meeting20200130

Lin

2020/1/30

Import

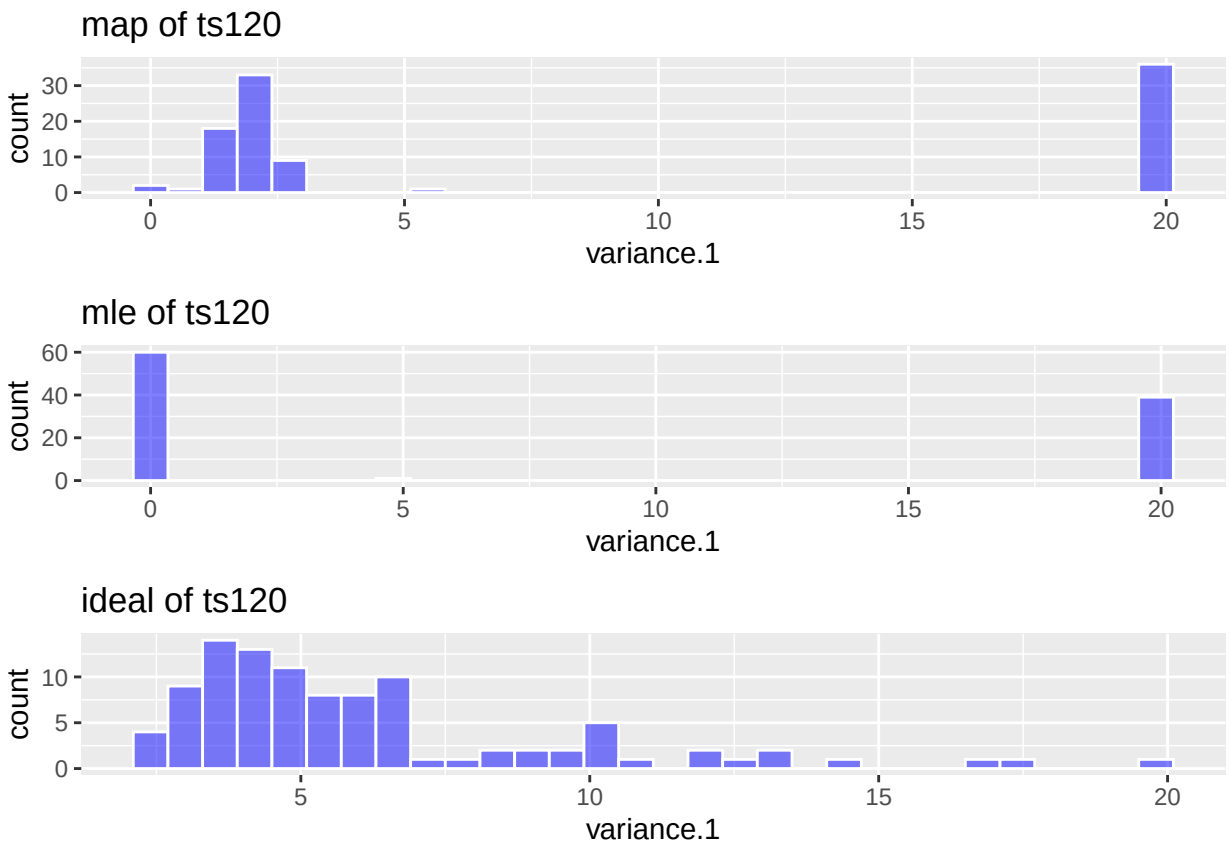
The chunk below is to extract the map value from each log-posterior distribution:

```
cl <- detectCores()
registerDoParallel(cl)

mapmat1 <- foreach(i = 1:100, .combine = "rbind") %dopar% {

  map <- logpostlist1[[i]][which.max(logpostlist1[[i]][,3]),]

  map
}

mapmat2 <- foreach(i = 1:100, .combine = "rbind") %dopar% {

  map <- logpostlist2[[i]][which.max(logpostlist2[[i]][,3]),]

  map
}

mapmat3 <- foreach(i = 1:100, .combine = "rbind") %dopar% {

  map <- logpostlist3[[i]][which.max(logpostlist3[[i]][,3]),]

  map
}


mapmat1 <- data.frame(mapmat1)
colnames(mapmat1) <- c("variance.1", "variance.2", "logpost")

mapmat2 <- data.frame(mapmat2)
colnames(mapmat2) <- c("variance.1", "variance.2", "logpost")

mapmat3 <- data.frame(mapmat3)
colnames(mapmat3) <- c("variance.1", "variance.2", "logpost")

mapmat <- rbind(mapmat1, mapmat2, mapmat3)
```

Plot our results

```
map11 <- ggplot(mapmat1) +
  geom_histogram(aes(x=variance.1), color="white", fill = "blue", alpha=.5) +
  ggtitle("map of ts120")

mle11 <- ggplot(data.frame(mlelist1)) +
  geom_histogram(aes(x=variance.1), fill="blue", alpha=.5, color="white") +
  ggtitle("mle of ts120")

ide11 <- ggplot(data.frame(idevalmat1)) +
  geom_histogram(aes(x=variance.1), fill="blue", alpha=.5, color="white") +
  ggtitle("ideal of ts120")

ggarrange(map11, mle11, ide11, nrow=3)
```

