

Visualizations LDA coefficients

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.0.5
```

```
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 4.0.5
```

```
##
```

```
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
```

```
##
```

```
##   filter, lag
```

```
## The following objects are masked from 'package:base':
```

```
##
```

```
##   intersect, setdiff, setequal, union
```

```
library(tidyr)
```

```
## Warning: package 'tidyr' was built under R version 4.0.5
```

```
library("ggpubr")
```

```
## Warning: package 'ggpubr' was built under R version 4.0.5
```

```
library(LDATS)
```

```
## Warning: package 'LDATS' was built under R version 4.0.5
```

```
library(ggVennDiagram)
```

```
## Warning: package 'ggVennDiagram' was built under R version 4.0.5
```

```
library(stringr)
```

```
library(abind)
```

```
## Warning: package 'abind' was built under R version 4.0.3
```

```
library(patchwork)
```

```
## Warning: package 'patchwork' was built under R version 4.0.3
```

```
source("utils.R")
```

```
## Warning: package 'hash' was built under R version 4.0.5
```

```
## hash-2.2.6.1 provided by Decision Patterns
```

```
## Warning: package 'reticulate' was built under R version 4.0.5
```

```
## Warning: package 'berryFunctions' was built under R version 4.0.5
```

```
##
```

```
## Attaching package: 'berryFunctions'
```

```
## The following object is masked from 'package:ggVennDiagram':
```

```
##
```

```
##     circle
```

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

```
##
```

```
##     between
```

```
## Warning: package 'purrr' was built under R version 4.0.3
```

```
## Warning: package 'reshape2' was built under R version 4.0.3
```

```
##
```

```
## Attaching package: 'reshape2'
```

```
## The following object is masked from 'package:tidyr':
```

```
##
```

```
##     smiths
```

```
base_dir <- "../data/data_train_val_c10"
```

```
repls <- 0:29
```

```
classes <- 10
```

```
lda_coefs <- load_lda_coefs(base_dir, repls)
```

```
net_pw_results <- read.csv(file.path(base_dir, "net_pw_accuracies.csv"))
```

```
ens_pw_results <- read.csv(file.path(base_dir, "ensemble_pw_accuracies.csv"))
```

```
net_pw_results[, c("class1", "class2")] <- lapply(net_pw_results[, c("class1", "class2")], as.factor)
```

```
ens_pw_results[, c("class1", "class2")] <- lapply(ens_pw_results[, c("class1", "class2")], as.factor)
```

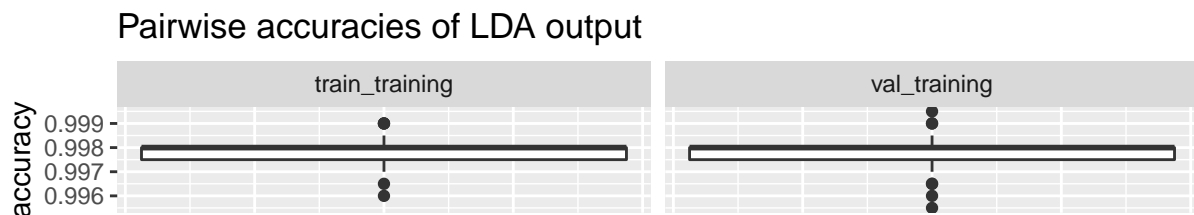
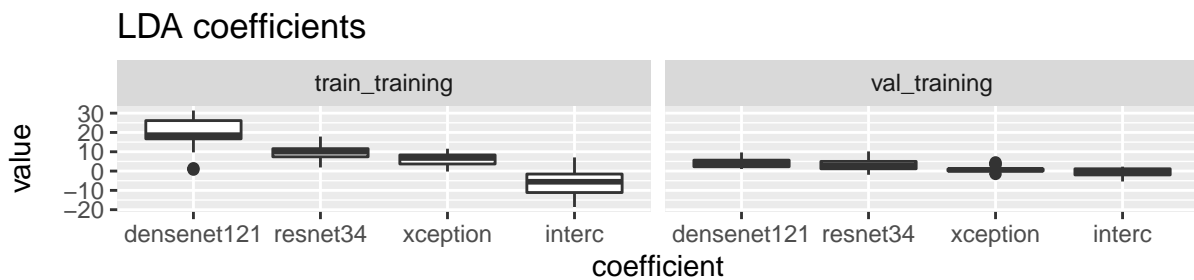
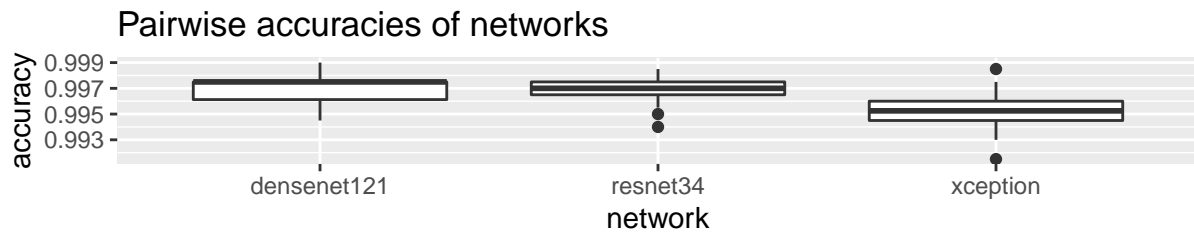
```

for (cl1 in 1:(classes - 1))
{
  for (cl2 in (cl1 + 1):classes)
  {
    lda_plt <- lda_coefs %>% filter(class1 == cl1 & class2 == cl2) %>% ggplot() + geom_boxplot(aes(x=coefficient)) +
      facet_wrap(~train_type) + ggtitle("LDA coefficients")
    acc_plt_net <- net_pw_results %>% filter(class1 == (cl1 - 1) & class2 == (cl2 - 1)) %>% ggplot(mapping=aes(x=coefficient)) +
      geom_boxplot() + ggtitle("Pairwise accuracies of networks")
    acc_plt_ens <- ens_pw_results %>% filter(class1 == (cl1 - 1) & class2 == (cl2 - 1)) %>% ggplot(mapping=aes(x=coefficient)) +
      geom_boxplot() + facet_wrap(~train_set) + ggtitle("Pairwise accuracies of LDA output") +
      theme(axis.ticks.x=element_blank(), axis.text.x=element_blank())

    print((acc_plt_net/lda_plt/acc_plt_ens) + plot_annotation(title=paste("Classes ", cl1, " vs ", cl2)))
  }
}

