report23

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data

```
vote <- read.csv("./codes/vote_data.csv")
str(vote)
```

```
## 'data.frame':    19775 obs. of  10 variables:
##  $ from_requirement_threshold: num  0.4789 0.3838 0.0979 0.4568 0.4089 ...
##  $ major.requirement         : int  1 1 1 1 1 1 1 1 1 ...
##  $ ISS.against.recommendation: int  0 0 1 0 0 0 0 1 0 0 ...
##  $ shares.oustanding.base    : int  0 1 0 0 0 0 0 1 0 0 ...
##  $ special.meeting           : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ analyst.coverage          : num  0.693 0.693 1.386 1.792 1.946 ...
##  $ institutional.ownership   : num  0.563 0.563 1 1 0.968 ...
##  $ past.stock.return         : num  0.506 0.506 0.38 0.388 -0.149 ...
##  $ q                         : num  5.68 5.68 1.18 1.46 1.11 ...
##  $ firm.size                 : num  5.37 5.37 6.6 6.89 7.31 ...
```

```
vote <- subset(vote, abs(from_requirement_threshold) < 0.5)
bunch <- FALSE
pos.est <- TRUE
N_para <- 6
p <- 6
```

```
get.trim.data <- function(trim){
  vote <- subset(vote, abs(from_requirement_threshold) < trim/2)
  preds <- model.matrix(~ #major.requirement
                          + ISS.against.recommendation
                        #+ shares.oustanding.base
                        #+ special.meeting
                        + analyst.coverage
                        #+ institutional.ownership
