Swap Test for 45 Gene Data Set

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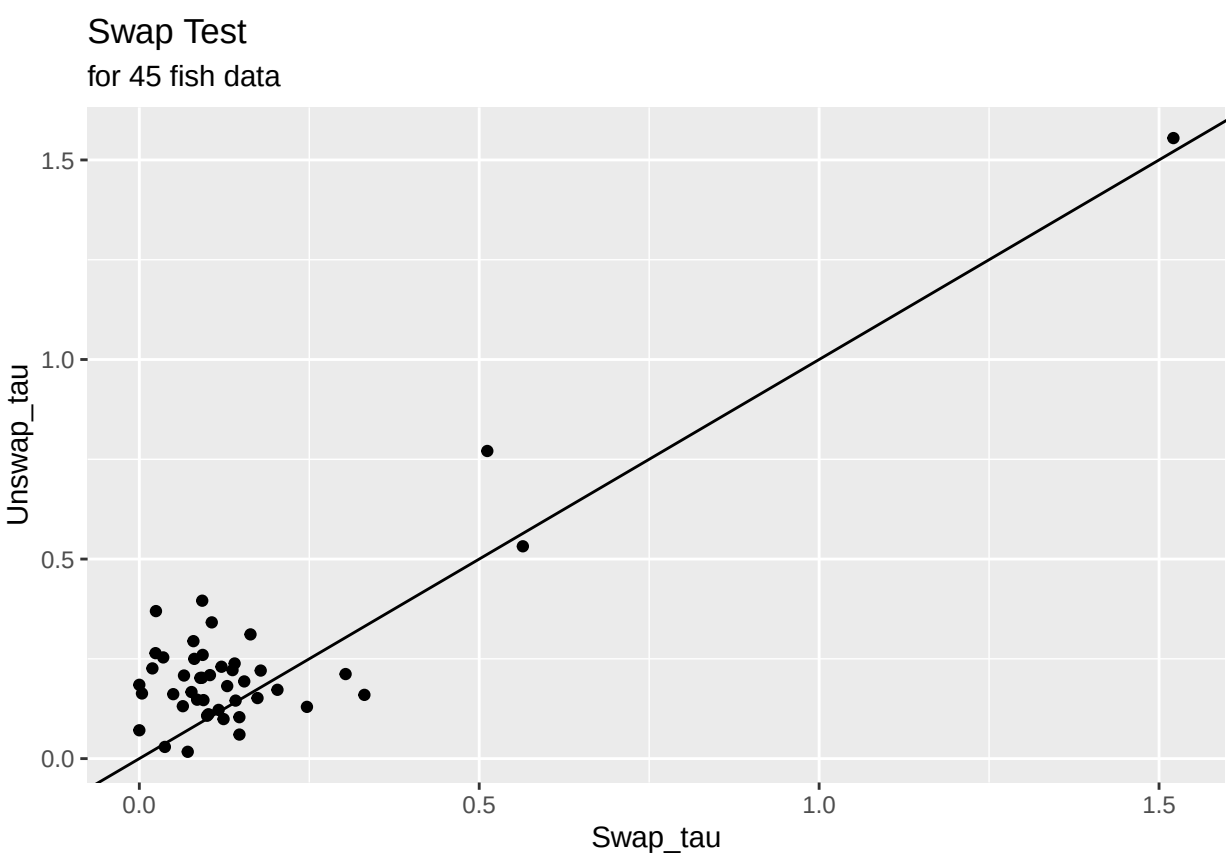
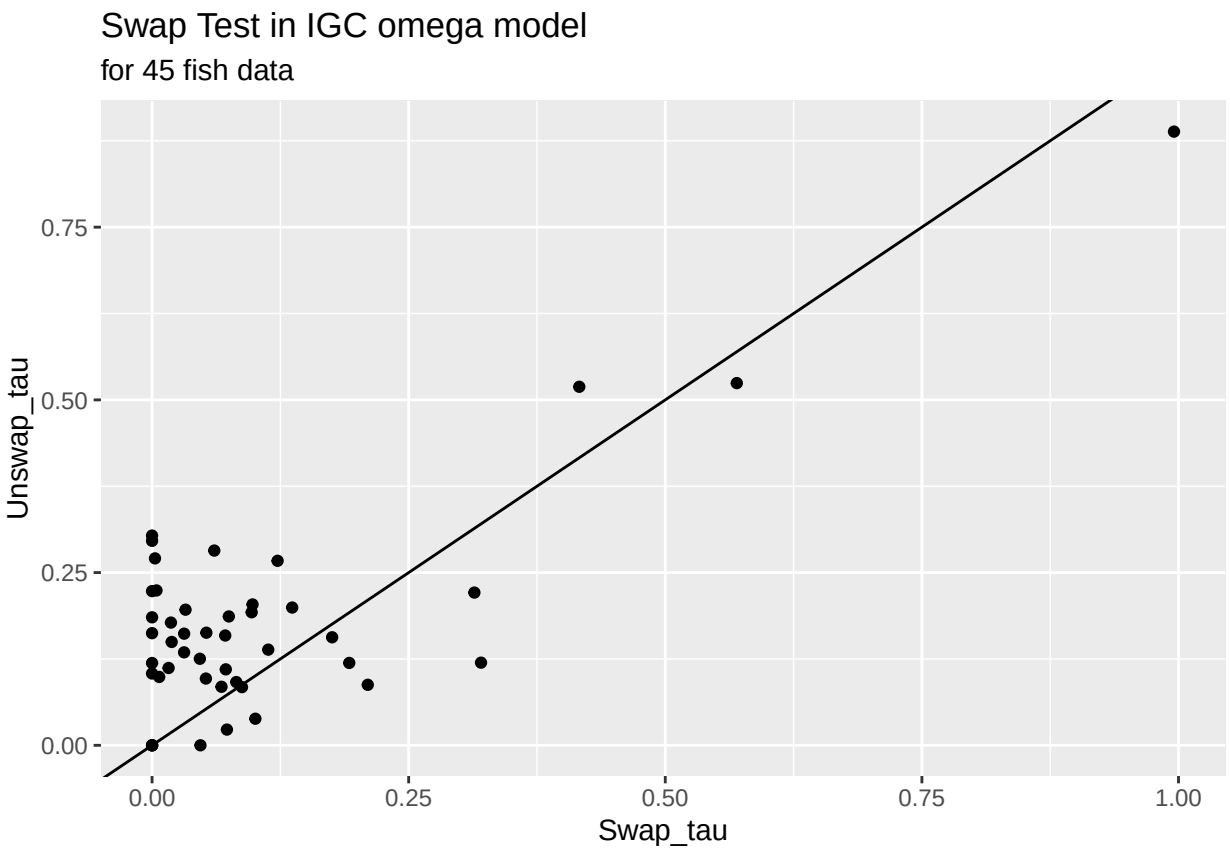
Compare tau

```
#IGC1
SwapTestRatio = data.frame(IGC1_Swap_Clock$tau, IGC1_Unswap_Clock$tau)
colnames(SwapTestRatio) <- c("Swap_tau", "Unswap_tau")
ggplot() +
  geom_point(data = SwapTestRatio, aes(x = Swap_tau, y = Unswap_tau)) +
  geom_abline(slope = 1) +
  labs(title = "Swap Test", subtitle = "for 45 fish data")
```