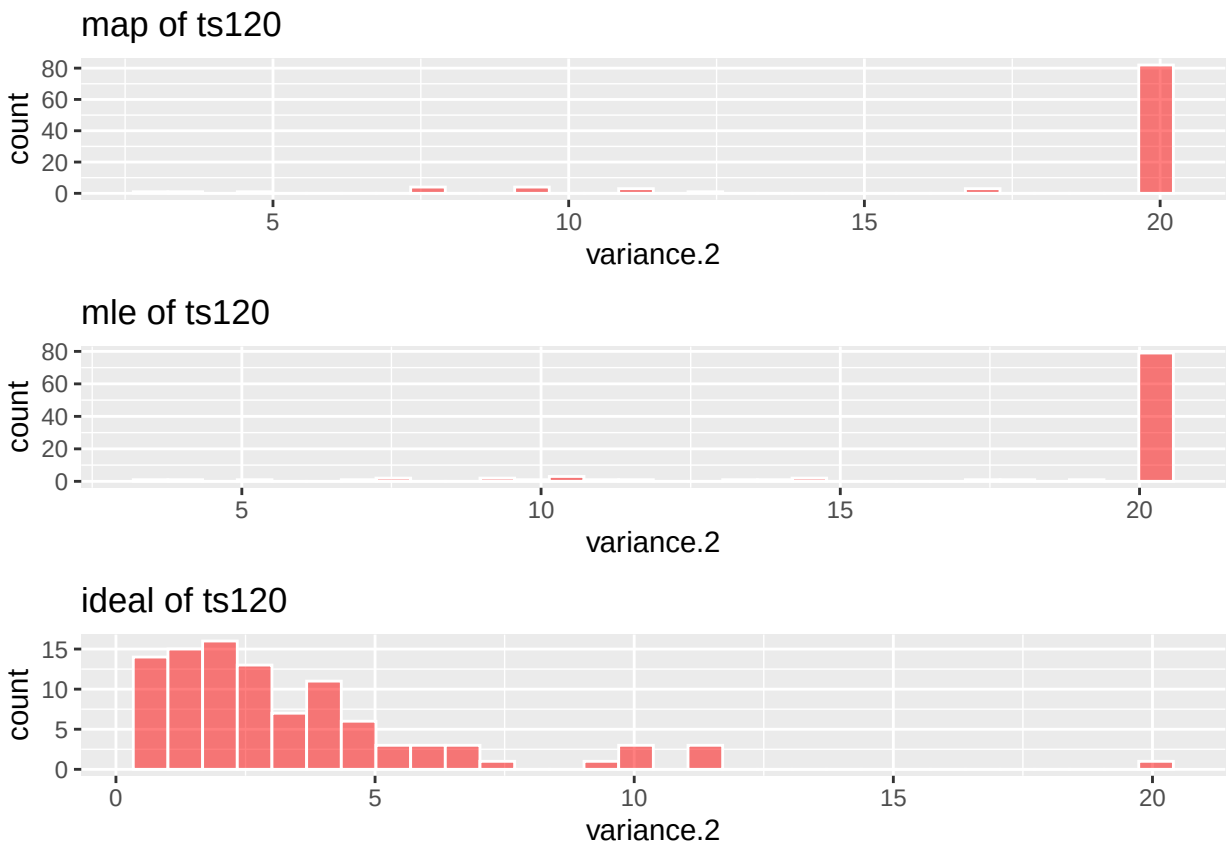
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```




```
map12 <- ggplot(mapmat1) +
  geom_histogram(aes(x=variance.2), color="white", fill = "red", alpha=.5) +
  ggtitle("map of ts120")
```

```
mle12 <- ggplot(data.frame(mlelist1)) +
  geom_histogram(aes(x=variance.2), fill="red", alpha=.5, color="white") +
  ggtitle("mle of ts120")

ide12 <- ggplot(data.frame(idevalmat1)) +
  geom_histogram(aes(x=variance.2), fill="red", alpha=.5, color="white") +
  ggtitle("ideal of ts120")

ggarrange(map12, mle12, ide12, nrow=3)
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

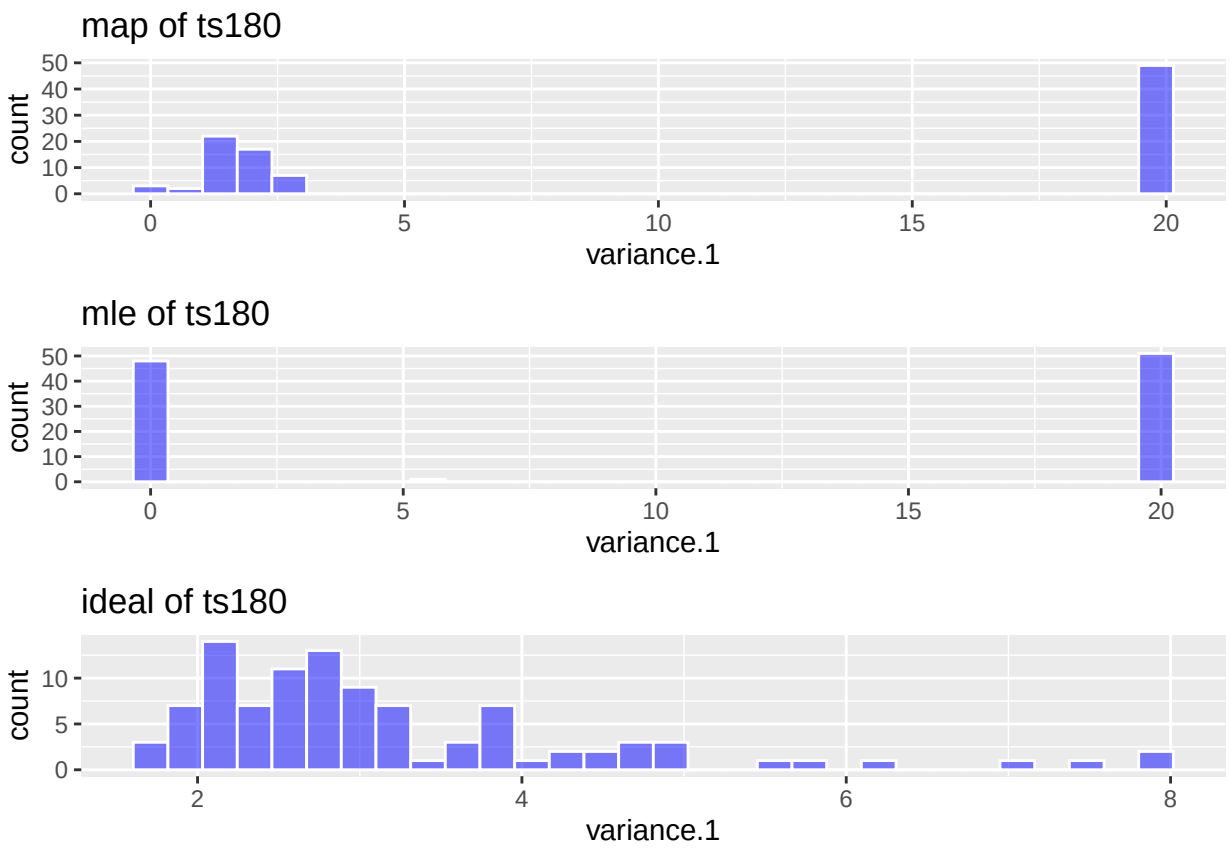



