DOCUMENT RESUME

ED 069 666 24 TM 002 115

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TITLE An Empirical Investigation of Specified Violations of the Assumptions Underlying Statistical Techniques. Final Report.
INSTITUTION Kansas Univ., Lawrence. School of Education.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Regional Research Program.
BUREAU NO BR-1-G-060
PUB DATE Mar 72
GRANT OEG-7-71-0021(509)
NOTE 202p.

EDRS PRICE MF-$0.65 HC-$9.87
DESCRIPTORS *Analysis of Variance; *Correlation; Educational Research; *Evaluation Techniques; Hypothesis Testing; Measurement Techniques; Research Methodology; Research Reviews (Publications); Sampling; Statistical Bias; *Statistical Studies; Tables (Data); *Tests

ABSTRACT

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FINAL REPORT

Project No. 1G060
Grant No. OEG-7-71-0021

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AN EMPIRICAL INVESTIGATION OF SPECIFIED VIOLATIONS OF THE ASSUMPTIONS UNDERLYING STATISTICAL TECHNIQUES

March 1972

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Preface

I would like to express my indebtedness to Mrs. Judith S. Halderson for the many hours she spent writing the computer programs, checking computations, and insuring that the results were accurate and valid. She was primarily responsible for the development of all of the computer programs, which she did very efficiently and effectively. She also provided valuable help, advice, and collaboration on all other aspects of the study. The assistance of the University of Kansas Computer Center staff is also appreciated. Jim Frane's assistance in developing the computer routines to generate the distributions of scores and John Kocourek's assistance in running the analyses merit special mention.

To researchers in all areas, we hope that this study will make a contribution toward better understanding of the application of the *t* test and the correlation coefficient in situations in which violations of the basic assumptions may be suspected. To accomplish this, the results are presented in a non-technical, as-they-occurred fashion. It is suggested that researchers compare the conditions under which these analyses were computed with the conditions they are working under and then decide whether or not *t* or *r* is appropriate for their analyses.

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Introduction

In the behavioral sciences, the most commonly used statistics are those for measuring the degree of relationship between two variables and those for comparing sample means. The statistics most frequently used are, respectively, the Pearson product moment correlation coefficient and the analysis of variance F test or equivalently the t test when there are only two groups.

For the mathematical justification of hypothesis testing procedures, these tests are based on a number of assumptions as enumerated by Guilford (1965), Ferguson (1966), Hays (1963), Lindquist (1953), and Siegel (1956). Specifically, the assumptions for the correlation coefficient are: (1) the trend of the relationship between X and Y be rectilinear, (2) the variables must have been measured by at least an interval scale, and (3) the bivariate distribution is normal. The assumptions necessary for the statistical tests for comparing means are: (1) the observations must be independent, (2) the observations must be drawn from normally distributed populations, (3) the populations must have the same variance (homogeneity of variance), and (4) the variables involved must have been measured by at least an interval scale. As stated by Siegel (1956), Cochran (1947), and Cochran and Cox (1957), a researcher can never be sure that all of these assumptions are met and often there is good reason to suspect that some are false. Thus, as Kirk (1968) points out, parametric tests should be regarded as approximate rather than exact when it is known that all of the assumptions have not been met.

If the researcher has reason to suspect that any of the necessary assumptions are violated, he has his choice of either going ahead with the parametric test, resorting to a less powerful distribution-free statistical test, or using a data transformation. However, in regard to the second approach, Hays (1963) and Boneau (1959) have pointed out that two things must be considered when substituting distribution-free techniques for parametric procedures: (1) the actual hypothesis tested by a given distribution-free test is seldom exactly equivalent to the hypothesis tested by the parametric test and (2) distribution-free tests have the disadvantage of being relatively low-powered as compared to parametric tests. This means that, other things being equal, a relatively larger sample size is required as compared to the parametric method if Type II errors are to be held to a minimum. With regard to transformations, Anderson (1961) states that it is possible to get a significant F ratio from the original data and not from the transformed data, and vice versa. Bradley (1968) states that tranformations may reduce the power of the statistical test through the homogenizing effect and also may be restricted to the case where the null hypothesis is true. Also, as pointed out by Kirk (1968), once an appropriate transformation has been made all inferences regarding treatment effects must be made with respect to the new

scale not the original scores.

Confronted with the problem of whether or not to use a distribution-free statistical test or perhaps an equally discouraging one of using a transformation, performing related tests, and then having difficulty in interpreting the results, the researcher is often tempted to ignore the assumptions of the parametric tests and apply these tests to his data. If the researcher decides to use a parametric statistic knowing that one or more of the assumptions are violated, what are the consequences? If the statistic indicates a significant relationship or difference, is this due to real relationships or differences or is it due to the violation of assumptions? The latter possibility is considered by many researchers as sufficient to preclude the use of the parametric statistic.

Purpose of the Study

The overall purpose of this study was to study the effects of combinations of violations on parametric tests. Specifically, the purposes were:

1. To empirically determine the effects on r and t due to violations of the assumptions of normality, homogeneity of variance, and measurement properties separately and in combination; and

2. To establish guidelines for determining the resulting effect of the violations based on measures of those violations.

Related Research

Although the effects of certain violations of assumptions on parametric tests have been studied quite extensively, there persists a disagreement as to the seriousness of those violations. Bradley (1968), Senders (1958), Siegel (1956), and Stevens (1951) have asserted that the effect of violating a test's necessary assumptions is to render the test inexact, often leading to inaccurate and meaningless conclusions. The advocates of strict adherence to the basic assumptions underlying the parametric tests argue that the meaningfulness of the results of parametric tests depend on the validity of all of the assumptions. Anastasi (1961), Eisenhart (1947), Senders (1958), Siegel (1956), and Stevens (1951) believe that parametric statistics can only be used with interval data and contend that analyses would be in error to the extent that the successive intervals on the scale are unequal in size. They also point out that failure of meeting the assumptions of normally distributed scores and homogeneity of variances would affect both the significance level of the test and the sensitivity of that test.

Bradley (1968), as one of the leading spokesmen for distribution-free statistical tests, has asserted that "any violation of a parametric test's assumptions alters the distribution of the test statistic and changes the probabilities of Type I and Type II errors" (p. 25). In criticizing advocates of parametric tests when there are known violations, he speaks of the "Myth of Robustness" in which he refers to the lack of an agreed-upon connotative meaning of robustness.

> The most insidious thing about the Myth of Robustness, however, is that the "degree" of a test's robustness against violation of a given assumption is strongly dependent upon factors which are not involved in the statement of a test's assumptions, which are often not required in a complete description of the assumption's violation, and which are not mentioned in the usual allegation of robustness, as quoted above. These factors cause no distortion of Type I or Type II errors when all assumptions are met, but greatly influence the distortion occurring under a given violation of assumptions, i.e., the factors interact with whatever violation occurs. (Bradley, 1968, p. 26)

He goes on to state that many studies of the effects of violations of assumptions have investigated analyses in which only one assumption was violated and/or where some of the important interacting factors were "held constant." He makes a well-founded criticism of these studies by stating that they do not specify the amount of violation nor do they consider the fact that there is a strong tendency for these violations to interact with one another. He goes on to point out that for a given violation of assumptions, none of the factors relative to sample size, shape of the distributions, significance level, or relative variances appear to exert its influence upon probability levels independently of all other factors. Thus, depending upon the particular combination of factors and their particular levels or values, a given violation of assumptions occurring in a specified degree may have a negligible or devastating effect upon the probability levels of the statistic. He also points out that many of these studies do not take into account "outliers" and what effect these extreme scores have on parametric tests.

Opposing the point of view of those who advocate strict adherence to the basic assumptions are a number of statisticians, e.g., Lord (1953), Hays (1963), Anderson (1961), McNemar (1962) and Lindquist (1953), who have argued that for the majority of studies the effects of violations of the basic assumptions are not sufficiently great to invalidate the statistical test. However, often there are qualifiers to the statements about the effects of assumption violations. For example, Dixon and Massey (1957) state that the results of the analysis of variance are changed very little

by "moderate" violations of the assumptions of normal distribution and equal variance. Ferguson (1966) indicates that unless there are "extreme" departures from normality, there is no serious effect on the analysis of variance F ratio. Hays (1963) contends that even when the forms of the population distributions depart "considerably" from normal, the inferences made about means are valid providing the number of cases in each sample is the same and fairly large. In summarizing the results of the Norton study, Lindquist (1953) interprets the results of this study to mean that

> . . .one need be concerned hardly at all about lack of symmetry in the distribution of criterion measures, so long as this distribution is homogeneous in both form and variance, and so long as it is neither "markedly" peaked nor "markedly" flat (p. 86).

Box (1953) states that there is abundant evidence that the parametric tests for comparing means are remarkably insensitive to "general" non-normality of the parent population. He goes on to state that by "general" is meant that the departure from normality is the same in the different groups. However, if the skewness is in different directions, larger effects are often found. As Bradley (1968) has indicated, such unquantified, ambiguous statements concerning the degree of violation of assumptions has led to serious misunderstandings concerning the effects of the underlying assumptions and provides no differentiation between "ordinary" and "extraordinary" degrees of violation.

With regard to the types of measurement scale needed for parametric tests, a number of statisticians have indicated that parametric tests do not require interval data. As Anderson (1961), Burke (1953) and Lord (1953) point out, the validity of a parametric statistical inference does not depend on the type of measuring scale used. These authors believe that statistics computed on a measurement scale which is at best a poor fit to reality distribute in the same way that they would under conditions of perfect measurement.

Several empirical studies have provided support for the above position. Probably the best known study is that of Norton (1952). Norton's technique was to obtain distributions of F ratios by means of a random sampling procedure from distributions having the same mean but which violated the assumptions of normality and homogeneity of variance in predetermined ways. As a measure of the effect of the violations, Norton compared the obtained percentage of sample F ratios which exceeded the theoretical 5% and 1% values from the F tables for various conditions. The discrepancy between the obtained percentages and the theoretical percentages was used as the measure of the effects of the violations. Six different forms of distributions were studied under two different sample sizes and with various combinations

of variance. The results may be summarized as follows:

1. When the samples all came from the same population, the shape of the distribution had very little effect on the percentage of F ratios exceeding the theoretical limits.

2. For sampling from populations having the same shape but different variances, or having the same variance but different shapes, there was little effect on the empirical percentage exceeding the theoretical limits.

3. For sampling from populations with different shapes and heterogeneous variances, a serious discrepancy between theoretical and obtained percentages occurred in some instances.

Using a similar procedure, Boneau (1959) compared obtained distributions of sample t values with the theoretical distribution of the t statistic. Random samples were drawn from populations which were either normal, rectangular, or exponential with means equal to 0 and variances of 1 or 4. For several combinations of forms and variances, t tests were computed using combinations of sample sizes 5 and 15. Comparing his sample distributions of 5000 t values, Boneau concluded that the t test is "remarkably robust" in the technical sense of the word to violations of a number of assumptions underlying that test, providing that (1) the two sample sizes are equal or nearly so and (2) the assumed underlying population distributions are of the same shape or nearly so. If these conditions are met, then the percentage of times the null hypothesis will be rejected when it is actually true will tend to be between 4% and 6% when the alpha level is 5%. However, if there is a combination of unequal sample size and unequal variances, probability distributions may be quite different from the theoretically expected values.

In another study of the t distribution, Baker (1966) compared the sampling distribution of t based on one set of scores with the sampling distribution of the same statistic based on scores which were not "permissible" transformations of the first set. If violations of measurement scale properties have an effect on the t distribution, then the sampling distributions computed under conditions of "perfect" measurement should differ from the same statistic based on "imperfect" measurement. In order to evaluate the consequences of non-permissible transformations, 35 non-linear transformations of a unit-interval set of scores were constructed. The first 15 transformations were constructed to simulate the situation in which the magnitudes of trait differences represented by intervals at the extremes of a scale may be greater than those represented by equal appearing intervals in the middle of the scale, e.g., percentile equivalents.

The third set of transformations were such that the first scores ranging from 1 to 15 were retained as interval but the remaining scores varied randomly, similar to scales sometimes found in social distance measures or in the Thurstone type of scaling of attitude items. A total of 36 t values were computed for each pair of samples drawn: one value for the unit-interval scale and one for each of the 35 transformations. Three types of distribution were studied--normal, rectangular, and exponential--and three sample sizes were used--5 and 5, 15 and 15, and 5 and 15. The combinations of sample sizes used were identical to those used by Boneau (1959). Empirically derived t distributions based on 4,000 random samples for each condition were found not to deviate from the theoretical 5% or 1% levels of significance providing that the pair of samples are of equal size and that a two-tailed test is used. The authors conclude that probabilities estimated from the t distribution are little affected by the kind of measurement scale used.

Norris (1960) conducted an extensive study on the differential effects of nonnormality on the Pearson product-moment correlation coefficient. Comparisons were made between the theoretical sampling distribution based on Fishers' z transformation and empirical sampling distributions from nonnormal populations as well as comparing the latter distributions with distributions of r from his normal distributions. The latter comparison would show the effects of nonnormality. To indicate the effects of different conditions, the comparisons were made separately for various types and degree of nonnormality, three different samples sizes (N = 15, 30 and 90), and two markedly different population correlations (r = .0 and .8). Five forms of distributions were studied: normal, rectangular, leptokurtic, slightly skewed, and markedly skewed. Deviations of obtained distributions from the theoretical distributions were tested by the use of the Kolmogorov-Smirnov goodness-of-fit test (Siegel, 1956). The results of this investigation led Norris to conclude that the effect of nonnormality should be taken into account when dealing with statistical tests of inference involving the product moment correlation coefficient. He suggested that more research was needed, especially with regard to other types of nonnormality and with populations not having identical marginal frequencies such as he studied.

The four studies summarized above indicate that violations of certain assumptions do not drastically alter the distributions of the parametric statistic studied. However, there are certain restrictions in these studies since they are limited to the specified violations and other specific conditions such as sample size, degree of variance, and form of distribution. For example, in the Boneau (1959) study, the range of variance of scores studied was limited, 1 and 4, and the distribution of t's was based only on 1,000 t's. The other three studies were also based on violations which deviated in specified ways. Although the results of these studies can be applied to situations in which the violations of assumptions are similar, there are still questions concerning situations in which other combinations of violations are commonly found in educational research.

Procedure

The procedure that was followed in this study was based on a Monte Carlo method of generating sequences of random numbers one at a time as they are required. As pointed out by Hammersley and Handscomb (1965), such pseudorandom sequences of numbers are most convenient to calculate when working with an electronic digital computer, and such numbers are appropriate for probabilistic types of studies. For this study, computer routines were utilized to generate numbers which were distributed in four basic shapes: normal, positively skewed, negatively skewed, and leptokurtic. The final program called for these routines as they were needed.

The first stage in the overall procedure was to generate four basic populations of scores each with N = 10,000. These four populations were distributed as noted above and initially each population had a mean of 0 and a standard deviation of approximately 1. Standard score transformations were then used to produce populations with means of 50 and standard deviations of 4, 8, and 16.

Four function routines were used to generate the populations of numbers. The normal distribution was generated using the function RMS(IST) which was developed at the University of Kansas Computation Center. The argument IST is a 10-digit odd number originally specified by the user and was different for each analysis. The positively skewed distribution was generated by the function routine PSK(IST). This function generates a χ^2 value from the distribution of chi square with mean = 3 and variance = 6, the shape of which is positively skewed. The function calls RMS(IST) to obtain the normal variates used to find χ^2. The value returned is standardized to a mean of 0 and a standard deviation of 1. The negative skew function, RNSK(IST), is equal to -1 times PSK(IST). The leptokurtic distribution was developed by generating a χ^2 value with 1 degree of freedom, which is extremely positively skewed. This function routine, RLEP, however, did not generate a distribution as peaked as was expected since only 10,000 values were generated. The distributions for each tail turned out to be U-shaped rather than peaked, although the measure of kurtosis was larger than for normal distributions.

From these 12 populations (4 shapes and 3 different standard deviations), three additional transformations were made. The first transformation converted each number obtained from the curves to its nearest integer value. This resulted in a distribution of integers which ranged from 0 to 100 inclusive. This transformation is referred to as the "interval" transformation.

As these 10,000 numbers were generated for each population, a record was made of how many numbers were observed for each of the integers 0 to 100. These frequency counts were then used to obtain the percentile rank of each of the integers 0 through 100. This yielded

a distribution of scores which are equally distributed from a percentile rank of near 0 to a percentile rank of near 100, i.e., a percentile rank was computed for each interval number in each of the 12 populations of numbers. This transformation is referred to as the "percentile" transformation of scores and is rectangular in form. For each of these transformations, other numbers were generated which retained the rectangular shape of the distribution but varied the standard deviations. Since the standard deviation of the percentile distributions was approximately 28.6, each percentile was divided by 3 to obtain an observed standard deviation of approximately 8 and by 6 to obtain an observed standard deviation of approximately 4. The formulas that were used for reducing the standard deviations are $X_c = 50 + 1/3(X_o - 50)$ and $X_c = 50 + 1/6(X_o - 50)$, where X_c is the converted percentile rank and X_o is the original percentile rank.

