## Removing Correlates

Continuous and categorical data can be converted into matrix covariates from which you can condition AMOVA distance on prior to analysis.

**Table 1** Stepwise analysis of molecular variance table for *G* external variables, *J* maternal individuals

Source	df	SS	E[MS]
External Among strata Error Total	G J-G-1 N-J N-1	$ ext{tr}[\mathbf{H_E(YY')}] \  ext{tr}[\mathbf{H_M(RR')}] \  ext{tr}[(\mathbf{I-H_M})(\mathbf{RR'})] \  ext{tr}[(\mathbf{YY'})]$	$\sigma_{ m W}^2 + K \sigma_{ m A}^2 \ \sigma_{ m W}^2$

## Structure|Range Expansion