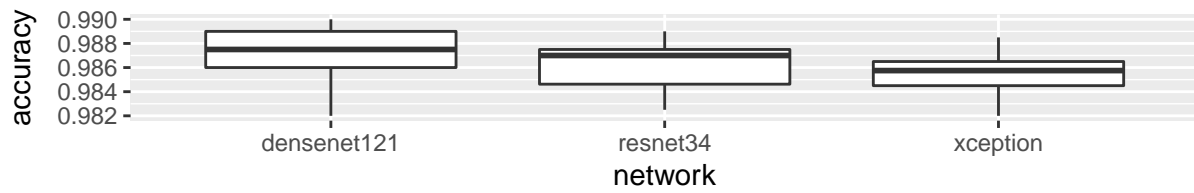
```

Classes 1 vs 2

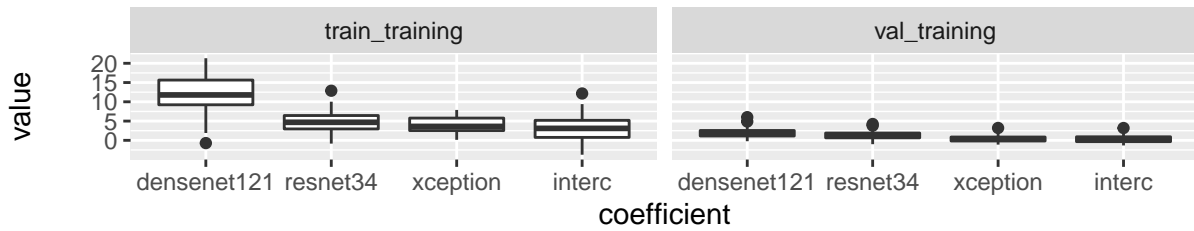


Classes 1 vs 3

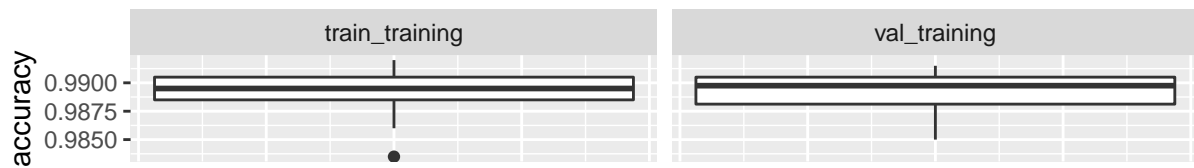
Pairwise accuracies of networks



LDA coefficients

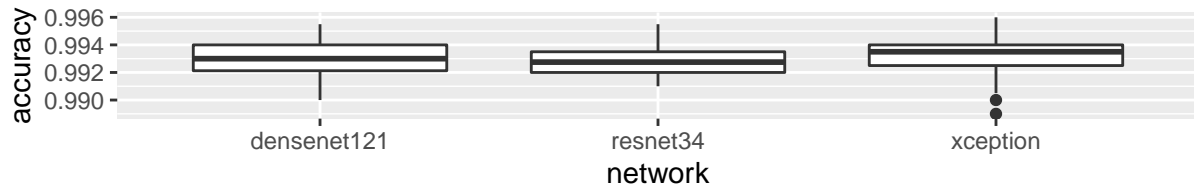


Pairwise accuracies of LDA output

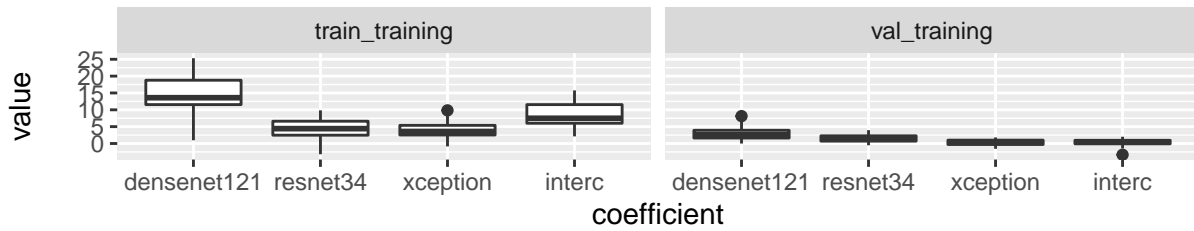


Classes 1 vs 4

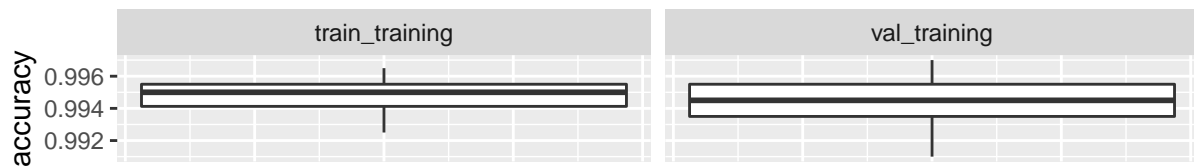
Pairwise accuracies of networks



LDA coefficients

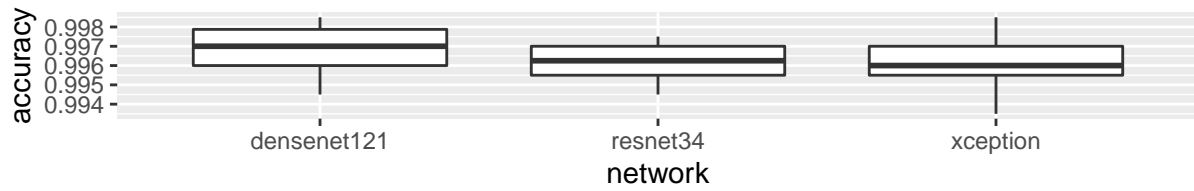


Pairwise accuracies of LDA output

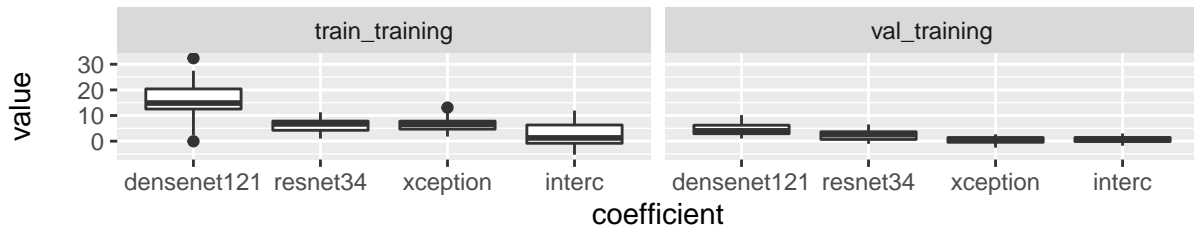


Classes 1 vs 5

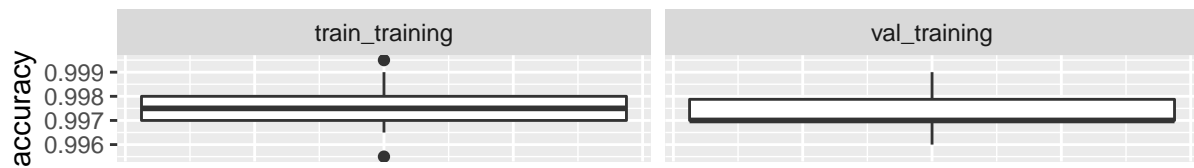
Pairwise accuracies of networks



LDA coefficients

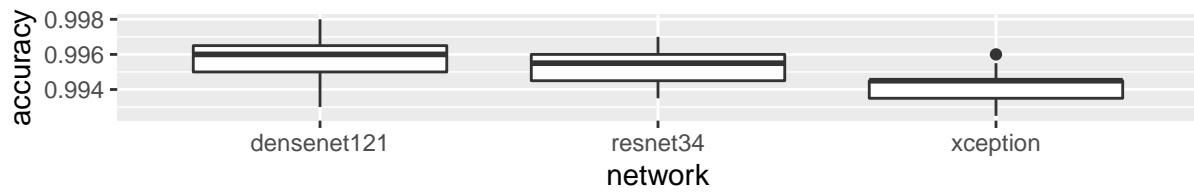


Pairwise accuracies of LDA output

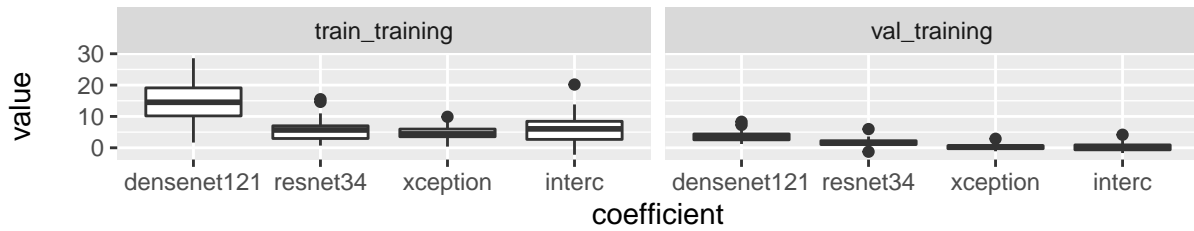


Classes 1 vs 6

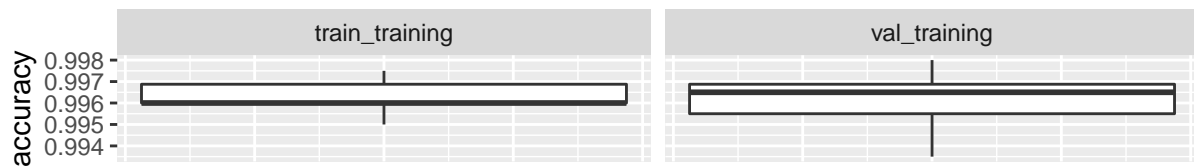
Pairwise accuracies of networks



LDA coefficients

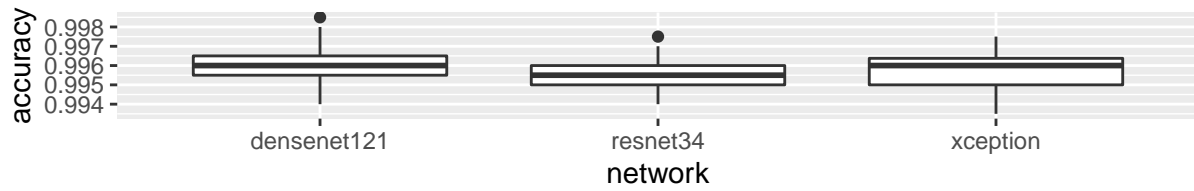


Pairwise accuracies of LDA output

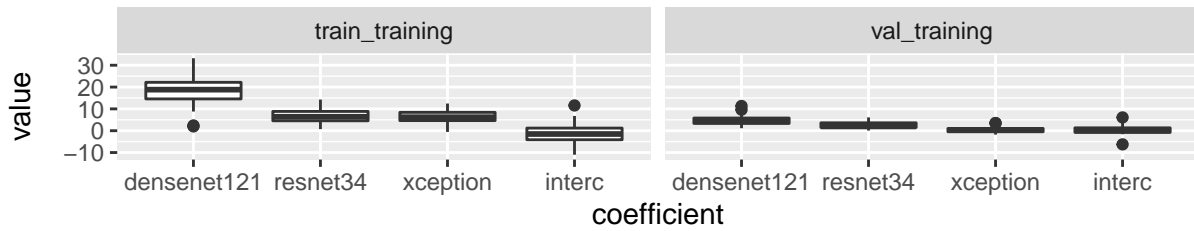


Classes 1 vs 7

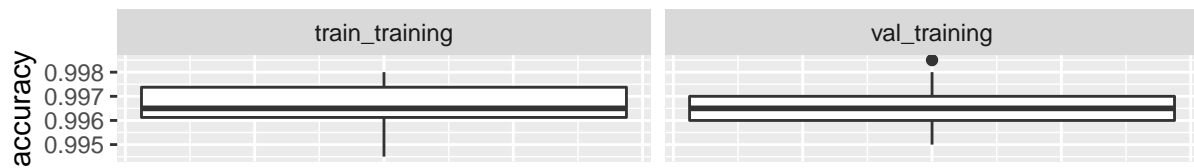
Pairwise accuracies of networks



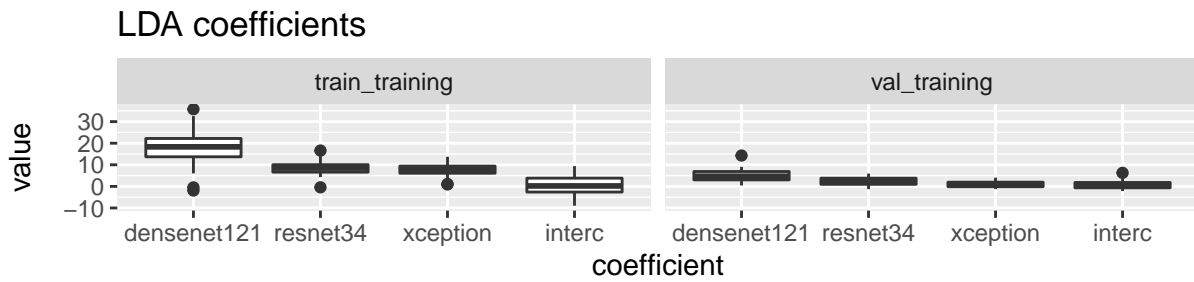
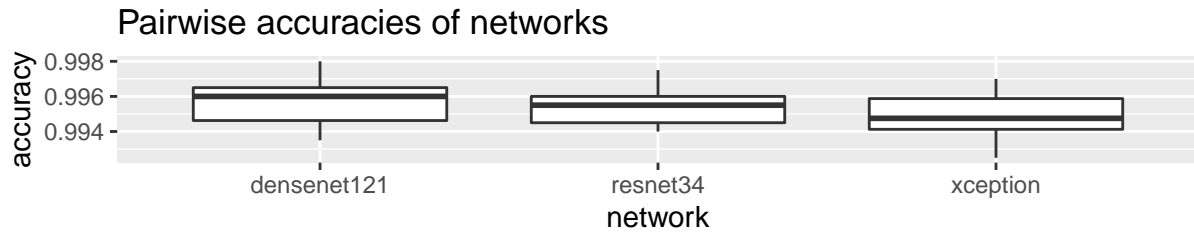
LDA coefficients



Pairwise accuracies of LDA output

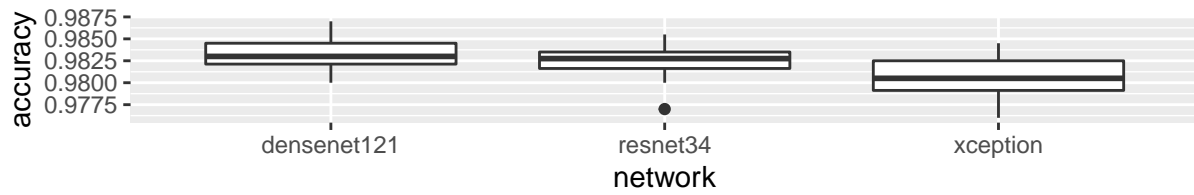


Classes 1 vs 8

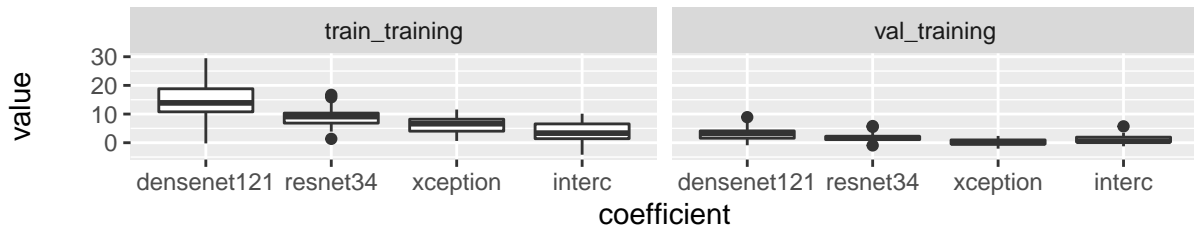


Classes 1 vs 9

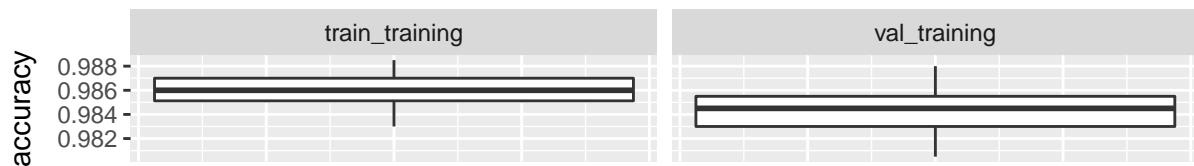
Pairwise accuracies of networks



LDA coefficients

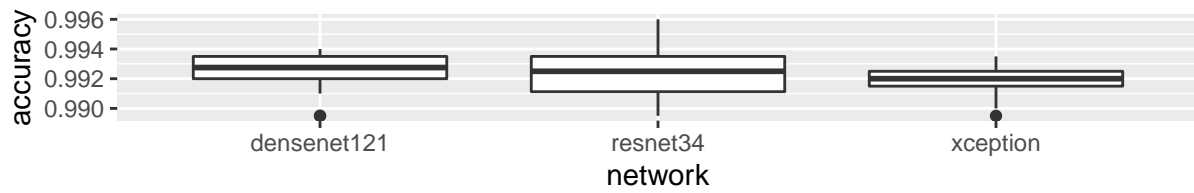


Pairwise accuracies of LDA output

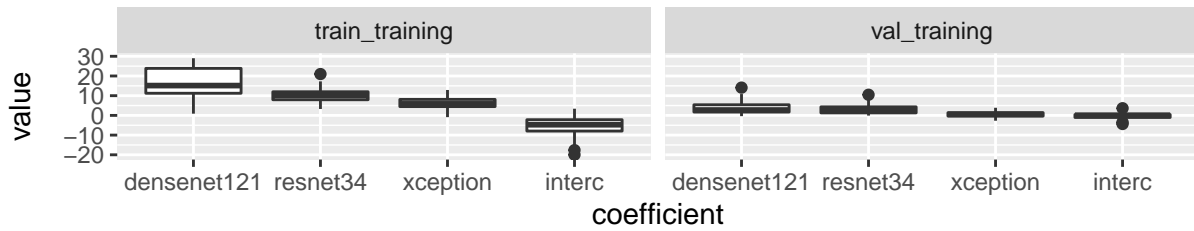


Classes 1 vs 10

Pairwise accuracies of networks



LDA coefficients

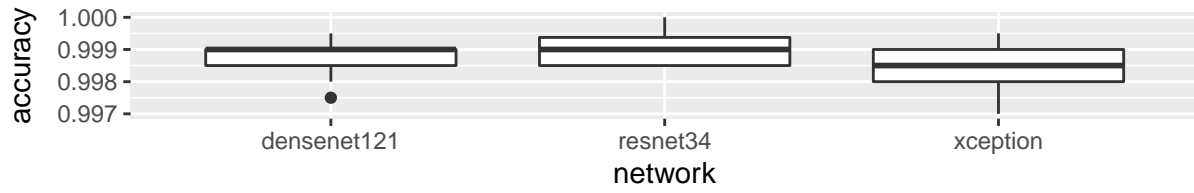


Pairwise accuracies of LDA output

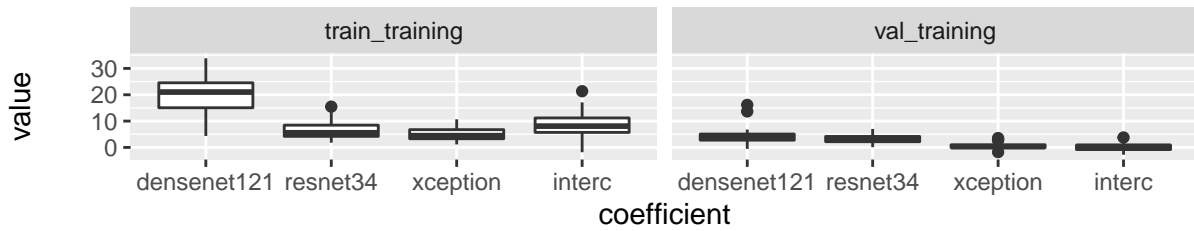


Classes 2 vs 3

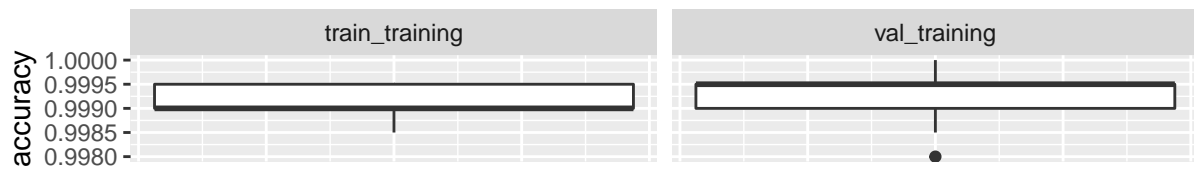
Pairwise accuracies of networks



LDA coefficients

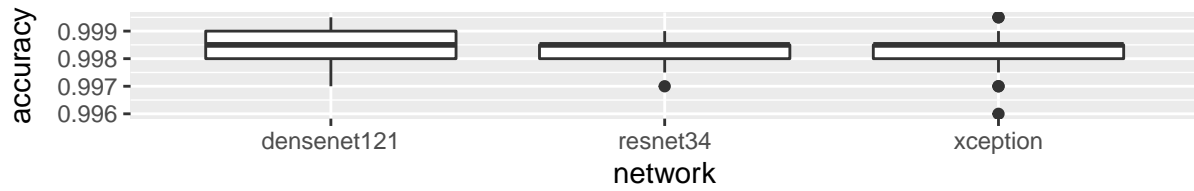


Pairwise accuracies of LDA output

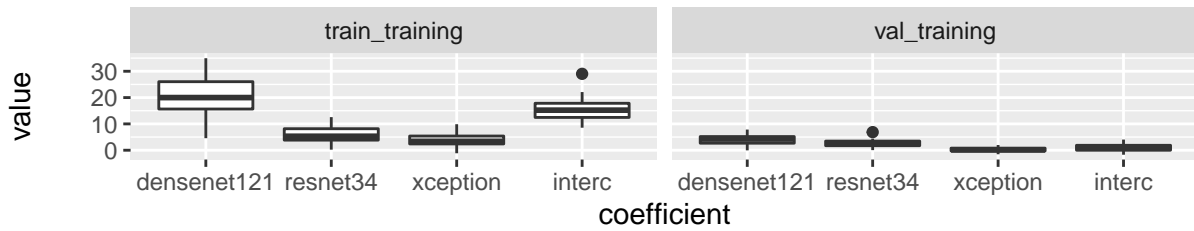


Classes 2 vs 4

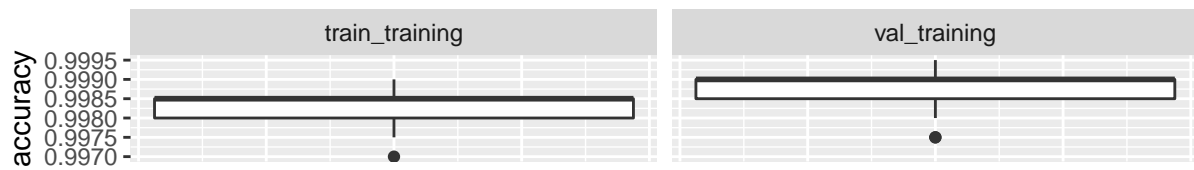
Pairwise accuracies of networks



LDA coefficients

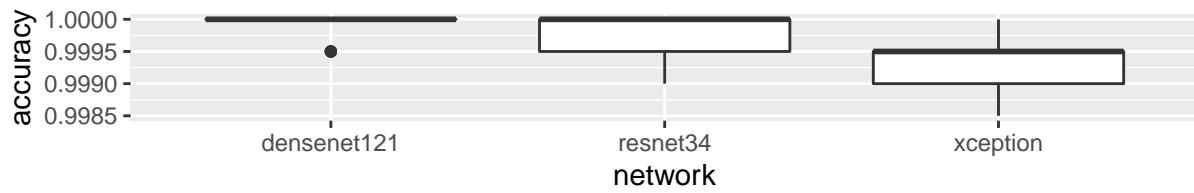


Pairwise accuracies of LDA output

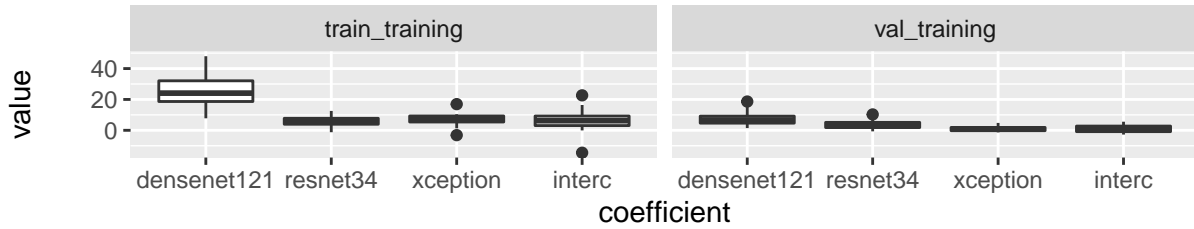


Classes 2 vs 5

Pairwise accuracies of networks



LDA coefficients

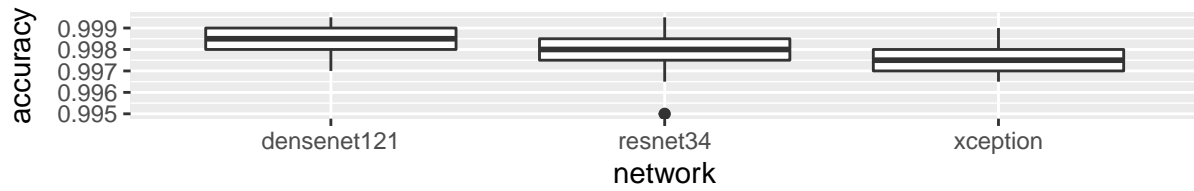


Pairwise accuracies of LDA output

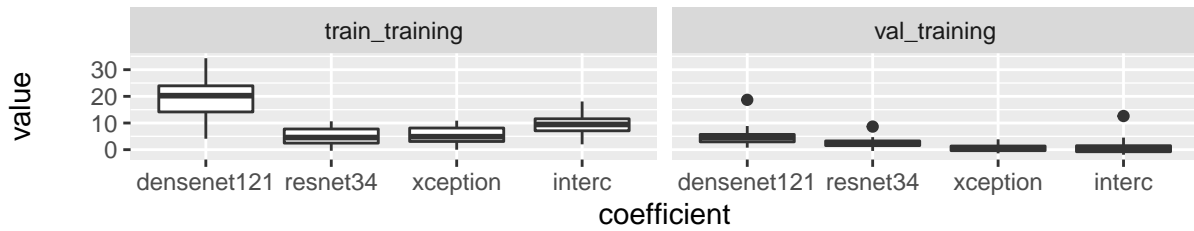


Classes 2 vs 6

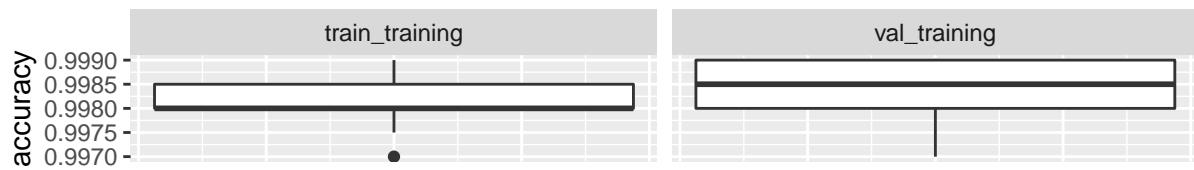
Pairwise accuracies of networks



LDA coefficients

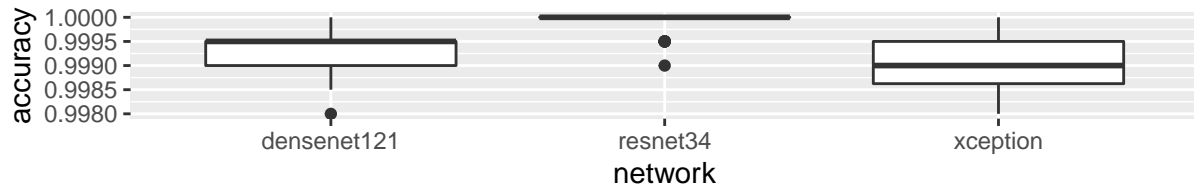


Pairwise accuracies of LDA output

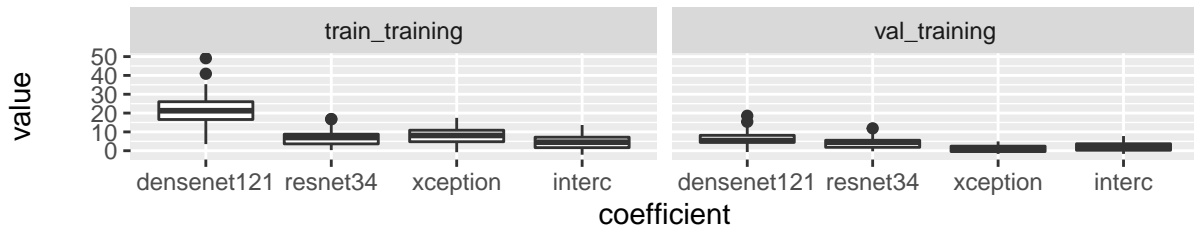


Classes 2 vs 7

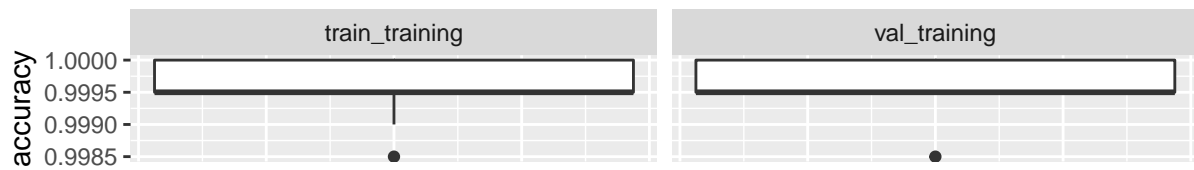
Pairwise accuracies of networks



LDA coefficients

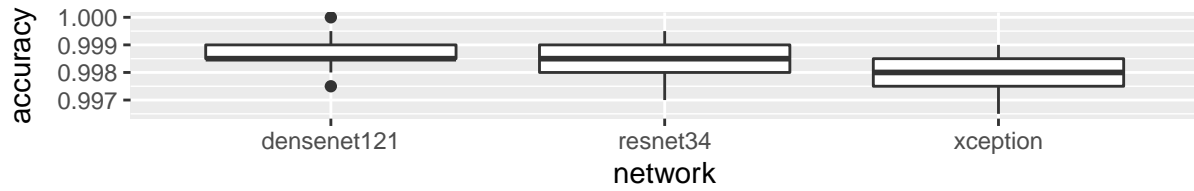


Pairwise accuracies of LDA output

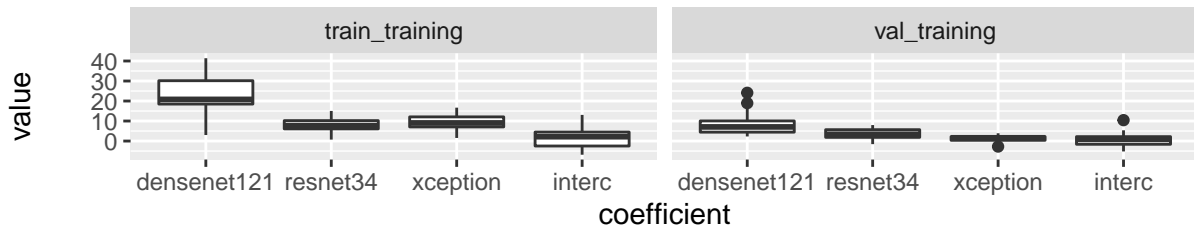


Classes 2 vs 8

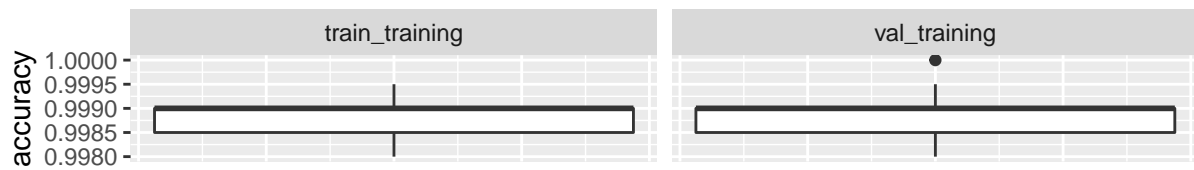
Pairwise accuracies of networks



LDA coefficients

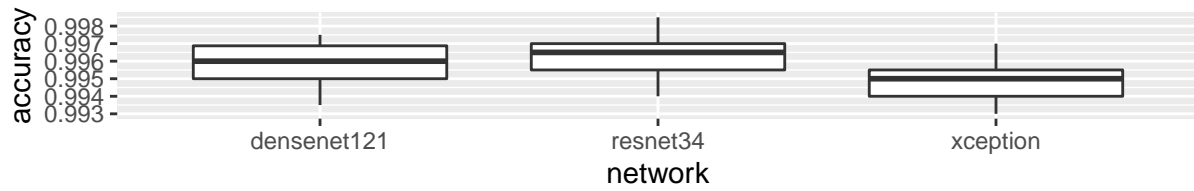


Pairwise accuracies of LDA output

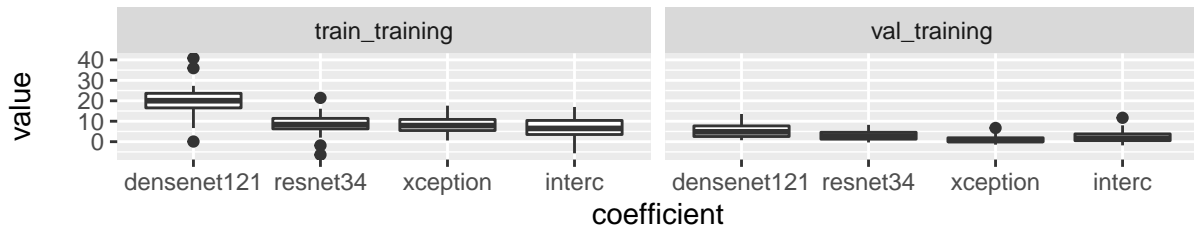


Classes 2 vs 9

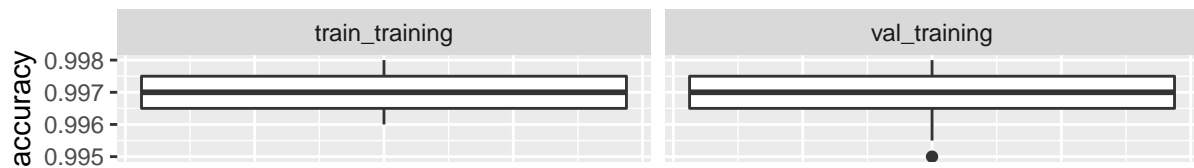
Pairwise accuracies of networks



LDA coefficients

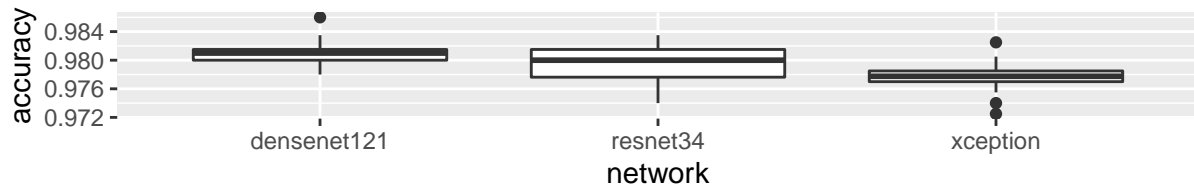


Pairwise accuracies of LDA output

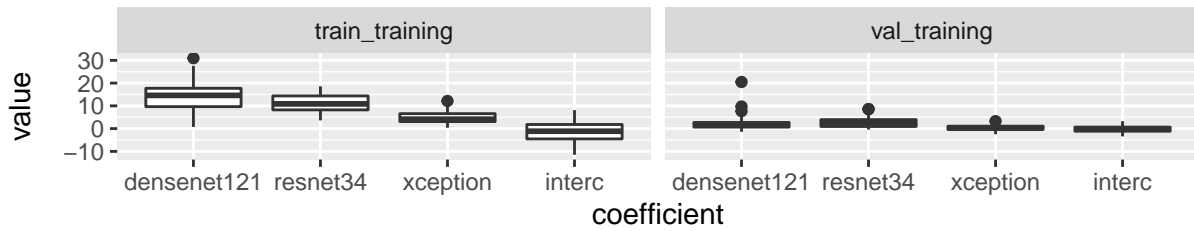


Classes 2 vs 10

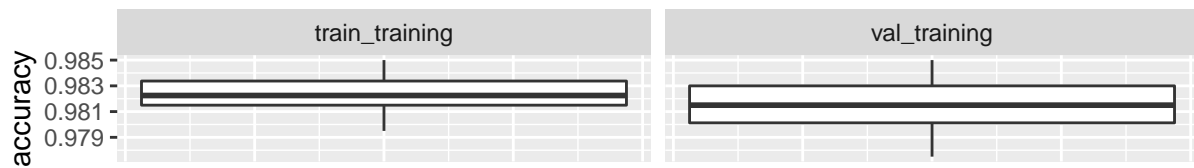
Pairwise accuracies of networks



LDA coefficients

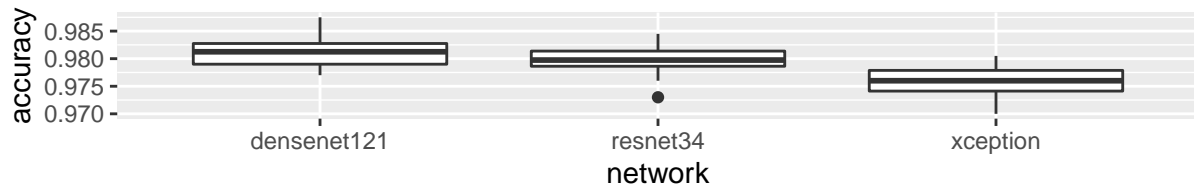


Pairwise accuracies of LDA output

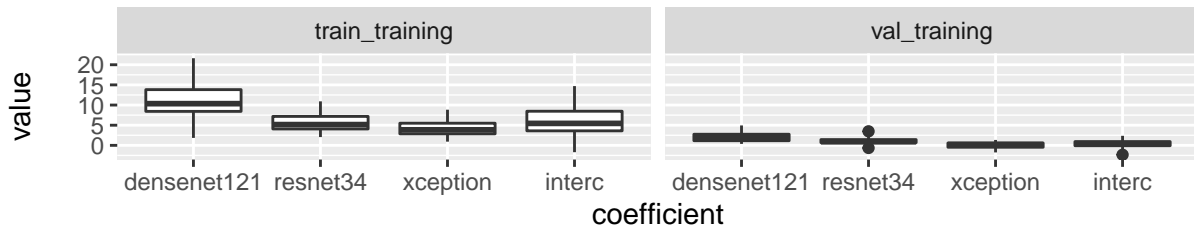


Classes 3 vs 4

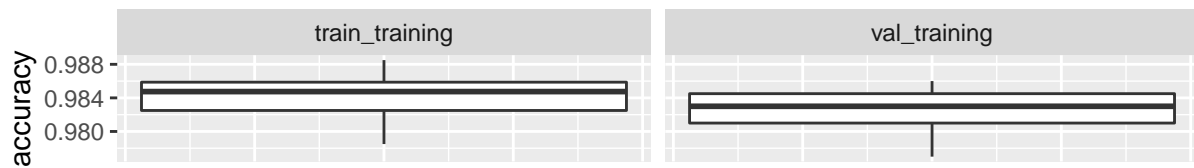
Pairwise accuracies of networks



LDA coefficients

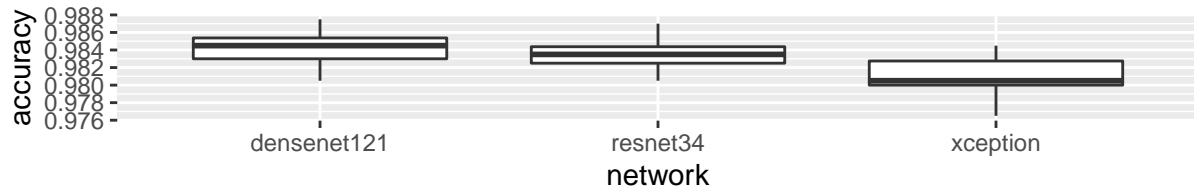


Pairwise accuracies of LDA output

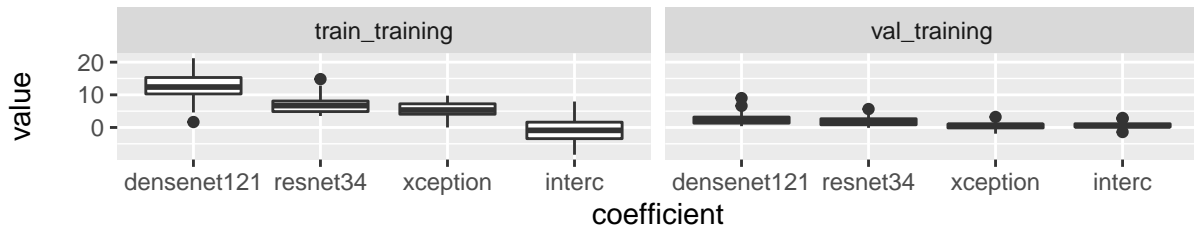


Classes 3 vs 5

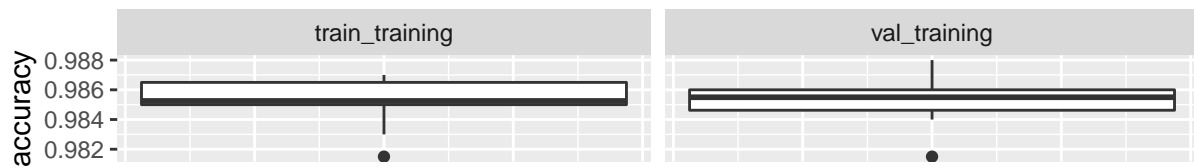
Pairwise accuracies of networks



LDA coefficients

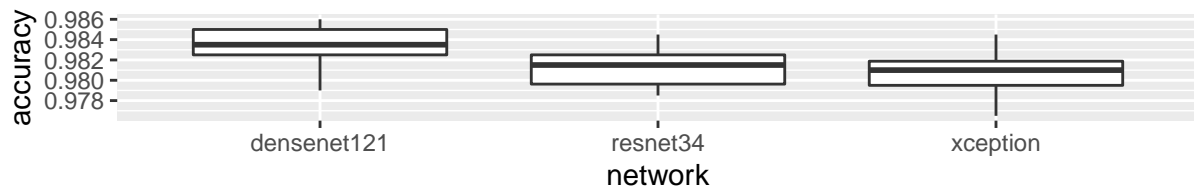


Pairwise accuracies of LDA output

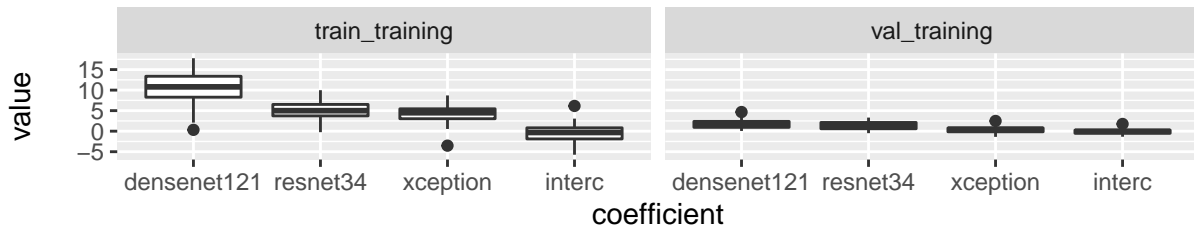


Classes 3 vs 6

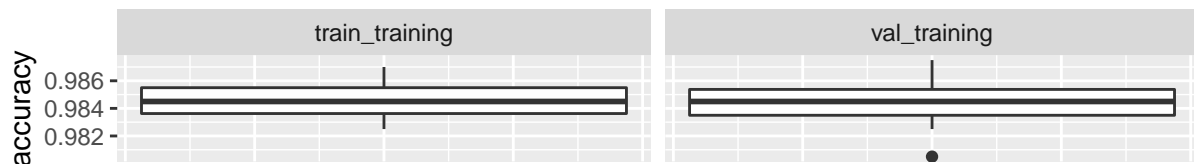
Pairwise accuracies of networks



LDA coefficients

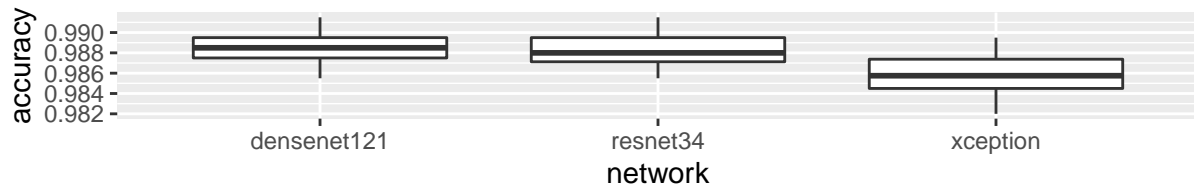


Pairwise accuracies of LDA output

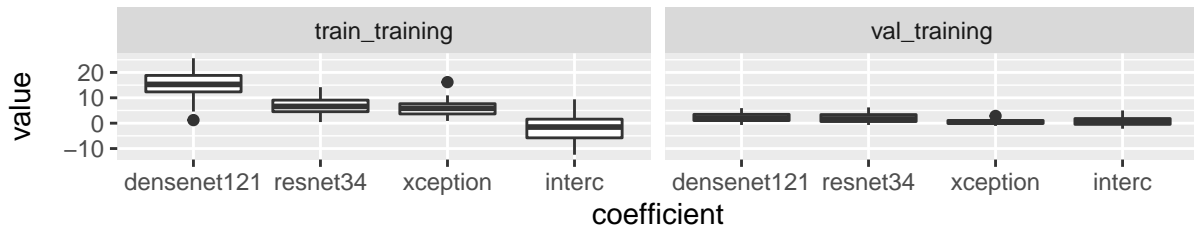


Classes 3 vs 7

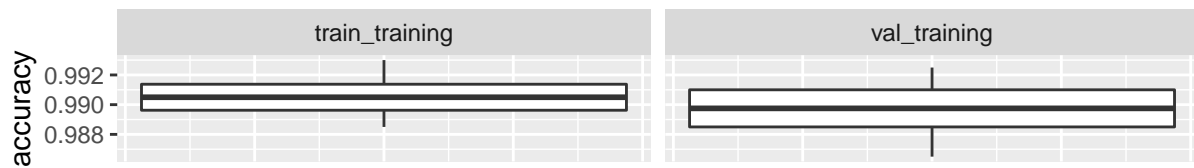
Pairwise accuracies of networks



LDA coefficients

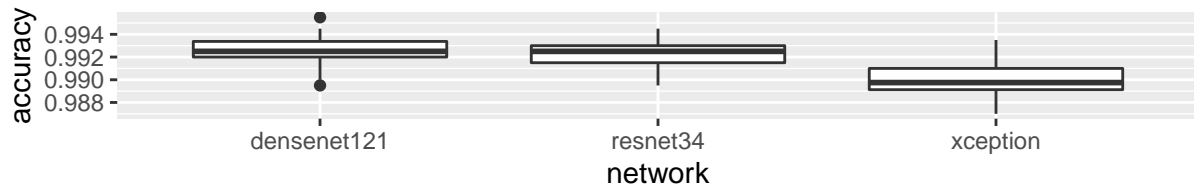


Pairwise accuracies of LDA output

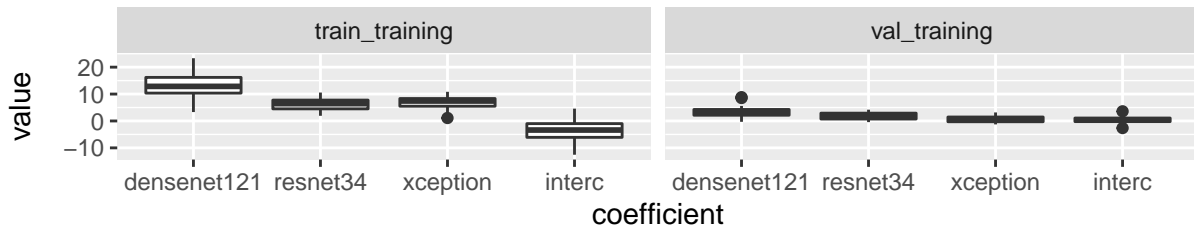


Classes 3 vs 8

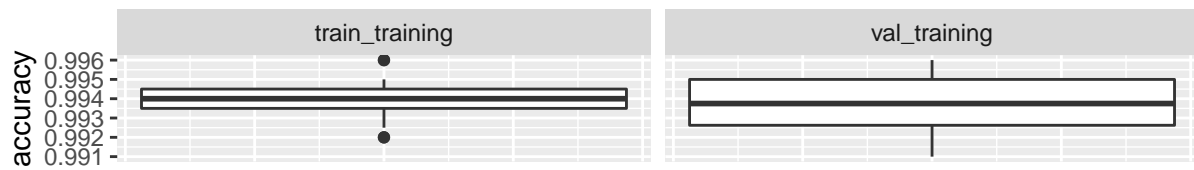
Pairwise accuracies of networks



LDA coefficients

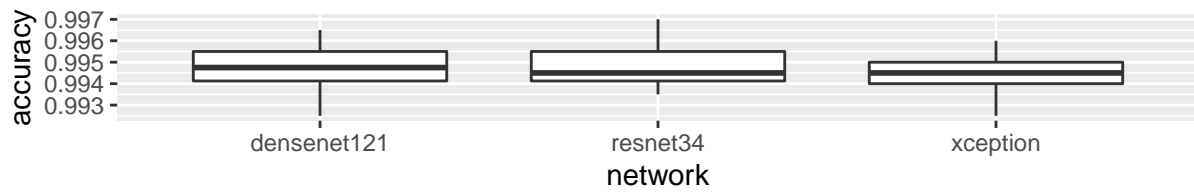


Pairwise accuracies of LDA output

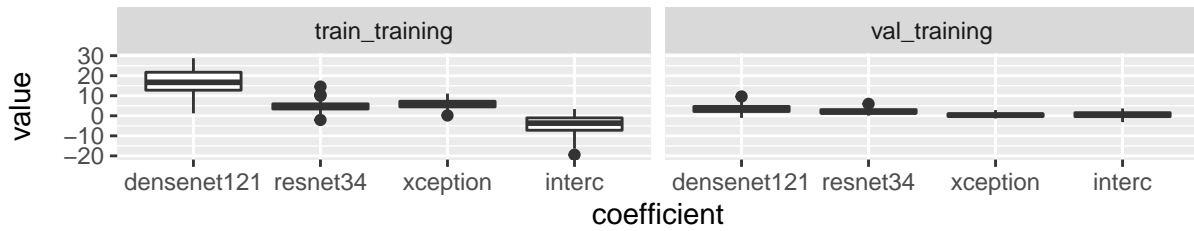


Classes 3 vs 9

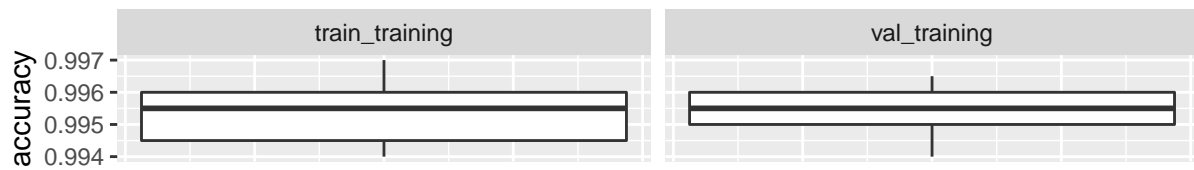
Pairwise accuracies of networks



LDA coefficients

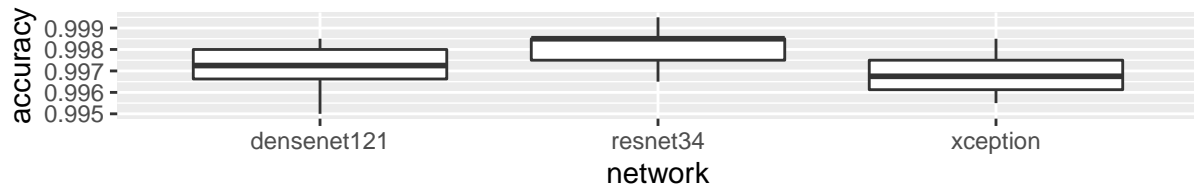


Pairwise accuracies of LDA output

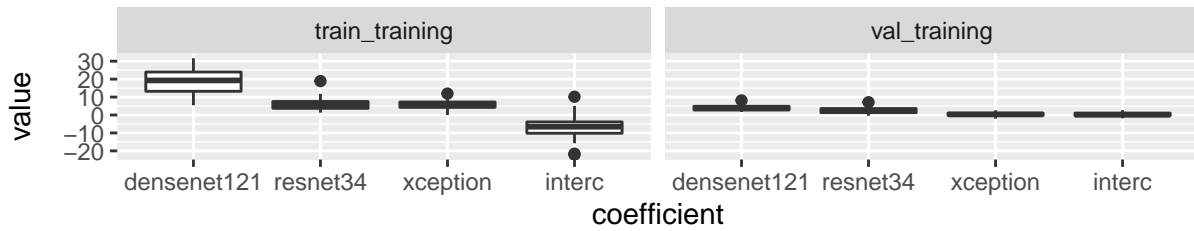


Classes 3 vs 10

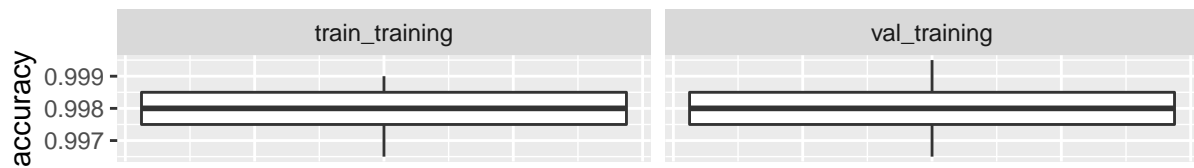
Pairwise accuracies of networks



LDA coefficients

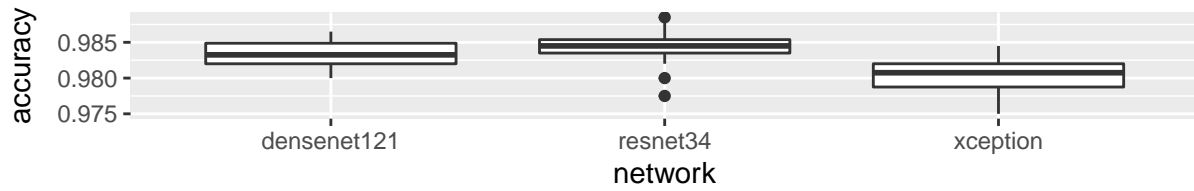


Pairwise accuracies of LDA output

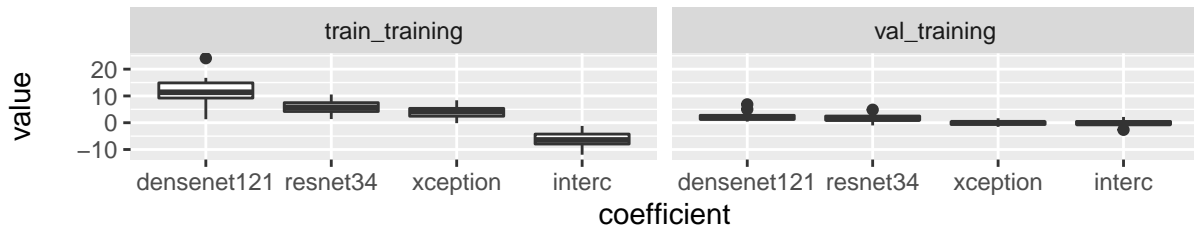


Classes 4 vs 5

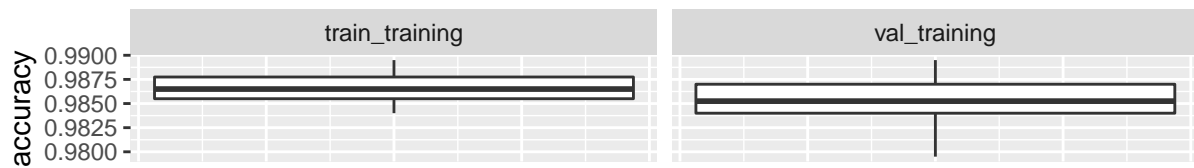
Pairwise accuracies of networks



LDA coefficients

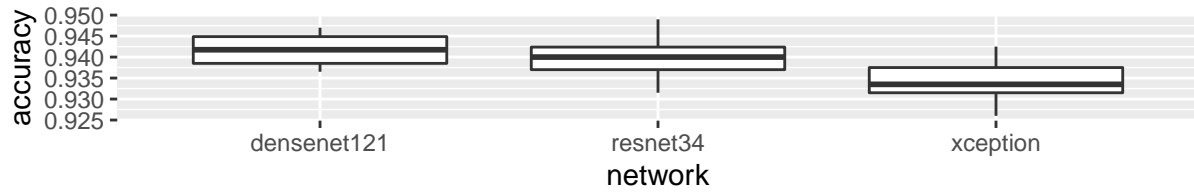


Pairwise accuracies of LDA output

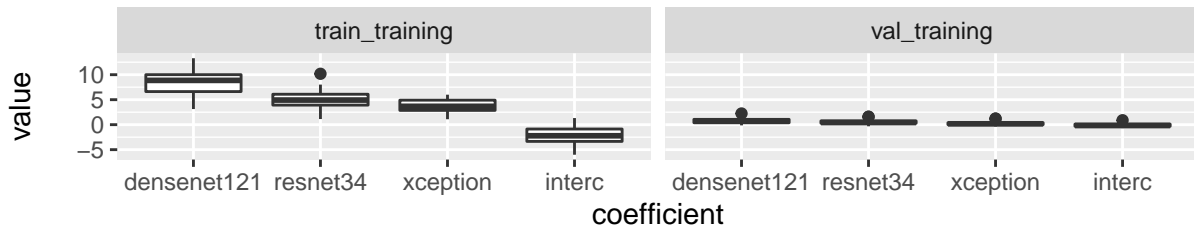


Classes 4 vs 6

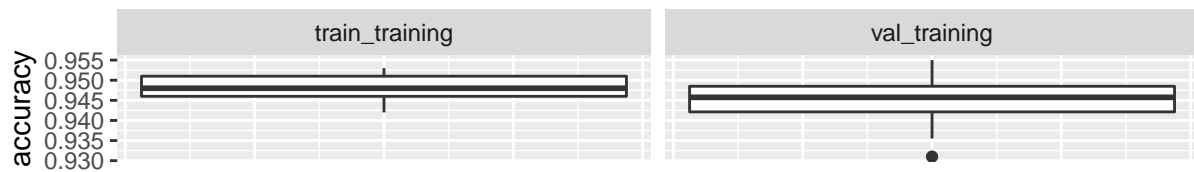
Pairwise accuracies of networks



LDA coefficients

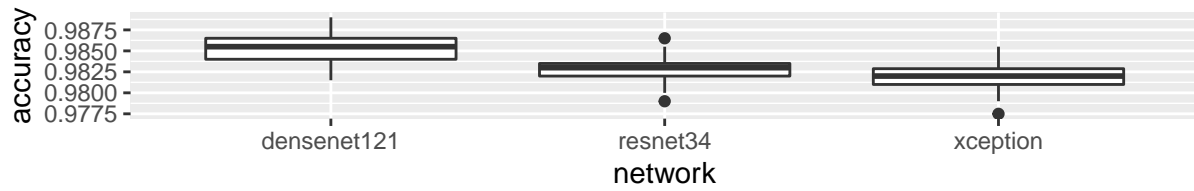


Pairwise accuracies of LDA output

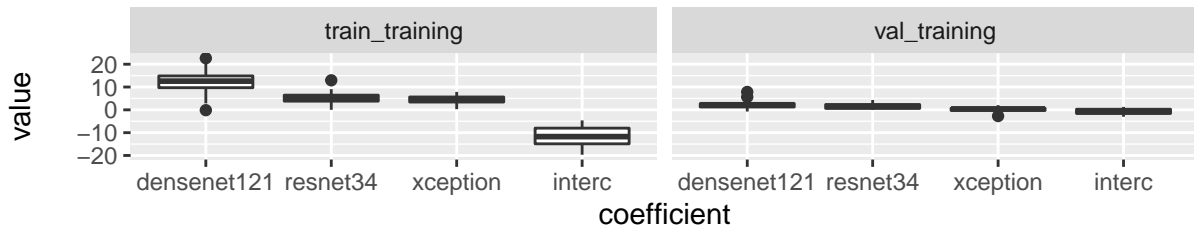


Classes 4 vs 7

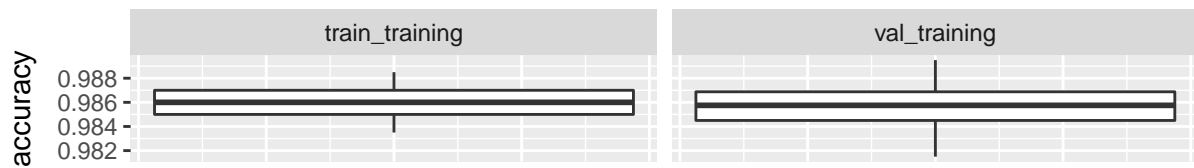
Pairwise accuracies of networks



LDA coefficients

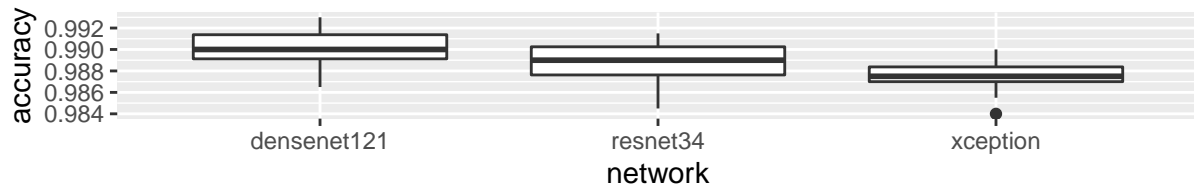


Pairwise accuracies of LDA output

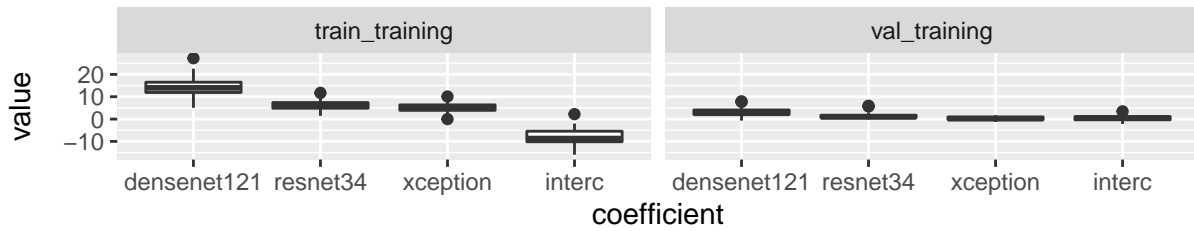


Classes 4 vs 8

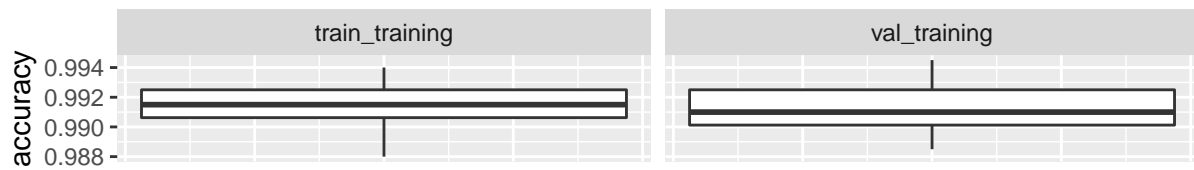
Pairwise accuracies of networks



LDA coefficients

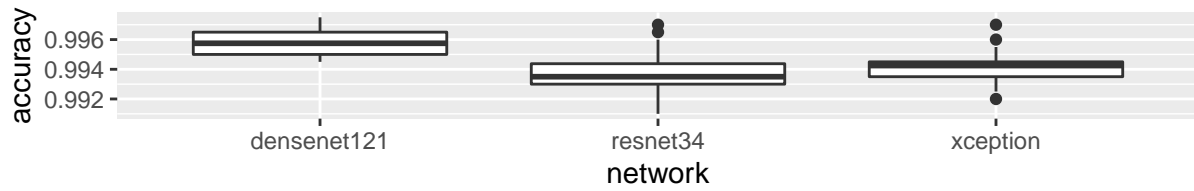


Pairwise accuracies of LDA output

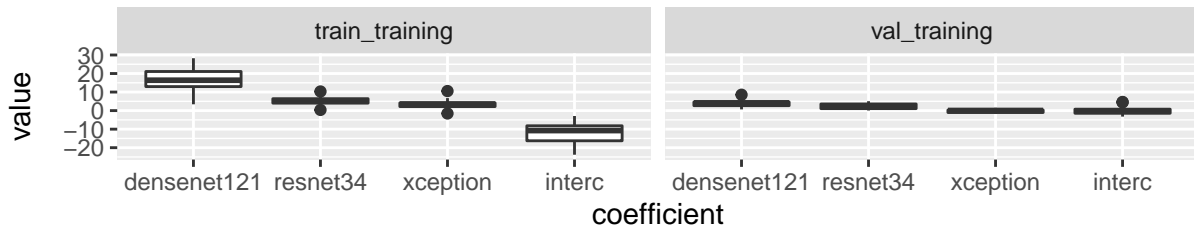


Classes 4 vs 9

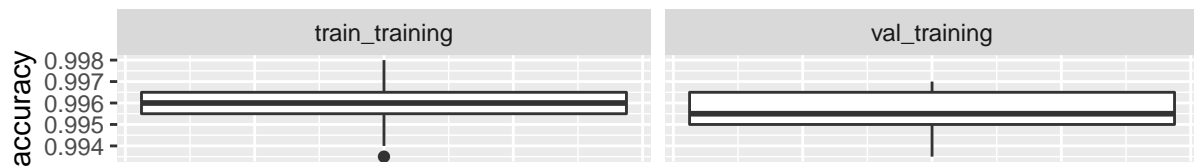
Pairwise accuracies of networks



LDA coefficients

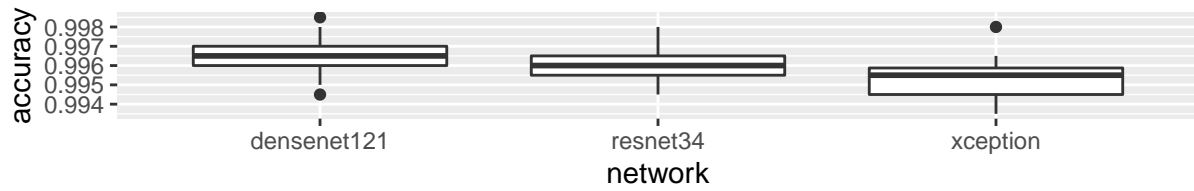


Pairwise accuracies of LDA output

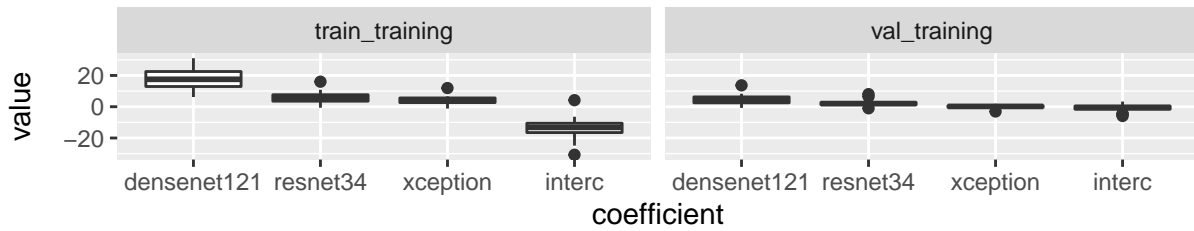


Classes 4 vs 10

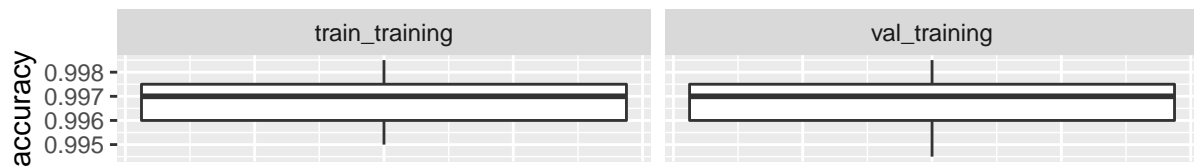
Pairwise accuracies of networks



LDA coefficients

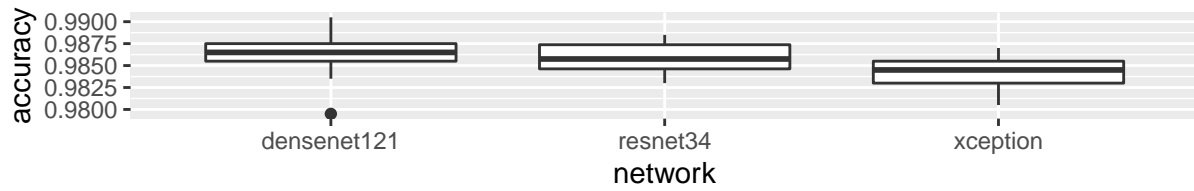


Pairwise accuracies of LDA output

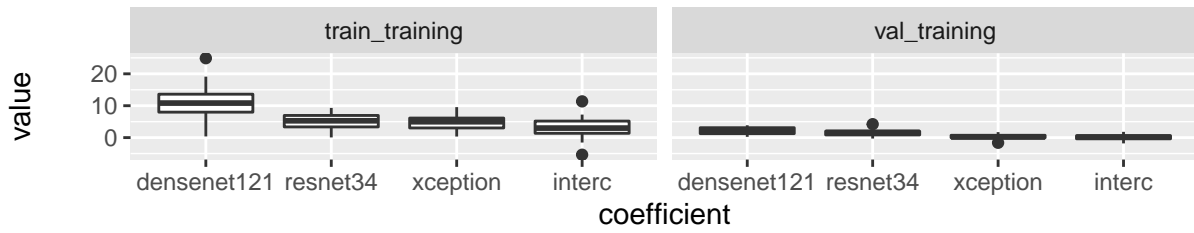


Classes 5 vs 6

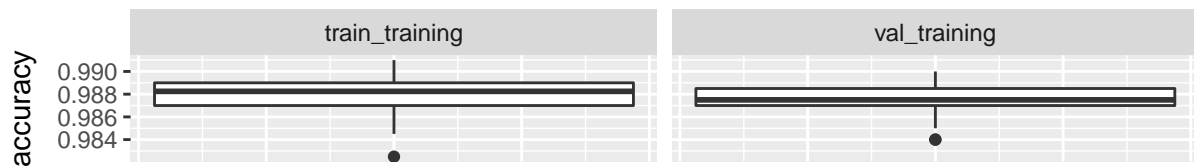
Pairwise accuracies of networks



LDA coefficients

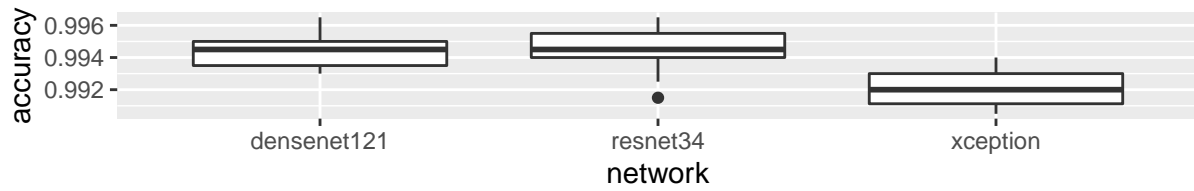


Pairwise accuracies of LDA output

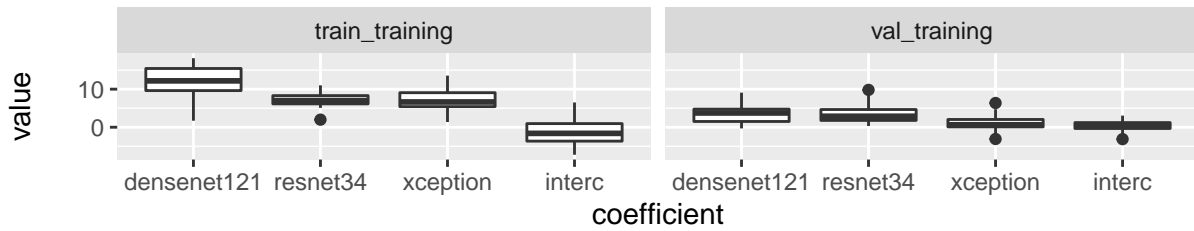


Classes 5 vs 7

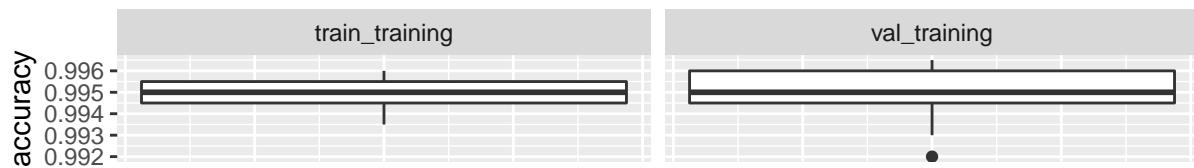
Pairwise accuracies of networks



LDA coefficients

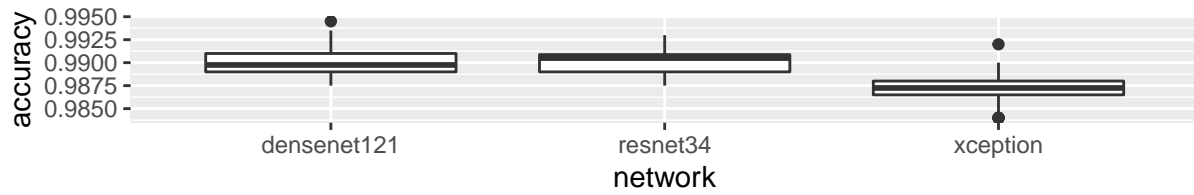


Pairwise accuracies of LDA output

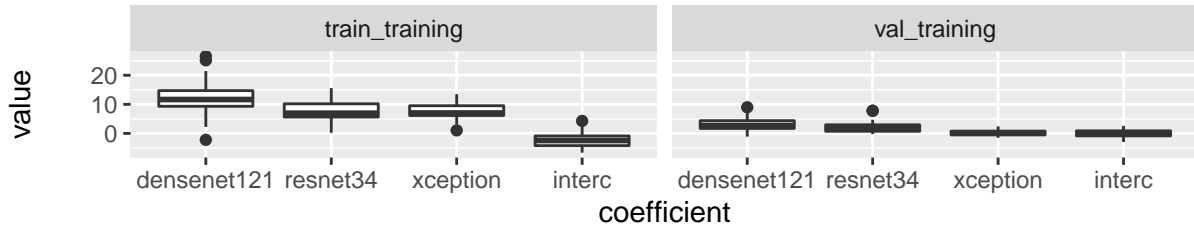


Classes 5 vs 8

Pairwise accuracies of networks



LDA coefficients

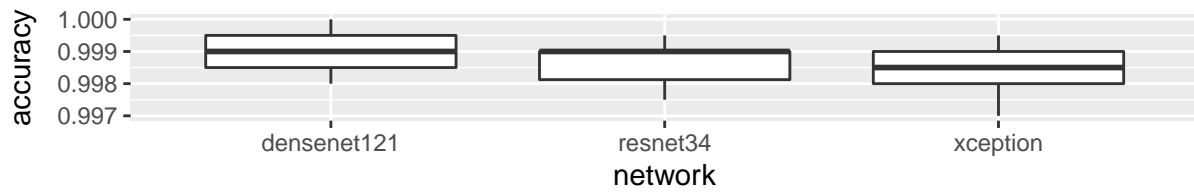


Pairwise accuracies of LDA output

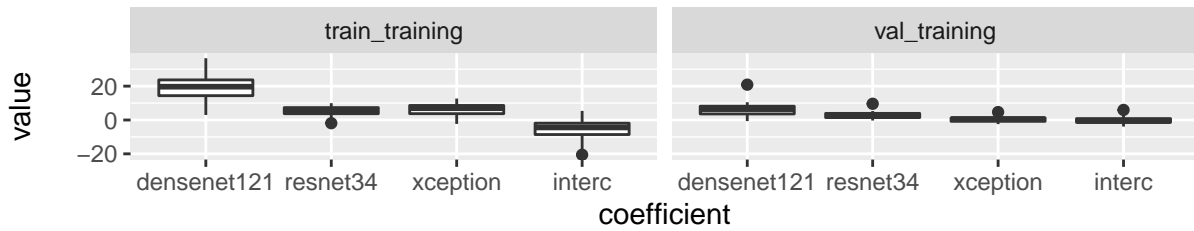


Classes 5 vs 9

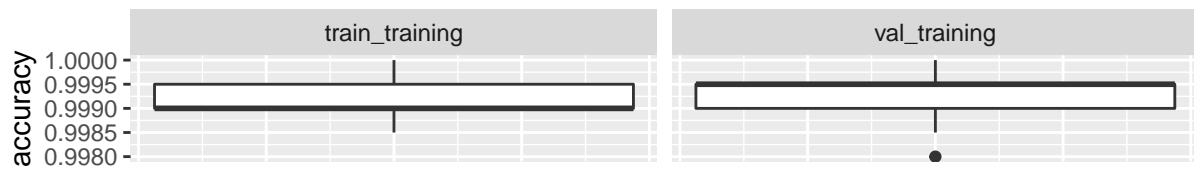
Pairwise accuracies of networks



LDA coefficients

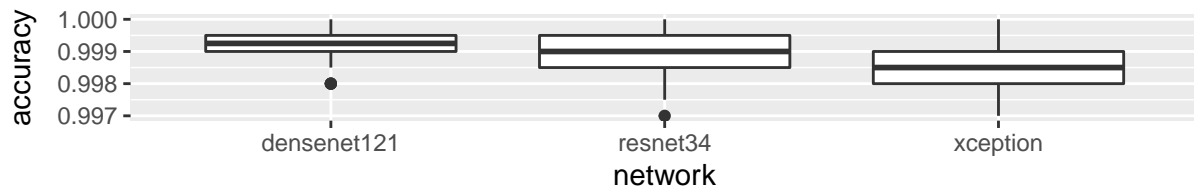


Pairwise accuracies of LDA output

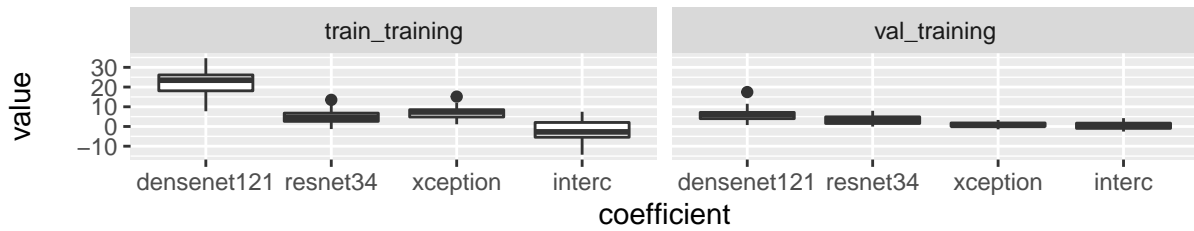


Classes 5 vs 10

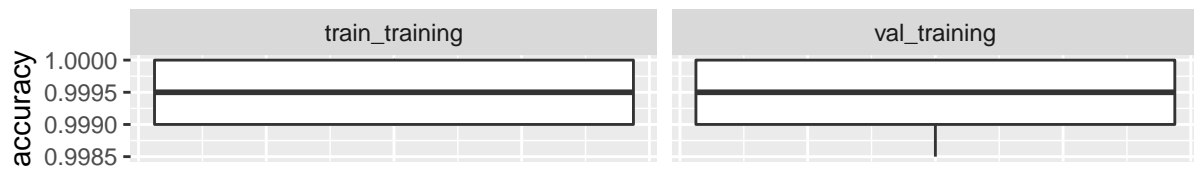
Pairwise accuracies of networks



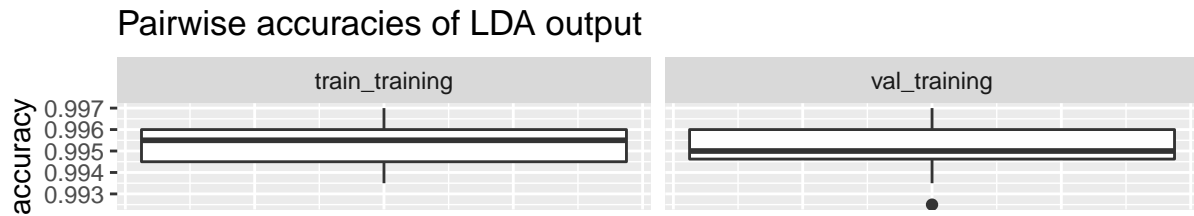
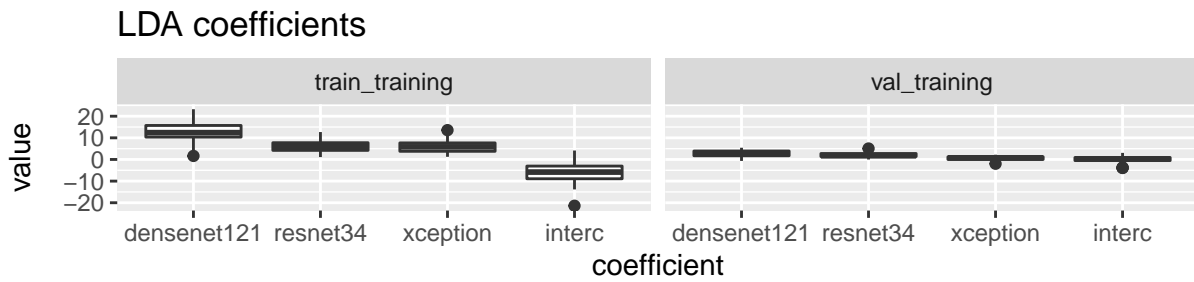
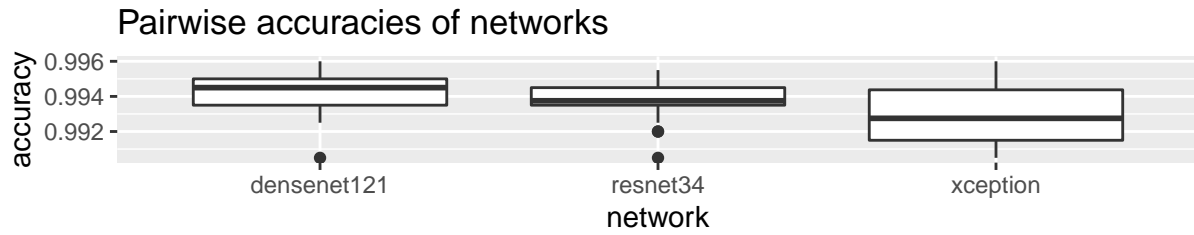
LDA coefficients



Pairwise accuracies of LDA output

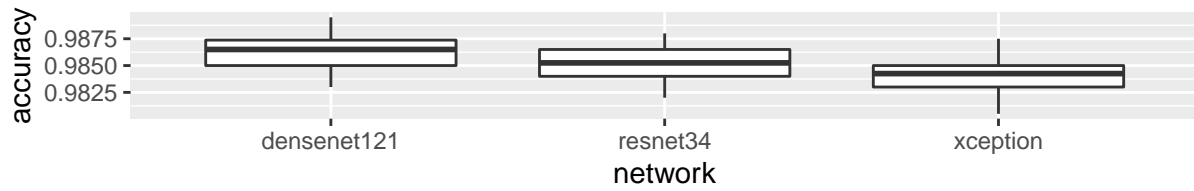


Classes 6 vs 7

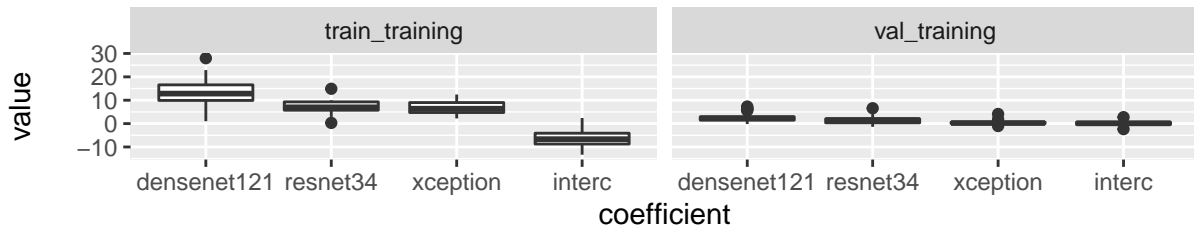


Classes 6 vs 8

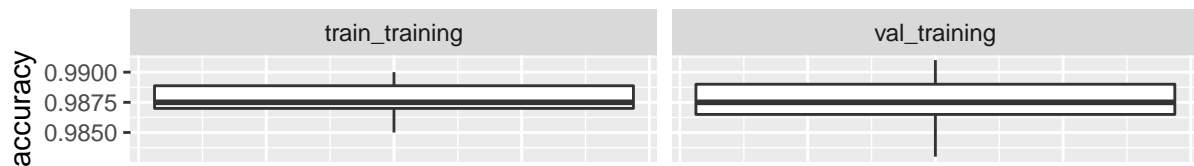
Pairwise accuracies of networks



LDA coefficients

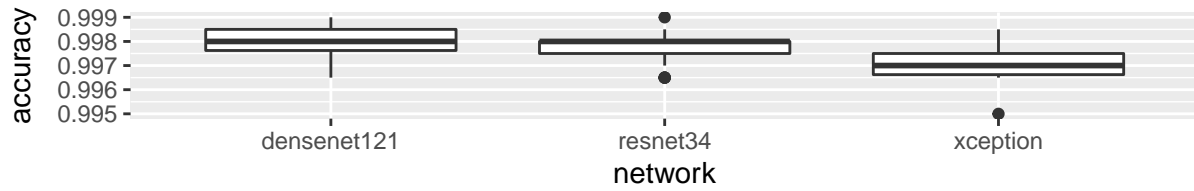


Pairwise accuracies of LDA output

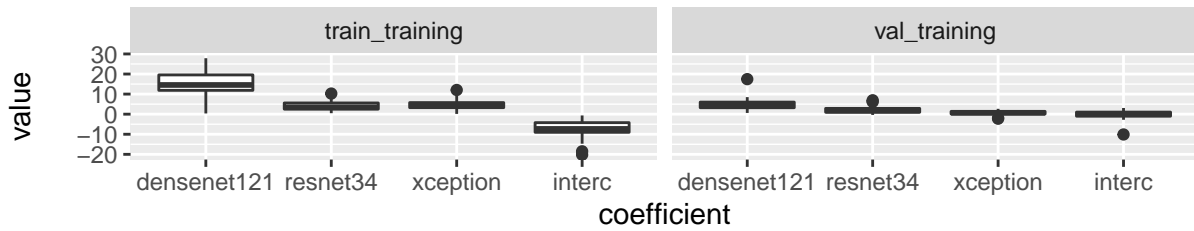


Classes 6 vs 9

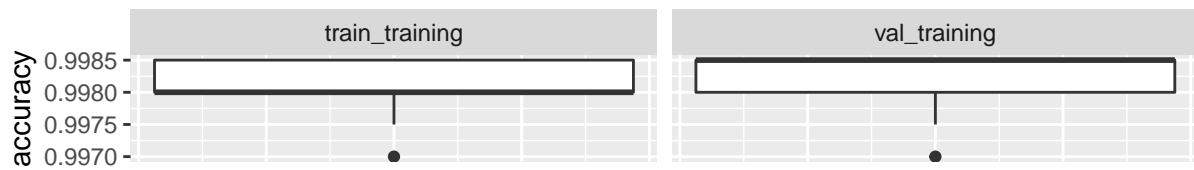
Pairwise accuracies of networks



LDA coefficients

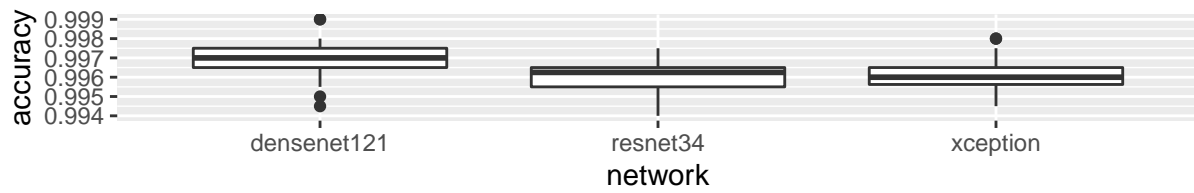


Pairwise accuracies of LDA output

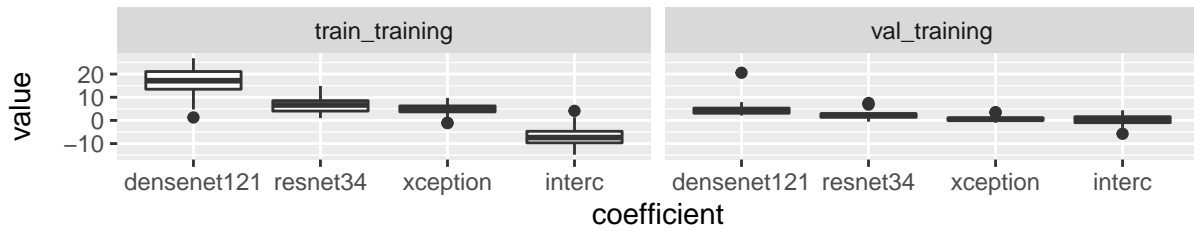


Classes 6 vs 10

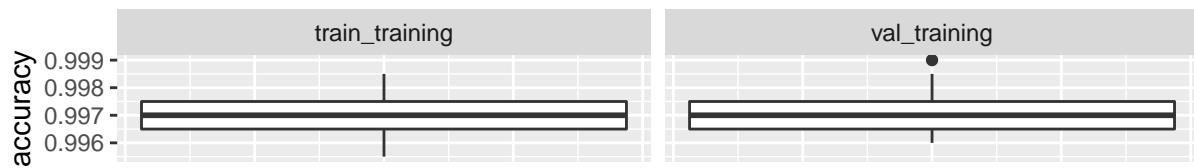
Pairwise accuracies of networks



LDA coefficients

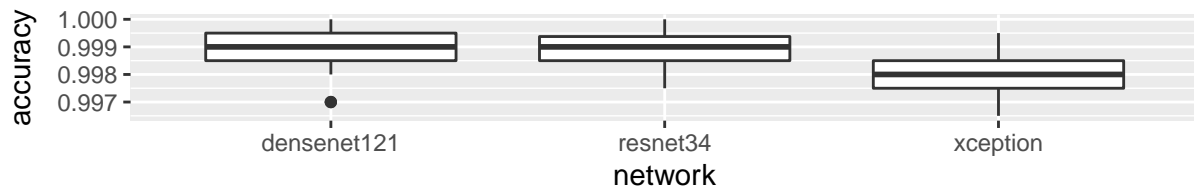


Pairwise accuracies of LDA output

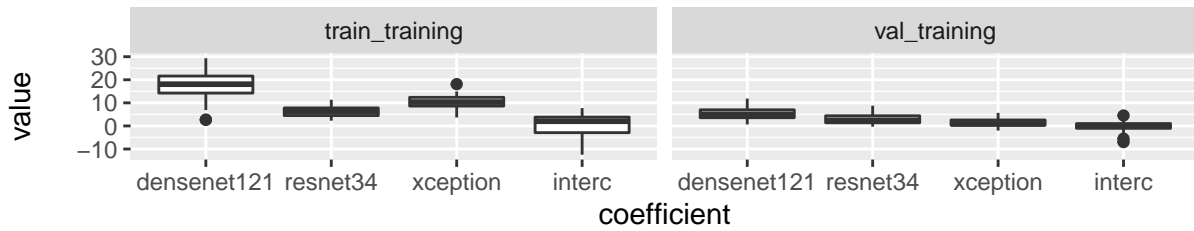


Classes 7 vs 8

Pairwise accuracies of networks



LDA coefficients

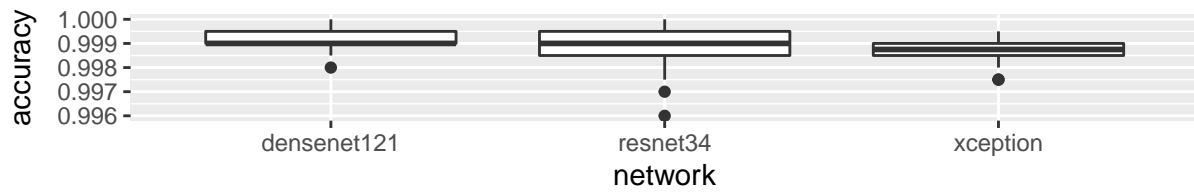


Pairwise accuracies of LDA output

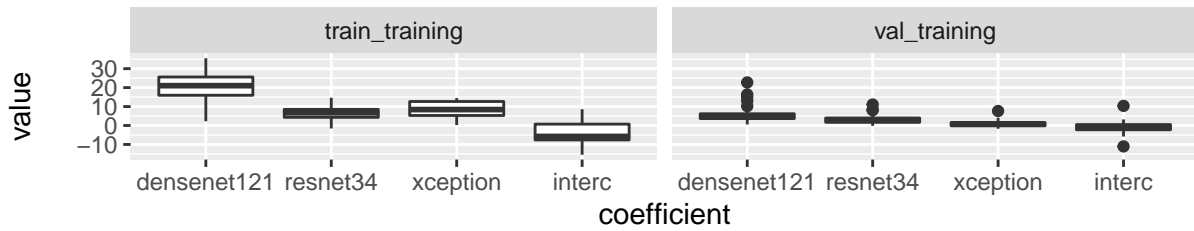


Classes 7 vs 9

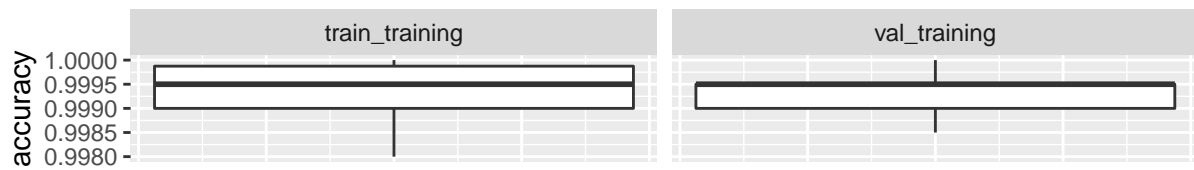
Pairwise accuracies of networks



LDA coefficients

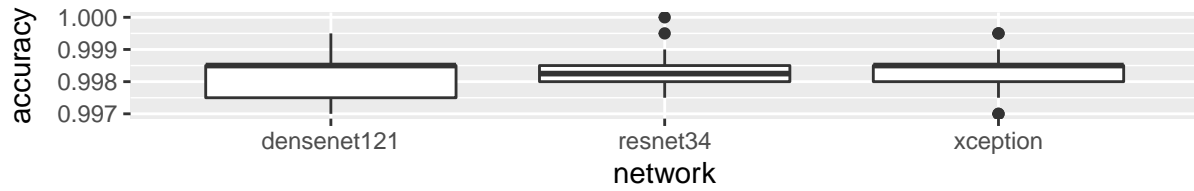


Pairwise accuracies of LDA output

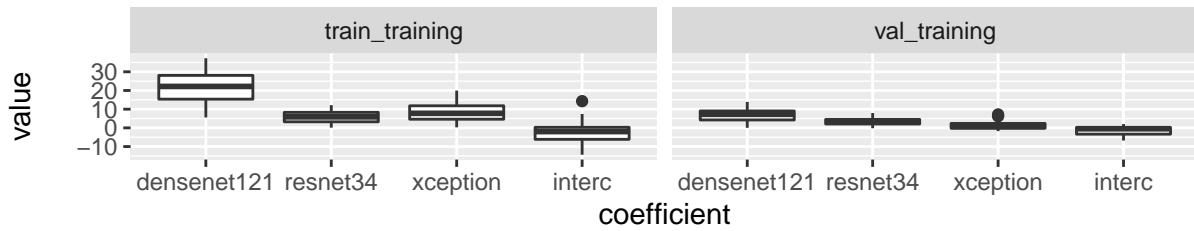


Classes 7 vs 10

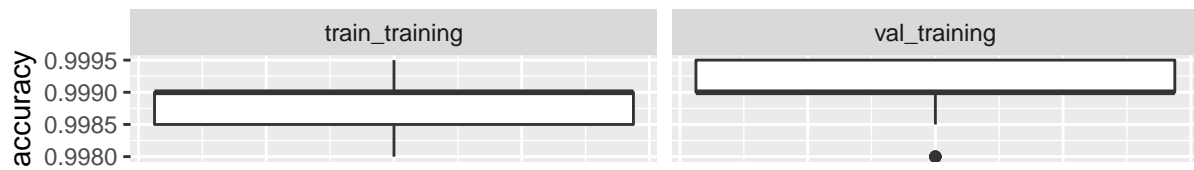
Pairwise accuracies of networks



LDA coefficients

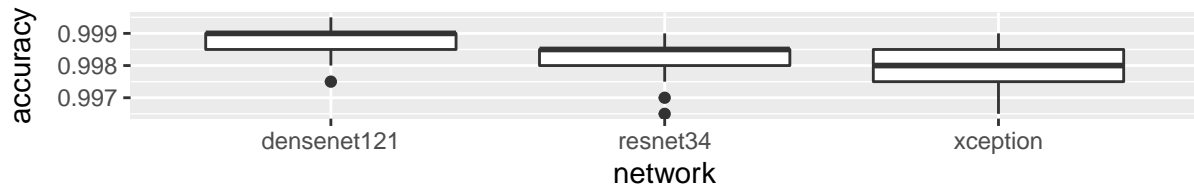


Pairwise accuracies of LDA output

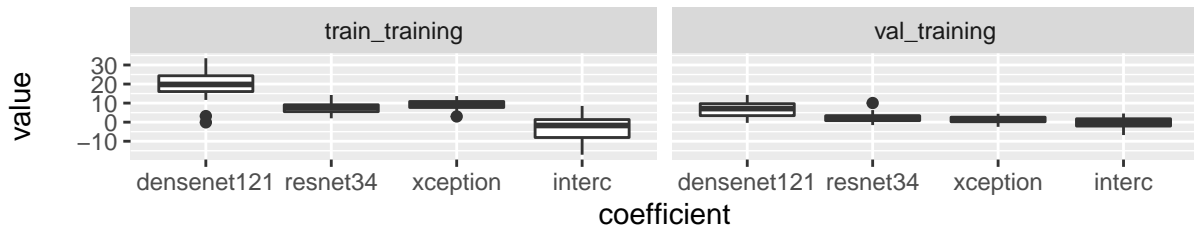


Classes 8 vs 9

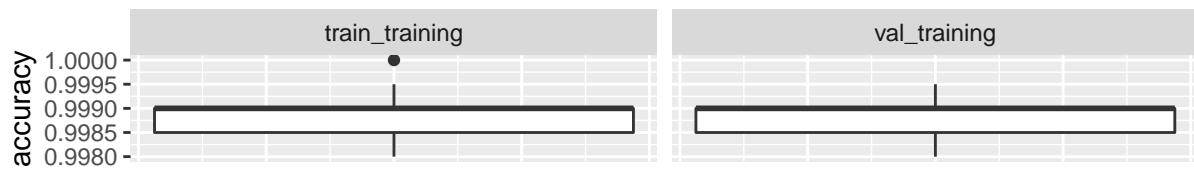
Pairwise accuracies of networks



LDA coefficients

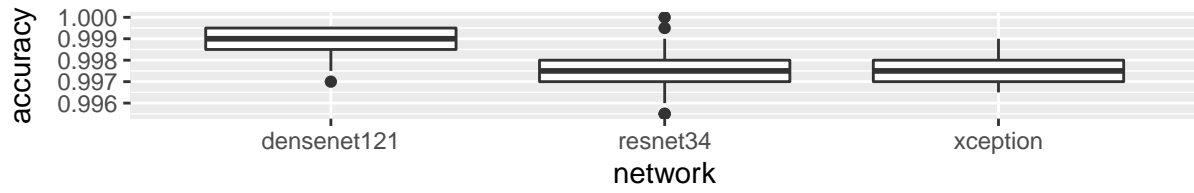


Pairwise accuracies of LDA output

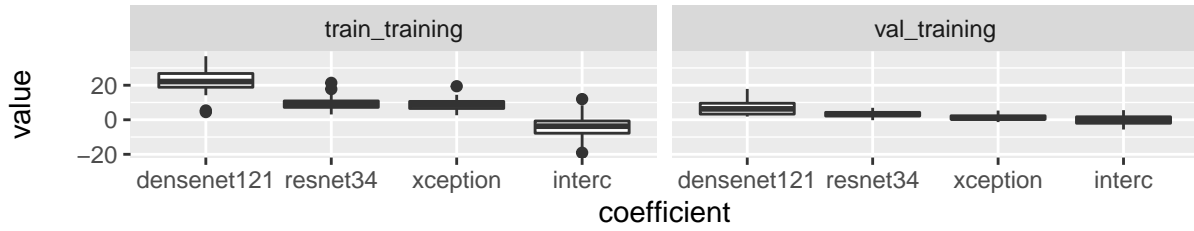


Classes 8 vs 10

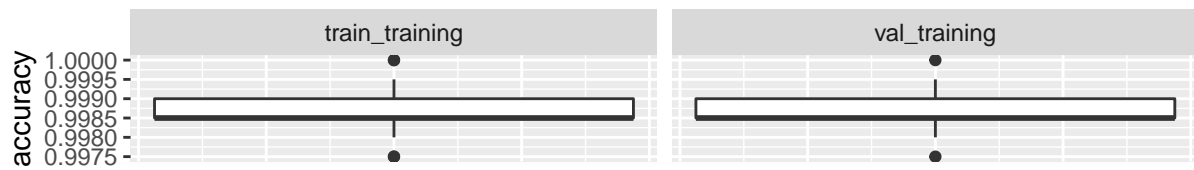
Pairwise accuracies of networks



LDA coefficients

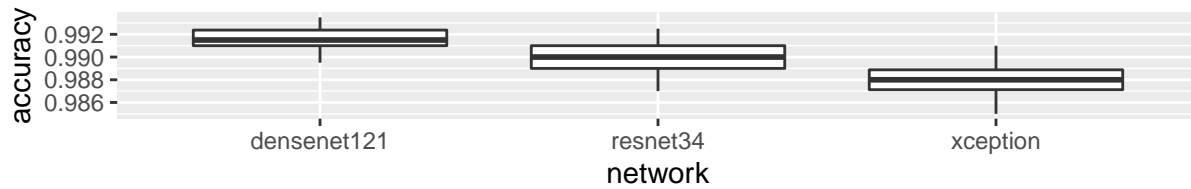


Pairwise accuracies of LDA output

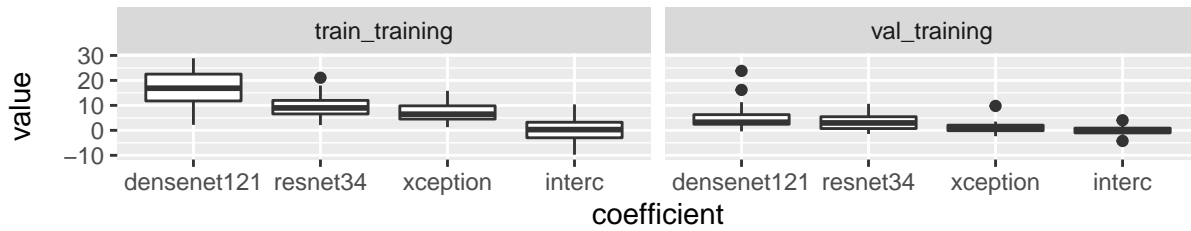


Classes 9 vs 10

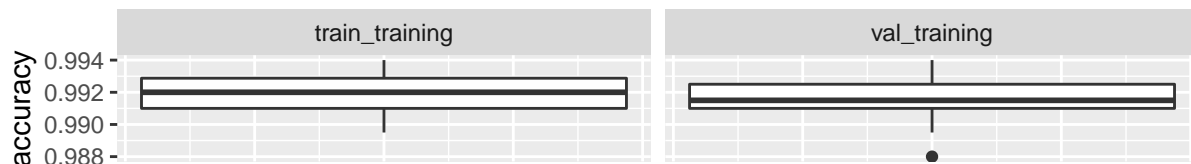
Pairwise accuracies of networks



LDA coefficients



Pairwise accuracies of LDA output



