3.4.1

$$\sum_{i} (\alpha \beta)_{ij} = 0 \qquad j = 1, \dots, b$$

$$\sum_{i} (\alpha \beta)_{ij} = \sum_{i} (M_{ij} - M_{i} - M_{i} + M)$$

$$= \alpha \cdot M_{ij} - \alpha M - \alpha M_{ij} + \alpha M$$

$$= 0$$

SA. I SB

$$\begin{cases}
S_{A} : \sum y_{i...}^{2}/b_{A} - CT, ...
\end{cases}$$

$$S_{A} : b_{A} : \sum y_{i...}^{2}/b_{A} - CT, ...$$

$$= b_{A} : \sum y_{i...}^{2} - 2y_{i...}^{2}/2 = b_{A} : \sum y_{i...}^{2}/2 = b_{A} : \sum y_{i...}^{2}/2 = b_{A} : \sum y_{i...}^{2}/2 = a_{A} : \sum y_{i...}^{2}/2 = b_{A} : \sum y_{i...}^{2}/2 = a_{A} : \sum$$

$$ab-a-b+1$$
 $ab-(a-1)-(b-1)-1$

I

VAXB E考isicは、SAIB の独立なが分の個数を 数ihtripin。[P91]

はならつのならからなる。このうちままだものの個なを

					,,,,
1 3	1	2	3	4	
	ÿ11.	912.	y 13.	¥ 14	٧١
a $\begin{cases} 2 \end{cases}$	ÿ ₂₁ .	7	7,5) ÿ,,.	42.
(3	431.	712 .	¥ 33.	714.	33.1
	7.1.	7.2.	y.3.) J.4.	\(\(\bar{\gamma}\).
1:2	i = 3	nei	ÿ ₂	7- 9-3 9	

1:1, , , a 1: 5".

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1..} - \bar{y}_{.2}, + \bar{y}_{...}) = 0}{Z_{10}} = 0$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1..} - \bar{y}_{.2}, + \bar{y}_{...}) = 0}{Z_{10}}$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1..} - \bar{y}_{...} + \bar{y}_{...}) = 0}{Z_{10}}$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1..} - \bar{y}_{1..} + \bar{y}_{...}) = 0}{Z_{10}}$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1..} + \bar{y}_{1...}) = 0}{Z_{10}}$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...}) = 0}{Z_{10}}$$

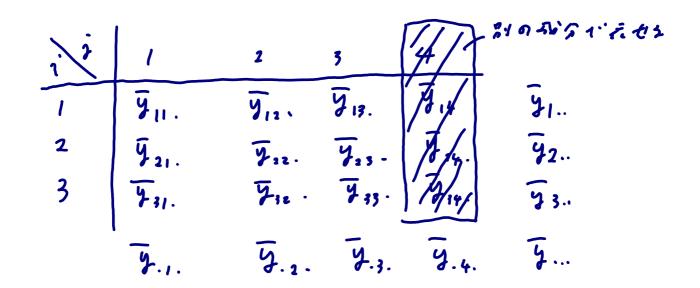
$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...}) = 0}{Z_{10}}$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...}) = 0}{Z_{10}}$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...}) = 0}{Z_{10}}$$

$$\frac{Z(\bar{y}_{13}, -\bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...} + \bar{y}_{1...}) = 0}{Z_{10}}$$

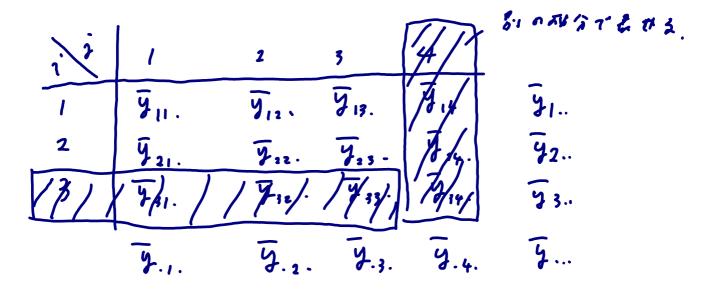
$$\frac{Z(\bar{y}_{13}, -\bar{y}_{11}, -\bar{y}_{11$$



次に ずこし、1、 , 6-1 において、

$$\sum_{i} (\bar{y}_{ij} - \bar{y}_{ii} - \bar{y}_{i} + \bar{y}_{ii}) = 0$$

1,7. (i, i): (a,1), (a,2), ..., (a.b-1) osp 1. 別のか分で表すことができま、



$$= br \sum_{i} E(Q_{i} + \frac{1}{br} \sum_{i} \sum_{k} E_{ijk} - \frac{1}{abr} \sum_{k} E_{ijk})^{2}$$

$$= br \sum_{i} E(Q_{i} + (\frac{1}{br})^{2} \sum_{k} E_{ijk} + (\frac{1}{abr})^{2} E_{ijk})^{2}$$

$$- 2(\frac{1}{br})(\frac{1}{abr}) \sum_{i} \sum_{k} E_{ijk})$$

$$(:: E(E_{ijk}) = 0 \text{ if if } i \text{ if } E_{ijk})$$

$$= br Q_{i}^{2} + (\frac{1}{br})^{2} \sum_{i} \sum_{k} E(E_{ijk}) \text{ abr } \sigma^{2}$$

$$+ (\frac{1}{abr})^{2} \cdot \alpha \sum_{k} \sum_{k} E(E_{ijk})$$

$$- 2(\frac{1}{abr})^{2} \cdot \alpha \sum_{k} \sum_{k} E(E_{ijk})$$

$$= br Q_{i}^{2} + br \left\{ (\frac{1}{br})^{2} - \frac{1}{a} (\frac{1}{br})^{2} \right\} \text{ abr } \sigma^{2}$$

$$= br Q_{i}^{2} + (Q_{i} - 1) Q_{i}^{2}$$

$$= br Q_{i}^{2} + (Q_{i} - 1) Q_{i}^{2}$$

E(5B) E(SAB) E(Se) & 3,7 DU 1512 T"3347"...! (+111611)