```
###############
```

```
map21 <- ggplot(mapmat2) +
  geom_histogram(aes(x=variance.1), color="white", fill = "blue", alpha=.5) +
  ggtitle("map of ts180")

mle21 <- ggplot(data.frame(mlelist2)) +
```

```
  geom_histogram(aes(x=variance.1), fill="blue", alpha=.5, color="white") +
  ggtitle("mle of ts180")

ide21 <- ggplot(data.frame(idevalmat2)) +
  geom_histogram(aes(x=variance.1), fill="blue", alpha=.5, color="white") +
  ggtitle("ideal of ts180")

ggarrange(map21, mle21, ide21, nrow=3)
```

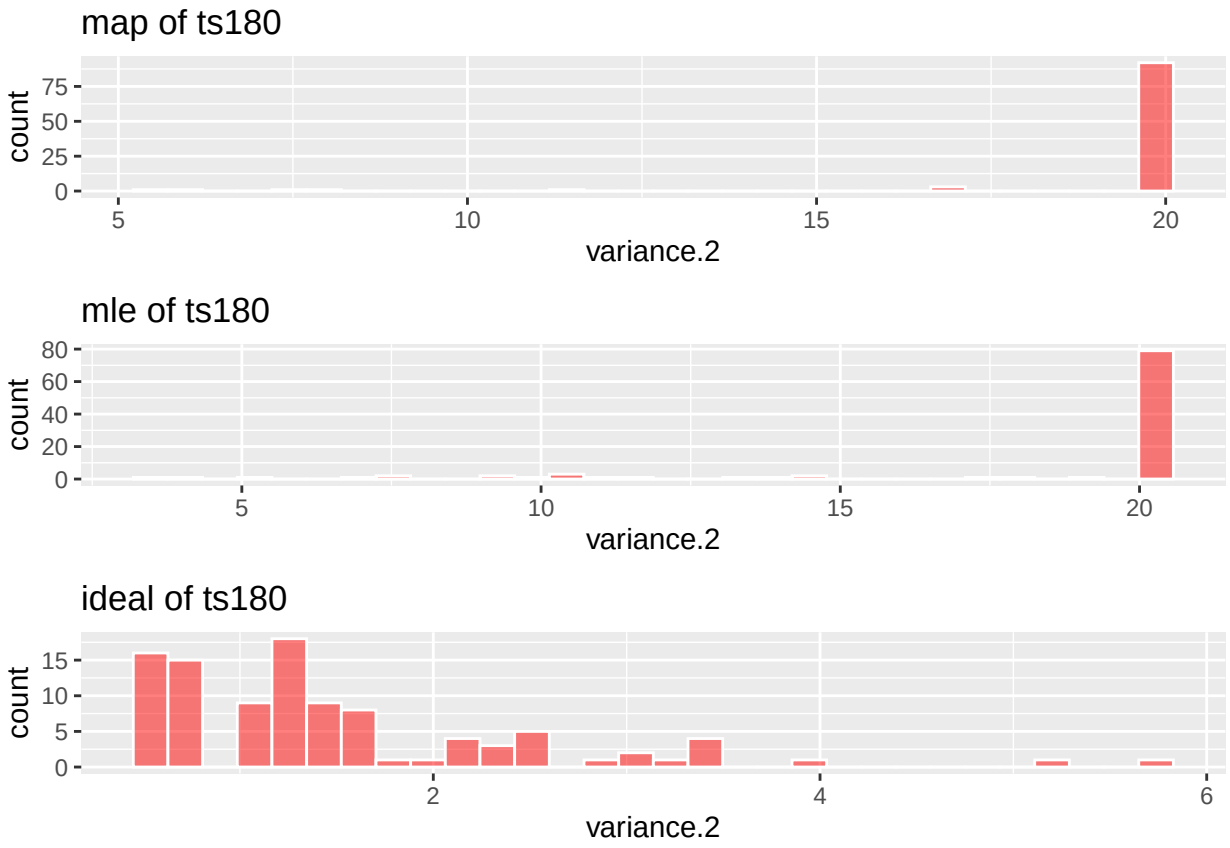
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```




