On simultaneous confidence intervals for all contrasts in the means of the intraclass correlation model with missing data

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Abstract

In this paper, we consider simultaneous confidence intervals for all contrasts in the means when the observations are missing at random in the intraclass correlation model. An exact test statistic for the equality of the means and Scheffé, Bonferroni and Tukey types of simultaneous confidence intervals are given by an extension of Bhargava and Srivastava [2] when the missing observations are of the monotone type. Finally, numerical results of simultaneous confidence intervals are presented.

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1. Introduction

In this paper, we consider the two-components mixed linear model in which the random variable

$$x_{ij} = \mu_i + \alpha_j + \varepsilon_{ij},\ i = 1, \ldots, p_j,\ j = 1, \ldots, n,$$

where α_j and ε_{ij} are independently normally distributed, α_j's are *i.i.d.* $N(0, \sigma_\alpha^2)$ and ε_{ij}'s are *i.i.d.* $N(0, \sigma_\varepsilon^2)$. Thus, the mean of x_{ij} is $\mathrm{E}(x_{ij}) = \mu_i$. It is easily seen that $\mathrm{Var}(x_{ij}) = \sigma_\alpha^2 + \sigma_\varepsilon^2 (\equiv \sigma^2)$, $\mathrm{Cov}(x_{ij}, x_{i'j}) = \sigma_\alpha^2, i \neq i'$ and $\mathrm{Cov}(x_{ij}, x_{ij'}) = 0, j \neq j'$. We note that if $p_j = p$ and if we define $\boldsymbol{x}_j = (x_{1j}, \ldots, x_{pj})'$, then $\boldsymbol{x}_1, \ldots, \boldsymbol{x}_n$ are *i.i.d.* $N_p(\boldsymbol{\mu}, \boldsymbol{\Sigma})$ where $\boldsymbol{\mu} = (\mu_1, \ldots, \mu_p)'$, $\boldsymbol{\Sigma} = \sigma^2[(1-\rho)\boldsymbol{I}_p + \rho\mathbf{1}\mathbf{1}']$, $0 \leq \rho = \sigma_\alpha^2/\sigma^2 \leq 1$, $\boldsymbol{I}_p$ is $p \times p$ identity matrix and $\mathbf{1}$ is a p-vector of ones, $\mathbf{1} = (1, \ldots, 1)'$. When the covariance matrix $\boldsymbol{\Sigma}$ is of the above structure, it is called an intraclass correlation model where ρ may lie between $[-1/(p-1), 1]$.

The problem of finding Scheffé, Bonferroni and Tukey types simultaneous confidence intervals for all contrasts in the means of a multivariate normal population has been considered by Miller [7] and Scheffé [10] when the covariance matrix is of the intraclass correlation form, $\boldsymbol{\Sigma} = \sigma^2[(1-\rho)\boldsymbol{I} + \rho\mathbf{1}\mathbf{1}']$, $\mathbf{1} = (1, 1, \ldots, 1)'$, σ^2 is unknown but ρ is known. When both σ^2 and ρ are unknown, this problem has been considered by Bhargava and Srivastava [2]. When the observations are missing and are of the monotone type(see, e.g., Rao [9], Anderson [1]), Seo and Srivastava [11] gave an exact test statistic for the equality of the means and simultaneous confidence intervals (Scheffé and Bonferroni types) for all contrasts in the means. Furthermore, when the missing observations are not of the monotone type, that is, the general case of missing observations, Seo and Srivastava[11] gave the asymptotic simultaneous confidence intervals by usual maximum likelihood ratio method and an iterative numerical method in Srivastava [12] and Srivastava and Carter[14]. The maximum likelihood estimate for an intraclass correlation coefficient in a bivariate normal distribution, when some observations on either of the variables are missing, has been discussed by Konishi and Shimizu [6], Minami and Shimizu [8]. The maximum likelihood estimate for a multivariate normal distribution with monotone missing data is discussed by Kanda and Fujikoshi [5].

In this paper, repeated measures with intraclass correlation model is considered when the observations are of the monotone type of missing. An exact test statistic for the equality of the means are given under the monotone type of missing observations, and Scheffé, Bonferroni and Tukey types of simultaneous confidence intervals are given for all contrasts in the means by an extension of the transformation in Bhargava and Srivastava[2]. In particular, Scheffé and Bonferroni types of simultaneous confidence intervals by the procedure developed in this paper have exactly confidence level at $1-\alpha$. The organization of the paper is as follows. In Section 2, we provide a new exact test statistic for the equality of the means. In Section 3, Scheffé, Bonferroni and Tukey types of simultaneous confidence intervals for all contrasts in the means are given. Finally, the numerical results of a real example and simulation are presented in Sections 4 and 5.

2. Testing the equality of the means

In this section, we consider an exact test for testing the hypothesis $\boldsymbol{H}_0 : \mu_1 = \mu_2 = \cdots = \mu_p$ against the alternative $\boldsymbol{H}_1 \neq \boldsymbol{H}_0$ under the monotone type of missing observations. When we consider the monotone type of missing observations, without loss of generality, we may assume that the observations $\{x_{ij}\}$ are the following form:

$$\begin{pmatrix} x_{11} & x_{12} & \cdots & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & \cdots & \vdots \\ \vdots & \vdots & \cdots & \cdots & x_{p_n n} \\ \vdots & x_{p_2 2} & & & \\ x_{p_1 1} & & & & \end{pmatrix} = \begin{pmatrix} x_{11} & x_{12} & \cdots & \cdots & x_{1n_1} \\ x_{21} & x_{22} & \cdots & x_{2n_2} & \\ \vdots & \vdots & \vdots & & \\ \vdots & \vdots & \vdots & & \\ x_{p1} & \cdots & x_{pn_p} & & \end{pmatrix},$$

where, $p = p_1 \geq p_2 \geq \cdots \geq p_n$ and $n = n_1 \geq n_2 \geq \cdots \geq n_p$. Let $\boldsymbol{x}_j = (x_{1j}, \ldots, x_{p_j j})'$, we note that $\boldsymbol{x}_j$'s are independently distributed as $N_{p_j}(\boldsymbol{\mu}_j, \boldsymbol{\Sigma}_j)$, $j = 1, 2, \ldots, n$, where $\boldsymbol{\mu}_j = (\mu_1, \ldots, \mu_{p_j})'$, $\boldsymbol{\Sigma}_j = \sigma^2[(1-\rho)\boldsymbol{I}_{p_j} + \rho \mathbf{1}_j \mathbf{1}_j']$, $\boldsymbol{I}_{p_j}$ is a $p_j \times p_j$ identity matrix and $\mathbf{1}_j = (1, 1, \ldots, 1)'$ is a p_j-vector of ones.

Further, let $\boldsymbol{C}_j$ be a $p_j \times p_j$ matrix such that $\boldsymbol{C}_j = \boldsymbol{I}_{p_j} - (\nu_j/p_j)\mathbf{1}_j\mathbf{1}_j'$, where $\nu_j =$

$1 \pm (1-\rho)^{\frac{1}{2}}\{1+(p_j-1)\rho\}^{-\frac{1}{2}}$. Then, as in Bhargava and Srivastava [2], we consider the transformation $\boldsymbol{z}_j = \boldsymbol{C}_j \boldsymbol{x}_j$. Clearly, then $\boldsymbol{z}_j \sim N_{p_j}(\boldsymbol{C}_j \boldsymbol{\mu}_j, \gamma^2 \boldsymbol{I}_{p_j})$, where $\gamma^2 = \sigma^2(1-\rho)$.

Also we note that the observed data $\{x_{ij}\}$ and the transformed data $\{z_{ij}\}$ can be grouped into s subsets of complete data, respectively, where c-th group is a $p^{(c)} \times n^{(c)}$ matrix, $1 \le c \le s < p$. The $z_{k\ell}^{(c)}$ means a (k,ℓ) component in the c-th group. Then sample means, $\overline{z}_{k\cdot}^{(c)}, \overline{z}_{\cdot\ell}^{(c)}$ and $\overline{z}_{\cdot\cdot}^{(c)}$, are defined as

$$\overline{z}_{k\cdot}^{(c)} = \frac{1}{n^{(c)}} \sum_{\ell=1}^{n^{(c)}} z_{k\ell}^{(c)}, \ \overline{z}_{\cdot\ell}^{(c)} = \frac{1}{p^{(c)}} \sum_{k=1}^{p^{(c)}} z_{k\ell}^{(c)}, \ \overline{z}_{\cdot\cdot}^{(c)} = \frac{1}{p^{(c)} n^{(c)}} \sum_{k=1}^{p^{(c)}} \sum_{\ell=1}^{n^{(c)}} z_{k\ell}^{(c)},$$

respectively. $x_{k\ell}^{(c)}$, $\overline{x}_{k\cdot}^{(c)}$, $\overline{x}_{\cdot\ell}^{(c)}$ and $\overline{x}_{\cdot\cdot}^{(c)}$ are defined similarly. Hence, we have an unbiased estimator of γ^2 as

$$\begin{aligned} \hat{\gamma}^{(c)^2} &= \frac{1}{f^{(c)}} \sum_{k=1}^{p^{(c)}} \sum_{\ell=1}^{n^{(c)}} \left(z_{k\ell}^{(c)} - \overline{z}_{k\cdot}^{(c)} - \overline{z}_{\cdot\ell}^{(c)} + \overline{z}_{\cdot\cdot}^{(c)} \right)^2 \\ &= \frac{1}{f^{(c)}} \sum_{k=1}^{p^{(c)}} \sum_{\ell=1}^{n^{(c)}} \left(x_{k\ell}^{(c)} - \overline{x}_{k\cdot}^{(c)} - \overline{x}_{\cdot\ell}^{(c)} + \overline{x}_{\cdot\cdot}^{(c)} \right)^2, \end{aligned}$$

where, $f^{(c)} = (p^{(c)}-1)(n^{(c)}-1)$. Then under the hypothesis $\boldsymbol{H}_0$, $(f^{(c)}\hat{\gamma}^{(c)^2})/\gamma^2$ has a χ^2 distribution with $f^{(c)}$ degrees of freedom. Define

$$\overline{x}_{i\cdot} = \frac{1}{n_i} \sum_{j=1}^{n_i} x_{ij}, \ \tilde{x}_{\cdot\cdot} = \frac{1}{p} \sum_{i=1}^{p} \overline{x}_{i\cdot}, \ \overline{z}_{i\cdot} = \frac{1}{n_i} \sum_{j=1}^{n_i} z_{ij}, \ \tilde{z}_{\cdot\cdot} = \frac{1}{p} \sum_{i=1}^{p} \overline{z}_{i\cdot}.$$

Since we note that $n_i(\overline{z}_{i\cdot} - \tilde{z}_{\cdot\cdot}) = n_i(\overline{x}_{i\cdot} - \tilde{x}_{\cdot\cdot})$,

$$\sum_{i=1}^{p} \left(\frac{\overline{z}_{i\cdot} - \tilde{z}_{\cdot\cdot}}{\gamma/\sqrt{n_i}} \right)^2 = \sum_{i=1}^{p} \left(\frac{\overline{x}_{i\cdot} - \tilde{x}_{\cdot\cdot}}{\gamma/\sqrt{n_i}} \right)^2,$$

which has a χ^2 distribution with $p-1$ degrees of freedom and is independent of $\hat{\gamma}^{(c)^2}$. Thus, a test statistic F_0 for the hypothesis $\boldsymbol{H}_0$ is

$$F_0 = \frac{\sum_{i=1}^{p} n_i(\overline{x}_{i\cdot} - \tilde{x}_{\cdot\cdot})^2/(p-1)}{\sum_{c=1}^{s} f^{(c)}\hat{\gamma}^{(c)^2}/f}, \tag{2.1}$$

which has a F distribution with $p-1$ and f degrees of freedom, where, $f = \sum_{c=1}^{s} f^{(c)}$. Large value of this statistic leads to the rejection of hypothesis $\boldsymbol{H}_0$. When observed data is complete(i.e., $s=1$), this test statistic F_0 reduces to the test statistic by Bhargava and Srivastava [2].

3. Simultaneous confidence intervals for all contrasts

We consider simultaneous confidence intervals for $\boldsymbol{a}'\boldsymbol{\mu}$ for non-null vector $\boldsymbol{a}$ such that $\boldsymbol{a}'\boldsymbol{1} = 0$. Let $\overline{\boldsymbol{x}} = (\overline{x}_{1\cdot}, \ldots, \overline{x}_{p\cdot})'$ and

$$\boldsymbol{V} = \begin{pmatrix} n_1^{-1} & & 0 \\ & \ddots & \\ 0 & & n_p^{-1} \end{pmatrix}.$$

Hence $100(1-\alpha)$ for $\boldsymbol{a}'\boldsymbol{\mu}$ are given by

$$\boldsymbol{a}'\boldsymbol{\mu} \in \boldsymbol{a}'\overline{\boldsymbol{x}} \pm \sqrt{(p-1)F_{p-1,f,\alpha} \sum_{c=1}^{s} \frac{f^{(c)}\hat{\gamma}^{(c)2}}{f} \boldsymbol{a}'\boldsymbol{V}\boldsymbol{a}}, \tag{3.1}$$

where, $F_{p-1,f,\alpha}$ is the upper 100α of a F distribution with $p-1$ and f degrees of freedom.

We can also obtain simultaneous confidence intervals for ℓ linear contrasts $\boldsymbol{a}_1'\boldsymbol{\mu}, \ldots, \boldsymbol{a}_\ell'\boldsymbol{\mu}$ by Bonferroni's inequality. Consequently Bonferroni type of simultaneous confidence intervals are given by

$$\boldsymbol{a}_j'\boldsymbol{\mu} \in \boldsymbol{a}_j'\overline{\boldsymbol{x}} \pm t_{f,\frac{\alpha}{2\ell}} \sqrt{\sum_{c=1}^{s} \frac{f^{(c)}\hat{\gamma}^{(c)2}}{f} \boldsymbol{a}_j'\boldsymbol{V}\boldsymbol{a}_j} \quad j = 1, \ldots, \ell\ , \tag{3.2}$$

where, $\boldsymbol{a}_j = (a_{1,j}, \ldots, a_{p,j})'$ such that $\boldsymbol{a}_j'\boldsymbol{1} = 0$ and $t_{f,\alpha/(2\ell)}$ is the upper $100\alpha/(2\ell)$ of a t distribution with f degrees of freedom. Bonferroni type of simultaneous confidence intervals should be used only if

$$(p-1)F_{p-1,f,\alpha} \geq t^2_{f,\frac{\alpha}{2\ell}}$$

otherwise Scheffé type of simultaneous confidence intervals should be used. It holds that $(p-1)F_{p-1,f,\alpha} < t^2_{f,\alpha/(2\ell)}$ if ℓ is considerably bigger than $p-1$ (see, Miller [7]).

Further, Tukey type of simultaneous confidence intervals for all contrasts are given by

$$\boldsymbol{a}'\boldsymbol{\mu} \in \boldsymbol{a}'\overline{\boldsymbol{x}} \pm q_{p,f,\alpha} \sum_{i=1}^{p} \frac{|a_i|}{2} \sqrt{\sum_{c=1}^{s} \frac{f^{(c)}\hat{\gamma}^{(c)2}}{f} \sum_{i=1}^{p} \frac{1}{n_i|a_i|} \left(\sum_{i=1}^{p} \frac{1}{|a_i|} \right)^{-1}}, \tag{3.3}$$

where, $q_{p,f,\alpha}$ is the upper 100α of a Studentized range on p and f degrees of freedom. When observed data is complete(i.e., $s=1$), the above confidence intervals reduce to Tukey's simultaneous confidence intervals for all contrasts given by Bhargava and Srivastava [2].

We note that the confidence coefficient for Tukey type of simultaneous confidence intervals for all contrasts proposed in this paper is approximately $1-\alpha$. In the case of pairwise comparisons, however, these confidence intervals give exact $(1-\alpha)$-level simultaneous confidence intervals.

4. A real example

In this section, we shall discuss an example to illustrate the procedure(SKK procedure) developed in this paper. In this example, we shall treat a monotone type of missing data which is a real data of the cholesterol levels for a treatment group studied at times $0, 6, 12, 20$ and 24 months taken from Srivastava and Carter [14] (Source: see, Wei and Lachin [15]). In this case, we use a data set consisting of a complete part and a monotone type missing part obtained by ignoring non-monotone missing observations. We note that this data set is divided into four groups. That is, the first group is a 5×36 matrix which is a complete part, the second group is a 4×7 matrix, the third group is a 3×12 matrix and the forth group is a 2×5 matrix.

Calculating $f^{(c)}\hat{\gamma}^{(c)}$ for each group to obtain the test statistic, we obtain $\sum_{c=1}^{4} f^{(c)}\hat{\gamma}^{(c)}/f$ $= 662.731$, $\sum_{i=1}^{5} n_i(\overline{x}_{i\cdot} - \tilde{x}_{\cdot\cdot})^2/(p-1) = 8726.351$. Therefore, the value of the test statistic in (2.1) $F_0 = 13.167 > F_{4,184,0.05} = 2.421$. Thus, the hypothesis $\boldsymbol{H}_0 : \mu_1 = \mu_2 = \cdots = \mu_5$ is rejected and Scheffé, Bonferroni and Tukey types of simultaneous confidence intervals in (3.1), (3.2) and (3.3) can be obtained. Also, as for a test for an intraclass correlation model, we may apply the modified likelihood ratio test statistic Q by Box [3] [4] (see, Srivastava[13]). Consequently, the value of the test statistic $Q_0 = 24.735 < \chi^2_{13,0.01} = 27.688$. Therefore the null hypothesis $\boldsymbol{H_0} : \boldsymbol{\Sigma} = \sigma^2[(1-\rho)\boldsymbol{I} + \rho\boldsymbol{1}\boldsymbol{1}']$ is not rejected.

Using Scheffé and Tukey types of simultaneous confidence intervals in (3.1) and (3.3), some simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 5$ with $1-\alpha = 0.95$ are given in Table 1. To compare the simultaneous confidence intervals by SKK procedure with the ones by Seo and Srivastava [11](SS procedure), Table 2 gives Scheffé type of simultaneous confidence intervals and asymptotic simultaneous confidence intervals based on quadratic form statistic T^2 for monotone missing data by SS procedure. Comparing Table 1 with Table 2, for this real data, it may be noted that the simultaneous confidence intervals by SKK procedure are slightly shorter than the ones by SS procedure. It can be seen from Tables that Scheffé and Tukey types of simultaneous confidence intervals in (3.1) and (3.3) by SKK procedure developed in this paper can be obtained and are useful, if the missing data is of the monotone type.

5. Simulation studies

In this section, in order to investigate the behavior of the simultaneous confidence intervals by SKK procedure, we generate an artificial complete data set at random from the multivariate normal population by simulation. A monotone type of missing data is made from the above artificial complete data set by randomly deleting data. For a data set from the population with $\boldsymbol{\mu}$ and $\boldsymbol{\Sigma} = \sigma^2[(1-\rho)\boldsymbol{I} + \rho\mathbf{1}\mathbf{1}']$, we select the data cases for $p = 4, 6$ and $n = 20, 40$; $\boldsymbol{\mu} = (1,1,5,5)', (1,5,10,15)', (1,1,5,5,10,10)'$, $\sigma^2 = 1, 9$ and $\rho = 0.1, 0.5, 0.9$; $\alpha = 0.01, 0.05$; $s = 1, 2, 3, 4$. For the Cases $\sim$ of missing data set presented in Table 3 , Scheffé and Tukey types of simultaneous confidence intervals in (3.1) and (3.3) with level $1-\alpha$ are given in Tables 4 $\sim$ 39.

For instance, in the case when $p = 4, n = 20$ and Case in Table 3, the data set is a complete data set($m \equiv \sum_{c=1}^{s} p^{(c)} n^{(c)} = 80$) given by

$$\{x_{ij}\} = \begin{pmatrix} x_{11} & \cdots & x_{1,10} & \cdots & x_{1,20} \\ x_{21} & \cdots & x_{2,10} & \cdots & x_{2,20} \\ x_{31} & \cdots & x_{3,10} & \cdots & x_{3,20} \\ x_{41} & \cdots & x_{4,10} & \cdots & x_{4,20} \end{pmatrix}.$$

Further, in the case when $p = 4, n = 20$ and Case $(s = 2)$ in Table 3, the data set is a monotone type of missing data($m = 60$) given by

$$\{x_{ij}\} = \begin{pmatrix} x_{11} & \cdots & \cdots & x_{1,10} & \cdots & \cdots & x_{1,20} \\ x_{21} & \cdots & \cdots & x_{2,10} & \cdots & \cdots & x_{2,20} \\ x_{31} & \cdots & \cdots & x_{3,10} & * & \cdots & * \\ x_{41} & \cdots & \cdots & x_{4,10} & * & \cdots & * \end{pmatrix}.$$

For the above data sets and $\boldsymbol{\mu} = (1,1,5,5)', \sigma^2, \rho = 0.1$, Table 4 gives Scheffé and Tukey types of simultaneous confidence intervals in (3.1) and (3.3) for $\mu_i - \mu_j, 1 \le i < j \le 4$

with level $1 - \alpha = 0.95$. These confidence intervals reduce to ones by Bhargava and Srivastava[2] since the data set is complete data.

Since the complete data set($m = 80$) and first group data($m = 40$) in Tables are complete type of data, that is, $n_i = n$, we note that Scheffé type of simultaneous confidence intervals have same width. We note from Tables that the width for the case of $m = 40$ is wide owing to the deleting a missing part in the monotone type of missing data. It may be noted from Tables that Tukey type of simultaneous confidence intervals in (3.3) are shorter than Scheffé type of simultaneous confidence intervals in (3.1) for the case of the monotone type of missing data though it must be checked by the simulation study for the other cases. In conclution, the proposed procedure in this paper is useful for the simultaneous confidence intervals under the monotone type of missing data.