```
base_dir <- "../data/data_train_val_half_c10"
repls <- 0:0
folds <- 0:49
classes <- 10
lda_coefs <- load_lda_coefs(base_dir, repls, folds)
net_pw_results <- read.csv(file.path(base_dir, "net_pw accuracies.csv"))
ens_pw_results <- read.csv(file.path(base_dir, "ensemble_pw accuracies.csv"))
net_pw_results[, c("class1", "class2")] <- lapply(net_pw_results[, c("class1", "class2")], as.factor)
ens_pw_results[, c("class1", "class2")] <- lapply(ens_pw_results[, c("class1", "class2")], as.factor)

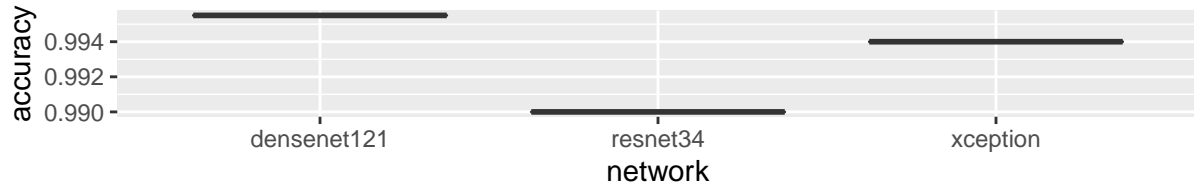
for (cl1 in 1:(classes - 1))
{
  for (cl2 in (cl1 + 1):classes)
  {
    lda_plt <- lda_coefs %>% filter(class1 == cl1 & class2 == cl2) %>% ggplot() + geom_boxplot(aes(x=coefficient)) +
      facet_wrap(~train_type) + ggtitle("LDA coefficients")
    acc_plt_net <- net_pw_results %>% filter(class1 == (cl1 - 1) & class2 == (cl2 - 1)) %>% ggplot(mapping=aes(x=network)) +
      geom_boxplot() + ggtitle("Pairwise accuracies of networks")
    acc_plt_ens <- ens_pw_results %>% filter(class1 == (cl1 - 1) & class2 == (cl2 - 1)) %>% ggplot(mapping=aes(x=network)) +
      geom_boxplot() + facet_wrap(~train_set) + ggtitle("Pairwise accuracies of LDA output") +
      theme(axis.ticks.x=element_blank(), axis.text.x=element_blank())