                        + past.stock.return
                        + q
                        + firm.size,
                        data = vote)[,-1]
  preds.all <- scale(preds)
  x <- cbind(1, preds.all)
  dimnames(x)[[2]][1] <- "Intercept"
```

```
  x.names <- dimnames(x)[[2]]
  y <- 2*vote,"from_requirement_threshold"]
  return(list(x=x, y=y))
}

get.result.CI <- function(result_trim07_order2,
                          moreburn = 1,
                          N_para = 6, p = 6){
  nlast <- ncol(result_trim07_order2[[1]]$a)
  result_CI_t7o2 <- data.frame()
  for(i in 1:N_para){
    one_set_r <- apply(result_trim07_order2[[i]]$a[,moreburn:nlast],
                       1, function(x) quantile(x, c(0.025, 0.975)))
    for(j in 1:p){
      result_CI_t7o2 <- rbind(result_CI_t7o2,
                              data.frame(lower = one_set_r[1,j],
                                         upper = one_set_r[2,j],
                                         variable = paste0("a", j),
                                         setting = as.character(i)))
    }
  }
  rownames(result_CI_t7o2) <- NULL
  return(result_CI_t7o2)
}
```

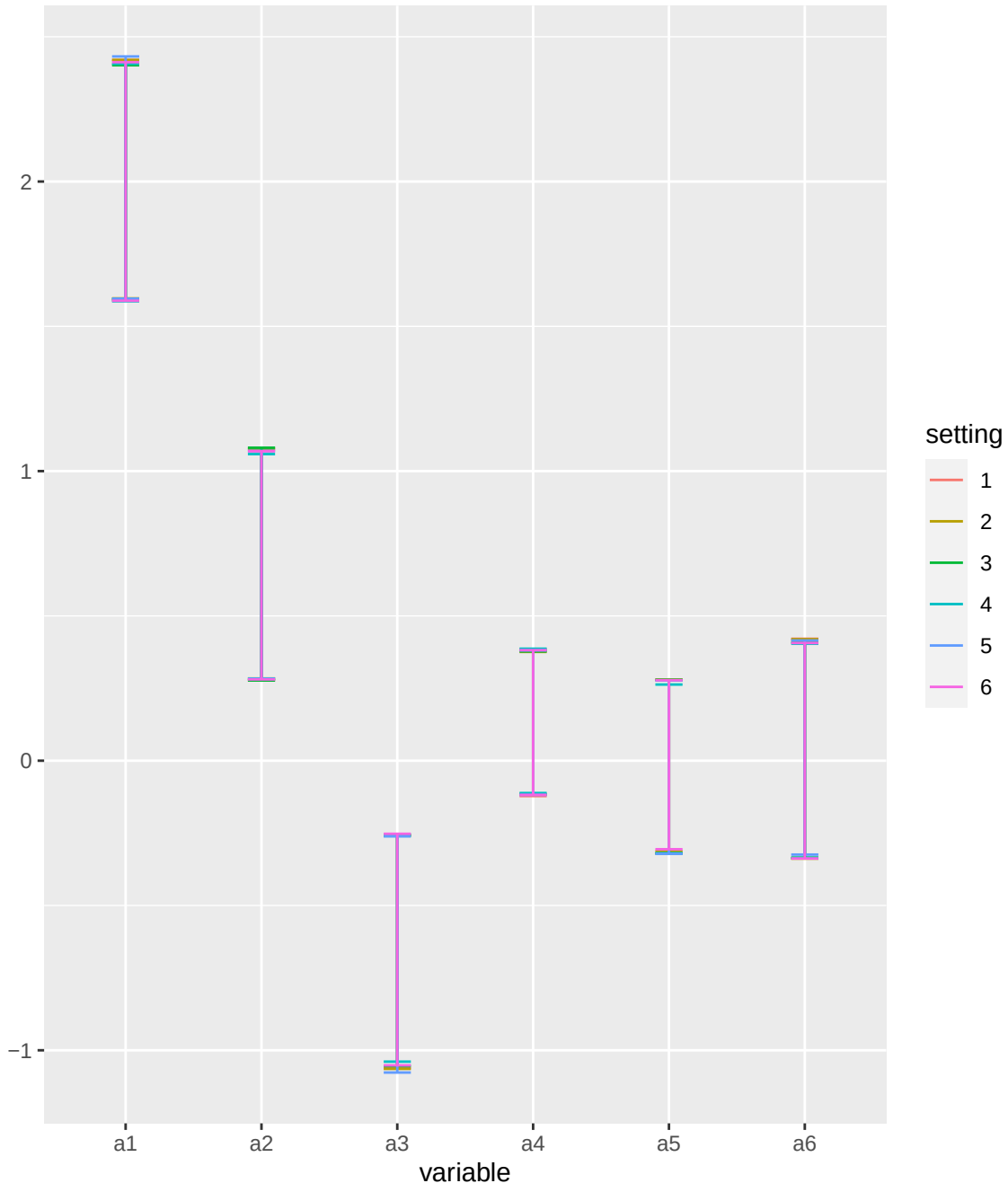
order = 2

trimming = 0.5

```
set.seed(123)
order <- 2
b_init <- replicate(N_para, matrix(rnorm(n = order*p, sd=1), order, p))
a_init <- replicate(N_para, rnorm(n = p, sd = 1.5))

data_trim05 <- get.trim.data(0.5)
```

```