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Table 1
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 5$ with level $1 - \alpha = 0.95$ by SKK procedure

$\boldsymbol{a}'$	Scheffé type	Tukey type
(1, −1, 0, 0, 0)	−19.883 ± 14.626	−19.883 ± 12.949
(1, 0, −1, 0, 0)	−25.468 ± 14.954	−25.468 ± 13.240
(1, 0, 0, −1, 0)	−30.822 ± 16.006	−30.822 ± 14.171
(1, 0, 0, 0, −1)	−30.172 ± 16.888	−30.172 ± 14.952
(0, 1, −1, 0, 0)	−5.585 ± 14.954	−5.585 ± 13.240
(0, 1, 0, −1, 0)	−10.939 ± 16.006	−10.939 ± 14.171
(0, 1, 0, 0, −1)	−10.289 ± 16.888	−10.289 ± 14.952
(0, 0, 1, −1, 0)	−5.354 ± 16.307	−5.354 ± 14.437
(0, 0, 1, 0, −1)	−4.704 ± 17.174	−4.704 ± 15.205
(0, 0, 0, 1, −1)	−0.650 ± 18.097	−0.650 ± 16.022

Table 2
Scheffé type and asymptotic simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 5$ with level $1 - \alpha = 0.95$ by SS procedure

$\boldsymbol{a}'$	Scheffé type	Asymptotic
(1, −1, 0, 0, 0)	−19.900 ± 14.540	−19.899 ± 13.575
(1, 0, −1, 0, 0)	−25.432 ± 15.028	−25.154 ± 16.036
(1, 0, 0, −1, 0)	−27.692 ± 16.394	−28.319 ± 16.979
(1, 0, 0, 0, −1)	−29.443 ± 17.453	−28.362 ± 25.920
(0, 1, −1, 0, 0)	−5.532 ± 15.028	−5.255 ± 15.216
(0, 1, 0, −1, 0)	−7.792 ± 16.394	−8.420 ± 14.842
(0, 1, 0, 0, −1)	−9.543 ± 17.453	−8.463 ± 23.728
(0, 0, 1, −1, 0)	−2.260 ± 16.540	−3.165 ± 17.820
(0, 0, 1, 0, −1)	−4.012 ± 17.590	−3.208 ± 22.513
(0, 0, 0, 1, −1)	−1.751 ± 18.190	−0.043 ± 24.460

Table 3
Illustration for types of missing data set $\{x_{ij}\}$ for $n = 20, 40$

		p=4	p=6
Case	s	Types of missing data set	Types of missng data set
	1	$(4, n)$	$(6, n)$
	1	$(4, n/2)$	$(6, n/2)$
	2	$(4, n/2), (2, n/2)$	$(6, n/2), (3, n/2)$
	3	$(4, n/4), (3, n/4), (2, n/2)$	$(6, n/4), (5, n/4), (4, n/2)$
	3	$(4, n/2), (3, n/4), (2, n/4)$	$(6, n/2), (5, n/4), (4, n/4)$
	4	$(4, n/4), (3, n/4), (2, n/4), (1, n/4)$	$(6, n/4), (5, n/4), (4, n/4), (3, n/4)$

Note: $(p^{(c)}, n^{(c)})$ means that the $c-$th group has a $p^{(c)} \times n^{(c)}$ data matrix , $1 \leq c \leq s \leq p$

Table 4($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 1$, $\rho = 0.1$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-0.021 ± 0.828	-0.021 ± 0.760	0.271 ± 3.434	0.271 ± 3.154
$(1, 0, -1, 0)$	-3.929 ± 0.828	-3.929 ± 0.760	-3.853 ± 3.434	-3.853 ± 3.154
$(1, 0, 0, -1)$	-4.584 ± 0.828	-4.584 ± 0.760	-3.997 ± 3.434	-3.997 ± 3.154
$(0, 1, -1, 0)$	-3.908 ± 0.828	-3.908 ± 0.760	-4.123 ± 3.434	-4.123 ± 3.154
$(0, 1, 0, -1)$	-4.564 ± 0.828	-4.564 ± 0.760	-4.267 ± 3.434	-4.267 ± 3.154
$(0, 0, 1, -1)$	-0.656 ± 0.828	-0.656 ± 0.760	-0.144 ± 3.434	-0.144 ± 3.154
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-0.021 ± 2.113	-0.021 ± 1.941	-0.021 ± 1.725	-0.021 ± 1.584
$(1, 0, -1, 0)$	-4.135 ± 2.588	-4.135 ± 2.377	-4.135 ± 2.112	-4.135 ± 1.940
$(1, 0, 0, -1)$	-4.279 ± 2.588	-4.279 ± 2.377	-4.069 ± 2.727	-4.069 ± 2.505
$(0, 1, -1, 0)$	-4.115 ± 2.588	-4.115 ± 2.377	-4.115 ± 2.112	-4.115 ± 1.940
$(0, 1, 0, -1)$	-4.259 ± 2.588	-4.259 ± 2.377	-4.049 ± 2.727	-4.049 ± 2.505
$(0, 0, 1, -1)$	-0.144 ± 2.988	-0.144 ± 2.744	0.066 ± 2.988	0.066 ± 2.744
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-0.021 ± 2.083	-0.021 ± 1.913	0.141 ± 2.013	0.141 ± 1.849
$(1, 0, -1, 0)$	-4.084 ± 2.250	-4.084 ± 2.066	-4.135 ± 2.283	-4.135 ± 2.097
$(1, 0, 0, -1)$	-4.279 ± 2.551	-4.279 ± 2.343	-4.069 ± 2.947	-4.069 ± 2.707
$(0, 1, -1, 0)$	-4.063 ± 2.250	-4.063 ± 2.066	-4.276 ± 2.407	-4.276 ± 2.210
$(0, 1, 0, -1)$	-4.259 ± 2.551	-4.259 ± 2.343	-4.211 ± 3.044	-4.211 ± 2.795
$(0, 0, 1, -1)$	-0.196 ± 2.689	-0.196 ± 2.470	0.066 ± 3.229	0.066 ± 2.965

Table 5($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 1$, $\rho = 0.5$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-0.484 ± 0.640	-0.484 ± 0.588	-0.203 ± 3.559	-0.203 ± 3.268
$(1, 0, -1, 0)$	-4.091 ± 0.640	-4.091 ± 0.588	-3.881 ± 3.559	-3.881 ± 3.268
$(1, 0, 0, -1)$	-3.951 ± 0.640	-3.951 ± 0.588	-3.946 ± 3.559	-3.946 ± 3.268
$(0, 1, -1, 0)$	-3.607 ± 0.640	-3.607 ± 0.588	-3.678 ± 3.559	-3.678 ± 3.268
$(0, 1, 0, -1)$	-3.467 ± 0.640	-3.467 ± 0.588	-3.743 ± 3.559	-3.742 ± 3.268
$(0, 0, 1, -1)$	0.140 ± 0.640	0.140 ± 0.588	-0.065 ± 3.559	-0.065 ± 3.268
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-0.484 ± 2.220	-0.484 ± 2.039	-0.484 ± 1.919	-0.484 ± 1.763
$(1, 0, -1, 0)$	-4.011 ± 2.718	-4.012 ± 2.497	-4.011 ± 2.350	-4.012 ± 2.159
$(1, 0, 0, -1)$	-4.076 ± 2.718	-4.076 ± 2.497	-4.847 ± 3.035	-4.847 ± 2.787
$(0, 1, -1, 0)$	-3.528 ± 2.718	-3.528 ± 2.497	-3.528 ± 2.351	-3.528 ± 2.159
$(0, 1, 0, -1)$	-3.593 ± 2.718	-3.593 ± 2.497	-4.363 ± 3.035	-4.363 ± 2.787
$(0, 0, 1, -1)$	-0.065 ± 3.139	-0.065 ± 2.883	-0.836 ± 3.324	-0.836 ± 3.053
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-0.484 ± 2.202	-0.484 ± 2.022	-0.484 ± 2.212	-0.484 ± 2.032
$(1, 0, -1, 0)$	-3.996 ± 2.378	-3.996 ± 2.184	-4.012 ± 2.509	-4.012 ± 2.304
$(1, 0, 0, -1)$	-4.076 ± 2.696	-4.076 ± 2.476	-4.847 ± 3.239	-4.847 ± 2.974
$(0, 1, -1, 0)$	-3.513 ± 2.378	-3.513 ± 2.184	-3.528 ± 2.644	-3.528 ± 2.428
$(0, 1, 0, -1)$	-3.593 ± 2.696	-3.593 ± 2.477	-4.363 ± 3.345	-4.363 ± 3.071
$(0, 0, 1, -1)$	-0.080 ± 2.842	-0.080 ± 2.610	-0.835 ± 3.547	-0.836 ± 3.258

Table 6($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 1$, $\rho = 0.9$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,0,0)$	-0.152 ± 0.243	-0.152 ± 0.224	-0.129 ± 2.998	-0.129 ± 2.753
$(1,0,-1,0)$	-4.055 ± 0.243	-4.055 ± 0.224	-3.984 ± 2.998	-3.984 ± 2.753
$(1,0,0,-1)$	-4.112 ± 0.243	-4.112 ± 0.224	-4.052 ± 2.998	-4.052 ± 2.753
$(0,1,-1,0)$	-3.903 ± 0.243	-3.903 ± 0.224	-3.855 ± 2.998	-3.855 ± 2.753
$(0,1,0,-1)$	-3.960 ± 0.243	-3.960 ± 0.224	-3.923 ± 2.998	-3.923 ± 2.753
$(0,0,1,-1)$	-0.057 ± 0.243	-0.057 ± 0.224	-0.069 ± 2.998	-0.069 ± 2.753
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,0,0)$	-0.152 ± 1.837	-0.152 ± 1.687	-0.152 ± 1.579	-0.152 ± 1.450
$(1,0,-1,0)$	-3.869 ± 2.250	-3.869 ± 2.067	-3.869 ± 1.934	-3.869 ± 1.776
$(1,0,0,-1)$	-3.937 ± 2.250	-3.937 ± 2.067	-4.386 ± 2.496	-4.386 ± 2.293
$(0,1,-1,0)$	-3.717 ± 2.250	-3.717 ± 2.067	-3.717 ± 1.934	-3.717 ± 1.776
$(0,1,0,-1)$	-3.785 ± 2.250	-3.785 ± 2.067	-4.234 ± 2.496	-4.234 ± 2.293
$(0,0,1,-1)$	-0.068 ± 2.598	-0.068 ± 2.386	-0.518 ± 2.735	-0.518 ± 2.511
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,0,0)$	-0.152 ± 1.872	-0.152 ± 1.720	-0.144 ± 1.864	-0.144 ± 1.711
$(1,0,-1,0)$	-4.050 ± 2.022	-4.050 ± 1.857	-3.869 ± 2.113	-3.869 ± 1.941
$(1,0,0,-1)$	-3.937 ± 2.293	-3.937 ± 2.106	-4.386 ± 2.728	-4.386 ± 2.505
$(0,1,-1,0)$	-3.898 ± 2.022	-3.898 ± 1.857	-3.726 ± 2.228	-3.726 ± 2.046
$(0,1,0,-1)$	-3.785 ± 2.093	-3.785 ± 2.106	-4.243 ± 2.818	-4.243 ± 2.588
$(0,0,1,-1)$	0.113 ± 2.417	0.113 ± 2.220	-0.517 ± 2.988	-0.517 ± 2.744

Table 7($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 9$, $\rho = 0.1$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,0,0)$	-0.152 ± 0.243	-0.152 ± 0.223	-0.129 ± 2.998	-0.129 ± 2.753
$(1,0,-1,0)$	-4.055 ± 0.243	-4.055 ± 0.223	-3.984 ± 2.998	-3.984 ± 2.753
$(1,0,0,-1)$	-4.112 ± 0.243	-4.112 ± 0.223	-4.052 ± 2.998	-4.052 ± 2.753
$(0,1,-1,0)$	-3.903 ± 0.243	-3.903 ± 0.223	-3.855 ± 2.998	-3.855 ± 2.753
$(0,1,0,-1)$	-3.960 ± 0.243	-3.960 ± 0.223	-3.923 ± 2.998	-3.923 ± 2.753
$(0,0,1,-1)$	-0.057 ± 0.243	-0.057 ± 0.223	-0.068 ± 2.998	-0.068 ± 2.753
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,0,0)$	-0.152 ± 1.837	-0.152 ± 1.687	-0.152 ± 1.579	-0.152 ± 1.450
$(1,0,-1,0)$	-3.869 ± 2.250	-3.869 ± 2.066	-3.869 ± 1.934	-3.869 ± 1.776
$(1,0,0,-1)$	-3.937 ± 2.250	-3.937 ± 2.066	-4.386 ± 2.496	-4.386 ± 2.292
$(0,1,-1,0)$	-3.717 ± 2.250	-3.717 ± 2.066	-3.717 ± 1.934	-3.717 ± 1.776
$(0,1,0,-1)$	-3.785 ± 2.250	-3.785 ± 2.066	-4.234 ± 2.496	-4.234 ± 2.292
$(0,0,1,-1)$	-0.068 ± 2.598	-0.068 ± 2.386	-0.517 ± 2.734	-0.517 ± 2.511
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,0,0)$	-0.152 ± 1.872	-0.152 ± 1.719	-0.143 ± 1.863	-0.143 ± 1.711
$(1,0,-1,0)$	-4.050 ± 2.022	-4.050 ± 1.857	-3.869 ± 2.113	-3.869 ± 1.940
$(1,0,0,-1)$	-3.937 ± 2.293	-3.937 ± 2.106	-4.386 ± 2.728	-4.386 ± 2.505
$(0,1,-1,0)$	-3.898 ± 2.022	-3.898 ± 1.857	-3.725 ± 2.227	-3.725 ± 2.045
$(0,1,0,-1)$	-3.785 ± 2.293	-3.785 ± 2.106	-4.243 ± 2.817	-4.243 ± 2.587
$(0,0,1,-1)$	0.113 ± 2.417	0.113 ± 2.220	-0.517 ± 2.988	-0.517 ± 2.744

Table 8($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 9$, $\rho = 0.5$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	2.489 ± 6.246	2.489 ± 5.738	3.296 ± 10.848	3.296 ± 9.963
(1, 0, −1, 0)	−4.467 ± 6.246	−4.467 ± 5.738	−6.913 ± 10.848	−6.913 ± 9.963
(1, 0, 0, −1)	−3.787 ± 6.246	−3.787 ± 5.738	−3.973 ± 10.848	−3.973 ± 9.963
(0, 1, −1, 0)	−6.957 ± 6.246	−6.957 ± 5.738	−10.209 ± 10.848	−10.209 ± 9.963
(0, 1, 0, −1)	−6.276 ± 6.246	−6.276 ± 5.738	−7.269 ± 10.848	−7.269 ± 9.963
(0, 0, 1, −1)	0.681 ± 6.246	0.681 ± 5.738	2.940 ± 10.848	2.940 ± 9.963
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	2.489 ± 7.488	2.489 ± 6.877	2.489 ± 7.731	2.489 ± 7.100
(1, 0, −1, 0)	−7.526 ± 9.170	−7.526 ± 8.423	−7.526 ± 9.469	−7.526 ± 8.696
(1, 0, 0, −1)	−4.586 ± 9.170	−4.586 ± 8.423	−6.732 ± 12.225	−6.732 ± 11.227
(0, 1, −1, 0)	−10.015 ± 9.170	−10.015 ± 8.423	−10.015 ± 9.469	−10.015 ± 8.696
(0, 1, 0, −1)	−7.075 ± 9.170	−7.075 ± 8.423	−9.222 ± 12.225	−9.222 ± 11.227
(0, 0, 1, −1)	2.940 ± 10.589	2.940 ± 9.726	0.793 ± 13.391	0.793 ± 12.298
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	2.489 ± 7.446	2.489 ± 6.839	1.546 ± 8.928	1.546 ± 8.199
(1, 0, −1, 0)	−5.975 ± 8.042	−5.975 ± 7.387	−7.526 ± 10.124	−7.526 ± 9.297
(1, 0, 0, −1)	−4.586 ± 9.119	−4.586 ± 8.376	−6.732 ± 13.070	−6.732 ± 12.002
(0, 1, −1, 0)	−8.464 ± 8.042	−8.464 ± 7.387	−9.072 ± 10.671	−9.072 ± 9.800
(0, 1, 0, −1)	−7.075 ± 9.119	−7.075 ± 8.376	−8.278 ± 13.498	−8.278 ± 12.396
(0, 0, 1, −1)	1.389 ± 9.613	1.389 ± 8.829	0.793 ± 14.317	0.793 ± 13.148

Table 9($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 9$, $\rho = 0.9$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	1.102 ± 2.881	1.102 ± 2.646	1.415 ± 4.779	1.415 ± 4.389
(1, 0, −1, 0)	−2.155 ± 2.881	−2.155 ± 2.646	−1.722 ± 4.779	−1.722 ± 4.389
(1, 0, 0, −1)	−3.077 ± 2.881	−3.077 ± 2.646	−2.596 ± 4.779	−2.596 ± 4.389
(0, 1, −1, 0)	−3.257 ± 2.881	−3.257 ± 2.646	−3.137 ± 4.779	−3.137 ± 4.389
(0, 1, 0, −1)	−4.179 ± 2.881	−4.179 ± 2.646	−4.011 ± 4.779	−4.011 ± 4.389
(0, 0, 1, −1)	−0.921 ± 2.881	−0.921 ± 2.646	−0.874 ± 4.779	−0.874 ± 4.389
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	1.102 ± 3.175	1.102 ± 2.917	1.102 ± 3.382	1.102 ± 3.106
(1, 0, −1, 0)	−2.545 ± 3.889	−2.545 ± 3.572	−2.545 ± 4.142	−2.545 ± 3.804
(1, 0, 0, −1)	−3.419 ± 3.889	−3.419 ± 3.572	−6.300 ± 5.347	−6.300 ± 4.911
(0, 1, −1, 0)	−3.647 ± 3.889	−3.647 ± 3.572	−3.647 ± 4.142	−3.647 ± 3.804
(0, 1, 0, −1)	−4.521 ± 3.889	−4.521 ± 3.572	−7.402 ± 5.347	−7.402 ± 4.911
(0, 0, 1, −1)	−0.874 ± 4.491	−0.874 ± 4.125	−3.755 ± 5.858	−3.755 ± 5.379
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	1.102 ± 3.595	1.102 ± 3.302	−0.856 ± 4.000	−0.856 ± 3.673
(1, 0, −1, 0)	−3.828 ± 3.883	−3.828 ± 3.567	−2.545 ± 4.536	−2.545 ± 4.165
(1, 0, 0, −1)	−3.419 ± 4.403	−3.419 ± 4.044	−6.300 ± 5.856	−6.300 ± 5.377
(0, 1, −1, 0)	−4.930 ± 3.883	−4.930 ± 3.567	−1.689 ± 4.781	−1.689 ± 4.391
(0, 1, 0, −1)	−4.521 ± 4.403	−4.521 ± 4.044	−5.444 ± 6.048	−5.444 ± 5.554
(0, 0, 1, −1)	0.409 ± 4.641	0.409 ± 4.263	−3.755 ± 6.414	−3.755 ± 5.891

Table 10($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 1$, $\rho = 0.1$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-3.473 ± 0.900	-3.473 ± 0.826	-3.321 ± 8.357	-3.321 ± 7.675
$(1, 0, -1, 0)$	-8.822 ± 0.900	-8.822 ± 0.826	-8.722 ± 8.357	-8.722 ± 7.675
$(1, 0, 0, -1)$	-13.578 ± 0.900	-13.578 ± 0.826	-13.508 ± 8.357	-13.508 ± 7.675
$(0, 1, -1, 0)$	-5.349 ± 0.900	-5.349 ± 0.826	-5.400 ± 8.357	-5.400 ± 7.675
$(0, 1, 0, -1)$	-10.105 ± 0.900	-10.105 ± 0.826	-10.186 ± 8.357	-10.186 ± 7.675
$(0, 0, 1, -1)$	-4.756 ± 0.900	-4.756 ± 0.826	-4.786 ± 8.357	-4.786 ± 7.675
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-3.473 ± 5.120	-3.473 ± 4.702	-3.473 ± 3.962	-3.473 ± 3.638
$(1, 0, -1, 0)$	-8.858 ± 6.270	-8.858 ± 5.759	-8.858 ± 4.852	-8.858 ± 4.456
$(1, 0, 0, -1)$	-13.644 ± 6.270	-13.644 ± 5.759	-13.318 ± 6.264	-13.318 ± 5.752
$(0, 1, -1, 0)$	-5.385 ± 6.270	-5.385 ± 5.759	-5.385 ± 4.852	-5.385 ± 4.456
$(0, 1, 0, -1)$	-10.171 ± 6.270	-10.171 ± 5.759	-9.846 ± 6.264	-9.846 ± 5.752
$(0, 0, 1, -1)$	-4.786 ± 7.240	-4.786 ± 6.650	-4.460 ± 6.862	-4.460 ± 6.301
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-3.473 ± 5.055	-3.473 ± 4.643	-3.396 ± 4.650	-3.396 ± 4.270
$(1, 0, -1, 0)$	-8.784 ± 5.460	-8.784 ± 5.015	-8.858 ± 5.273	-8.858 ± 4.842
$(1, 0, 0, -1)$	-13.644 ± 6.191	-13.644 ± 5.686	-13.318 ± 6.807	-13.318 ± 6.251
$(0, 1, -1, 0)$	-5.311 ± 5.460	-5.311 ± 5.015	-5.463 ± 5.558	-5.463 ± 5.104
$(0, 1, 0, -1)$	-10.171 ± 6.191	-10.171 ± 5.686	-9.923 ± 7.030	-9.923 ± 6.456
$(0, 0, 1, -1)$	-4.860 ± 6.526	-4.860 ± 5.994	-4.460 ± 7.457	-4.460 ± 6.848

Table 11($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 1$, $\rho = 0.5$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-3.642 ± 0.631	-3.642 ± 0.580	-3.833 ± 7.961	-3.833 ± 7.312
$(1, 0, -1, 0)$	-8.494 ± 0.631	-8.494 ± 0.580	-8.583 ± 7.961	-8.583 ± 7.312
$(1, 0, 0, -1)$	-13.734 ± 0.631	-13.734 ± 0.580	-13.929 ± 7.961	-13.929 ± 7.312
$(0, 1, -1, 0)$	-4.852 ± 0.631	-4.852 ± 0.580	-4.750 ± 7.961	-4.750 ± 7.312
$(0, 1, 0, -1)$	-10.092 ± 0.631	-10.092 ± 0.580	-10.096 ± 7.961	-10.096 ± 7.312
$(0, 0, 1, -1)$	-5.240 ± 0.631	-5.240 ± 0.580	-5.346 ± 7.961	-5.346 ± 7.312
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-3.642 ± 4.890	-3.642 ± 4.491	-3.642 ± 3.830	-3.642 ± 3.518
$(1, 0, -1, 0)$	-8.289 ± 5.989	-8.289 ± 5.501	-8.289 ± 4.691	-8.289 ± 4.308
$(1, 0, 0, -1)$	-13.635 ± 5.989	-13.635 ± 5.501	-13.795 ± 6.056	-13.795 ± 5.562
$(0, 1, -1, 0)$	-4.647 ± 5.989	-4.647 ± 5.501	-4.647 ± 4.691	-4.647 ± 4.308
$(0, 1, 0, -1)$	-9.993 ± 5.989	-9.993 ± 5.501	-10.153 ± 6.056	-10.153 ± 5.562
$(0, 0, 1, -1)$	-5.346 ± 6.916	-5.346 ± 6.352	-5.506 ± 6.634	-5.506 ± 6.092
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1, -1, 0, 0)$	-3.642 ± 4.865	-3.642 ± 4.469	-3.696 ± 4.489	-3.696 ± 4.122
$(1, 0, -1, 0)$	-8.471 ± 5.255	-8.471 ± 4.827	-8.289 ± 5.090	-8.289 ± 4.674
$(1, 0, 0, -1)$	-13.635 ± 5.959	-13.635 ± 5.473	-13.795 ± 6.571	-13.795 ± 6.035
$(0, 1, -1, 0)$	-4.829 ± 5.255	-4.829 ± 4.827	-4.594 ± 5.365	-4.594 ± 4.927
$(0, 1, 0, -1)$	-9.993 ± 5.959	-9.993 ± 5.473	-10.099 ± 6.787	-10.099 ± 6.233
$(0, 0, 1, -1)$	-5.164 ± 6.281	-5.164 ± 5.769	-5.506 ± 7.199	-5.506 ± 6.611