```
map22 <- ggplot(mapmat2) +
  geom_histogram(aes(x=variance.2), color="white", fill = "red", alpha=.5) +
  ggtitle("map of ts180")

mle22 <- ggplot(data.frame(mlelist1)) +
  geom_histogram(aes(x=variance.2), fill="red", alpha=.5, color="white") +
  ggtitle("mle of ts180")

ide22 <- ggplot(data.frame(idevalmat2)) +
  geom_histogram(aes(x=variance.2), fill="red", alpha=.5, color="white") +
  ggtitle("ideal of ts180")
```

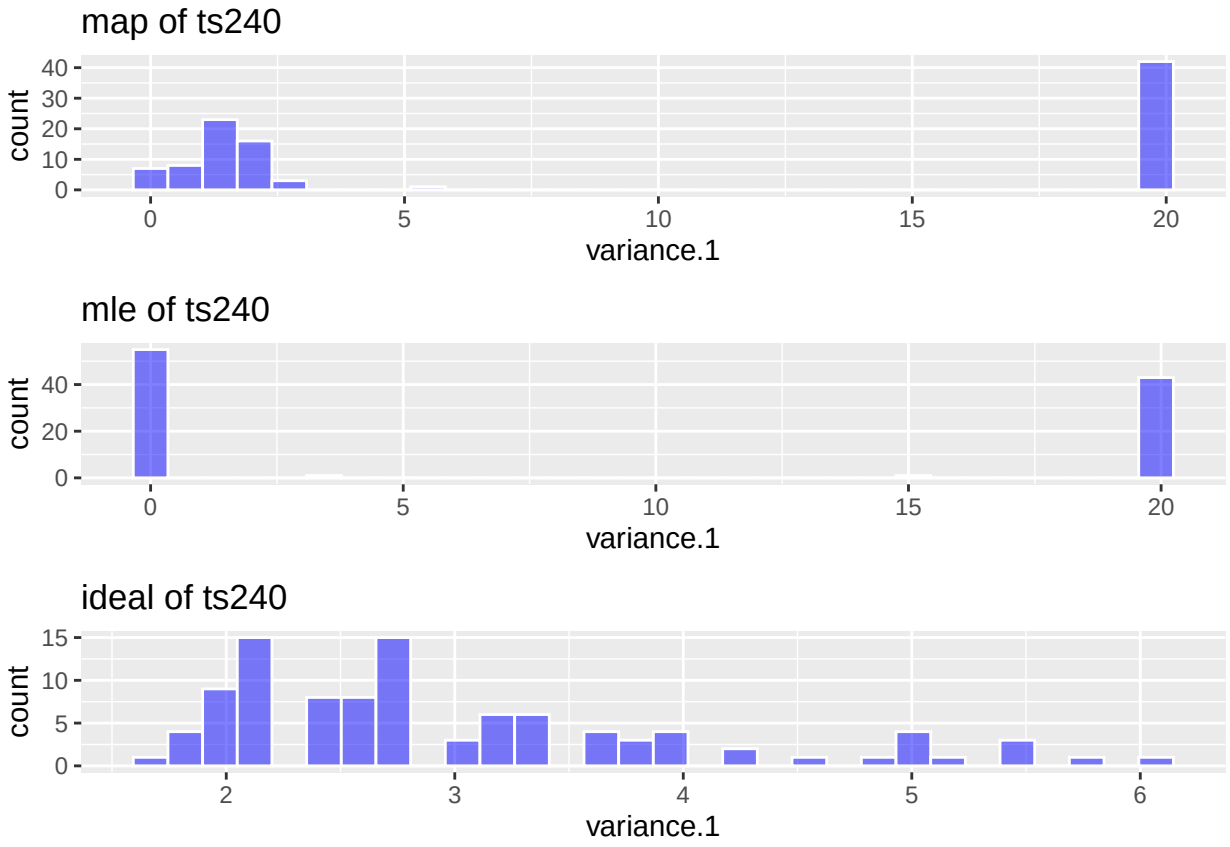
```
ggarrange(map22, mle22, ide22, nrow=3)
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