result_trim05_order2_more2 <- foreach(i = 1:N_para) %dorng%
  bdregjump_adapt_poly_trim_alphanoPG(y=data_trim05$y, x=data_trim05$x, b=b_init[,,i],
                              burn=15000, nsamp=500000, thin=1, trim = 0.5, order = 2,
                              jump=list(a=a_init[,i], prec = 1, positive=pos.est,
                                 persistence=0.8, update.jbw=TRUE))
```

```
load("./report/report23/result_trim05_order2_more2.RData")
result_CI_t5o2_more2 <- get.result.CI(result_trim05_order2_more2)

p1 <- ggplot(result_CI_t5o2_more2, aes(x = variable, colour = setting)) +
  geom_errorbar(aes(ymin = lower, ymax = upper), width = 0.2)

p1
```




```
result_CI_t5o2_more2 %>%
  filter(variable == "a1")
```

```
##      lower    upper variable setting
## 1 1.590421 2.419978       a1       1
## 2 1.596494 2.419691       a1       2
## 3 1.594441 2.401689       a1       3
## 4 1.586670 2.406232       a1       4
## 5 1.595409 2.431980       a1       5
## 6 1.588438 2.412141       a1       6
```

```
result_CI_t5o2_more2 %>%
  filter(variable == "a2")
```

```
##       lower    upper variable setting
## 1 0.2779455 1.075621       a2       1
## 2 0.2839439 1.078693       a2       2
## 3 0.2771448 1.080797       a2       3
## 4 0.2835050 1.058848       a2       4
## 5 0.2827609 1.069836       a2       5
## 6 0.2807278 1.068627       a2       6
```

```
result_CI_t5o2_more2 %>%
