LOCAL AND GLOBAL MIXTURE GEOMETRY

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The idea of using a local mixture model to simplify the inferential problems associated with general mixture families has proved to be a useful one. Applications can be found in understanding measurement error modelling, in Bayesian prediction, lifetime data analysis and in influence analysis. This success raises the question of how far can the methodology be pushed? We look at ways of extending these ideas to completely encompass general mixture families. This involves looking at ways in adaptively selecting the dimension of the approximating families in a natural geometric way such that marginal inference on the interest parameter in the approximating family is equivalent to marginal inference in the unrestricted mixture family.