	Ex. 42 (4)
The state of the s	Here we need to show that the results of Part (b)
	hold in the more general case where we have
	coded the two classes as a, b ER s.t a + b. In
	Coded the two classes as a, b ER s.t a + b. In this case X*TX*B* is unchanged but X*TY becomes:
	A-ery english lepin to the service of the service o
	$\Rightarrow \begin{bmatrix} 1^T \\ X_1 \end{bmatrix} \begin{bmatrix} \alpha \\ N_1 \text{ times} \end{bmatrix} = \begin{bmatrix} N_1 \alpha + N_2 b \\ X_2 \end{bmatrix} \\ = \begin{bmatrix} \alpha \\ X_1 \end{bmatrix} \begin{bmatrix} N_2 \\ D \end{bmatrix} \begin{bmatrix} N_2 \\ $
	$\frac{x_i}{a} = \frac{x_i}{x_i} + \frac{x_i}{x_i}$
	YN No times i=Nit
0	Nou for solving for $\hat{\beta}_0$ and $\hat{\beta}_1$ we get: 1st egn. = $N\hat{\beta}_0 + (N_1\hat{\mu}_1^T + N_2\hat{\mu}_2^T)\hat{\beta}_1 = N_1\alpha_1 + N_2b_1$
	1st agn. = NBo + (Nili, + N2li)B = Nia + N2b
	=> \(\hat{\beta}_0 = \overline{\beta} \left[N_1 a + N_2 b - (N_1 \hat{\mu}_1 + N_2 \hat{\mu}_2 \right) \hat{\beta} \right]
	2nd egn = (N. ûi + N2 ûs) (+) [N.a.+N2b-(N.ût + N2ût)β]
	$2^{n\alpha} = \frac{(N_1 \hat{\mu}_1 + N_2 \hat{\mu}_2)(\frac{1}{N_1})[N_1 \alpha_1 + N_2 \beta_1 - (N_1 \hat{\mu}_1^T + N_2 \hat{\mu}_2^T)\hat{\beta}]}{+ \hat{\beta}[(N_1 - 2)\hat{\Sigma} + N_1 \hat{\mu}_1 \hat{\mu}_1^T + N_2 \hat{\mu}_2 \hat{\mu}_2^T] = \alpha \sum_{i=1}^{N} x_i - b \hat{\Sigma} x_i}$
	isi covin
	> /N (N.μ.+N2μ2) (N.α+N2b) + [(N-2) Σ+N Σβ]β
	$= \alpha \sum_{i=1}^{N} x_i + \sum_{i=N+1}^{N} x_i (as Proved in)$
	Zel Zelvini
	e.g. we wish to solve:
	anifi+bN2fiz - / (N, ji, + N2fiz) (N, a + N2b) (*)
	grouping the 'a' terms gives:
	grouping the 'a' terms gives: ani pi - Ni pia - Ni Nz pia
	Notice!
	$= \alpha \left[\hat{\mu}_{1} \left(N_{1} - N_{1}^{2} \right) - \hat{\mu}_{2} N_{1} N_{2} \right] \qquad N_{1} - N_{1}^{2} = \frac{N N_{1} - N_{1}^{2}}{N}$
	$= \frac{N_1 N_2 \alpha (\hat{\mu}_1 - \hat{\mu}_2)}{N_1 N_2 \alpha (\hat{\mu}_1 - \hat{\mu}_2)} = \frac{N_1^2 - N_1^2 + N_1 N_2 - N_1 N_2}{N_1 N_2 \alpha (\hat{\mu}_1 - \hat{\mu}_2)}$
	NIN
	and by graving the 'b' terms is a similar way, (*) becomes:
	N. N. a (\hat{\mu} - \hat{\mu}_2) - N. N. b (\hat{\mu}_2 - \hat{\mu}_1) = N. N. (b - \alpha) (\hat{\mu}_2 - \hat{\mu}_1)
	N N

(6)0 -1.0	Therefore, in this more general case egn. 4.56 becomes:
300	
	$[(N-2)\hat{\Sigma} + N\hat{\Sigma}_B]\hat{\beta} = \frac{N_1N_2}{N}(b-a)(\hat{\mu}_2 - \hat{\mu}_1)$
- - (0.000)	VIVI CONTRACTOR OF THE STATE OF
	It is easy to verify that in the case where a= - Ny
	It is easy to verify that in the case where $\alpha = -N_N$, and $b = N_N$, this reduces back to eqn. 4.56.
	Finally, it is clear that the results from Part (c) also
	hold for this egn, and thus the result holds for
	any distinct coding of the tho Classes.
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