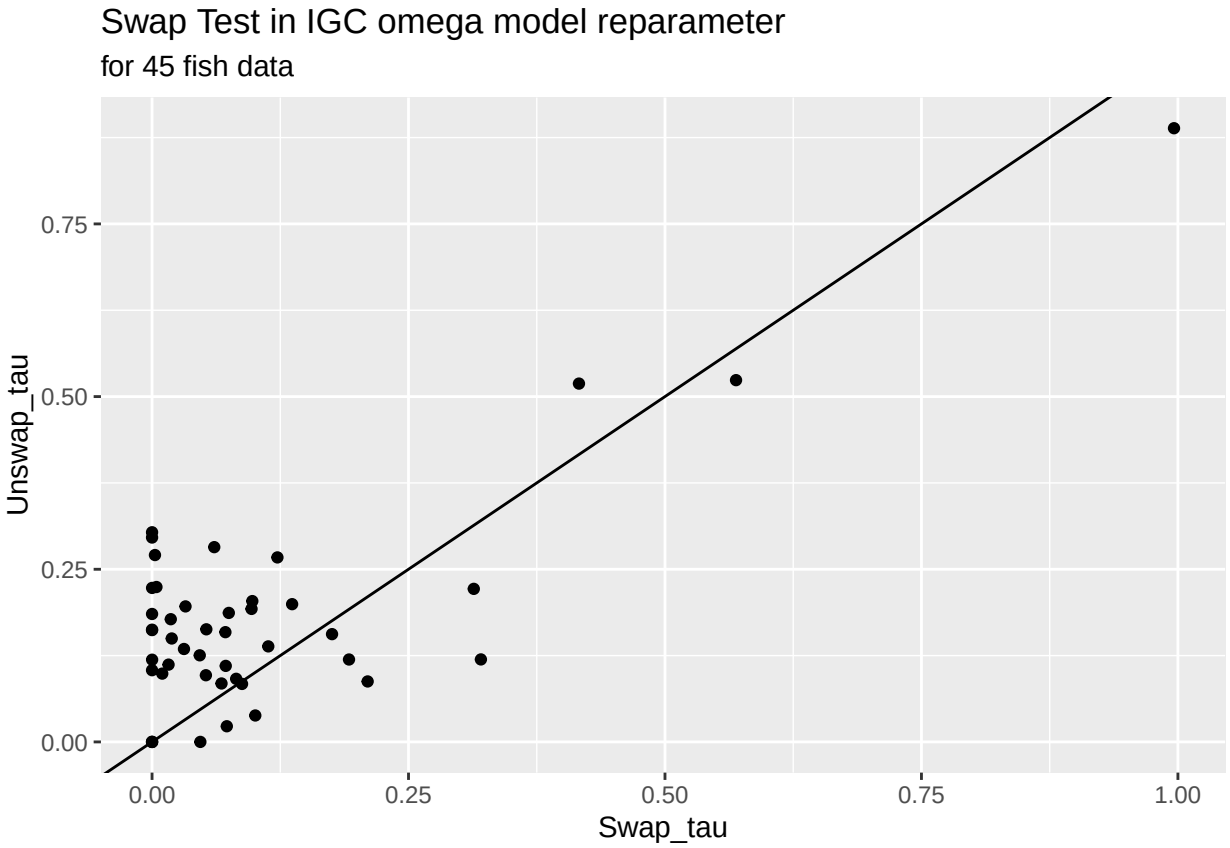



```
## Swap test with igc omega
SwapTestRatio = data.frame(IGC1_Swap_Clock_igcOmega$tau, IGC1_Unswap_Clock_igcOmega$tau)
colnames(SwapTestRatio) <- c("Swap_tau", "Unswap_tau")
ggplot() +
  geom_point(data = SwapTestRatio, aes(x = Swap_tau, y = Unswap_tau)) +
```

```
  geom_abline(slope = 1) +
  labs(title = "Swap Test in IGC omega model", subtitle = "for 45 fish data")
```

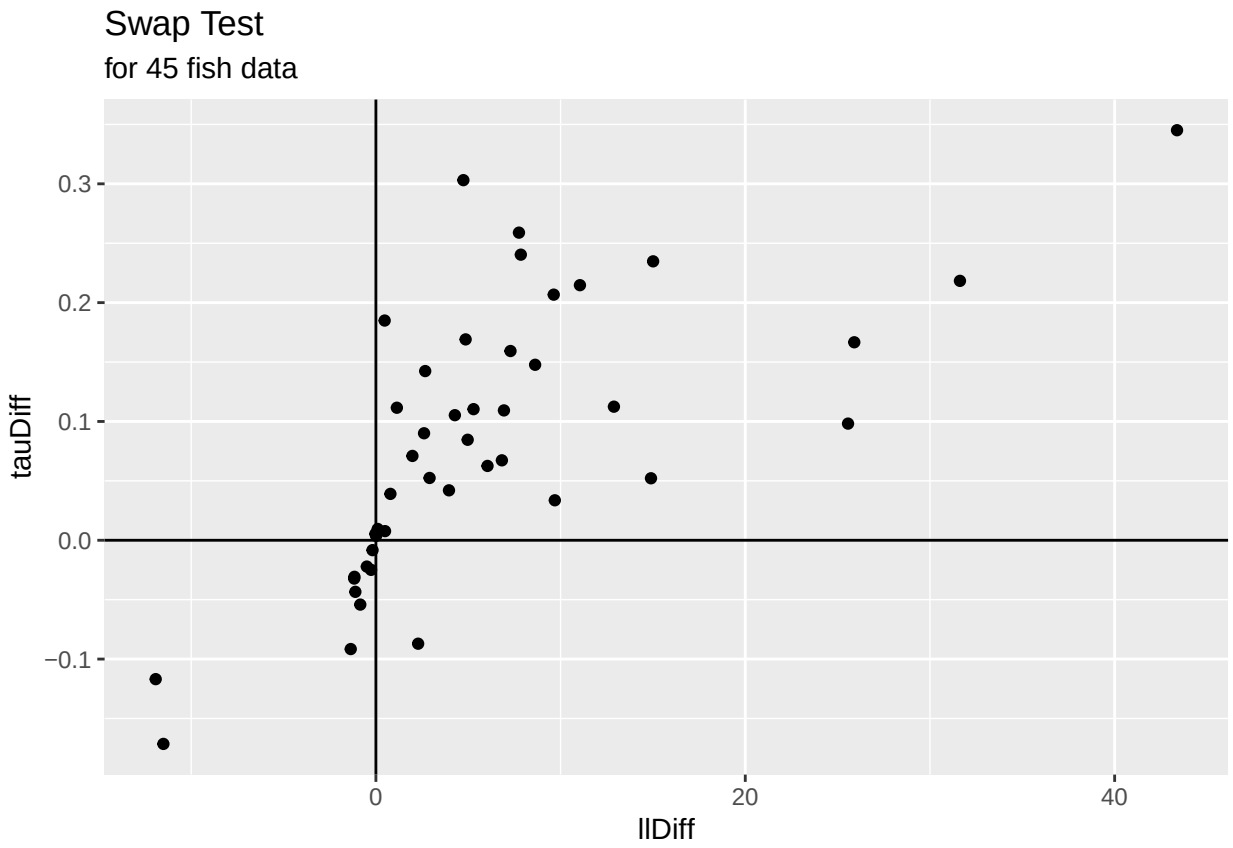



```
