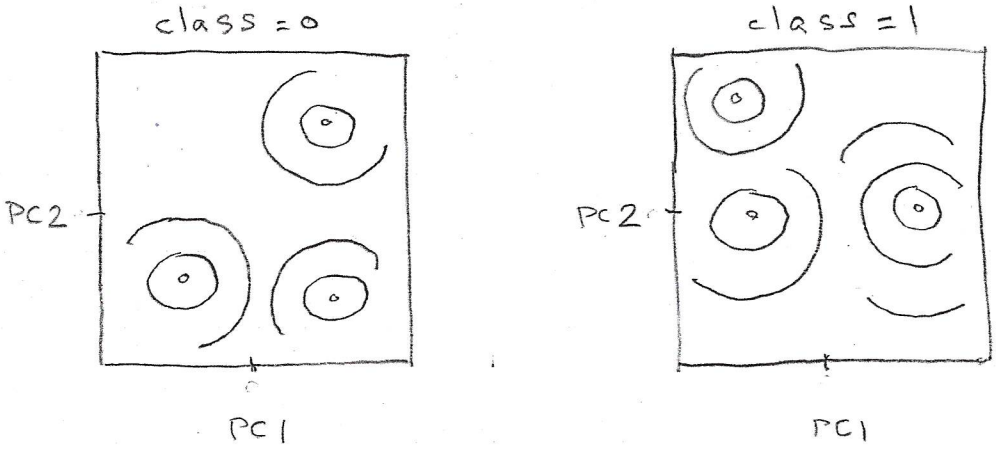
SPHERICAL COVARIANCE MATRIX

assume no mixing ratio

nvar = 2, ngmm = 3, nclass = 2



$\left.\begin{array}{l} \text{mean}_{PC1} = \square \\ \text{mean}_{PC2} = \square \end{array}\right\}$ nvar

$\left.\text{sd} = \square\right\}$ 1

$\times$ ngmm $\times$ nclass

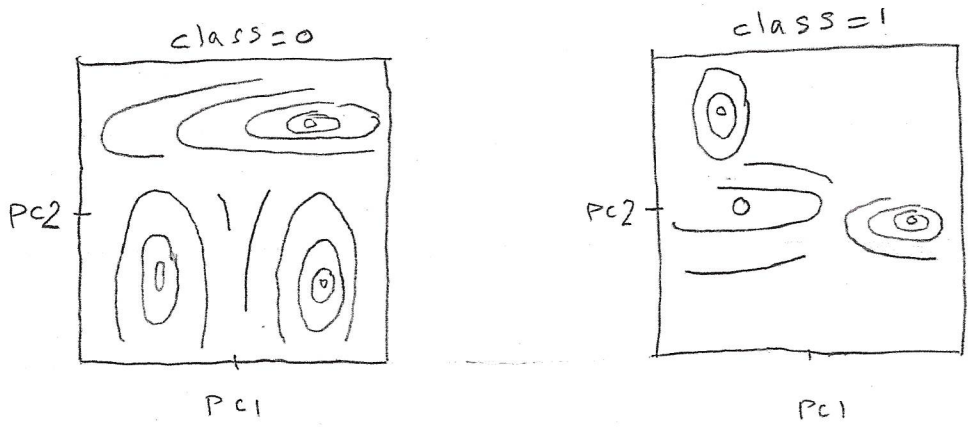
$$np = (nvar + 1)\ ngmm\ nclass$$

$$18 = (2+1)\ 3 \cdot 2$$

DIAGONAL COVARIANCE MATRIX

assume no mixing ratio

nvar = 2, ngmm = 3, nclass = 2



$$\left\{ \begin{array}{l} \text{mean}_{Pc1} = \square \\ \text{mean}_{Pc2} = \square \end{array} \right\} \text{nvar}$$

$$\left\{ \begin{array}{l} sd_{Pc1} = \square \\ sd_{Pc2} = \square \end{array} \right\} = \left\{ \begin{array}{cc} \square & \varnothing \\ \varnothing & \square \end{array} \right\} \text{nvar}$$