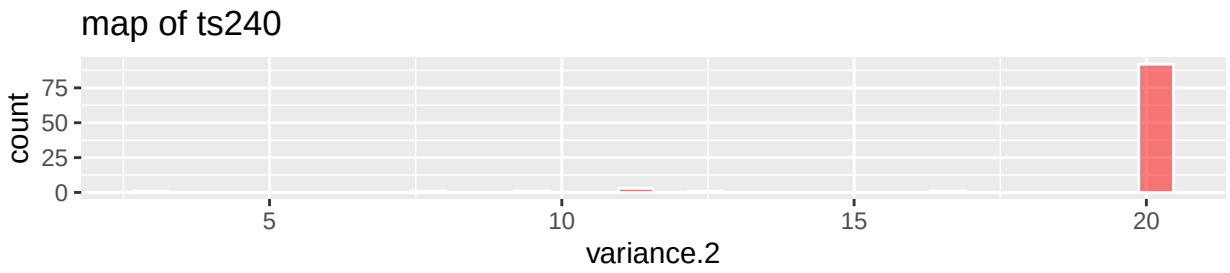

```
###############



map31 <- ggplot(mapmat3) +
  geom_histogram(aes(x=variance.1), color="white", fill = "blue", alpha=.5) +
  ggtitle("map of ts240")

mle31 <- ggplot(data.frame(mlelist3)) +
  geom_histogram(aes(x=variance.1), fill="blue", alpha=.5, color="white") +
  ggtitle("mle of ts240")

ide31 <- ggplot(data.frame(idevalmat3)) +
  geom_histogram(aes(x=variance.1), fill="blue", alpha=.5, color="white") +
  ggtitle("ideal of ts240")

ggarrange(map31, mle31, ide31, nrow=3)
```

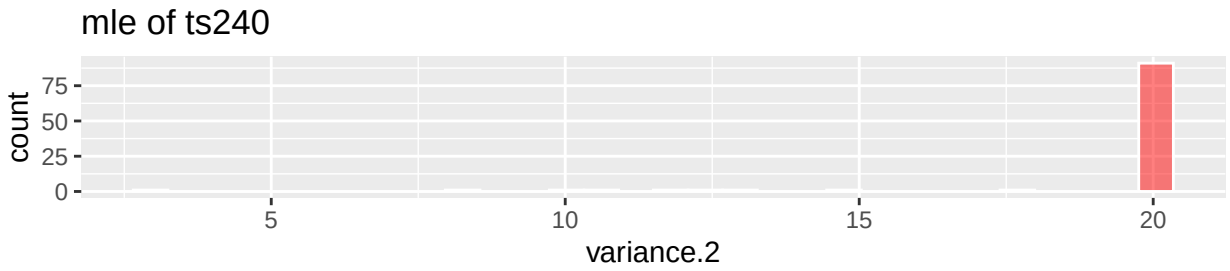
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

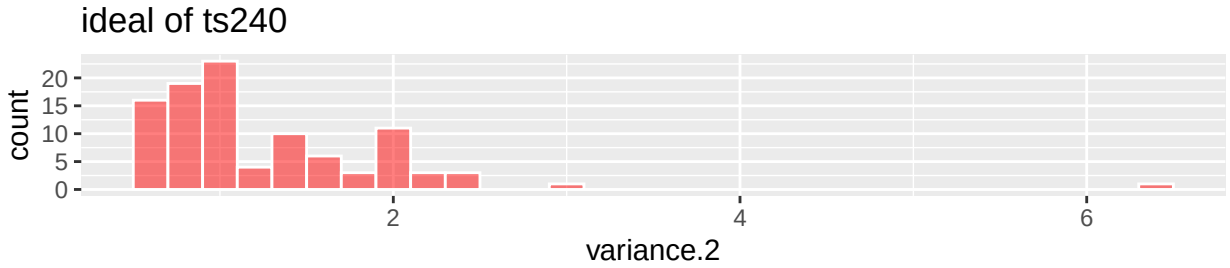



```
map32 <- ggplot(mapmat3) +
  geom_histogram(aes(x=variance.2), color="white", fill = "red", alpha=.5) +
  ggtitle("map of ts240")

mle32 <- ggplot(data.frame(mlelist3)) +
  geom_histogram(aes(x=variance.2), fill="red", alpha=.5, color="white") +
  ggtitle("mle of ts240")

ide32 <- ggplot(data.frame(idevalmat3)) +
  geom_histogram(aes(x=variance.2), fill="red", alpha=.5, color="white") +
  ggtitle("ideal of ts240")

ggarrange(map32, mle32, ide32, nrow=3)
```