    print((acc_plt_net/lda_plt/acc_plt_ens) + plot_annotation(title=paste("Classes ", cl1, " vs ", cl2)))
  }
}
```

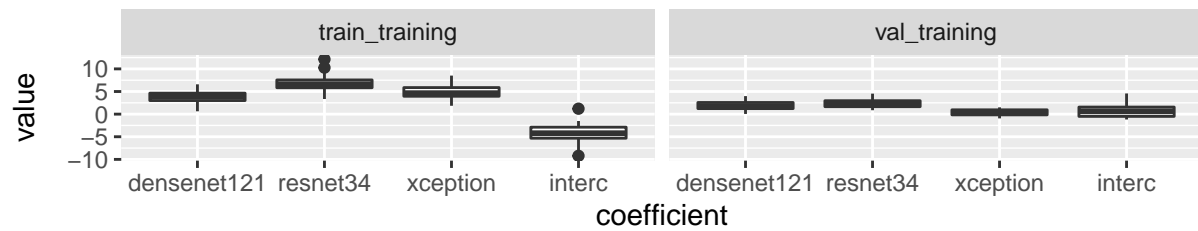
```
}
```

Classes 1 vs 2

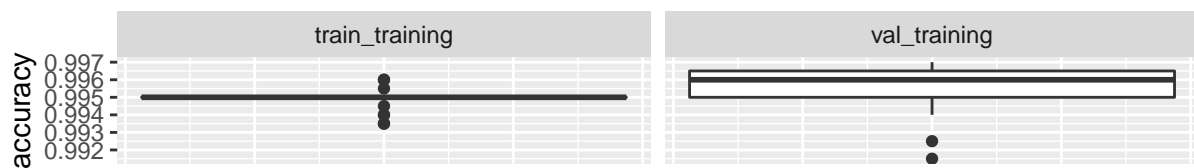
Pairwise accuracies of networks



LDA coefficients

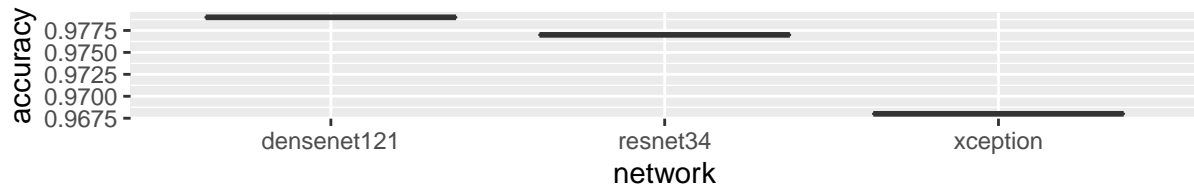


Pairwise accuracies of LDA output

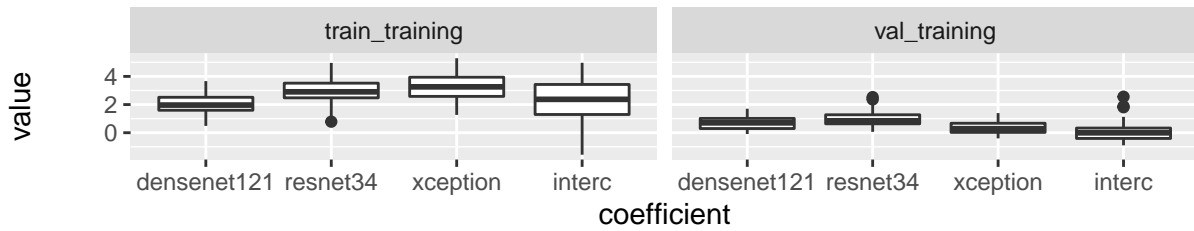


Classes 1 vs 3

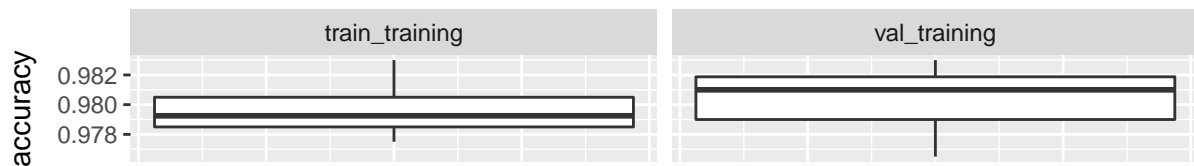
Pairwise accuracies of networks



LDA coefficients

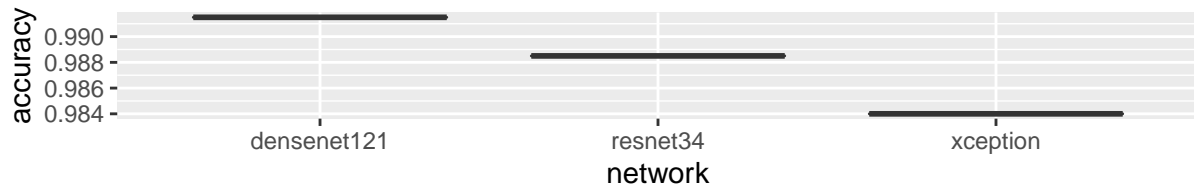


Pairwise accuracies of LDA output

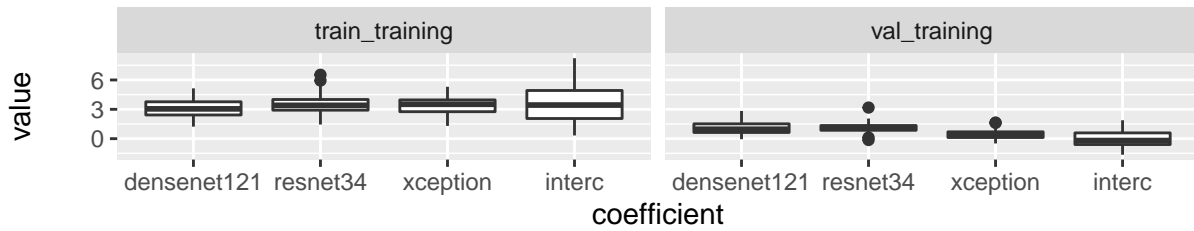


Classes 1 vs 4

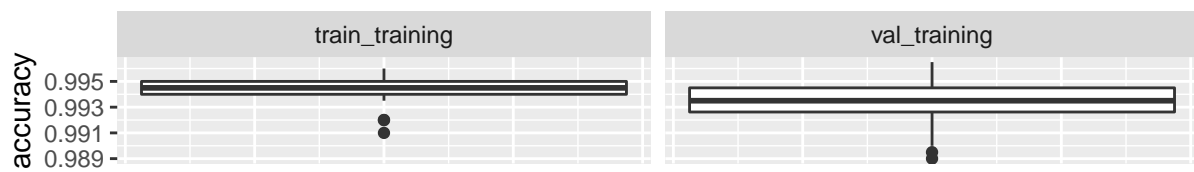
Pairwise accuracies of networks



LDA coefficients

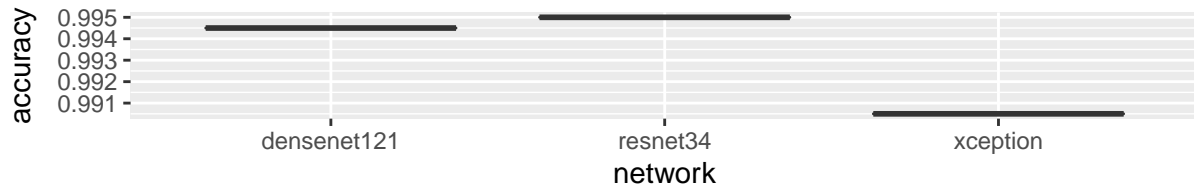


Pairwise accuracies of LDA output

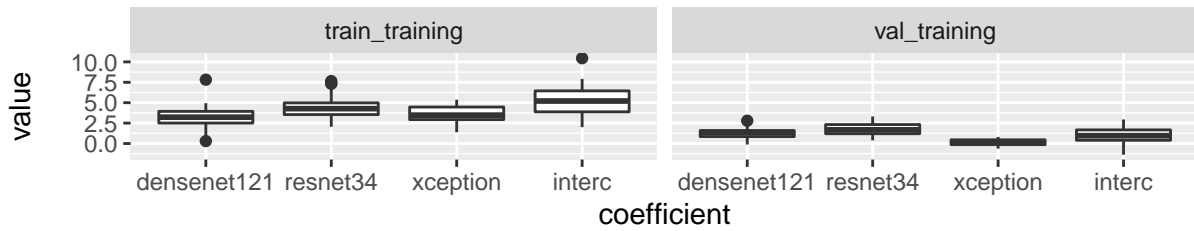


Classes 1 vs 5

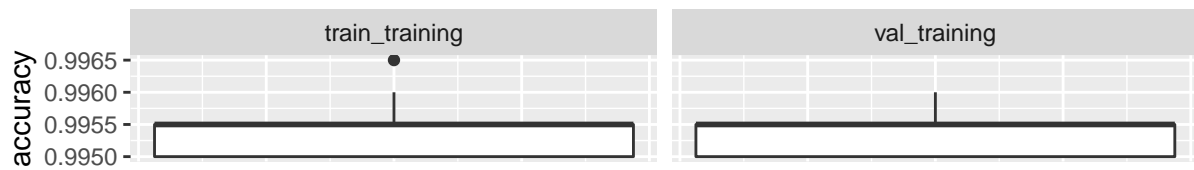
Pairwise accuracies of networks



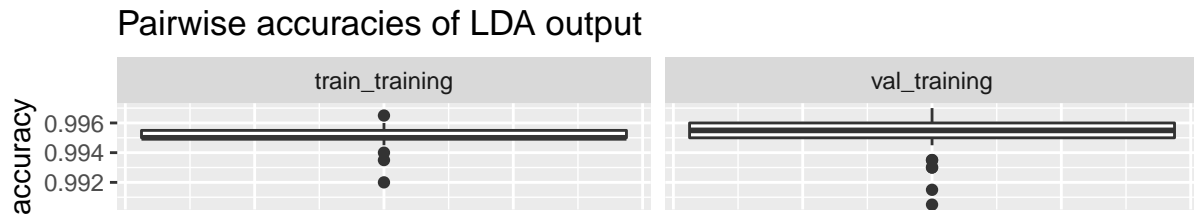
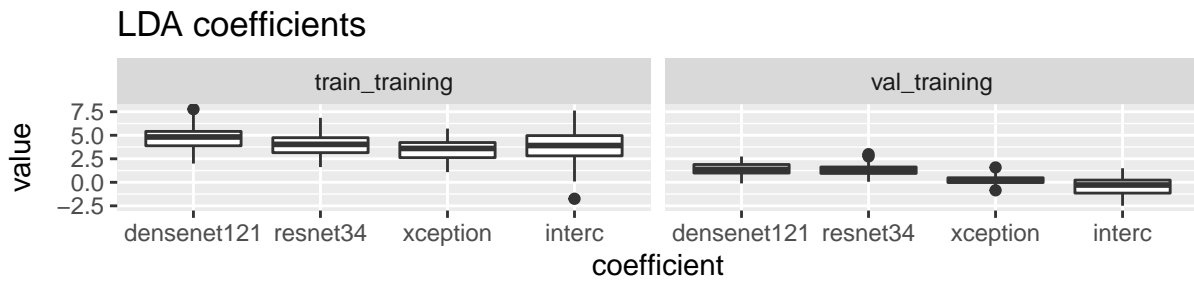
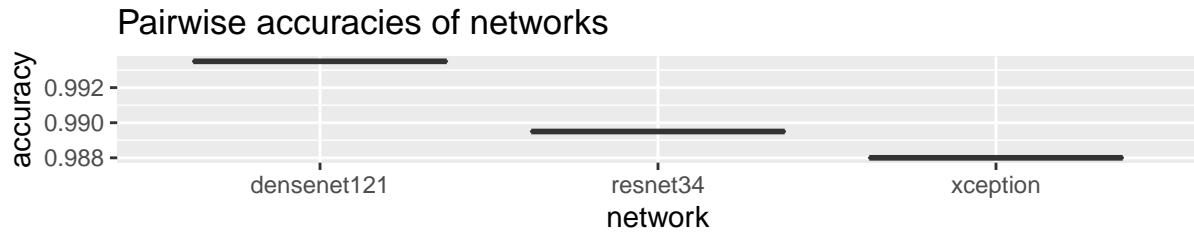
LDA coefficients



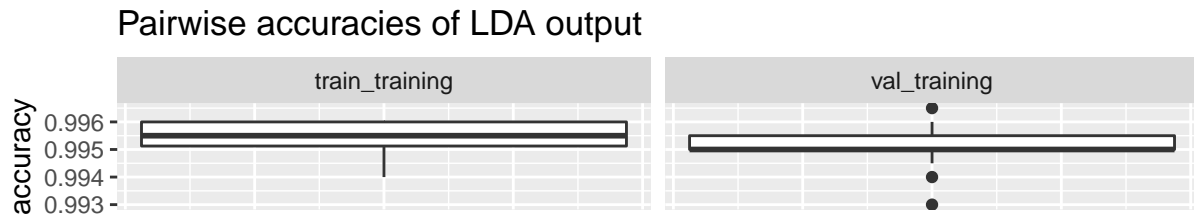
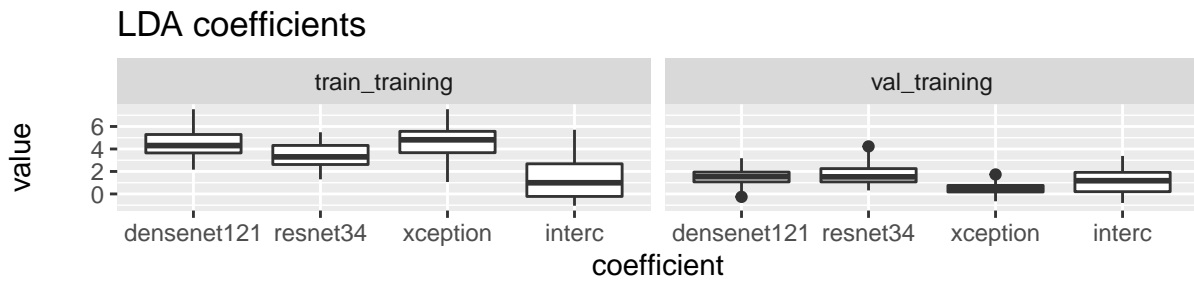
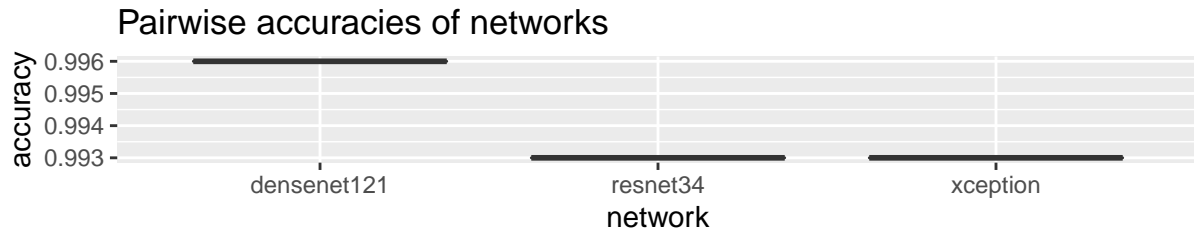
Pairwise accuracies of LDA output



Classes 1 vs 6

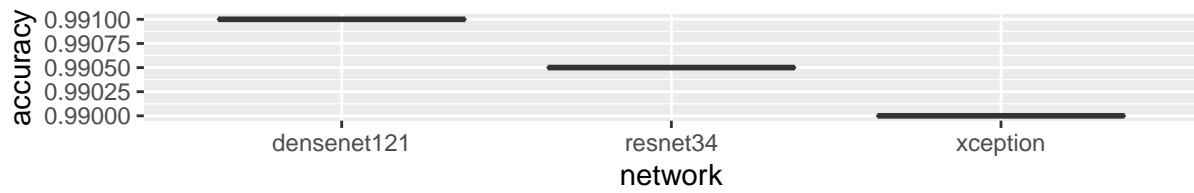


Classes 1 vs 7

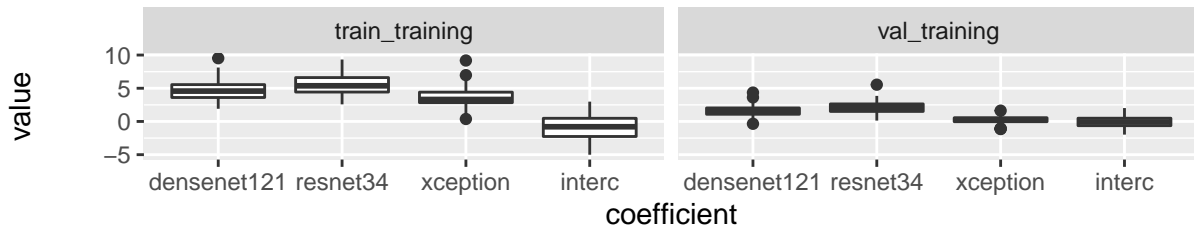


Classes 1 vs 8

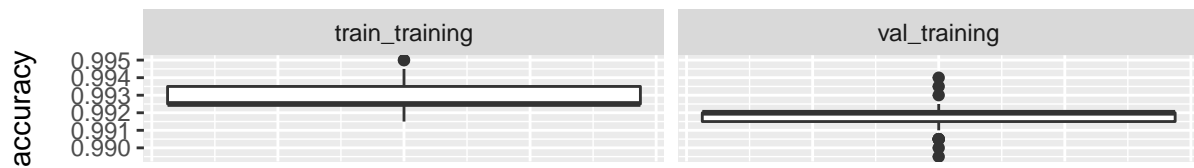
Pairwise accuracies of networks



LDA coefficients

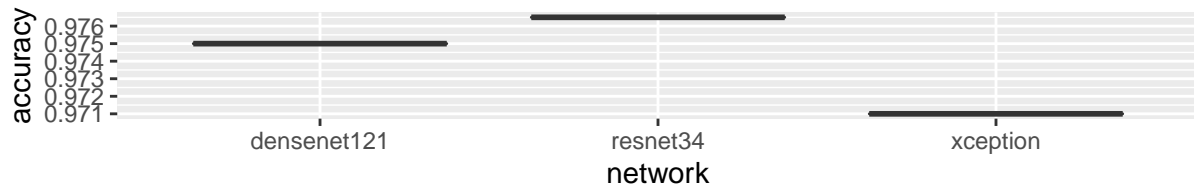


Pairwise accuracies of LDA output

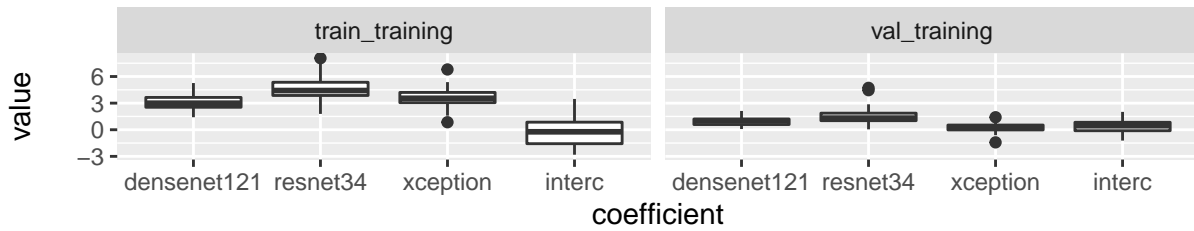


Classes 1 vs 9

Pairwise accuracies of networks



LDA coefficients

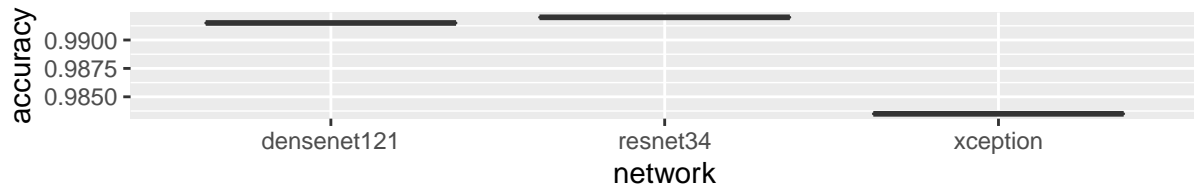


Pairwise accuracies of LDA output

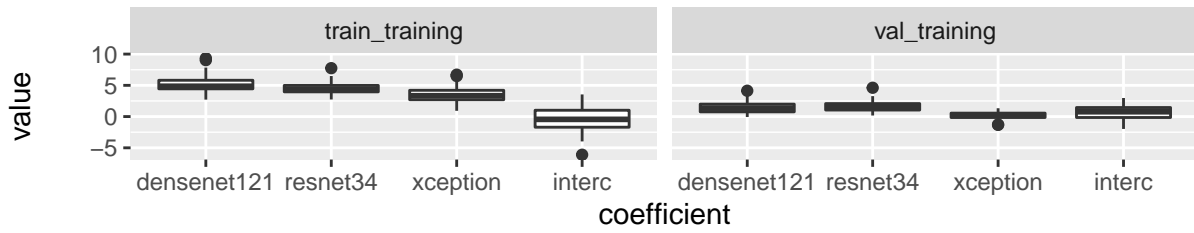


Classes 1 vs 10

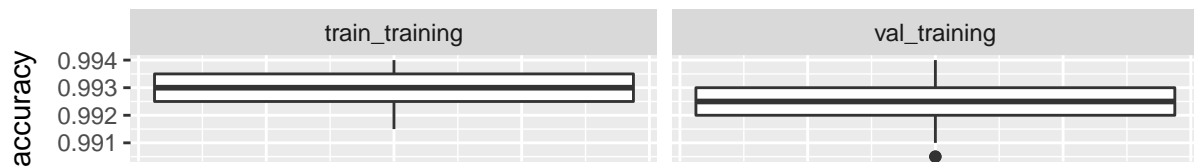
Pairwise accuracies of networks



LDA coefficients

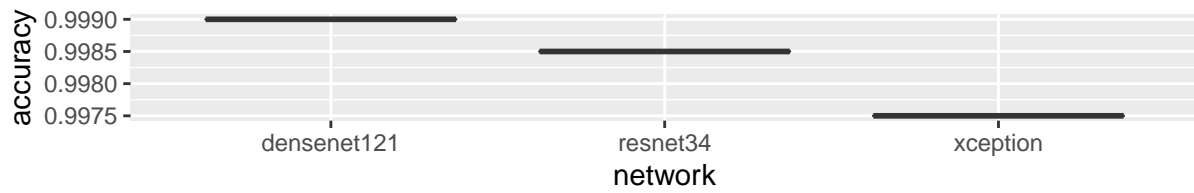


Pairwise accuracies of LDA output

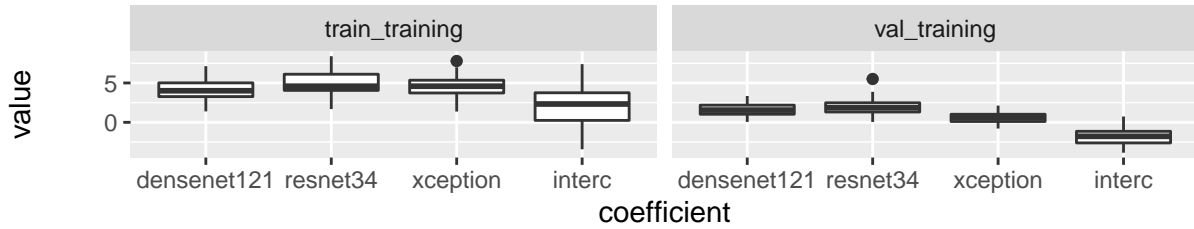


Classes 2 vs 3

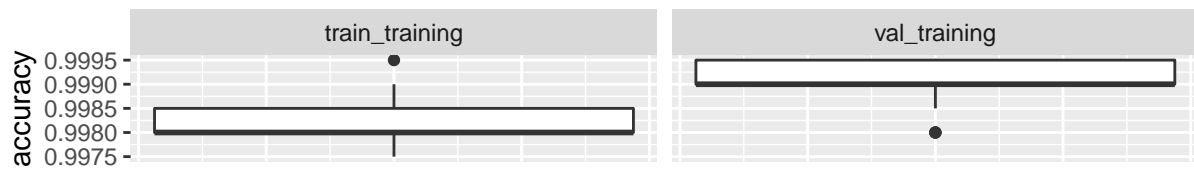
Pairwise accuracies of networks



LDA coefficients

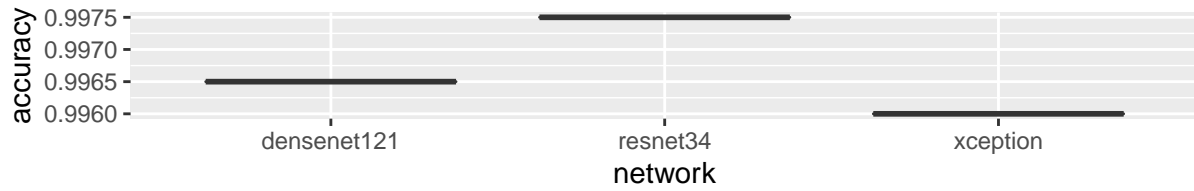


Pairwise accuracies of LDA output

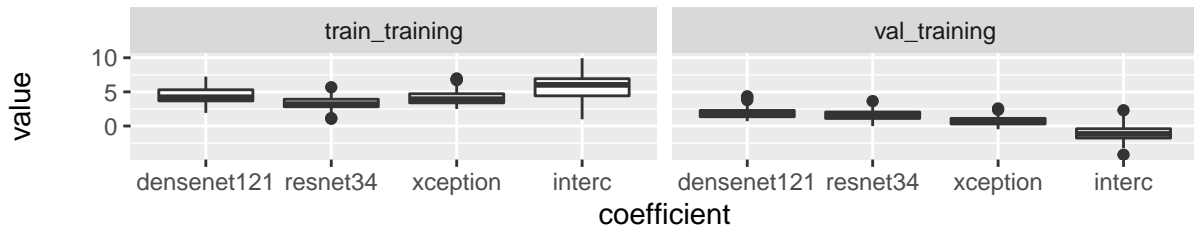


Classes 2 vs 4

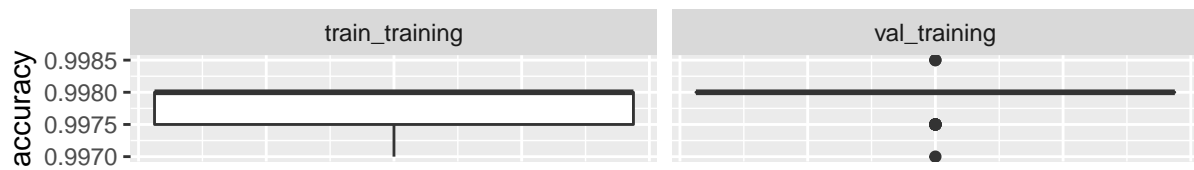
Pairwise accuracies of networks



LDA coefficients

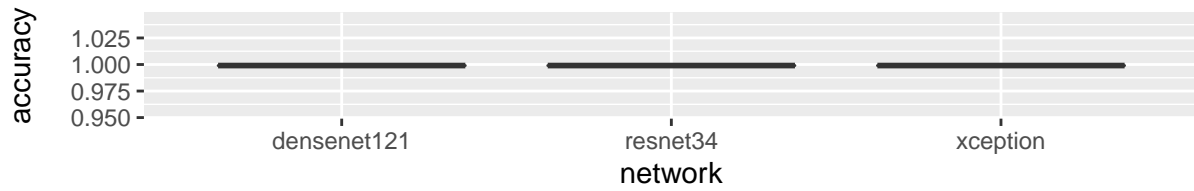


Pairwise accuracies of LDA output

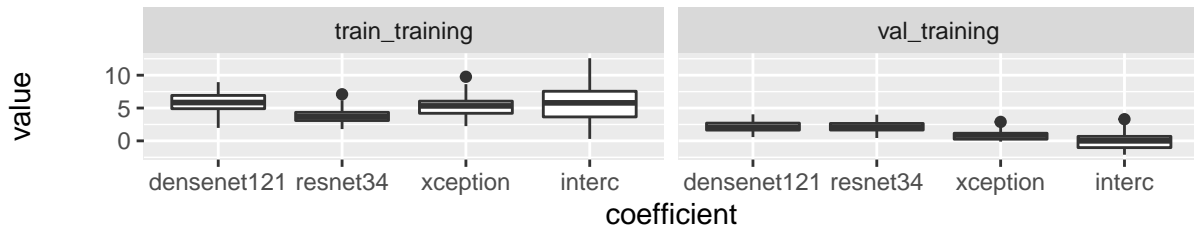


Classes 2 vs 5

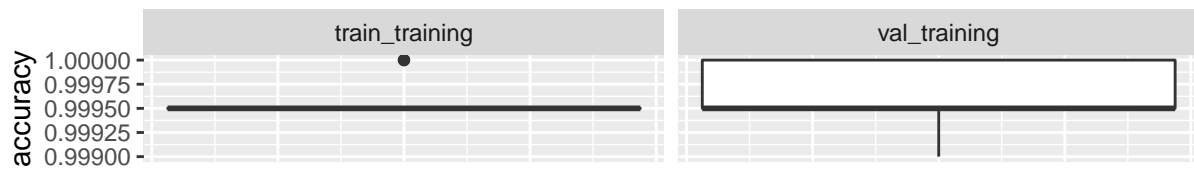
Pairwise accuracies of networks



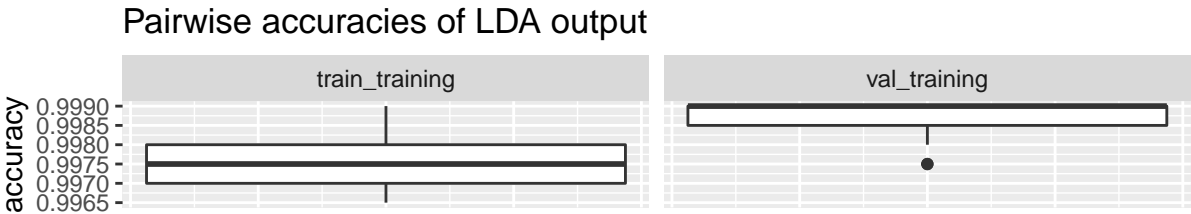
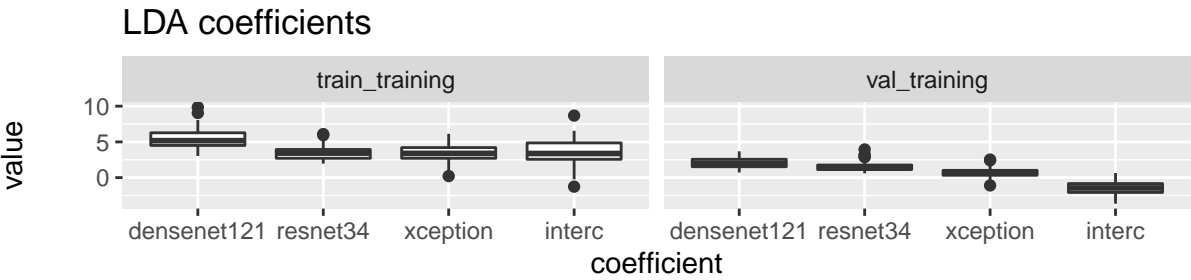
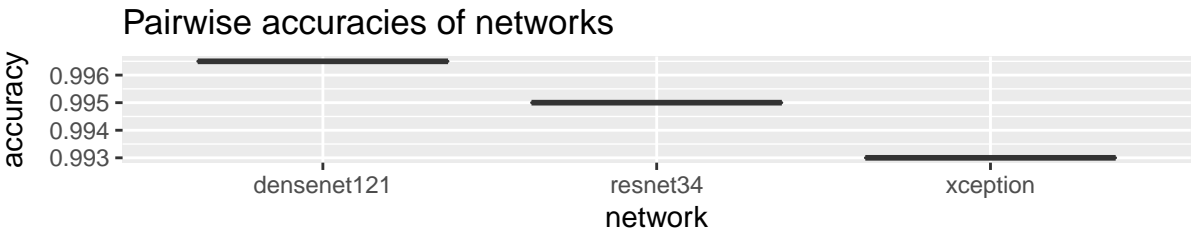
LDA coefficients



Pairwise accuracies of LDA output

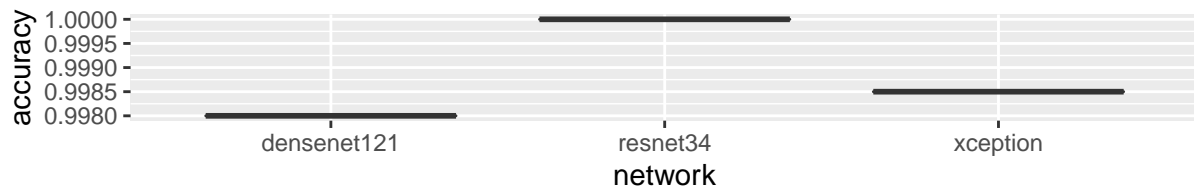


Classes 2 vs 6

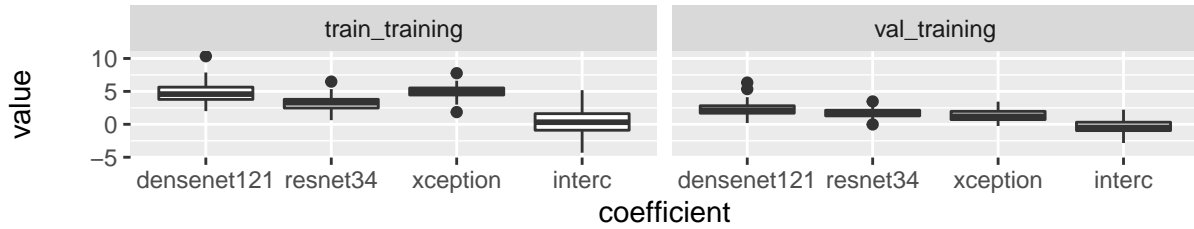


Classes 2 vs 7

Pairwise accuracies of networks



LDA coefficients

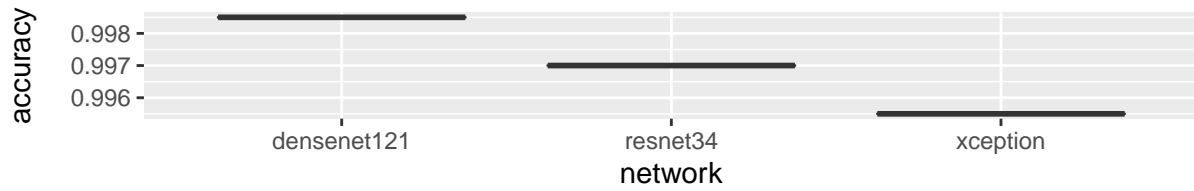


Pairwise accuracies of LDA output

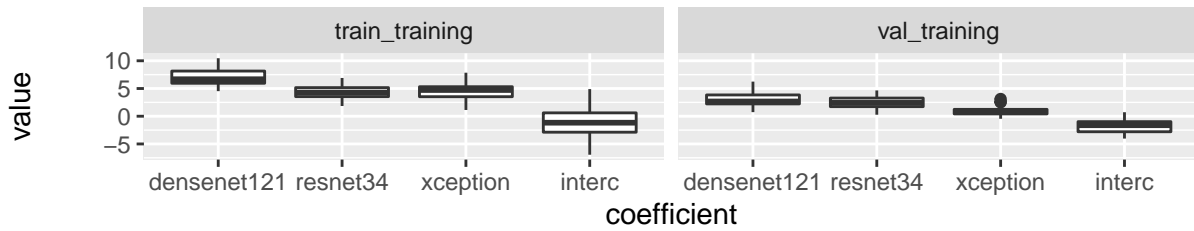


Classes 2 vs 8

Pairwise accuracies of networks



LDA coefficients

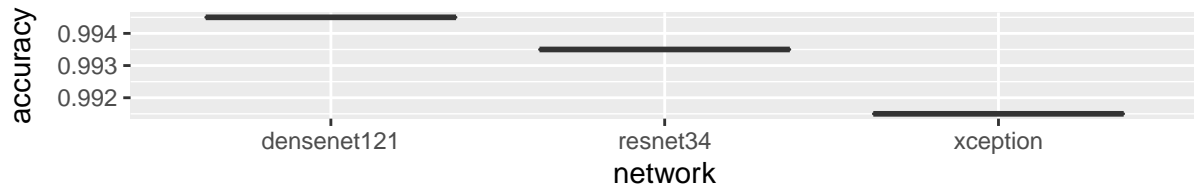


Pairwise accuracies of LDA output

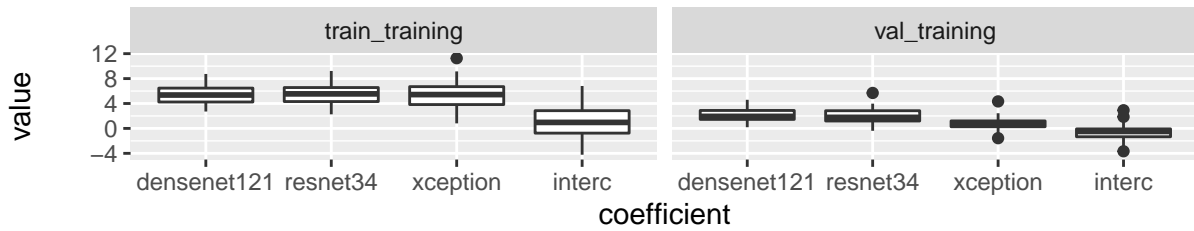


Classes 2 vs 9

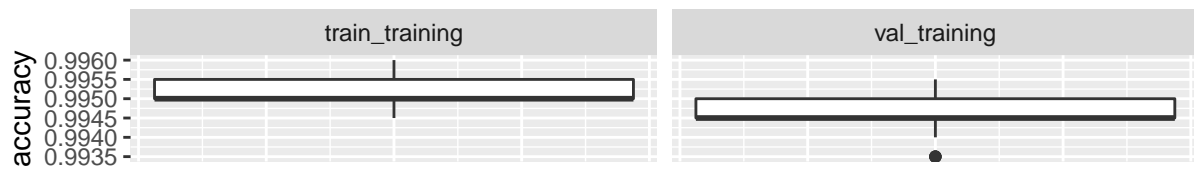
Pairwise accuracies of networks



LDA coefficients



Pairwise accuracies of LDA output

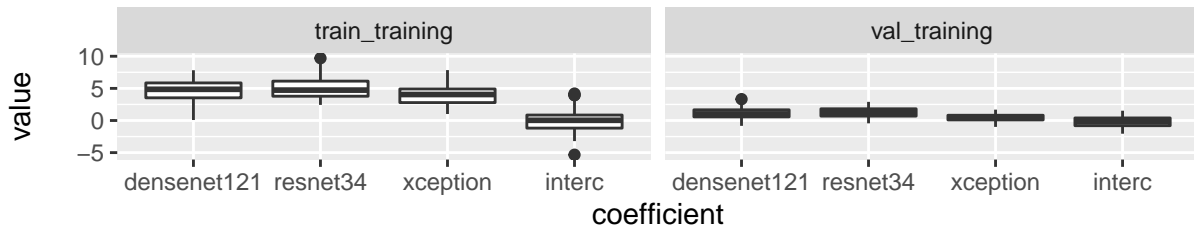


Classes 2 vs 10

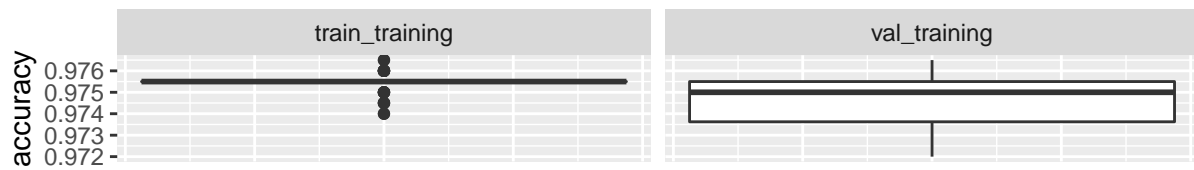
Pairwise accuracies of networks



LDA coefficients

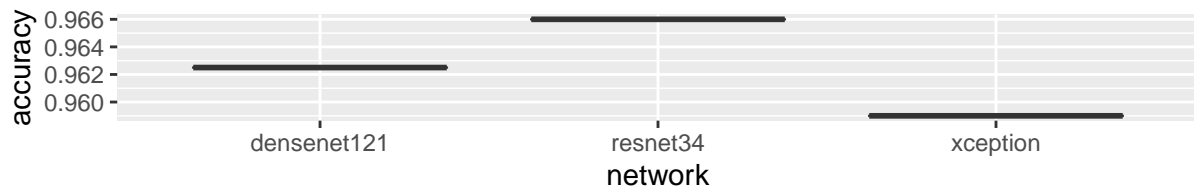


Pairwise accuracies of LDA output

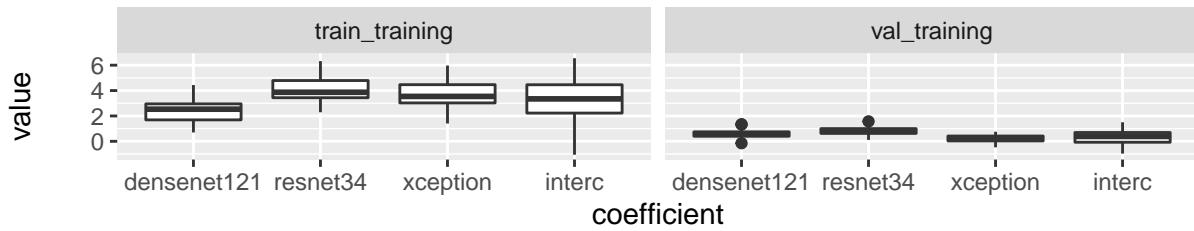


Classes 3 vs 4

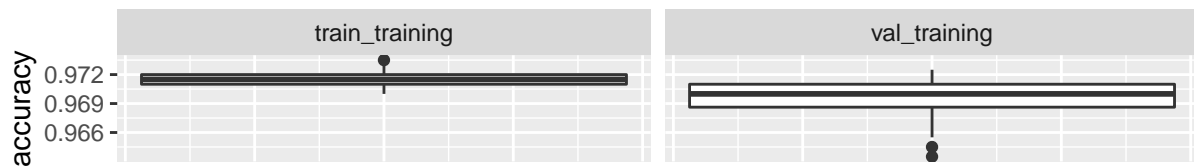
Pairwise accuracies of networks



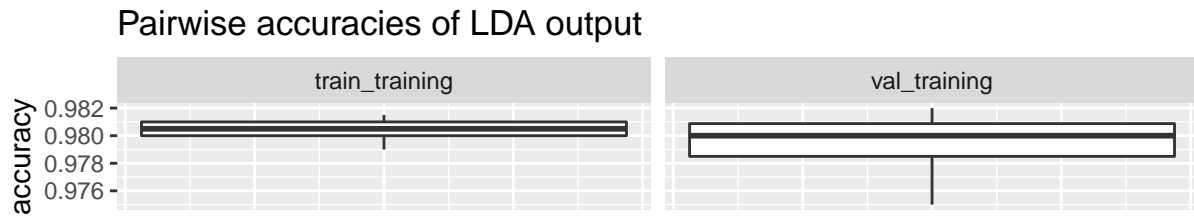
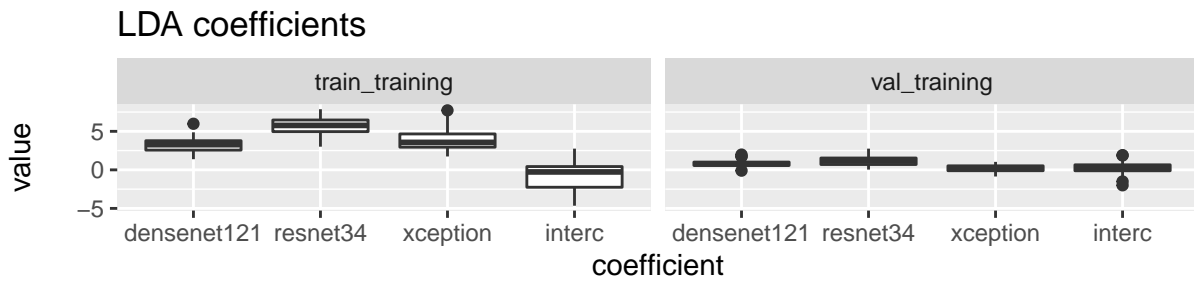
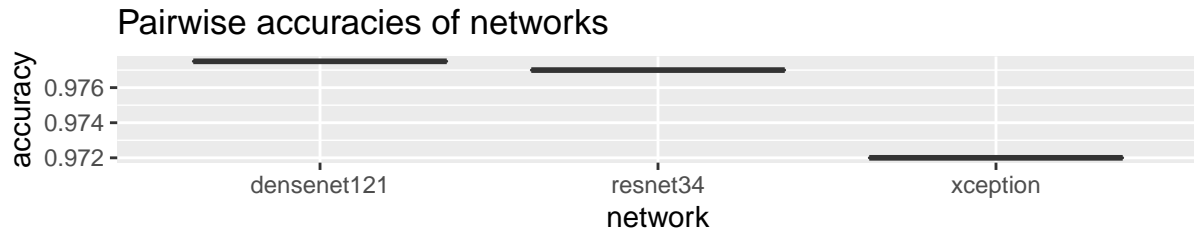
LDA coefficients



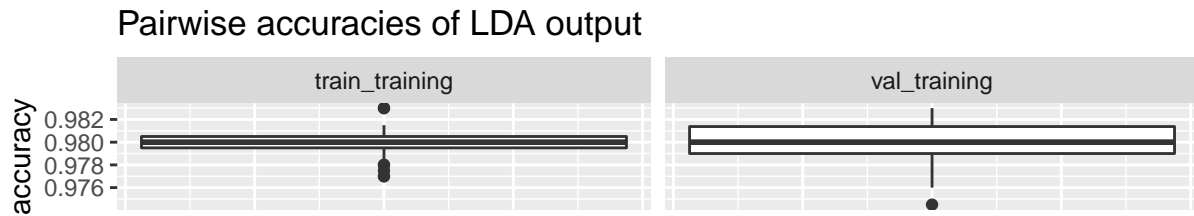
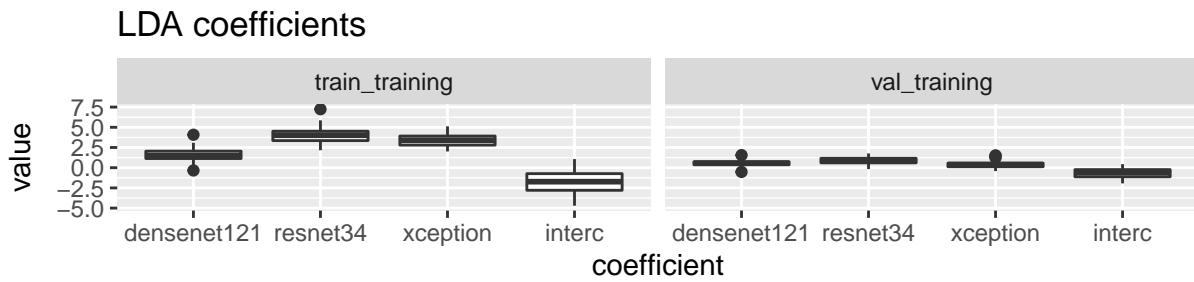
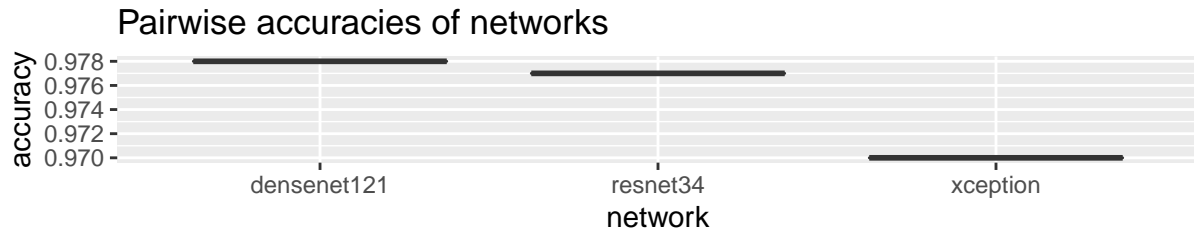
Pairwise accuracies of LDA output



Classes 3 vs 5

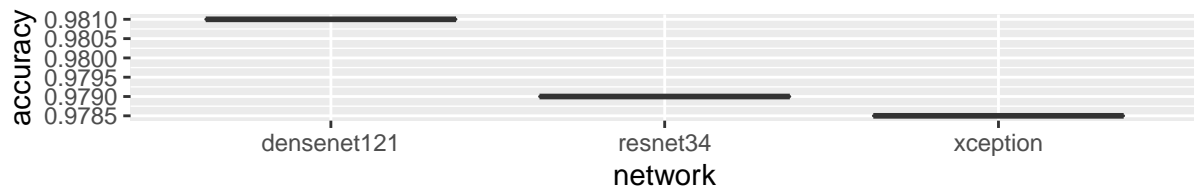


Classes 3 vs 6

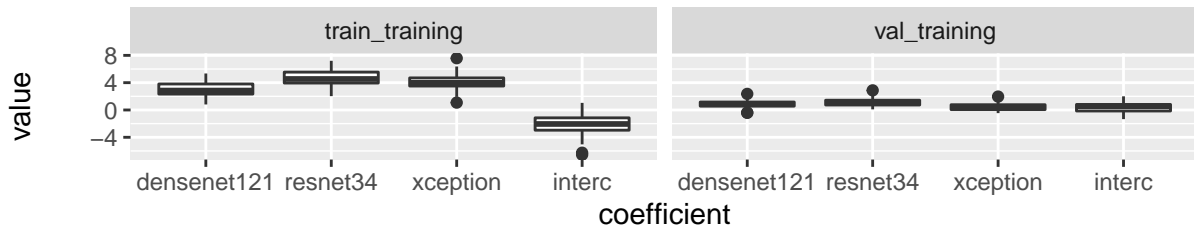


Classes 3 vs 7

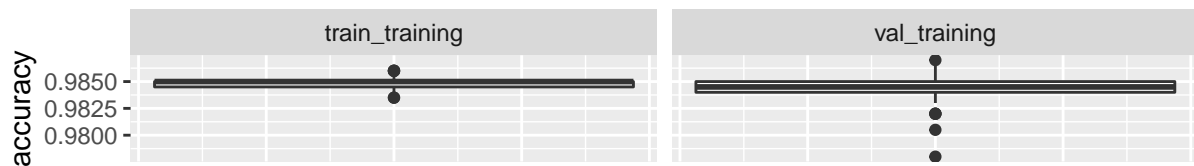
Pairwise accuracies of networks



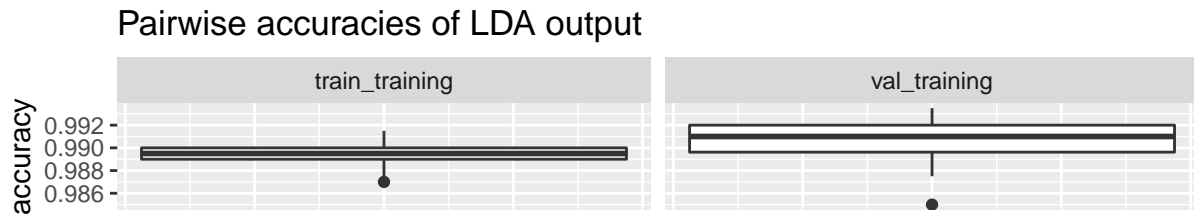
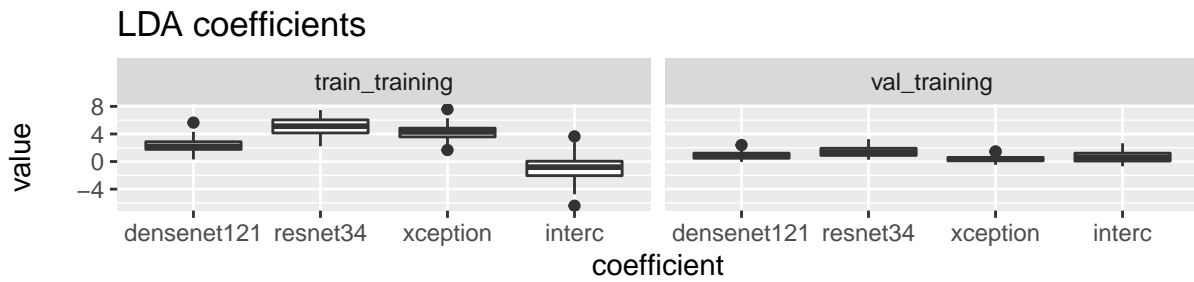
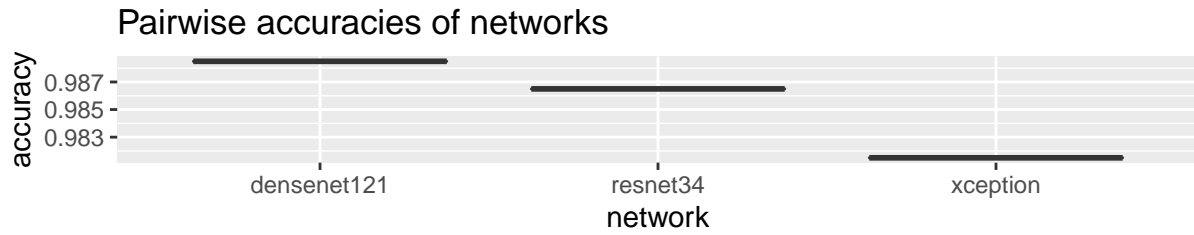
LDA coefficients



Pairwise accuracies of LDA output

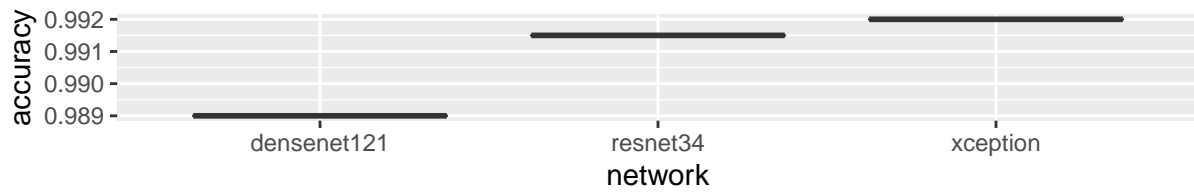


Classes 3 vs 8

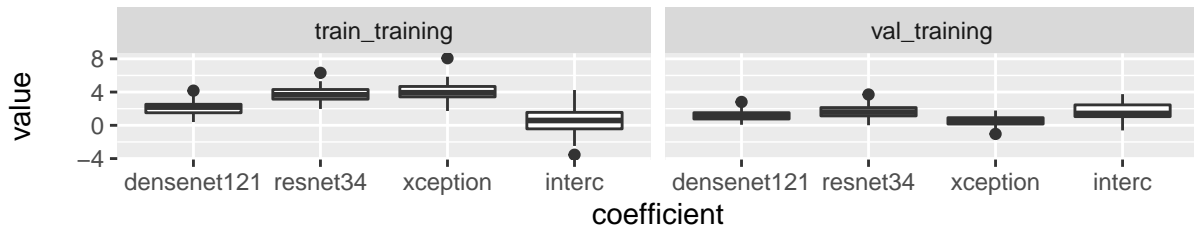


Classes 3 vs 9

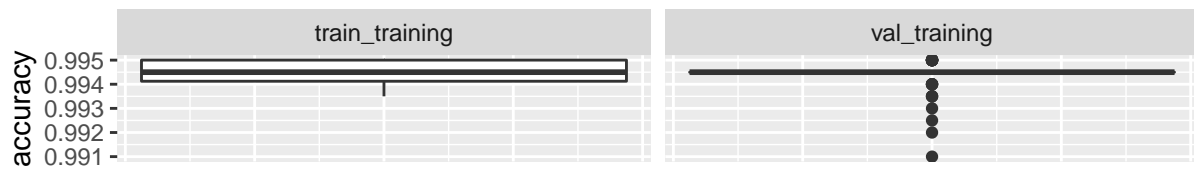
Pairwise accuracies of networks



LDA coefficients

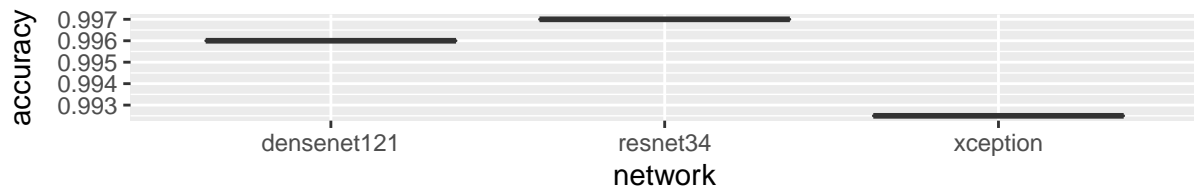


Pairwise accuracies of LDA output

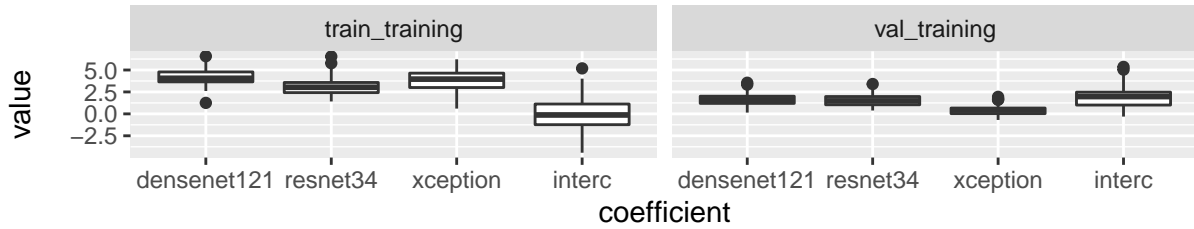


Classes 3 vs 10

Pairwise accuracies of networks



LDA coefficients