The third transformation was designed to generate a set of numbers such that the difference between two consecutive numbers was not uniform. The difference between two consecutive numbers follows no set pattern but varies from pair to pair but retains the property of ordering. This transformation is referred to as an "ordinal" transformation and was generated by adding or subtracting randomly selected digits to each of the integers in the first transformation. To obtain the upper half of the distribution, a random number from 1 to 25 was added to 50. Then another random number from 1 to 25 was added to that result, and so on until there were 50 such numbers greater than the starting number of 50. Similarly, random numbers from 1 to 25 were successively subtracted from 50 until 50 such numbers were obtained. At this stage, the numbers varied from -558 to +658 with the distance between numbers varying from 1 to 25 in a random pattern. Although the mean of these numbers, based on the original frequencies, was approximately 50, the standard deviation was much larger than the other transformations, e.g., 182.5. A standard deviation equal to the standard deviations of the other distributions of scores was obtained by standardizing each of the scores and then converting it through standard score transformations to standard deviations of 16, 8 and 4.

The procedure followed to this point produced 36 different populations of scores based on 4 shapes of distributions, three standard deviations, and three types of transformations or scales. For each of the combinations of standard deviations and shapes of distribution, three sets of numbers were stored on computer tape and read into the computer program as needed. These sets of numbers were the interval numbers ranging from 0 to 100, and the corresponding ordinal and percentile transformations for each of the interval numbers. The values describing all of these populations (means, standard deviations, and measures of skew and kurtosis) and frequency distributions for the populations with standard deviation equal to 16 are listed in Appendix A.

The three sets of numbers so far generated and stored on magnetic tape were used by the main computer program which calculated the r's and t's. The results of this study are based on distributions of r's and t's based on 5,000 "experiments", where an "experiment" is defined as the random selection of samples of size n for k populations, where n may be 5, 15, or 30, and k may vary from 1 through 12. Different random numbers were generated for each of the 5,000 sets of samples. Thus, the results are based on sampling from an infinite population, each set completely independent of other sets.

For each "experiment", two sets of random numbers were generated by the appropriate subroutine specified for that particular "experiment." The shape, variance, and size of the two samples, hereafter referred to as Sample A and Sample B, were specified for each "experiment", and all sampling distributions of r and t were based on 5,000 sets of random numbers. The procedure used for all "experiments" followed the sequence listed below.

The numbers in each sample were generated by the appropriate shape subroutine--normal, positively skewed, negatively skewed, or leptokurtic. The size of each sample, n, and the standard deviation for the scores were specified on the control card. As each number was generated, each number was first rounded off to its closest integer value. The "ordinal" and "percentile" equivalents to each number generated was then obtained by a "look up" procedure which searched through the score transformations stored on magnetic tape. This table "look up" procedure was done for each interval number in both samples until the specified number of scores had been found. Thus, for an A sample of size 5, there were thus generated 5 interval numbers and the 5 corresponding "ordinal" numbers and the 5 corresponding "percentile" numbers.

After the three sets of numbers for both samples A and B were generated, t's and r's were calculated between all possible combinations of scores for A and B. Thus, a t was calculated between A and B samples when the A scale was interval and the B scale was also interval, when A was interval and B was ordinal, A interval and B percentile, and so on for the 3 x 3 = 9 combinations of scales for samples A and B. A frequency distribution of the r's and t's was set up for each of the 9 combinations based upon the significance value of the r or t. The values of r or t for each level of significance from .0005 to .9995 for each degree of freedom used in this study were stored in the computer at the outset of the main program. The theoretical t values were obtained from Owen (1962), Hald (1952), and Fedirighi (1959). The theoretical r values were obtained from David (1938) for probabilities equal to or less than .10 and were computed for probabilities of .20, .30, and .40 by using the following formula:

$$r = \sqrt{\frac{t^2}{n - 2 + t^2}} .$$

Each computed r or t was then compared to the critical value read into the computer, and a tally made for each r or t equal to or less than the critical value. The resultant cumulative frequencies were divided by 5,000 to obtain the proportion of t's and r's which were equal to or greater than the critical value. The obtained cumulative proportions were then compared to the theoretical distributions of r and t to determine whether or not there was a significant discrepancy. The Kolmorov-Smirnov test was used to determine whether or not there was a significant deviation between theoretical and empirical cumulative proportions (Siegel, 1956, pp. 47-52). The .05 level of significance was used for this test and for an N of 5,000, and a difference larger than .0192 was significant at that level.

In reporting the results, the cumulative probabilities were changed to significance levels. Thus for the left tail, the percentages reported are the probability that a t will be equal to or less than that critical value, whereas for the right tail, the percentages reported correspond to the probability that a t is equal to or greater than the critical value. Although the computer provided the obtained cumulative proportions of t and r for the following levels of significance (.0005, .0010, .0050, .0100, .0250, .0500, .1000, .2000, .3000, .4000, .5000), the tables in Appendices B and C list the output only for those values between .0010 and .0500. The reason for this is that these are the probability levels most commonly used for hypothesis testing and listing all values would have made the tables less manageable.

In addition to computing the r's and t's for the nine combinations of scales, the program also calculated the mean, standard deviation, and measures of skewness and kurtosis for each of the three sets of numbers of both the A and B samples. The values for each pair of samples were stored so that after the A and B samples had been generated 5,000 times, it was possible to compute the mean of all the A and B means, the mean of all the A and B standard deviations, and the means for the measures of skewness and kurtosis for both A and B. The program also calculated the standard deviation of each of these descriptive statistics to determine how varied the sets of samples were. These descriptive statistics were provided as an index of the extent each sample violated certain basic assumptions, namely the shape of each distribution.

The formulas used in this study for the computations of the statistics are as follows:

$$\bar{X} = \frac{\Sigma X}{N}$$

$$\text{S. D.} = \sqrt{\frac{\Sigma x^2}{n}}$$

$$\text{Skewness} = \frac{m^3}{m_2 \sqrt{m_2}}$$

$$\text{Kurtosis} = \frac{m^4}{m_2} - 3$$

where X denotes a raw score, Σx^2 denotes the squared deviation about the mean, and m_2, m_3, and m_4 are, respectively, the second, third and fourth moments about the mean. (Ferguson, page 76)

The formulas for r and t are those commonly found in psychological and educational statistics, and are as follows:

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{\left[N\Sigma X^2 - (\Sigma X)^2\right]\left[N\Sigma Y^2 - (\Sigma Y)^2\right]}}$$

$$t = \frac{M_a - M_b}{\sqrt{\left(\frac{\Sigma x^2 a + \Sigma x^2 b}{N_a + N_b - 2}\right)\left(\frac{N_a + N_b}{N_a N_b}\right)}}$$

Results

The results of this Monte Carlo study are listed in tables of the obtained distributions of *t*'s and *r*'s which are presented in Appendices B and C respectively. In order to compare the results for various combinations of violations, all information relevant to the particular distributions are presented in the same table.

For each table, the proportion of obtained *t*'s or *r*'s exceeding the theoretical values for a one-tailed test at the .001, .005, .01, .025, and .05 levels are given for both tails of the distribution separately. For two tailed tests at a given level, the appropriate proportions can be added together to determine the proportion exceeding the theoretical value for a two-tailed test. The difference between the obtained and the theoretical proportions should reflect the degree to which violations of assumptions affect the distributions of *t* and *r*. The theoretical levels of significance for each column are presented across the top of the table.

The types of scales being compared are given in the left column for each sample being compared or correlated. The types of scales used were interval (Int.), ordinal (Ord.), and percentiles (Per.). Although in common practice, at least with computing *t* values, one would not compare means based on different scales, for the purposes of this study comparing various types of scales was done in order to determine the effect on the *t* distribution for combinations of scales as well as if both samples had the same scale, e.g., an ordinal scale. In practice, there are often situations in which a *t* test would be used to compare the means of two groups when the type of scale being considered is only ordinal. Thus, the ordinal-ordinal combination would have direct applicability to general usage of the *t* test. Likewise, there are situations in which the *t* test might be used to determine whether or not the means for two groups are significantly different when percentile ranks are used. Thus, the percentile-percentile comparisons would have direct applicability. The other combinations of scales may only have theoretical value since one would not compare means based on different types of scales.

The type of distribution and the size of each sample for A then B, are presented in the title of each table. As discussed previously, various combinations of four basic types of distributions were used: normal, positively skewed, negatively skewed, and leptokurtic. The sample sizes for each "experiment" were 5 and 5, 5 and 15, 15 and 15, 15 and 30, and 30 and 30. At the bottom of each table are presented descriptive statistics for each sample. All of these statistics are mean values based on the statistics computed for each of the 5,000 "experiments" used to compute the *t* and *r* distributions. The means of the 5,000 means are presented mainly as a check to insure that the means were not deviating from the population mean value of 50. The means of the standard deviations are presented

both as a check to make sure that the standard deviations were approximating the values which were predetermined and to serve as a reference for comparing the effect of various sizes of variance. It should be noted that since the formula for computing the standard deviation for each sample was $SD = \sqrt{\frac{\Sigma x^2}{n}}$, the standard deviations of the samples underestimate the standard deviations of the populations. The measures of skewness and kurtosis are also presented for quick reference as to the type of distributions being compared.

The Kolmogorov-Smirnov goodness-of-fit test was used to determine whether or not the deviations of the obtained distributions were significantly different from the theoretical distributions (Siegel, 1956). The .05 level of significance was used for all comparisons, and the obtained proportions which differed significantly from the theoretical distribution are marked with an asterisk (*).

Since a number of different violations were considered in this study separately and in combination, the results will be presented in a series of tables in which the various types of populations are grouped together with subgroupings of tables with variations in variances and types of scales. The combinations of variances and types of scales for samples from normal population distributions will be considered first, i.e., both Sample A and Sample B are from normal populations of scores. Next will be considered the results of sampling from populations in which Sample A is from a normal distribution and Sample B is from a skewed distribution. The third grouping of tables will present the results for situations in which both the samples are from non-normal distributions but both samples are from the same type of distribution. In this grouping will be considered the results of sampling from two positively skewed distributions. The next two groupings will present the results for sampling from non-normal distributions in which the two samples are from two different kinds of populations. The fourth grouping will consider sampling from a positively skewed distribution for Sample A and from a negatively skewed distribution for Sample B. The fifth grouping will present the results for samplings from skewed and leptokurtic distributions.

For each of the five major subgroupings of scales as delineated above, two subgroupings of scales will be considered for each. The first is for those "experiments" in which the size of the sample is the same for both Sample A and Sample B. The second is for those "experiments" in which the size of the sample is different for each sample. For each of these two subgroupings, the following subgroupings will be considered. The first will be for those samples in which both the A and B variances are comparable and the same types of scales are being considered. The second will be for samples with again equal variances but for different types of scale. The third and fourth groupings will be for samples in which the variances are different for each but for the first group the scales are the same for the second group the scales are different. It should be

remembered that the percentile rank transformation is a rectangular distribution, thus making a combination of variation in both shape of distribution and type of scale.

In outline form, the tables will be discussed in the following sequence for each of the six major groupings based on basic types of distributions:

A. Equal sample sizes.
    1. Variances equal, same type of scales.
    2. Variances equal, different types of scales.
    3. Variances unequal, same type of scales.
    4. Variances unequal, different types of scales.

B. Unequal sample sizes.
    1. Variances equal, same type of scale.
    2. Variances equal, different types of scales.
    3. Variances unequal, same type of scales.
    4. Variances unequal, different types of scales.

Distributions of t for Samples from Normal Distributions

The proportions of t values obtained for the sampling distributions from samples from normally distributed populations are presented in Tables B-1 through B-19. The first seven tables are for those situations in which the same size of sample is used for both A and B.

For the situation in which there are no differences between sample A and B with regard to shape, size, variance, and type of scale, the obtained distributions follow very closely to the theoretical distribution. The obtained distributions of t remain fairly close to the theoretical distribution even for the situation in which the size and variance of the two samples is the same but the type of scale is changed from interval to ordinal. This holds for the situation in which both scales are changed from interval to ordinal and for the situation in which the scale is changed for only one sample, i.e., an ordinal and interval combination of scales.

For the samples in which there is a difference in variance, and the same scales are being considered, the obtained distribution of t is also close to the theoretical distribution. This is true even for the situation in which n = 5 for both samples and the ratio of one variance to the other is 1 to 16, i.e., a population standard deviation of 4 for Sample A and 16 for Sample B. However, when unequal variances and type of scale are combined, at least for those comparisons involving the percentile transformation, there are significant discrepancies between obtained and theoretical distributions of t. Generally, there is a larger proportion of t's than expected and the distribution of t's is slightly skewed with the direction of skew in the direction of the sample with the larger variance. This is true for the situation in which the population standard deviations are 4 and 28. As the differences in standard deviations of the populations from which the samples are drawn are reduced, the discrepancy between theoretical and obtained distributions of t is also reduced. For the situation in which the standard deviations are approximately the same, the obtained t distribution follows the theoretical distribution very closely.

Thus, it seems that when sampling from normal distributions and when the samples are the same size, only extreme differences in variances have an effect on the obtained distribution of t. It also seems as though the discrepancy is caused by differences in variance rather than the type of scale being considered, since the discrepancy is not significant when the difference in variances of the two samples is reduced and two different types of scales are used for Sample A and Sample B.

Also, it can be noted from Tables B-5 through B-7 that with larger sample sizes, e.g., n = 15 or 30, there are no significant discrepancies between obtained and theoretical distributions even with combinations of differences in variances and types of scales.

Tables B-8 through B-19 present the results for the samples with unequal n's. Adding the variable of differences in sample size drastically affects the observed distributions of t when there is a combination of differences in variance and types of scale. For the situation in which the variances of the two samples are equal and the same type of scale is used, the obtained distribution of t is close to the theoretical distribution. This is also true for comparisons involving a change in scale, i.e., interval to ordinal. As long as the variances remain equal, a change of scale from interval to ordinal does not affect the t distribution even for samples with unequal n's. However, for the percentile transformations which also involve a change in shape of distribution, there are significant discrepancies between obtained and theoretical distributions even when the variances are equivalent. As can be noted in Tables B-10 and B-13, the comparisons of both interval and ordinal scores with percentile scores results in a significantly greater proportion of t's when the larger variance is associated with the larger sample size, and the proportion tends to be slightly less when the reverse is true.

The obtained distributions of t depart quite drastically from the theoretical distributions for the "experiments" in which the same types of scales were considered but for which the sizes and variances differed. The results are similar for both the interval and ordinal scales and for the combinations of these scales. With standard deviations of 4 for the smaller sample and 16 for the larger sample, the proportion of t's obtained is much smaller than expected, e.g., as listed in Table B-12, .0042 for a two-tailed test in which both scales are interval compared to the theoretical .05 level. When the sample with the smaller size has the larger standard deviation, the proportion of t's obtained is much greater than expected, e.g., as listed in Table B-17, .1492 for a two-tailed test in which both scales are interval compared to the theoretical .05 level. At the .01 level, .0586 exceed the nominal value. The results are similar for the "experiments" in which the differences in population variance is on a ratio of 1 to 4, i.e., a standard deviation of 4 for one sample and 8 for the other sample. From an examination of these tables, it becomes apparent that the combination of differences in sample size and differences in variance is associated with significant departures of the obtained distribution of t from the theoretical distribution. The same results remain even when the sample sizes are increased to 15 and 30, and are similar to the findings of Boneau (1959) and Welch (1937).

For the comparisons in which the percentile transformations are involved, the results are similar to those above. However, it seems as though the discrepancy between obtained and theoretical t distributions is more a function of the combination of differences in variances and sample sizes than it is in type of scale. Considering the situation in which an interval scale is used for Sample A and the percentile transformation is used for Sample B, when the sample sizes and standard deviations are, respectively, n = 5, SD = 4 and

n = 15. SD = 28, there are wide discrepancies between theoretical and obtained distributions of t. As an example, in Table B-8 the proportion of t's exceeding the nominal .05 level for a two-tailed test is only .0042. In Table B-10, where the standard deviations are equivalent, the proportion of t's exceeding the nominal .05 level is .0346, and in Table B-14 for the same comparison, .0402 exceed the nominal .05 level when the standard deviations are 4 and 4. Thus it seems that the discrepancy is associated more with difference in variance than with type of scale and in this case shape of distribution.

Many other combinations of the variables listed in these tables could be considered. A lengthier discussion of these tables would point out the results of specific combinations of violations. However, the examples cited above seem to point out the general effects of these combinations of violations.

It should be pointed out that the results for sampling from combinations of normal and leptokurtic populations as well as when both populations were leptokurtic are almost identical to the results of sampling from normal populations. Thus, the results presented in tables B-56 through B-67 and B-130 through B-136 are very similar to the results in tables B-1 through B-19. Possibly this was due to the fact that the shapes of the leptokurtic distributions were not as peaked as they might have been, but more likely this was due to the fact that for small samples the samples are quite platykurtic. The means of 5,000 individual measures of kurtosis for samples where n = 5 hovers around -1.0 for both the samples from normal and leptokurtic distributions. Even when n is increased to 15, the mean of the measures of kurtosis is only around +1.0 for the interval scales and slightly less than that for the ordinal scales. Thus, the samples from normal and leptokurtic populations are very similar with regard to kurtosis and skewness, and the results of this study for sampling from normal populations seem to apply to sampling from leptokurtic populations or combinations of normal and leptokurtic populations as long as both of the distributions are symetrical. As will be pointed out later, the results for combinations of leptokurtic and skewed populations are different than for combinations of normal populations and skewed populations.

Distributions of t for Samples from Normal and Skewed Distributions

The proportions of t values computed between samples from normally distributed and skewed populations are presented in Tables B-20 through B-55. Since the results are identical but reversed for the positively skewed as compared to the negatively skewed populations, the discussion will deal only with the sampling distributions of t for samples from normal and positively skewed populations. These results are presented in Tables B-20 through B-41.

