**Fitting a Multivariate t Distribution**

First, compute sample covariance of the d-dimensional vectors Also let We want to create a normal mixture of the form

We want to set that way we will always have

The density now becomes

There is only one parameter , so we need to maximize

over We can do this using the solver in Excel, or some other optimization software.

There is also a “quick and dirty” method, which I will now show you. If the **X**’s all have the same kurtosis , we can choose so that the kurtosis of for each is If is the kurtosis of each of the components of the t distribution, then we have

So we would require that