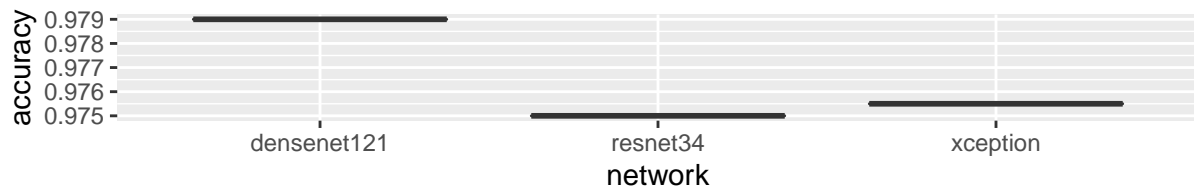


Pairwise accuracies of LDA output

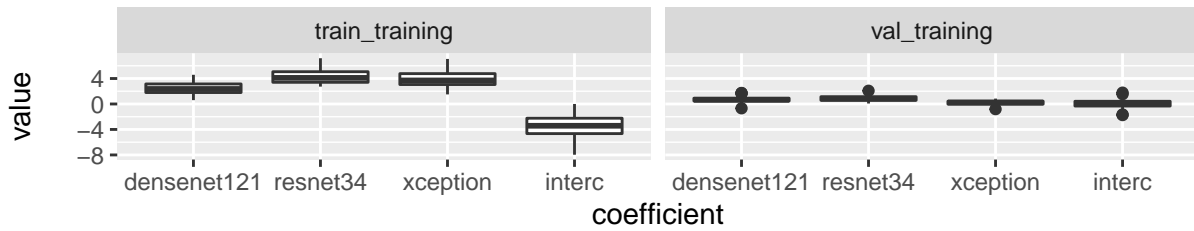


Classes 4 vs 5

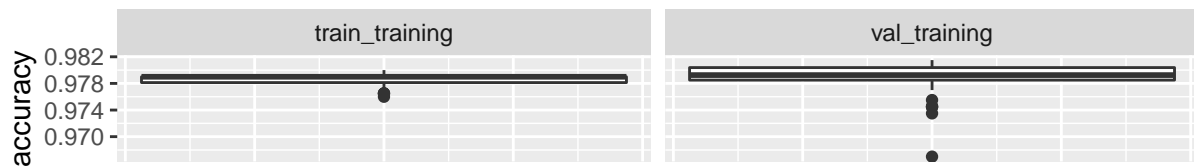
Pairwise accuracies of networks



LDA coefficients

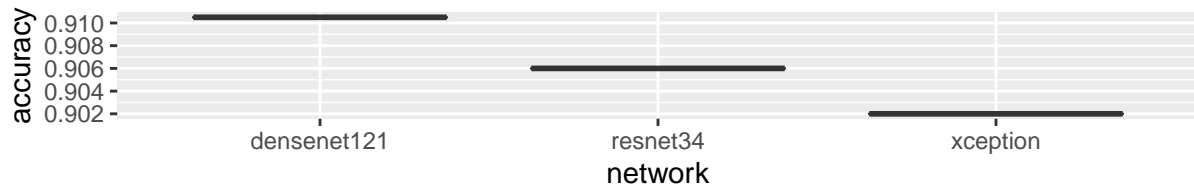


Pairwise accuracies of LDA output

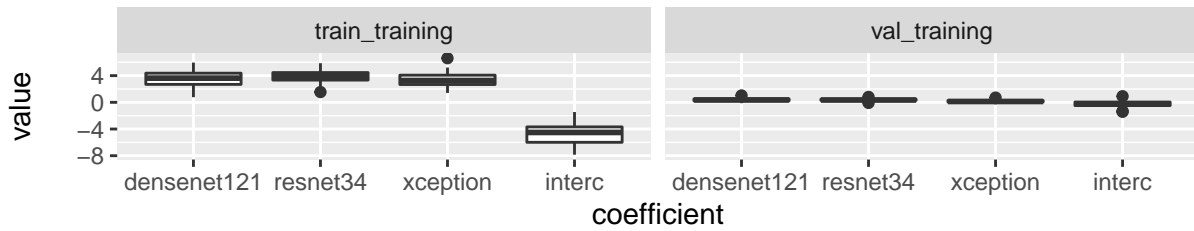


Classes 4 vs 6

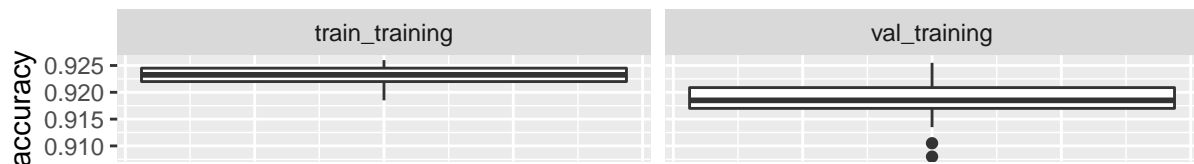
Pairwise accuracies of networks



LDA coefficients

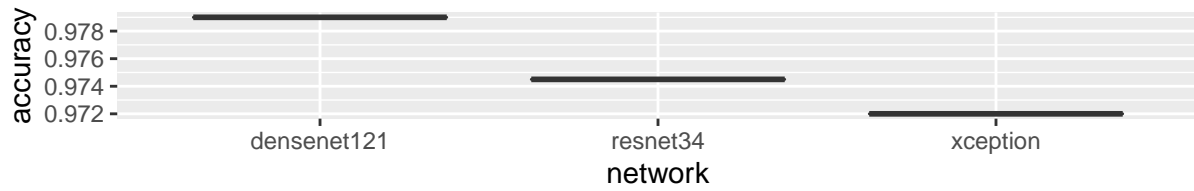


Pairwise accuracies of LDA output

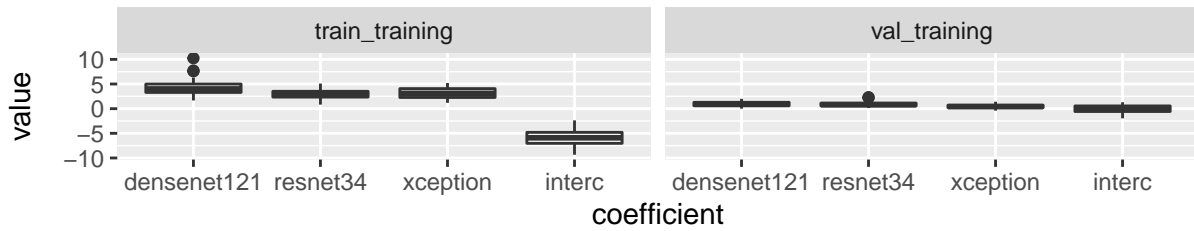


Classes 4 vs 7

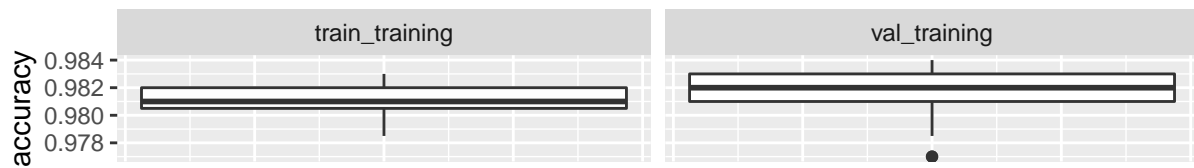
Pairwise accuracies of networks



LDA coefficients

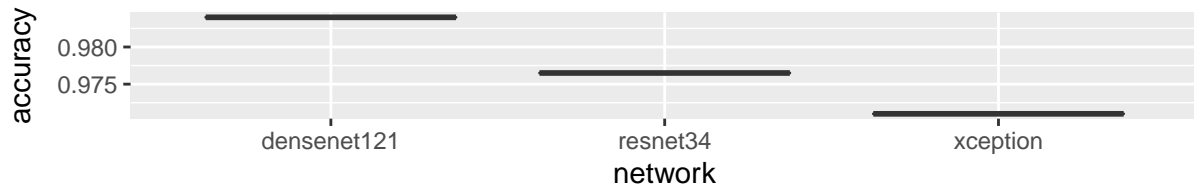


Pairwise accuracies of LDA output

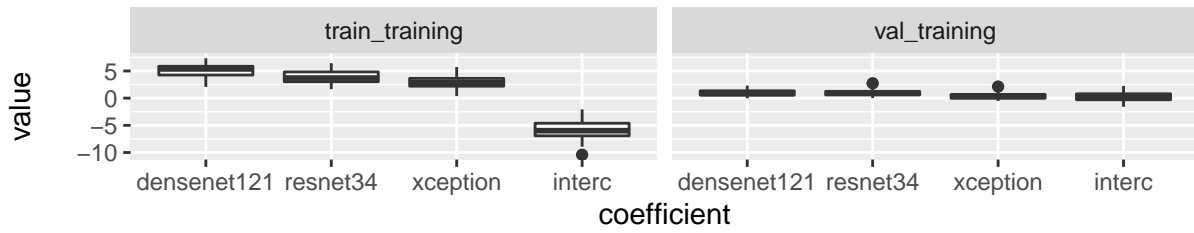


Classes 4 vs 8

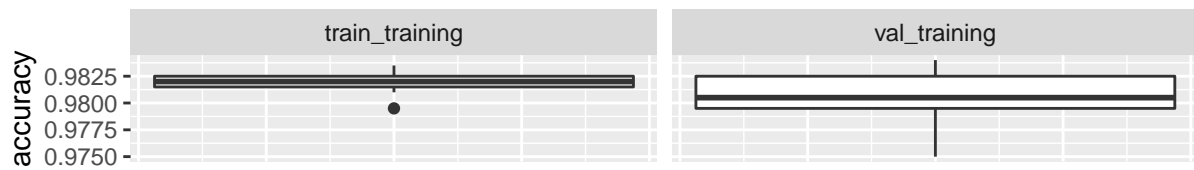
Pairwise accuracies of networks



LDA coefficients

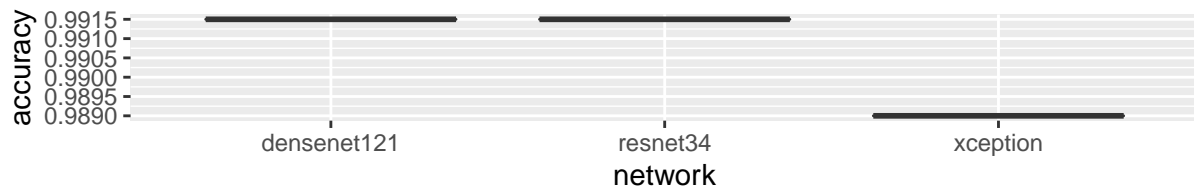


Pairwise accuracies of LDA output

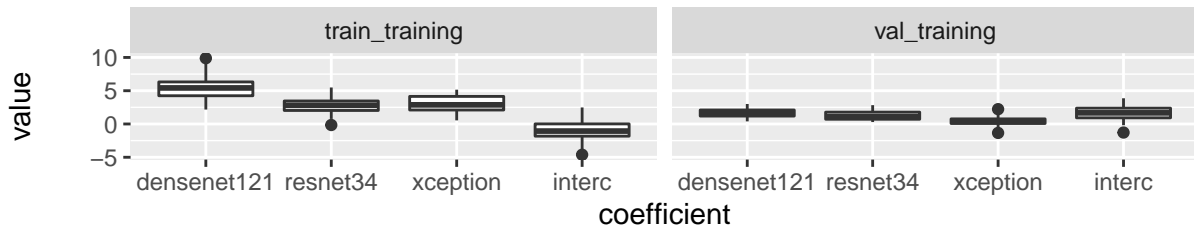


Classes 4 vs 9

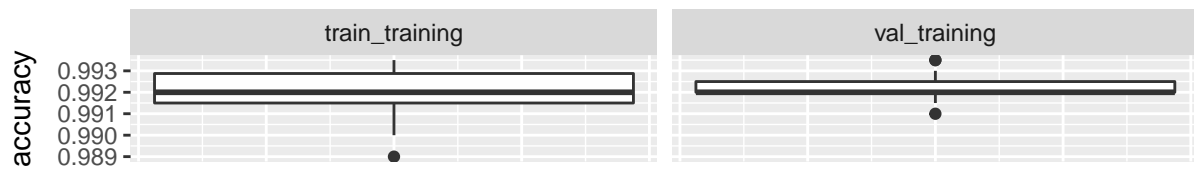
Pairwise accuracies of networks



LDA coefficients

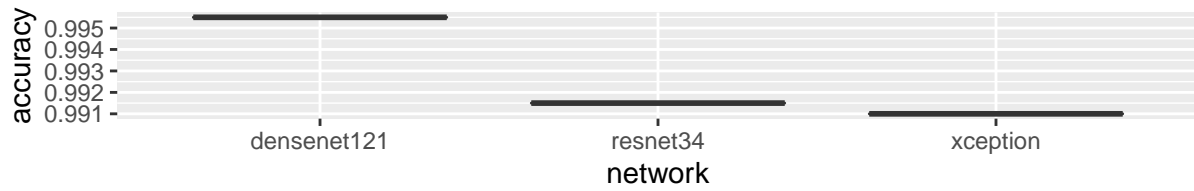


Pairwise accuracies of LDA output

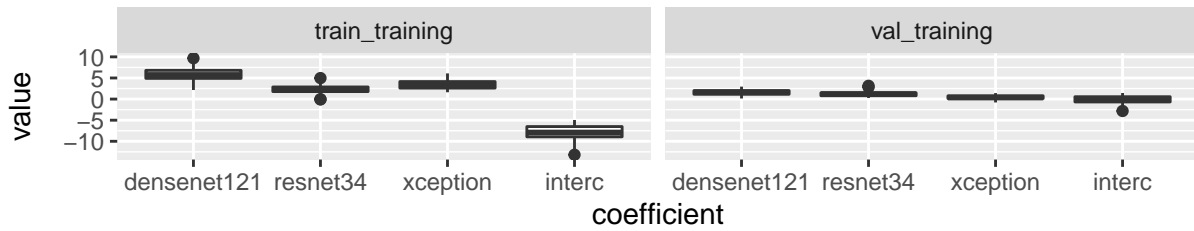


Classes 4 vs 10

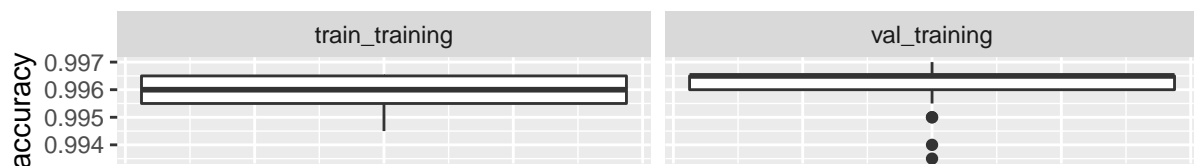
Pairwise accuracies of networks



LDA coefficients

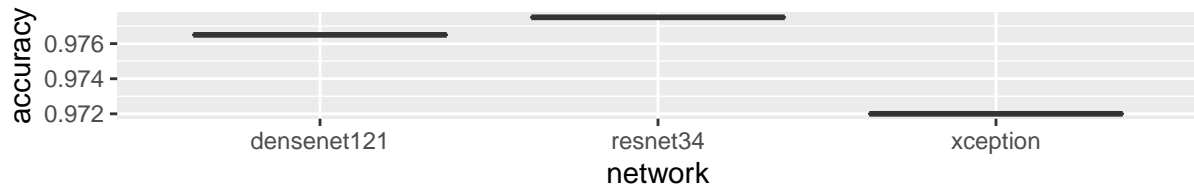


Pairwise accuracies of LDA output

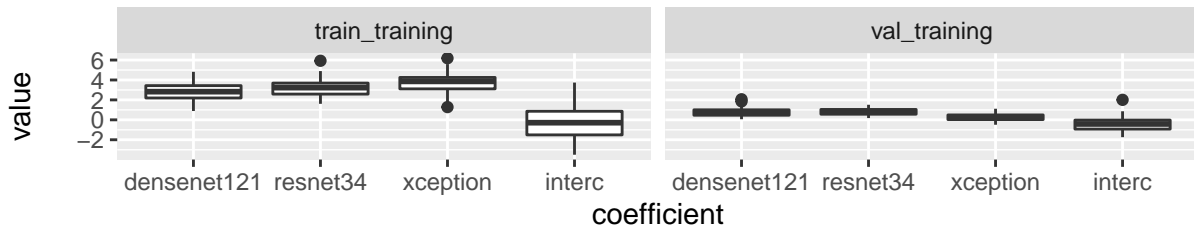


Classes 5 vs 6

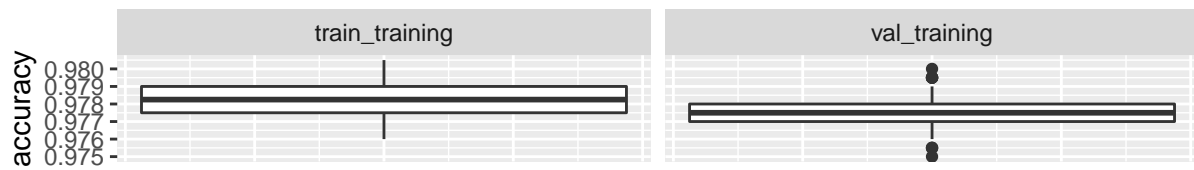
Pairwise accuracies of networks



LDA coefficients

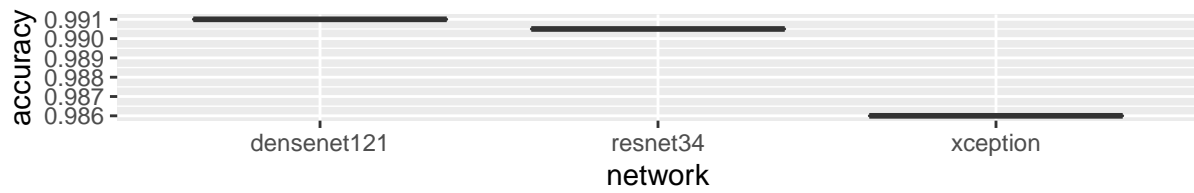


Pairwise accuracies of LDA output

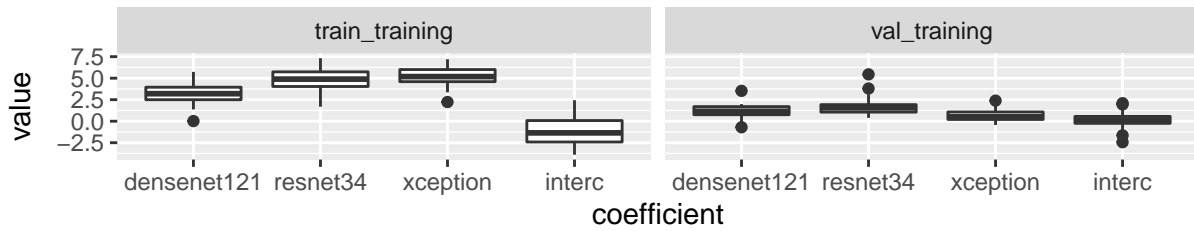


Classes 5 vs 7

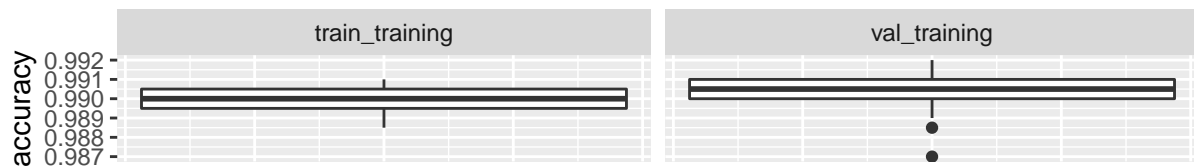
Pairwise accuracies of networks



LDA coefficients

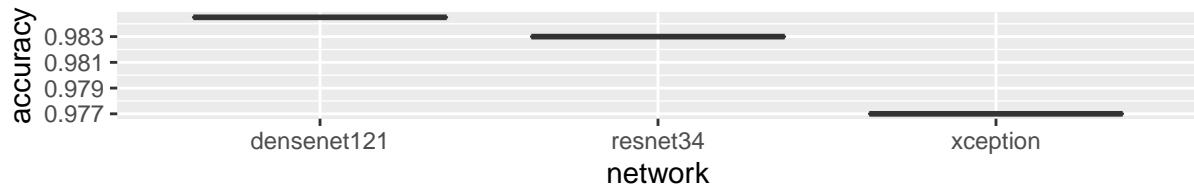


Pairwise accuracies of LDA output

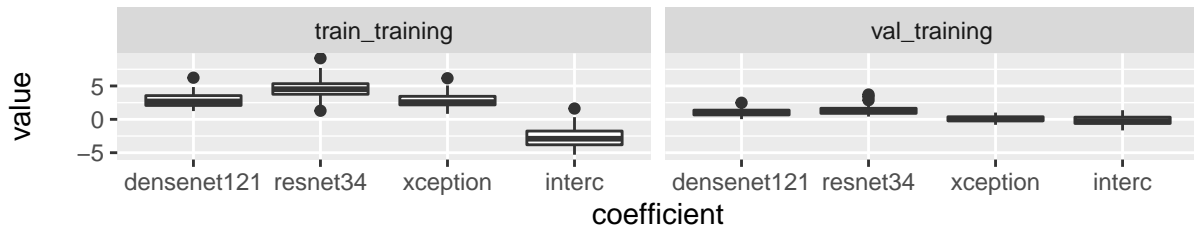


Classes 5 vs 8

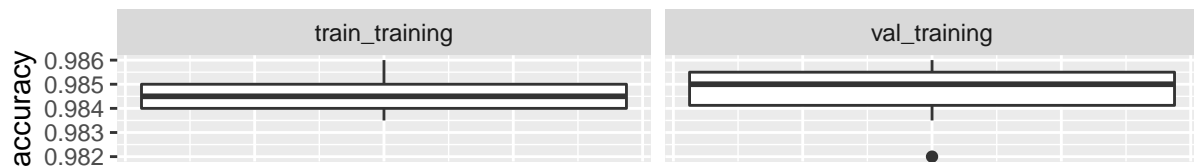
Pairwise accuracies of networks



LDA coefficients

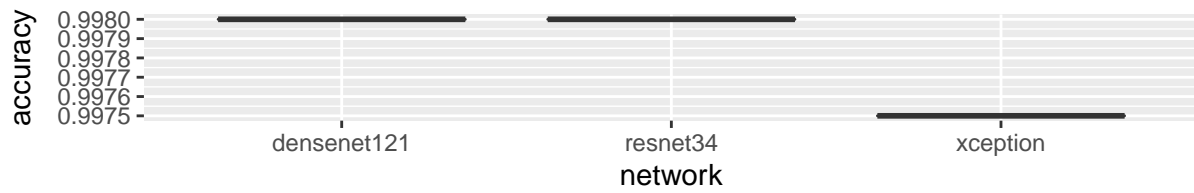


Pairwise accuracies of LDA output

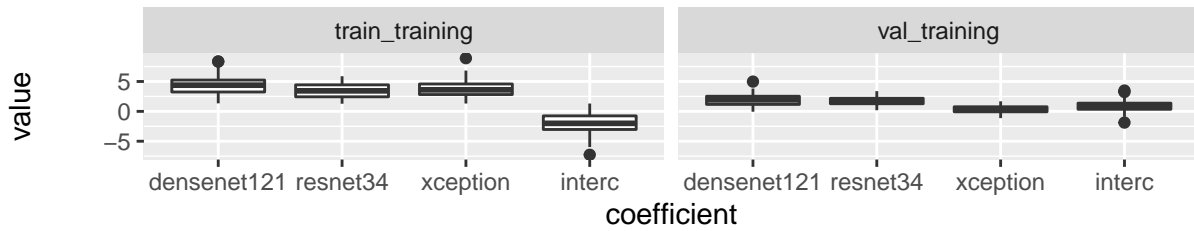


Classes 5 vs 9

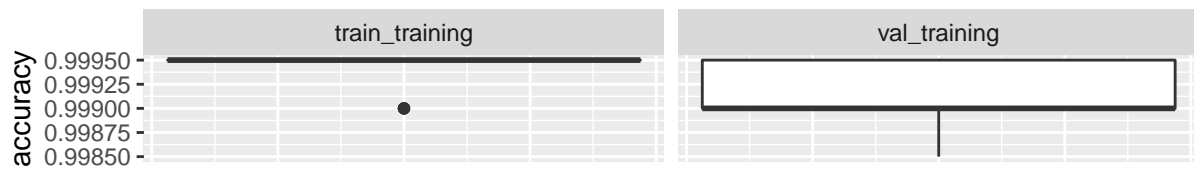
Pairwise accuracies of networks



LDA coefficients

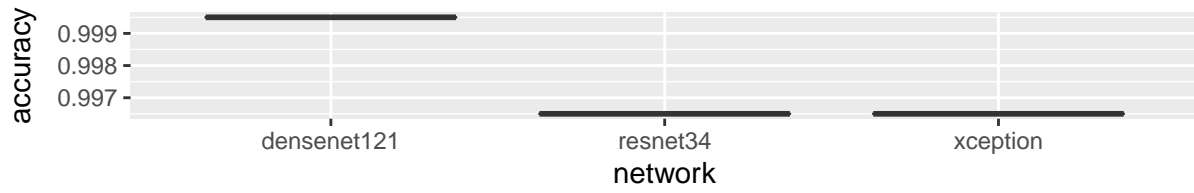


Pairwise accuracies of LDA output

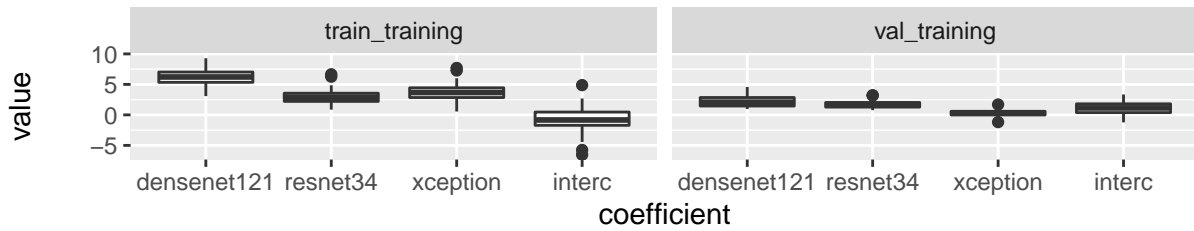


Classes 5 vs 10

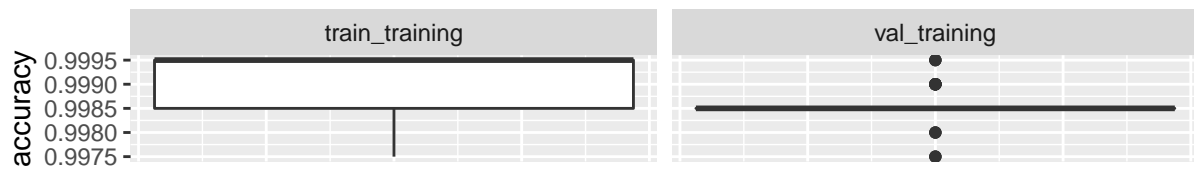
Pairwise accuracies of networks



LDA coefficients

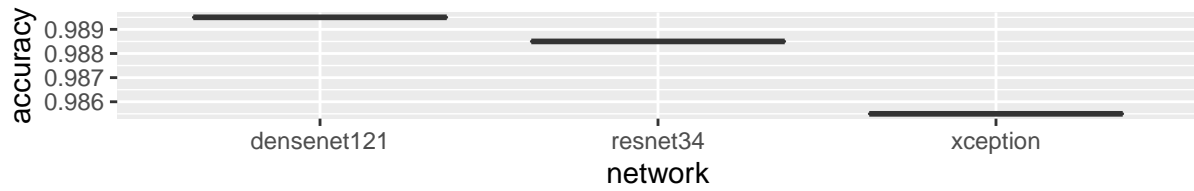


Pairwise accuracies of LDA output

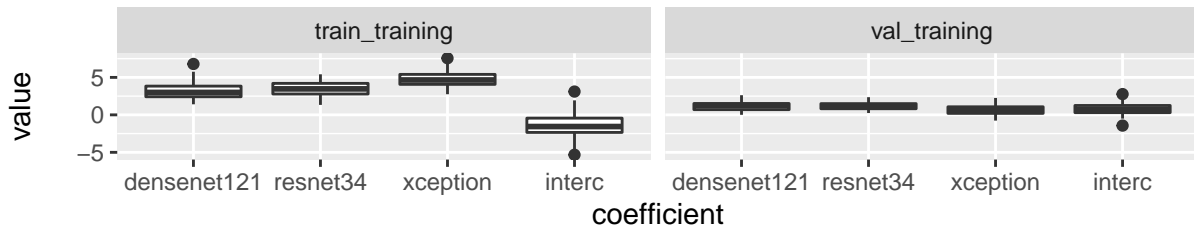


Classes 6 vs 7

Pairwise accuracies of networks



LDA coefficients

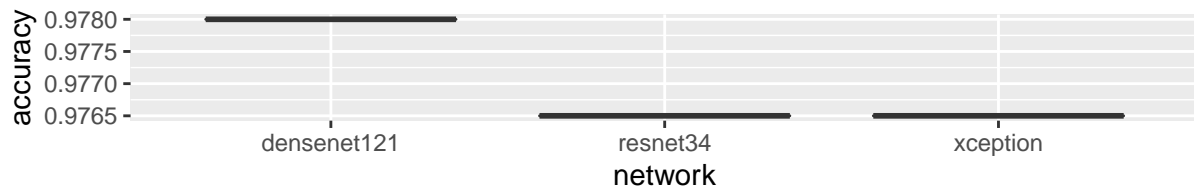


Pairwise accuracies of LDA output

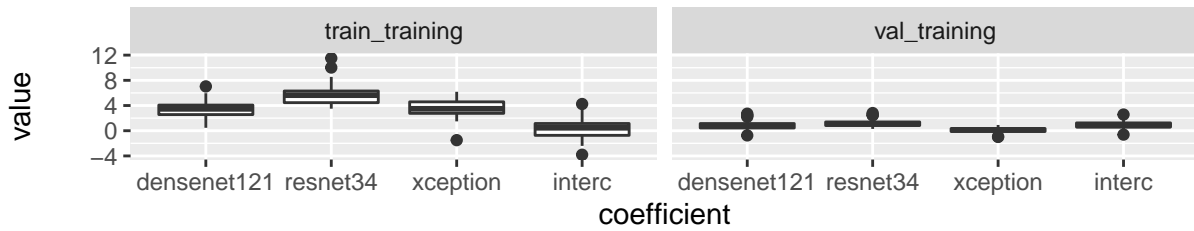


Classes 6 vs 8

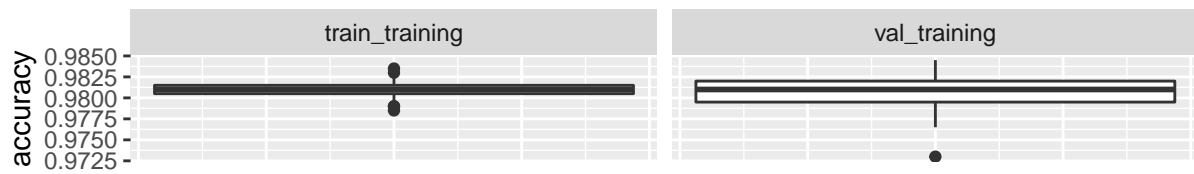
Pairwise accuracies of networks



LDA coefficients

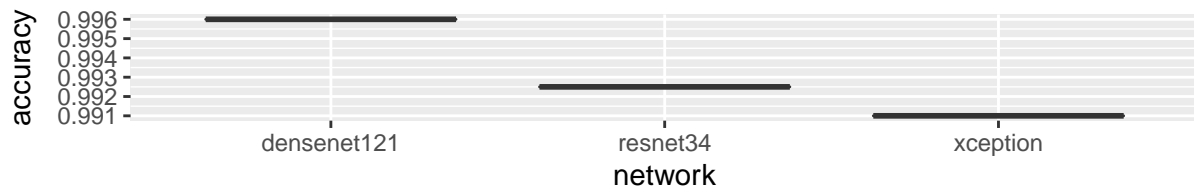


Pairwise accuracies of LDA output

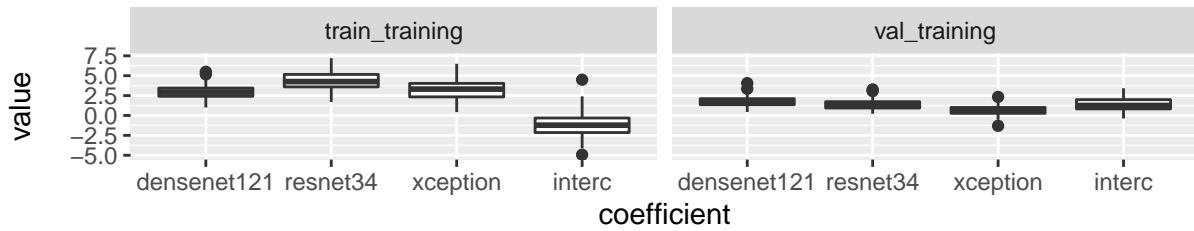


Classes 6 vs 9

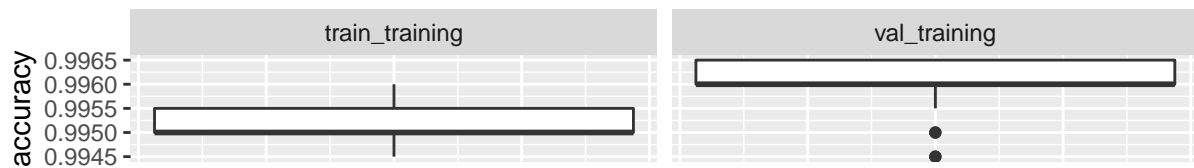
Pairwise accuracies of networks



LDA coefficients

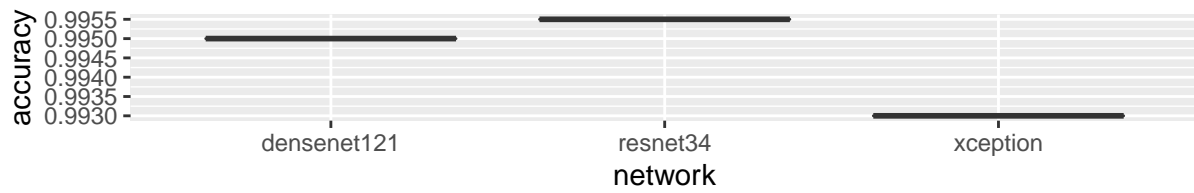


Pairwise accuracies of LDA output

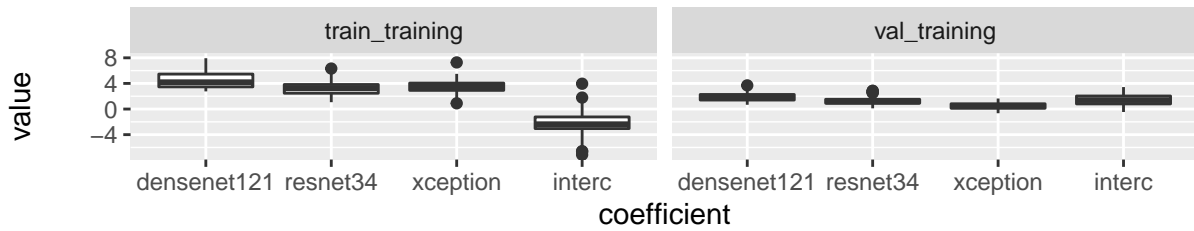


Classes 6 vs 10

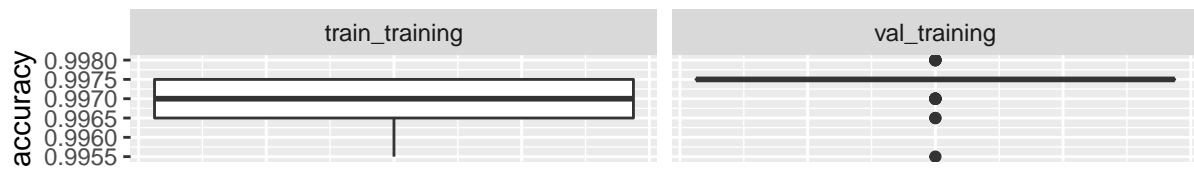
Pairwise accuracies of networks



LDA coefficients

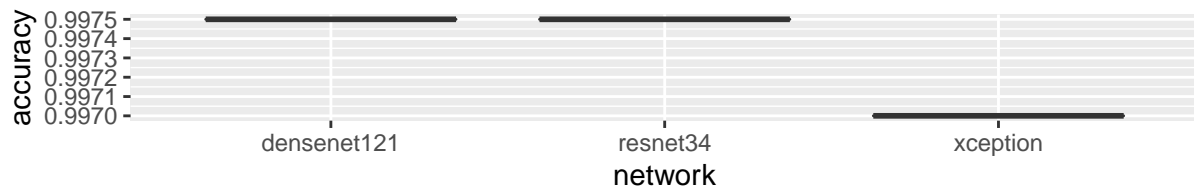


Pairwise accuracies of LDA output

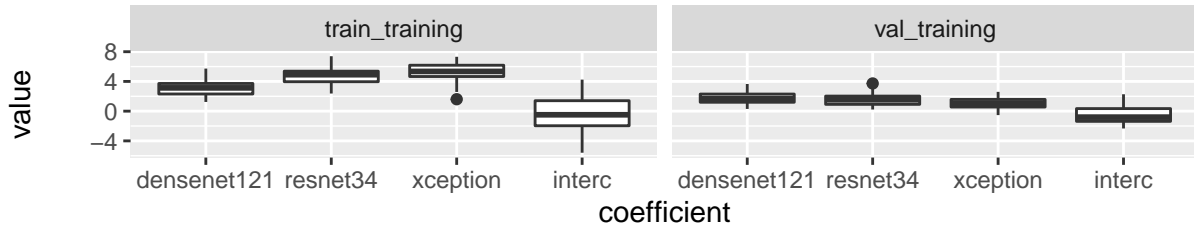


Classes 7 vs 8

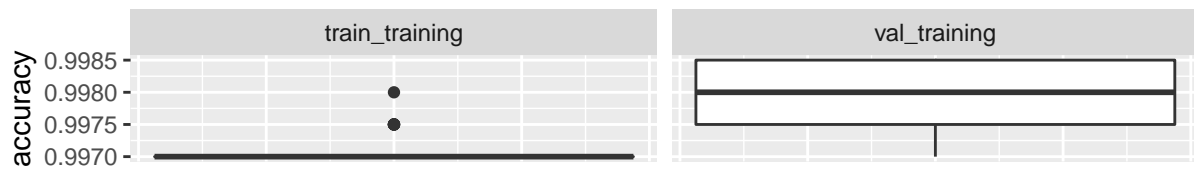
Pairwise accuracies of networks



LDA coefficients

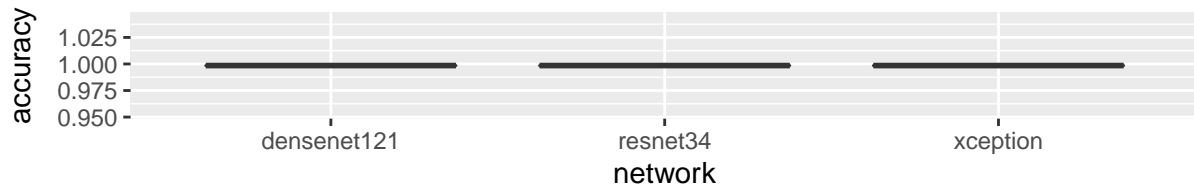


Pairwise accuracies of LDA output

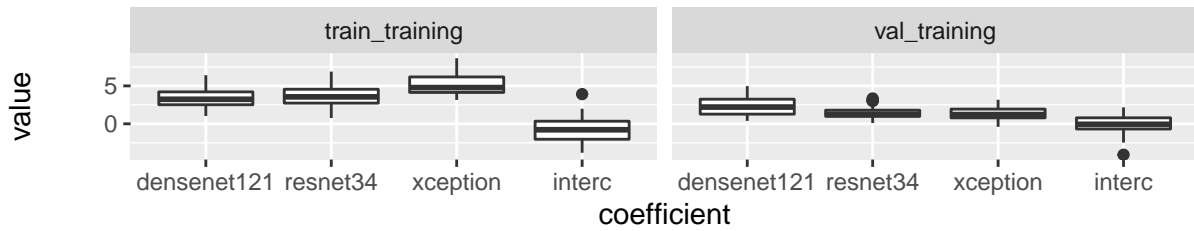


Classes 7 vs 9

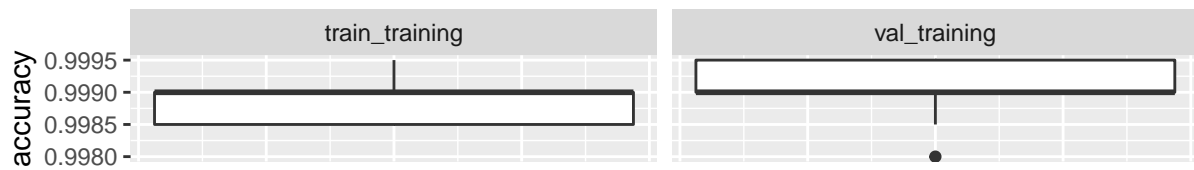
Pairwise accuracies of networks



LDA coefficients

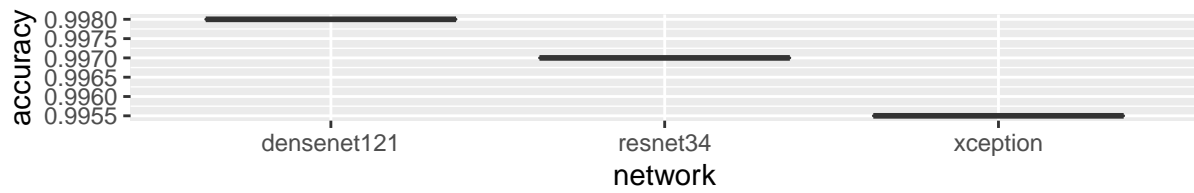


Pairwise accuracies of LDA output

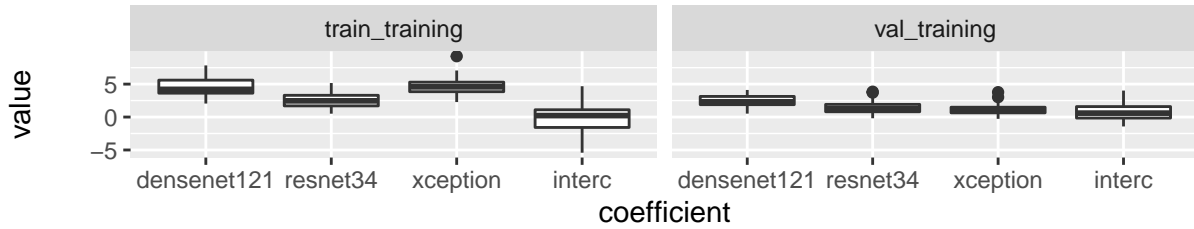


Classes 7 vs 10

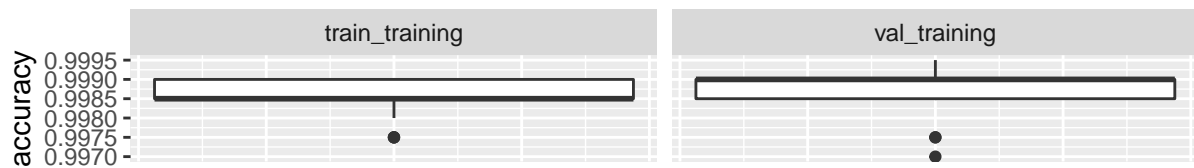
Pairwise accuracies of networks



LDA coefficients

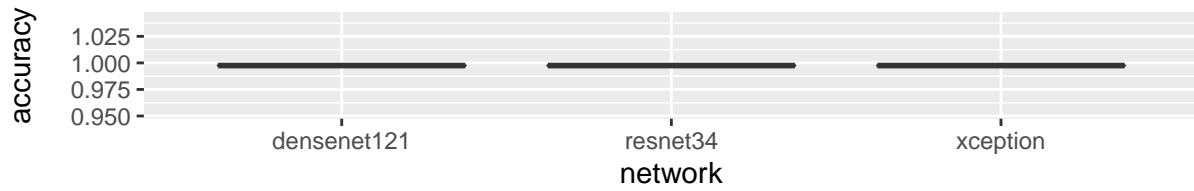


Pairwise accuracies of LDA output

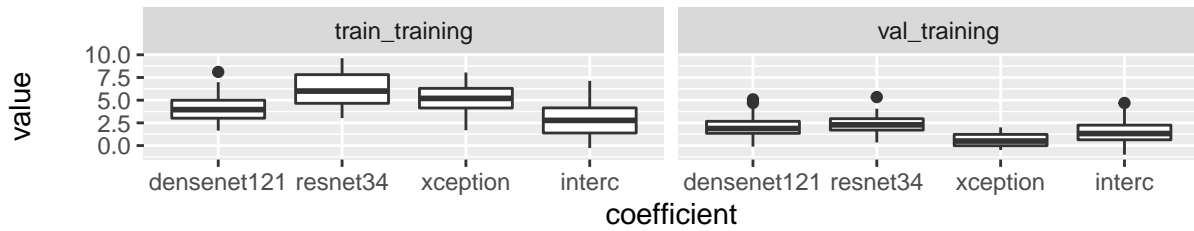


Classes 8 vs 9

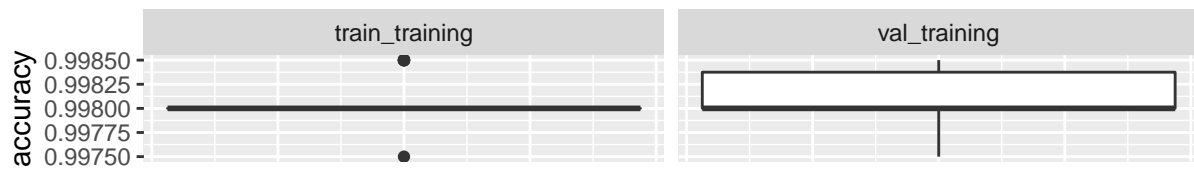
Pairwise accuracies of networks



LDA coefficients

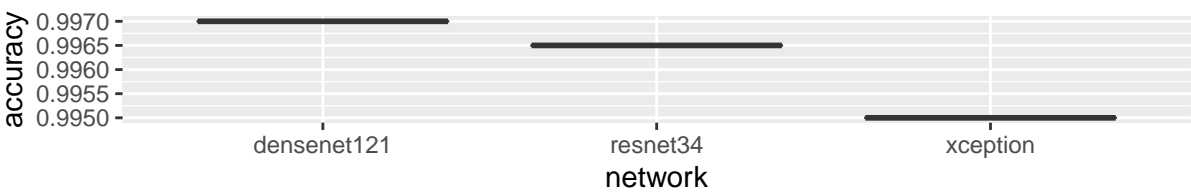


Pairwise accuracies of LDA output

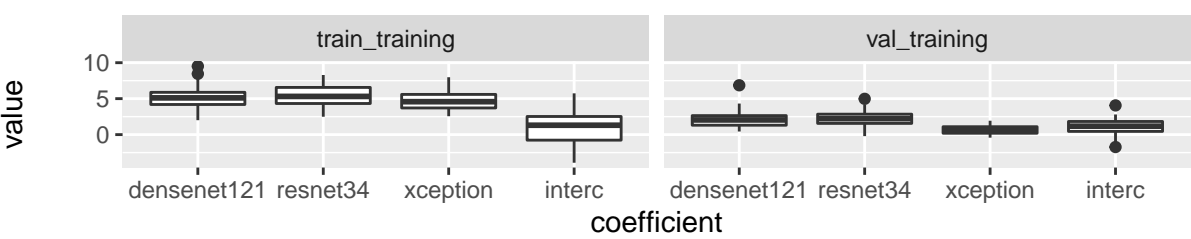


Classes 8 vs 10

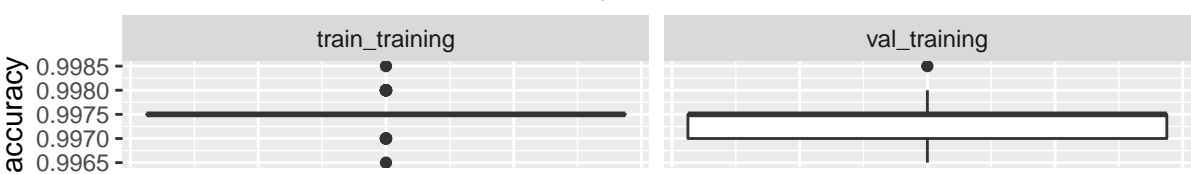
Pairwise accuracies of networks



LDA coefficients

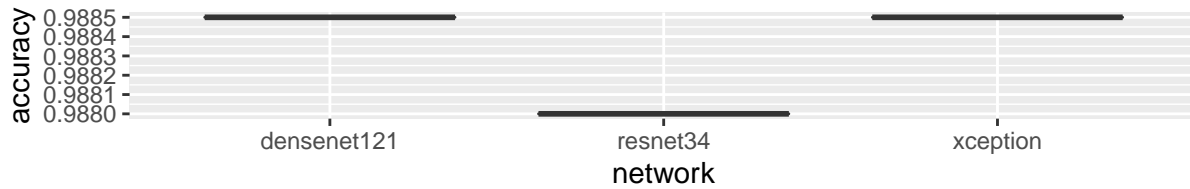


Pairwise accuracies of LDA output

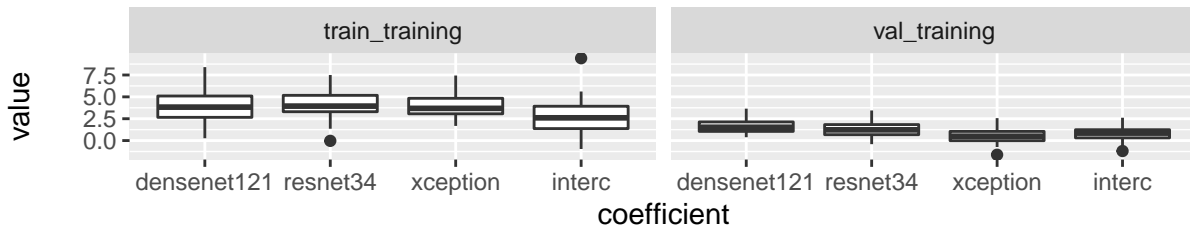


Classes 9 vs 10

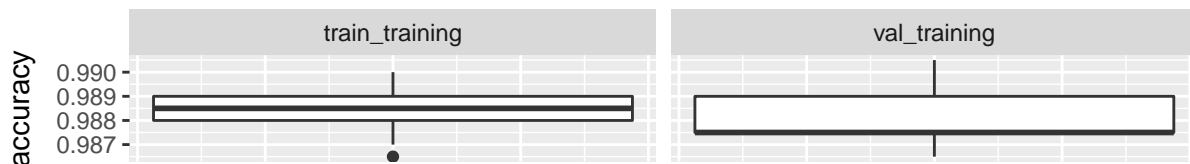
Pairwise accuracies of networks



LDA coefficients



Pairwise accuracies of LDA output