$$\times \text{ngmm} \times \text{nclass}$$

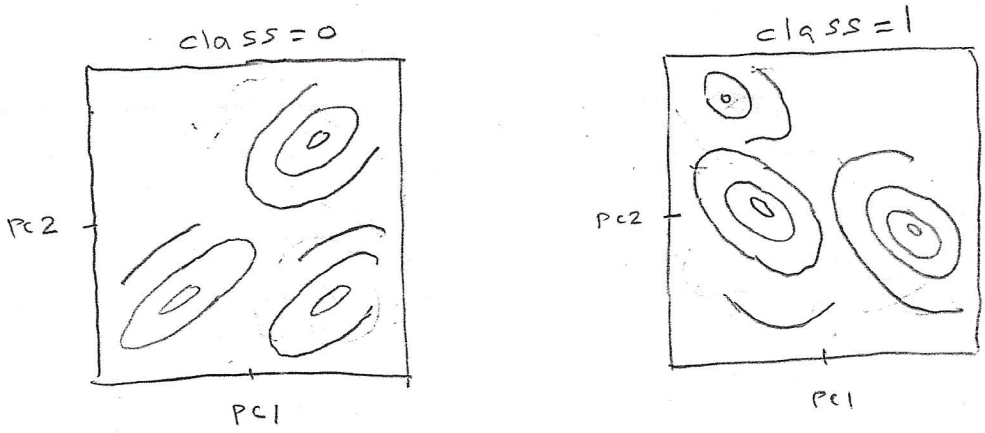
$$np = (\text{nvar} + \text{nvar})\ \text{ngmm}\ \ \text{nclass}$$

$$24 = (2+2)\ 3 \cdot 2$$

TIED COVARIANCE MATRIX

assume no mixing ratio

nvar = 2, ngmm = 3, nclass = 2



$\left\{ \begin{array}{l} \text{mean}_{PC1} = \square \\ \text{mean}_{PC2} = \square \end{array} \right\}$ nvar

$\left\{ \text{cov} = \square \right\}$ $\frac{nvar^2}{2} + \frac{nvar}{2} = \frac{nvar(nvar+1)}{2}$

$\times$ ngmm $\times$ nclass

$\times$ nclass

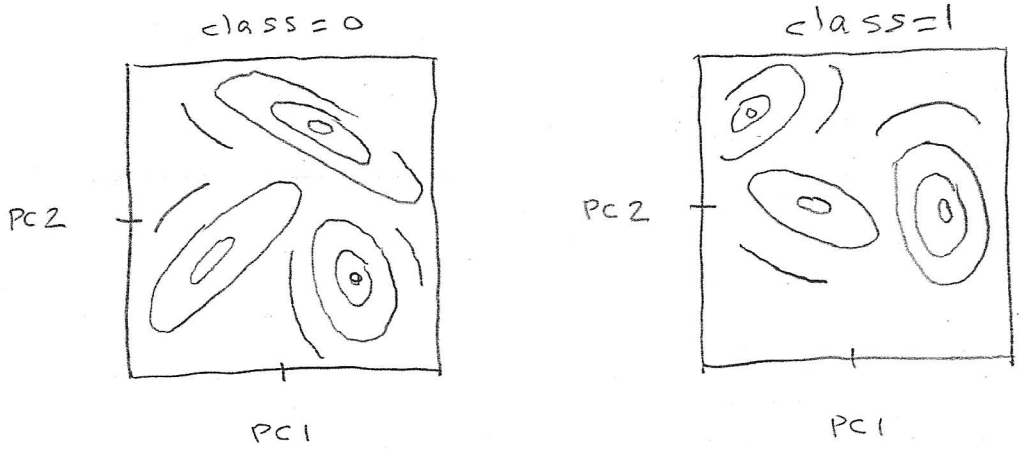
$$np = \left(nvar \; ngmm + \frac{nvar(nvar+1)}{2} \right) nclass$$

$$18 = \left(2 \cdot 3 + \frac{2(2+1)}{2} \right) 2$$

FULL COVARIANCE MATRIX

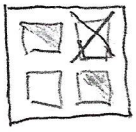
assume no mixing ratio

nvar = 2, ngmm = 3, nclass = 2



mean_{Pc1} = □

mean_{Pc2} = □ } nvar

cov =  } $\frac{nvar^2}{2} + \frac{nvar}{2} = \frac{nvar\,(nvar+1)}{2}$

→ × ngmm × nclass

$$np = \left(nvar + \frac{nvar\,(nvar+1)}{2}\right) ngmm\ nclass$$

$$30 = \left(2 + \frac{2(3)}{2}\right) 3 \cdot 2$$