SVD and Resolution, Etc.

With these definitions, it is now very easy to show that the SVD of the resolution matrices is given by

$$\mathcal{R}_{model} = V\Sigma^{\dagger}\Sigma V^{T}$$

and

$$\mathcal{R}_{data} = U\Sigma\Sigma^{\dagger}U^{T}.$$

Similarly, the normal matrix is given by

$$M^{T}M = V\Sigma^{T}\Sigma V^{T}$$

and the other related matrix by

$$MM^{T} = U\Sigma\Sigma^{T}U^{T}.$$