```
base_dir <- "../data/data_train_val_half_c100"
repls <- 0:9
folds <- 0:4
classes <- 10
lda_coefs <- load_lda_coefs(base_dir, repls, folds)
net_pw_results <- read.csv(file.path(base_dir, "net_pw accuracies.csv"))
ens_pw_results <- read.csv(file.path(base_dir, "ensemble_pw accuracies.csv"))
net_pw_results[, c("class1", "class2")] <- lapply(net_pw_results[, c("class1", "class2")], as.factor)
ens_pw_results[, c("class1", "class2")] <- lapply(ens_pw_results[, c("class1", "class2")], as.factor)

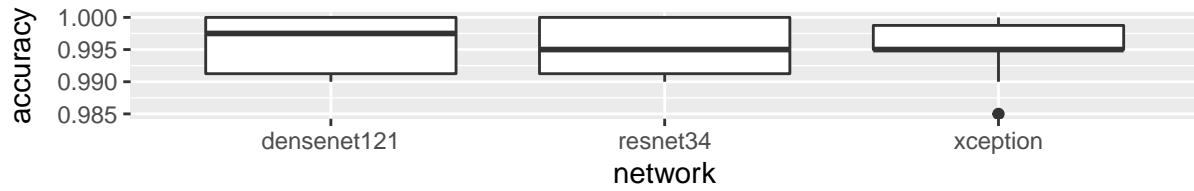
for (cl1 in 1:(classes - 1))
{
  for (cl2 in (cl1 + 1):classes)
  {
    lda_plt <- lda_coefs %>% filter(class1 == cl1 & class2 == cl2) %>% ggplot() + geom_boxplot(aes(x=coefficient)) +
      facet_wrap(~train_type) + ggtitle("LDA coefficients")
    acc_plt_net <- net_pw_results %>% filter(class1 == (cl1 - 1) & class2 == (cl2 - 1)) %>% ggplot(mapping=aes(x=network)) +
      geom_boxplot() + ggtitle("Pairwise accuracies of networks")
    acc_plt_ens <- ens_pw_results %>% filter(class1 == (cl1 - 1) & class2 == (cl2 - 1)) %>% ggplot(mapping=aes(x=network)) +
      geom_boxplot() + facet_wrap(~train_set) + ggtitle("Pairwise accuracies of LDA output") +
      theme(axis.ticks.x=element_blank(), axis.text.x=element_blank())