  filter(variable == "a3")
```

```
##       lower      upper variable setting
## 1 -1.061793 -0.2561453       a3       1
## 2 -1.064131 -0.2566563       a3       2
## 3 -1.054662 -0.2599364       a3       3
## 4 -1.039252 -0.2553443       a3       4
## 5 -1.076877 -0.2610706       a3       5
## 6 -1.052143 -0.2525427       a3       6
```

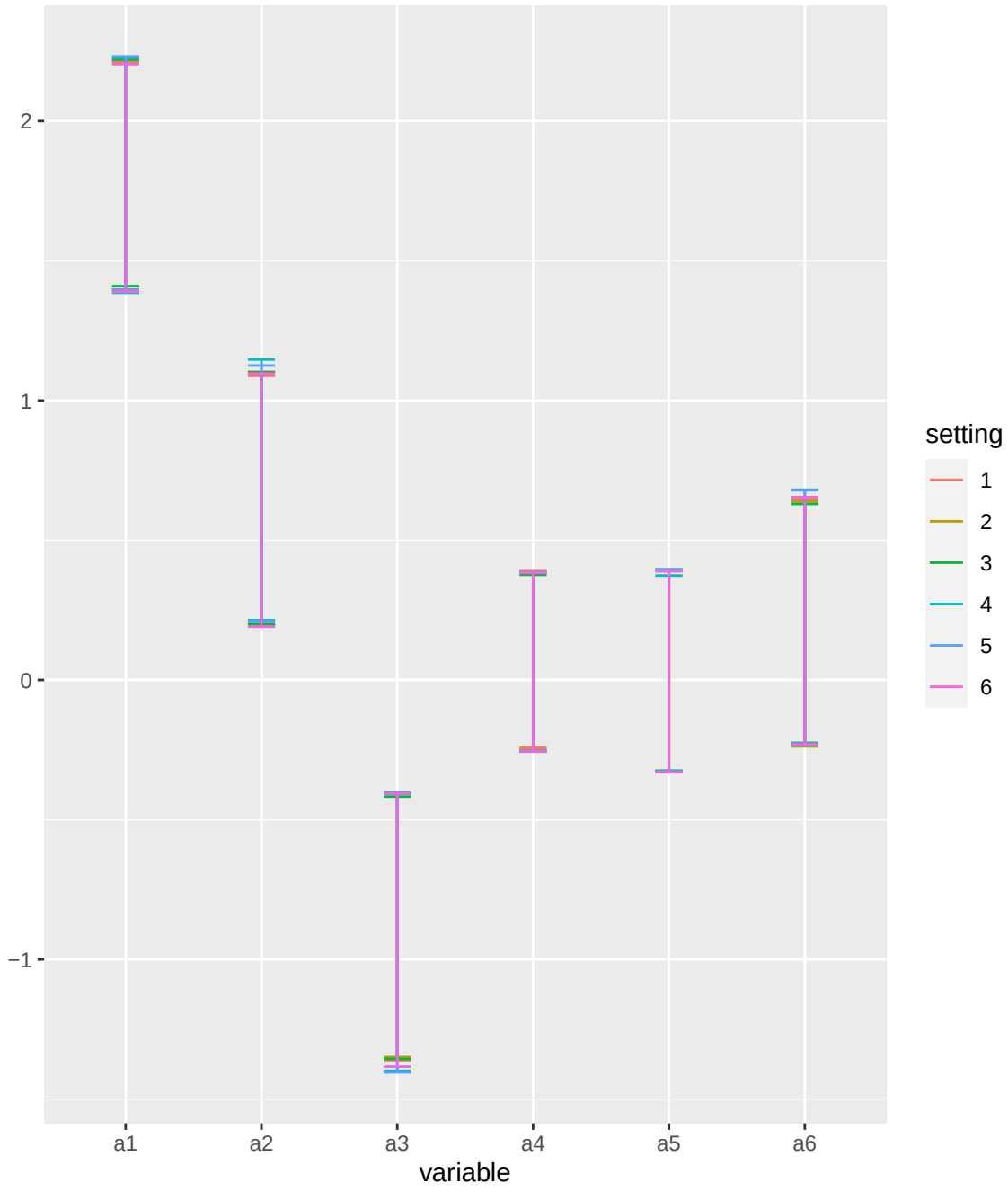
order = 3

trimming = 0.5

```
set.seed(123)
order <- 2
b_init <- replicate(N_para, matrix(rnorm(n = order*p, sd=1), order, p))
a_init <- replicate(N_para, rnorm(n = p, sd = 1.5))

data_trim05 <- get.trim.data(0.5)
```

```
result_trim05_order3_more2 <- foreach(i = 1:N_para) %dorng%
  bdregjump_adapt_poly_trim_alphanoPG(y=data_trim05$y, x=data_trim05$x, b=b_init[,,i],
                              burn=15000, nsamp=500000, thin=1, trim = 0.5, order = 3,
                              jump=list(a=a_init[,i], prec = 1, positive=pos.est,
                                 persistence=0.8, update.jbw=TRUE))
```

```
load("./report/report23/result_trim05_order3_more2.RData")
result_CI_t5o3_more2 <- get.result.CI(result_trim05_order3_more2)

p2 <- ggplot(result_CI_t5o3_more2, aes(x = variable, colour = setting)) +
  geom_errorbar(aes(ymin = lower, ymax = upper), width = 0.2)

p2
```




```
result_CI_t5o3_more2 %>%
  filter(variable == "a1")
```

```