Table 12($p=4, n=20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1-\alpha = 0.95$

	$\boldsymbol{\mu} = (1,5,10,15)'$, $\sigma^2 = 1$, $\rho = 0.9$			
	Complete data($m=80$)		First group data($m=40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,\ 0,\ 0)$	-4.058 ± 0.302	-4.058 ± 0.278	-4.073 ± 8.328	-4.073 ± 7.648
$(1,\ 0,-1,\ 0)$	-9.022 ± 0.302	-9.022 ± 0.278	-9.033 ± 8.328	-9.033 ± 7.648
$(1,\ 0,\ 0,-1)$	-14.021 ± 0.302	-14.021 ± 0.278	-13.915 ± 8.328	-13.915 ± 7.648
$(0,\ 1,-1,\ 0)$	-4.964 ± 0.302	-4.964 ± 0.278	-4.960 ± 8.328	-4.960 ± 7.648
$(0,\ 1,\ 0,-1)$	-9.963 ± 0.302	-9.963 ± 0.278	-9.842 ± 8.328	-9.842 ± 7.648
$(0,\ 0,\ 1,-1)$	-4.999 ± 0.302	-4.999 ± 0.278	-4.882 ± 8.328	-4.882 ± 7.648
	Monotone missing data ($s=2, m=60$)		Monotone missing data ($s=3, m=55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,\ 0,\ 0)$	-4.058 ± 5.097	-4.058 ± 4.682	-4.058 ± 3.967	-4.058 ± 3.643
$(1,\ 0,-1,\ 0)$	-9.009 ± 6.243	-9.009 ± 5.734	-9.009 ± 4.858	-9.009 ± 4.461
$(1,\ 0,\ 0,-1)$	-13.891 ± 6.243	-13.891 ± 5.734	-14.035 ± 6.272	-14.035 ± 5.760
$(0,\ 1,-1,\ 0)$	-4.952 ± 6.243	-4.952 ± 5.734	-4.952 ± 4.858	-4.952 ± 4.461
$(0,\ 1,\ 0,-1)$	-9.833 ± 6.243	-9.833 ± 5.734	-9.978 ± 6.272	-9.978 ± 5.760
$(0,\ 0,\ 1,-1)$	-4.882 ± 7.209	-4.882 ± 6.621	-5.026 ± 6.870	-5.026 ± 6.309
	Monotone missing data ($s=3, m=65$)		Monotone missing data ($s=4, m=50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,\ 0,\ 0)$	-4.058 ± 5.057	-4.058 ± 4.645	-4.118 ± 4.662	-4.118 ± 4.281
$(1,\ 0,-1,\ 0)$	-9.065 ± 5.462	-9.065 ± 5.017	-9.009 ± 5.286	-9.009 ± 4.855
$(1,\ 0,\ 0,-1)$	-13.891 ± 6.193	-13.891 ± 5.688	-14.035 ± 6.825	-14.035 ± 6.267
$(0,\ 1,-1,\ 0)$	-5.008 ± 5.462	-5.008 ± 5.017	-4.892 ± 5.572	-4.892 ± 5.117
$(0,\ 1,\ 0,-1)$	-9.833 ± 6.193	-9.833 ± 5.688	-9.918 ± 7.049	-9.918 ± 6.473
$(0,\ 0,\ 1,-1)$	-4.826 ± 6.528	-4.826 ± 5.996	-5.026 ± 7.476	-5.026 ± 6.866

Table 13($p=4, n=20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1-\alpha = 0.95$

	$\boldsymbol{\mu} = (1,5,10,15)'$, $\sigma^2 = 9$, $\rho = 0.1$			
	Complete data($m=80$)		First group data($m=40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,\ 0,\ 0)$	-3.973 ± 6.712	-3.973 ± 6.166	-6.887 ± 11.504	-6.887 ± 10.565
$(1,\ 0,-1,\ 0)$	-12.450 ± 6.712	-12.450 ± 6.166	-14.438 ± 11.504	-14.438 ± 10.565
$(1,\ 0,\ 0,-1)$	-16.325 ± 6.712	-16.325 ± 6.166	-20.577 ± 11.504	-20.577 ± 10.565
$(0,\ 1,-1,\ 0)$	-8.478 ± 6.712	-8.478 ± 6.166	-7.551 ± 11.504	-7.551 ± 10.565
$(0,\ 1,\ 0,-1)$	-12.352 ± 6.712	-12.352 ± 6.166	-13.691 ± 11.504	-13.691 ± 10.565
$(0,\ 0,\ 1,-1)$	-3.875 ± 6.712	-3.875 ± 6.166	-6.139 ± 11.504	-6.139 ± 10.565
	Monotone missing data ($s=2, m=60$)		Monotone missing data ($s=3, m=55$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,\ 0,\ 0)$	-3.973 ± 7.455	-3.973 ± 6.848	-3.973 ± 7.023	-3.973 ± 6.450
$(1,\ 0,-1,\ 0)$	-11.613 ± 9.131	-11.613 ± 8.387	-11.613 ± 8.601	-11.613 ± 7.899
$(1,\ 0,\ 0,-1)$	-17.753 ± 9.131	-17.753 ± 8.387	-17.753 ± 11.104	-17.753 ± 10.198
$(0,\ 1,-1,\ 0)$	-7.641 ± 9.131	-7.641 ± 8.387	-7.641 ± 8.601	-7.641 ± 7.899
$(0,\ 1,\ 0,-1)$	-13.780 ± 9.131	-13.780 ± 8.387	-13.249 ± 11.104	-13.249 ± 10.198
$(0,\ 0,\ 1,-1)$	-6.139 ± 10.544	-6.139 ± 9.684	-6.139 ± 12.164	-6.139 ± 11.171
	Monotone missing data ($s=3, m=65$)		Monotone missing data ($s=4, m=50$)	
	Scheffé	Tukey	Scheffé	Tukey
$(1,-1,\ 0,\ 0)$	-3.973 ± 7.482	-3.973 ± 6.872	-5.361 ± 7.776	-5.361 ± 7.141
$(1,\ 0,-1,\ 0)$	-11.701 ± 8.081	-11.701 ± 7.423	-11.613 ± 8.817	-11.613 ± 8.097
$(1,\ 0,\ 0,-1)$	-17.753 ± 9.164	-17.753 ± 8.417	-17.222 ± 11.383	-17.222 ± 10.453
$(0,\ 1,-1,\ 0)$	-7.728 ± 8.081	-7.728 ± 7.423	-6.252 ± 9.294	-6.252 ± 8.535
$(0,\ 1,\ 0,-1)$	-13.780 ± 9.164	-13.780 ± 8.417	-11.860 ± 11.756	-11.860 ± 10.796
$(0,\ 0,\ 1,-1)$	-6.051 ± 9.659	-6.051 ± 8.872	-5.608 ± 12.469	-5.608 ± 11.451

Table 14($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 9$, $\rho = 0.5$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	-6.350 ± 6.273	-6.350 ± 5.763	-2.136 ± 12.324	-2.136 ± 11.318
(1, 0, −1, 0)	-12.035 ± 6.273	-12.035 ± 5.763	-10.184 ± 12.324	-10.184 ± 11.318
(1, 0, 0, −1)	-14.664 ± 6.273	-14.664 ± 5.763	-11.992 ± 12.324	-11.992 ± 11.318
(0, 1, −1, 0)	-5.685 ± 6.273	-5.685 ± 5.763	-8.049 ± 12.324	-8.049 ± 11.318
(0, 1, 0, −1)	-8.313 ± 6.273	-8.313 ± 5.763	-9.856 ± 12.324	-9.856 ± 11.318
(0, 0, 1, −1)	-2.628 ± 6.273	-2.628 ± 5.763	-1.807 ± 12.324	-1.807 ± 11.318
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	-6.350 ± 7.910	-6.350 ± 7.265	-6.350 ± 7.464	-6.350 ± 6.854
(1, 0, −1, 0)	-12.749 ± 9.687	-12.749 ± 8.897	-12.749 ± 9.141	-12.749 ± 8.395
(1, 0, 0, −1)	-14.557 ± 9.687	-14.557 ± 8.897	-15.822 ± 11.801	-15.822 ± 10.838
(0, 1, −1, 0)	-6.399 ± 9.687	-6.399 ± 8.897	-6.399 ± 9.141	-6.399 ± 8.395
(0, 1, 0, −1)	-8.207 ± 9.687	-8.207 ± 8.897	-9.472 ± 11.801	-9.472 ± 10.838
(0, 0, 1, −1)	-1.807 ± 11.186	-1.807 ± 10.274	-3.072 ± 12.927	-3.072 ± 11.872
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	-6.350 ± 7.663	-6.350 ± 7.038	-5.025 ± 8.417	-5.025 ± 7.729
(1, 0, −1, 0)	-12.724 ± 8.277	-12.724 ± 7.602	-12.749 ± 9.544	-12.749 ± 8.764
(1, 0, 0, −1)	-14.557 ± 9.385	-14.557 ± 8.620	-15.822 ± 12.321	-15.822 ± 11.314
(0, 1, −1, 0)	-6.374 ± 8.277	-6.374 ± 7.602	-7.725 ± 10.060	-7.725 ± 9.238
(0, 1, 0, −1)	-8.207 ± 9.385	-8.207 ± 8.620	-10.797 ± 12.725	-10.797 ± 11.685
(0, 0, 1, −1)	-1.833 ± 9.893	-1.833 ± 9.087	-3.072 ± 13.497	-3.072 ± 12.394

Table 15($p = 4, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 9$, $\rho = 0.9$				
	Complete data($m = 80$)		First group data($m = 40$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	-5.144 ± 2.663	-5.144 ± 2.447	-5.736 ± 8.860	-5.736 ± 8.138
(1, 0, −1, 0)	-10.024 ± 2.663	-10.024 ± 2.447	-10.425 ± 8.860	-10.425 ± 8.138
(1, 0, 0, −1)	-14.190 ± 2.663	-14.190 ± 2.447	-14.126 ± 8.860	-14.126 ± 8.138
(0, 1, −1, 0)	-4.880 ± 2.663	-4.880 ± 2.447	-4.690 ± 8.860	-4.690 ± 8.138
(0, 1, 0, −1)	-9.046 ± 2.663	-9.046 ± 2.447	-8.390 ± 8.860	-8.390 ± 8.138
(0, 0, 1, −1)	-4.166 ± 2.663	-4.166 ± 2.447	-3.700 ± 8.860	-3.700 ± 8.138
	Monotone missing data ($s = 2, m = 60$)		Monotone missing data ($s = 3, m = 55$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	-5.144 ± 5.590	-5.144 ± 5.134	-5.144 ± 4.909	-5.144 ± 4.508
(1, 0, −1, 0)	-10.345 ± 6.846	-10.345 ± 6.288	-10.345 ± 6.012	-10.345 ± 5.521
(1, 0, 0, −1)	-14.045 ± 6.846	-14.045 ± 6.288	-15.157 ± 7.761	-15.157 ± 7.128
(0, 1, −1, 0)	-5.201 ± 6.846	-5.201 ± 6.288	-5.201 ± 6.012	-5.201 ± 5.521
(0, 1, 0, −1)	-8.901 ± 6.846	-8.901 ± 6.288	-10.014 ± 7.761	-10.014 ± 7.128
(0, 0, 1, −1)	-3.700 ± 7.905	-3.700 ± 7.261	-4.813 ± 8.502	-4.813 ± 7.808
	Monotone missing data ($s = 3, m = 65$)		Monotone missing data ($s = 4, m = 50$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	-5.144 ± 5.451	-5.144 ± 5.007	-4.079 ± 5.710	-4.079 ± 5.244
(1, 0, −1, 0)	-9.046 ± 5.888	-9.046 ± 5.408	-10.345 ± 6.474	-10.345 ± 5.946
(1, 0, 0, −1)	-14.045 ± 6.677	-14.045 ± 6.132	-15.157 ± 8.358	-15.157 ± 7.676
(0, 1, −1, 0)	-3.902 ± 5.888	-3.902 ± 5.408	-6.266 ± 6.825	-6.266 ± 6.267
(0, 1, 0, −1)	-8.901 ± 6.677	-8.901 ± 6.132	-11.078 ± 8.632	-11.078 ± 7.927
(0, 0, 1, −1)	-4.999 ± 7.038	-4.999 ± 6.464	-4.813 ± 9.156	-4.813 ± 8.408

Table 16($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$ with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 1$, $\rho = 0.1$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	0.395 ± 0.606	0.395 ± 0.579	0.384 ± 2.611	0.384 ± 2.398
(1, 0, −1, 0)	−3.838 ± 0.606	−3.838 ± 0.579	−3.749 ± 2.611	−3.749 ± 2.398
(1, 0, 0, −1)	−3.974 ± 0.606	−3.974 ± 0.579	−4.335 ± 2.611	−4.335 ± 2.398
(0, 1, −1, 0)	−4.233 ± 0.606	−4.233 ± 0.579	−4.133 ± 2.611	−4.133 ± 2.398
(0, 1, 0, −1)	−4.369 ± 0.606	−4.369 ± 0.579	−4.719 ± 2.611	−4.719 ± 2.398
(0, 0, 1, −1)	−0.136 ± 0.606	−0.136 ± 0.579	−0.586 ± 2.611	−0.586 ± 2.398
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	0.395 ± 1.631	0.395 ± 1.499	0.395 ± 1.419	0.395 ± 1.304
(1, 0, −1, 0)	−3.750 ± 1.998	−3.750 ± 1.836	−3.750 ± 1.738	−3.750 ± 1.597
(1, 0, 0, −1)	−4.336 ± 1.998	−4.336 ± 1.836	−4.467 ± 2.244	−4.467 ± 2.062
(0, 1, −1, 0)	−4.145 ± 1.998	−4.145 ± 1.836	−4.145 ± 1.738	−4.145 ± 1.597
(0, 1, 0, −1)	−4.730 ± 1.988	−4.730 ± 1.836	−4.862 ± 2.244	−4.862 ± 2.062
(0, 0, 1, −1)	−0.586 ± 2.307	−0.586 ± 2.119	−0.717 ± 2.459	−0.717 ± 2.259
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	0.395 ± 1.633	0.395 ± 1.500	0.347 ± 1.639	0.347 ± 1.505
(1, 0, −1, 0)	−3.724 ± 1.763	−3.724 ± 1.620	−3.750 ± 1.858	−3.750 ± 1.707
(1, 0, 0, −1)	−4.336 ± 2.000	−4.336 ± 1.837	−4.467 ± 2.399	−4.467 ± 2.204
(0, 1, −1, 0)	−4.118 ± 1.763	−4.118 ± 1.620	−4.097 ± 1.959	−4.097 ± 1.799
(0, 1, 0, −1)	−4.730 ± 2.000	−4.730 ± 1.837	−4.814 ± 2.477	−4.814 ± 2.276
(0, 0, 1, −1)	−0.612 ± 2.108	−0.612 ± 1.937	−0.717 ± 2.628	−0.717 ± 2.414

Table 17($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$ with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 1$, $\rho = 0.5$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	0.074 ± 0.465	0.074 ± 0.444	0.001 ± 2.295	0.001 ± 2.108
(1, 0, −1, 0)	−3.863 ± 0.465	−3.863 ± 0.444	−3.661 ± 2.295	−3.661 ± 2.108
(1, 0, 0, −1)	−4.047 ± 0.465	−4.047 ± 0.444	−3.960 ± 2.295	−3.661 ± 2.108
(0, 1, −1, 0)	−3.938 ± 0.465	−3.938 ± 0.444	−3.662 ± 2.295	−3.662 ± 2.108
(0, 1, 0, −1)	−4.122 ± 0.465	−4.122 ± 0.444	−3.961 ± 2.295	−3.961 ± 2.108
(0, 0, 1, −1)	−0.184 ± 0.465	−0.184 ± 0.444	−0.299 ± 2.295	−0.299 ± 2.108
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	0.074 ± 1.428	0.074 ± 1.312	0.074 ± 1.237	0.074 ± 1.136
(1, 0, −1, 0)	−3.660 ± 1.750	−3.660 ± 1.391	−3.660 ± 1.514	−3.660 ± 1.391
(1, 0, 0, −1)	−3.959 ± 1.750	−3.959 ± 1.796	−3.920 ± 1.955	−3.920 ± 1.796
(0, 1, −1, 0)	−3.735 ± 1.750	−3.735 ± 1.391	−3.735 ± 1.514	−3.735 ± 1.391
(0, 1, 0, −1)	−4.034 ± 1.750	−4.034 ± 1.796	−3.995 ± 1.955	−3.995 ± 1.796
(0, 0, 1, −1)	−0.299 ± 2.020	−0.299 ± 1.968	−0.260 ± 2.142	−0.260 ± 1.968
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	0.074 ± 1.420	0.074 ± 1.305	0.200 ± 1.433	0.200 ± 1.317
(1, 0, −1, 0)	−3.593 ± 1.534	−3.593 ± 1.409	−3.660 ± 1.625	−3.660 ± 1.493
(1, 0, 0, −1)	−3.959 ± 1.739	−3.959 ± 1.598	−3.920 ± 2.098	−3.920 ± 1.927
(0, 1, −1, 0)	−3.677 ± 1.534	−3.677 ± 1.409	−3.860 ± 1.713	−3.860 ± 1.574
(0, 1, 0, −1)	−4.034 ± 1.739	−4.034 ± 1.598	−4.120 ± 2.167	−4.120 ± 1.990
(0, 0, 1, −1)	−0.366 ± 1.834	−0.366 ± 1.685	−0.260 ± 2.298	−0.260 ± 2.111

Table 18($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 1$, $\rho = 0.9$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.115 ± 0.218	−0.115 ± 0.208	−0.083 ± 2.417	−0.083 ± 2.221
(1, 0, −1, 0)	−4.002 ± 0.218	−4.002 ± 0.208	−4.106 ± 2.417	−4.106 ± 2.221
(1, 0, 0, −1)	−4.075 ± 0.218	−4.075 ± 0.208	−4.163 ± 2.417	−4.163 ± 2.221
(0, 1, −1, 0)	−3.887 ± 0.218	−3.887 ± 0.208	−4.024 ± 2.417	−4.024 ± 2.221
(0, 1, 0, −1)	−3.960 ± 0.218	−3.960 ± 0.208	−4.080 ± 2.417	−4.080 ± 2.221
(0, 0, 1, −1)	−0.073 ± 0.218	−0.073 ± 0.208	−0.056 ± 2.417	−0.056 ± 2.221
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.115 ± 1.490	−0.115 ± 1.369	−0.115 ± 1.231	−0.115 ± 1.131
(1, 0, −1, 0)	−4.152 ± 1.825	−4.152 ± 1.676	−4.152 ± 1.508	−4.152 ± 1.385
(1, 0, 0, −1)	−4.208 ± 1.825	−4.208 ± 1.676	−3.921 ± 1.946	−3.921 ± 1.788
(0, 1, −1, 0)	−4.037 ± 1.825	−4.037 ± 1.676	−4.037 ± 1.508	−4.037 ± 1.385
(0, 1, 0, −1)	−4.093 ± 1.825	−4.093 ± 1.676	−3.807 ± 1.946	−3.807 ± 1.788
(0, 0, 1, −1)	−0.056 ± 2.107	−0.056 ± 1.936	0.230 ± 2.132	0.230 ± 1.959
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.115 ± 1.485	−0.115 ± 1.365	−0.104 ± 1.430	−0.104 ± 1.314
(1, 0, −1, 0)	−3.986 ± 1.604	−3.986 ± 1.474	−4.152 ± 1.622	−4.152 ± 1.490
(1, 0, 0, −1)	−4.208 ± 1.819	−4.208 ± 1.672	−3.921 ± 2.094	−3.921 ± 1.923
(0, 1, −1, 0)	−3.871 ± 1.604	−3.871 ± 1.474	−4.047 ± 1.709	−4.047 ± 1.570
(0, 1, 0, −1)	−4.093 ± 1.819	−4.093 ± 1.672	−3.817 ± 2.162	−3.817 ± 1.986
(0, 0, 1, −1)	−0.222 ± 1.918	−0.222 ± 1.762	0.230 ± 2.293	0.230 ± 2.107

Table 19($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 9$, $\rho = 0.1$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.992 ± 5.378	−0.992 ± 5.140	−1.338 ± 7.860	−1.338 ± 7.221
(1, 0, −1, 0)	−4.323 ± 5.378	−4.323 ± 5.140	−7.095 ± 7.860	−7.095 ± 7.221
(1, 0, 0, −1)	−6.256 ± 5.378	−6.256 ± 5.140	−5.665 ± 7.860	−5.665 ± 7.221
(0, 1, −1, 0)	−3.331 ± 5.378	−3.331 ± 5.140	−5.757 ± 7.860	−5.757 ± 7.221
(0, 1, 0, −1)	−5.264 ± 5.378	−5.264 ± 5.140	−4.327 ± 7.860	−4.327 ± 7.221
(0, 0, 1, −1)	−1.933 ± 5.378	−1.933 ± 5.140	1.430 ± 7.860	1.430 ± 7.221
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.992 ± 5.672	−0.992 ± 5.211	−0.992 ± 5.566	−0.992 ± 5.113
(1, 0, −1, 0)	−6.395 ± 6.947	−6.395 ± 6.382	−6.395 ± 6.817	−6.395 ± 6.263
(1, 0, 0, −1)	−4.966 ± 6.947	−4.966 ± 6.382	−5.233 ± 8.801	−5.233 ± 8.085
(0, 1, −1, 0)	−5.403 ± 6.947	−5.403 ± 6.382	−5.403 ± 6.817	−5.403 ± 6.263
(0, 1, 0, −1)	−3.974 ± 6.947	−3.974 ± 6.382	−4.242 ± 8.801	−4.242 ± 8.085
(0, 0, 1, −1)	1.430 ± 8.022	1.430 ± 7.370	1.162 ± 9.641	1.162 ± 8.857
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.992 ± 5.696	−0.992 ± 5.233	−1.507 ± 5.803	−1.507 ± 5.331
(1, 0, −1, 0)	−5.499 ± 6.152	−5.499 ± 5.652	−6.395 ± 6.580	−6.395 ± 6.045
(1, 0, 0, −1)	−4.966 ± 6.976	−4.966 ± 6.409	−5.233 ± 8.495	−5.233 ± 7.804
(0, 1, −1, 0)	−4.507 ± 6.152	−4.507 ± 5.652	−4.888 ± 6.936	−4.888 ± 6.372
(0, 1, 0, −1)	−3.974 ± 6.976	−3.974 ± 6.409	−3.726 ± 8.774	−3.726 ± 8.060
(0, 0, 1, −1)	0.533 ± 7.353	0.533 ± 6.756	1.162 ± 9.306	1.162 ± 8.549