    print((acc_plt_net/lda_plt/acc_plt_ens) + plot_annotation(title=paste("Classes ", cl1, " vs ", cl2)))
  }
}
```

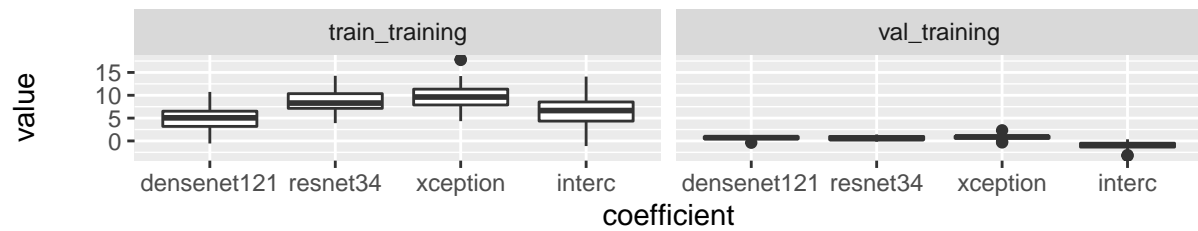
}

Classes 1 vs 2

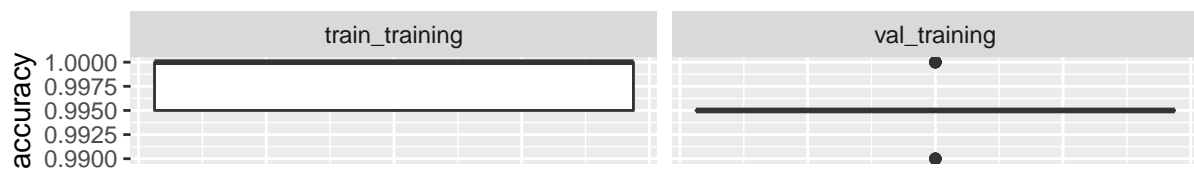
Pairwise accuracies of networks



LDA coefficients

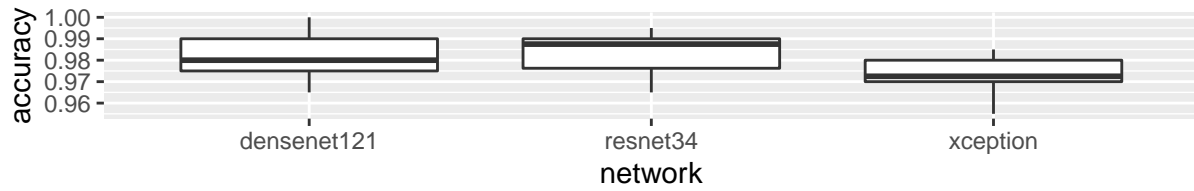


Pairwise accuracies of LDA output

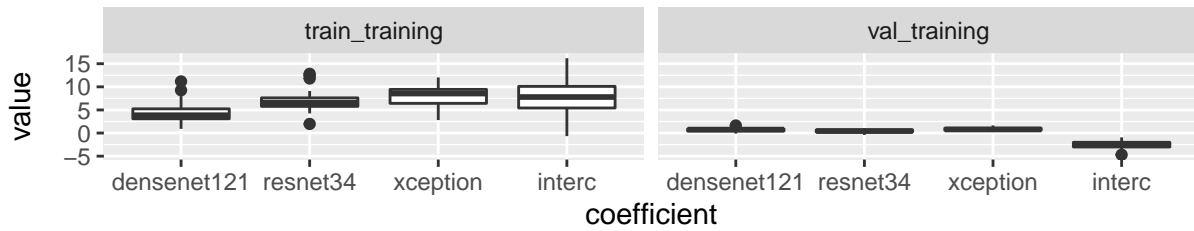


Classes 1 vs 3

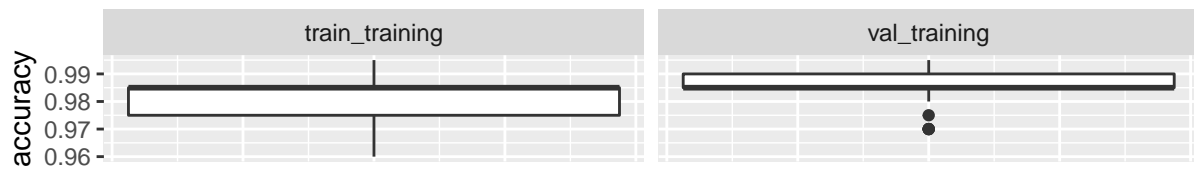
Pairwise accuracies of networks



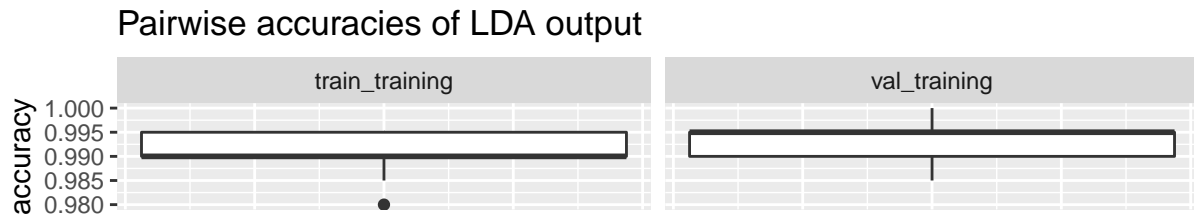
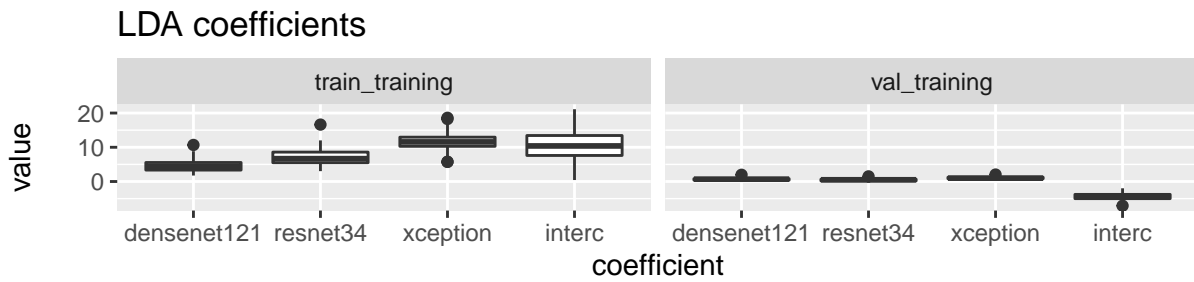
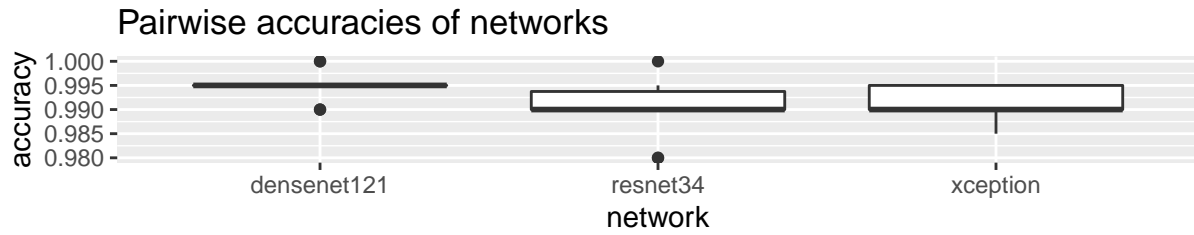
LDA coefficients



Pairwise accuracies of LDA output

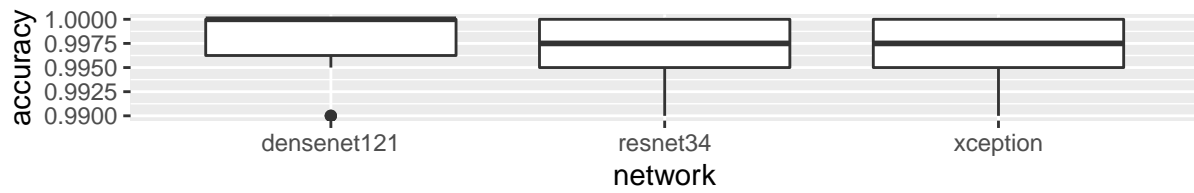


Classes 1 vs 4

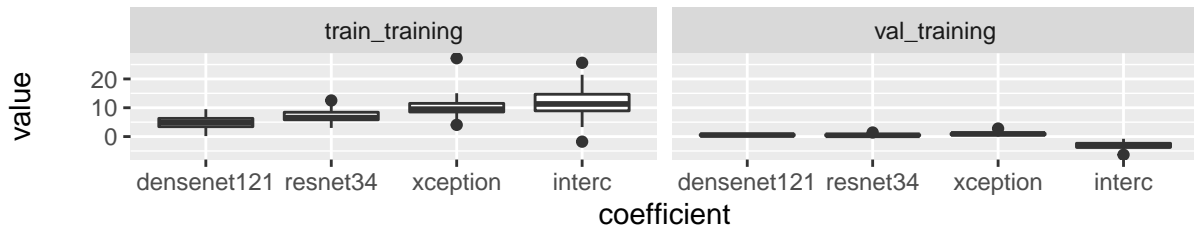


Classes 1 vs 5

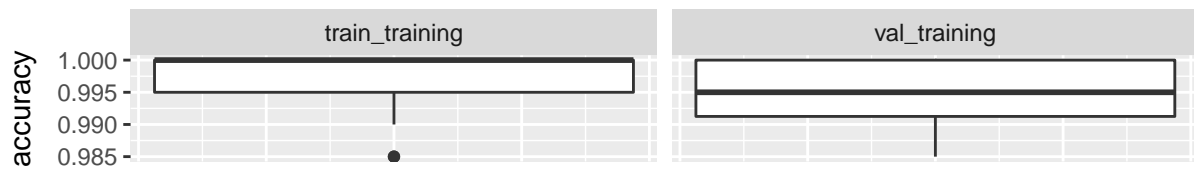
Pairwise accuracies of networks



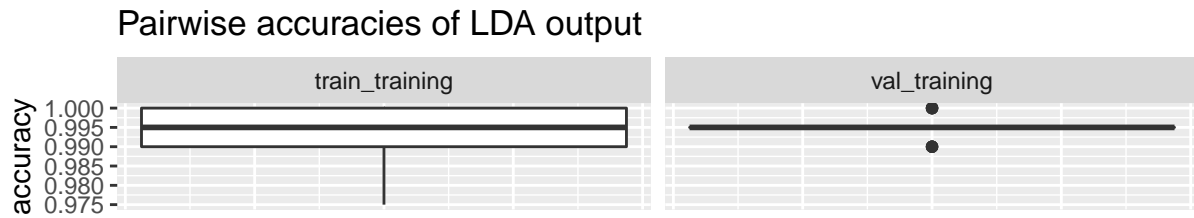
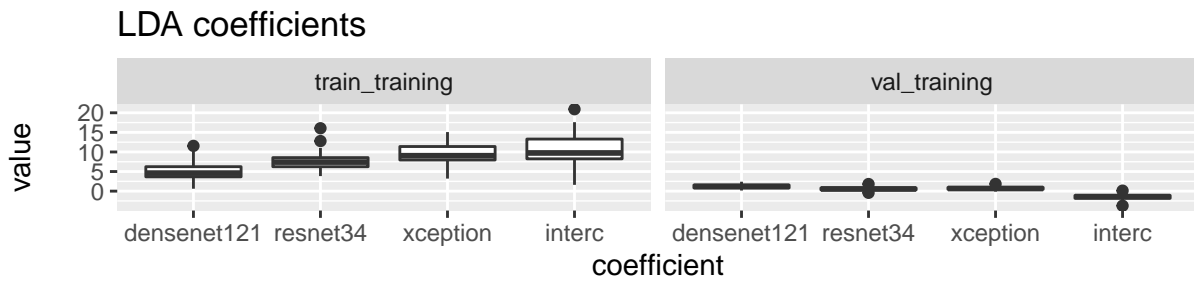
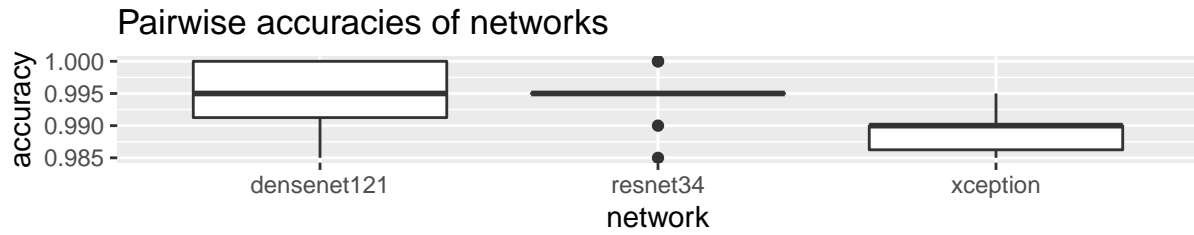
LDA coefficients



Pairwise accuracies of LDA output

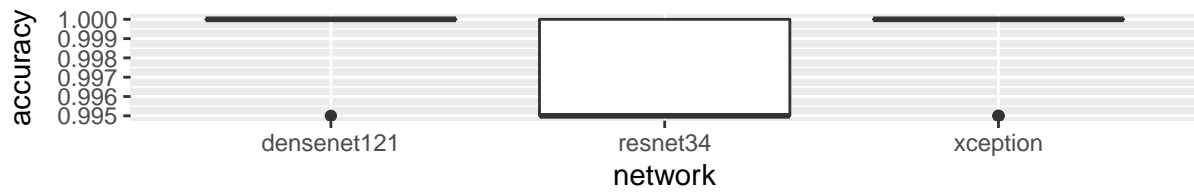


Classes 1 vs 6

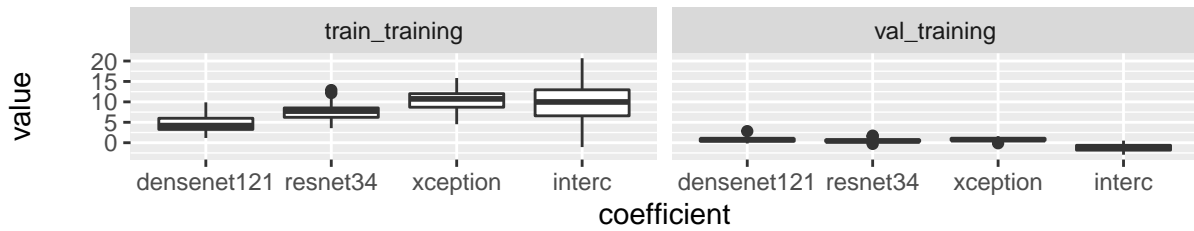


Classes 1 vs 7

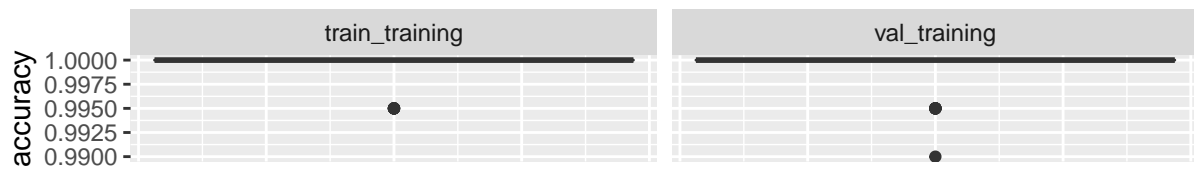
Pairwise accuracies of networks



LDA coefficients

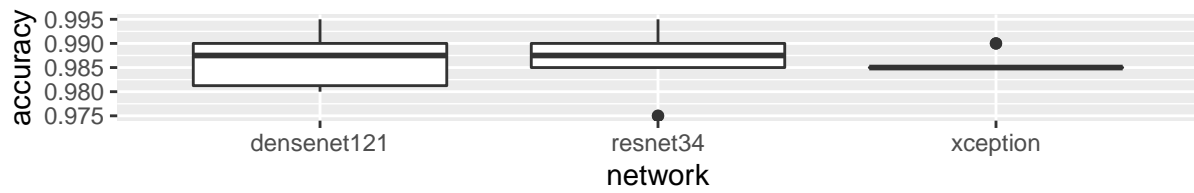


Pairwise accuracies of LDA output

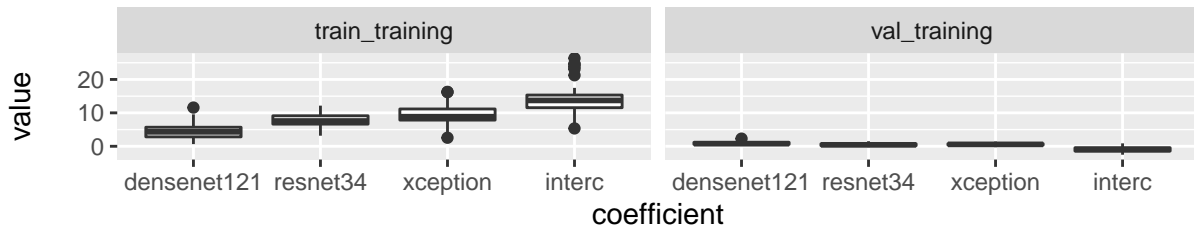


Classes 1 vs 8

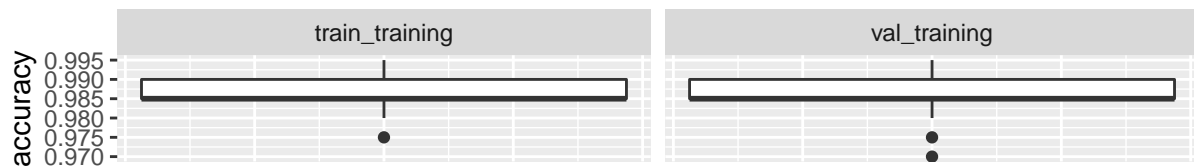
Pairwise accuracies of networks



LDA coefficients

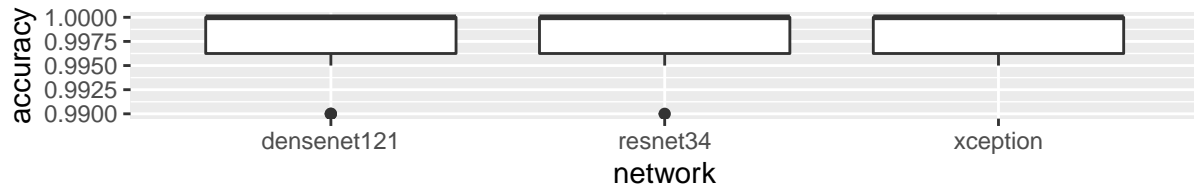


Pairwise accuracies of LDA output

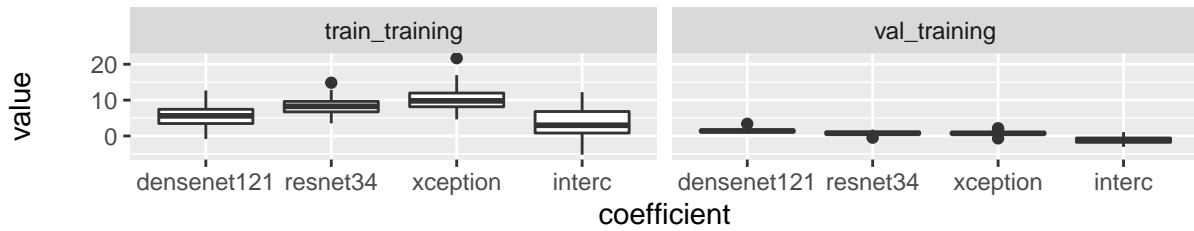


Classes 1 vs 9

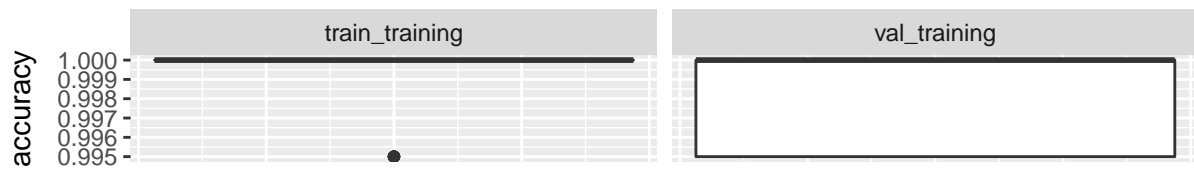
Pairwise accuracies of networks



LDA coefficients

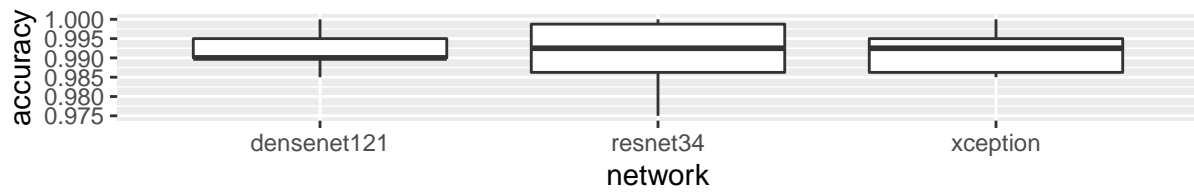


Pairwise accuracies of LDA output

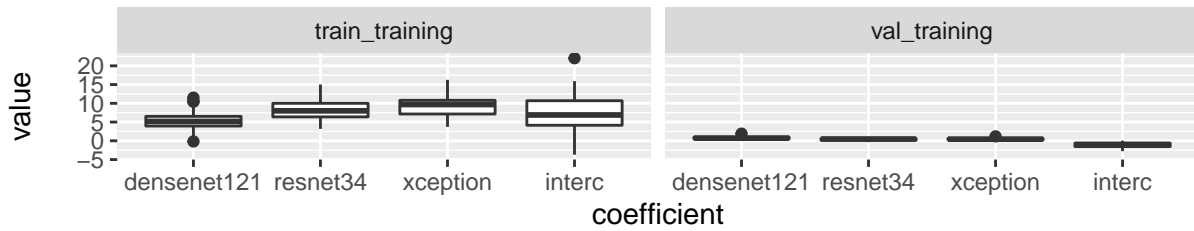


Classes 1 vs 10

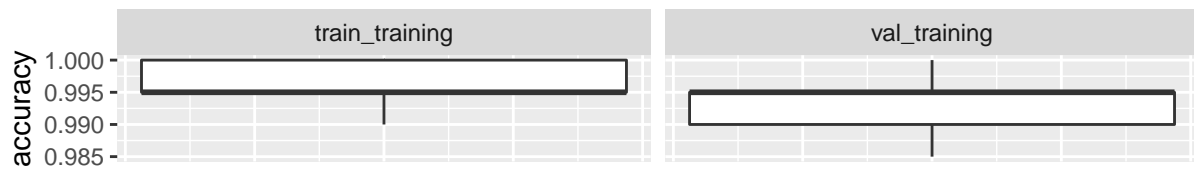
Pairwise accuracies of networks



LDA coefficients

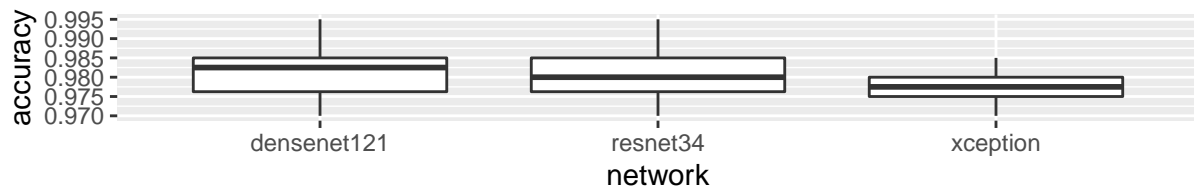


Pairwise accuracies of LDA output

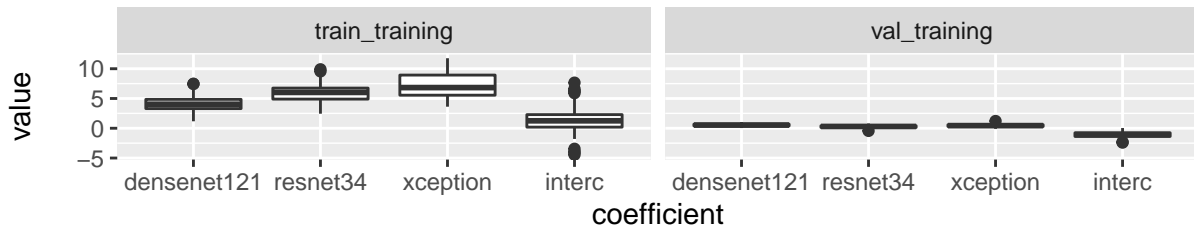


Classes 2 vs 3

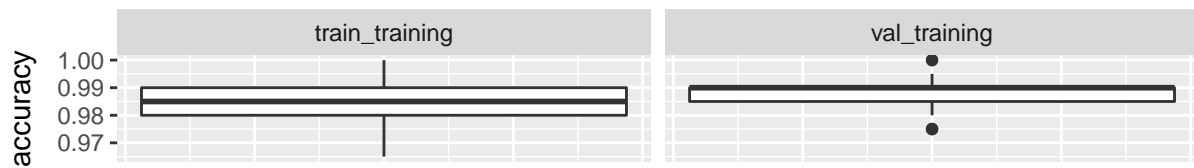
Pairwise accuracies of networks



LDA coefficients

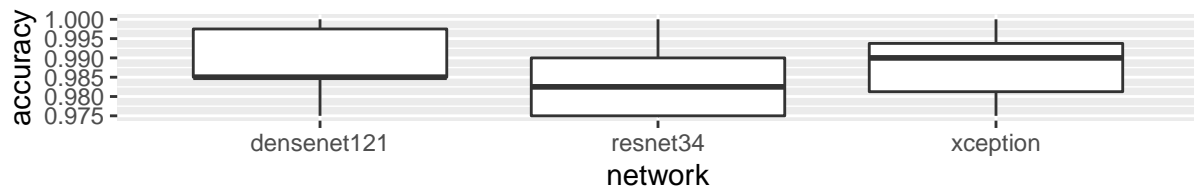


Pairwise accuracies of LDA output

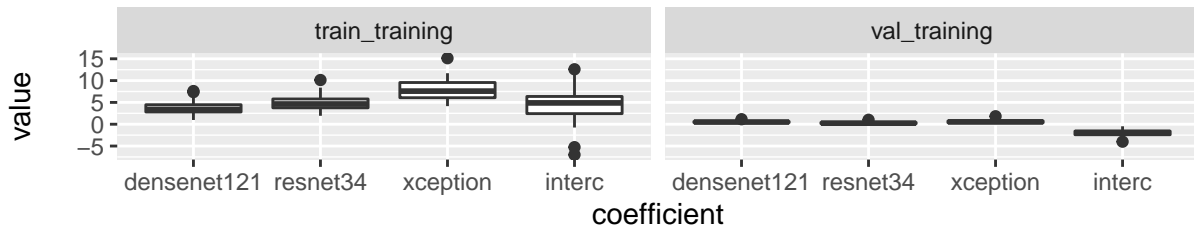


Classes 2 vs 4

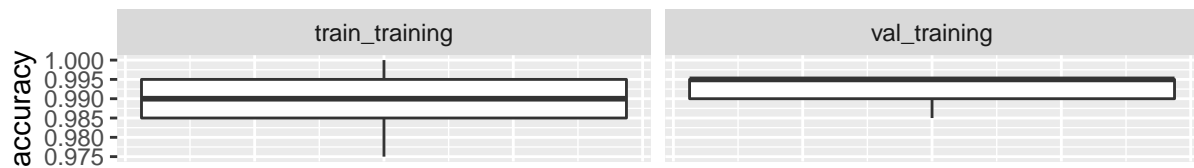
Pairwise accuracies of networks



LDA coefficients

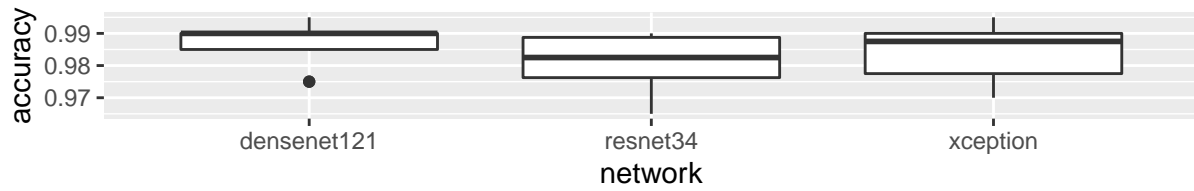


Pairwise accuracies of LDA output

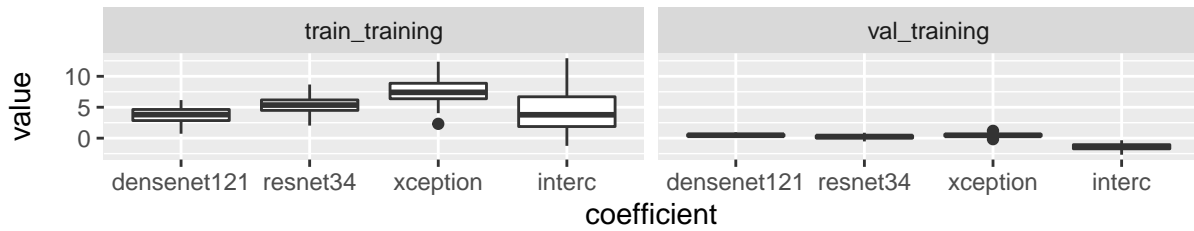


Classes 2 vs 5

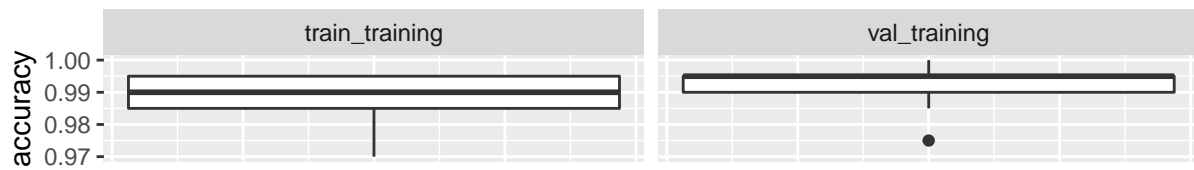
Pairwise accuracies of networks



LDA coefficients

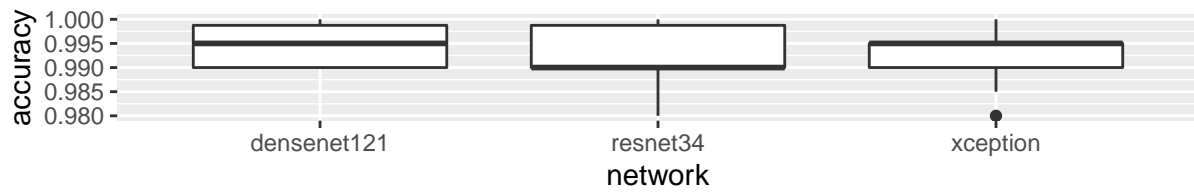


Pairwise accuracies of LDA output

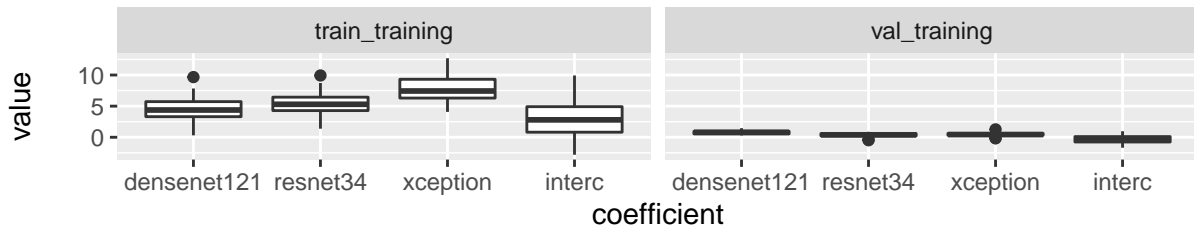


Classes 2 vs 6

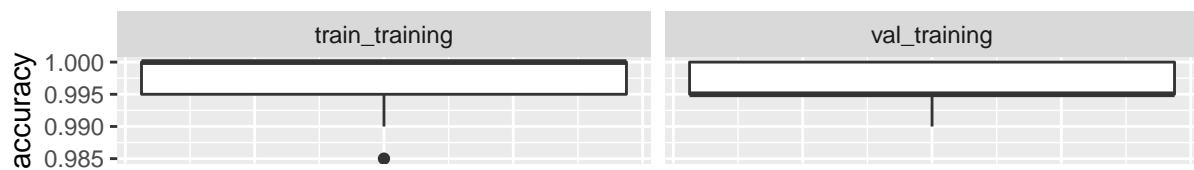
Pairwise accuracies of networks



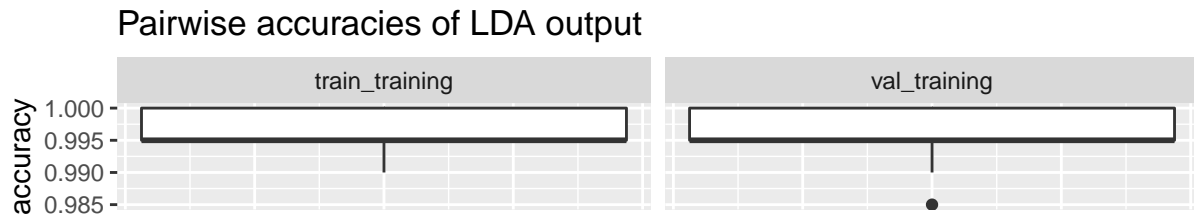
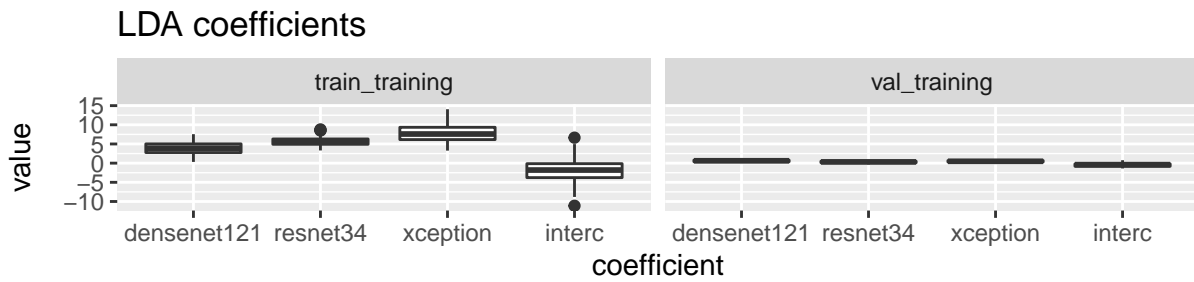
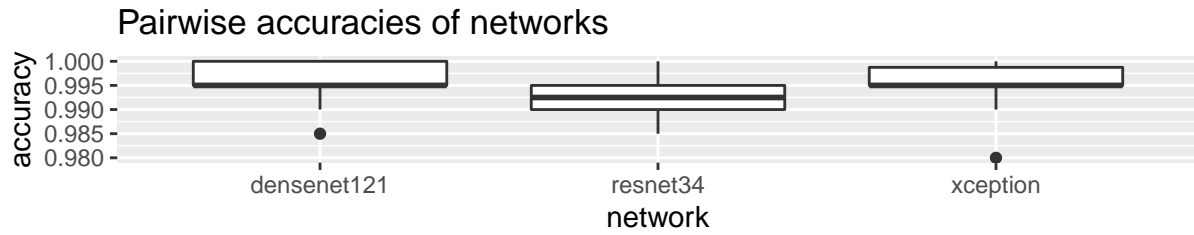
LDA coefficients



Pairwise accuracies of LDA output

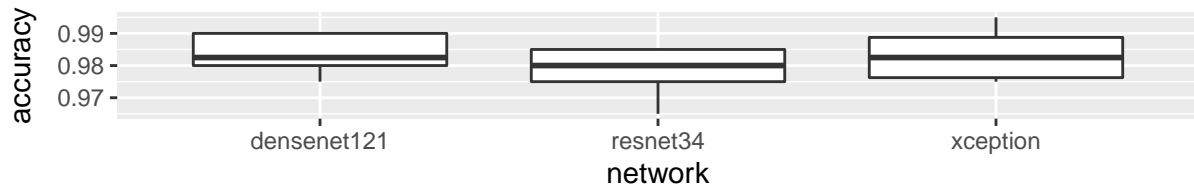


Classes 2 vs 7

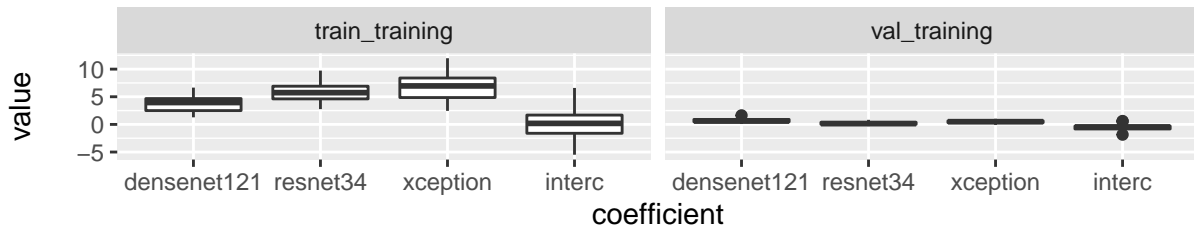


Classes 2 vs 8

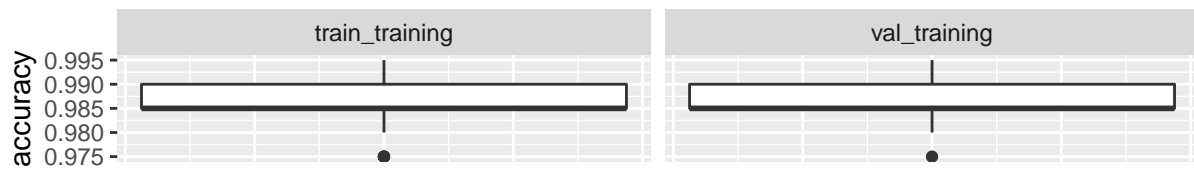
Pairwise accuracies of networks



LDA coefficients

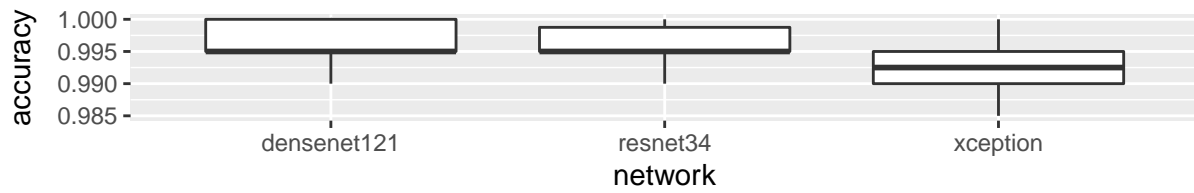


Pairwise accuracies of LDA output

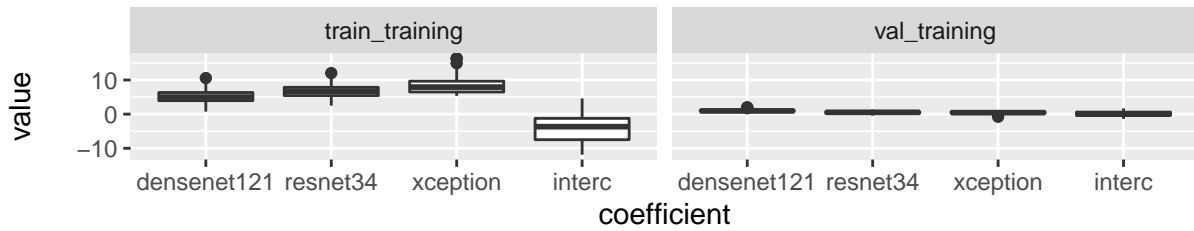


Classes 2 vs 9

Pairwise accuracies of networks



LDA coefficients

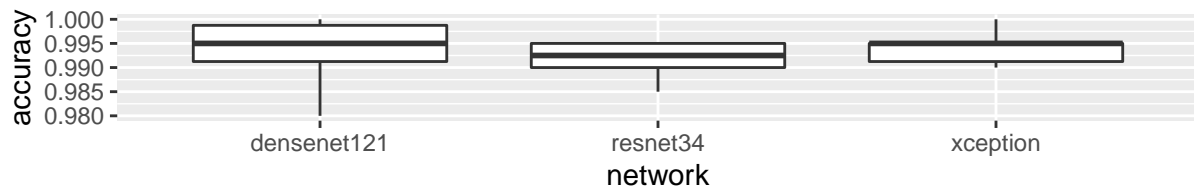


Pairwise accuracies of LDA output

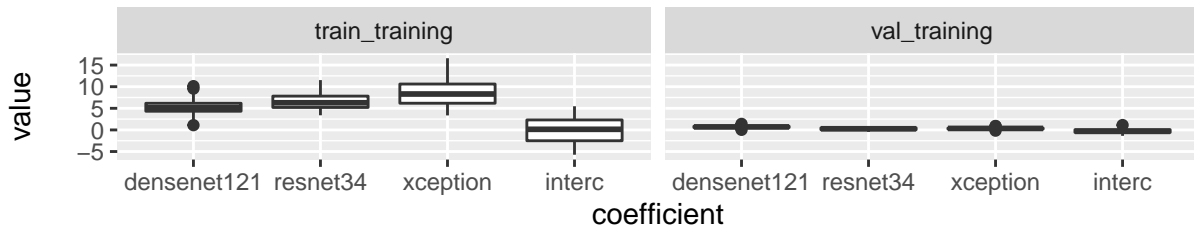


Classes 2 vs 10

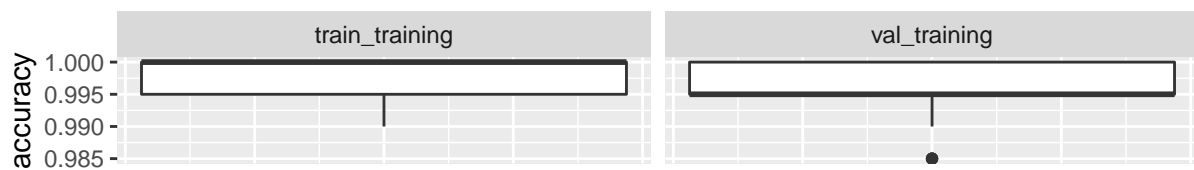
Pairwise accuracies of networks



LDA coefficients

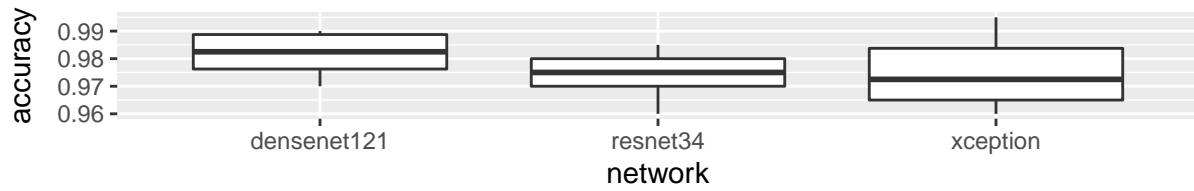


Pairwise accuracies of LDA output

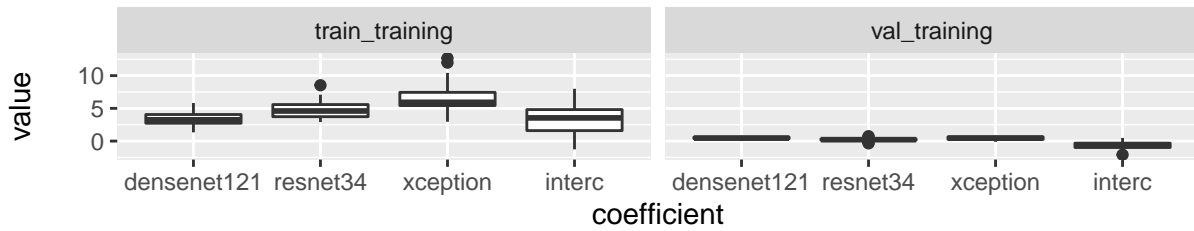


Classes 3 vs 4

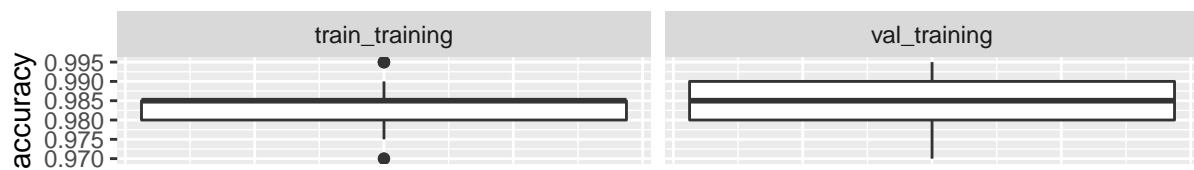
Pairwise accuracies of networks



LDA coefficients

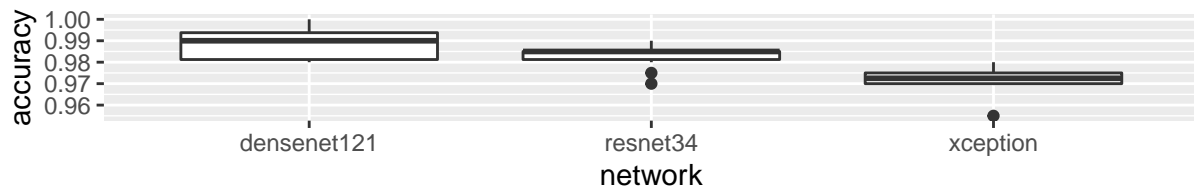


Pairwise accuracies of LDA output

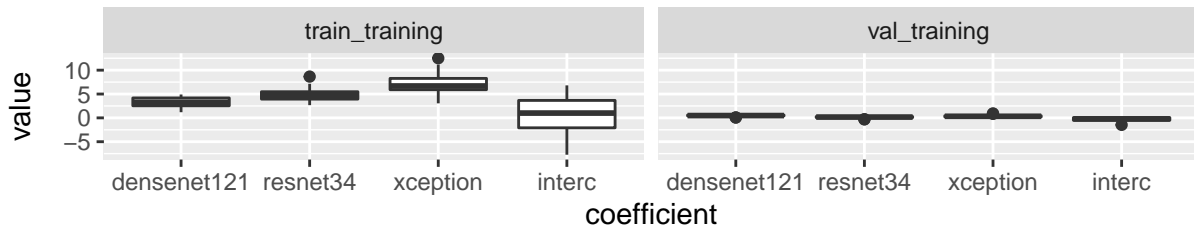


Classes 3 vs 5

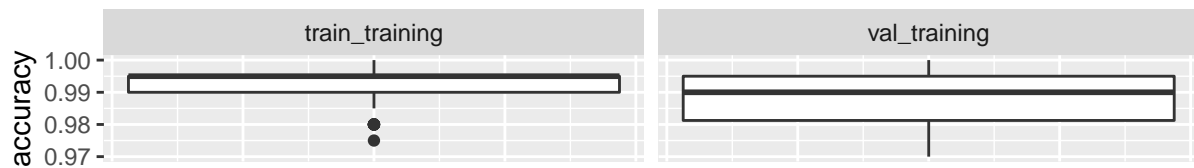
Pairwise accuracies of networks



LDA coefficients

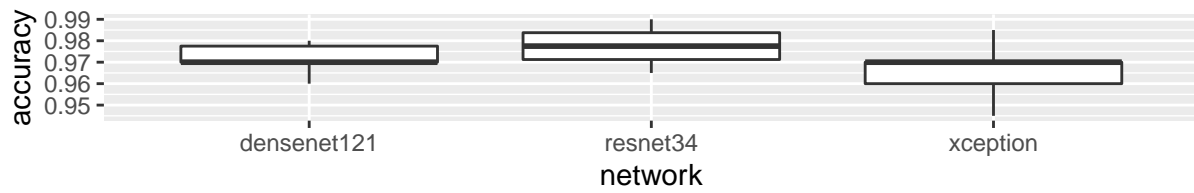


Pairwise accuracies of LDA output

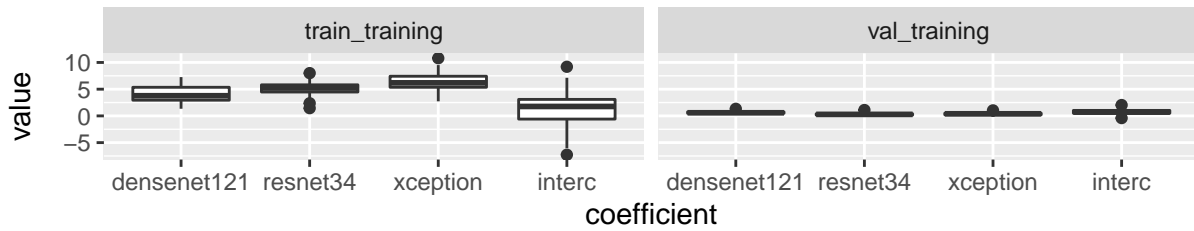


Classes 3 vs 6

Pairwise accuracies of networks



LDA coefficients

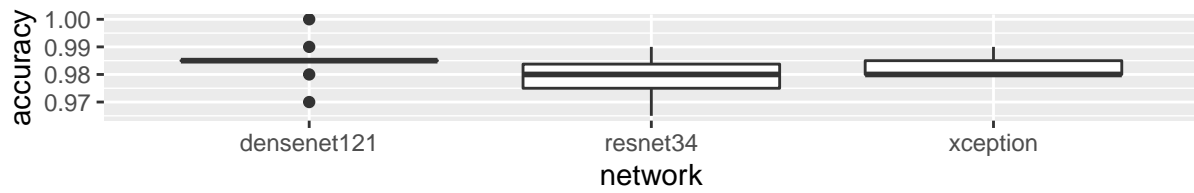


Pairwise accuracies of LDA output

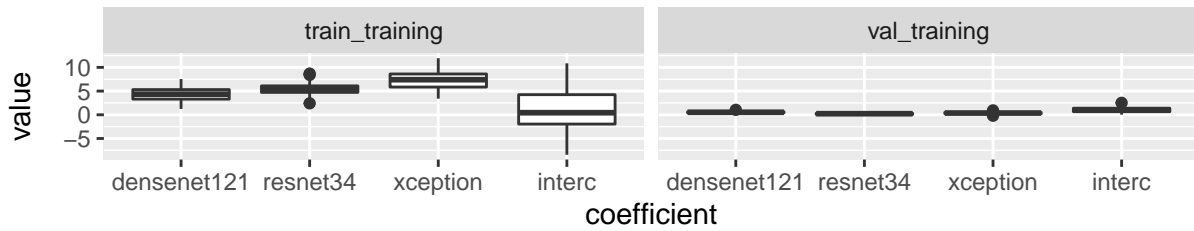


Classes 3 vs 7

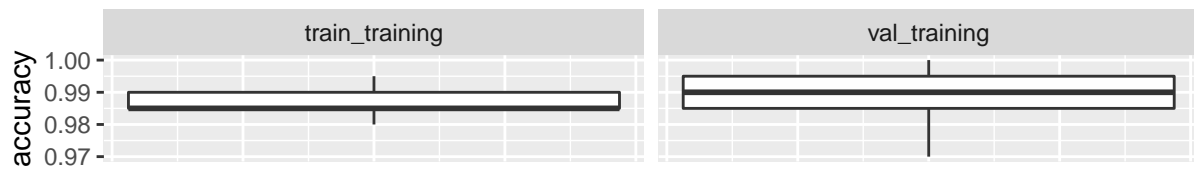
Pairwise accuracies of networks



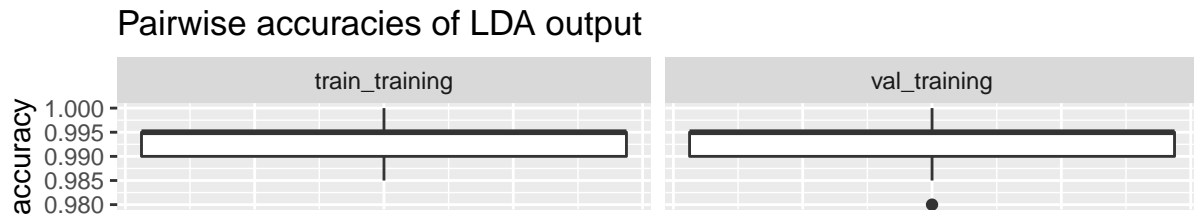
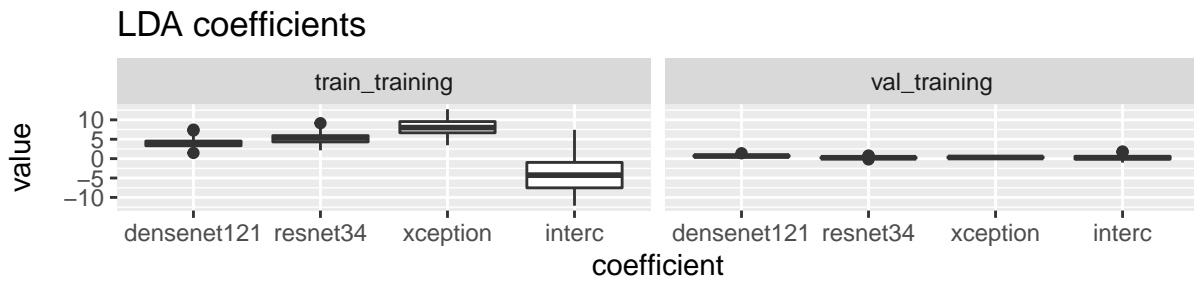
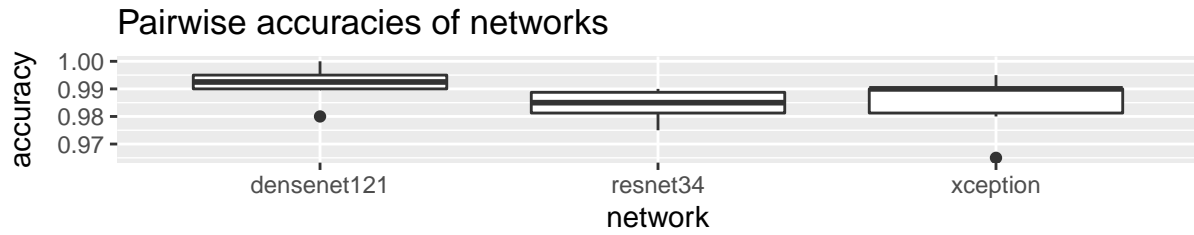
LDA coefficients



Pairwise accuracies of LDA output

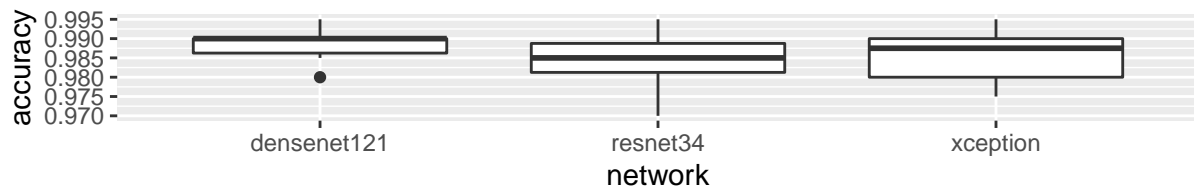


Classes 3 vs 8

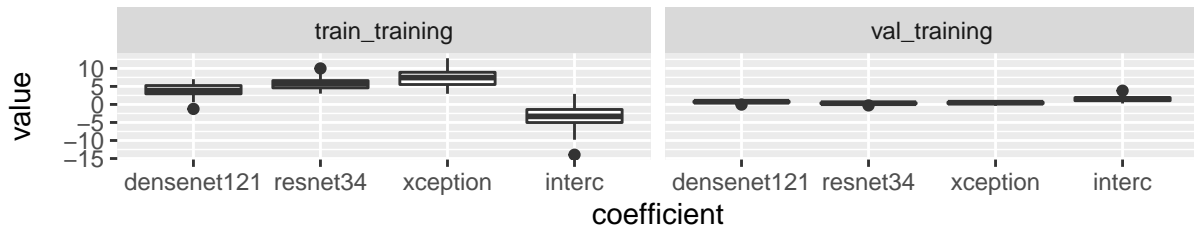


Classes 3 vs 9

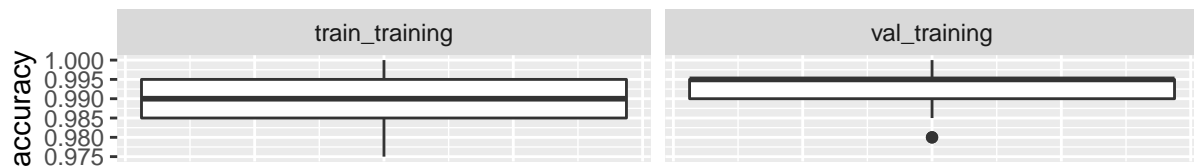
Pairwise accuracies of networks



LDA coefficients

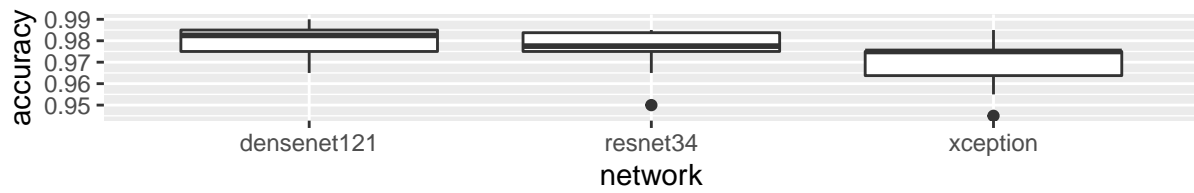