## Swap test with igc omega reparameter
SwapTestRatio = data.frame(IGC1_Swap_Clock_reparameter$tau, IGC1_Unswap_Clock_reparameter$tau)
colnames(SwapTestRatio) <- c("Swap_tau", "Unswap_tau")
ggplot() +
  geom_point(data = SwapTestRatio, aes(x = Swap_tau, y = Unswap_tau)) +
  geom_abline(slope = 1) +
  labs(title = "Swap Test in IGC omega model reparameter", subtitle = "for 45 fish data")
```

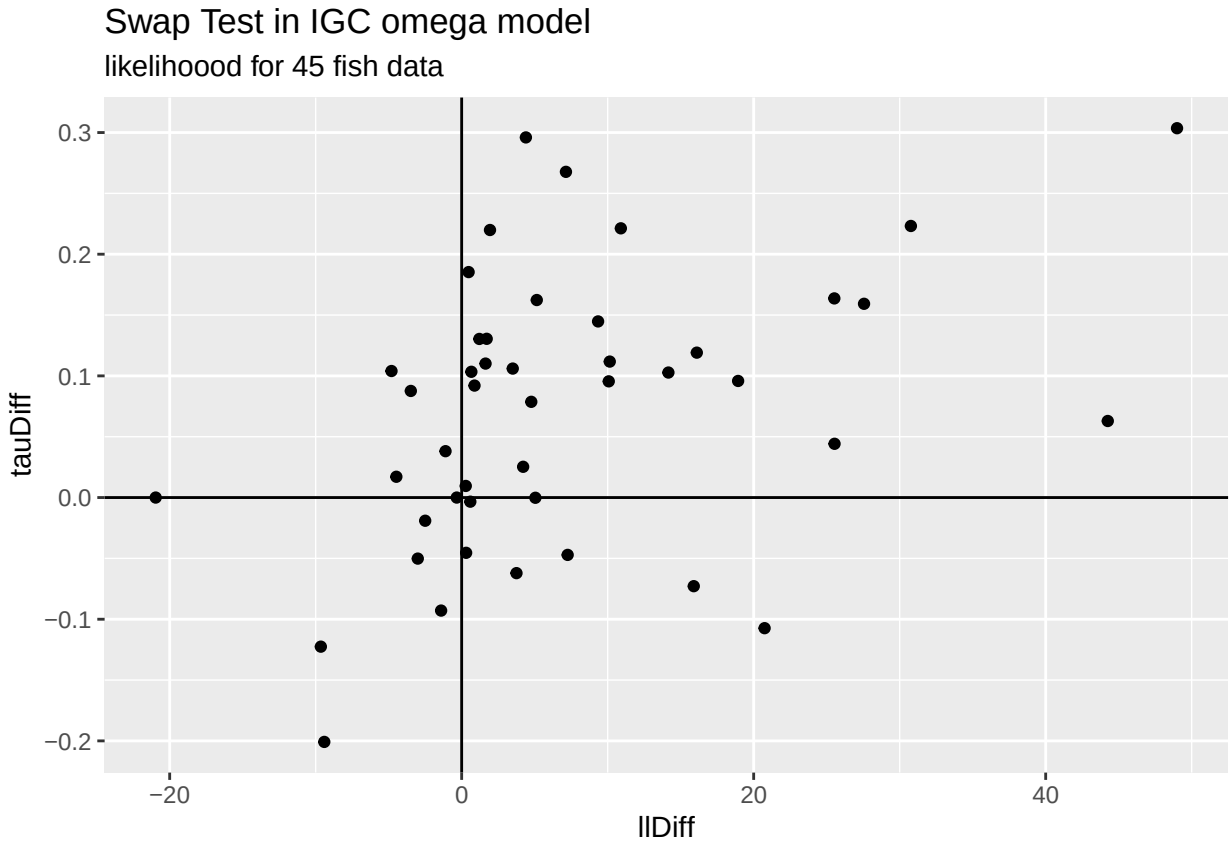


Likelihood difference v.s. tau difference

```
#IGC1