Table 20($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 9$, $\rho = 0.5$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.425 ± 4.539	−0.425 ± 4.339	−4.882 ± 6.594	−4.882 ± 6.058
(1, 0, −1, 0)	−4.376 ± 4.539	−4.376 ± 4.339	−6.426 ± 6.594	−6.426 ± 6.058
(1, 0, 0, −1)	−4.462 ± 4.539	−4.462 ± 4.339	−7.380 ± 6.594	−7.380 ± 6.058
(0, 1, −1, 0)	−3.951 ± 4.539	−3.951 ± 4.339	−1.544 ± 6.594	−1.544 ± 6.058
(0, 1, 0, −1)	−4.037 ± 4.539	−4.037 ± 4.339	−2.499 ± 6.594	−2.499 ± 6.058
(0, 0, 1, −1)	−0.086 ± 4.539	−0.086 ± 4.339	−0.955 ± 6.594	−0.955 ± 6.058
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.425 ± 4.584	−0.425 ± 4.212	−0.425 ± 4.440	−0.425 ± 4.079
(1, 0, −1, 0)	−2.562 ± 5.614	−2.562 ± 5.158	−2.562 ± 5.437	−2.562 ± 4.995
(1, 0, 0, −1)	−3.517 ± 5.614	−3.517 ± 5.158	−0.270 ± 7.020	−0.270 ± 6.449
(0, 1, −1, 0)	−2.137 ± 5.614	−2.137 ± 5.158	−2.137 ± 5.437	−2.137 ± 4.995
(0, 1, 0, −1)	−3.092 ± 5.614	−3.092 ± 5.158	0.154 ± 7.020	0.154 ± 6.449
(0, 0, 1, −1)	−0.955 ± 6.483	−0.955 ± 5.956	2.292 ± 7.690	2.292 ± 7.064
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.425 ± 4.623	−0.425 ± 4.247	−0.117 ± 4.910	−0.117 ± 4.510
(1, 0, −1, 0)	−4.040 ± 4.993	−4.040 ± 4.588	−2.562 ± 5.567	−2.562 ± 5.114
(1, 0, 0, −1)	−3.517 ± 5.662	−3.517 ± 5.202	−0.270 ± 7.187	−0.270 ± 6.602
(0, 1, −1, 0)	−3.616 ± 4.993	−3.616 ± 4.588	−2.445 ± 5.868	−2.445 ± 5.391
(0, 1, 0, −1)	−3.092 ± 5.662	−3.092 ± 5.202	−0.153 ± 7.423	−0.153 ± 6.819
(0, 0, 1, −1)	0.524 ± 5.968	0.524 ± 5.483	2.292 ± 7.873	2.292 ± 7.233

Table 21($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5)'$, $\sigma^2 = 9$, $\rho = 0.9$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.626 ± 1.787	−0.626 ± 1.708	1.865 ± 2.727	−1.865 ± 2.505
(1, 0, −1, 0)	−3.477 ± 1.787	−3.477 ± 1.708	−4.264 ± 2.727	−4.264 ± 2.505
(1, 0, 0, −1)	−4.287 ± 1.787	−4.287 ± 1.708	−5.217 ± 2.727	−5.217 ± 2.505
(0, 1, −1, 0)	−2.851 ± 1.787	−2.851 ± 1.708	−2.399 ± 2.727	−2.399 ± 2.505
(0, 1, 0, −1)	−3.661 ± 1.787	−3.661 ± 1.708	−3.352 ± 2.727	−3.352 ± 2.505
(0, 0, 1, −1)	−0.810 ± 1.787	−0.810 ± 1.708	−0.953 ± 2.727	−0.953 ± 2.505
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.626 ± 1.889	−0.626 ± 1.735	−0.626 ± 1.846	−0.626 ± 1.696
(1, 0, −1, 0)	−3.240 ± 2.313	−3.240 ± 2.125	−3.240 ± 2.261	−3.240 ± 2.077
(1, 0, 0, −1)	−4.192 ± 2.313	−4.192 ± 2.125	−4.038 ± 2.918	−4.038 ± 2.681
(0, 1, −1, 0)	−2.613 ± 2.313	−2.613 ± 2.125	−2.613 ± 2.261	−2.613 ± 2.077
(0, 1, 0, −1)	−3.566 ± 2.313	−3.566 ± 2.125	−3.412 ± 2.918	−3.412 ± 2.681
(0, 0, 1, −1)	−0.953 ± 2.671	−0.953 ± 2.454	−0.798 ± 3.197	−0.798 ± 2.937
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−0.626 ± 1.934	−0.626 ± 1.777	−0.623 ± 1.972	−0.623 ± 1.811
(1, 0, −1, 0)	−3.519 ± 2.089	−3.519 ± 1.920	−3.240 ± 2.236	−3.240 ± 2.054
(1, 0, 0, −1)	−4.192 ± 2.369	−4.192 ± 2.177	−4.038 ± 2.886	−4.038 ± 2.652
(0, 1, −1, 0)	−2.892 ± 2.089	−2.892 ± 1.920	−2.617 ± 2.357	−2.617 ± 2.165
(0, 1, 0, −1)	−3.566 ± 2.369	−3.566 ± 2.177	−3.415 ± 2.981	−3.415 ± 2.739
(0, 0, 1, −1)	−0.674 ± 2.497	−0.674 ± 2.294	−0.798 ± 3.162	−0.798 ± 2.905

Table 22($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 1$, $\rho = 0.1$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−1.756 ± 5.185	−1.756 ± 4.956	1.794 ± 9.491	1.794 ± 8.719
(1, 0, −1, 0)	−5.796 ± 5.185	−5.796 ± 4.956	−5.619 ± 9.491	−5.619 ± 8.719
(1, 0, 0, −1)	−13.664 ± 5.185	−13.664 ± 4.956	−12.753 ± 9.491	−12.753 ± 8.719
(0, 1, −1, 0)	−4.040 ± 5.185	−4.040 ± 4.956	−7.413 ± 9.491	−7.413 ± 8.719
(0, 1, 0, −1)	−11.908 ± 5.185	−11.908 ± 4.956	−14.547 ± 9.491	−14.547 ± 8.719
(0, 0, 1, −1)	−7.868 ± 5.185	−7.868 ± 4.956	−7.134 ± 9.491	−7.134 ± 8.719
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−1.756 ± 6.144	−1.756 ± 5.645	−1.756 ± 5.509	−1.756 ± 5.061
(1, 0, −1, 0)	−8.095 ± 7.525	−8.095 ± 6.913	−8.095 ± 6.748	−8.095 ± 6.199
(1, 0, 0, −1)	−15.229 ± 7.525	−15.229 ± 6.913	−11.412 ± 8.711	−11.412 ± 8.003
(0, 1, −1, 0)	−6.339 ± 7.525	−6.339 ± 6.913	−6.339 ± 6.748	−6.339 ± 6.199
(0, 1, 0, −1)	−13.473 ± 7.525	−13.473 ± 6.913	−9.656 ± 8.711	−9.656 ± 8.003
(0, 0, 1, −1)	−7.134 ± 8.689	−7.134 ± 7.983	−3.317 ± 9.543	−3.317 ± 8.767
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−1.756 ± 6.050	−1.756 ± 5.559	−2.170 ± 6.155	−2.170 ± 5.654
(1, 0, −1, 0)	−6.643 ± 6.535	−6.643 ± 6.004	−8.095 ± 6.979	−8.095 ± 6.411
(1, 0, 0, −1)	−15.229 ± 7.410	−15.229 ± 6.808	−11.412 ± 9.010	−11.412 ± 8.276
(0, 1, −1, 0)	−4.887 ± 6.535	−4.887 ± 6.004	−5.925 ± 7.356	−5.925 ± 6.758
(0, 1, 0, −1)	−13.473 ± 7.410	−13.473 ± 6.808	−9.242 ± 9.305	−9.242 ± 8.548
(0, 0, 1, −1)	−8.586 ± 7.811	−8.586 ± 7.176	−3.317 ± 9.870	−3.317 ± 9.066

Table 23($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 1$, $\rho = 0.5$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−3.516 ± 4.237	−3.516 ± 4.050	−2.086 ± 9.052	−2.086 ± 8.316
(1, 0, −1, 0)	−9.949 ± 4.237	−9.949 ± 4.050	−10.363 ± 9.052	−10.363 ± 8.316
(1, 0, 0, −1)	−15.477 ± 4.237	−15.477 ± 4.050	−16.004 ± 9.052	−16.004 ± 8.316
(0, 1, −1, 0)	−6.433 ± 4.237	−6.433 ± 4.050	−8.277 ± 9.052	−8.277 ± 8.316
(0, 1, 0, −1)	−11.960 ± 4.237	−11.960 ± 4.050	−13.919 ± 9.052	−13.919 ± 8.316
(0, 0, 1, −1)	−5.528 ± 4.237	−5.528 ± 4.050	−5.642 ± 9.052	−5.642 ± 8.316
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−3.516 ± 5.875	−3.516 ± 5.398	−3.516 ± 5.116	−3.516 ± 4.700
(1, 0, −1, 0)	−12.507 ± 7.196	−12.507 ± 6.611	−12.507 ± 6.266	−12.507 ± 5.757
(1, 0, 0, −1)	−18.149 ± 7.196	−18.149 ± 6.611	−16.559 ± 8.090	−16.559 ± 7.432
(0, 1, −1, 0)	−8.991 ± 7.196	−8.991 ± 6.611	−8.991 ± 6.266	−8.991 ± 5.757
(0, 1, 0, −1)	−14.633 ± 7.196	−14.633 ± 6.611	−13.043 ± 8.090	−13.043 ± 7.432
(0, 0, 1, −1)	−5.642 ± 8.309	−5.642 ± 7.634	−4.052 ± 8.862	−4.052 ± 8.141
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−3.516 ± 5.942	−3.516 ± 5.459	−5.303 ± 5.708	−5.303 ± 5.243
(1, 0, −1, 0)	−12.637 ± 6.418	−12.637 ± 5.897	−12.507 ± 6.472	−12.507 ± 5.945
(1, 0, 0, −1)	−18.149 ± 7.278	−18.149 ± 6.686	−16.559 ± 8.355	−16.559 ± 7.675
(0, 1, −1, 0)	−9.121 ± 6.418	−9.121 ± 5.897	−7.204 ± 6.822	−7.204 ± 6.267
(0, 1, 0, −1)	−14.633 ± 7.278	−14.633 ± 6.686	−11.256 ± 8.629	−11.256 ± 7.927
(0, 0, 1, −1)	−5.512 ± 7.671	−5.512 ± 7.048	−4.052 ± 9.153	−4.052 ± 8.408

Table 24($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 1$, $\rho = 0.9$

$\boldsymbol{a}'$	Complete data($m = 160$)		First group data($m = 80$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−2.953 ± 1.814	−2.953 ± 1.734	−2.112 ± 7.753	−2.112 ± 7.122
(1, 0, −1, 0)	−8.319 ± 1.814	−8.319 ± 1.734	−8.039 ± 7.753	−8.039 ± 7.122
(1, 0, 0, −1)	−14.127 ± 1.814	−14.127 ± 1.734	−14.507 ± 7.753	−14.507 ± 7.122
(0, 1, −1, 0)	−5.366 ± 1.814	−5.366 ± 1.734	−5.927 ± 7.753	−5.927 ± 7.122
(0, 1, 0, −1)	−11.174 ± 1.814	−11.174 ± 1.734	−12.395 ± 7.753	−12.395 ± 7.122
(0, 0, 1, −1)	−5.808 ± 1.814	−5.808 ± 1.734	−6.469 ± 7.753	−6.469 ± 7.122
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−2.953 ± 4.878	−2.953 ± 4.481	−2.953 ± 4.148	−2.953 ± 3.811
(1, 0, −1, 0)	−9.039 ± 5.974	−9.039 ± 5.488	−9.039 ± 5.080	−9.039 ± 4.667
(1, 0, 0, −1)	−15.508 ± 5.974	−15.508 ± 5.488	−14.947 ± 6.559	−14.947 ± 6.025
(0, 1, −1, 0)	−6.086 ± 5.974	−6.086 ± 5.488	−6.086 ± 5.080	−6.086 ± 4.667
(0, 1, 0, −1)	−12.555 ± 5.974	−12.555 ± 5.488	−11.994 ± 6.559	−11.994 ± 6.025
(0, 0, 1, −1)	−6.469 ± 6.898	−6.469 ± 6.337	−5.907 ± 7.185	−5.907 ± 6.601
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−2.953 ± 4.809	−2.953 ± 4.418	−2.781 ± 4.734	−2.781 ± 4.349
(1, 0, −1, 0)	−8.433 ± 5.194	−8.433 ± 4.772	−9.039 ± 5.368	−9.039 ± 4.931
(1, 0, 0, −1)	−15.508 ± 5.890	−15.508 ± 5.411	−14.947 ± 6.930	−14.947 ± 6.366
(0, 1, −1, 0)	−5.480 ± 5.194	−5.480 ± 4.772	−6.258 ± 5.658	−6.258 ± 5.198
(0, 1, 0, −1)	−12.555 ± 5.890	−12.555 ± 5.411	−12.166 ± 7.157	−12.166 ± 6.575
(0, 0, 1, −1)	−7.075 ± 6.208	−7.075 ± 5.704	−5.907 ± 7.591	−5.907 ± 6.974

Table 25($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 9$, $\rho = 0.1$

$\boldsymbol{a}'$	Complete data($m = 160$)		First group data($m = 80$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−1.756 ± 5.185	−1.756 ± 4.956	1.794 ± 9.491	1.794 ± 8.719
(1, 0, −1, 0)	−5.796 ± 5.185	−5.796 ± 4.956	−5.619 ± 9.491	−5.619 ± 8.719
(1, 0, 0, −1)	−13.664 ± 5.185	−13.664 ± 4.956	−12.753 ± 9.491	−12.753 ± 8.719
(0, 1, −1, 0)	−4.040 ± 5.185	−4.040 ± 4.956	−7.413 ± 9.491	−7.413 ± 8.719
(0, 1, 0, −1)	−11.908 ± 5.185	−11.908 ± 4.956	−14.547 ± 9.491	−14.547 ± 8.719
(0, 0, 1, −1)	−7.868 ± 5.185	−7.868 ± 4.956	−7.134 ± 9.491	−7.134 ± 8.719
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−1.756 ± 6.144	−1.756 ± 5.645	−1.756 ± 5.509	−1.756 ± 5.061
(1, −1, 0, 0)	−8.095 ± 7.525	−8.095 ± 6.913	−8.095 ± 6.748	−8.095 ± 6.199
(1, −1, 0, 0)	−15.229 ± 7.525	−15.229 ± 6.913	−11.412 ± 8.711	−11.412 ± 8.003
(0, 1, −1, 0)	−6.339 ± 7.525	−6.339 ± 6.913	−6.339 ± 6.748	−6.339 ± 6.199
(0, 1, 0, −1)	−13.473 ± 7.525	−13.473 ± 6.913	−9.656 ± 8.711	−9.656 ± 8.003
(0, 0, 1, −1)	−7.134 ± 8.689	−7.134 ± 7.983	−3.317 ± 9.543	−3.317 ± 8.767
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−1.756 ± 6.050	−1.756 ± 5.559	−2.170 ± 6.155	−2.170 ± 5.654
(1, −1, 0, 0)	−6.643 ± 6.535	−6.643 ± 6.004	−8.095 ± 6.979	−8.095 ± 6.411
(1, 0, 0, −1)	−15.229 ± 7.410	−15.229 ± 6.808	−11.412 ± 9.010	−11.412 ± 8.276
(0, 1, −1, 0)	−4.887 ± 6.535	−4.887 ± 6.004	−5.925 ± 7.356	−5.925 ± 6.758
(0, 1, 0, −1)	−13.473 ± 7.410	−13.473 ± 6.808	−9.242 ± 9.305	−9.242 ± 8.548
(0, 0, 1, −1)	−8.586 ± 7.811	−8.586 ± 7.176	−3.317 ± 9.870	−3.317 ± 9.066

Table 26($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 9$, $\rho = 0.5$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−3.516 ± 4.237	−3.516 ± 4.050	−2.086 ± 9.052	−2.086 ± 8.316
(1, −1, 0, 0)	−9.949 ± 4.237	−9.949 ± 4.050	−10.363 ± 9.052	−10.363 ± 8.316
(1, 0, 0, −1)	−15.477 ± 4.237	−15.477 ± 4.050	−16.004 ± 9.052	−16.004 ± 8.316
(0, 1, −1, 0)	−6.433 ± 4.237	−6.433 ± 4.050	−8.277 ± 9.052	−8.277 ± 8.316
(0, 1, 0, −1)	−11.960 ± 4.237	−11.960 ± 4.050	−13.919 ± 9.052	−13.919 ± 8.316
(0, 0, 1, −1)	−5.528 ± 4.237	−5.528 ± 4.050	−5.642 ± 9.052	−5.642 ± 8.316
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−3.516 ± 5.875	−3.516 ± 5.398	−3.516 ± 5.116	−3.516 ± 4.700
(1, 0, −1, 0)	−12.507 ± 7.196	−12.507 ± 6.611	−12.507 ± 6.266	−12.507 ± 5.757
(1, 0, 0, −1)	−18.149 ± 7.196	−18.149 ± 6.611	−16.559 ± 8.090	−16.559 ± 7.432
(0, 1, −1, 0)	−8.991 ± 7.196	−8.991 ± 6.611	−8.991 ± 6.266	−8.991 ± 5.757
(0, 1, 0, −1)	−14.633 ± 7.196	−14.633 ± 6.611	−13.043 ± 8.090	−13.043 ± 7.432
(0, 0, 1, −1)	−5.642 ± 8.309	−5.642 ± 7.634	−4.052 ± 8.862	−4.052 ± 8.141
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−3.516 ± 5.942	−3.516 ± 5.459	−5.303 ± 5.708	−5.303 ± 5.243
(1, 0, −1, 0)	−12.637 ± 6.418	−12.637 ± 5.897	−12.507 ± 6.472	−12.507 ± 5.945
(1, 0, 0, −1)	−18.149 ± 7.278	−18.149 ± 6.686	−16.559 ± 8.355	−16.559 ± 7.675
(0, 1, −1, 0)	−9.121 ± 6.418	−9.121 ± 5.897	−7.204 ± 6.822	−7.204 ± 6.267
(0, 1, 0, −1)	−14.633 ± 7.278	−14.633 ± 6.686	−11.256 ± 8.629	−11.256 ± 7.927
(0, 0, 1, −1)	−5.512 ± 7.671	−5.512 ± 7.048	−4.052 ± 9.153	−4.052 ± 8.408

Table 27($p = 4, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 4$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 5, 10, 15)'$, $\sigma^2 = 9$, $\rho = 0.9$				
	Complete data($m = 160$)		First group data($m = 80$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−2.953 ± 1.814	−2.953 ± 1.734	−2.112 ± 7.753	−2.112 ± 7.122
(1, 0, −1, 0)	−8.319 ± 1.814	−8.319 ± 1.734	−8.039 ± 7.753	−8.039 ± 7.122
(1, 0, 0, −1)	−14.127 ± 1.814	−14.127 ± 1.734	−14.507 ± 7.753	−14.507 ± 7.122
(0, 1, −1, 0)	−5.366 ± 1.814	−5.366 ± 1.734	−5.927 ± 7.753	−5.927 ± 7.122
(0, 1, 0, −1)	−11.174 ± 1.814	−11.174 ± 1.734	−12.395 ± 7.753	−12.395 ± 7.122
(0, 0, 1, −1)	−5.808 ± 1.814	−5.808 ± 1.734	−6.469 ± 7.753	−6.469 ± 7.122
	Monotone missing data ($s = 2, m = 120$)		Monotone missing data ($s = 3, m = 110$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−2.953 ± 4.878	−2.953 ± 4.481	−2.953 ± 4.148	−2.953 ± 3.811
(1, 0, −1, 0)	−9.039 ± 5.974	−9.039 ± 5.488	−9.039 ± 5.080	−9.039 ± 4.667
(1, 0, 0, −1)	−15.508 ± 5.974	−15.508 ± 5.488	−14.947 ± 6.559	−14.947 ± 6.025
(0, 1, −1, 0)	−6.086 ± 5.974	−6.086 ± 5.488	−6.086 ± 5.080	−6.086 ± 4.667
(0, 1, 0, −1)	−12.555 ± 5.974	−12.555 ± 5.488	−11.994 ± 6.559	−11.994 ± 6.025
(0, 0, 1, −1)	−6.469 ± 6.898	−6.469 ± 6.337	−5.907 ± 7.185	−5.907 ± 6.601
	Monotone missing data ($s = 3, m = 130$)		Monotone missing data ($s = 4, m = 100$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0)	−2.953 ± 4.809	−2.953 ± 4.418	−2.781 ± 4.734	−2.781 ± 4.349
(1, 0, −1, 0)	−8.433 ± 5.194	−8.433 ± 4.772	−9.039 ± 5.368	−9.039 ± 4.931
(1, 0, 0, −1)	−15.508 ± 5.890	−15.508 ± 5.411	−14.947 ± 6.930	−14.947 ± 6.366
(0, 1, −1, 0)	−5.480 ± 5.194	−5.480 ± 4.772	−6.258 ± 5.658	−6.258 ± 5.198
(0, 1, 0, −1)	−12.555 ± 5.890	−12.555 ± 5.411	−12.166 ± 7.157	−12.166 ± 6.575
(0, 0, 1, −1)	−7.075 ± 6.208	−7.075 ± 5.704	−5.907 ± 7.591	−5.907 ± 6.974