Pairwise accuracies of LDA output

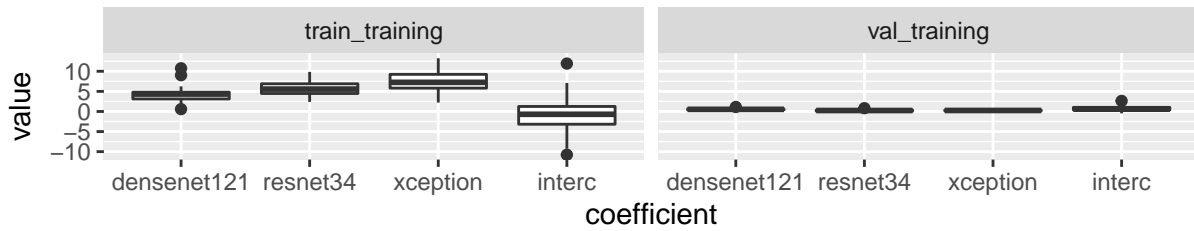


Classes 3 vs 10

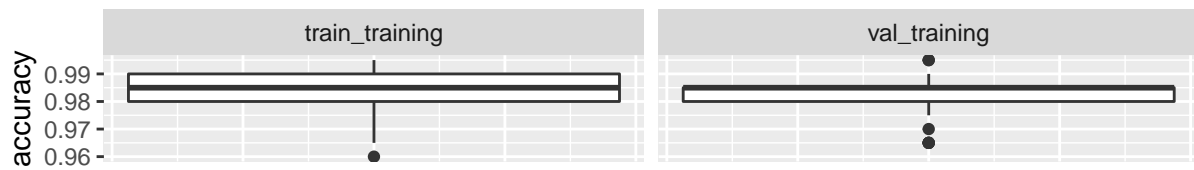
Pairwise accuracies of networks



LDA coefficients

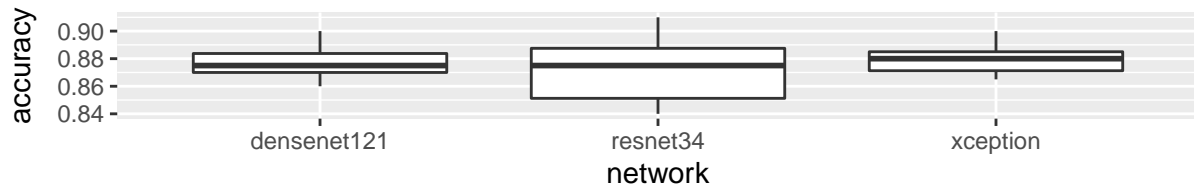


Pairwise accuracies of LDA output

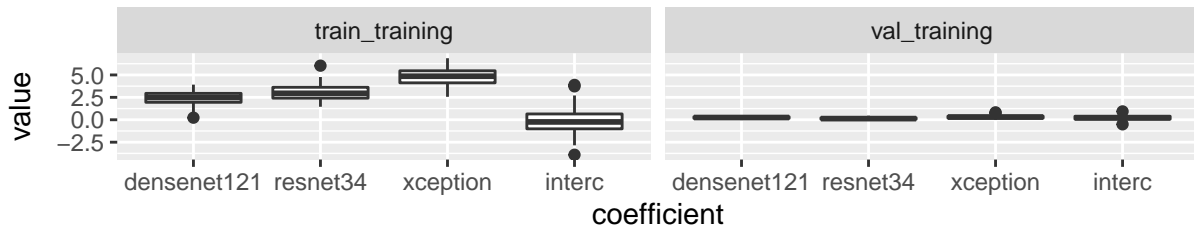


Classes 4 vs 5

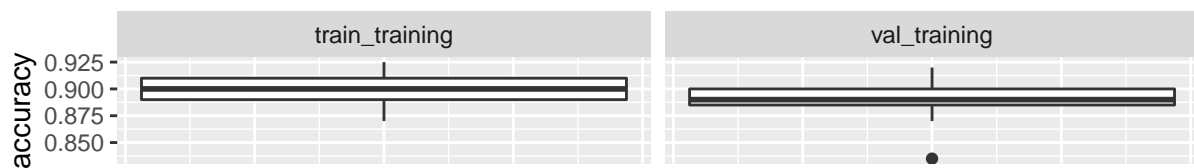
Pairwise accuracies of networks



LDA coefficients

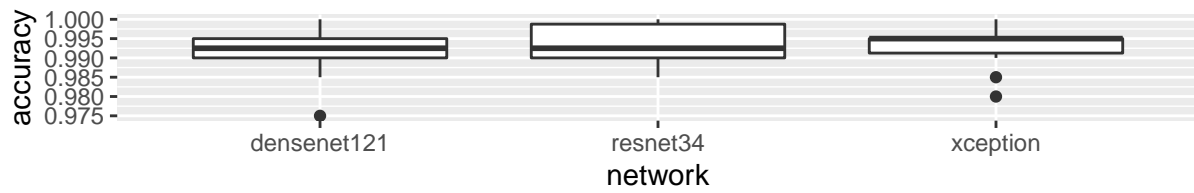


Pairwise accuracies of LDA output

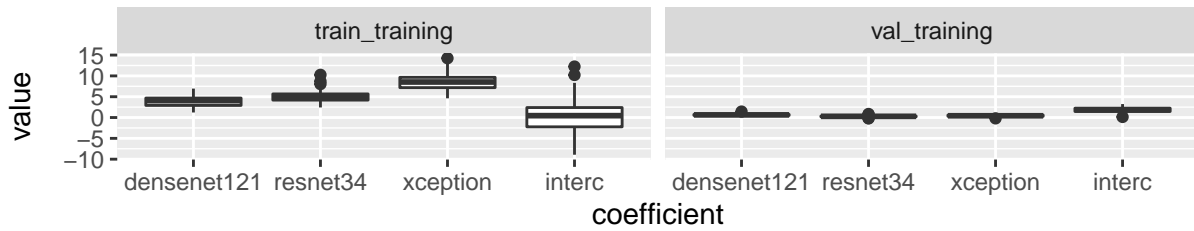


Classes 4 vs 6

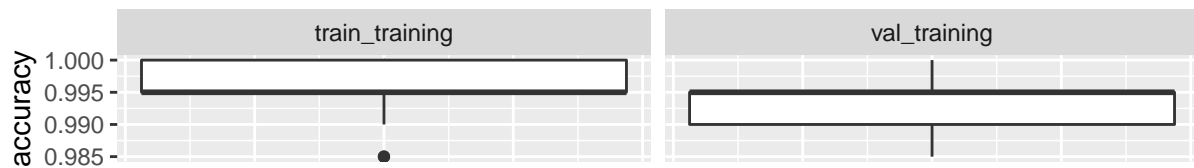
Pairwise accuracies of networks



LDA coefficients

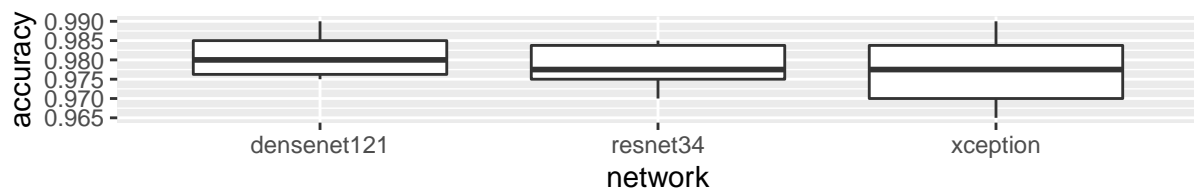


Pairwise accuracies of LDA output

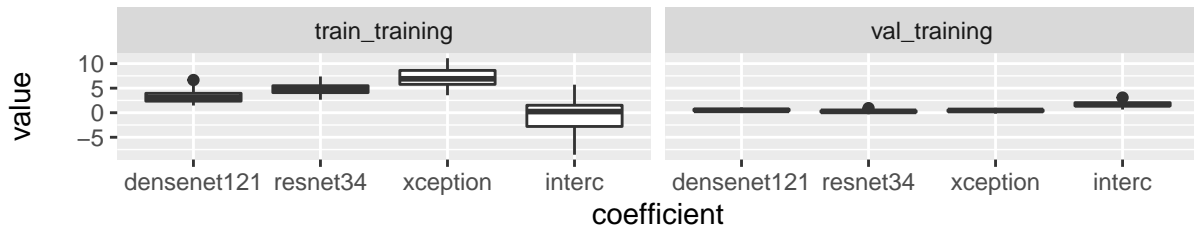


Classes 4 vs 7

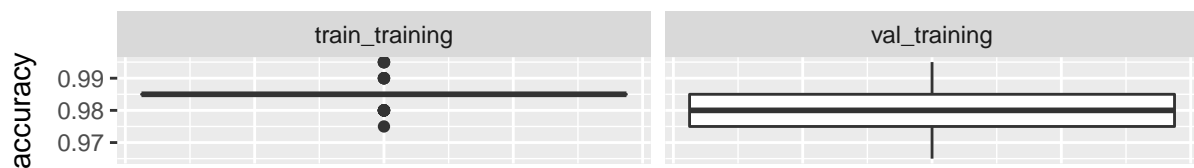
Pairwise accuracies of networks



LDA coefficients

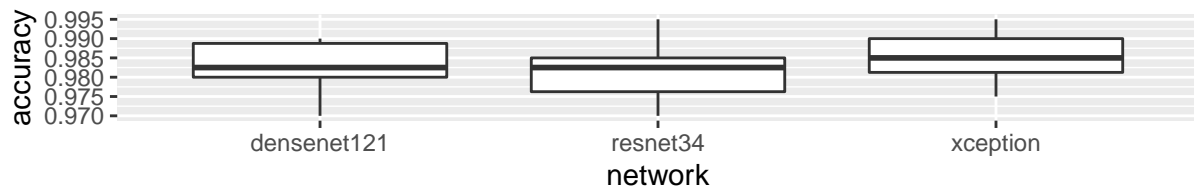


Pairwise accuracies of LDA output

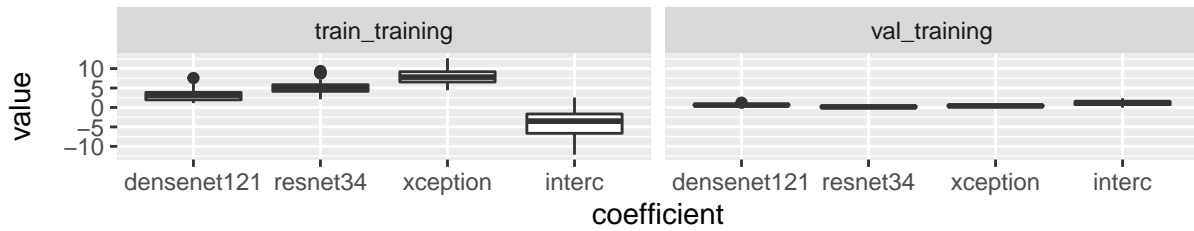


Classes 4 vs 8

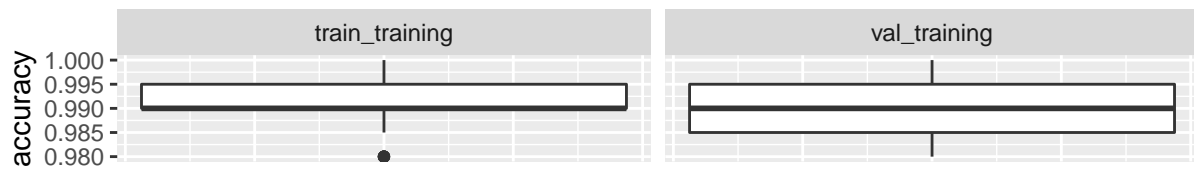
Pairwise accuracies of networks



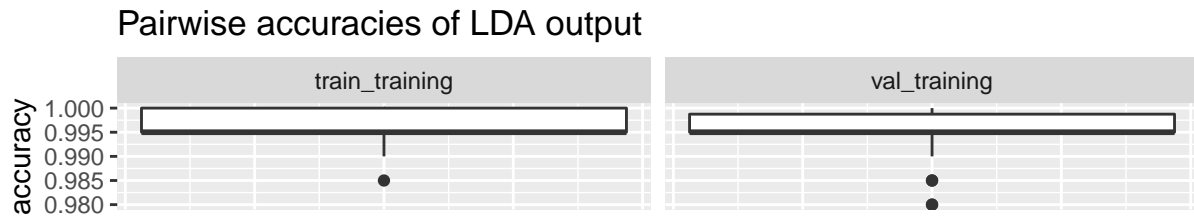
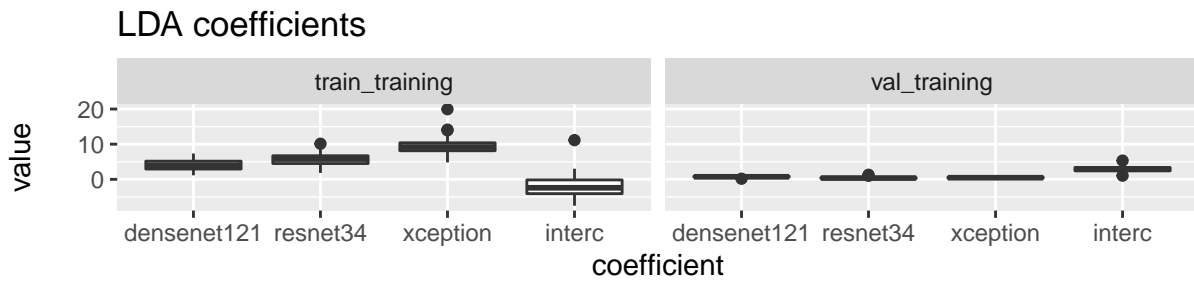
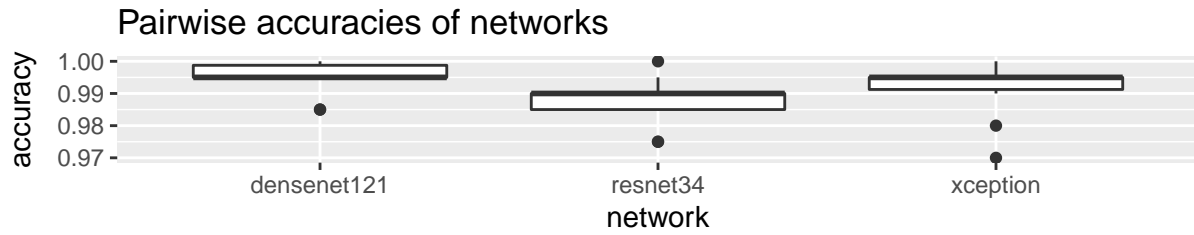
LDA coefficients



Pairwise accuracies of LDA output

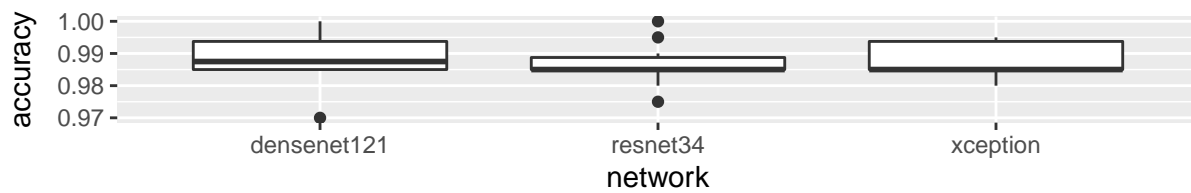


Classes 4 vs 9

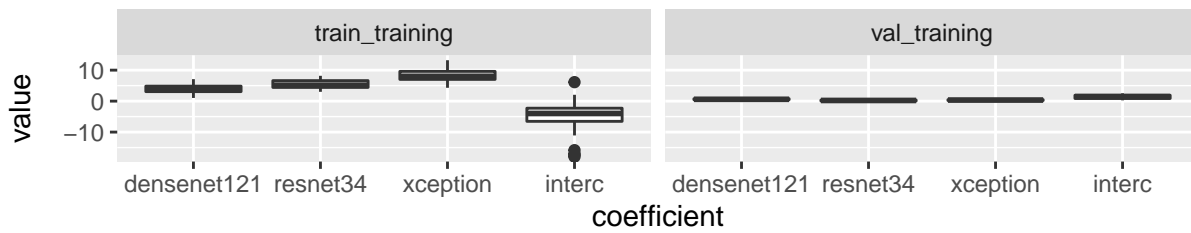


Classes 4 vs 10

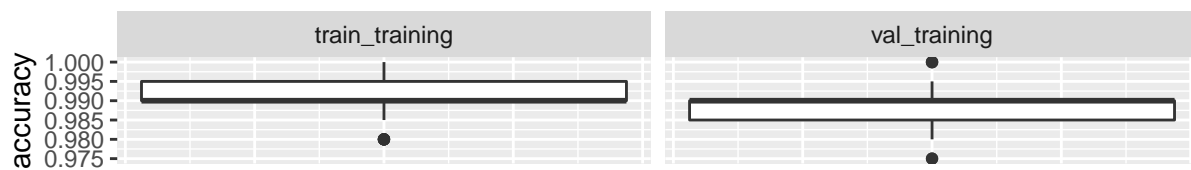
Pairwise accuracies of networks



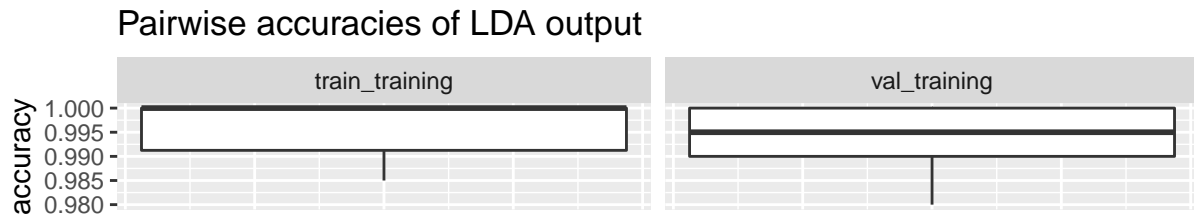
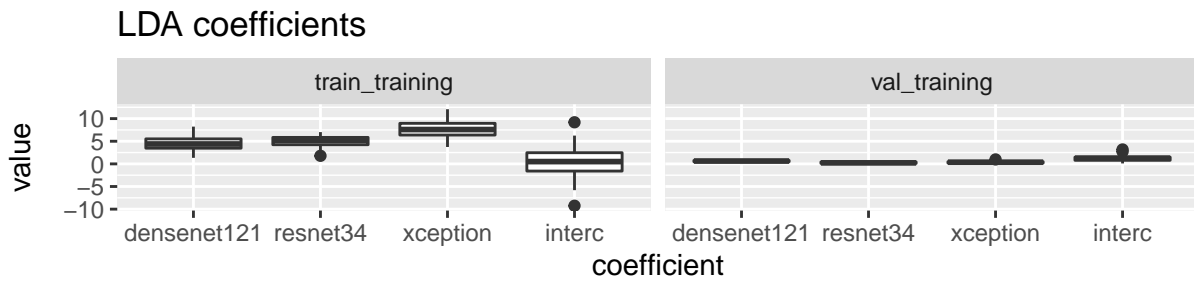
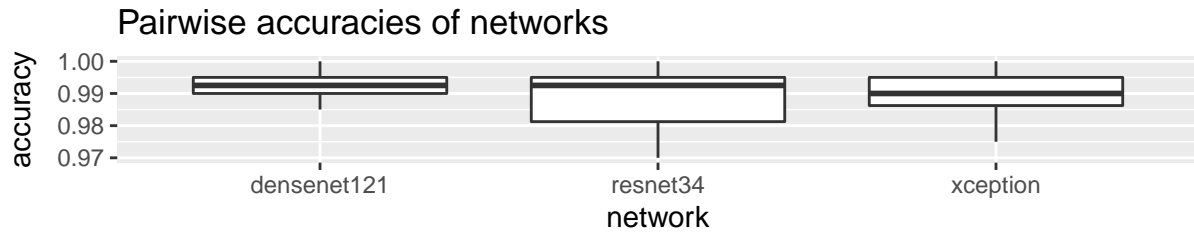
LDA coefficients



Pairwise accuracies of LDA output

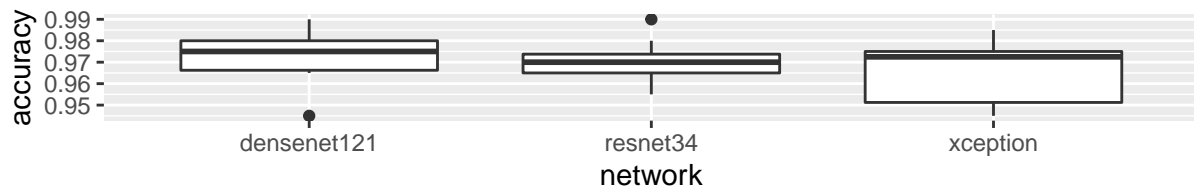


Classes 5 vs 6

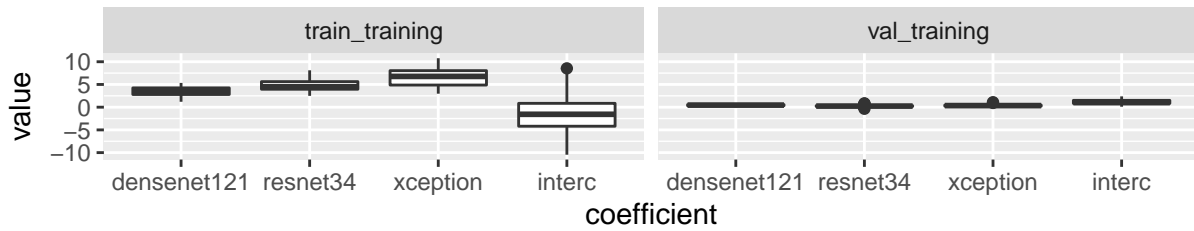


Classes 5 vs 7

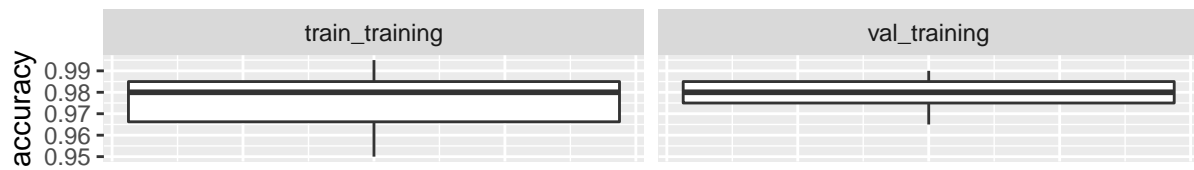
Pairwise accuracies of networks



LDA coefficients

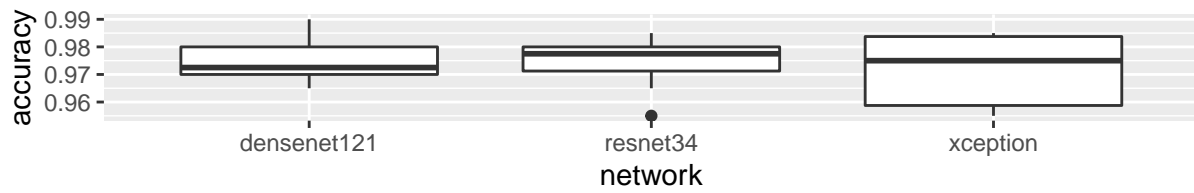


Pairwise accuracies of LDA output

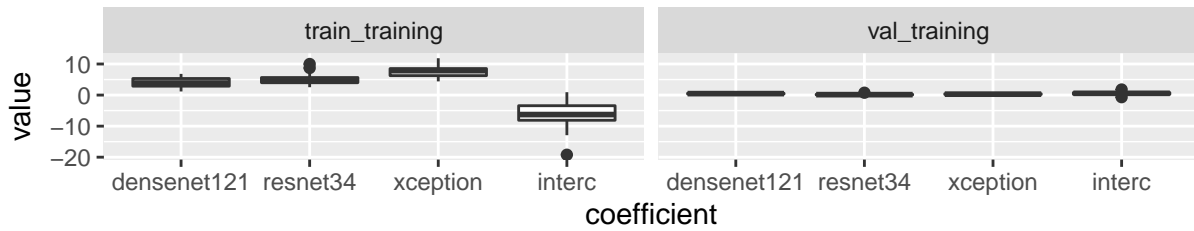


Classes 5 vs 8

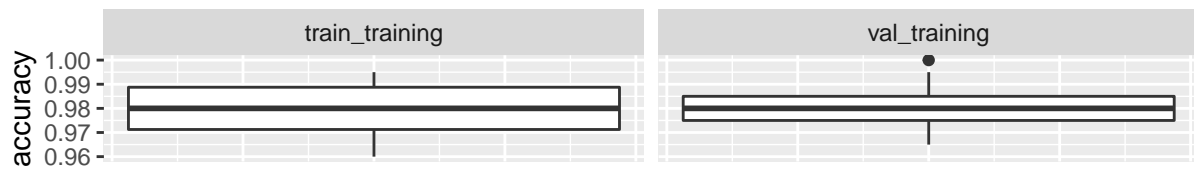
Pairwise accuracies of networks



LDA coefficients

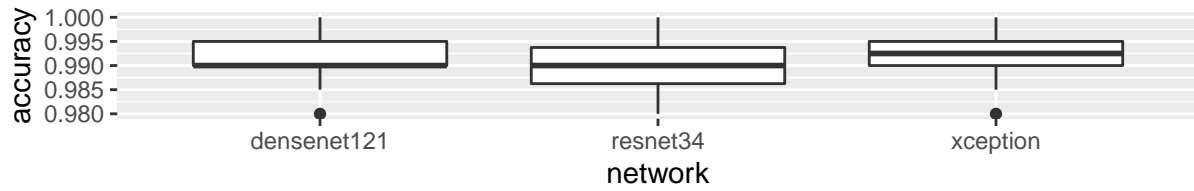


Pairwise accuracies of LDA output

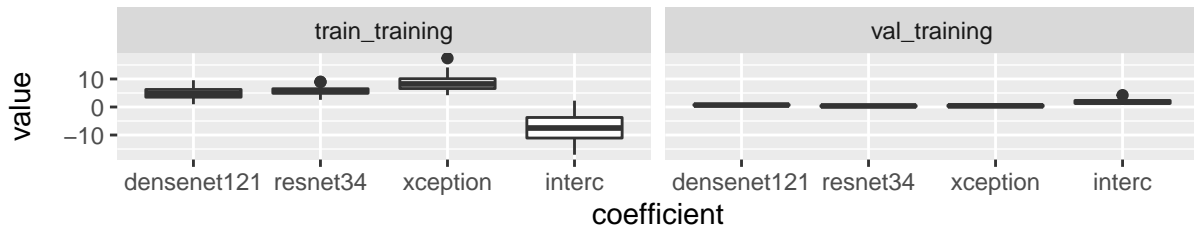


Classes 5 vs 9

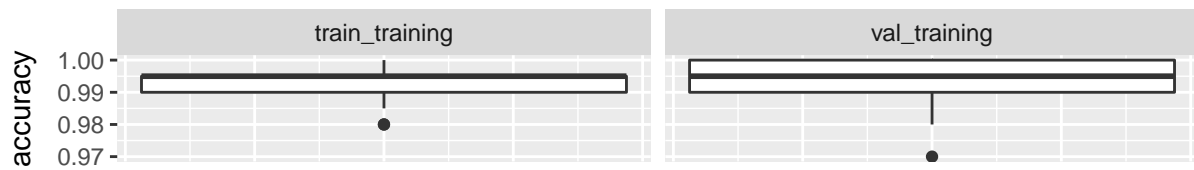
Pairwise accuracies of networks



LDA coefficients

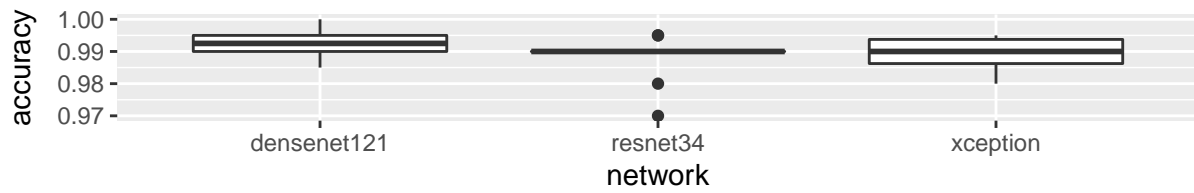


Pairwise accuracies of LDA output

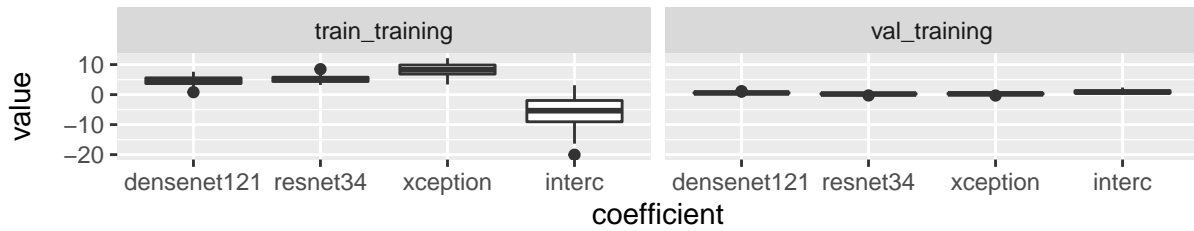


Classes 5 vs 10

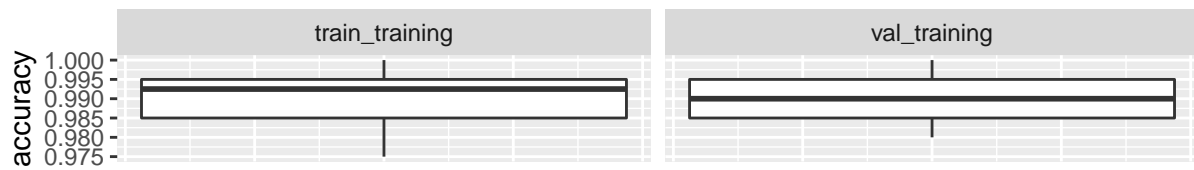
Pairwise accuracies of networks



LDA coefficients

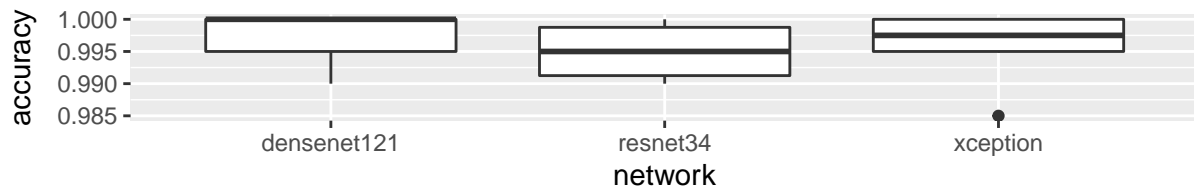


Pairwise accuracies of LDA output

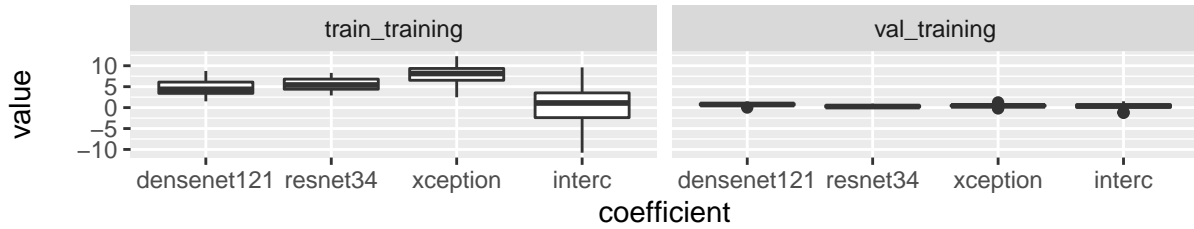


Classes 6 vs 7

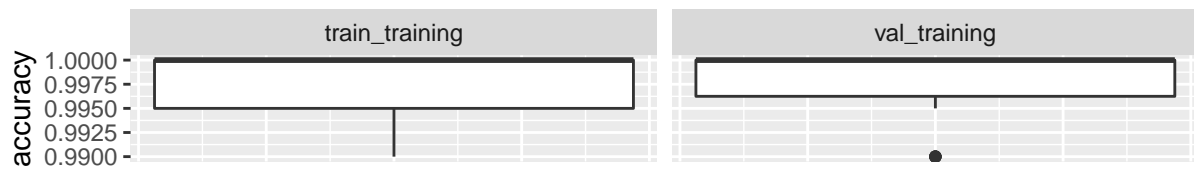
Pairwise accuracies of networks



LDA coefficients

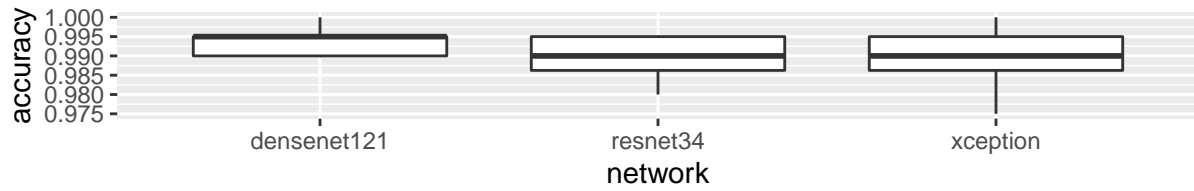


Pairwise accuracies of LDA output

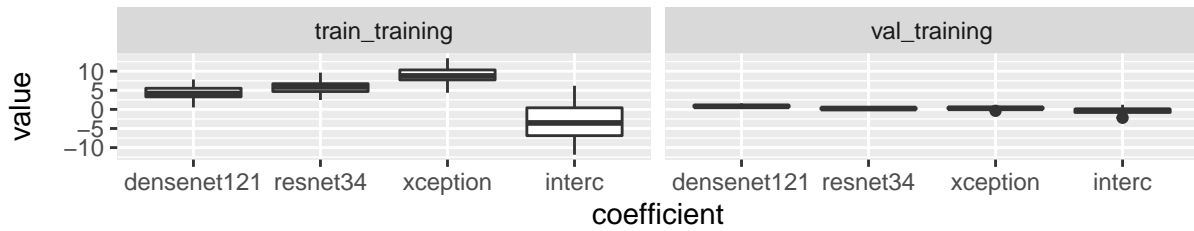


Classes 6 vs 8

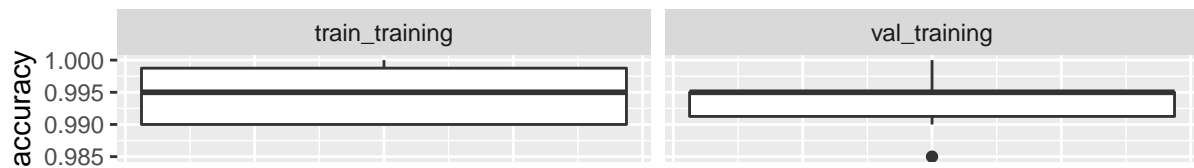
Pairwise accuracies of networks



LDA coefficients

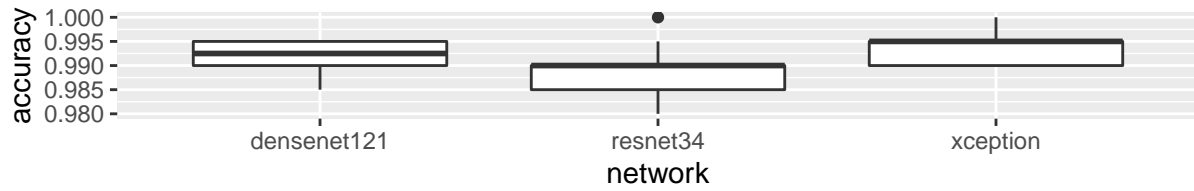


Pairwise accuracies of LDA output

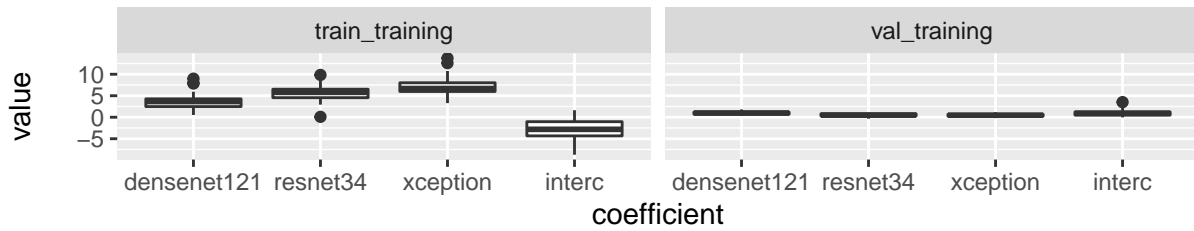


Classes 6 vs 9

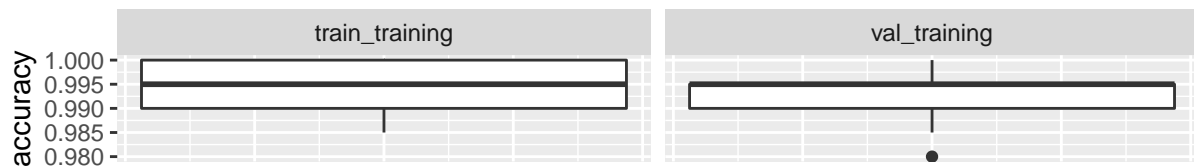
Pairwise accuracies of networks



LDA coefficients

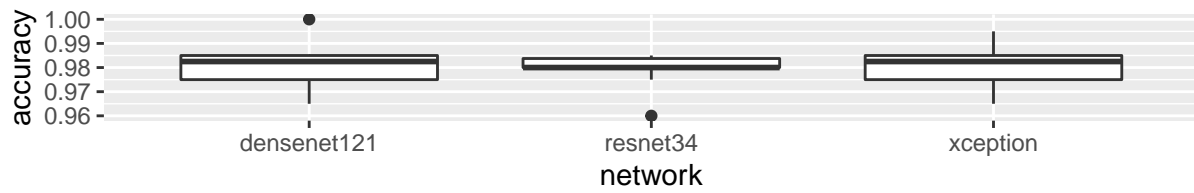


Pairwise accuracies of LDA output

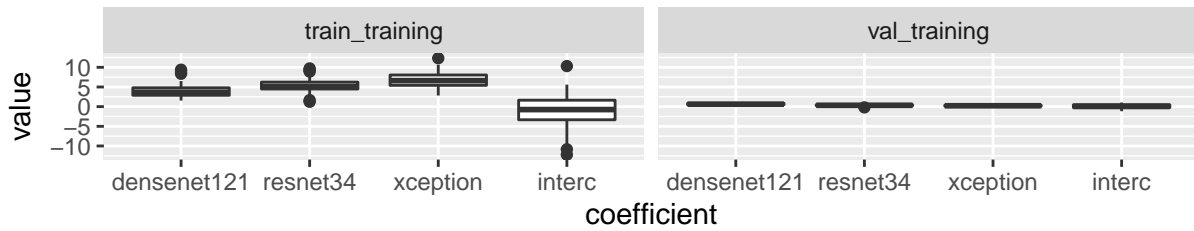


Classes 6 vs 10

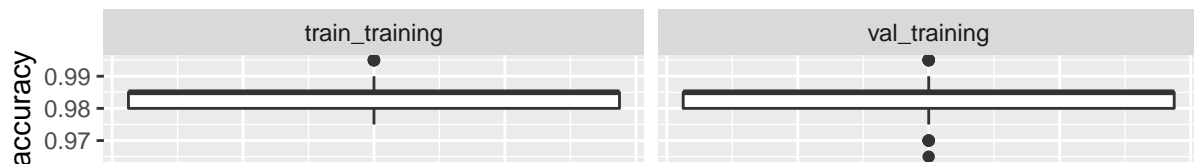
Pairwise accuracies of networks



LDA coefficients

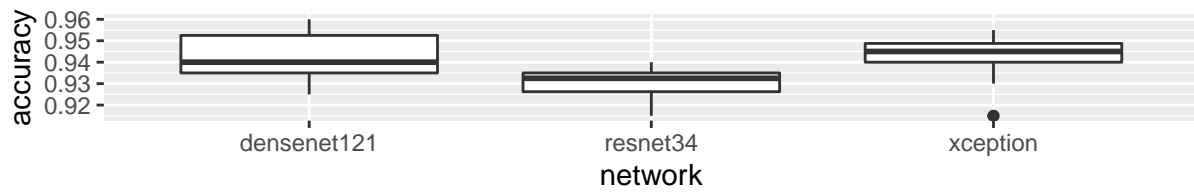


Pairwise accuracies of LDA output

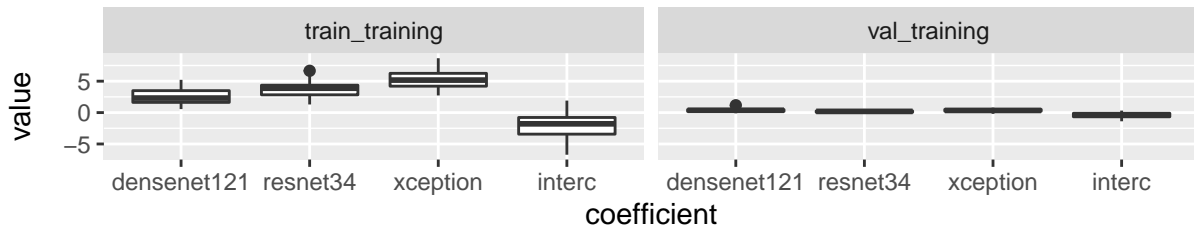


Classes 7 vs 8

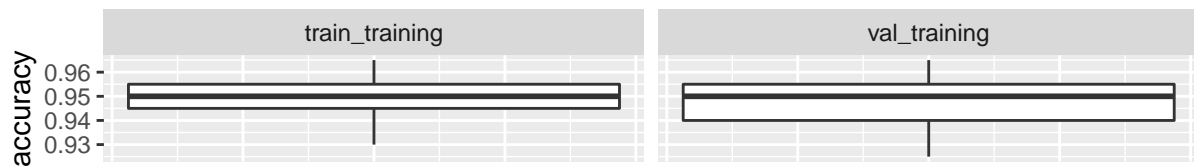
Pairwise accuracies of networks



LDA coefficients

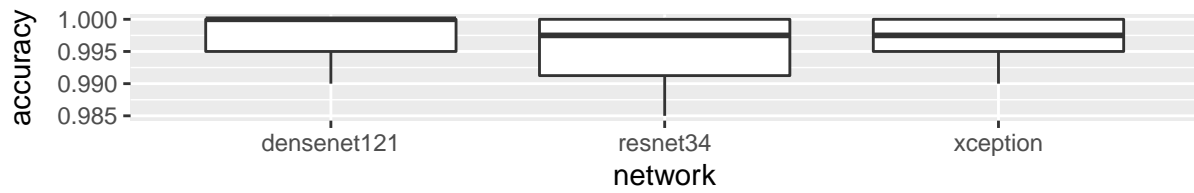


Pairwise accuracies of LDA output

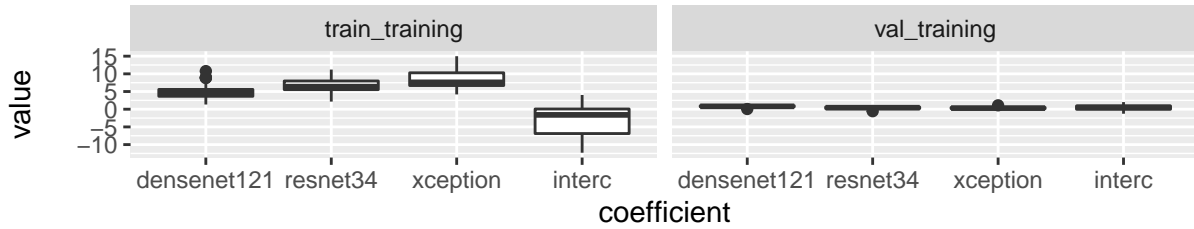


Classes 7 vs 9

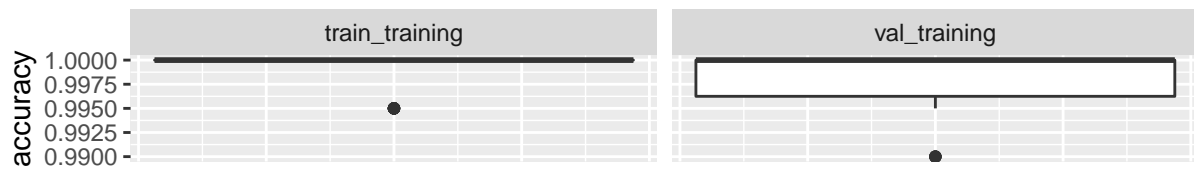
Pairwise accuracies of networks



LDA coefficients

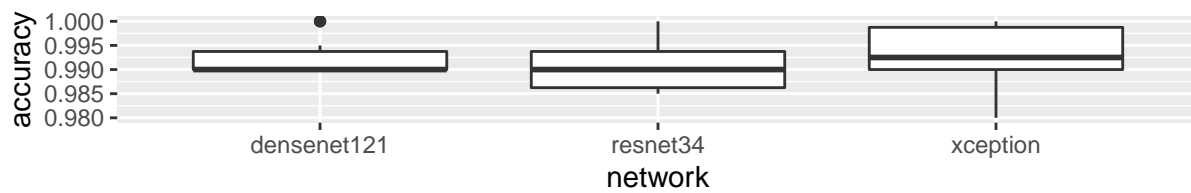


Pairwise accuracies of LDA output

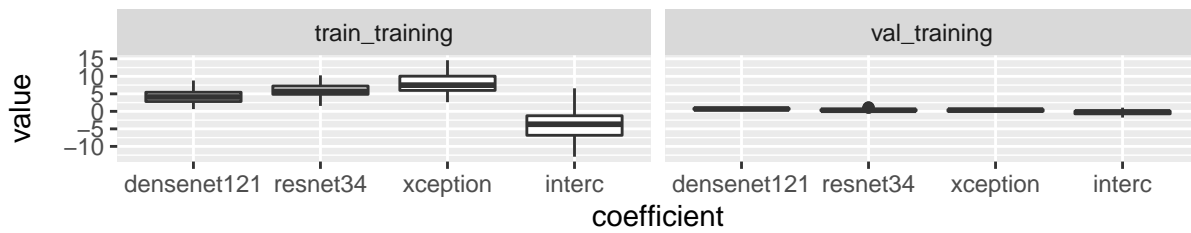


Classes 7 vs 10

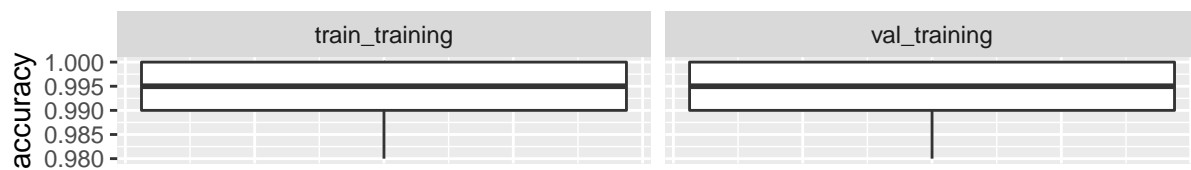
Pairwise accuracies of networks



LDA coefficients

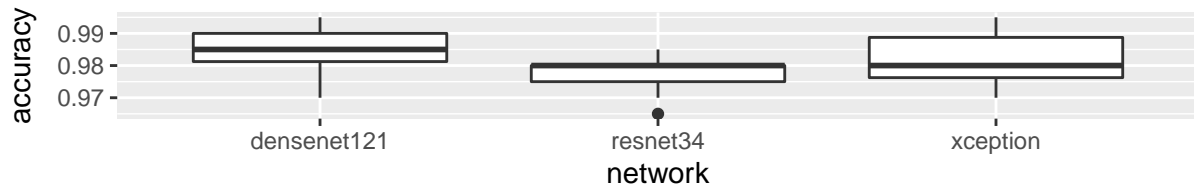


Pairwise accuracies of LDA output

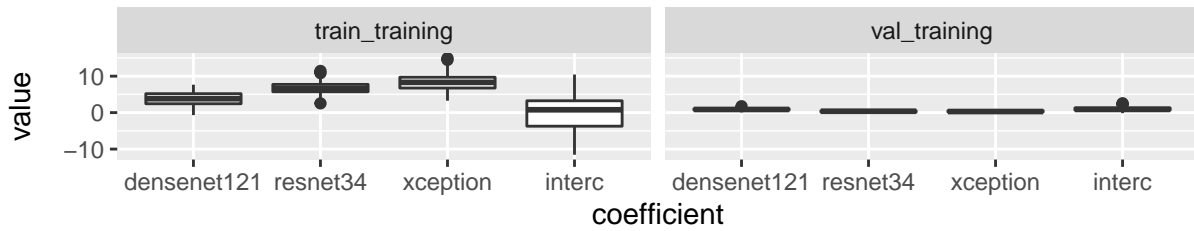


Classes 8 vs 9

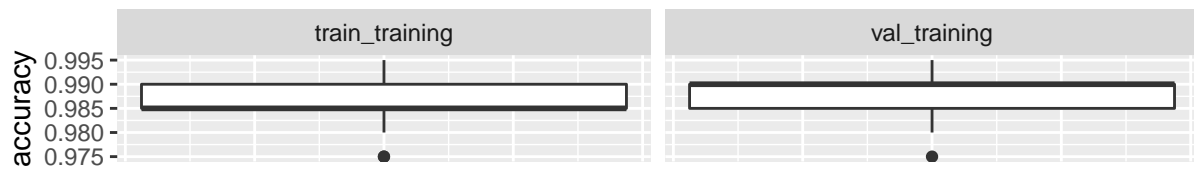
Pairwise accuracies of networks



LDA coefficients

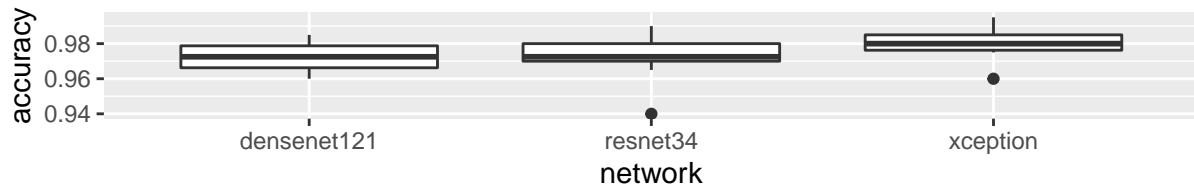


Pairwise accuracies of LDA output

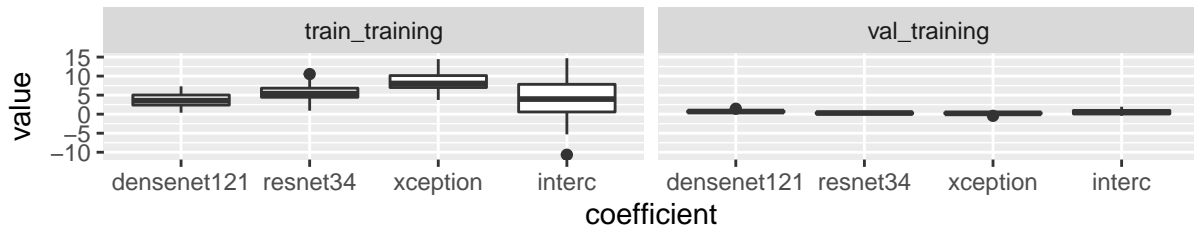


Classes 8 vs 10

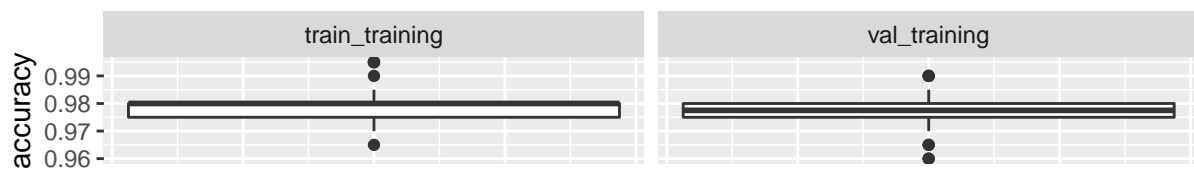
Pairwise accuracies of networks



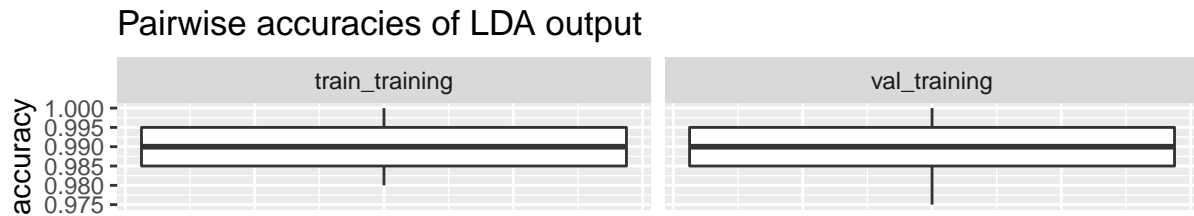
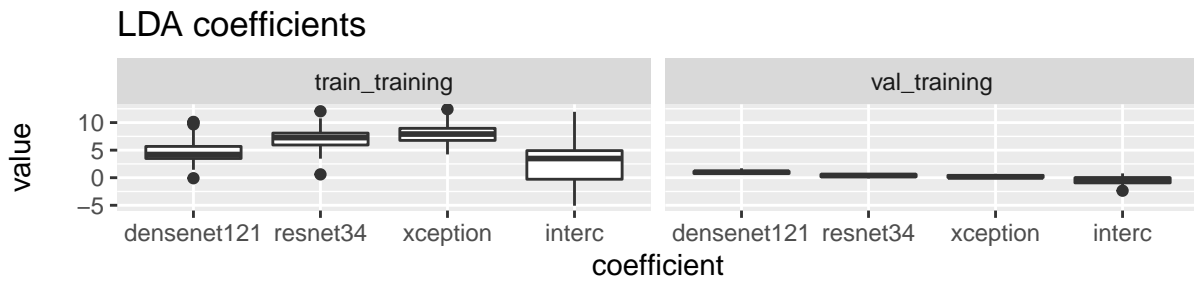
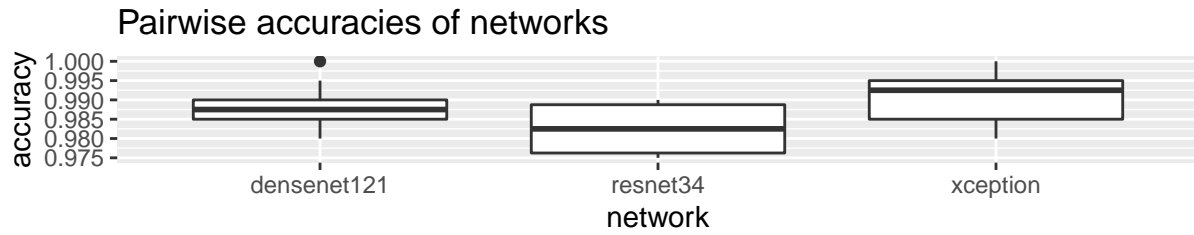
LDA coefficients



Pairwise accuracies of LDA output



Classes 9 vs 10



Here are too many class pair combinations to draw them all. TODO: think of some criteria to draw interesting ones.