SwapTestRatio = data.frame(IGC1_Unswap_Clock$ll - IGC1_Swap_Clock$ll,
                           IGC1_Unswap_Clock$tau - IGC1_Swap_Clock$tau)
colnames(SwapTestRatio) <- c("llDiff", "tauDiff")
ggplot() +
  geom_point(data = SwapTestRatio, aes(x = llDiff, y = tauDiff)) +
  geom_hline(yintercept = 0) +
  geom_vline(xintercept = 0) +
  labs(title = "Swap Test", subtitle = "for 45 fish data")
```




```
## Swap test with igc omega
SwapTestRatio = data.frame(IGC1_Unswap_Clock_igcOmega$ll - IGC1_Swap_Clock_igcOmega$ll,
                           IGC1_Unswap_Clock_igcOmega$tau - IGC1_Swap_Clock_igcOmega$tau)
colnames(SwapTestRatio) <- c("llDiff", "tauDiff")
ggplot() +
  geom_point(data = SwapTestRatio, aes(x = llDiff, y = tauDiff)) +
  geom_hline(yintercept = 0) +
  geom_vline(xintercept = 0) +
  labs(title = "Swap Test in IGC omega model", subtitle = "likelihoood for 45 fish data")
```


Swap Test in IGC omega model
likelihoood for 45 fish data
tauDiff
llDiff
0.3
0.2
0.1
0.0
−0.1
−0.2
−20
0
20
40