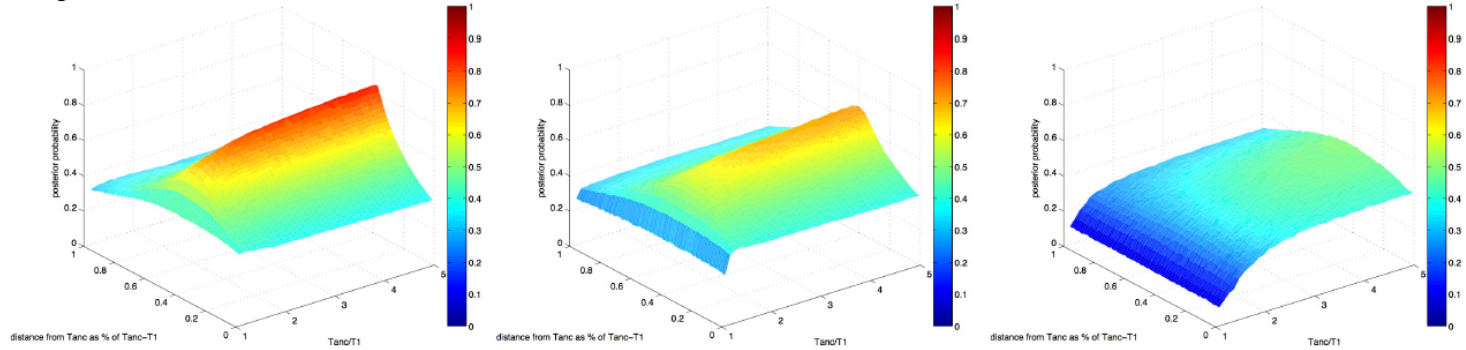
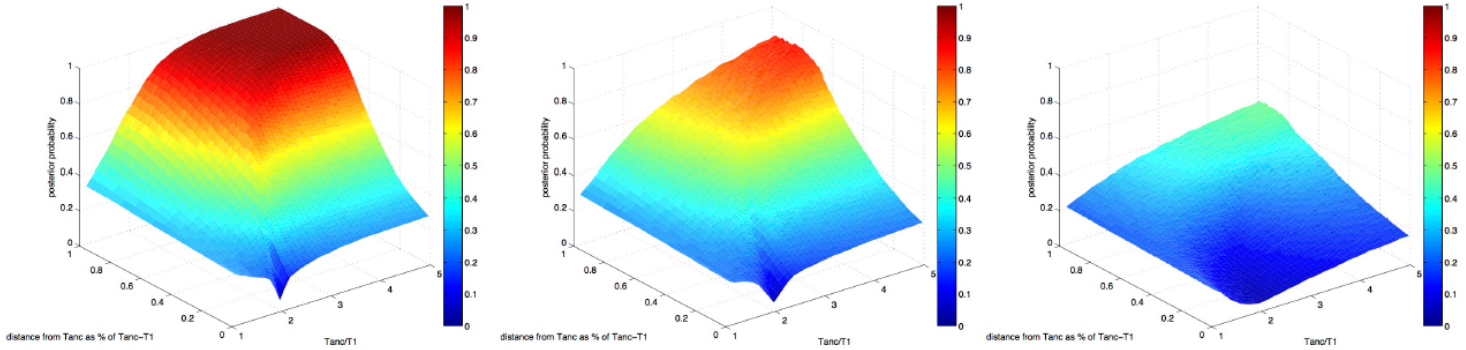
Asymmetric tree, θ = 0.001 DM