For the "experiments" in which Sample A is from a normally distributed population and Sample B is from a skewed population and when the sizes of the samples, variances, and types of scales for the two samples are the same, there are significant discrepancies between the obtained and theoretical distribution of t, at least when the sample size is 5 for both samples. There is a consistent trend for the distribution of t's to be skewed in the direction of the skew in the population from which samples are drawn. This trend prevails even when the size of the sample is increased to 15, although the discrepancies are not significant with this larger sample size.

This trend continues regardless of the type of scale used if the other variables remain constant. In fact, a change of scale from interval to ordinal or percentile rank seems to reduce the discrepancy between observed and theoretical distributions of t. Possibly this might be due to the fact that the average skew for ordinal and percentile rank transformations is not as large as for the interval scales.

The distribution of t becomes quite skewed for samples with unequal variances even when the sample size is 30 for both samples. For the situation in which the scales are the same for both samples and the differences in the population variances are 16 and 64, as for example in Tables B-23 and B-24, the proportion of t's exceeding the nominal 5 per cent level on a one-tailed test is approximately .11 for the right tail and stays around .02 in the left tail.

Similar results are noted when a change in type of scales is added. As with other combinations of scales discussed so far, the discrepancies in the t distributions are similar for both the interval and ordinal scales. However, more of the percentile transformations are now involved in the significant discrepancies. Possibly this might be due to the fact that regardless of scale, when small samples are drawn from skewed populations, there are more samples with means less than (or greater than in the case of negatively skewed distributions) the population mean even though the mean for all means is equal to the population mean. Since the greater proportion of scores in a skewed distribution are located in the tail opposite the skew, it seems reasonable to assume that most of the scores will be randomly drawn

from this area. Thus, the distribution of t for skewed distributions would also be skewed in the same direction as the skew in the population, dependent of course on which mean is subtracted from the other in the numerator.

For the situations in which the n's are not equal, there are significant discrepancies between obtained and theoretical distributions of t even when the variances and types of scale are the same for both samples. Again, as can be observed in the tables beginning with Table B-30, the distribution of t is skewed in the direction of the skew in the population. This is true and remains consistent regardless of the type of scale which is being considered. However, the discrepancy is slightly less when one or both of the scales is the ordinal transformation. Possibly this is because the ordinal transformations are less skewed than the interval scales. The comparisons involving the percentile rank transformations result in as many or more significant discrepancies than the comparisons involving only the interval scales. Possibly this might be due to the slightly higher standard deviation of the percentile rank samples than the samples using the interval scales. As can be seen in Table B-32, when the smaller standard deviation is associated with the smaller sample size the proportion of t's is less than the expected theoretical proportion and more than expected when the combination is reversed. This seems to be happening even when the difference in standard deviations is less than one point. Possibly there is a compounding of effects of shapes of distribution and different variances. However, for the interval-percentile and the ordinal-percentile scale combinations the higher proportion of t's is in the left tail rather than the right tail. This might be an indication that differences in variances has more influence on the proportion of obtained t's than shape of distribution.

Larger differences in variances between the two samples drastically affects the proportion of obtained t's. Referring to Table B-34, the proportion of observed t's diminishes to almost nothing in the tail opposite the skew for combinations of both smaller sample size and the smaller variance. At the nominal .025 level for a one-tailed test, only .0004 of the t's exceed the t value at this level. The proportion of t's exceeding the same level for the right tail is only .0138. The above is for the situation in which the ratio of the variances is 1 to 16 and both scales are interval. When the ratio of the variances is reduced to 1 to 4, i.e., standard deviations of 4 and 8, the pattern remains almost the same for the left tail but the proportion of t's for the right tail increases and approaches the .05 proportion of t's at the nominal 5 per cent level for a one-tailed test. This same pattern holds regardless of the type of scales being considered, and is consistent even when the sample sizes are increased to 15 and 30.

When the sample with the smaller variance has the larger n, as in Tables B-38 through B-41, there is a confounding effect of the

variance-size phenomena and the shape-of-distribtuion phenomenon. Here the obtained proportions greatly exceed the theoretical proportions in both tails. This is true even for small differences in standard deviation, e.g., 4 and 6 as listed in Table B-40 for the percentile-interval comparisons, and for samples sizes of 30 and 15 as listed in Table B-41. Thus it seems as though the combination of samples from normal and skewed populations tends to influence the distribution of t when the other variables are equal and has a very pronounced effect when the variances and size of samples are different for each set of samples.

Welch, B. L. The generalization of student's problem when several different population variances are involved. Biometrika, 1947, 34, 28-35.

Distributions of t for Samples from Positively Skewed Distributions

The distribution of t values computed between samples coming from positively skewed distributions are presented in Tables B-68 through B-89. Tables B-68 through B-77 present the results for the comparisons involving the same sample sizes, and Tables B-78 through B-89 present the results for comparing samples of unequal sizes.

Under the conditions of equal variances, equal n's, and same type of scale, the obtained distribution of t is fairly close to the theoretical distribution. This is true for all three types of scales separately or in combination. Thus, sampling from distributions which are skewed in the same direction does not have a significant effect on the t distribution provided the size of the samples and their variances do not differ regardless of the type of scale.

For the same conditions as listed above but with the exception that there is a significant difference in the variances of the two samples, the distribution of obtained t's is significantly different than the theoretical distribution. For the "experiments" in which both samples sizes are n = 5, the distribution of t's is skewed in the direction of the skew of the population. For all three types of scales either separately or in combination, the trend is for the proportion of t's to be greater than expected in the right or positive tail, and less than what would be expected in the left tail. The trend remains very consistent from samples of n = 5 each to n = 30 each. Thus, increasing the size of the samples does not reduce the discrepancy as much as in some previous "experiments". There is some variation in the extent of discrepancy as the ratios of the standard deviations become closer. For the ratio of variances of 1 to 16, as in Table B-70, the proportion of t's which exceed the nominal 5 per cent level on a one-tailed test are .0236 and .1422 for, respectively, the left and right tails of the t distribution. When the ratio of variances is 1 to 4 as in Table B-71, the proportions for the same comparisons are .0294 and .1048. For this same variance ratio, i.e., 1 to 4, increasing the size of both samples to 30 changes the proportion of t's to, respectively, .0326 and .0748 as presented in Table B-77.

It is interesting to note that for most of these comparisons the larger variance was for Sample B. Since the numerator of the t formula used $\bar{A} - \bar{B}$, possibly the larger proportion of t's in the right tail is due to the fact that most of the B means were less than the A means because of the larger variance. However, for the interval-ordinal comparisons in which the larger variance is also in Sample B, the proportion of t's is larger in the left tail. This trend is more prevalent when the variances are equal. Possibly there is a confounding effect of differences in variances and shapes of distributions.

For the experiments in which the n's of the two samples differ, there is a slight trend for the t's to be positively skewed when the variances of the two samples are equal. This seems to be true for the interval and ordinal scales, but for the interval-percentile and ordinal-

APPENDIX A

POPULATION VALUES AND DISTRIBUTIONS

percentile combinations of scales just the reverse is true. A comparison of the distribution of t's for these combinations of scales as presented in Tables B-80 and B-81 shows that there are significant discrepancies in the t distribution even with very slight differences in variance. When the A sample has the interval scale and the smaller standard deviation, 3.2 compared to 4.6, the proportion of t's in the right tail is less than expected. When the A sample has the percentile scale and the standard deviation of 4, the proportion of t's is greater than expected. This again might be indicative of the greater influence on the t distribution due to differences in variance rather than shape of distribution.

For the combinations of differences in n and variance for the two samples, large discrepancies between obtained and theoretical distributions of t are found. As in previous examples, when the sample with the smaller n has the smaller variance, the proportion of t's is significantly less than expected. This is especially true for the left tail, or in this case, the tail opposite the skew in the population of scores. This tendency is true for all scales and for n's of 5 and 15 and 15 and 30. When the sample with the smaller variance is larger in size, the proportion of t's is larger than expected and the distribution of t's is positively skewed. This is true for both the interval and ordinal scales used and for combinations of n's ranging from 15 and 5 to 30 and 15. These results are similar to the results of sampling from normal and skewed distributions.

Table A-1

POPULATION VALUES FOR DISTRIBUTIONS WITH STANDARD DEVIATION OF 16, N = 10,000

Shape of Distribution	Type of Scale	Mean	Standard Deviation	Skewness	Kurtosis
Normal	Interval	50.268	16.197	0.010	-0.173
	Ordinal	50.000	16.000	0.016	0.114
	Percentile	50.000	28.862	0.000	-1.200
Positive Skew	Interval	49.704	15.970	0.917	0.223
	Ordinal	50.000	16.000	1.039	0.631
	Percentile	50.000	28.860	0.001	-1.201
Negative Skew	Interval	50.722	16.151	-0.971	0.380
	Ordinal	50.000	16.000	-1.090	0.803
	Percentile	50.000	28.860	-0.001	-1.201
Leptokurtic	Interval	50.173	14.292	-0.004	0.773
	Ordinal	50.000	16.000	0.002	1.661
	Percentile	50.000	28.834	-0.001	-1.213

Distributions of t for Samples from Positive and Negative Skewed Distributions

When t's are computed between two samples which are skewed in opposite directions, the distributions of such t's are usually significantly different from the theoretical distribution and are generally skewed. The results for these comparisons are presented in Table B-90 through B-115.

For the "experiments" in which the n's, variances, and types of scales used are the same for both samples and the only difference is the opposite skew in the population distributions, the distributions of t's are skewed and deviate significantly from the theoretical distributions. This is true for all scales, with the exception of when both samples use percentile scales. However, for those comparisons in which one of the samples uses an ordinal or interval scale and the other sample uses a percentile scale, the discrepancy is not quite as large and is usually not significant. Possibly this is due to the fact that the percentile transformations are not as skewed as the other two types of scales. Increasing the sample size from 5 and 5 to 15 and 15 reduces the extent of the discrepancy but most of the discrepancies are still significantly different from the theoretical distribution. There is a further reduction when the size of the samples is increased to 30, with fewer of the discrepancies significantly different from the theoretical distribution.

When there is a difference in the variance between the two samples from oppositely skewed distributions, the discrepancy between obtained and theoretical increases but not to the same extent than changes in variance affected other t distributions. Possibly this might indicate that the discrepancy is due more to the shape of the distributions and differences in variances do not confound the results as much as with other shapes of distributions.

It should be noted again that the numerator of the t formula consistently used A - B. Since the A samples were from positively skewed distributions for all comparisons and the B samples were from negatively skewed distributions, the obtained t distributions were positively skewed with most of the t's in the left tail. This is probably due to the fact that the majority of the A means were probably lower than the population mean for A, whereas the majority of the B means were probably higher than the population mean for B. Thus, most of the differences between means were negative thus resulting in more negative t values. In order to determine if this was happening, Table B-90 was re-run but with the negatively skewed distribution for Sample A. The results were identically opposite the results in Table B-90. Thus, the direction of the skew in the distribution of t is due to the probability of obtaining more means from the larger area of skewed distributions and the direction of the skew will depend upon which mean is subtracted from the other.

With unequal size samples but with the variances equal, the distributions of t follow the same pattern as above, i.e., significant

Table A-2

POPULATION VALUES FOR DISTRIBUTIONS WITH STANDARD DEVIATION OF 8, N = 10,000

Shape of Distribution	Type of Scale	Mean	Standard Deviation	Skewness	Kurtosis
Normal	Interval	50.102	8.023	-0.009	0.039
	Ordinal	50.000	8.000	-0.012	-0.224
	Percentile	50.000	28.846	0.000	-1.999
Positive Skew	Interval	49.851	7.914	1.589	3.457
	Ordinal	50.000	8.002	1.573	3.600
	Percentile	50.000	28.825	0.005	-1.204
Negative Skew	Interval	49.956	8.053	-1.565	3.199
	Ordinal	50.000	8.001	-1.545	3.279
	Percentile	50.000	28.827	-0.005	-1.204
Leptokurtic	Interval	49.969	8.919	-0.064	5.067
	Ordinal	50.000	8.001	-0.058	4.650
	Percentile	50.000	28.797	-0.001	-1.219

discrepancies from theoretical and skewed to the left. This is generally true for all scales. However, for the t distributions involving percentile scales the discrepancy is usually not as large and sometimes is even skewed in the opposite direction. Possibly this is again due to the fact that the percentile transformations were not as skewed as the interval and ordinal transformations, or, possibly the slight difference in standard deviations might be causing this effect. That this might be suspected comes from looking at Table B-106, comparing the interval-percentile and percentile-interval pairing of scales and standard deviations. It seems as though the size-of-sample matched to size-of-variance phenomenon might be producing this effect here as it has in numerous other examples, even though there is less than one point differences in the standard deviations.

When unequal sample size is combined with unequal variances the same phenomenon seems to influence the distribution of t as it has with other shapes of distributions. The t distribution remains positively skewed with most of the t values in the left tail. As with other combinations of sizes of variance and sample size, t distributions based on samples with the combination of small size and small variance are significantly less than what would be expected. The fact that the t distributions are skewed seems to indicate that there is a confounding effect of the influence of size and variance plus the fact that the samples are drawn from skewed distributions. When the ratio of variances is 1 to 4 for, respectively, the samples with $n = 5$ and $n = 15$, the proportion of t's exceeding the nominal 5 per cent level in the left tail is about .04 but for the right tail is only .007. When the size of the samples is reversed, the proportions of t's are, respectively, .1780 and .0860. This trend is the same even for the samples with $n = 30$ and $n = 15$.

Table A-3

POPULATION VALUES FOR DISTRIBUTIONS WITH STANDARD DEVIATION OF 4, N = 10,000

Shape of Distribution	Type of Scale	Mean	Standard Deviation	Skewness	Kurtosis
Normal	Interval	50.071	4.004	0.015	-0.309
	Ordinal	50.000	4.004	-0.040	-0.606
	Percentile	50.000	28.785	0.000	-1.196
Positive Skew	Interval	49.971	4.021	1.720	4.256
	Ordinal	50.000	4.000	0.995	0.528
	Percentile	50.000	28.702	0.019	-1.212
Negative Skew	Interval	50.034	4.079	-1.711	3.976
	Ordinal	50.000	3.997	-0.966	0.176
	Percentile	50.000	28.699	-0.019	-1.210
Leptokurtic	Interval	50.048	3.908	-0.043	10.646
	Ordinal	50.000	4.002	-0.091	5.156
	Percentile	50.000	28.642	-0.002	-1.234

Distributions of t for Samples from Positively Skewed and Leptokurtic Distributions

The distributions of t obtained from comparing samples drawn at random from skewed and leptokurtic distributions are presented in Tables B-116 through B-129. Again, since the effects are just reversed for the negatively skewed compared to the positively skewed distributions, only the results comparing the positively skewed with the leptokurtic distributions will be discussed. These results are presented in Tables B-116 through B-122.

For the "experiments" in which the sizes of the samples and the variances are equal, there is a slight skew in the obtained t distribution, with the higher proportion in the tail opposite the direction of the skew for the population distribution. However, the effect is not very extensive resulting in .0734 and .0270 t's falling in, respectively, the left and right tails at the .05 level for a one-tailed test. The result is similar for sample sizes of 15 for each sample compared to n = 5 as reported above. When the scale used is ordinal for both or either one of the samples, the distributions of obtained t's is closer to the theoretical distribution. With equal n's but with differences in variances between the two samples, the obtained distributions of t are very close to the theoretical distribution even when the ratio of one variance to the other is 1 to 16. This is true for both the interval and ordinal scales. However, for the distributions of t values obtained when there is a combination of differences in variance and the two scales being compared are either interval and ordinal compared to percentile, there are significant discrepancies between obtained and theoretical distributions of t. For the smaller size samples, n = 5, there are significantly greater proportions of t's in both tails of the distributions than one would expect. For n = 15, the proportion of t's in both tails tends to be slightly but not significantly greater, e.g., .0572 and .0558 at the .05 level for one-tailed tests.

For samples with unequal n's, there are not significant discrepancies between obtained and theoretical t distributions for the interval and ordinal scales when the variances of the two samples are equal. For all scales, either separately or in combinations, when there are differences between the two samples with regard to both sample size and variance, there are significant discrepancies between the obtained and the theoretical distributions of t. The proportions follow the same pattern as with other shapes of distributions, namely that when the sample with the smaller variance also has the smaller n, the proportion of t's obtained is much less than expected, e.g., .0032 for a two-tailed test at the nominal .05 level. For the reverse combination of size and variance, the proportion if much larger than expected, e.g., .2628 for a two-tailed test at the nominal .05 level.

