit rel error    xerror       xstd
1 0.02935675      0 1.0000000 1.0016958 0.05359163
2 0.01201104      1 0.9706432 1.0009589 0.05491080
3 0.01052786      2 0.9586322 0.9964335 0.05523950
4 0.01000000      3 0.9481044 0.9965029 0.05556429

Variable importance
```

```
q29_4 q28_1 q29_1 q29_5 q28_2
   55    22    20     2     1

Node number 1: 704 observations,    complexity param=0.02935675
  mean=0.1885553, MSE=1.47767
  left son=2 (112 obs) right son=3 (592 obs)
  Primary splits:
      q29_4 < 0.5 to the left,  improve=0.029356750, (0 missing)
      q28_1 < 0.5 to the left,  improve=0.026986600, (0 missing)
      q29_1 < 0.5 to the left,  improve=0.015640580, (0 missing)
      q29_3 < 0.5 to the right, improve=0.008927166, (0 missing)
      q29_2 < 0.5 to the right, improve=0.004781864, (0 missing)
  Surrogate splits:
      q29_5 < 0.5 to the right, agree=0.845, adj=0.027, (0 split)

Node number 2: 112 observations
  mean=-0.2902893, MSE=1.560596

Node number 3: 592 observations,    complexity param=0.01201104
  mean=0.2791475, MSE=1.410395
  left son=6 (161 obs) right son=7 (431 obs)
  Primary splits:
      q28_1 < 0.5 to the left,  improve=0.014964710, (0 missing)
      q29_1 < 0.5 to the left,  improve=0.012340860, (0 missing)
      q28_2 < 0.5 to the left,  improve=0.005452007, (0 missing)
      q29_3 < 0.5 to the right, improve=0.002396375, (0 missing)
      q29_2 < 0.5 to the right, improve=0.001248378, (0 missing)
  Surrogate splits:
      q29_5 < 0.5 to the right, agree=0.73, adj=0.006, (0 split)

Node number 6: 161 observations
  mean=0.04144694, MSE=1.440109

Node number 7: 431 observations,    complexity param=0.01052786
  mean=0.3679405, MSE=1.370305
  left son=14 (157 obs) right son=15 (274 obs)
  Primary splits:
      q29_1 < 0.5 to the left,  improve=0.0185436700, (0 missing)
      q28_2 < 0.5 to the left,  improve=0.0139780000, (0 missing)
      q29_3 < 0.5 to the right, improve=0.0042828770, (0 missing)
      q29_2 < 0.5 to the right, improve=0.0020483920, (0 missing)
      q28_3 < 0.5 to the right, improve=0.0007450495, (0 missing)
  Surrogate splits:
      q28_2 < 0.5 to the left,  agree=0.661, adj=0.07, (0 split)

Node number 14: 157 observations
  mean=0.1573533, MSE=1.4361

Node number 15: 274 observations
  mean=0.4886054, MSE=1.292634
```

```
p.rpart <- predict(cart.model
                   , dt)
plot(p.rpart,boycott$pc1)
```


boycott$pc1
3
1
-1
-3
-0.2
0.0
0.2
0.4
p.rpart