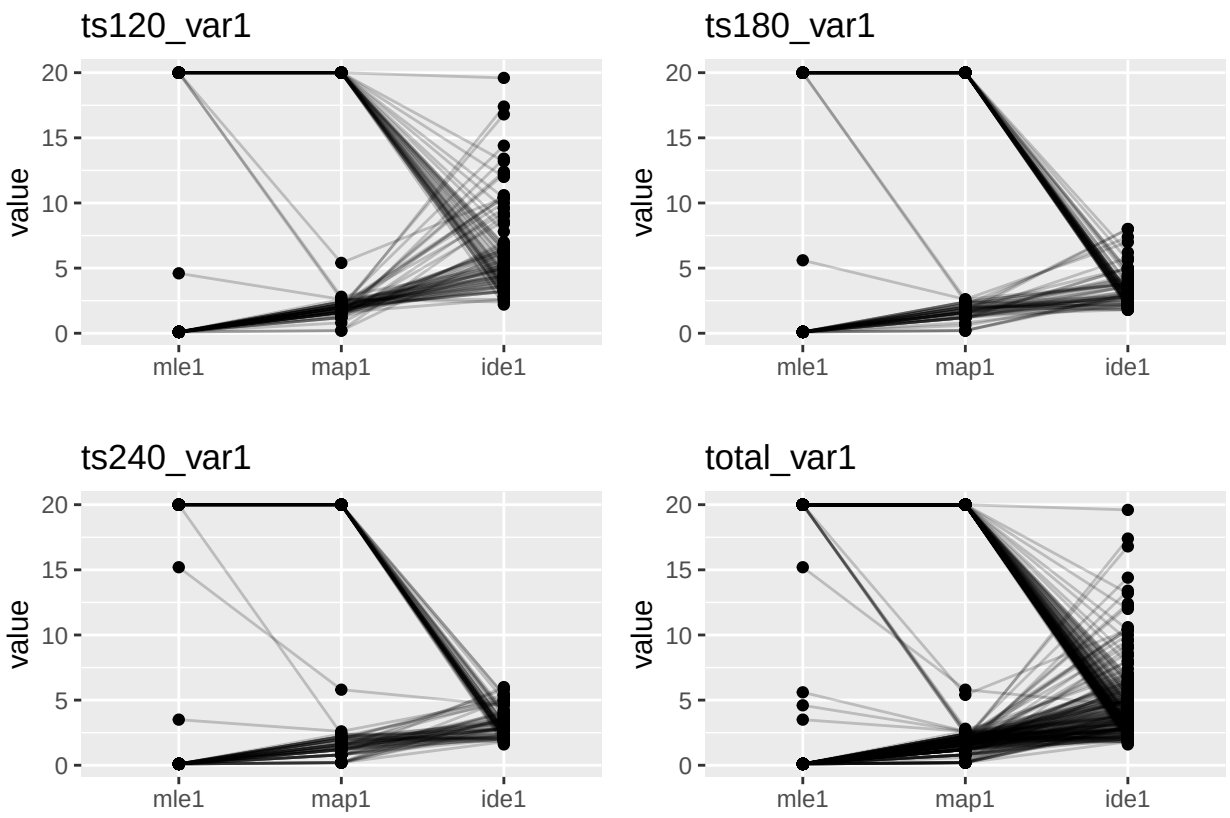
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