NORMAL DISTRIBUTION STANDARD DEVIATION =16 N=10,000

INT	PER	ORD	FREQ
0	0.005	-2.87383	1.000
1	0.015	-1.57597	1.000
2	0.055	-0.53768	7.000
3	0.100	0.06798	2.000
4	0.120	0.67365	2.000
5	0.140	1.79847	2.000
6	0.175	3.61547	5.000
7	0.220	3.96157	4.000
8	0.285	5.60553	9.000
9	0.385	6.73034	11.000
10	0.515	8.54735	15.000
11	0.635	9.15301	9.000
12	0.785	10.01826	21.000
13	0.955	11.92179	13.000
14	1.145	13.04660	25.000
15	1.455	14.17141	37.000
16	1.780	15.90189	28.000
17	2.075	17.19975	31.000
18	2.345	17.63238	23.000
19	2.705	18.23804	49.000
20	3.140	19.18981	38.000
21	3.580	20.66072	50.000
22	4.135	21.09334	61.000
23	4.815	22.65077	75.000
24	5.520	24.81387	66.000
25	6.230	25.07345	76.000
26	6.985	25.59259	75.000
27	7.755	27.32307	79.000
28	8.625	27.66917	95.000
29	9.620	29.48618	104.000
30	10.650	30.52447	102.000
31	11.810	31.73580	130.000
32	13.095	32.25495	127.000
33	14.435	33.55281	141.000
34	15.815	34.85067	135.000
35	17.310	35.54286	164.000
36	19.035	36.75420	181.000
37	20.900	38.22511	192.000
38	22.720	39.00383	172.000
39	24.570	41.16693	198.000
40	26.515	41.59955	191.000
41	28.575	41.77260	221.000
42	30.720	42.37827	208.000
43	32.920	42.46479	232.000
44	35.110	42.63784	206.000
45	37.300	43.24351	232.000
46	39.635	44.10875	235.000
47	42.145	44.88746	267.000
48	44.760	46.96404	256.000
49	47.155	48.86757	223.000

Distributions of r for all Populations

For all of the "experiments" involving an equal number of scores for each sample and standard deviations of 4 and 16, correlation coefficients were computed between the two samples of scores. A total of 324 distributions of r's were computed, 108 of which are presented in Appendix C. Since the r was not influenced to the extent that t was, it was deemed not necessary to present all of the tables but to present those tables for the comparisons involving situations in which no violations were made to exist to situations in which extreme violations of the assumptions existed.

The results of comparing the obtained distributions of r to the theoretical distributions indicated that there were minor discrepancies under all conditions studied. The distributions of r for situations in which no violations in shape of distribution are known are presented in Table C-1. Under these conditions the obtained distributions are very close to the theoretical distributions even when interval or ordinal scales are matched with percentile ranks and the standard deviations are, respectively, 4 and 24. The results for other normal distributions presented in the next three tables, C-2 through C-4, also indicate that regardless of ratios of variances or types of scales, the obtained distributions are close to their respective theoretical distributions.

When the samples are drawn from normally distributed and positively skewed distributions, the distributions of r are still very close to the theoretical distributions. The results of these computations are presented in Tables C-5 through C-8. Regardless of type of scale or ratio of variances, even for n = 5 the distributions of r are very close to their respective theoretical distributions.

For the "experiments" in which one sample was drawn from a positively skewed population of scores and the other was drawn from a negatively skewed distribution, there is a slight skew in the obtained distributions of r, but there is only one instance where the proportion of r's is significantly different from theoretical. This is in Table C-11, and is the only significant discrepancy for all 324 distributions of r's computed in the study. As indicated above, for all distributions of r computed between oppositely skewed distributions of scores, there was a tendency for the distributions of r to also be skewed, and this tendency seems to be more pronounced for n = 15 than for n = 5. Possibly this might be due to the fact that the larger sized samples were more skewed than the smaller samples. The average measure of skew for n = 5 was around + or - .4 whereas for n = 15 the average skew was around + or - 1.0. For sample size n = 5, the discrepancy between observed and theoretical proportions is generally within + or - .01 of the nominal .05 level but is much

50	49.455	49.73281	237.000
51	51.815	50.59805	235.000
52	54.305	52.50158	263.000
53	56.895	54.57816	255.000
54	59.390	55.35688	244.000
55	61.825	56.22212	243.000
56	64.055	56.82779	203.000
57	66.170	57.00084	220.000
58	68.295	57.08736	205.000
59	70.360	57.69303	208.000
60	72.440	57.86608	208.000
61	74.440	58.29870	192.000
62	76.240	60.46180	168.000
63	77.925	61.24052	169.000
64	79.670	62.71143	180.000
65	81.355	63.92276	157.000
66	82.950	64.61496	162.000
67	84.475	65.91282	143.000
68	85.795	67.21068	121.000
69	87.050	67.72983	130.000
70	88.405	68.94116	141.000
71	89.760	69.97945	130.000
72	90.860	71.79646	90.000
73	91.795	72.14255	97.000
74	92.685	73.87304	81.000
75	93.525	74.39218	87.000
76	94.305	74.65175	69.000
77	95.000	76.81485	70.000
78	95.660	78.37229	62.000
79	96.240	78.80491	54.000
80	96.715	80.27582	41.000
81	97.150	81.22758	46.000
82	97.545	81.83325	33.000
83	97.870	82.26587	32.000
84	98.175	83.56373	29.000
85	98.430	85.29422	22.000
86	98.655	86.41903	23.000
87	98.855	87.54384	17.000
88	99.005	89.44737	13.000
89	99.170	90.31261	20.000
90	99.345	90.91828	15.000
91	99.455	92.73529	7.000
92	99.540	93.86010	10.000
93	99.640	95.50406	10.000
94	99.715	95.85015	5.000
95	99.785	97.66716	9.000
96	99.845	98.79197	3.000
97	99.870	99.39764	2.000
98	99.895	100.00331	3.000
99	99.950	101.04160	8.000
100	99.995	102.33946	1.000

closer for higher levels of probability. This is true for all combinations of scales and ratios of variance. The proportions of $\underline{r}$ in Tables C-9 through C-12 represent the distributions if $\underline{r}$ which were computed under more violations of the basic assumptions than the situations in other computations. Even though the discrepancy between obtained and theoretical distributions of $\underline{r}$ was largest for these computations, the fit is very good. Thus, it could be concluded that even under extreme violations of the basic assumptions underlying $\underline{r}$ there is little effect on the obtained distributions of $\underline{r}$.

POSITIVE SKEW STANDARD DEVIATION =16 N=10,000

INT	PER	ORD	FREQ
0	0.	-3.37754	0.
1	0.	-2.06052	0.
2	0.	-1.00691	0.
3	0.	-0.39230	0.
4	0.	0.22231	0.
5	0.	1.36372	0.
6	0.	3.20754	0.
7	0.	3.55875	0.
8	0.	5.22697	0.
9	0.	6.36838	0.
10	0.	8.21221	0.
11	0.	8.82681	0.
12	0.	9.70482	0.
13	0.	11.63645	0.
14	0.	12.77786	0.
15	0.	13.91928	0.
16	0.	15.67530	0.
17	0.	16.99231	0.
18	0.	17.43132	0.
19	0.	18.04593	0.
20	0.	19.01174	0.
21	0.	20.50436	0.
22	0.	20.94336	0.
23	0.	22.52378	0.
24	0.	24.71881	0.
25	0.	24.98221	0.
26	0.	25.50902	0.
27	0.	27.26504	0.
28	0.630	27.61625	126.000
29	2.170	29.46007	182.000
30	4.295	30.51368	243.000
31	6.615	31.74290	221.000
32	9.200	32.26970	296.000
33	12.250	33.58672	314.000
34	15.330	34.90374	302.000
35	18.325	35.60614	297.000
36	21.465	36.83536	331.000
37	24.600	38.32798	296.000
38	27.665	39.11819	317.000
39	30.725	41.31322	295.000
40	33.730	41.75222	306.000
41	36.645	41.92782	277.000
42	39.340	42.54243	262.000
43	42.015	42.63023	273.000
44	44.735	42.80583	271.000
45	47.360	43.42044	254.000
46	49.875	44.29845	249.000
47	52.285	45.08866	233.000
48	54.725	47.19589	255.000
49	57.100	49.12751	220.000

Summary and Conclusions

In order to assess the effects of violations of the basic assumptions underlying r and t, a total of 1,332 distributions of t and 324 distributions of r were obtained by computing these statistics between samples which were known to violate the basic assumptions in various degrees. Various combinations of differences in shape of distribution, variance, size of sample, and type of scale were studied. The general paradigm which was followed in this study was, given a true null hypothesis, the proportion of either the r's or the t's exceeding the nominal levels of significance should reflect the influence of the violation or combination of violations. Thus, the proportion of obtained r's or t's exceeding the values of these statistics for a given significance level when the null hypothesis is true and all assumptions are met should indicate whether or not a particular violation had an influence on the obtained distributions and to what extent.

The results of this study indicate that the Pearson product moment correlation coefficient is insensitive to rather extreme violations of the basic assumptions. Failure to meet the basic assumptions separately or in various combinations had little effect on the obtained distributions of r. For all of the 324 distributions, each of which was based on 5,000 r's, there was only one proportion of r's which deviated significantly from the nominal expected proportion. This was at the .05 level for a one tailed test involving correlation coefficients computed between samples one of which came from a positively skewed distribution and the other from a negatively skewed distribution. Thus it is concluded that the effect of the basic assumptions underlying r is negligible.

The results of this study are similar to the results of the study by Norris and Hjelm (1960). These authors found that when the population correlation was near zero, the shape of the sampling distributions of r did not vary markedly as a function of nonnormality in the distributions of scores. Also, when sampling from skewed distributions, the sampling distributions of r was also slightly skewed causing one tail of the distribution of r to have a higher proportion of r's than expected and the other tail a smaller proportion of r's than expected. However, this author does not feel that the discrepancy between observed and theoretical proportions is great enough to cause the researcher to not use r when violations of the basic assumptions are known to exist. Possibly, as pointed out by Lindquist (1953, p. 81), one should make allowances for these discrepancies in the interpretation of the results of one's study. For example, referring to the results presented in Table C-12, when the nominal risk of a Type I error is .01 for a one-tailed test that r is negative, the true risk may be as large as .02. For the test that r is positive, the true risk may be only as large as .005.

50	59.175	50.00552	195.000
51	61.260	50.88353	222.000
52	63.340	52.81516	194.000
53	65.320	54.92238	202.000
54	67.175	55.71259	169.000
55	68.935	56.59060	183.000
56	70.800	57.20521	190.000
57	72.460	57.38081	142.000
58	73.925	57.46862	151.000
59	75.315	58.08322	127.000
60	76.580	58.25882	126.000
61	77.865	58.69783	131.000
62	79.145	60.89286	125.000
63	80.445	61.68307	135.000
64	81.640	63.17569	104.000
65	82.725	64.40490	113.000
66	83.715	65.10731	85.000
67	84.655	66.42433	103.000
68	85.655	67.74134	97.000
69	86.590	68.26815	90.000
70	87.445	69.49736	81.000
71	88.210	70.55098	72.000
72	88.860	72.39480	58.000
73	89.510	72.74600	72.000
74	90.260	74.50203	78.000
75	90.965	75.02883	63.000
76	91.540	75.29224	52.000
77	92.045	77.48726	49.000
78	92.600	79.06768	62.000
79	93.205	79.50669	59.000
80	93.775	80.99931	55.000
81	94.325	81.96512	55.000
82	94.780	82.57973	36.000
83	95.175	83.01873	43.000
84	95.660	84.33575	54.000
85	96.140	86.09177	42.000
86	96.560	87.23318	42.000
87	96.935	88.37460	33.000
88	97.265	90.30622	33.000
89	97.570	91.18423	28.000
90	97.825	91.79884	23.000
91	98.080	93.64266	28.000
92	98.350	94.78408	26.000
93	98.615	96.45230	27.000
94	98.855	96.80350	21.000
95	99.095	98.64733	27.000
96	99.325	99.78874	19.000
97	99.480	100.40335	12.000
98	99.640	101.01795	20.000
99	99.805	102.07157	13.000
100	99.935	103.38858	13.000

The results of this study seem to indicate that the t test is not as robust as other researchers have found, e.g., Boneau (1960) and the Norton study (Lindquist, 1953). However, the results are consistent with those of Baker et al (1966) who found that the t distribution is little affected by the type of measurement scale used.

The results of this study are summarized in Table 1 which gives for selected combinations of shape of population, variance, and sample size the proportion of obtained t's falling outside the nominal .05 and .01 probability limits for one-tailed tests in both directions. The combinations are representative of those used throughout the study and are for combinations of normally distributed, positively skewed, negatively skewed, and leptokurtic distributions. However, since type of scale did not seem to influence the obtained distributions of t, only the results for combinations of samples in which both samples used the interval transformations were considered for this summary table. For comparative purposes, the format of the table is similar to the table prepared by Boneau (1960, p. 61).

The results of this study lead to the following conclusions:

1. When sampling from normal distributions, the obtained distribution of t's matches the theoretical distribution when either or both the n's or variances are equal for both samples. However, when there are differences with regard to both variance and sample size the obtained distribution of t departs significantly from the theoretical distribution. As reported in other studies, e.g., Welch (1937) and Boneau (1960), when the sample with the smaller variance also has the smaller samples size, the proportion of obtained t's is much less than expected, and when the sample with the smaller variance has the larger n, the proportion of t's obtained is much more than expected.

2. When sampling from the same nonnormal distributions such as both positive skewed or leptokurtic distributions, the obtained distributions of t match the theoretical distributions when the samples are equal in size and variance. However, with equal n's but different variances, the distributions of t are skewed and the resulting proportions are significantly different than expected for the skewed distributions. Contrary to the results of Boneau (1960), this discrepancy does not diminish with larger samples, e.g., n = 30 for both samples. With combinations of differences in both n and variance, the results are similar to these combinations as noted above but are more extensive.

3. When sampling from two different nonnormal distributions, the obtained distributions of t depart significantly from the theoretical distributions even when the samples are of the same size and have the same variance. When the sampling is from distributions

NEGATIVE SKEW STANDARD DEVIATION =16 N=10,000

INT	PER	ORD	FREQ
0	0.095	-3.09860	19.000
1	0.310	-1.79817	24.000
2	0.565	-0.75783	27.000
3	0.790	-0.15096	18.000
4	0.980	0.45590	20.000
5	1.200	1.58294	24.000
6	1.435	3.40354	23.000
7	1.645	3.75032	19.000
8	1.875	5.39753	27.000
9	2.135	6.52456	25.000
10	2.400	8.34516	28.000
11	2.670	8.95203	26.000
12	2.995	9.81898	39.000
13	3.385	11.72627	39.000
14	3.785	12.85331	41.000
15	4.150	13.98035	32.000
16	4.515	15.71425	41.000
17	4.945	17.01468	45.000
18	5.380	17.44815	42.000
19	5.805	18.05502	43.000
20	6.265	19.00867	49.000
21	6.770	20.48248	52.000
22	7.315	20.91596	57.000
23	7.900	22.47647	60.000
24	8.465	24.64385	53.000
25	9.030	24.90394	60.000
26	9.600	25.42411	54.000
27	10.225	27.15801	71.000
28	10.955	27.50479	75.000
29	11.645	29.32539	63.000
30	12.310	30.36573	70.000
31	13.015	31.57946	71.000
32	13.760	32.09963	78.000
33	14.585	33.40006	87.000
34	15.525	34.70049	101.000
35	16.510	35.39405	96.000
36	17.630	36.60778	128.000
37	18.790	38.08160	104.000
38	19.875	38.86186	113.000
39	21.060	41.02924	124.000
40	22.315	41.46271	127.000
41	23.740	41.63610	158.000
42	25.190	42.24297	132.000
43	26.550	42.32966	140.000
44	28.165	42.50305	183.000
45	29.955	43.10992	175.000
46	31.640	43.97687	162.000
47	33.535	44.75713	217.000
48	35.690	46.83781	214.000
49	37.790	48.74510	206.000

which are skewed in opposite directions, the obtained distributions of t are also skewed. Significant discrepancies were found between obtained and theoretical proportions of t for all combinations of n's and variances. Even with n = 30 for both groups and with equal variances the proportion of t's were significantly different than expected. For combinations of differences in both n's and variances, the same trend is noted as before.

4. When sampling from two different distributions one of which is normal and the other skewed, the obtained distribution of t also tends to be skewed even for equal n's and variance. Again, contrary to the results of Boneau (1960), the distributions of t remain skewed and there are significant discrepancies from expected even with n's of 30. Thus the effect of increasing the sample size does not normalize the obtained distribution as readily as Boneau found. With various combinations of unequal n's and variances, the same results occur with these distributions as noted with other distributions.

In this study, the t test was found to be quite sensitive to certain violations of its basic assumptions. Departures from normality seemed to produce significant discrepancies between theoretical and obtained distributions of t even for samples with equal n's and variances. Thus the t-test does not seem to be "functionally nonparametric or distribution-free" as Boneau states (1960, p. 63). Significant discrepancies between the nominal and actual level of significance were found for many combinations of violations of the basic assumptions. Thus it is suggested that researchers carefully consider all of the assumptions underlying the t test before applying it in all situations. As pointed out in this study, failure to satisfy all of the assumptions underlying the t-test often alters the probability of a Type I error. Thus the experimenter may be in the position of having far greater or far fewer chances of rejecting a true null hypothesis than he realizes, and the conclusions that he reaches might be due to the effects of violations of assumptions rather than treatment effects.