Symmetric tree, θ = 0.001 DM



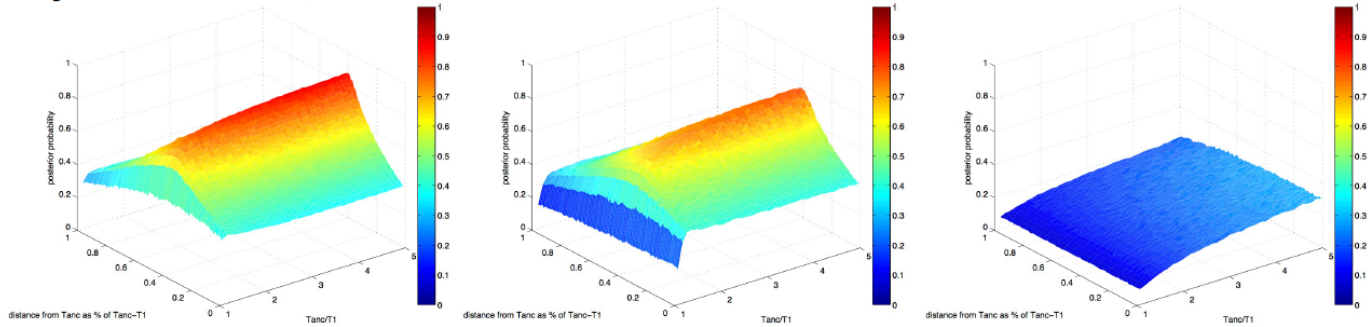
Tanc=0.01
10 Mya

Tanc=0.005
5 Mya

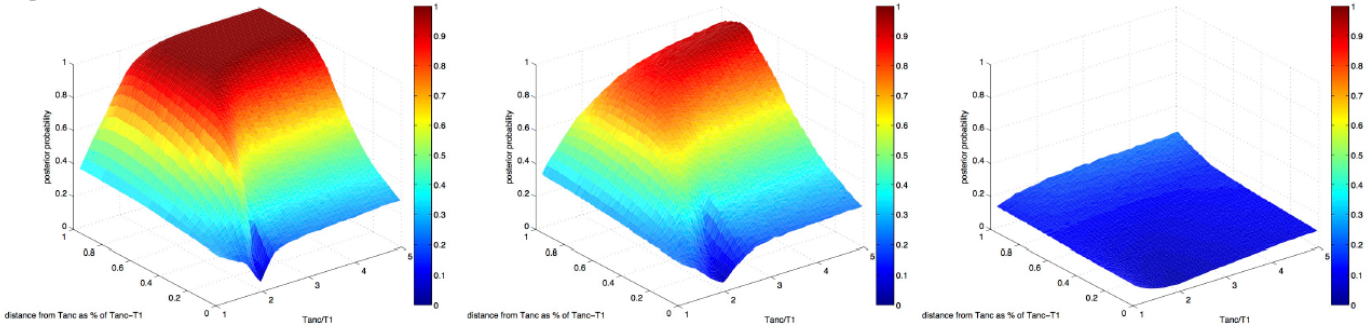
Tanc=0.001
1 Mya

Continued overleaf

Asymmetric tree, θ = mixed DM



Symmetric tree, θ = mixed DM



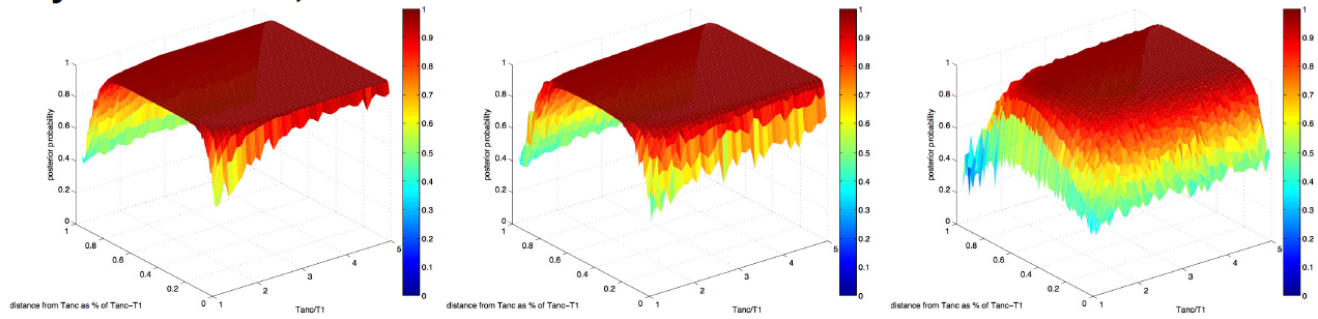
Tanc=0.01
10 Mya

Tanc=0.005
5 Mya

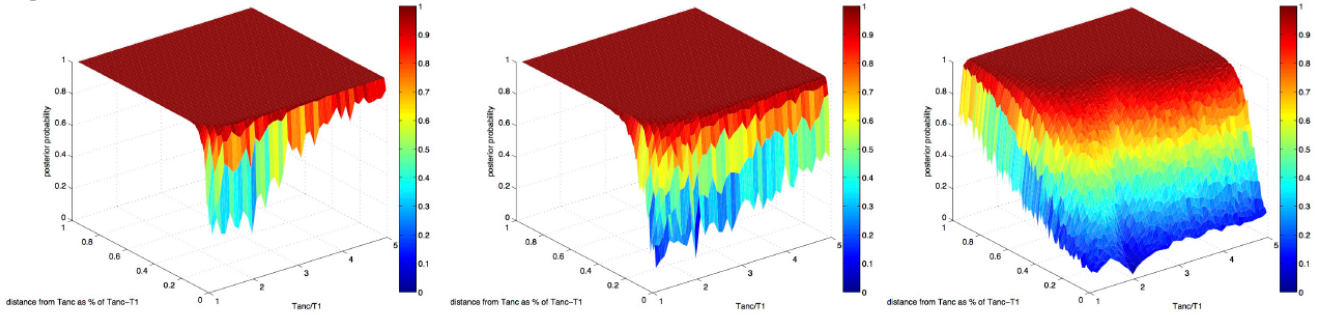
Tanc=0.001
1 Mya

Continued overleaf

Asymmetric tree, θ = 0.001 LR



Symmetric tree, θ = 0.001 LR



Tanc=0.01
10 Mya

Tanc=0.005
5 Mya

Tanc=0.001
1 Mya

Continued overleaf