Table 28($p = 6, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$ with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 1$, $\rho = 0.1$				
	Complete data($m = 120$)		First group data($m = 60$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.216 ± 1.019	−0.216 ± 0.872	−0.056 ± 7.082	−0.056 ± 6.056
(1, 0, −1, 0, 0, 0)	−3.934 ± 1.019	−3.934 ± 0.872	−3.573 ± 7.082	−3.573 ± 6.056
(1, 0, 0, −1, 0, 0)	−3.630 ± 1.019	−3.630 ± 0.872	−3.457 ± 7.082	−3.457 ± 6.056
(1, 0, 0, 0, −1, 0)	−8.712 ± 1.019	−8.712 ± 0.872	−8.129 ± 7.082	−8.129 ± 6.056
(1, 0, 0, 0, 0, −1)	−8.769 ± 1.019	−8.769 ± 0.872	−8.547 ± 7.082	−8.547 ± 6.056
(0, 1, −1, 0, 0, 0)	−3.718 ± 1.019	−3.718 ± 0.872	−3.517 ± 7.082	−3.517 ± 6.056
(0, 1, 0, −1, 0, 0)	−3.414 ± 1.019	−3.414 ± 0.872	−3.401 ± 7.082	−3.401 ± 6.056
(0, 1, 0, 0, −1, 0)	−8.496 ± 1.019	−8.496 ± 0.872	−8.073 ± 7.082	−8.073 ± 6.056
(0, 1, 0, 0, 0, −1)	−8.554 ± 1.019	−8.554 ± 0.872	−8.491 ± 7.082	−8.491 ± 6.056
(0, 0, 1, −1, 0, 0)	0.304 ± 1.019	0.304 ± 0.872	0.116 ± 7.082	0.116 ± 6.056
(0, 0, 1, 0, −1, 0)	−4.778 ± 1.019	−4.778 ± 0.872	−4.556 ± 7.082	−4.556 ± 6.056
(0, 0, 1, 0, 0, −1)	−4.836 ± 1.019	−4.836 ± 0.872	−4.974 ± 7.082	−4.974 ± 6.056
(0, 0, 0, 1, −1, 0)	−5.082 ± 1.019	−5.082 ± 0.872	−4.672 ± 7.082	−4.672 ± 6.056
(0, 0, 0, 1, 0, −1)	−5.139 ± 1.019	−5.139 ± 0.872	−5.090 ± 7.082	−5.090 ± 6.056
(0, 0, 0, 0, 1, −1)	−0.057 ± 1.019	−0.057 ± 0.872	−0.418 ± 7.082	−0.418 ± 6.056
	Monotone missing data ($s = 2, m = 90$)		Monotone missing data ($s = 3, m = 105$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.216 ± 4.331	−0.216 ± 3.705	−0.216 ± 4.336	−0.216 ± 3.710
(1, 0, −1, 0, 0, 0)	−3.934 ± 4.331	−3.934 ± 3.705	−3.934 ± 4.336	−3.934 ± 3.710
(1, 0, 0, −1, 0, 0)	−3.683 ± 5.304	−3.638 ± 4.538	−3.630 ± 4.336	−3.630 ± 3.710
(1, 0, 0, 0, −1, 0)	−8.355 ± 5.304	−8.355 ± 4.538	−8.519 ± 4.684	−8.519 ± 4.008
(1, 0, 0, 0, 0, −1)	−8.773 ± 5.304	−8.773 ± 4.538	−8.773 ± 5.311	−8.773 ± 4.544
(0, 1, −1, 0, 0, 0)	−3.718 ± 4.331	−3.718 ± 3.705	−3.718 ± 4.336	−3.718 ± 3.710
(0, 1, 0, −1, 0, 0)	−3.468 ± 5.304	−3.468 ± 4.538	−3.414 ± 4.336	−3.414 ± 3.710
(0, 1, 0, 0, −1, 0)	−8.140 ± 5.304	−8.140 ± 4.538	−8.303 ± 4.684	−8.303 ± 4.008
(0, 1, 0, 0, 0, −1)	−8.558 ± 5.304	−8.558 ± 4.538	−8.558 ± 5.311	−8.558 ± 4.544
(0, 0, 1, −1, 0, 0)	0.250 ± 5.304	0.250 ± 4.538	0.304 ± 4.336	0.304 ± 3.710
(0, 0, 1, 0, −1, 0)	−4.422 ± 5.304	−4.422 ± 4.538	−4.585 ± 4.684	−4.585 ± 4.008
(0, 0, 1, 0, 0, −1)	−4.840 ± 5.304	−4.840 ± 4.538	−4.840 ± 5.311	−4.840 ± 4.544
(0, 0, 0, 1, −1, 0)	−4.672 ± 6.124	−4.672 ± 5.240	−4.889 ± 4.684	−4.889 ± 4.008
(0, 0, 0, 1, 0, −1)	−5.090 ± 6.124	−5.090 ± 5.240	−5.143 ± 5.311	−5.143 ± 4.544
(0, 0, 0, 0, 1, −1)	−0.418 ± 6.124	−0.418 ± 5.240	−0.254 ± 5.598	−0.254 ± 4.790
	Monotone missing data ($s = 3, m = 95$)		Monotone missing data ($s = 4, m = 90$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.216 ± 3.580	−0.216 ± 3.602	−0.216 ± 3.581	−0.216 ± 3.064
(1, 0, −1, 0, 0, 0)	−3.934 ± 3.580	−3.934 ± 3.602	−3.934 ± 3.581	−3.934 ± 3.064
(1, 0, 0, −1, 0, 0)	−3.630 ± 3.580	−3.630 ± 3.602	−3.685 ± 3.868	−3.685 ± 3.309
(1, 0, 0, 0, −1, 0)	−8.355 ± 4.384	−8.355 ± 3.751	−8.355 ± 4.386	−8.355 ± 3.752
(1, 0, 0, 0, 0, −1)	−8.457 ± 5.660	−8.457 ± 4.842	−8.457 ± 5.663	−8.457 ± 4.844
(0, 1, −1, 0, 0, 0)	−3.718 ± 3.580	−3.718 ± 3.602	−3.718 ± 3.581	−3.718 ± 3.064
(0, 1, 0, −1, 0, 0)	−3.414 ± 3.580	−3.414 ± 3.602	−3.469 ± 3.868	−3.469 ± 3.309
(0, 1, 0, 0, −1, 0)	−8.140 ± 4.384	−8.140 ± 3.751	−8.140 ± 4.386	−8.140 ± 3.752
(0, 1, 0, 0, 0, −1)	−8.242 ± 5.660	−8.242 ± 4.842	−8.242 ± 5.663	−8.242 ± 4.844
(0, 0, 1, −1, 0, 0)	0.304 ± 3.580	0.304 ± 3.602	0.249 ± 3.868	0.249 ± 3.309
(0, 0, 1, 0, −1, 0)	−4.422 ± 4.384	−4.422 ± 3.751	−4.422 ± 4.386	−4.422 ± 3.752
(0, 0, 1, 0, 0, −1)	−4.523 ± 5.660	−4.523 ± 4.842	−4.523 ± 5.663	−4.523 ± 4.844
(0, 0, 0, 1, −1, 0)	−4.725 ± 4.384	−4.725 ± 3.751	−4.670 ± 4.623	−4.670 ± 3.955
(0, 0, 0, 1, 0, −1)	−4.827 ± 5.660	−4.827 ± 4.842	−4.772 ± 5.848	−4.772 ± 5.003
(0, 0, 0, 0, 1, −1)	−0.102 ± 6.200	−0.102 ± 5.304	−0.102 ± 6.203	−0.102 ± 5.306

Table 29($p = 6, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 1$, $\rho = 0.5$

$\boldsymbol{a}'$	Complete data($m = 120$) Scheffé	Complete data($m = 120$) Tukey	First group data($m = 60$) Scheffé	First group data($m = 60$) Tukey
(1, −1, 0, 0, 0, 0)	−0.281 ± 0.732	−0.281 ± 0.626	−0.106 ± 7.474	−0.106 ± 6.392
(1, 0, −1, 0, 0, 0)	−3.975 ± 0.732	−3.975 ± 0.626	−3.450 ± 7.474	−3.450 ± 6.392
(1, 0, 0, −1, 0, 0)	−4.337 ± 0.732	−4.337 ± 0.626	−4.073 ± 7.474	−4.073 ± 6.392
(1, 0, 0, 0, −1, 0)	−8.920 ± 0.732	−8.920 ± 0.626	−8.824 ± 7.474	−8.824 ± 6.392
(1, 0, 0, 0, 0, −1)	−8.866 ± 0.732	−8.866 ± 0.626	−8.789 ± 7.474	−8.789 ± 6.392
(0, 1, −1, 0, 0, 0)	−3.694 ± 0.732	−3.694 ± 0.626	−3.344 ± 7.474	−3.344 ± 6.392
(0, 1, 0, −1, 0, 0)	−4.056 ± 0.732	−4.056 ± 0.626	−3.966 ± 7.474	−3.966 ± 6.392
(0, 1, 0, 0, −1, 0)	−8.639 ± 0.732	−8.639 ± 0.626	−8.718 ± 7.474	−8.718 ± 6.392
(0, 1, 0, 0, 0, −1)	−8.585 ± 0.732	−8.585 ± 0.626	−8.682 ± 7.474	−8.682 ± 6.392
(0, 0, 1, −1, 0, 0)	−0.362 ± 0.732	−0.362 ± 0.626	−0.623 ± 7.474	−0.623 ± 6.392
(0, 0, 1, 0, −1, 0)	−4.945 ± 0.732	−4.945 ± 0.626	−5.374 ± 7.474	−5.374 ± 6.392
(0, 0, 1, 0, 0, −1)	−4.891 ± 0.732	−4.891 ± 0.626	−5.339 ± 7.474	−5.339 ± 6.392
(0, 0, 0, 1, −1, 0)	−4.583 ± 0.732	−4.583 ± 0.626	−4.752 ± 7.474	−4.752 ± 6.392
(0, 0, 0, 1, 0, −1)	−4.529 ± 0.732	−4.529 ± 0.626	−4.716 ± 7.474	−4.716 ± 6.392
(0, 0, 0, 0, 1, −1)	0.054 ± 0.732	0.054 ± 0.626	0.036 ± 7.474	0.036 ± 6.392
	Monotone missing data ($s = 2, m = 90$) Scheffé	Monotone missing data ($s = 2, m = 90$) Tukey	Monotone missing data ($s = 3, m = 105$) Scheffé	Monotone missing data ($s = 3, m = 105$) Tukey
(1, −1, 0, 0, 0, 0)	−0.281 ± 4.578	−0.281 ± 3.916	−0.281 ± 4.607	−0.281 ± 3.942
(1, 0, −1, 0, 0, 0)	−3.975 ± 4.578	−3.975 ± 3.916	−3.975 ± 4.607	−3.975 ± 3.942
(1, 0, 0, −1, 0, 0)	−4.243 ± 5.607	−4.243 ± 4.797	−4.337 ± 4.607	−4.337 ± 3.942
(1, 0, 0, 0, −1, 0)	−8.995 ± 5.607	−8.995 ± 4.797	−8.885 ± 4.976	−8.885 ± 4.257
(1, 0, 0, 0, 0, −1)	−8.959 ± 5.607	−8.959 ± 4.797	−8.959 ± 5.642	−8.959 ± 4.827
(0, 1, −1, 0, 0, 0)	−3.694 ± 4.578	−3.694 ± 3.916	−3.694 ± 4.607	−3.694 ± 3.942
(0, 1, 0, −1, 0, 0)	−3.962 ± 5.607	−3.962 ± 4.797	−4.056 ± 4.607	−4.056 ± 3.942
(0, 1, 0, 0, −1, 0)	−8.714 ± 5.607	−8.714 ± 4.797	−8.604 ± 4.976	−8.604 ± 4.257
(0, 1, 0, 0, 0, −1)	−8.678 ± 5.607	−8.678 ± 4.797	−8.678 ± 5.642	−8.678 ± 4.827
(0, 0, 1, −1, 0, 0)	−0.268 ± 5.607	−0.268 ± 4.797	−0.362 ± 4.607	−0.362 ± 3.942
(0, 0, 1, 0, −1, 0)	−5.019 ± 5.607	−5.019 ± 4.797	−4.910 ± 4.976	−4.910 ± 4.257
(0, 0, 1, 0, 0, −1)	−4.984 ± 5.607	−4.984 ± 4.797	−4.984 ± 5.642	−4.984 ± 4.827
(0, 0, 0, 1, −1, 0)	−4.752 ± 6.474	−4.752 ± 5.539	−4.548 ± 4.976	−4.548 ± 4.257
(0, 0, 0, 1, 0, −1)	−4.716 ± 6.474	−4.716 ± 5.539	−4.622 ± 5.642	−4.622 ± 4.827
(0, 0, 0, 0, 1, −1)	0.036 ± 6.474	0.036 ± 5.539	−0.074 ± 5.947	−0.074 ± 5.089
	Monotone missing data ($s = 3, m = 95$) Scheffé	Monotone missing data ($s = 3, m = 95$) Tukey	Monotone missing data ($s = 4, m = 90$) Scheffé	Monotone missing data ($s = 4, m = 90$) Tukey
(1, −1, 0, 0, 0, 0)	−0.281 ± 3.868	−0.281 ± 3.309	−0.281 ± 3.810	−0.281 ± 3.259
(1, 0, −1, 0, 0, 0)	−3.975 ± 3.868	−3.975 ± 3.309	−3.975 ± 3.810	−3.975 ± 3.259
(1, 0, 0, −1, 0, 0)	−4.337 ± 3.868	−4.337 ± 3.309	−4.166 ± 4.115	−4.166 ± 3.520
(1, 0, 0, 0, −1, 0)	−8.995 ± 4.738	−8.995 ± 4.053	−8.995 ± 4.666	−8.995 ± 3.991
(1, 0, 0, 0, 0, −1)	−8.767 ± 6.116	−8.767 ± 5.232	−8.767 ± 6.023	−8.767 ± 5.152
(0, 1, −1, 0, 0, 0)	−3.694 ± 3.868	−3.694 ± 3.309	−3.694 ± 3.810	−3.694 ± 3.259
(0, 1, 0, −1, 0, 0)	−4.056 ± 3.868	−4.056 ± 3.309	−3.885 ± 4.115	−3.885 ± 3.520
(0, 1, 0, 0, −1, 0)	−8.714 ± 4.738	−8.714 ± 4.053	−8.714 ± 4.666	−8.714 ± 3.991
(0, 1, 0, 0, 0, −1)	−8.486 ± 6.116	−8.486 ± 5.232	−8.486 ± 6.023	−8.486 ± 5.152
(0, 0, 1, −1, 0, 0)	−0.362 ± 3.868	−0.362 ± 3.309	−0.191 ± 4.115	−0.191 ± 3.520
(0, 0, 1, 0, −1, 0)	−5.019 ± 4.738	−5.019 ± 4.053	−5.019 ± 4.666	−5.019 ± 3.991
(0, 0, 1, 0, 0, −1)	−4.792 ± 6.116	−4.792 ± 5.232	−4.792 ± 6.023	−4.792 ± 5.152
(0, 0, 0, 1, −1, 0)	−4.658 ± 4.738	−4.658 ± 4.053	−4.829 ± 4.918	−4.829 ± 4.207
(0, 0, 0, 1, 0, −1)	−4.430 ± 6.116	−4.430 ± 5.232	−4.601 ± 6.221	−4.601 ± 5.321
(0, 0, 0, 0, 1, −1)	0.228 ± 6.700	0.228 ± 5.732	0.028 ± 6.598	0.028 ± 5.644

Table 30($p = 6, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$ with level $1 - \alpha = 0.95$

	$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 1$, $\rho = 0.9$			
	Complete data($m = 120$)		First group data($m = 60$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.068 ± 0.327	0.068 ± 0.280	0.203 ± 6.821	0.203 ± 5.833
(1, 0, −1, 0, 0, 0)	−3.994 ± 0.327	−3.994 ± 0.280	−3.842 ± 6.821	−3.842 ± 5.833
(1, 0, 0, −1, 0, 0)	−3.919 ± 0.327	−3.919 ± 0.280	−3.859 ± 6.821	−3.859 ± 5.833
(1, 0, 0, 0, −1, 0)	−9.169 ± 0.327	−9.169 ± 0.280	−9.045 ± 6.821	−9.045 ± 5.833
(1, 0, 0, 0, 0, −1)	−9.028 ± 0.327	−9.028 ± 0.280	−8.966 ± 6.821	−8.966 ± 5.833
(0, 1, −1, 0, 0, 0)	−4.062 ± 0.327	−4.062 ± 0.280	−4.046 ± 6.821	−4.046 ± 5.833
(0, 1, 0, −1, 0, 0)	−3.987 ± 0.327	−3.987 ± 0.280	−4.063 ± 6.821	−4.063 ± 5.833
(0, 1, 0, 0, −1, 0)	−9.238 ± 0.327	−9.238 ± 0.280	−9.248 ± 6.821	−9.248 ± 5.833
(0, 1, 0, 0, 0, −1)	−9.096 ± 0.327	−9.096 ± 0.280	−9.170 ± 6.821	−9.170 ± 5.833
(0, 0, 1, −1, 0, 0)	0.076 ± 0.327	0.076 ± 0.280	−0.017 ± 6.821	−0.017 ± 5.833
(0, 0, 1, 0, −1, 0)	−5.175 ± 0.327	−5.175 ± 0.280	−5.202 ± 6.821	−5.202 ± 5.833
(0, 0, 1, 0, 0, −1)	−5.033 ± 0.327	−5.033 ± 0.280	−5.124 ± 6.821	−5.124 ± 5.833
(0, 0, 0, 1, −1, 0)	−5.251 ± 0.327	−5.251 ± 0.280	−5.185 ± 6.821	−5.185 ± 5.833
(0, 0, 0, 1, 0, −1)	−5.109 ± 0.327	−5.109 ± 0.280	−5.107 ± 6.821	−5.107 ± 5.833
(0, 0, 0, 0, 1, −1)	0.142 ± 0.327	0.142 ± 0.280	0.078 ± 6.821	0.078 ± 5.833
	Monotone missing data ($s = 2, m = 90$)		Monotone missing data ($s = 3, m = 105$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.068 ± 4.180	0.068 ± 3.576	0.068 ± 4.249	0.068 ± 3.636
(1, 0, −1, 0, 0, 0)	−3.994 ± 4.180	−3.994 ± 3.576	−3.994 ± 4.249	−3.994 ± 3.636
(1, 0, 0, −1, 0, 0)	−3.695 ± 5.119	−3.695 ± 4.380	−3.919 ± 4.249	−3.919 ± 3.636
(1, 0, 0, 0, −1, 0)	−8.880 ± 5.119	−8.880 ± 4.380	−9.011 ± 4.589	−9.011 ± 3.927
(1, 0, 0, 0, 0, −1)	−8.802 ± 5.119	−8.802 ± 4.380	−8.802 ± 5.204	−8.802 ± 4.453
(0, 1, −1, 0, 0, 0)	−4.062 ± 4.180	−4.062 ± 3.576	−4.602 ± 4.249	−4.602 ± 3.636
(0, 1, 0, −1, 0, 0)	−3.763 ± 5.119	−3.763 ± 4.380	−3.987 ± 4.249	−3.987 ± 3.636
(0, 1, 0, 0, −1, 0)	−8.949 ± 5.119	−8.949 ± 4.380	−9.079 ± 4.589	−9.079 ± 3.927
(0, 1, 0, 0, 0, −1)	−8.870 ± 5.119	−8.870 ± 4.380	−8.870 ± 5.204	−8.870 ± 4.453
(0, 0, 1, −1, 0, 0)	0.299 ± 5.119	0.299 ± 4.380	0.076 ± 4.249	0.076 ± 3.636
(0, 0, 1, 0, −1, 0)	−4.886 ± 5.119	−4.886 ± 4.380	−5.016 ± 4.589	−5.016 ± 3.927
(0, 0, 1, 0, 0, −1)	−4.808 ± 5.119	−4.808 ± 4.380	−4.808 ± 5.204	−4.808 ± 4.453
(0, 0, 0, 1, −1, 0)	−5.185 ± 5.911	−5.185 ± 5.057	−5.092 ± 4.589	−5.092 ± 3.927
(0, 0, 0, 1, 0, −1)	−5.107 ± 5.911	−5.107 ± 5.057	−4.883 ± 5.204	−4.883 ± 4.453
(0, 0, 0, 0, 1, −1)	0.078 ± 5.911	0.078 ± 5.057	0.209 ± 5.485	0.209 ± 4.694
	Monotone missing data ($s = 3, m = 95$)		Monotone missing data ($s = 4, m = 90$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.068 ± 3.510	0.068 ± 3.003	0.068 ± 3.450	0.068 ± 2.951
(1, 0, −1, 0, 0, 0)	−3.994 ± 3.510	−3.994 ± 3.003	−3.994 ± 3.450	−3.994 ± 2.951
(1, 0, 0, −1, 0, 0)	−3.919 ± 3.510	−3.919 ± 3.003	−3.803 ± 3.726	−3.803 ± 3.187
(1, 0, 0, 0, −1, 0)	−8.880 ± 4.299	−8.880 ± 3.678	−8.880 ± 4.225	−8.880 ± 3.614
(1, 0, 0, 0, 0, −1)	−8.505 ± 5.549	−8.505 ± 4.748	−8.505 ± 5.454	−8.505 ± 4.666
(0, 1, −1, 0, 0, 0)	−4.062 ± 3.510	−4.062 ± 3.003	−4.602 ± 3.450	−4.602 ± 2.951
(0, 1, 0, −1, 0, 0)	−3.987 ± 3.510	−3.987 ± 3.003	−3.871 ± 3.726	−3.871 ± 3.187
(0, 1, 0, 0, −1, 0)	−8.949 ± 4.299	−8.949 ± 3.678	−8.949 ± 4.225	−8.949 ± 3.614
(0, 1, 0, 0, 0, −1)	−8.574 ± 5.549	−8.574 ± 4.748	−8.574 ± 5.454	−8.574 ± 4.666
(0, 0, 1, −1, 0, 0)	0.076 ± 3.510	0.076 ± 3.003	0.191 ± 3.726	0.191 ± 3.187
(0, 0, 1, 0, −1, 0)	−4.886 ± 4.299	−4.886 ± 3.678	−4.886 ± 4.225	−4.886 ± 3.614
(0, 0, 1, 0, 0, −1)	−4.511 ± 5.549	−4.511 ± 4.748	−4.511 ± 5.454	−4.511 ± 4.666
(0, 0, 0, 1, −1, 0)	−4.962 ± 4.299	−4.962 ± 3.678	−5.078 ± 4.453	−5.078 ± 3.810
(0, 0, 0, 1, 0, −1)	−4.587 ± 5.549	−4.587 ± 4.748	−4.703 ± 5.633	−4.703 ± 4.819
(0, 0, 0, 0, 1, −1)	0.375 ± 6.079	0.375 ± 5.201	0.375 ± 5.975	0.375 ± 5.111