##      lower    upper variable setting
## 1 1.397168 2.212994       a1       1
## 2 1.397364 2.217643       a1       2
## 3 1.409245 2.220842       a1       3
## 4 1.385787 2.226280       a1       4
## 5 1.396196 2.231436       a1       5
## 6 1.389686 2.204110       a1       6
```

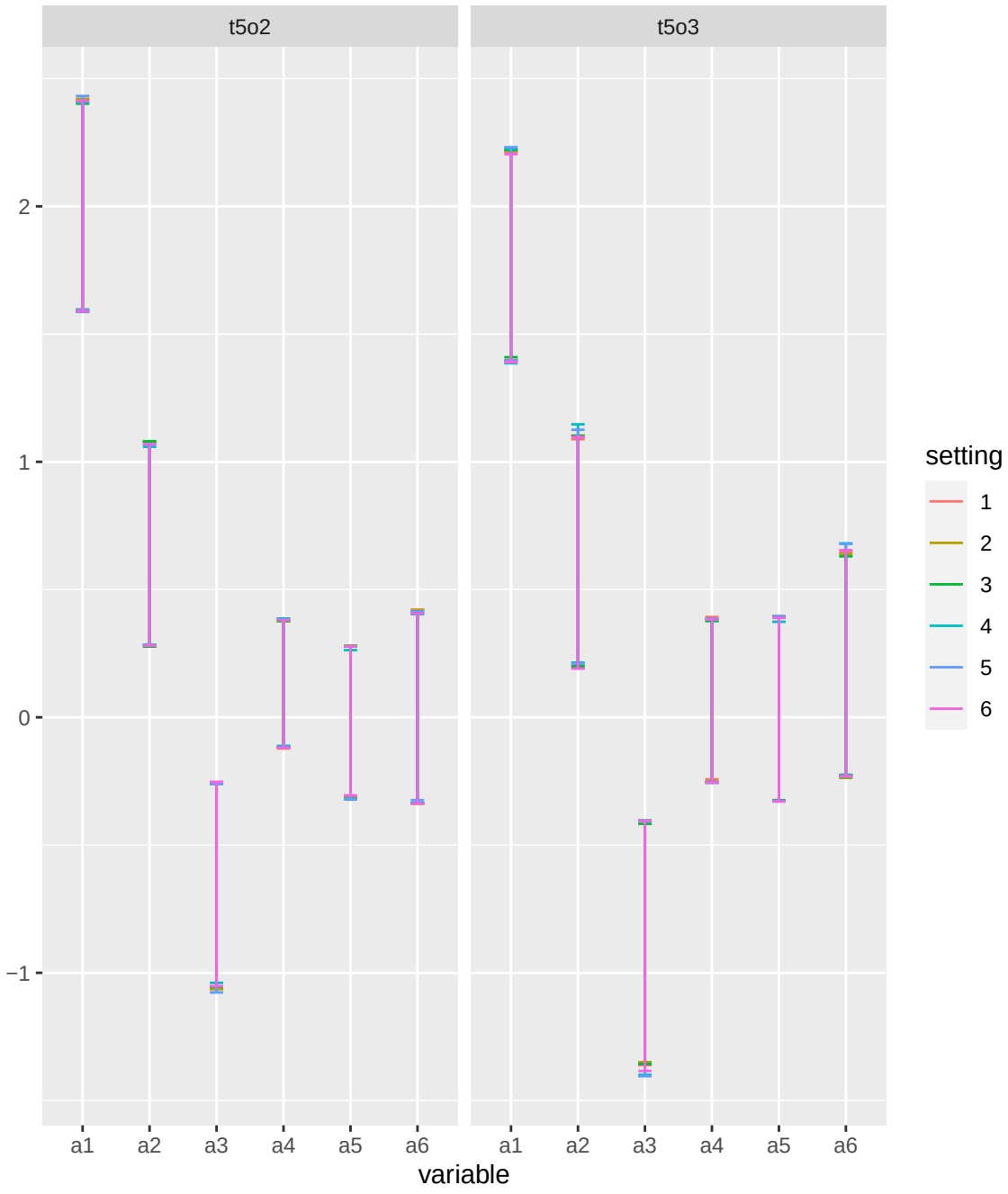
```r
result_CI_t5o3_more2 %>%
  filter(variable == "a2")
```

```
##       lower    upper variable setting
## 1 0.1954447 1.088567       a2       1
## 2 0.1994848 1.103026       a2       2
## 3 0.1996857 1.101160       a2       3
## 4 0.2140228 1.146830       a2       4
## 5 0.2099562 1.125406       a2       5
## 6 0.1906397 1.097081       a2       6
```

```r
result_CI_t5o3_more2 %>%
  filter(variable == "a6")
```

```
##        lower     upper variable setting
## 1 -0.2263723 0.6464309       a6       1
## 2 -0.2374352 0.6393714       a6       2
## 3 -0.2250592 0.6301653       a6       3
## 4 -0.2323556 0.6808750       a6       4
## 5 -0.2282489 0.6791922       a6       5
## 6 -0.2308724 0.6545429       a6       6
```

```r
result_CI_t5o2_more2$type = "t5o2"
result_CI_t5o3_more2$type = "t5o3"

result_CI <- rbind(result_CI_t5o2_more2,
                   result_CI_t5o3_more2)

result_CI %>%
  ggplot(aes(x = variable, colour = setting)) +
  geom_errorbar(aes(ymin = lower, ymax = upper), width = 0.2) +
  facet_wrap(vars(type))
```


t5o2
t5o3
2
1
0
−1
a1
a2
a3
a4
a5
a6
variable
setting
1
2
3
4
5
6