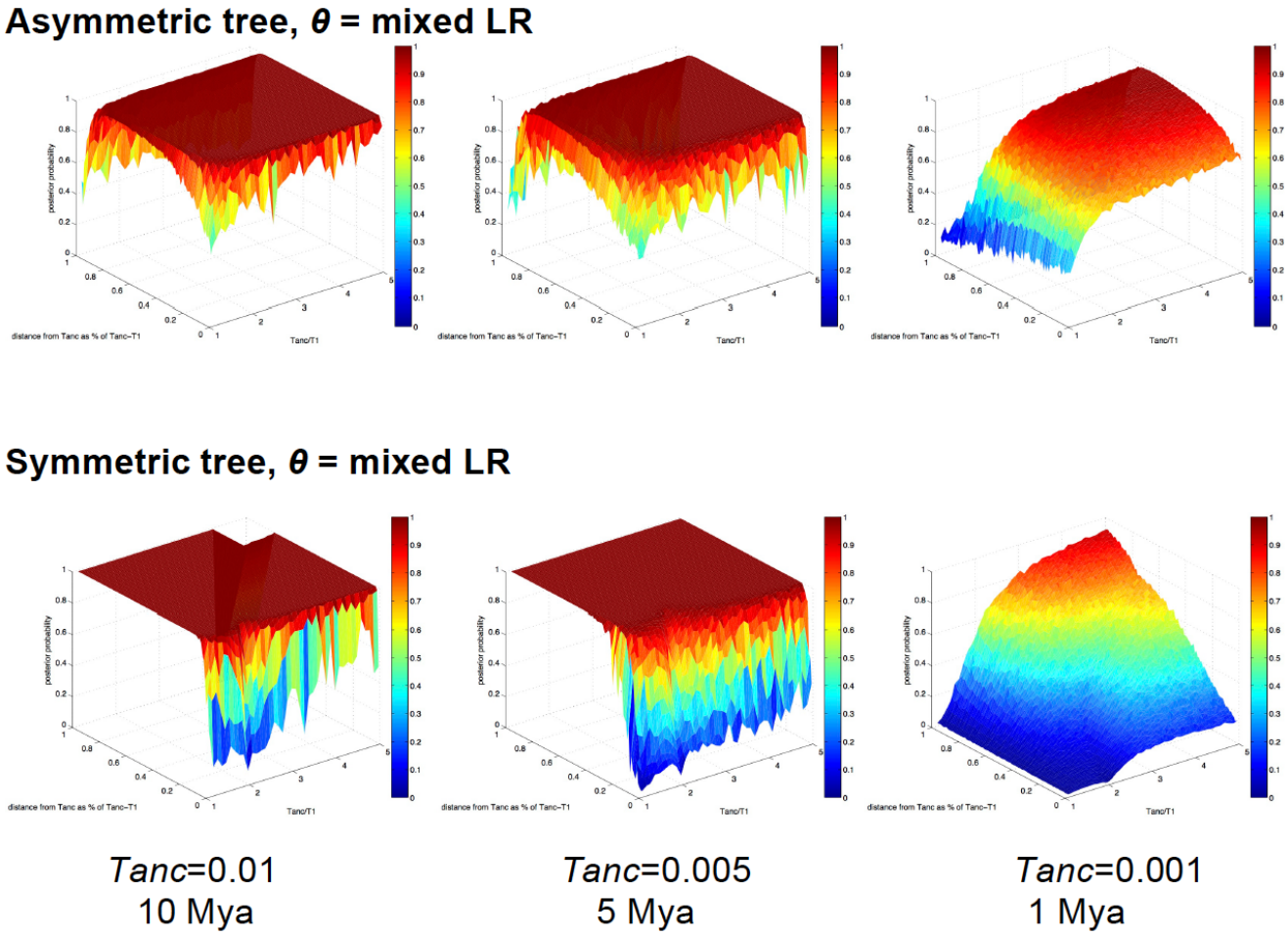


Figure S5 Posterior probabilities of the true model (either an asymmetric or symmetric tree from a total of 15 possible models or topologies) as assessed by our ABC framework for a specific framework of demographic scenarios using the Direct (DR) and Logistic Regression (LR) methods. *Tanc* equal the total height of the tree. Conversion of height from substitutions per site to years is based on a mutation rate of $1x10^{-9}$ per year. For θ = mixed, see Supplementary text for exact parameterization.