Table 31($p = 6, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5,10,10)'$, $\sigma^2 = 9$, $\rho = 0.1$				
	Complete data($m = 120$)		First group data($m = 60$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.734 ± 9.025	−0.734 ± 7.724	0.041 ± 15.216	0.041 ± 13.012
(1, 0, −1, 0, 0, 0)	−3.635 ± 9.025	−3.635 ± 7.724	−4.100 ± 15.216	−4.100 ± 13.012
(1, 0, 0, −1, 0, 0)	−3.119 ± 9.025	−3.119 ± 7.724	−3.233 ± 15.216	−3.233 ± 13.012
(1, 0, 0, 0, −1, 0)	−10.132 ± 9.025	−10.132 ± 7.724	−11.695 ± 15.216	−11.695 ± 13.012
(1, 0, 0, 0, 0, −1)	−7.125 ± 9.025	−7.125 ± 7.724	−10.532 ± 15.216	−10.532 ± 13.012
(0, 1, −1, 0, 0, 0)	−2.901 ± 9.025	−2.901 ± 7.724	−4.140 ± 15.216	−4.140 ± 13.012
(0, 1, 0, −1, 0, 0)	−2.385 ± 9.025	−2.385 ± 7.724	−3.274 ± 15.216	−3.274 ± 13.012
(0, 1, 0, 0, −1, 0)	−9.398 ± 9.025	−9.398 ± 7.724	−11.736 ± 15.216	−11.736 ± 13.012
(0, 1, 0, 0, 0, −1)	−6.391 ± 9.025	−6.391 ± 7.724	−10.573 ± 15.216	−10.573 ± 13.012
(0, 0, 1, −1, 0, 0)	0.516 ± 9.025	0.516 ± 7.724	0.867 ± 15.216	0.867 ± 13.012
(0, 0, 1, 0, −1, 0)	−6.497 ± 9.025	−6.497 ± 7.724	−7.595 ± 15.216	−7.595 ± 13.012
(0, 0, 1, 0, 0, −1)	−3.490 ± 9.025	−3.490 ± 7.724	−6.432 ± 15.216	−6.432 ± 13.012
(0, 0, 0, 1, −1, 0)	−7.013 ± 9.025	−7.013 ± 7.724	−8.462 ± 15.216	−8.462 ± 13.012
(0, 0, 0, 1, 0, −1)	−4.006 ± 9.025	−4.006 ± 7.724	−7.299 ± 15.216	−7.299 ± 13.012
(0, 0, 0, 0, 1, −1)	3.008 ± 9.025	3.008 ± 7.724	1.163 ± 15.216	1.163 ± 13.012
	Monotone missing data ($s = 2, m = 90$)		Monotone missing data ($s = 3, m = 105$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.734 ± 10.908	−0.734 ± 9.332	−0.734 ± 10.590	−0.734 ± 9.062
(1, 0, −1, 0, 0, 0)	−3.635 ± 10.908	−3.635 ± 9.332	−3.635 ± 10.590	−3.635 ± 9.062
(1, 0, 0, −1, 0, 0)	−2.621 ± 13.360	−2.621 ± 11.430	−3.119 ± 10.590	−3.119 ± 9.062
(1, 0, 0, 0, −1, 0)	−11.083 ± 13.360	−11.083 ± 11.430	−10.517 ± 11.439	−10.517 ± 9.788
(1, 0, 0, 0, 0, −1)	−9.920 ± 13.360	−9.920 ± 11.430	−9.920 ± 12.970	−9.920 ± 11.098
(0, 1, −1, 0, 0, 0)	−2.901 ± 10.908	−2.901 ± 9.332	−2.901 ± 10.590	−2.901 ± 9.062
(0, 1, 0, −1, 0, 0)	−1.888 ± 13.360	−1.888 ± 11.430	−2.385 ± 10.950	−2.385 ± 9.062
(0, 1, 0, 0, −1, 0)	−10.350 ± 13.360	−10.350 ± 11.430	−9.783 ± 11.439	−9.783 ± 9.788
(0, 1, 0, 0, 0, −1)	−9.182 ± 13.360	−9.182 ± 11.430	−9.186 ± 12.970	−9.186 ± 11.098
(0, 0, 1, −1, 0, 0)	1.013 ± 13.360	1.013 ± 11.430	0.516 ± 10.950	0.516 ± 9.062
(0, 0, 1, 0, −1, 0)	−7.449 ± 13.360	−7.449 ± 11.430	−6.882 ± 11.439	−6.882 ± 9.788
(0, 0, 1, 0, 0, −1)	−6.285 ± 13.360	−6.285 ± 11.430	−6.285 ± 12.970	−6.285 ± 11.098
(0, 0, 0, 1, −1, 0)	−8.462 ± 15.426	−8.462 ± 13.198	−7.398 ± 11.439	−0.874 ± 9.788
(0, 0, 0, 1, 0, −1)	−7.299 ± 15.426	−7.299 ± 13.198	−6.801 ± 12.970	−6.801 ± 11.098
(0, 0, 0, 0, 1, −1)	−1.163 ± 15.426	−1.163 ± 13.198	0.590 ± 13.670	0.597 ± 11.698
	Monotone missing data ($s = 3, m = 95$)		Monotone missing data ($s = 4, m = 90$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.734 ± 10.650	−0.734 ± 9.111	−0.734 ± 11.015	−0.734 ± 9.442
(1, 0, −1, 0, 0, 0)	−3.635 ± 10.650	−3.635 ± 9.111	−3.635 ± 11.015	−3.635 ± 9.442
(1, 0, 0, −1, 0, 0)	−3.119 ± 10.650	−3.119 ± 9.111	−1.793 ± 11.898	−1.793 ± 10.177
(1, 0, 0, 0, −1, 0)	−11.083 ± 13.043	−11.083 ± 11.159	−11.083 ± 13.491	−11.083 ± 11.540
(1, 0, 0, 0, 0, −1)	−11.768 ± 16.839	−11.768 ± 14.406	−11.768 ± 17.416	−11.768 ± 14.898
(0, 1, −1, 0, 0, 0)	−2.901 ± 10.650	−2.901 ± 9.111	−2.901 ± 11.015	−2.901 ± 9.422
(0, 1, 0, −1, 0, 0)	−2.385 ± 10.650	−2.385 ± 9.111	−1.060 ± 11.898	−1.060 ± 10.177
(0, 1, 0, 0, −1, 0)	−10.350 ± 13.043	−10.350 ± 11.159	−10.350 ± 13.491	−10.350 ± 11.540
(0, 1, 0, 0, 0, −1)	−11.034 ± 16.839	−11.034 ± 14.406	−11.034 ± 17.416	−11.034 ± 14.898
(0, 0, 1, −1, 0, 0)	0.516 ± 10.650	0.516 ± 9.111	1.841 ± 11.989	1.841 ± 10.177
(0, 0, 1, 0, −1, 0)	−7.449 ± 13.043	−7.449 ± 11.159	−7.449 ± 13.491	−7.449 ± 11.540
(0, 0, 1, 0, 0, −1)	−8.133 ± 16.839	−8.133 ± 14.406	−8.133 ± 17.416	−8.133 ± 14.898
(0, 0, 0, 1, −1, 0)	−7.965 ± 13.043	−7.965 ± 11.159	−9.290 ± 14.220	−9.290 ± 12.164
(0, 0, 0, 1, 0, −1)	−8.649 ± 16.839	−8.649 ± 14.406	−9.974 ± 17.988	−9.974 ± 15.387
(0, 0, 0, 0, 1, −1)	−0.684 ± 18.446	−0.684 ± 15.781	−0.684 ± 19.079	−0.684 ± 16.320

Table 32($p = 6, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 9$, $\rho = 0.5$				
	Complete data($m = 120$)		First group data($m = 60$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.096 ± 8.260	−0.096 ± 7.069	−2.619 ± 11.009	−2.619 ± 9.414
(1, 0, −1, 0, 0, 0)	−2.587 ± 8.260	−2.587 ± 7.069	−3.796 ± 11.009	−3.796 ± 9.414
(1, 0, 0, −1, 0, 0)	−4.184 ± 8.260	−4.184 ± 7.069	−4.211 ± 11.009	−4.211 ± 9.414
(1, 0, 0, 0, −1, 0)	−6.818 ± 8.260	−6.818 ± 7.069	−7.782 ± 11.009	−7.782 ± 9.414
(1, 0, 0, 0, 0, −1)	−10.218 ± 8.260	−10.218 ± 7.069	−10.918 ± 11.009	−10.918 ± 9.414
(0, 1, −1, 0, 0, 0)	−2.491 ± 8.260	−2.491 ± 7.069	−1.177 ± 11.009	−1.177 ± 9.414
(0, 1, 0, −1, 0, 0)	−4.088 ± 8.260	−4.088 ± 7.069	−1.593 ± 11.009	−1.593 ± 9.414
(0, 1, 0, 0, −1, 0)	−6.722 ± 8.260	−6.722 ± 7.069	−5.163 ± 11.009	−5.163 ± 9.414
(0, 1, 0, 0, 0, −1)	−10.122 ± 8.260	−10.122 ± 7.069	−8.299 ± 11.009	−8.299 ± 9.414
(0, 0, 1, −1, 0, 0)	−1.597 ± 8.260	−1.597 ± 7.069	−0.415 ± 11.009	−0.415 ± 9.414
(0, 0, 1, 0, −1, 0)	−4.231 ± 8.260	−4.231 ± 7.069	−3.986 ± 11.009	−3.986 ± 9.414
(0, 0, 1, 0, 0, −1)	−7.631 ± 8.260	−7.631 ± 7.069	−7.121 ± 11.009	−7.121 ± 9.414
(0, 0, 0, 1, −1, 0)	−2.634 ± 8.260	−2.634 ± 7.069	−3.571 ± 11.009	−3.571 ± 9.414
(0, 0, 0, 1, 0, −1)	−6.034 ± 8.260	−6.034 ± 7.069	−6.706 ± 11.009	−6.706 ± 9.414
(0, 0, 0, 0, 1, −1)	−3.400 ± 8.260	−3.400 ± 7.069	−3.135 ± 11.009	−3.135 ± 9.414
	Monotone missing data ($s = 2, m = 90$)		Monotone missing data ($s = 3, m = 105$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.096 ± 9.086	−0.096 ± 7.773	−0.096 ± 8.487	−0.096 ± 7.262
(1, 0, −1, 0, 0, 0)	−2.587 ± 9.086	−2.587 ± 7.773	−2.587 ± 8.487	−2.587 ± 7.262
(1, 0, 0, −1, 0, 0)	−2.043 ± 11.128	−2.043 ± 9.520	−4.184 ± 8.487	−4.184 ± 7.262
(1, 0, 0, 0, −1, 0)	−5.614 ± 11.128	−5.614 ± 9.520	−3.549 ± 9.167	−3.549 ± 7.844
(1, 0, 0, 0, 0, −1)	−8.749 ± 11.128	−8.749 ± 9.520	−8.749 ± 10.395	−8.749 ± 8.894
(0, 1, −1, 0, 0, 0)	−2.491 ± 9.086	−2.491 ± 7.773	−2.491 ± 8.487	−2.491 ± 7.262
(0, 1, 0, −1, 0, 0)	−1.947 ± 11.128	−1.947 ± 9.520	−4.088 ± 8.487	−4.088 ± 7.262
(0, 1, 0, 0, −1, 0)	−5.518 ± 11.128	−5.518 ± 9.520	−3.452 ± 9.167	−3.452 ± 7.844
(0, 1, 0, 0, 0, −1)	−8.653 ± 11.128	−8.653 ± 9.520	−8.653 ± 10.395	−8.653 ± 8.894
(0, 0, 1, −1, 0, 0)	0.544 ± 11.128	0.544 ± 9.520	−1.597 ± 8.487	−1.597 ± 7.262
(0, 0, 1, 0, −1, 0)	−3.027 ± 11.128	−3.027 ± 9.520	−0.961 ± 9.167	−0.961 ± 7.844
(0, 0, 1, 0, 0, −1)	−6.162 ± 11.128	−6.162 ± 9.520	−6.162 ± 10.395	−6.162 ± 8.894
(0, 0, 0, 1, −1, 0)	−3.571 ± 12.849	−3.571 ± 10.993	0.635 ± 9.167	0.635 ± 7.844
(0, 0, 0, 1, 0, −1)	−6.706 ± 12.849	−6.706 ± 10.993	−4.565 ± 10.395	−4.565 ± 8.894
(0, 0, 0, 0, 1, −1)	−3.135 ± 12.849	−3.135 ± 10.993	−5.201 ± 10.957	−5.201 ± 9.375
	Monotone missing data ($s = 3, m = 95$)		Monotone missing data ($s = 4, m = 90$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.096 ± 9.145	−0.096 ± 7.824	−0.096 ± 9.236	−0.096 ± 7.901
(1, 0, −1, 0, 0, 0)	−2.587 ± 9.145	−2.587 ± 7.824	−2.587 ± 9.236	−2.587 ± 7.901
(1, 0, 0, −1, 0, 0)	−4.184 ± 9.145	−4.184 ± 7.824	−2.427 ± 9.977	−2.427 ± 8.534
(1, 0, 0, 0, −1, 0)	−5.614 ± 11.201	−5.614 ± 9.582	−5.614 ± 11.312	−5.614 ± 9.677
(1, 0, 0, 0, 0, −1)	−5.441 ± 14.460	−5.441 ± 12.371	−5.441 ± 14.604	−5.441 ± 12.493
(0, 1, −1, 0, 0, 0)	−2.491 ± 9.145	−2.491 ± 7.824	−2.491 ± 9.236	−2.491 ± 7.901
(0, 1, 0, −1, 0, 0)	−4.088 ± 9.145	−4.088 ± 7.824	−2.331 ± 9.977	−2.331 ± 8.534
(0, 1, 0, 0, −1, 0)	−5.518 ± 11.201	−5.518 ± 9.582	−5.518 ± 11.312	−5.518 ± 9.677
(0, 1, 0, 0, 0, −1)	−5.345 ± 14.460	−5.345 ± 12.371	−5.345 ± 14.604	−5.345 ± 12.493
(0, 0, 1, −1, 0, 0)	−1.597 ± 9.145	−1.597 ± 7.824	0.160 ± 9.977	0.160 ± 8.534
(0, 0, 1, 0, −1, 0)	−3.027 ± 11.201	−3.027 ± 9.582	−3.027 ± 11.312	−3.027 ± 9.677
(0, 0, 1, 0, 0, −1)	−2.854 ± 14.460	−2.854 ± 12.371	−2.854 ± 14.604	−2.854 ± 12.493
(0, 0, 0, 1, −1, 0)	−1.430 ± 11.201	−1.430 ± 9.582	−3.186 ± 11.924	−3.186 ± 10.200
(0, 0, 0, 1, 0, −1)	−1.257 ± 14.460	−1.257 ± 12.371	−3.014 ± 15.083	−3.014 ± 12.902
(0, 0, 0, 0, 1, −1)	0.173 ± 15.840	0.173 ± 13.552	0.173 ± 15.998	0.173 ± 13.685

Table 33($p = 6, n = 20$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 9$, $\rho = 0.9$				
	Complete data($m = 120$)		First group data($m = 60$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	1.783 ± 3.221	1.783 ± 2.757	2.204 ± 8.833	2.204 ± 7.554
(1, 0, −1, 0, 0, 0)	−3.910 ± 3.221	−3.910 ± 2.757	−2.788 ± 8.833	−2.788 ± 7.554
(1, 0, 0, −1, 0, 0)	−3.459 ± 3.221	−3.459 ± 2.757	−3.831 ± 8.833	−3.831 ± 7.554
(1, 0, 0, 0, −1, 0)	−7.924 ± 3.221	−7.924 ± 2.757	−8.112 ± 8.833	−8.112 ± 7.554
(1, 0, 0, 0, 0, −1)	−7.593 ± 3.221	−7.593 ± 2.757	−6.145 ± 8.833	−6.145 ± 7.554
(0, 1, −1, 0, 0, 0)	−5.693 ± 3.221	−5.693 ± 2.757	−4.992 ± 8.833	−4.992 ± 7.554
(0, 1, 0, −1, 0, 0)	−5.242 ± 3.221	−5.242 ± 2.757	−6.034 ± 8.833	−6.034 ± 7.554
(0, 1, 0, 0, −1, 0)	−9.707 ± 3.221	−9.707 ± 2.757	−10.315 ± 8.833	−10.315 ± 7.554
(0, 1, 0, 0, 0, −1)	−9.377 ± 3.221	−9.377 ± 2.757	−8.348 ± 8.833	−8.348 ± 7.554
(0, 0, 1, −1, 0, 0)	0.451 ± 3.221	0.451 ± 2.757	−1.042 ± 8.833	−1.042 ± 7.554
(0, 0, 1, 0, −1, 0)	−4.014 ± 3.221	−4.014 ± 2.757	−5.323 ± 8.833	−5.323 ± 7.554
(0, 0, 1, 0, 0, −1)	−3.684 ± 3.221	−3.684 ± 2.757	−3.356 ± 8.833	−3.356 ± 7.554
(0, 0, 0, 1, −1, 0)	−4.465 ± 3.221	−4.465 ± 2.757	−4.281 ± 8.833	−4.281 ± 7.554
(0, 0, 0, 1, 0, −1)	−4.135 ± 3.221	−4.135 ± 2.757	−2.314 ± 8.833	−2.314 ± 7.554
(0, 0, 0, 0, 1, −1)	0.330 ± 3.221	0.330 ± 2.757	1.967 ± 8.833	1.967 ± 7.554
	Monotone missing data ($s = 2, m = 90$)		Monotone missing data ($s = 3, m = 105$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	1.783 ± 5.461	1.783 ± 4.672	1.783 ± 5.217	1.783 ± 4.464
(1, 0, −1, 0, 0, 0)	−3.910 ± 5.461	−3.910 ± 4.672	−3.910 ± 5.217	−3.910 ± 4.464
(1, 0, 0, −1, 0, 0)	−5.604 ± 6.889	−5.604 ± 5.722	−3.459 ± 5.217	−3.459 ± 4.464
(1, 0, 0, 0, −1, 0)	−9.885 ± 6.889	−9.885 ± 5.722	−8.143 ± 5.635	−8.143 ± 4.822
(1, 0, 0, 0, 0, −1)	−7.918 ± 6.889	−7.918 ± 5.722	−7.918 ± 6.389	−7.918 ± 5.467
(0, 1, −1, 0, 0, 0)	−5.693 ± 5.461	−5.693 ± 4.672	−5.693 ± 5.217	−5.693 ± 4.464
(0, 1, 0, −1, 0, 0)	−7.387 ± 6.889	−7.387 ± 5.722	−5.242 ± 5.217	−5.242 ± 4.464
(0, 1, 0, 0, −1, 0)	−11.668 ± 6.889	−11.668 ± 5.722	−9.926 ± 5.635	−9.926 ± 4.822
(0, 1, 0, 0, 0, −1)	−9.701 ± 6.889	−9.701 ± 5.722	−9.701 ± 6.389	−9.701 ± 5.467
(0, 0, 1, −1, 0, 0)	−1.694 ± 6.889	−1.694 ± 5.722	0.451 ± 5.217	0.451 ± 4.464
(0, 0, 1, 0, −1, 0)	−5.975 ± 6.889	−5.975 ± 5.722	−4.233 ± 5.635	−4.233 ± 4.822
(0, 0, 1, 0, 0, −1)	−4.008 ± 6.889	−4.008 ± 5.722	−4.008 ± 6.389	−4.008 ± 5.467
(0, 0, 0, 1, −1, 0)	−4.281 ± 7.723	−4.281 ± 6.607	−4.684 ± 5.635	−4.684 ± 4.822
(0, 0, 0, 1, 0, −1)	−2.314 ± 7.723	−2.314 ± 6.607	−4.459 ± 6.389	−4.459 ± 5.467
(0, 0, 0, 0, 1, −1)	1.967 ± 7.723	1.967 ± 6.607	0.225 ± 6.735	0.225 ± 5.763
	Monotone missing data ($s = 3, m = 95$)		Monotone missing data ($s = 4, m = 90$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	1.783 ± 4.861	1.783 ± 4.158	1.783 ± 5.116	1.783 ± 4.376
(1, 0, −1, 0, 0, 0)	−3.910 ± 4.861	−3.910 ± 4.158	−3.910 ± 5.116	−3.910 ± 4.376
(1, 0, 0, −1, 0, 0)	−3.459 ± 4.861	−3.459 ± 4.158	−4.006 ± 5.526	−4.006 ± 4.727
(1, 0, 0, 0, −1, 0)	−9.885 ± 5.953	−9.885 ± 5.093	−9.885 ± 6.266	−9.885 ± 5.360
(1, 0, 0, 0, 0, −1)	−8.157 ± 7.685	−8.157 ± 6.575	−8.157 ± 8.089	−8.157 ± 6.919
(0, 1, −1, 0, 0, 0)	−5.693 ± 4.861	−5.693 ± 4.158	−5.693 ± 5.116	−5.693 ± 4.376
(0, 1, 0, −1, 0, 0)	−5.242 ± 4.861	−5.242 ± 4.158	−5.789 ± 5.526	−5.789 ± 4.727
(0, 1, 0, 0, −1, 0)	−11.668 ± 5.953	−11.668 ± 5.093	−11.668 ± 6.266	−11.668 ± 5.360
(0, 1, 0, 0, 0, −1)	−9.940 ± 7.685	−9.940 ± 6.575	−9.940 ± 8.089	−9.940 ± 6.919
(0, 0, 1, −1, 0, 0)	0.451 ± 4.861	0.451 ± 4.158	−0.096 ± 5.526	−0.096 ± 4.727
(0, 0, 1, 0, −1, 0)	−5.975 ± 5.953	−5.975 ± 5.093	−5.975 ± 6.266	−5.975 ± 5.360
(0, 0, 1, 0, 0, −1)	−4.248 ± 7.685	−4.248 ± 6.575	−4.248 ± 8.089	−4.248 ± 6.919
(0, 0, 0, 1, −1, 0)	−6.426 ± 5.953	−6.426 ± 5.093	−5.879 ± 6.605	−5.879 ± 5.650
(0, 0, 0, 1, 0, −1)	−4.699 ± 7.685	−4.699 ± 6.575	−4.151 ± 8.354	−4.151 ± 7.146
(0, 0, 0, 0, 1, −1)	1.727 ± 8.419	1.727 ± 7.202	1.727 ± 8.861	1.727 ± 7.580

