

$$L(\Theta) = \prod_{gp1} \prod_j^{n_i} \prod_k^{I(z=k)} \left(f_{g_1}(z) f_z \right) \prod_{gp2} \prod_j^{n_i} \prod_k^{I(z=k)} \left(f_{g_2}(z) f_z \right)$$