50	39.945	49.61206	225.000
51	42.240	50.47901	234.000
52	44.500	52.38630	218.000
53	46.645	54.46699	211.000
54	48.780	55.24724	216.000
55	51.060	56.11419	240.000
56	53.545	56.72106	257.000
57	56.255	56.89445	285.000
58	59.025	56.98114	269.000
59	61.730	57.58801	272.000
60	64.605	57.76140	303.000
61	67.790	58.19488	334.000
62	70.955	60.36226	299.000
63	74.025	61.14251	315.000
64	77.285	62.61633	337.000
65	80.520	63.83006	310.000
66	83.615	64.52362	309.000
67	86.510	65.82405	270.000
68	89.425	67.12448	313.000
69	92.290	67.64465	260.000
70	94.680	68.85838	218.000
71	96.810	69.89872	208.000
72	98.795	71.71932	189.000
73	99.870	72.06610	26.000
74	100.000	73.80000	0.
75	100.000	74.32018	0.
76	100.000	74.58026	0.
77	100.000	76.74764	0.
78	100.000	78.30815	0.
79	100.000	78.74163	0.
80	100.000	80.21545	0.
81	100.000	81.16909	0.
82	100.000	81.77596	0.
83	100.000	82.20944	0.
84	100.000	83.50986	0.
85	100.000	85.24377	0.
86	100.000	86.37080	0.
87	100.000	87.49784	0.
88	100.000	89.40513	0.
89	100.000	90.27209	0.
90	100.000	90.87895	0.
91	100.000	92.69955	0.
92	100.000	93.82659	0.
93	100.000	95.47379	0.
94	100.000	95.82058	0.
95	100.000	97.64117	0.
96	100.000	98.76821	0.
97	100.000	99.37508	0.
98	100.000	99.98194	0.
99	100.000	101.02228	0.
100	100.000	102.32271	0.

Table 1

SUMMARY TABLE OF ACTUAL PROBABILITIES OF TYPE I ERRORS WITH A ONE-TAILED t TEST FOR VARIOUS COMBINATIONS OF POPULATION SHAPES, POPULATION VARIANCES, AND n's

Sample A			Sample B			Nominal Level of Significance			
						.05		.01	
Shape	σ	n	Shape	σ	n	Left	Right	Left	Right
Nor	4	5	Nor	4	5	.049	.049	.008	.010
Nor	4	5	Nor	8	5	.056	.060	.014	.012
Nor	4	5	Nor	4	15	.042	.051	.008	.010
Nor	4	5	Nor	8	15	.017*	.015*	.001	.002
Nor	4	15	Nor	8	5	.118*	.115*	.045*	.041*
Nor	4	5	+ Skew	4	5	.030*	.080*	.004	.024
Nor	4	5	+ Skew	8	5	.023*	.110*	.003	.039*
Nor	4	15	+ Skew	8	15	.030*	.084*	.003*	.030*
Nor	4	30	+ Skew	8	30	.0308	.074*	.004	.021
Nor	4	5	+ Skew	4	15	.032	.079*	.003	.024
Nor	4	5	+ Skew	8	15	.004*	.046	.000	.012
Nor	4	15	+ Skew	8	30	.011*	.044	.001	.012
Nor	4	15	+ Skew	8	5	.085*	.157*	.026	.064*
Nor	4	30	+ Skew	8	15	.071*	.124*	.015	.049*
Nor	4	5	Lep	4	5	.042	.046	.007	.011
Nor	4	5	Lep	8	5	.051	.050	.013	.014
Nor	4	5	Lep	4	15	.043	.048	.010	.011
Nor	4	5	Lep	8	15	.014*	.016*	.001	.002
Nor	4	5	Lep	8	5	.126*	.115	.045*	.039*
+ Skew	4	5	+ Skew	4	5	.041	.042	.007	.006
+ Skew	4	5	+ Skew	8	5	.029*	.105*	.006	.031*
+ Skew	4	30	+ Skew	8	30	.033	.075*	.003	.022
+ Skew	4	5	+ Skew	4	15	.033	.065	.001	.017
+ Skew	4	5	+ Skew	8	15	.002*	.041	.000	.009
+ Skew	4	15	+ Skew	8	5	.093*	.145*	.031*	.055*
+ Skew	4	30	+ Skew	8	15	.069	.113*	.016	.042*
+ Skew	4	5	- Skew	4	5	.110*	.017*	.046*	.002
+ Skew	4	5	- Skew	8	5	.123*	.021*	.052*	.002
+ Skew	4	30	- Skew	8	30	.079*	.031*	.026	.003
+ Skew	4	5	- Skew	4	15	.082*	.036	.028	.006
+ Skew	4	5	- Skew	8	15	.043	.007*	.012	.000
+ Skew	4	15	- Skew	8	15	.178*	.086*	.094*	.025
+ Skew	4	5	Lep	4	5	.073*	.027*	.021	.003
+ Skew	4	5	Lep	16	5	.058	.051	.023	.020
+ Skew	4	5	Lep	4	15	.049	.038	.010	.010
+ Skew	4	5	Lep	16	15	.003*	.005*	.001	.001
+ Skew	4	15	Lep	16	5	.183*	.177*	.095*	.087*
Lep	4	5	Lep	4	5	.044	.042	.007	.006
Lep	4	5	Lep	16	5	.055	.052	.018	.018
Lep	4	5	Lep	4	15	.044	.049	.009	.008
Lep	4	5	Lep	16	15	.005*	.006*	.001	.001
Lep	4	15	Lep	16	5	.171*	.172*	.080*	.086*

*One-Tailed Tests

LEPTOKURTIC DISTRIBUTION STANDARD DEVIATION =16 N=10,000

INT	PER	ORD	FREQ
0	0.020	-10.70250	4.000
1	0.070	-9.20930	6.000
2	0.150	-8.01474	10.000
3	0.230	-7.31791	6.000
4	0.315	-6.62109	11.000
5	0.420	-5.32698	10.000
6	0.510	-3.23650	8.000
7	0.605	-2.83832	11.000
8	0.735	-0.94693	15.000
9	0.875	0.34717	13.000
10	0.960	2.43765	4.000
11	1.020	3.13448	8.000
12	1.155	4.12994	19.000
13	1.305	6.31997	11.000
14	1.410	7.61408	10.000
15	1.510	8.90818	10.000
16	1.655	10.89911	19.000
17	1.815	12.39231	13.000
18	1.940	12.89005	12.000
19	2.130	13.58687	26.000
20	2.375	14.68188	23.000
21	2.575	16.37418	17.000
22	2.765	16.87191	21.000
23	2.945	18.66375	15.000
24	3.145	21.15241	25.000
25	3.355	21.45105	17.000
26	3.600	22.04833	32.000
27	3.910	24.03926	30.000
28	4.165	24.43745	21.000
29	4.395	26.52793	25.000
30	4.660	27.72249	28.000
31	4.920	29.11614	24.000
32	5.230	29.71342	38.000
33	5.595	31.20662	35.000
34	5.970	32.69982	40.000
35	6.370	33.49619	40.000
36	11.060	34.88984	898.000
37	18.400	36.58213	570.000
38	23.200	37.47805	390.000
39	26.575	39.96672	285.000
40	29.310	40.46445	262.000
41	31.835	40.66354	243.000
42	34.200	41.36037	230.000
43	36.400	41.45992	210.000
44	38.470	41.65901	204.000
45	40.430	42.35584	188.000
46	42.250	43.35130	176.000
47	44.075	44.24722	189.000
48	45.815	46.63634	159.000
49	47.390	48.82637	156.000

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50	49.070	49.82183	180.000
51	50.925	50.81730	191.000
52	52.815	53.00732	187.000
53	54.665	55.39644	183.000
54	56.485	56.29236	181.000
55	58.380	57.28783	198.000
56	60.300	57.98465	186.000
57	62.235	58.18375	201.000
58	64.490	58.28329	250.000
59	67.025	58.98012	257.000
60	69.720	59.17921	282.000
61	72.700	59.67694	314.000
62	76.215	62.16561	389.000
63	81.020	63.06153	572.000
64	88.720	64.75382	968.000
65	93.765	66.14747	41.000
66	94.120	66.94385	30.000
67	94.420	68.43704	30.000
68	94.680	69.93024	22.000
69	95.010	70.52752	44.000
70	95.395	71.92118	33.000
71	95.665	73.11573	21.000
72	95.950	75.20621	36.000
73	96.270	75.60440	28.000
74	96.500	77.59533	18.000
75	96.695	78.19261	21.000
76	96.850	78.49125	10.000
77	96.990	80.97992	18.000
78	97.195	82.77175	23.000
79	97.410	83.26949	20.000
80	97.580	84.96178	14.000
81	97.710	86.05679	12.000
82	97.815	86.75362	9.000
83	97.940	87.25135	16.000
84	98.090	88.74455	14.000
85	98.255	90.73548	19.000
86	98.460	92.02959	22.000
87	98.645	93.32369	15.000
88	98.750	95.51372	6.000
89	98.845	96.50918	13.000
90	98.980	97.20601	14.000
91	99.095	99.29649	9.000
92	99.210	100.59059	14.000
93	99.355	102.48198	15.000
94	99.470	102.88017	8.000
95	99.545	104.97064	7.000
96	99.625	106.26475	9.000
97	99.725	106.96158	11.000
98	99.830	107.65840	10.000
99	99.925	108.85296	9.000
100	99.985	110.34616	3.000

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APPENDIX B

TABLES OF SAMPLING DISTRIBUTIONS OF THE

t RATIO

TABLE B - 1

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0010	.0038	.0084	.0220	.0492	.0492	.0244	.0098	.0046	.0012
Int.	Ord.	.0016	.0042	.0090	.0230	.0486	.0532	.0286	.0112	.0072	.0014
Int.	Per.	.0098	.0172	.0272	.0426	.0632	.0750*	.0502*	.0304*	.0214	.0102
Ord.	Int.	.0012	.0048	.0104	.0260	.0534	.0474	.0262	.0100	.0060	.0020
Ord.	Ord.	.0012	.0050	.0104	.0258	.0500	.0516	.0274	.0112	.0072	.0020
Ord.	Per.	.0096	.0174	.0264	.0434	.0638	.0744*	.0504*	.0306*	.0212	.0100
Per.	Int.	.0120	.0240	.0332*	.0528*	.0770*	.0674	.0440	.0278	.0216	.0114
Per.	Ord.	.0122	.0238	.0336*	.0518*	.0750*	.0690	.0436	.0278	.0220	.0114
Per.	Per.	.0018	.0062	.0108	.0250	.0504	.0504	.0294	.0114	.0070	.0020

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.003	49.941	49.564	49.997	49.924	49.452
SD of Means	1.807	1.804	12.990	1.798	1.791	12.870
Mean of SDs	3.360	3.428	24.721	3.401	3.457	24.907
SD of SDs	1.199	0.987	6.907	1.207	0.979	6.852
Mean of Skews	-0.011	-0.009	-0.005	-0.001	-0.003	0.006
SD of Skews	0.614	0.594	0.594	0.609	0.593	0.588
Mean of Kurtosis	-0.998	-1.075	-1.106	-0.993	-1.062	-1.109
SD of Kurtosis	0.507	0.615	0.520	0.494	1.164	0.515

TABLE B - 2

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0052	.0094	.0256	.0472	.0456	.0240	.0092	.0042	.0008
Int.	Ord.	.0010	.0062	.0100	.0238	.0458	.0494	.0256	.0112	.0054	.0012
Int.	Per.	.0048	.0122	.0188	.0342	.0568	.0610	.0384	.0208	.0130	.0040
Ord.	Int.	.0018	.0062	.0118	.0276	.0494	.0444	.0232	.0100	.0054	.0008
Ord.	Ord.	.0018	.0072	.0120	.0260	.0490	.0474	.0258	.0112	.0060	.0010
Ord.	Per.	.0048	.0124	.0188	.0336	.0572	.0606	.0368	.0206	.0130	.0040
Per.	Int.	.0058	.0150	.0220	.0352	.0644	.0574	.0370	.0200	.0132	.0032
Per.	Ord.	.0048	.0142	.0212	.0348	.0628	.0592	.0376	.0204	.0132	.0038
Per.	Per.	.0022	.0062	.0116	.0260	.0482	.0488	.0250	.0108	.0066	.0012

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.015	49.947	49.869	50.020	49.952	49.883
SD of Means	1.793	1.788	4.288	1.807	1.788	4.284
Mean of SDs	3.361	3.428	8.244	3.413	3.462	8.310
SD of SDs	1.212	0.990	2.319	1.264	1.008	2.346
Mean of Skews	-0.003	-0.010	-0.002	-0.003	-0.005	-0.004
SD of Skews	0.614	0.597	0.592	0.612	0.597	0.591
Mean of Kurtosis	-1.004	-1.075	-1.113	-1.000	-1.083	-1.113
SD of Kurtosis	0.505	0.710	0.522	0.499	0.539	0.520

TABLE B - 3

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0034	.0104	.0158	.0336	.0616	.0614	.0328	.0174	.0088	.0032
Int.	Ord.	.0032	.0098	.0156	.0310	.0570	.0630	.0356	.0192	.0112	.0038
Int.	Per.	.0078	.0174	.0250	.0424	.0654	.0726*	.0450*	.0282	.0204	.0090
Ord.	Int.	.0034	.0100	.0158	.0350	.0628	.0602	.0320	.0170	.0090	.0030
Ord.	Ord.	.0034	.0102	.0160	.0318	.0588	.0636	.0352	.0188	.0108	.0032
Ord.	Per.	.0082	.0178	.0262	.0428	.0662	.0724*	.0442*	.0276	.0202	.0082
Per.	Int.	.0030	.0112	.0168	.0332	.0616	.0546	.0332	.0176	.0106	.0034
Per.	Ord.	.0026	.0110	.0170	.0328	.0606	.0574	.0352	.0194	.0110	.0048
Per.	Per.	.0020	.0064	.0110	.0252	.0520	.0504	.0304	.0148	.0076	.0016

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	49.940	49.572	50.056	49.772	49.639
SD of Means	1.822	1.809	12.994	7.321	7.160	12.782
Mean of SDs	3.386	3.440	24.773	13.900	13.517	24.936
SD of SDs	1.231	0.990	6.918	5.123	5.130	7.011
Mean of Skews	0.003	0.005	0.007	-0.001	0.002	-0.000
SD of Skews	0.615	0.595	0.599	0.617	0.630	0.592
Mean of Kurtosis	-0.994	-1.079	-1.101	-1.002	-0.988	-1.117
SD of Kurtosis	0.513	0.549	0.526	0.501	0.511	0.520

TABLE B - 4

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0020	.0060	.0140	.0318	.0560	.0602	.0332	.0124	.0058	.0016
Int.	Ord.	.0034	.0098	.0158	.0350	.0576	.0634	.0374	.0190	.0112	.0040
Int.	Per.	.0044	.0122	.0196	.0386	.0584	.0690	.0428	.0212	.0144	.0052
Ord.	Int.	.0020	.0070	.0148	.0324	.0574	.0588	.0314	.0122	.0060	.0022
Ord.	Ord.	.0040	.0100	.0158	.0352	.0574	.0634	.0342	.0192	.0106	.0032
Ord.	Per.	.0042	.0122	.0198	.0376	.0588	.0672	.0434	.0220	.0150	.0044
Per.	Int.	.0032	.0096	.0158	.0346	.0582	.0538	.0256	.0122	.0068	.0014
Per.	Ord.	.0030	.0094	.0148	.0304	.0560	.0564	.0268	.0120	.0068	.0020
Per.	Per.	.0024	.0094	.0134	.0304	.0550	.0560	.0276	.0116	.0066	.0018

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.011	49.950	49.873	50.040	49.937	49.903
SD of Means	1.827	1.810	4.332	3.541	3.538	4.289
Mean of SDs	3.387	3.439	8.253	6.656	6.685	8.229
SD of SDs	1.224	0.993	2.310	2.387	2.226	2.306
Mean of Skews	0.007	0.005	0.011	0.006	0.004	0.014
SD of Skews	0.614	0.594	0.590	0.618	0.643	0.592
Mean of Kurtosis	-1.002	-1.067	-1.114	-0.999	-1.061	-1.111
SD of Kurtosis	0.506	1.079	0.522	0.505	0.581	0.522

TABLE B - 5

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Normal (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0012	.0040	.0100	.0244	.0478	.0440	.0204	.0072	.0032	.0004
Int.	Ord.	.0014	.0040	.0098	.0220	.0426	.0486	.0232	.0088	.0030	.0008
Int.	Per.	.0032	.0072	.0114	.0280	.0518	.0578	.0306	.0142	.0080	.0028
Ord.	Int.	.0012	.0048	.0102	.0270	.0504	.0438	.0192	.0064	.0030	.0004
Ord.	Ord.	.0016	.0044	.0094	.0248	.0458	.0472	.0212	.0986	.0030	.0006
Ord.	Per.	.0032	.0074	.0120	.0290	.0518	.0572	.0316	.0140	.0078	.0028
Per.	Int.	.0036	.0086	.0168	.0342	.0600	.0464	.0248	.0116	.0062	.0016
Per.	Ord.	.0038	.0084	.0164	.0340	.0586	.0476	.0244	.0116	.0066	.0020
Per.	Per.	.0016	.0050	.0088	.0240	.0474	.0458	.0202	.0082	.0034	.0004

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.002	49.937	49.534	50.008	49.947	49.614
SD of Means	1.027	1.024	7.374	1.031	1.028	7.402
Mean of SDs	3.803	3.830	27.579	3.798	3.826	27.533
SD of SDs	0.710	0.514	3.514	0.716	0.516	3.518
Mean of Skews	-0.002	-0.001	0.007	-0.009	-0.006	-0.000
SD of Skews	0.526	0.373	0.384	0.521	0.371	0.382
Mean of Kurtosis	-0.383	-0.969	-1.047	-0.375	-0.965	-1.043
SD of Kurtosis	0.785	0.480	0.432	0.782	0.478	0.429