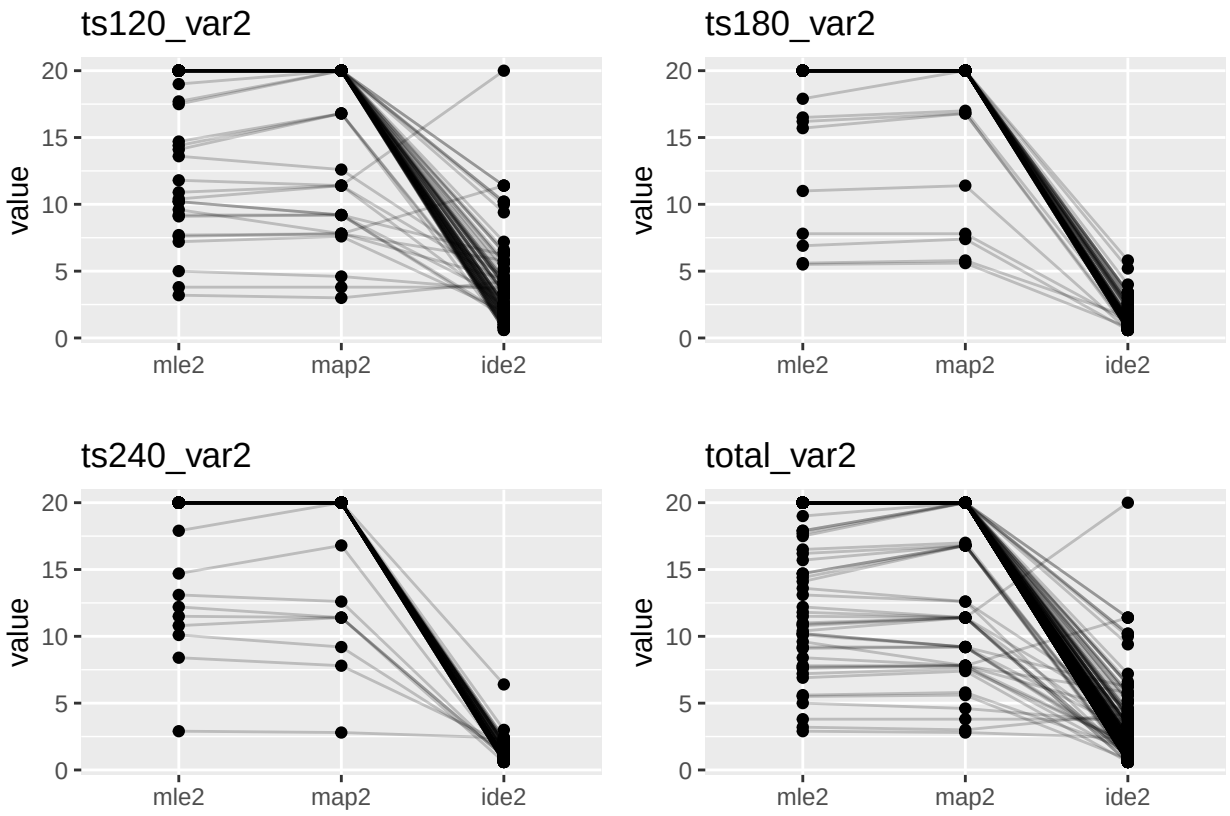




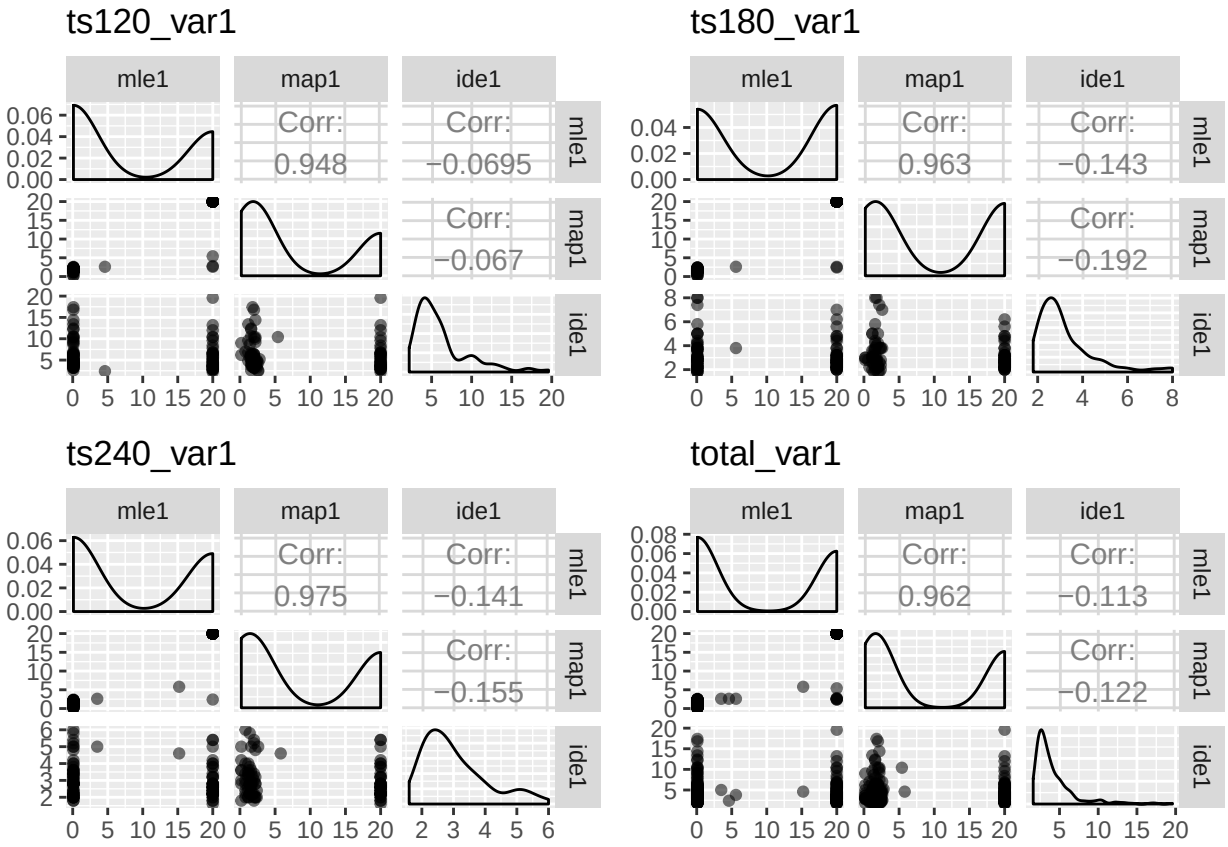

```
est11 <- ggparcoord(data=estimate120, columns = c(1,3,5),scale="globalminmax", title = "ts120_var1", sh
est21 <- ggparcoord(data=estimate180, columns = c(1,3,5),scale="globalminmax", title = "ts180_var1", sh
est31 <- ggparcoord(data=estimate240, columns = c(1,3,5),scale="globalminmax", title = "ts240_var1", sh
est1 <- ggparcoord(data=estimatetot, columns = c(1,3,5),scale="globalminmax", title = "total_var1", sho

ggarrange(est11, est21, est31, est1, ncol=2, nrow=2)
```



