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

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