TABLE B - 6

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 30) and Normal (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0048	.0096	.0244	.0462	.0418	.0226	.0098	.0048	.0012
Int.	Ord.	.0004	.0042	.0084	.0196	.0414	.0514	.0244	.0108	.0062	.0014
Int.	Per.	.0006	.0040	.0090	.0214	.0420	.0514	.0254	.0110	.0064	.0014
Ord.	Int.	.0006	.0056	.0110	.0256	.0528	.0380	.0208	.0078	.0036	.0010
Ord.	Ord.	.0006	.0048	.0092	.0228	.0478	.0460	.0226	.0092	.0040	.0014
Ord.	Per.	.0006	.0050	.0104	.0240	.0456	.0458	.0226	.0100	.0052	.0012
Per.	Int.	.0006	.0058	.0112	.0262	.0512	.0398	.0206	.0078	.0036	.0014
Per.	Ord.	.0004	.0046	.0090	.0228	.0466	.0466	.0230	.0096	.0042	.0018
Per.	Per.	.0002	.0044	.0094	.0234	.0470	.0464	.0220	.0092	.0050	.0012

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.006	49.942	49.928	50.007	49.944	49.933
SD of Means	0.732	0.730	0.876	0.739	0.735	0.878
Mean of SDs	3.912	3.917	4.697	3.926	3.925	4.703
SD of SDs	0.517	0.359	0.408	0.512	0.356	0.402
Mean of Skews	0.003	-0.001	0.008	-0.005	-0.003	0.008
SD of Skews	0.410	0.263	0.265	0.412	0.267	0.269
Mean of Kurtosis	-0.189	-1.019	-1.114	-0.174	-1.014	-1.111
SD of Kurtosis	0.712	0.340	0.261	0.724	0.347	0.261

TABLE B - 7

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Normal (N =15) DISTRIBUTIONS

Scales A B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int. - Int.	.0022	.0084	.0148	.0332	.0586	.0578	.0302	.0148	.0084	.0014
Int. - Ord.	.0018	.0074	.0134	.0294	.0522	.0640	.0346	.0168	.0094	.0020
Int. - Per.	.0032	.0094	.0150	.0304	.0568	.0652	.0382	.0186	.0124	.0032
Ord. - Int.	.0026	.0086	.0162	.0348	.0594	.0572	.0298	.0140	.0078	.0012
Ord. - Ord.	.0020	.0072	.0144	.0312	.0534	.0616	.0344	.0158	.0094	.0016
Ord. - Per.	.0036	.0098	.0154	.0308	.0576	.0638	.0376	.0180	.0120	.0030
Per. - Int.	.0016	.0066	.0124	.0306	.0592	.0434	.0248	.0096	.0056	.0014
Per. - Ord.	.0016	.0054	.0118	.0280	.0568	.0462	.0270	.0112	.0060	.0016
Per. - Per.	.0008	.0068	.0114	.0288	.0552	.0486	.0262	.0110	.0066	.0020

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.989	49.921	49.440	49.990	49.719	49.556
SD of Means	1.023	1.025	7.377	4.269	4.182	7.538
Mean of SDs	3.817	3.835	27.605	15.514	15.163	27.565
SD of SDs	0.725	0.520	3.532	3.029	3.057	3.659
Mean of Skews	0.005	0.002	0.013	-0.010	-0.010	0.005
SD of Skews	0.526	0.375	0.384	0.517	0.554	0.385
Mean of Kurtosis	-0.363	-0.961	-0.041	-0.368	-0.266	-1.038
SD of Kurtosis	0.778	0.475	0.421	0.770	0.824	0.447

TABLE B - 8

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0040	.0078	.0178	.0418	.0506	.0252	.0100	.0050	.0010
Int.	Ord.	.0004	.0028	.0064	.0162	.0392	.0530	.0254	.0116	.0054	.0010
Int.	Per.	.0000	.0002	.0002	.0016*	.0034*	.0066*	.0026*	.0016	.0004	.0000
Ord.	Int.	.0010	.0046	.0080	.0230	.0466	.0524	.0254	.0108	.0052	.0012
Ord.	Ord.	.0006	.0042	.0080	.0200	.0410	.0506	.0262	.0118	.0060	.0012
Ord.	Per.	.0000	.0002	.0002	.0014*	.0036*	.0066*	.0026*	.0016	.0004	.0000
Per.	Int.	.0530*	.0834*	.1060*	.1418*	.1830*	.1780*	.1410*	.1050*	.0866*	.0558*
Per.	Ord.	.0534*	.0830*	.1060*	.1386*	.1818*	.1788*	.1416*	.1058*	.0862*	.0564*
Per.	Per.	.0006	.0044	.0076	.0202	.0408	.0542	.0266	.0120	.0056	.0012

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.023	49.963	49.724	49.992	49.927	49.455
SD of Means	1.761	1.761	12.656	1.021	1.021	7.344
Mean of SDs	3.366	3.440	24.807	3.789	3.819	27.493
SD of SDs	1.227	0.999	6.973	0.721	0.518	3.549
Mean of Skews	0.015	0.007	0.013	0.002	0.003	0.013
SD of Skews	0.607	0.597	0.590	0.519	0.371	0.384
Mean of Kurtosis	-1.006	-1.078	-1.113	-0.370	-0.960	-1.036
SD of Kurtosis	0.503	0.571	0.525	0.773	0.469	0.429

TABLE B - 9

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0008	.0038	.0118	.0270	.0532	.0506	.0232	.0090	.0052	.0006
Int.	Ord.	.0006	.0034	.0092	.0236	.0486	.0504	.0234	.0082	.0048	.0002
Int.	Per.	.0000	.0002	.0006	.0030*	.0102*	.0128*	.0056*	.0016	.0006	.0002
Ord.	Int.	.0010	.0056	.0130	.0300	.0580	.0472	.0246	.0094	.0050	.0008
Ord.	Ord.	.0008	.0042	.0108	.0256	.0530	.0484	.0232	.0088	.0034	.0006
Ord.	Per.	.0000	.0004	.0008	.0020*	.0108*	.0122*	.0050*	.0014	.0004	.0002
Per.	Int.	.0232*	.0492*	.0714*	.1076*	.1474*	.1250*	.0864*	.0564*	.0400*	.0200
Per.	Ord.	.0236*	.0488*	.0692*	.1044*	.1454*	.1276*	.0882*	.0572*	.0408*	.0196
Per.	Per.	.0006	.0036	.0108	.0256	.0534	.0494	.0242	.0088	.0040	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.972	49.916	49.799	49.997	49.930	49.829
SD of Means	1.786	1.769	4.232	1.046	1.037	2.493
Mean of SDs	3.402	3.457	8.302	3.808	3.831	9.190
SD of SDs	1.223	0.992	2.302	0.735	0.523	1.187
Mean of Skews	-0.015	-0.008	-0.002	0.007	0.005	0.011
SD of Skews	0.604	0.586	0.579	0.520	0.371	0.381
Mean of Kurtosis	-1.003	-1.077	-1.116	-0.396	-0.975	-1.053
SD of Kurtosis	0.499	0.733	0.516	0.780	0.475	0.425

TABLE B - 10

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0014	.0052	.0100	.0258	.0550	.0508	.0266	.0128	.0056	.0008
Int.	Ord.	.0010	.0044	.0092	.0230	.0502	.0522	.0270	.0128	.0050	.0010
Int.	Per.	.0006	.0024	.0054	.0146	.0346	.0394	.0200	.0072	.0030	.0002
Ord.	Int.	.0014	.0062	.0114	.0308	.0608	.0496	.0274	.0128	.0060	.0010
Ord.	Ord.	.0012	.0062	.0114	.0276	.0568	.0488	.0280	.0124	.0064	.0010
Ord.	Per.	.0006	.0030	.0060	.0156	.0382	.0370	.0714	.0076	.0030	.0002
Per.	Int.	.0036	.0116	.0216	.0456*	.0808*	.0696*	.0386	.0184	.0116	.0032
Per.	Ord.	.0032	.0100	.0194	.0408	.0762*	.0696*	.0388	.0198	.0116	.0026
Per.	Per.	.0012	.0056	.0104	.0270	.0562	.0518	.0280	.0126	.0060	.0008

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.999	49.925	49.909	49.992	49.926	49.912
SD of Means	1.829	1.821	2.183	1.041	1.041	1.247
Mean of SDs	3.415	3.459	4.145	3.822	3.837	4.604
SD of SDs	1.232	0.994	1.154	0.724	0.524	0.597
Mean of Skews	0.005	0.006	0.008	-0.001	0.004	0.011
SD of Skews	0.621	0.594	0.595	0.519	0.375	0.385
Mean of Kurtosis	-0.991	-1.068	-1.105	-0.370	-0.964	-1.041
SD of Kurtosis	0.505	0.869	0.524	0.796	0.485	0.436

TABLE B - 11

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Normal (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0062	.0108	.0280	.0546	.0538	.0252	.0104	.0044	.0010
Int.	Ord.	.0006	.0048	.0096	.0248	.0488	.0602	.0292	.0114	.0052	.0012
Int.	Per.	.0000	.0038	.0078	.0178	.0374	.0486	.0242	.0078	.0030	.0004
Ord.	Int.	.0008	.0080	.0140	.0342	.0580	.0510	.0222	.0088	.0038	.0012
Ord.	Ord.	.0010	.0064	.0132	.0296	.0548	.0524	.0266	.0096	.0046	.0012
Ord.	Per.	.0000	.0038	.0088	.0214	.0432	.0448	.0204	.0062	.0032	.0004
Per.	Int.	.0018	.0114	.0206	.0410	.0670	.0594	.0306	.0124	.0060	.0016
Per.	Ord.	.0018	.0102	.0180	.0370	.0656	.0630	.0338	.0150	.0068	.0020
Per.	Per.	.0010	.0060	.0116	.0288	.0526	.0542	.0268	.0102	.0046	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.009	49.936	49.923	49.994	49.931	49.915
SD of Means	1.031	1.029	1.233	0.734	0.735	0.884
Mean of SDs	3.792	3.819	4.584	3.906	3.914	4.693
SD of SDs	0.717	0.515	0.588	0.528	0.362	0.412
Mean of Skews	0.012	0.006	0.016	-0.004	-0.001	0.012
SD of Skews	0.511	0.364	0.377	0.410	0.268	0.272
Mean of Kurtosis	-0.380	0.967	-1.042	-0.199	-1.015	-1.107
SD of Kurtosis	0.766	0.462	0.419	0.687	0.334	0.262

TABLE B - 12

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0006	.0022*	.0076*	.0056*	.0020*	.0006	.0002	.0000
Int.	Ord.	.0000	.0000	.0002	.0022*	.0062*	.0072*	.0020*	.0008	.0002	.0000
Int.	Per.	.0000	.0000	.0008	.0020*	.0052*	.0088*	.0038*	.0012	.0004	.0000
Ord.	Int.	.0000	.0000	.0006	.0024*	.0074*	.0052*	.0016*	.0006	.0002	.0000
Ord.	Ord.	.0000	.0000	.0002	.0022*	.0064*	.0068*	.0022*	.0010	.0002	.0000
Ord.	Per.	.0000	.0000	.0006	.0018*	.0046*	.0078*	.0040*	.0016	.0002	.0000
Per.	Int.	.0120	.0284*	.0448*	.0706*	.1122*	.1018*	.0700*	.0422*	.0294*	.0114
Per.	Ord.	.0120	.0286*	.0442*	.0708*	.1108*	.1064*	.0724*	.0456*	.0324	.0130
Per.	Per.	.0022	.0044	.0084	.0230	.0494	.0476	.0248	.0086	.0038	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.997	49.933	49.502	50.069	49.800	49.660
SD of Means	1.790	1.783	12.822	4.265	4.157	7.546
Mean of SDs	3.402	3.455	24.866	15.497	15.134	27.595
SD of SDs	1.250	1.006	6.972	2.967	3.018	3.596
Mean of Skews	-0.004	-0.006	0.001	0.009	0.009	0.011
SD of Skews	0.613	0.394	0.561	0.522	0.550	0.392
Mean of Kurtosis	-0.996	-1.064	-1.107	-0.376	-0.282	-1.039
SD of Kurtosis	0.501	0.701	0.519	0.789	0.821	0.452

TABLE B - 13

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0004	.0012	.0044*	.0166*	.0146*	.0058	.0018	.0006	.0002
Int.	Ord.	.0000	.0010	.0010	.0044*	.0142*	.0140*	.0056*	.0018	.0006	.0002
Int.	Per.	.0000	.0002	.0008	.0028*	.0098*	.0122*	.0042*	.0010	.0004	.0000
Ord.	Int.	.0000	.0004	.0014	.0054*	.0178*	.0140*	.0058	.0016	.0008	.0002
Ord.	Ord.	.0000	.0006	.0014	.0050*	.0164*	.0146*	.0062	.0016	.0008	.0002
Ord.	Per.	.0000	.0002	.0012	.0028*	.0106*	.0120*	.0044*	.0014	.0004	.0000
Per.	Int.	.0036	.0130	.0218	.0468*	.0760*	.0694*	.0384	.0190	.0120	.0034
Per.	Ord.	.0032	.0120	.0212	.0446*	.0726*	.0714*	.0390	.0192	.0126	.0030
Per.	Per.	.0012	.0046	.0108	.0270	.0548	.0510	.0266	.0108	.0058	.0014

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.005	49.931	49.840	49.992	49.897	49.862
SD of Means	1.782	1.784	4.288	2.084	2.068	2.499
Mean of SDs	3.334	3.408	8.189	7.591	7.580	9.214
SD of SDs	1.203	0.990	2.320	1.438	1.321	1.168
Mean of Skews	0.020	0.017	0.023	-0.005	-0.005	0.018
SD of Skews	0.623	0.602	0.596	0.524	0.516	0.383
Mean of Kurtosis	-0.990	2.691	-1.110	-0.377	-0.684	-1.047
SD of Kurtosis	0.507	.958	0.733	0.798	0.767	0.431

TABLE B - 14

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0008	.0020	.0092	.0200*	.0172*	.0058	.0012	.0006	.0000
Int.	Ord.	.0002	.0006	.0018	.0076	.0200*	.0180*	.0068	.0014	.0006	.0000
Int.	Per.	.0004	.0034	.0088	.0196	.0410	.0462	.0206	.0072	.0030	.0006
Ord.	Int.	.0002	.0008	.0024	.0088	.0222*	.0164*	.0060	.0008	.0006	.0000
Ord.	Ord.	.0002	.0006	.0018	.0084	.0210*	.0172*	.0068	.0016	.0004	.0002
Ord.	Per.	.0008	.0048	.0104	.0216	.0444	.0440	.0214	.0070	.0028	.0006
Per.	Int.	.0002	.0018	.0046	.0124	.0292*	.0234*	.0094	.0028	.0008	.0000
Per.	Ord.	.0002	.0012	.0036	.0116	.0300*	.0250*	.0096	.0028	.0010	.0002
Per.	Per.	.0020	.0098	.0152	.0312	.0616	.0576	.0318	.0122	.0066	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.984	49.923	49.908	50.015	49.913	49.941
SD of Means	1.820	1.811	2.170	2.066	2.058	1.243
Mean of SDs	3.404	3.455	4.148	7.573	7.367	4.603
SD of SDs	1.236	1.000	1.161	1.455	1.324	0.598
Mean of Skews	-0.001	0.004	0.007	-0.005	-0.003	0.017
SD of Skews	0.611	0.598	0.597	0.517	0.511	0.386
Mean of Kurtosis	-0.997	-1.080	-1.103	-0.383	-0.693	-1.042
SD of Kurtosis	0.499	0.833	0.518	0.766	0.738	0.432

TABLE B - 15

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Normal (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0008	.0016	.0068	.0212*	.0208*	.0064	.0014	.0004	.0000
Int.	Ord.	.0002	.0006	.0014	.0058*	.0172*	.0234*	.0082	.0024	.0008	.0000
Int.	Per.	.0004	.0022	.0038	.0146	.0338	.0404	.0202	.0052	.0018	.0004
Ord.	Int.	.0002	.0008	.0018	.0078	.0214*	.0182*	.0046*	.0014	.0004	.0000
Ord.	Ord.	.0002	.0008	.0012	.0074	.0180*	.0200*	.0070	.0024	.0008	.0000
Ord.	Per.	.0008	.0026	.0056	.0172	.0372	.0370	.0176	.0048	.0020	.0002
Per.	Int.	.0002	.0016	.0030	.0108	.0264*	.0216*	.0066	.0020	.0008	.0000
Per.	Ord.	.0002	.0012	.0026	.0084	.0230*	.0246*	.0096	.0030	.0010	.0000
Per.	Per.	.0014	.0032	.0096	.0240	.0498	.0454	.0232	.0088	.0030	.0002

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.992	49.933	49.917	49.988	49.885	49.929
SD of Means	1.046	1.041	1.247	1.431	1.431	0.862
Mean of SDs	3.817	3.834	4.594	7.827	7.804	4.713
SD of SDs	0.733	0.524	0.598	1.047	0.959	0.412
Mean of Skews	-0.004	-0.001	0.008	-0.007	-0.008	0.021
SD of Skews	0.529	0.375	0.385	0.410	0.418	0.266
Mean of Kurtosis	-0.363	-0.961	-1.040	-0.169	-0.488	-1.107
SD of Kurtosis	0.803	0.496	0.442	0.726	0.736	0.263