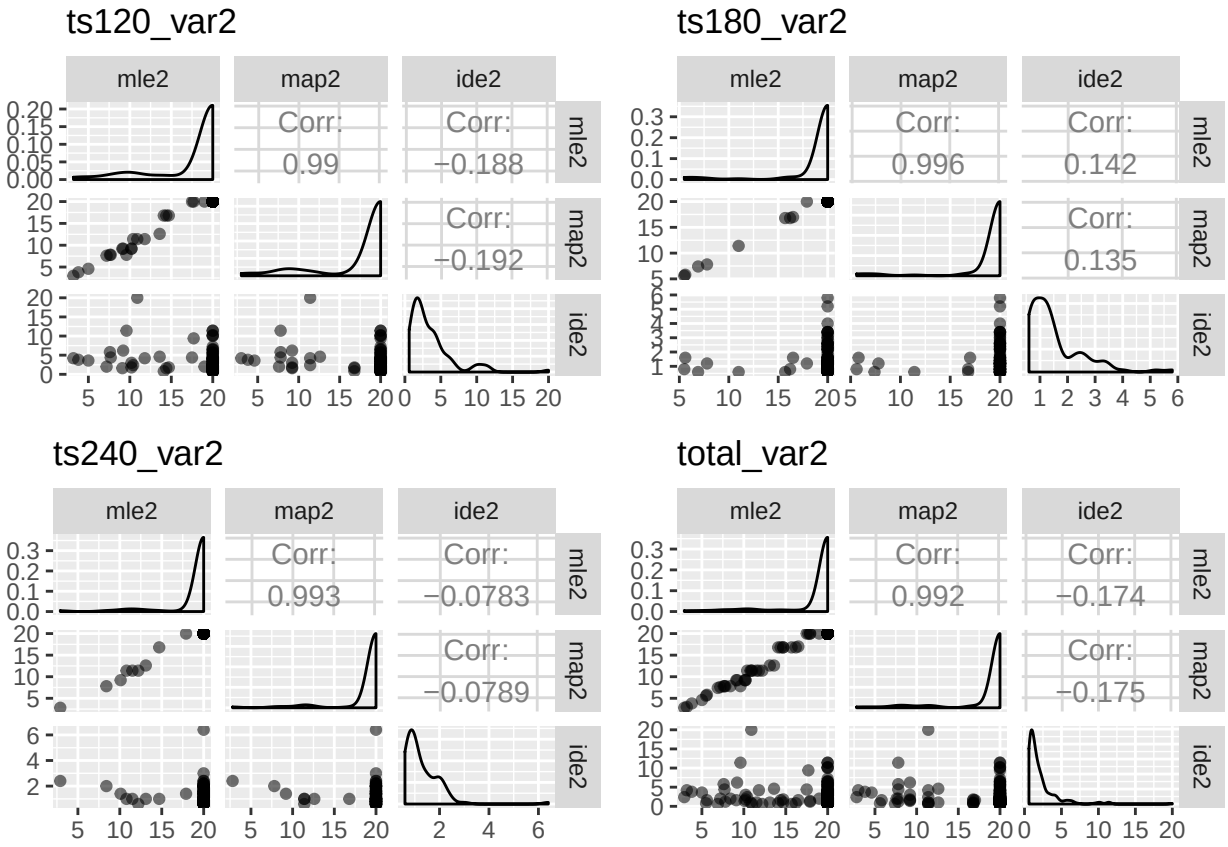

```
est12 <- ggparcoord(data=estimate120, columns = c(2,4,6),scale="globalminmax", title = "ts120_var2", sh
est22 <- ggparcoord(data=estimate180, columns = c(2,4,6),scale="globalminmax", title = "ts180_var2", sh
est32 <- ggparcoord(data=estimate240, columns = c(2,4,6),scale="globalminmax", title = "ts240_var2", sh
est2 <- ggparcoord(data=estimatetot, columns = c(2,4,6),scale="globalminmax", title = "total_var2", shou

ggarrange(est12, est22, est32, est2, ncol=2, nrow=2)
```




```
pairs11 <- ggpairs(estimate120[,c(1,3,5)], title = "ts120_var1", ggplot2::aes(alpha=.001))
pairs21 <- ggpairs(estimate180[,c(1,3,5)], title = "ts180_var1", ggplot2::aes(alpha=.001))
pairs31 <- ggpairs(estimate240[,c(1,3,5)], title = "ts240_var1", ggplot2::aes(alpha=.001))
pairs1 <- ggpairs(estimatetot[,c(1,3,5)], title = "total_var1", ggplot2::aes(alpha=.001))

plot_grid(
  ggmatrix_gtable(pairs11),
  ggmatrix_gtable(pairs21),
  ggmatrix_gtable(pairs31),
  ggmatrix_gtable(pairs1),
  ncol = 2,
  nrow = 2
)
```




```
pairs12 <- ggpairs(estimate120[,c(2,4,6)], title = "ts120_var2", ggplot2::aes(alpha=.001))
pairs22 <- ggpairs(estimate180[,c(2,4,6)], title = "ts180_var2", ggplot2::aes(alpha=.001))
pairs32 <- ggpairs(estimate240[,c(2,4,6)], title = "ts240_var2", ggplot2::aes(alpha=.001))
pairs2 <- ggpairs(estimatetot[,c(2,4,6)], title = "total_var2", ggplot2::aes(alpha=.001))

plot_grid(
  ggmatrix_gtable(pairs12),
  ggmatrix_gtable(pairs22),
  ggmatrix_gtable(pairs32),
  ggmatrix_gtable(pairs2),
  ncol = 2,
  nrow = 2

)
```


ts120_var2
mle2
map2
ide2
Corr:
0.99
Corr:
−0.188
Corr:
−0.192
ts180_var2
Corr:
0.996
Corr:
0.142
Corr:
0.135
ts240_var2
Corr:
0.993
Corr:
−0.0783
Corr:
−0.0789
total_var2
Corr:
0.992
Corr:
−0.174
Corr:
−0.175