

9.10

和

$$T_1 = 3.15$$

平均數

$$\bar{Y}_1 = \frac{3.15}{5} = 0.63$$

$$T_2 = 9.19$$

$$\bar{Y}_2 = \frac{9.19}{6} = 1.53$$

$$T_3 = 11.44$$

$$\bar{Y}_3 = \frac{11.44}{6} = 1.91$$

$$T = 23.78$$

$$\bar{Y} = 1.4$$

$$H_0: \mu_1 = \mu_2 = \mu_3$$

$$n = 5 + 6 + 6 = 17$$

$$SST = 39.159 - 33.264 = 5.895$$

$$SSTR = 37.873 - 33.264 = 4.609$$

$$SSE = SST - SSTR = 1.286$$

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$$SSTR = 4.609$$

$$3-1=2$$

$$MSTR = 2.305$$

誤差

$$SSE = 1.286$$

$$17-3=14$$

$$MSE = 0.092$$

$$F = \frac{MSTR}{MSE} = \frac{2.305}{0.092} = 25.05$$

總和

$$SST = 5.895$$

$$17-1=16$$

$$F = 25.05 > F_{0.05}(2, 14) = 3.74$$

平方和

自由度

均方

$$m = \binom{3}{2} = 3$$

$$\frac{\alpha}{2 \times 3} = \frac{0.05}{2 \times 3} = 0.0083$$

$$t_{\frac{\alpha}{2}}(14) = t_{0.0083}(14) = 2.718$$

$$\mu_2 - \mu_1 = (1.53 - 0.63) \pm 2.718 \times 0.303$$

$$s = \sqrt{MSE} = \sqrt{0.092} = 0.303$$

$$\times \sqrt{\frac{1}{6} + \frac{1}{5}} = (0.401, 1.399) \neq 0 \text{ 不包含 } 0 \text{ 有明顯差距}$$

$$\mu_3 - \mu_2 = (1.91 - 1.53) \pm 2.718 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (-0.095, 0.855) \text{ 包含 } 0$$

$$\mu_3 - \mu_1 = (1.91 - 0.63) \pm 2.718 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{5}} = (0.781, 1.799) \text{ 不包含 } 0$$

有明顯差距

$$9.12 \quad \sqrt{(k-1)F} = \sqrt{(3-1)3.74} = 2.73 \quad F_{0.05}(3-1, 17-3) = 3.74$$

$$\mu_2 - \mu_1 : (1.53 - 0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{5}} = (0.399, 1.401) \text{ 不含 } 0$$

$$\mu_3 - \mu_2 : (1.91 - 1.53) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (-0.098, 0.858) \text{ 包含 } 0$$

$$\mu_3 - \mu_1 : (1.91 - 0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{5}} = (0.779, 1.781) \text{ 不含 } 0$$

此方式和多聯合信賴區間相同, 但此信賴區間寬