

When there are order constraints among the parameters of a binary, multinomial processing tree (MPT) model, methods have been developed for reparameterizing the constrained MPT into an equivalent unconstrained MPT. This note provides a theorem that is useful in computing bounds on the estimator variances for the parameters of the constrained model in terms of estimator variances of the parameters of the unconstrained model. In particular, we show that if  $X$  and  $Y$  are random variables with support in  $[0,1]$ , then  $Var[XY] \geq (3/2) [Var(X) + Var(Y)]$ .

Key words: Multinomial processing tree models, parametric order constraints, estimator variances, reparameterization.