TABLE B - 16

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0358*	.0730*	.0946*	.1380*	.1778*	.1766*	.1296*	.0908*	.0686*	.0368*
Int.	Ord.	.0344*	.0654*	.0878*	.1262*	.1676*	.1902*	.1380*	.0960*	.0722*	.0374*
Int.	Per.	.0578*	.0866*	.1072*	.1426*	.1780*	.1960*	.1532*	.1140*	.0906*	.0618*
Ord.	Int.	.0368*	.0740*	.0962*	.1388*	.1810*	.1764*	.1274*	.0896*	.0672*	.0358*
Ord.	Ord.	.0344*	.0664*	.0892*	.1276*	.1704*	.1888*	.1342*	.0960*	.0708*	.0386*
Ord.	Per.	.0584*	.0876*	.1084*	.1428*	.1798*	.1940*	.1518*	.1128*	.0902*	.0620*
Per.	Int.	.0004	.0008	.0028	.0108	.0260*	.0170*	.0066	.0018	.0008	.0000
Per.	Ord.	.0004	.0006	.0030	.0104	.0244*	.0168*	.0068	.0020	.0008	.0000
Per.	Per.	.0004	.0072	.0152	.0286	.0572	.0550	.0280	.0122	.0062	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.002	49.933	49.527	50.003	49.721	49.536
SD of Means	1.045	1.046	7.524	7.341	7.173	12.947
Mean of SDs	3.802	3.823	27.522	13.636	13.265	24.691
SD of SDs	0.719	0.517	3.548	4.904	4.929	6.908
Mean of Skews	0.005	0.001	0.010	0.008	0.006	0.014
SD of Skews	0.537	0.383	0.397	0.615	0.630	0.593
Mean of Kurtosis	-0.353	-0.952	-1.027	-1.004	-0.988	-1.114
SD of Kurtosis	0.803	0.500	0.465	0.503	0.515	0.521

TABLE B - 17

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0106	.0314*	.0446*	.0754*	.1184*	.1148*	.0738*	.0408*	.0272*	.0108
Int.	Ord.	.0124	.0306*	.0442*	.0716*	.1126*	.1200*	.0776*	.0468*	.0292*	.0130
Int.	Per.	.0232*	.0450*	.0578*	.0902*	.1294*	.1438*	.0964*	.0660*	.0470*	.0232*
Ord.	Int.	.0096	.0318*	.0446*	.0746*	.1192*	.1098*	.0712*	.0390*	.0258*	.0104
Ord.	Ord.	.0120	.0316*	.0442*	.0720*	.1126*	.1164*	.0762*	.0460*	.0282*	.0130
Ord.	Per.	.0240*	.0450*	.0590*	.0894*	.1324*	.1398*	.0954*	.0634*	.0456*	.0236*
Per.	Int.	.0000	.0028	.0054	.0134	.0328	.0306*	.0134	.0044	.0022	.0004
Per.	Ord.	.0000	.0022	.0050	.0128	.0312	.0316	.0150	.0048	.0022	.0004
Per.	Per.	.0002	.0050	.0098	.0220	.0460	.0412	.0242	.0088	.0046	.0008

	Descriptions of Samples: Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.003	49.937	49.845	49.992	49.890	49.852
SD of Means	1.037	1.035	2.480	3.566	3.539	4.289
Mean of SDs	3.782	3.816	9.152	6.652	6.696	8.229
SD of SDs	0.718	0.516	1.177	2.402	2.221	2.304
Mean of Skews	0.005	0.003	0.012	0.004	0.001	0.016
SD of Skews	0.520	0.369	0.381	0.607	0.634	0.587
Mean of Kurtosis	0.378	-0.967	-1.044	-1.010	-1.429	-1.117
SD of Kurtosis	0.764	0.463	0.418	0.498	.554	0.515

TABLE B - 18

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0142	.0314*	.0484*	.0808*	.1230*	.1230*	.0850*	.0490*	.0330*	.0118
Int.	Ord.	.0154	.0334*	.0480*	.0800*	.1198*	.1296*	.0870*	.0536*	.0376*	.0168
Int.	Per.	.0042	.0312	.0218	.0410	.0682	.0806*	.0486*	.0238	.0132	.0046
Ord.	Int.	.0138	.0300*	.0480*	.0820*	.1266*	.1176*	.0812*	.0478*	.0312*	.0118
Ord.	Ord.	.0144	.0316*	.0478*	.0816*	.1214*	.1272*	.0840*	.0522*	.0362*	.0154
Ord.	Per.	.0046	.0132	.0208	.0412	.0694*	.0762*	.0432	.0196	.0116	.0030
Per.	Int.	.0102	.0228	.0354*	.0654*	.1078*	.1014*	.0630*	.0334*	.0192	.0068
Per.	Ord.	.0100	.0234	.0344*	.0664*	.1036*	.1068*	.0684*	.0388	.0240	.0088
Per.	Per.	.0024	.0086	.0148	.0308	.0548	.0576	.0282	.0114	.0060	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.994	49.934	49.921	49.984	49.885	49.925
SD of Means	1.041	1.043	1.250	3.567	3.547	2.152
Mean of SDs	3.799	3.824	4.587	6.654	6.698	4.115
SD of SDs	0.731	0.528	0.597	2.420	2.236	1.166
Mean of Skews	-0.009	-0.005	0.003	0.007	0.003	0.016
SD of Skews	0.523	0.380	0.390	0.615	0.639	0.597
Mean of Kurtosis	-0.369	-0.959	-1.037	-0.997	-1.062	-1.102
SD of Kurtosis	0.785	0.485	0.436	0.499	0.596	0.533

TABLE B - 19

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 30) and Normal (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0074	.0218	.0326*	.0602*	.0966*	.1024*	.0640*	.0368*	.0246*	.0074
Int.	Ord.	.0068	.0194	.0308*	.0560*	.0864*	.1082*	.0700*	.0400*	.0264*	.0088
Int.	Per.	.0024	.0096	.0150	.0330	.0584	.0774*	.0430	.0228	.0128	.0038
Ord.	Int.	.0080	.0228	.0346*	.0614*	.1018*	.0970*	.0626*	.0332*	.0224	.0076
Ord.	Ord.	.0076	.0214	.0310*	.0584*	.0900*	.1022*	.0678*	.0374*	.0248*	.0082
Ord.	Per.	.0026	.0108	.0178	.0358	.0636	.0712*	.0396	.0194	.0112	.0028
Per.	Int.	.0064	.0180	.0288	.0532*	.0924*	.0876*	.0542*	.0290	.0188	.0052
Per.	Ord.	.0060	.0182	.0264	.0500*	.0832*	.0928*	.0568*	.0314*	.0204	.0052
Per.	Per.	.0018	.0076	.0144	.0292	.0544	.0594	.0324	.0144	.0092	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.003	49.939	49.925	49.974	49.870	49.923
SD of Means	0.750	0.743	0.893	2.098	2.087	1.254
Mean of SDs	3.912	3.915	4.693	7.610	7.598	4.611
SD of SDs	0.520	0.360	0.409	1.457	1.337	0.598
Mean of Skews	0.003	-0.000	0.010	-0.002	-0.004	0.023
SD of Skews	0.412	0.268	0.271	0.519	0.513	0.381
Mean of Kurtosis	-0.173	-1.010	-1.107	-0.381	-0.685	-1.044
SD of Kurtosis	0.728	0.343	0.259	0.807	0.772	0.444

TABLE B - 20

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0018	.0040	.0128	.0300*	.0802*	.0476*	.0236	.0142	.0032
Int.	Ord.	.0006	.0030	.0062	.0158	.0376	.0690	.0400	.0200	.0108	.0024
Int.	Per.	.0080	.0180	.0258	.0440	.0658	.0684	.0468*	.0294*	.0226	.0112
Ord.	Int.	.0006	.0024	.0052	.0170	.0342	.0746*	.0430	.0238	.0148	.0036
Ord.	Ord.	.0008	.0034	.0076	.0192	.0394	.0644	.0384	.0182	.0114	.0030
Ord.	Per.	.0078	.0182	.0266	.0442*	.0678	.0690	.0470*	.0294*	.0226	.0112
Per.	Int.	.0104	.0206	.0296*	.0490*	.0718*	.0682	.0466*	.0284	.0204	.0098
Per.	Ord.	.0104	.0208	.0294*	.0488*	.0712*	.0674	.0460*	.0284	.0204	.0098
Per.	Per.	.0020	.0056	.0120	.0270	.0534	.0526	.0294	.0126	.0066	.0018

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.013	49.944	49.585	49.959	49.996	49.968
SD of Means	1.795	1.792	12.896	2.590	2.185	4.861
Mean of SDs	3.343	3.418	24.641	3.167	3.328	24.883
SD of SDs	1.216	0.998	6.979	1.629	1.283	6.806
Mean of Skews	0.012	0.013	0.015	0.422	0.307	0.007
SD of Skews	0.617	0.602	0.597	0.597	0.605	0.594
Mean of Kurtosis	-0.996	-1.071	-1.102	-0.938	-1.018	-1.126
SD of Kurtosis	0.506	0.573	0.525	0.594	0.651	0.526

TABLE B - 21

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0022	.0042	.0120	.0328	.0708*	.0424	.0204	.0098	.0026
Int.	Ord.	.0006	.0032	.0056	.0164	.0392	.0602	.0358	.0164	.0084	.0024
Int.	Per.	.0042	.0120	.0210	.0394	.0648	.0570	.0352	.0198	.0140	.0052
Ord.	Int.	.0006	.0038	.0052	.0164	.0354	.0668	.0412	.0186	.0108	.0030
Ord.	Ord.	.0006	.0040	.0072	.0194	.0438	.0574	.0332	.0154	.0088	.0022
Ord.	Per.	.0044	.0122	.0224	.0410	.0664	.0572	.0344	.0194	.0128	.0044
Per.	Int.	.0048	.0120	.0192	.0396	.0648	.0604	.0376	.0206	.0132	.0058
Per.	Ord.	.0044	.0128	.0204	.0412	.0670	.0594	.0356	.0182	.0130	.0048
Per.	Per.	.0026	.0062	.0118	.0290	.0546	.0452	.0230	.0110	.0048	.0016

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.030	49.963	49.903	50.040	50.072	50.156
SD of Means	1.825	1.808	4.344	1.797	1.789	4.292
Mean of SDs	3.382	3.443	8.264	3.231	3.364	8.316
SD of SDs	1.218	0.997	2.323	1.667	1.307	2.303
Mean of Skews	-0.003	-0.008	-0.003	0.433	0.308	-0.004
SD of Skews	0.616	0.602	0.596	0.596	0.602	0.593
Mean of Kurtosis	-0.995	-1.070	-1.106	-0.914	-1.003	-1.110
SD of Kurtosis	0.501	0.665	0.522	0.586	1.122	0.521

TABLE B - 22

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0018	.0026	.0084	.0210*	.1482*	.1022*	.0662*	.0482*	.0222*
Int.	Ord.	.0002	.0018	.0026	.0076	.0182*	.1668*	.1134*	.0770*	.0600*	.0232*
Int.	Per.	.0056	.0126	.0174	.0316	.0446	.1012*	.0670*	.0420*	.0290*	.0136
Ord.	Int.	.0004	.0018	.0026	.0088	.0214*	.1472*	.1018*	.0656*	.0474*	.0218*
Ord.	Ord.	.0002	.0016	.0026	.0084	.0180*	.1616*	.1122*	.0766*	.0572*	.0232*
Ord.	Per.	.0058	.0130	.0172	.0314	.0454	.1004*	.0674*	.0414*	.0290*	.0140
Per.	Int.	.0014	.0058	.0116	.0248	.0492	.0672	.0428	.0222	.0160	.0046
Per.	Ord.	.0014	.0062	.0128	.0248	.0452	.0742*	.0450*	.0248	.0174	.0052
Per.	Per.	.0016	.0032	.0068	.0184	.0368	.0716*	.0406	.0184	.0102	.0032

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.040	49.972	49.785	49.934	48.326	46.294
SD of Means	1.811	1.796	12.898	8.884	7.295	13.511
Mean of SDs	3.379	3.437	24.745	15.800	13.476	26.256
SD of SDs	1.229	0.998	6.951	8.115	5.688	7.216
Mean of Skews	0.002	-0.000	0.002	0.428	0.369	0.043
SD of Skews	0.615	0.597	0.592	0.592	0.593	0.588
Mean of Kurtosis	-0.996	-1.068	-1.107	-0.936	-0.964	-1.132
SD of Kurtosis	0.510	0.655	0.519	0.576	0.562	0.526

TABLE B - 23

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed(N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0016	.0032	.0076	.0228*	.1100*	.0708*	.0390*	.0234	.0078
Int.	Ord.	.0004	.0028	.0038	.0110	.0248*	.1008*	.0680*	.0448*	.0292*	.0118
Int.	Per.	.0050	.0116	.0182	.0384	.0644	.0608	.0348	.0186	.0118	.0056
Ord.	Int.	.0006	.0012	.0036	.0094	.0236*	.1142*	.0670*	.0366*	.0214	.0070
Ord.	Ord.	.0002	.0028	.0044	.0116	.0268*	.0992*	.0648*	.0374*	.0258*	.0096
Ord.	Per.	.0046	.0116	.0194	.0388	.0652	.0596	.0348	.0178	.0120	.0052
Per.	Int.	.0020	.0062	.0090	.0204	.0412	.0668	.0408	.0212	.0138	.0048
Per.	Ord.	.0016	.0060	.0102	.0206	.0442	.0652	.0378	.0190	.0120	.0048
Per.	Per.	.0022	.0078	.0126	.0308	.0528	.0464	.0230	.0116	.0064	.0022

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.978	49.920	49.797	49.916	50.038	50.130
SD of Means	1.795	1.790	4.292	3.545	3.534	4.265
Mean of SDs	3.371	3.436	8.242	6.271	6.372	8.217
SD of SDs	1.234	1.003	2.341	3.230	3.100	2.283
Mean of Skews	-0.005	0.002	0.006	0.424	0.519	-0.013
SD of Skews	0.611	0.596	0.588	0.602	1.579	0.591
Mean of Kurtosis	-1.006	-1.086	-1.117	-0.927	-.756	-1.110
SD of Kurtosis	0.511	0.657	0.525	0.575	.571	0.515

TABLE B - 24

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0022	.0038	.0114	.0268*	.1012*	.0652*	.0356*	.0232	.0074
Int.	Ord.	.0008	.0030	.0066	.0156	.0326	.0936*	.0634*	.0366*	.0272*	.0106
Int.	Per.	.0022	.0094	.0176	.0352	.0618	.0456	.0254	.0124	.0060	.0010
Ord.	Int.	.0004	.0022	.0044	.0122	.0298*	.0942*	.0626*	.0326*	.0206	.0062
Ord.	Ord.	.0006	.0032	.0062	.0162	.0342	.0890*	.0594*	.0346*	.0240	.0084
Ord.	Per.	.0022	.0100	.0182	.0362	.0630	.0440	.0238	.0110	.0058	.0014
Per.	Int.	.0004	.0022	.0040	.0118	.0304*	.0862*	.0538*	.0278	.0174	.0058
Per.	Ord.	.0008	.0030	.0060	.0166	.0344	.0800*	.0502*	.0282	.0172	.0072
Per.	Per.	.0026	.0098	.0168	.0360	.0634	.0434	.0250	.0206	.0058	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.013	49.945	49.932	50.129	50.257	50.163
SD of Means	1.768	1.770	2.124	3.610	3.615	2.143
Mean of SDs	3.360	3.430	4.120	6.451	6.529	4.128
SD of SDs	1.207	0.987	1.151	3.374	3.212	1.172
Mean of Skews	-0.007	-0.005	-0.004	0.436	0.494	-0.015
SD of Skews	0.612	0.594	0.587	0.594	0.615	0.586
Mean of Kurtosis	-0.991	-1.068	-1.107	-0.929	-0.976	-1.122
SD of Kurtosis	0.504	0.640	0.525	0.579	0.781	0.527

TABLE B - 25

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0010	.0042	.0138	.0332	.0596	.0330	.0154	.0094	.0024
Int.	Ord.	.0002	.0026	.0062	.0186	.0422	.0516	.0290	.0124	.0068	.0008
Int.	Per.	.0030	.0094	.0168	.0334	.0602	.0508	.0304	.0134	.0072	.0024
Ord.	Int.	.0002	.0022	.0050	.0164	.0396	.0552	.0304	.0136	.0084	.0026
Ord.	Ord.	.0006	.0042	.0072	.0214	.0488	.0470	.0246	.0196	.0046	.0008
Ord.	Per.	.0030	.0098	.0174	.0340	.0610	.0490	.0290	.0132	.0078	.0018
Per.	Int.	.0026	.0088	.0144	.0324	.0608	.0486	.0260	.0124	.0072	.0016
Per.	Ord.	.0026	.0090	.0140	.0326	.0620	.0470	.0258	.0124	.0072	.0016
Per.	Per.	.0010	.0066	.0110	.0278	.0532	.0428	.0190	.0066	.0028	.0008

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.988	49.917	49.408	49.997	50.033	50.226
SD of Means	1.029	1.026	7.379	1.027	1.027	7.461
Mean of SDs	3.806	3.830	27.574	3.709	3.780	27.675
SD of SDs	0.720	0.515	3.523	1.102	0.794	3.447
Mean of Skews	0.020	0.014	0.021	0.978	0.611	0.004
SD of Skews	0.520	0.367	0.381	0.593	0.484	0.389
Mean of Kurtosis	-0.375	-0.971	-1.045	0.495	-0.409	-1.060
SD of Kurtosis	0.781	0.464	0.425	1.679	1.131	0.432

