balance$ds <- rowSums(balance[,c("d1","d2","d3","d4")])

m2 <- mix(cbind(ds,4-ds)~1,ns=2,data=balance,family=binomial())

set.seed(1234)

fm2 <- fit(m2)

fm2

# model the items separately (rather than their sum score) to get a latent class model

mod <- mix(list(d1~1,d2~1,d3~1,d4~1), data=balance, nstates=2,

family=list(multinomial("identity"), multinomial("identity"),

multinomial("identity"), multinomial("identity")))

set.seed(1234)

fmb2 <- fit(mod,verbose=FALSE)

# dccs hidden Markov model

dcl <- data.frame(acc=c(t(dccs[,8:13])))

head(dcl)

hm2 <- depmix(acc~1,nstates=2,data=dcl,

ntimes=rep(6,93), family=multinomial("identity"))

set.seed(1234)

fhm2 <- fit(hm2)

fhm2

depmixS4::summary(fhm2)