Let be the presence (=1) or absence (=0) of species s in location l. We assume that:

Where is a latent variable that indicates to which group location l belongs to.

#----------------------------------------

FCD’s are given below

- for

*Existing group*

Taking logs, this becomes:

*New group*

Notice that, if , we have . On the other hand, if we have , we also end up with . Further notice that:

Therefore:

Taking logs, this becomes

Can I really sample from a multinomial distribution? In other words, am I properly taking into account all the relevant constants?

- for

where and is the number of locations assigned to group c for which species s is present or absent, respectively.

- for

Where is the number of locations assigned to group k

This implies that

- for

Taking the log, this becomes

we can sample this parameter using a multinomial distribution.