Table 34($p = 6, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5,10,10)'$, $\sigma^2 = 1$, $\rho = 0.1$				
	Complete data($m = 240$)		First group data($m = 120$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.181 ± 0.764	0.181 ± 0.740	0.272 ± 5.137	0.272 ± 4.396
(1, 0, −1, 0, 0, 0)	−4.024 ± 0.764	−4.024 ± 0.740	−3.817 ± 5.137	−3.817 ± 4.396
(1, 0, 0, −1, 0, 0)	−3.486 ± 0.764	−3.486 ± 0.740	−3.359 ± 5.137	−3.359 ± 4.396
(1, 0, 0, 0, −1, 0)	−8.766 ± 0.764	−8.766 ± 0.740	−8.845 ± 5.137	−8.845 ± 4.396
(1, 0, 0, 0, 0, −1)	−8.805 ± 0.764	−8.805 ± 0.740	−8.547 ± 5.137	−8.547 ± 4.396
(0, 1, −1, 0, 0, 0)	−4.204 ± 0.764	−4.204 ± 0.740	−4.089 ± 5.137	−4.089 ± 4.396
(0, 1, 0, −1, 0, 0)	−3.667 ± 0.764	−3.667 ± 0.740	−3.632 ± 5.137	−3.632 ± 4.396
(0, 1, 0, 0, −1, 0)	−8.947 ± 0.764	−8.947 ± 0.740	−9.118 ± 5.137	−9.118 ± 4.396
(0, 1, 0, 0, 0, −1)	−8.986 ± 0.764	−8.986 ± 0.740	−8.820 ± 5.137	−8.820 ± 4.396
(0, 0, 1, −1, 0, 0)	0.538 ± 0.764	0.538 ± 0.740	0.458 ± 5.137	0.458 ± 4.396
(0, 0, 1, 0, −1, 0)	−4.743 ± 0.764	−4.743 ± 0.740	−5.028 ± 5.137	−5.028 ± 4.396
(0, 0, 1, 0, 0, −1)	−4.782 ± 0.764	−4.782 ± 0.740	−4.730 ± 5.137	−4.730 ± 4.396
(0, 0, 0, 1, −1, 0)	−5.280 ± 0.764	−5.280 ± 0.740	−5.486 ± 5.137	−5.486 ± 4.396
(0, 0, 0, 1, 0, −1)	−5.319 ± 0.764	−5.319 ± 0.740	−5.188 ± 5.137	−5.188 ± 4.396
(0, 0, 0, 0, 1, −1)	−0.039 ± 0.764	−0.039 ± 0.740	0.298 ± 5.137	0.298 ± 4.396
	Monotone missing data ($s = 2, m = 180$)		Monotone missing data ($s = 3, m = 190$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.181 ± 3.185	0.181 ± 2.907	0.181 ± 2.816	0.181 ± 2.589
(1, 0, −1, 0, 0, 0)	−4.024 ± 3.185	−4.024 ± 2.907	−4.024 ± 2.816	−4.024 ± 2.589
(1, 0, 0, −1, 0, 0)	−3.400 ± 3.900	−3.400 ± 3.561	−3.486 ± 2.816	−3.486 ± 2.589
(1, 0, 0, 0, −1, 0)	−8.886 ± 3.900	−8.886 ± 3.561	−8.886 ± 3.449	−8.886 ± 3.171
(1, 0, 0, 0, 0, −1)	−8.588 ± 3.900	−8.588 ± 3.561	−8.578 ± 4.453	−8.578 ± 4.093
(0, 1, −1, 0, 0, 0)	−4.204 ± 3.185	−4.204 ± 2.907	−4.204 ± 2.816	−4.204 ± 2.589
(0, 1, 0, −1, 0, 0)	−3.580 ± 3.900	−3.580 ± 3.561	−3.667 ± 2.816	−3.667 ± 2.589
(0, 1, 0, 0, −1, 0)	−9.066 ± 3.900	−9.066 ± 3.561	−9.066 ± 3.449	−9.066 ± 3.171
(0, 1, 0, 0, 0, −1)	−8.768 ± 3.900	−8.768 ± 3.561	−8.758 ± 4.453	−8.758 ± 4.093
(0, 0, 1, −1, 0, 0)	0.624 ± 3.900	0.624 ± 3.561	0.538 ± 2.816	0.538 ± 2.589
(0, 0, 1, 0, −1, 0)	−4.862 ± 3.900	−4.862 ± 3.561	−4.862 ± 3.449	−4.862 ± 3.171
(0, 0, 1, 0, 0, −1)	−4.564 ± 3.900	−4.564 ± 3.561	−4.554 ± 4.453	−4.554 ± 4.093
(0, 0, 0, 1, −1, 0)	−5.486 ± 4.504	−5.486 ± 4.111	−5.400 ± 3.449	−5.400 ± 3.171
(0, 0, 0, 1, 0, −1)	−5.188 ± 4.504	−5.188 ± 4.111	−5.092 ± 4.453	−5.092 ± 4.093
(0, 0, 0, 0, 1, −1)	0.298 ± 4.504	0.298 ± 4.111	0.308 ± 4.878	0.308 ± 4.484
	Monotone missing data ($s = 3, m = 210$)		Monotone missing data ($s = 4, m = 180$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.181 ± 3.226	0.181 ± 3.034	0.181 ± 2.815	0.181 ± 2.543
(1, 0, −1, 0, 0, 0)	−4.024 ± 3.226	−4.024 ± 3.034	−4.024 ± 2.815	−4.024 ± 2.543
(1, 0, 0, −1, 0, 0)	−3.486 ± 3.226	−3.486 ± 3.034	−3.441 ± 3.041	−3.441 ± 2.746
(1, 0, 0, 0, −1, 0)	−8.774 ± 3.484	−8.774 ± 3.277	−8.886 ± 3.448	−8.886 ± 3.114
(1, 0, 0, 0, 0, −1)	−8.588 ± 3.951	−8.588 ± 3.716	−8.578 ± 4.451	−8.578 ± 4.020
(0, 1, −1, 0, 0, 0)	−4.204 ± 3.226	−4.204 ± 3.034	−4.204 ± 2.815	−4.204 ± 2.543
(0, 1, 0, −1, 0, 0)	−3.667 ± 3.226	−3.667 ± 3.034	−3.621 ± 3.041	−3.621 ± 2.746
(0, 1, 0, 0, −1, 0)	−8.954 ± 3.484	−8.954 ± 3.277	−9.066 ± 3.448	−9.066 ± 3.114
(0, 1, 0, 0, 0, −1)	−8.768 ± 3.951	−8.768 ± 3.716	−8.758 ± 4.451	−8.758 ± 4.020
(0, 0, 1, −1, 0, 0)	0.538 ± 3.226	0.538 ± 3.034	0.583 ± 3.041	0.583 ± 2.746
(0, 0, 1, 0, −1, 0)	−4.750 ± 3.484	−4.750 ± 3.277	−4.862 ± 3.448	−4.862 ± 3.114
(0, 0, 1, 0, 0, −1)	−4.564 ± 3.951	−4.564 ± 3.716	−4.554 ± 4.451	−4.554 ± 4.020
(0, 0, 0, 1, −1, 0)	−5.288 ± 3.484	−5.288 ± 3.277	−5.445 ± 3.634	−5.445 ± 3.283
(0, 0, 0, 1, 0, −1)	−5.102 ± 3.951	−5.102 ± 3.716	−5.137 ± 4.597	−5.137 ± 4.152
(0, 0, 0, 0, 1, −1)	0.186 ± 4.165	0.186 ± 3.916	0.308 ± 4.876	0.308 ± 4.404

Table 35($p = 6, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \leq i < j \leq 6$ with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5,10,10)'$, $\sigma^2 = 1$, $\rho = 0.5$				
	Complete data($m = 240$)		First group data($m = 120$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.079 ± 0.489	−0.079 ± 0.473	−0.149 ± 5.215	−0.149 ± 4.463
(1, 0, −1, 0, 0, 0)	−4.125 ± 0.489	−4.125 ± 0.473	−4.261 ± 5.215	−4.261 ± 4.463
(1, 0, 0, −1, 0, 0)	−3.994 ± 0.489	−3.994 ± 0.473	−4.175 ± 5.215	−4.175 ± 4.463
(1, 0, 0, 0, −1, 0)	−8.887 ± 0.489	−8.887 ± 0.473	−8.869 ± 5.215	−8.869 ± 4.463
(1, 0, 0, 0, 0, −1)	−9.031 ± 0.489	−9.031 ± 0.473	−9.048 ± 5.215	−9.048 ± 4.463
(0, 1, −1, 0, 0, 0)	−4.046 ± 0.489	−4.046 ± 0.473	−4.112 ± 5.215	−4.112 ± 4.463
(0, 1, 0, −1, 0, 0)	−3.915 ± 0.489	−3.915 ± 0.473	−4.025 ± 5.215	−4.025 ± 4.463
(0, 1, 0, 0, −1, 0)	−8.807 ± 0.489	−8.807 ± 0.473	−8.720 ± 5.215	−8.720 ± 4.463
(0, 1, 0, 0, 0, −1)	−8.952 ± 0.489	−8.952 ± 0.473	−8.898 ± 5.215	−8.898 ± 4.463
(0, 0, 1, −1, 0, 0)	0.131 ± 0.489	0.131 ± 0.473	0.086 ± 5.215	0.086 ± 4.463
(0, 0, 1, 0, −1, 0)	−4.761 ± 0.489	−4.761 ± 0.473	−4.608 ± 5.215	−4.608 ± 4.463
(0, 0, 1, 0, 0, −1)	−4.906 ± 0.489	−4.906 ± 0.473	−4.787 ± 5.215	−4.787 ± 4.463
(0, 0, 0, 1, −1, 0)	−4.893 ± 0.489	−4.893 ± 0.473	−4.695 ± 5.215	−4.695 ± 4.463
(0, 0, 0, 1, 0, −1)	−5.037 ± 0.489	−5.037 ± 0.473	−4.873 ± 5.215	−4.873 ± 4.463
(0, 0, 0, 0, 1, −1)	−0.144 ± 0.489	−0.144 ± 0.473	−0.179 ± 5.215	−0.179 ± 4.463
	Monotone missing data ($s = 2, m = 180$)		Monotone missing data ($s = 3, m = 190$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.079 ± 3.185	−0.079 ± 2.908	−0.079 ± 2.778	−0.079 ± 2.554
(1, 0, −1, 0, 0, 0)	−4.125 ± 3.185	−4.125 ± 2.908	−4.125 ± 2.778	−4.125 ± 2.554
(1, 0, 0, −1, 0, 0)	−4.253 ± 3.901	−4.253 ± 3.561	−3.994 ± 2.778	−3.994 ± 2.554
(1, 0, 0, 0, −1, 0)	−8.948 ± 3.901	−8.948 ± 3.561	−8.948 ± 3.403	−8.948 ± 3.128
(1, 0, 0, 0, 0, −1)	−9.126 ± 3.901	−9.126 ± 3.561	−9.316 ± 4.393	−9.316 ± 4.038
(0, 1, −1, 0, 0, 0)	−4.046 ± 3.185	−4.046 ± 2.908	−4.046 ± 2.778	−4.046 ± 2.554
(0, 1, 0, −1, 0, 0)	−4.174 ± 3.901	−4.174 ± 3.561	−3.915 ± 2.778	−3.915 ± 2.554
(0, 1, 0, 0, −1, 0)	−8.869 ± 3.901	−8.869 ± 3.561	−8.869 ± 3.403	−8.869 ± 3.128
(0, 1, 0, 0, 0, −1)	−9.047 ± 3.901	−9.047 ± 3.561	−9.237 ± 4.393	−9.237 ± 4.038
(0, 0, 1, −1, 0, 0)	−0.128 ± 3.901	−0.128 ± 3.561	0.131 ± 2.778	0.131 ± 2.554
(0, 0, 1, 0, −1, 0)	−4.822 ± 3.901	−4.822 ± 3.561	−4.822 ± 3.403	−4.822 ± 3.128
(0, 0, 1, 0, 0, −1)	−5.001 ± 3.901	−5.001 ± 3.561	−5.191 ± 4.393	−5.191 ± 4.038
(0, 0, 0, 1, −1, 0)	−4.695 ± 4.505	−4.695 ± 4.112	−4.954 ± 3.403	−4.954 ± 3.128
(0, 0, 0, 1, 0, −1)	−4.873 ± 4.505	−4.873 ± 4.112	−5.322 ± 4.393	−5.322 ± 4.038
(0, 0, 0, 0, 1, −1)	−0.179 ± 4.505	−0.179 ± 4.112	−0.368 ± 4.812	−0.368 ± 4.423
	Monotone missing data ($s = 3, m = 210$)		Monotone missing data ($s = 4, m = 180$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.079 ± 3.181	−0.079 ± 2.991	−0.079 ± 2.797	−0.079 ± 2.526
(1, 0, −1, 0, 0, 0)	−4.125 ± 3.181	−4.125 ± 2.991	−4.125 ± 2.797	−4.125 ± 2.526
(1, 0, 0, −1, 0, 0)	−3.994 ± 3.181	−3.994 ± 2.991	−4.074 ± 3.021	−4.074 ± 2.729
(1, 0, 0, 0, −1, 0)	−8.862 ± 3.436	−8.862 ± 3.231	−8.948 ± 3.425	−8.948 ± 3.094
(1, 0, 0, 0, 0, −1)	−9.126 ± 3.896	−9.126 ± 3.663	−9.316 ± 4.422	−9.316 ± 3.994
(0, 1, −1, 0, 0, 0)	−4.046 ± 3.181	−4.046 ± 2.991	−4.046 ± 2.797	−4.046 ± 2.526
(0, 1, 0, −1, 0, 0)	−3.915 ± 3.181	−3.915 ± 2.991	−3.995 ± 3.021	−3.995 ± 2.729
(0, 1, 0, 0, −1, 0)	−8.783 ± 3.436	−8.783 ± 3.231	−8.869 ± 3.425	−8.869 ± 3.094
(0, 1, 0, 0, 0, −1)	−9.047 ± 3.896	−9.047 ± 3.663	−9.237 ± 4.422	−9.237 ± 3.994
(0, 0, 1, −1, 0, 0)	0.131 ± 3.181	0.131 ± 2.991	0.051 ± 3.021	0.051 ± 2.729
(0, 0, 1, 0, −1, 0)	−4.737 ± 3.436	−4.737 ± 3.231	−4.822 ± 3.425	−4.822 ± 3.094
(0, 0, 1, 0, 0, −1)	−5.001 ± 3.896	−5.001 ± 3.663	−5.191 ± 4.422	−5.191 ± 3.994
(0, 0, 0, 1, −1, 0)	−4.868 ± 3.436	−4.868 ± 3.231	−4.874 ± 3.611	−4.874 ± 3.261
(0, 0, 0, 1, 0, −1)	−5.132 ± 3.896	−5.132 ± 3.663	−5.242 ± 4.567	−5.242 ± 4.125
(0, 0, 0, 0, 1, −1)	−0.264 ± 4.106	−0.264 ± 3.862	−0.368 ± 4.844	−0.368 ± 4.375

Table 36($p = 6, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 1$, $\rho = 0.9$				
	Complete data($m = 240$)		First group data($m = 120$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.069 ± 0.224	−0.069 ± 0.217	−0.014 ± 5.016	−0.014 ± 4.293
(1, 0, −1, 0, 0, 0)	−4.075 ± 0.224	−4.075 ± 0.217	−4.008 ± 5.016	−4.008 ± 4.293
(1, 0, 0, −1, 0, 0)	−3.990 ± 0.224	−3.990 ± 0.217	−3.976 ± 5.016	−3.976 ± 4.293
(1, 0, 0, 0, −1, 0)	−9.138 ± 0.224	−9.138 ± 0.217	−9.082 ± 5.016	−9.082 ± 4.293
(1, 0, 0, 0, 0, −1)	−9.048 ± 0.224	−9.048 ± 0.217	−8.871 ± 5.016	−8.871 ± 4.293
(0, 1, −1, 0, 0, 0)	−4.006 ± 0.224	−4.006 ± 0.217	−3.994 ± 5.016	−3.994 ± 4.293
(0, 1, 0, −1, 0, 0)	−3.921 ± 0.224	−3.921 ± 0.217	−3.962 ± 5.016	−3.962 ± 4.293
(0, 1, 0, 0, −1, 0)	−9.069 ± 0.224	−9.069 ± 0.217	−9.067 ± 5.016	−9.067 ± 4.293
(0, 1, 0, 0, 0, −1)	−8.979 ± 0.224	−8.979 ± 0.217	−8.857 ± 5.016	−8.857 ± 4.293
(0, 0, 1, −1, 0, 0)	0.084 ± 0.224	0.084 ± 0.217	0.032 ± 5.016	0.032 ± 4.293
(0, 0, 1, 0, −1, 0)	−5.063 ± 0.224	−5.063 ± 0.217	−5.073 ± 5.016	−5.073 ± 4.293
(0, 0, 1, 0, 0, −1)	−4.973 ± 0.224	−4.973 ± 0.217	−4.863 ± 5.016	−4.863 ± 4.293
(0, 0, 0, 1, −1, 0)	−5.147 ± 0.224	−5.147 ± 0.217	−5.106 ± 5.016	−5.106 ± 4.293
(0, 0, 0, 1, 0, −1)	−5.058 ± 0.224	−5.058 ± 0.217	−4.895 ± 5.016	−4.895 ± 4.293
(0, 0, 0, 0, 1, −1)	0.090 ± 0.224	0.090 ± 0.217	0.211 ± 5.016	0.211 ± 4.293
	Monotone missing data ($s = 2, m = 180$)		Monotone missing data ($s = 3, m = 190$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.069 ± 3.061	−0.069 ± 2.795	−0.069 ± 2.678	−0.069 ± 2.462
(1, 0, −1, 0, 0, 0)	−4.075 ± 3.061	−4.075 ± 2.795	−4.075 ± 2.678	−4.075 ± 2.462
(1, 0, 0, −1, 0, 0)	−4.057 ± 3.749	−4.057 ± 3.423	−3.990 ± 2.678	−3.990 ± 2.462
(1, 0, 0, 0, −1, 0)	−9.163 ± 3.749	−9.163 ± 3.423	−9.163 ± 3.280	−9.163 ± 3.015
(1, 0, 0, 0, 0, −1)	−8.952 ± 3.749	−8.952 ± 3.423	−9.167 ± 4.234	−9.167 ± 3.892
(0, 1, −1, 0, 0, 0)	−4.006 ± 3.061	−4.006 ± 2.795	−4.006 ± 2.678	−4.006 ± 2.462
(0, 1, 0, −1, 0, 0)	−3.988 ± 3.749	−3.988 ± 3.423	−3.921 ± 2.678	−3.921 ± 2.462
(0, 1, 0, 0, −1, 0)	−9.094 ± 3.749	−9.094 ± 3.423	−9.094 ± 3.280	−9.094 ± 3.015
(0, 1, 0, 0, 0, −1)	−8.883 ± 3.749	−8.883 ± 3.423	−9.098 ± 4.234	−9.098 ± 3.892
(0, 0, 1, −1, 0, 0)	0.018 ± 3.749	0.018 ± 3.423	0.084 ± 2.678	0.084 ± 2.462
(0, 0, 1, 0, −1, 0)	−5.088 ± 3.749	−5.088 ± 3.423	−5.088 ± 3.280	−5.088 ± 3.015
(0, 0, 1, 0, 0, −1)	−4.877 ± 3.749	−4.877 ± 3.423	−5.092 ± 4.234	−5.092 ± 3.892
(0, 0, 0, 1, −1, 0)	−5.106 ± 4.329	−5.106 ± 3.952	−5.172 ± 3.280	−5.172 ± 3.015
(0, 0, 0, 1, 0, −1)	−4.895 ± 4.329	−4.895 ± 3.952	−5.176 ± 4.234	−5.176 ± 3.892
(0, 0, 0, 0, 1, −1)	0.211 ± 4.329	0.211 ± 3.952	−0.004 ± 4.639	−0.004 ± 4.264
	Monotone missing data ($s = 3, m = 210$)		Monotone missing data ($s = 4, m = 180$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.069 ± 3.118	−0.069 ± 2.932	−0.069 ± 2.711	−0.069 ± 2.448
(1, 0, −1, 0, 0, 0)	−4.075 ± 3.118	−4.075 ± 2.932	−4.075 ± 2.711	−4.075 ± 2.448
(1, 0, 0, −1, 0, 0)	−3.990 ± 3.118	−3.990 ± 2.932	−4.140 ± 2.928	−4.140 ± 2.645
(1, 0, 0, 0, −1, 0)	−9.238 ± 3.368	−9.238 ± 3.167	−9.163 ± 3.320	−9.163 ± 2.999
(1, 0, 0, 0, 0, −1)	−8.952 ± 3.818	−8.952 ± 3.591	−9.167 ± 4.286	−9.167 ± 3.871
(0, 1, −1, 0, 0, 0)	−4.006 ± 3.118	−4.006 ± 2.932	−4.006 ± 2.711	−4.006 ± 2.448
(0, 1, 0, −1, 0, 0)	−3.921 ± 3.118	−3.921 ± 2.932	−4.071 ± 2.928	−4.071 ± 2.645
(0, 1, 0, 0, −1, 0)	−9.169 ± 3.368	−9.169 ± 3.167	−9.094 ± 3.320	−9.094 ± 2.999
(0, 1, 0, 0, 0, −1)	−8.883 ± 3.818	−8.883 ± 3.591	−9.098 ± 4.286	−9.098 ± 3.871
(0, 0, 1, −1, 0, 0)	0.084 ± 3.118	0.084 ± 2.932	−0.065 ± 2.928	−0.065 ± 2.645
(0, 0, 1, 0, −1, 0)	−5.163 ± 3.368	−5.163 ± 3.167	−5.088 ± 3.320	−5.088 ± 2.999
(0, 0, 1, 0, 0, −1)	−4.877 ± 3.818	−4.877 ± 3.591	−5.092 ± 4.286	−5.092 ± 3.871
(0, 0, 0, 1, −1, 0)	−5.248 ± 3.368	−5.248 ± 3.167	−5.023 ± 3.499	−5.023 ± 3.161
(0, 0, 0, 1, 0, −1)	−4.961 ± 3.818	−4.961 ± 3.591	−5.027 ± 4.427	−5.027 ± 3.998
(0, 0, 0, 0, 1, −1)	0.286 ± 4.025	0.286 ± 3.785	−0.004 ± 4.695	−0.004 ± 4.241

Table 37($p = 6, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1,1,5,5,10,10)'$, $\sigma^2 = 9$, $\rho = 0.1$				
	Complete data($m = 240$)		First group data($m = 120$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.161 ± 6.762	0.161 ± 6.548	2.845 ± 10.747	2.845 ± 9.198
(1, 0, −1, 0, 0, 0)	−1.453 ± 6.762	−1.453 ± 6.548	0.910 ± 10.747	0.910 ± 9.198
(1, 0, 0, −1, 0, 0)	−2.340 ± 6.762	−2.340 ± 6.548	0.539 ± 10.747	0.539 ± 9.198
(1, 0, 0, 0, −1, 0)	−8.215 ± 6.762	−8.215 ± 6.548	−4.850 ± 10.747	−4.850 ± 9.198
(1, 0, 0, 0, 0, −1)	−6.576 ± 6.762	−6.576 ± 6.548	−2.438 ± 10.747	−2.438 ± 9.198
(0, 1, −1, 0, 0, 0)	−1.614 ± 6.762	−1.614 ± 6.548	−1.935 ± 10.747	−1.935 ± 9.198
(0, 1, 0, −1, 0, 0)	−2.501 ± 6.762	−2.501 ± 6.548	−2.306 ± 10.747	−2.306 ± 9.198
(0, 1, 0, 0, −1, 0)	−8.376 ± 6.762	−8.376 ± 6.548	−7.695 ± 10.747	−7.695 ± 9.198
(0, 1, 0, 0, 0, −1)	−6.738 ± 6.762	−6.738 ± 6.548	−5.283 ± 10.747	−5.283 ± 9.198
(0, 0, 1, −1, 0, 0)	−0.887 ± 6.762	−0.887 ± 6.548	−0.371 ± 10.747	−0.371 ± 9.198
(0, 0, 1, 0, −1, 0)	−6.762 ± 6.762	−6.762 ± 6.548	−5.760 ± 10.747	−5.760 ± 9.198
(0, 0, 1, 0, 0, −1)	−5.123 ± 6.762	−5.123 ± 6.548	−3.348 ± 10.747	−3.348 ± 9.198
(0, 0, 0, 1, −1, 0)	−5.875 ± 6.762	−5.875 ± 6.548	−5.389 ± 10.747	−5.389 ± 9.198
(0, 0, 0, 1, 0, −1)	−4.237 ± 6.762	−4.237 ± 6.548	−2.977 ± 10.747	−2.977 ± 9.198
(0, 0, 0, 0, 1, −1)	1.638 ± 6.762	1.638 ± 6.548	2.412 ± 10.747	2.412 ± 9.198
	Monotone missing data ($s = 2, m = 180$)		Monotone missing data ($s = 3, m = 190$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.161 ± 7.478	0.161 ± 6.826	0.161 ± 7.497	0.161 ± 6.891
(1, 0, −1, 0, 0, 0)	−1.453 ± 7.478	−1.453 ± 6.826	−1.453 ± 7.497	−1.453 ± 6.891
(1, 0, 0, −1, 0, 0)	−0.884 ± 9.158	−0.884 ± 8.360	−2.340 ± 7.497	−2.340 ± 6.891
(1, 0, 0, 0, −1, 0)	−6.273 ± 9.158	−6.273 ± 8.360	−6.273 ± 9.182	−6.273 ± 8.439
(1, 0, 0, 0, 0, −1)	−3.861 ± 9.158	−3.861 ± 8.360	−3.635 ± 11.853	−3.635 ± 10.895
(0, 1, −1, 0, 0, 0)	−1.614 ± 7.478	−1.614 ± 6.826	−1.614 ± 7.497	−1.614 ± 6.891
(0, 1, 0, −1, 0, 0)	−1.045 ± 9.158	−1.045 ± 8.360	−2.501 ± 7.497	−2.501 ± 6.891
(0, 1, 0, 0, −1, 0)	−6.434 ± 9.158	−6.434 ± 8.360	−6.434 ± 9.182	−6.434 ± 8.439
(0, 1, 0, 0, 0, −1)	−4.023 ± 9.158	−4.023 ± 8.360	−3.797 ± 11.853	−3.797 ± 10.895
(0, 0, 1, −1, 0, 0)	0.569 ± 9.158	0.569 ± 8.360	−0.887 ± 7.497	−0.887 ± 6.891
(0, 0, 1, 0, −1, 0)	−4.820 ± 9.158	−4.820 ± 8.360	−4.820 ± 9.182	−4.820 ± 8.439
(0, 0, 1, 0, 0, −1)	−2.408 ± 9.158	−2.408 ± 8.360	−2.182 ± 11.853	−2.182 ± 10.895
(0, 0, 0, 1, −1, 0)	−5.389 ± 10.575	−5.389 ± 9.654	−3.933 ± 9.182	−3.933 ± 8.439
(0, 0, 0, 1, 0, −1)	−2.977 ± 10.575	−2.977 ± 9.654	−1.296 ± 11.853	−1.296 ± 10.895
(0, 0, 0, 0, 1, −1)	2.412 ± 10.575	2.412 ± 9.654	2.637 ± 12.985	2.637 ± 11.935
	Monotone missing data ($s = 3, m = 210$)		Monotone missing data ($s = 4, m = 180$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.161 ± 7.559	0.161 ± 7.109	0.161 ± 7.538	0.161 ± 6.809
(1, 0, −1, 0, 0, 0)	−1.453 ± 7.559	−1.453 ± 7.109	−1.453 ± 7.538	−1.453 ± 6.809
(1, 0, 0, −1, 0, 0)	−2.340 ± 7.559	−2.340 ± 7.109	−1.244 ± 8.142	−1.244 ± 7.354
(1, 0, 0, 0, −1, 0)	−7.622 ± 8.165	−7.622 ± 7.678	−6.273 ± 9.232	−6.273 ± 8.339
(1, 0, 0, 0, 0, −1)	−3.861 ± 9.258	−3.861 ± 8.706	−3.635 ± 11.919	−3.635 ± 10.766
(0, 1, −1, 0, 0, 0)	−1.614 ± 7.559	−1.614 ± 7.109	−1.614 ± 7.538	−1.614 ± 6.809
(0, 1, 0, −1, 0, 0)	−2.501 ± 7.559	−2.501 ± 7.109	−1.405 ± 8.142	−1.405 ± 7.354
(0, 1, 0, 0, −1, 0)	−7.784 ± 8.165	−7.784 ± 7.678	−6.434 ± 9.232	−6.434 ± 8.339
(0, 1, 0, 0, 0, −1)	−4.023 ± 9.258	−4.023 ± 8.706	−3.797 ± 11.919	−3.797 ± 10.766
(0, 0, 1, −1, 0, 0)	−0.887 ± 7.559	−0.887 ± 7.109	0.209 ± 8.142	0.209 ± 7.354
(0, 0, 1, 0, −1, 0)	−6.169 ± 8.165	−6.169 ± 7.678	−4.820 ± 9.232	−4.820 ± 8.339
(0, 0, 1, 0, 0, −1)	−2.408 ± 9.258	−2.408 ± 8.706	−2.182 ± 11.919	−2.182 ± 10.766
(0, 0, 0, 1, −1, 0)	−5.282 ± 8.165	−5.282 ± 7.678	−5.029 ± 9.732	−5.029 ± 8.790
(0, 0, 0, 1, 0, −1)	−1.521 ± 9.258	−1.521 ± 8.706	−2.392 ± 12.310	−2.392 ± 11.119
(0, 0, 0, 0, 1, −1)	3.761 ± 9.759	3.761 ± 9.177	2.637 ± 13.057	2.637 ± 11.793

Table 38($p = 6, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 9$, $\rho = 0.5$				
	Complete data($m = 240$)		First group data($m = 120$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.117 ± 5.024	0.117 ± 4.865	−1.820 ± 9.382	−1.820 ± 8.029
(1, 0, −1, 0, 0, 0)	−3.351 ± 5.024	−3.351 ± 4.865	−4.265 ± 9.382	−4.265 ± 8.029
(1, 0, 0, −1, 0, 0)	−4.542 ± 5.024	−4.542 ± 4.865	−5.940 ± 9.382	−5.940 ± 8.029
(1, 0, 0, 0, −1, 0)	−9.785 ± 5.024	−9.785 ± 4.865	−11.750 ± 9.382	−11.750 ± 8.029
(1, 0, 0, 0, 0, −1)	−10.639 ± 5.024	−10.639 ± 4.865	−12.672 ± 9.382	−12.672 ± 8.029
(0, 1, −1, 0, 0, 0)	−3.468 ± 5.024	−3.468 ± 4.865	−2.445 ± 9.382	−2.445 ± 8.029
(0, 1, 0, −1, 0, 0)	−4.660 ± 5.024	−4.660 ± 4.865	−4.120 ± 9.382	−4.120 ± 8.029
(0, 1, 0, 0, −1, 0)	−9.902 ± 5.024	−9.902 ± 4.865	−9.930 ± 9.382	−9.930 ± 8.029
(0, 1, 0, 0, 0, −1)	−10.756 ± 5.024	−10.756 ± 4.865	−10.852 ± 9.382	−10.852 ± 8.029
(0, 0, 1, −1, 0, 0)	−1.191 ± 5.024	−1.191 ± 4.865	−1.675 ± 9.382	−1.675 ± 8.029
(0, 0, 1, 0, −1, 0)	−6.434 ± 5.024	−6.434 ± 4.865	−7.485 ± 9.382	−7.485 ± 8.029
(0, 0, 1, 0, 0, −1)	−7.287 ± 5.024	−7.287 ± 4.865	−8.407 ± 9.382	−8.407 ± 8.029
(0, 0, 0, 1, −1, 0)	−5.243 ± 5.024	−5.243 ± 4.865	−5.811 ± 9.382	−5.811 ± 8.029
(0, 0, 0, 1, 0, −1)	−6.096 ± 5.024	−6.096 ± 4.865	−6.733 ± 9.382	−6.733 ± 8.029
(0, 0, 0, 0, 1, −1)	−0.853 ± 5.024	−0.853 ± 4.865	−0.922 ± 9.382	−0.922 ± 8.029
	Monotone missing data ($s = 2, m = 180$)		Monotone missing data ($s = 3, m = 190$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.117 ± 6.379	0.117 ± 5.823	0.117 ± 6.062	0.117 ± 5.572
(1, 0, −1, 0, 0, 0)	−3.351 ± 6.379	−3.351 ± 5.823	−3.351 ± 6.062	−3.351 ± 5.572
(1, 0, 0, −1, 0, 0)	−4.599 ± 7.813	−4.599 ± 7.132	−4.542 ± 6.062	−4.542 ± 5.572
(1, 0, 0, 0, −1, 0)	−10.409 ± 7.813	−10.409 ± 7.132	−10.409 ± 7.424	−10.409 ± 6.824
(1, 0, 0, 0, 0, −1)	−11.331 ± 7.813	−11.331 ± 7.132	−10.942 ± 9.584	−10.942 ± 8.809
(0, 1, −1, 0, 0, 0)	−3.468 ± 6.379	−3.468 ± 5.823	−3.468 ± 6.062	−3.468 ± 5.572
(0, 1, 0, −1, 0, 0)	−4.716 ± 7.813	−4.716 ± 7.132	−4.660 ± 6.062	−4.660 ± 5.572
(0, 1, 0, 0, −1, 0)	−10.526 ± 7.813	−10.526 ± 7.132	−10.526 ± 7.424	−10.526 ± 6.824
(0, 1, 0, 0, 0, −1)	−11.448 ± 7.813	−11.448 ± 7.132	−11.059 ± 9.584	−11.059 ± 8.809
(0, 0, 1, −1, 0, 0)	−1.247 ± 7.813	−1.247 ± 7.132	−1.191 ± 6.062	−1.191 ± 5.572
(0, 0, 1, 0, −1, 0)	−7.058 ± 7.813	−7.058 ± 7.132	−7.058 ± 7.424	−7.058 ± 6.824
(0, 0, 1, 0, 0, −1)	−7.980 ± 7.813	−7.980 ± 7.132	−7.591 ± 9.584	−7.591 ± 8.809
(0, 0, 0, 1, −1, 0)	−5.811 ± 9.022	−5.811 ± 8.236	−5.867 ± 7.424	−5.867 ± 6.824
(0, 0, 0, 1, 0, −1)	−6.733 ± 9.022	−6.733 ± 8.236	−6.400 ± 9.584	−6.400 ± 8.809
(0, 0, 0, 0, 1, −1)	−0.922 ± 9.022	−0.922 ± 8.236	−0.533 ± 10.499	−0.533 ± 9.650
	Monotone missing data ($s = 3, m = 210$)		Monotone missing data ($s = 4, m = 180$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	0.117 ± 6.245	0.117 ± 5.873	0.117 ± 6.220	0.117 ± 5.618
(1, 0, −1, 0, 0, 0)	−3.351 ± 6.245	−3.351 ± 5.873	−3.351 ± 6.220	−3.351 ± 5.618
(1, 0, 0, −1, 0, 0)	−4.542 ± 6.245	−4.542 ± 5.873	−5.567 ± 6.718	−5.567 ± 6.068
(1, 0, 0, 0, −1, 0)	−10.350 ± 6.745	−10.350 ± 6.343	−10.409 ± 7.618	−10.409 ± 6.880
(1, 0, 0, 0, 0, −1)	−11.331 ± 7.648	−11.331 ± 7.192	−10.942 ± 9.834	−10.942 ± 8.883
(0, 1, −1, 0, 0, 0)	−3.468 ± 6.245	−3.468 ± 5.873	−3.468 ± 6.220	−3.468 ± 5.618
(0, 1, 0, −1, 0, 0)	−4.660 ± 6.245	−4.660 ± 5.873	−5.684 ± 6.718	−5.684 ± 6.068
(0, 1, 0, 0, −1, 0)	−10.468 ± 6.745	−10.468 ± 6.343	−10.526 ± 7.618	−10.526 ± 6.880
(0, 1, 0, 0, 0, −1)	−11.448 ± 7.648	−11.448 ± 7.192	−11.059 ± 9.834	−11.059 ± 8.883
(0, 0, 1, −1, 0, 0)	−1.191 ± 6.245	−1.191 ± 5.873	−2.216 ± 6.718	−2.216 ± 6.068
(0, 0, 1, 0, −1, 0)	−6.999 ± 6.745	−6.999 ± 6.343	−7.058 ± 7.618	−7.058 ± 6.880
(0, 0, 1, 0, 0, −1)	−7.980 ± 7.648	−7.980 ± 7.192	−7.591 ± 9.834	−7.591 ± 8.883
(0, 0, 0, 1, −1, 0)	−5.808 ± 6.745	−5.808 ± 6.343	−4.842 ± 8.030	−4.842 ± 7.253
(0, 0, 0, 1, 0, −1)	−6.789 ± 7.648	−6.789 ± 7.192	−5.375 ± 10.157	−5.375 ± 9.174
(0, 0, 0, 0, 1, −1)	−0.981 ± 8.062	−0.981 ± 7.581	−0.533 ± 10.773	−0.533 ± 9.730

Table 39($p = 6, n = 40$)
Scheffé and Tukey types of simultaneous confidence intervals for $\mu_i - \mu_j, 1 \le i < j \le 6$
with level $1 - \alpha = 0.95$

$\boldsymbol{\mu} = (1, 1, 5, 5, 10, 10)'$, $\sigma^2 = 9$, $\rho = 0.9$				
	Complete data($m = 240$)		First group data($m = 120$)	
$\boldsymbol{a}'$	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.524 ± 2.240	−0.524 ± 2.169	−0.705 ± 4.980	−0.705 ± 4.262
(1, 0, −1, 0, 0, 0)	−5.057 ± 2.240	−5.057 ± 2.169	−5.447 ± 4.980	−5.447 ± 4.262
(1, 0, 0, −1, 0, 0)	−5.081 ± 2.240	−5.081 ± 2.169	−5.101 ± 4.980	−5.101 ± 4.262
(1, 0, 0, 0, −1, 0)	−10.262 ± 2.240	−10.262 ± 2.169	−9.973 ± 4.980	−9.973 ± 4.262
(1, 0, 0, 0, 0, −1)	−10.503 ± 2.240	−10.503 ± 2.169	−10.189 ± 4.980	−10.189 ± 4.262
(0, 1, −1, 0, 0, 0)	−4.533 ± 2.240	−4.533 ± 2.169	−4.742 ± 4.980	−4.742 ± 4.262
(0, 1, 0, −1, 0, 0)	−4.557 ± 2.240	−4.557 ± 2.169	−4.396 ± 4.980	−4.396 ± 4.262
(0, 1, 0, 0, −1, 0)	−9.738 ± 2.240	−9.738 ± 2.169	−9.269 ± 4.980	−9.269 ± 4.262
(0, 1, 0, 0, 0, −1)	−9.979 ± 2.240	−9.979 ± 2.169	−9.484 ± 4.980	−9.484 ± 4.262
(0, 0, 1, −1, 0, 0)	−0.024 ± 2.240	−0.024 ± 2.169	0.346 ± 4.980	0.346 ± 4.262
(0, 0, 1, 0, −1, 0)	−5.205 ± 2.240	−5.205 ± 2.169	−4.527 ± 4.980	−4.527 ± 4.262
(0, 0, 1, 0, 0, −1)	−5.446 ± 2.240	−5.446 ± 2.169	−4.743 ± 4.980	−4.743 ± 4.262
(0, 0, 0, 1, −1, 0)	−5.180 ± 2.240	−5.180 ± 2.169	−4.873 ± 4.980	−4.873 ± 4.262
(0, 0, 0, 1, 0, −1)	−5.422 ± 2.240	−5.422 ± 2.169	−5.089 ± 4.980	−5.089 ± 4.262
(0, 0, 0, 0, 1, −1)	−0.241 ± 2.240	−0.241 ± 2.169	−0.216 ± 4.980	−0.216 ± 4.262
	Monotone missing data ($s = 2, m = 180$)		Monotone missing data ($s = 3, m = 190$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.524 ± 3.296	−0.524 ± 3.009	−0.524 ± 3.020	−0.524 ± 2.776
(1, 0, −1, 0, 0, 0)	−5.057 ± 3.296	−5.057 ± 3.009	−5.057 ± 3.020	−5.057 ± 2.776
(1, 0, 0, −1, 0, 0)	−3.873 ± 4.037	−3.873 ± 3.685	−5.081 ± 3.020	−5.081 ± 2.776
(1, 0, 0, 0, −1, 0)	−8.745 ± 4.037	−8.745 ± 3.685	−8.745 ± 3.698	−8.745 ± 3.399
(1, 0, 0, 0, 0, −1)	−8.961 ± 4.037	−8.961 ± 3.685	−7.591 ± 4.775	−7.591 ± 4.389
(0, 1, −1, 0, 0, 0)	−4.533 ± 3.296	−4.533 ± 3.009	−4.533 ± 3.020	−4.533 ± 2.776
(0, 1, 0, −1, 0, 0)	−3.349 ± 4.037	−3.349 ± 3.685	−4.557 ± 3.020	−4.557 ± 2.776
(0, 1, 0, 0, −1, 0)	−8.222 ± 4.037	−8.222 ± 3.685	−8.222 ± 3.698	−8.222 ± 3.399
(0, 1, 0, 0, 0, −1)	−8.438 ± 4.037	−8.438 ± 3.685	−7.067 ± 4.775	−7.067 ± 4.389
(0, 0, 1, −1, 0, 0)	1.185 ± 4.037	1.185 ± 3.685	−0.024 ± 3.020	−0.024 ± 2.776
(0, 0, 1, 0, −1, 0)	−3.688 ± 4.037	−3.688 ± 3.685	−3.688 ± 3.698	−3.688 ± 3.399
(0, 0, 1, 0, 0, −1)	−3.904 ± 4.037	−3.904 ± 3.685	−2.533 ± 4.775	−2.533 ± 4.389
(0, 0, 0, 1, −1, 0)	−4.873 ± 4.662	−4.873 ± 4.256	−3.664 ± 3.698	−3.664 ± 3.399
(0, 0, 0, 1, 0, −1)	−5.089 ± 4.662	−5.089 ± 4.256	−2.509 ± 4.775	−2.509 ± 4.389
(0, 0, 0, 0, 1, −1)	−0.216 ± 4.662	−0.216 ± 4.256	1.155 ± 5.230	1.155 ± 4.808
	Monotone missing data ($s = 3, m = 210$)		Monotone missing data ($s = 4, m = 180$)	
	Scheffé	Tukey	Scheffé	Tukey
(1, −1, 0, 0, 0, 0)	−0.524 ± 3.522	−0.524 ± 3.313	−0.524 ± 2.952	−0.524 ± 2.667
(1, 0, −1, 0, 0, 0)	−5.057 ± 3.522	−5.057 ± 3.313	−5.057 ± 2.952	−5.057 ± 2.667
(1, 0, 0, −1, 0, 0)	−5.081 ± 3.522	−5.081 ± 3.313	−4.624 ± 3.189	−4.624 ± 2.880
(1, 0, 0, 0, −1, 0)	−9.519 ± 3.805	−9.519 ± 3.578	−8.745 ± 3.616	−8.745 ± 3.266
(1, 0, 0, 0, 0, −1)	−8.961 ± 4.314	−8.961 ± 4.057	−7.591 ± 4.668	−7.591 ± 4.216
(0, 1, −1, 0, 0, 0)	−4.533 ± 3.522	−4.533 ± 3.313	−4.533 ± 2.952	−4.533 ± 2.667
(0, 1, 0, −1, 0, 0)	−4.557 ± 3.522	−4.557 ± 3.313	−4.100 ± 3.189	−4.100 ± 2.880
(0, 1, 0, 0, −1, 0)	−8.995 ± 3.805	−8.995 ± 3.578	−8.222 ± 3.616	−8.222 ± 3.266
(0, 1, 0, 0, 0, −1)	−8.438 ± 4.314	−8.438 ± 4.057	−7.067 ± 4.668	−7.067 ± 4.216
(0, 0, 1, −1, 0, 0)	−0.024 ± 3.522	−0.024 ± 3.313	0.433 ± 3.189	0.433 ± 2.880
(0, 0, 1, 0, −1, 0)	−4.462 ± 3.805	−4.462 ± 3.578	−3.688 ± 3.616	−3.688 ± 3.266
(0, 0, 1, 0, 0, −1)	−3.904 ± 4.314	−3.904 ± 4.057	−2.533 ± 4.668	−2.533 ± 4.216
(0, 0, 0, 1, −1, 0)	−4.438 ± 3.805	−4.438 ± 3.578	−4.122 ± 3.812	−4.122 ± 3.443
(0, 0, 0, 1, 0, −1)	−3.880 ± 4.314	−3.880 ± 4.057	−2.967 ± 4.821	−2.967 ± 4.355
(0, 0, 0, 0, 1, −1)	0.558 ± 4.547	0.558 ± 4.276	1.155 ± 5.114	1.155 ± 4.619