TABLE B - 26

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0008	.0028	.0090	.0234*	.0994*	.0694*	.0402*	.0300*	.0122
Int.	Ord.	.0000	.0000	.0012	.0056*	.0130*	.1474*	.1024*	.0634*	.0460*	.0184
Int.	Per.	.0004	.0024	.0048	.0120	.0202*	.1166*	.0706*	.0344	.0218	.0088
Ord.	Int.	.0000	.0010	.0032	.0090	.0234*	.0988*	.0688*	.0386*	.0294*	.0116
Ord.	Ord.	.0000	.0000	.0014	.0064	.0136*	.1436*	.1000*	.0616*	.0452*	.0192
Ord.	Per.	.0004	.0024	.0048	.0118	.0210*	.1154*	.0686*	.0354*	.0216	.0088
Per.	Int.	.0002	.0050	.0098	.0214	.0476	.0546	.0268	.0114	.0052	.0010
Per.	Ord.	.0004	.0034	.0068	.0160	.0340	.0698*	.0356	.0180	.0080	.0016
Per.	Per.	.0004	.0012	.0036	.0122	.0226*	.0826*	.0446*	.0202	.0110	.0032

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.002	49.940	49.542	50.043	48.404	46.383
SD of Means	1.016	1.016	7.303	5.134	4.223	7.824
Mean of SDs	3.786	3.819	27.485	18.553	15.511	29.203
SD of SDs	0.725	0.521	3.556	5.574	3.457	3.616
Mean of Skews	-0.004	-0.002	0.006	0.999	0.802	0.072
SD of Skews	0.523	0.372	0.383	0.610	0.494	0.389
Mean of Kurtosis	-0.372	-0.959	-1.040	0.543	0.020	-1.085
SD of Kurtosis	0.778	0.484	0.438	1.769	1.218	0.439

TABLE B - 27

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR Normal (N = 15) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0016	.0026	.0106	.0304*	.0840*	.0530*	.0300*	.0198	.0086
Int.	Ord.	.0004	.0018	.0040	.0148	.0353	.0738*	.0458*	.0276	.0162	.0062
Int.	Per.	.0026	.0096	.0168	.0346	.0612	.0444	.0324	.0102	.0066	.0028
Ord.	Int.	.0000	.0020	.0036	.0118	.0314	.0810*	.0532*	.0278	.0176	.0084
Ord.	Ord.	.0006	.0024	.0046	.0152	.0360	.0716*	.0450*	.0254	.0154	.0056
Ord.	Per.	.0030	.0104	.0182	.0354	.0654	.0416	.0218	.0104	.0060	.0026
Per.	Int.	.0012	.0040	.0070	.0224	.0466	.0546	.0300	.0152	.0088	.0026
Per.	Ord.	.0014	.0050	.0084	.0242	.0520	.0506	.0283	.0142	.0080	.0024
Per.	Per.	.0024	.0068	.0126	.0332	.0640	.0404	.0196	.0100	.0054	.0012

	Descriptions of Samples					
	Sample A Interval	Ordinal	Percentile	Sample B Interval	Ordinal	Percentile
Means of Means	50.000	49.933	49.837	50.004	50.133	50.216
SD of Means	1.043	1.041	2.498	2.090	2.104	2.494
Mean of SDs	3.818	3.835	9.203	7.361	7.411	9.169
SD of SDs	0.731	0.524	1.194	2.237	2.104	1.211
Mean of Skews	0.009	0.007	0.015	0.975	0.936	-0.021
SD of Skews	0.514	0.375	0.386	0.603	0.596	0.385
Mean of Kurtosis	-0.383	-0.963	-1.038	0.481	0.152	-1.044
SD of Kurtosis	0.776	0.483	0.442	1.739	1.693	0.432

TABLE B - 28

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Positive Skewed(N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0016	.0030	.0132	.0308	.0852*	.0518*	.0320*	.0194	.0064
Int.	Ord.	.0004	.0024	.0042	.0152	.0338	.0700*	.0450*	.0246	.0160	.0044
Int.	Per.	.0018	.0066	.0136	.0310	.0570	.0404	.0206	.0078	.0028	.0006
Ord.	Int.	.0004	.0020	.0038	.0140	.0306*	.0780*	.0494*	.0284	.0194	.0054
Ord.	Ord.	.0004	.0024	.0054	.0156	.0358	.0666	.0406	.0244	.0138	.0040
Ord.	Per.	.0024	.0072	.0146	.0330	.0618	.0376	.0168	.0062	.0030	.0006
Per.	Int.	.0004	.0018	.0042	.0140	.0324	.0720*	.0432	.0232	.0154	.0030
Per.	Ord.	.0004	.0028	.0054	.0170	.0382	.0622	.0364	.0196	.0122	.0030
Per.	Per.	.0020	.0076	.0130	.0360	.0654	.0356	.0164	.0050	.0026	.0008

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.982	49.912	49.897	50.031	50.161	50.107
SD of Means	1.037	1.031	1.237	2.085	2.083	1.237
Mean of SDs	3.817	3.834	4.596	7.434	7.499	4.600
SD of SDs	0.729	0.515	0.583	2.251	2.131	0.586
Mean of Skews	-0.002	0.004	0.014	0.981	0.950	-0.018
SD of Skews	0.519	0.371	0.381	0.601	0.600	0.383
Mean of Kurtosis	-0.370	-0.966	-1.045	0.485	0.185	-1.050
SD of Kurtosis	0.758	0.461	0.415	1.726	1.718	0.419

TABLE B - 29

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 30) and Positive Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0016	.0040	.0112	.0308	.0742*	.0428	.0214	.0134	.0034
Int.	Ord.	.0000	.0020	.0056	.0146	.0374	.0630	.0372	.0180	.0112	.0030
Int.	Per.	.0026	.0080	.0124	.0314	.0574	.0430	.0182	.0072	.0024	.0006
Ord.	Int.	.0000	.0020	.0050	.0136	.0336	.0688	.0390	.0200	.0120	.0030
Ord.	Ord.	.0000	.0028	.0062	.0174	.0430	.0574	.0328	.0162	.0104	.0024
Ord.	Per.	.0024	.0086	.0158	.0356	.0640	.0368	.0158	.0064	.0024	.0006
Per.	Int.	.0000	.0018	.0054	.0140	.0370	.0646	.0360	.0170	.0096	.0018
Per.	Ord.	.0002	.0030	.0064	.0174	.0460	.0542	.0300	.0140	.0070	.0022
Per.	Per.	.0022	.0086	.0146	.0358	.0660	.0366	.0150	.0060	.0024	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	49.941	49.929	50.014	50.138	50.096
SD of Means	0.729	0.732	0.878	1.444	1.439	0.872
Mean of SDs	3.893	3.908	4.689	7.734	7.767	4.695
SD of SDs	0.499	0.346	0.392	1.664	1.566	0.403
Mean of Skews	-0.001	-0.002	0.008	1.250	1.174	-0.011
SD of Skews	0.397	0.264	0.269	0.585	0.580	0.267
Mean of Kurtosis	-0.202	-1.018	-1.107	1.561	1.132	-1.112
SD of Kurtosis	0.673	0.321	0.254	2.464	2.364	0.258

TABLE B - 30

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0014	.0034	.0126	.0324	.0788*	.0470*	.0240	.0134	.0044
Int.	Ord.	.0000	.0020	.0038	.0148	.0352	.0610	.0332	.0142	.0082	.0024
Int.	Per.	.0000	.0002	.0004	.0014*	.0046*	.0064*	.0020*	.0002	.0000	.0000
Ord.	Int.	.0002	.0020	.0042	.0174	.0358	.0748*	.0460*	.0244	.0142	.0148
Ord.	Ord.	.0002	.0026	.0046	.0194	.0402	.0598	.0318	.0148	.0084	.0030
Ord.	Per.	.0000	.0002	.0004	.0014*	.0046*	.0060*	.0020*	.0002	.0000	.0000
Per.	Int.	.0536*	.0804*	.1036*	.1396*	.1834*	.1620*	.1258*	.0910*	.0738*	.0510*
Per.	Ord.	.0542*	.0818*	.1038*	.1398*	.1842*	.1608*	.1240*	.0906*	.0736*	.0504*
Per.	Per.	.0012	.0048	.0098	.0232	.0472	.0468	.0216	.0088	.0034	.0006

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.001	49.940	49.555	49.976	50.007	49.998
SD of Means	1.720	1.719	12.359	1.036	1.032	7.456
Mean of SDs	3.364	3.441	24.826	3.711	3.787	27.693
SD of SDs	1.204	0.981	6.823	1.122	0.808	3.513
Mean of Skews	-0.004	-0.004	0.002	0.988	0.628	0.016
SD of Skews	0.611	0.589	0.583	0.609	0.497	0.391
Mean of Kurtosis	-1.000	-1.047	-1.119	0.529	-0.371	-1.060
SD of Kurtosis	0.501	1.728	0.516	1.770	1.216	0.439

TABLE B - 31

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0008	.0026	.0064	.0176	.0396	.0782*	.0428	.0246	.0148	.0056
Int.	Ord.	.0008	.0024	.0072	.0184	.0422	.0596	.0344	.0150	.0090	.0030
Int.	Per.	.0000	.0008	.0020	.0042*	.0108*	.0118*	.0040*	.0018	.0010	.0002
Ord.	Int.	.0010	.0036	.0074	.0218	.0470	.0712*	.0430	.0236	.0152	.0058
Ord.	Ord.	.0010	.0036	.0086	.0232	.0486	.0568	.0348	.0168	.0094	.0030
Ord.	Per.	.0000	.0008	.0022	.0042*	.0122*	.0116*	.0040*	.0014	.0010	.0004
Per.	Int.	.0290*	.0544*	.0720*	.1046*	.1430*	.1330*	.0956*	.0678*	.0534*	.0264*
Per.	Ord.	.0282*	.0552*	.0734*	.1052*	.1450*	.1310*	.0938*	.0628*	.0486*	.0244*
Per.	Per.	.0014	.0056	.0112	.0292	.0534	.0468	.0244	.0104	.0048	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.022	49.952	49.878	50.003	50.031	50.053
SD of Means	1.798	1.797	4.309	1.030	1.028	2.467
Mean of SDs	3.342	3.413	8.197	3.736	3.800	9.232
SD of SDs	1.216	1.000	2.337	1.123	0.803	1.170
Mean of Skews	0.008	0.009	0.010	0.988	0.624	0.015
SD of Skews	0.613	0.596	0.586	0.602	0.486	0.385
Mean of Kurtosis	-1.002	-1.067	-1.117	0.512	-0.395	-1.067
SD of Kurtosis	0.508	0.807	0.518	1.727	1.169	0.429

TABLE B - 32

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0032	.0052	.0152	.0334	.0746*	.0424	.0220	.0120	.0044
Int.	Ord.	.0004	.0030	.0054	.0160	.0390	.0560	.0298	.0124	.0078	.0022
Int.	Per.	.0004	.0024	.0040	.0130	.0340	.0288*	.0136	.0052	.0022	.0000
Ord.	Int.	.0008	.0034	.0074	.0176	.0416	.0738*	.0410	.0218	.0134	.0052
Ord.	Ord.	.0008	.0036	.0070	.0196	.0450	.0562	.0294	.0134	.0072	.0022
Ord.	Per.	.0006	.0022	.0058	.0174	.0364	.0276*	.0126	.0044	.0024	.0000
Per.	Int.	.0026	.0078	.0138	.0324	.0658	.0862*	.0512*	.0268	.0174	.0076
Per.	Ord.	.0022	.0074	.0146	.0362	.0678	.0732*	.0416	.0190	.0116	.0046
Per.	Per.	.0008	.0046	.0104	.0278	.0540	.0434	.0194	.0086	.0042	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.995	49.934	49.920	50.002	50.036	50.050
SD of Means	1.776	1.781	2.140	1.033	1.028	1.235
Mean of SDs	3.379	3.448	4.144	3.699	3.773	4.596
SD of SDs	1.208	0.987	1.156	1.105	0.795	0.584
Mean of Skews	-0.009	-0.005	0.000	0.981	0.615	0.005
SD of Skews	0.616	0.600	0.596	0.603	0.482	0.379
Mean of Kurtosis	-0.996	-1.075	-1.104	0.510	-0.397	-1.068
SD of Kurtosis	0.508	.558	0.524	1.729	1.154	0.427

TABLE B - 33

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Positive Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0016	.0058	.0180	.0398	.0696*	.0428	.0204	.0128	.0048
Int.	Ord.	.0002	.0028	.0078	.0212	.0484	.0590	.0348	.0140	.0084	.0024
Int.	Per.	.0004	.0024	.0080	.0206	.0444	.0408	.0178	.0072	.0030	.0006
Ord.	Int.	.0006	.0024	.0062	.0216	.0480	.0650	.0388	.0174	.0104	.0038
Ord.	Ord.	.0004	.0040	.0084	.0260	.0548	.0540	.0316	.0122	.0076	.0024
Ord.	Per.	.0006	.0036	.0084	.0258	.0478	.0384	.0154	.0060	.0028	.0008
Per.	Int.	.0008	.0058	.0124	.0302	.0608	.0712*	.0436	.0210	.0132	.0044
Per.	Ord.	.0010	.0070	.0158	.0352	.0670	.0624	.0362	.0162	.0088	.0032
Per.	Per.	.0010	.0058	.0122	.0316	.0616	.0460	.0240	.0078	.0048	.0012

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	49.947	49.933	49.998	50.032	50.036
SD of Means	1.038	1.032	1.237	0.744	0.741	0.886
Mean of SDs	3.817	3.834	4.595	3.853	3.888	4.704
SD of SDs	0.728	0.518	0.589	0.845	0.595	0.401
Mean of Skews	-0.002	-0.005	0.003	1.224	0.723	0.004
SD of Skews	0.526	0.370	0.380	0.598	0.466	0.268
Mean of Kurtosis	-0.362	-0.964	-1.045	1.522	-0.047	-1.137
SD of Kurtosis	0.781	0.478	0.432	2.503	1.634	0.251

TABLE B - 34

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0000	.0004*	.0006*	.0296*	.0138	.0078	.0040	.0010
Int.	Ord.	.0000	.0000	.0000	.0002*	.0006*	.0410	.0216	.0104	.0058	.0016
Int.	Per.	.0000	.0002	.0002	.0006*	.0016*	.0154*	.0060	.0024	.0012	.0002
Ord.	Int.	.0000	.0000	.0000	.0004*	.0008*	.0276*	.0144	.0074	.0042	.0008
Ord.	Ord.	.0000	.0000	.0000	.0002*	.0008*	.0400	.0210	.0096	.0054	.0014
Ord.	Per.	.0000	.0002	.0002	.0008*	.0020*	.0150*	.0062	.0026	.0012	.0002
Per.	Int.	.0062	.0186	.0266	.0480*	.0834*	.1024*	.0646*	.0386*	.0270*	.0104
Per.	Ord.	.0080	.0206	.0296*	.0530*	.0878*	.1282*	.0856*	.0546*	.0400*	.0168
Per.	Per.	.0004	.0030	.0040	.0124	.0276*	.0628	.0350	.0144	.0074	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.027	49.964	49.737	50.053	48.525	46.643
SD of Means	1.753	1.763	12.674	5.248	4.296	7.935
Mean of SDs	3.348	3.420	24.687	18.337	15.521	29.135
SD of SDs	1.231	1.007	7.033	5.507	3.475	3.626
Mean of Skews	-0.010	-0.011	-0.005	0.979	0.805	0.059
SD of Skews	0.613	0.594	0.590	0.598	0.500	0.385
Mean of Kurtosis	-1.001	-1.063	-1.112	0.491	0.051	-1.082
SD of Kurtosis	0.500	0.912	0.518	1.701	1.232	0.421

TABLE B - 35

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0000	.0004*	.0044*	.0462	.0252	.0124	.0064	.0006
Int.	Ord.	.0000	.0000	.0002	.0008*	.0050*	.0380	.0218	.0094	.0046	.0010
Int.	Per.	.0002	.0008	.0008	.0034*	.0124*	.0100*	.0026*	.0004	.0004	.0000
Ord.	Int.	.0000	.0000	.0000	.0010*	.0046*	.0440	.0246	.0106	.0060	.0010
Ord.	Ord.	.0000	.0000	.0002	.0014*	.0050*	.0376	.0216	.0078	.0042	.0008
Ord.	Per.	.0000	.0008	.0008	.0038*	.0144*	.0082*	.0020*	.0004	.0004	.0000
Per.	Int.	.0028	.0098	.0154	.0328	.0586	.0842*	.0534*	.0294*	.0188	.0076
Per.	Ord.	.0026	.0098	.0148	.0330	.0608	.0806*	.0484*	.0268	.0178	.0068
Per.	Per.	.0008	.0050	.0096	.0288	.0502	.0458	.0204	.0084	.0044	.0008

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.027	49.964	49.912	49.977	50.101	50.147
SD of Means	1.753	1.763	4.225	2.090	2.087	2.502
Mean of SDs	3.348	3.420	8.229	7.408	7.462	9.165
SD of SDs	1.231	1.007	2.344	2.268	2.133	1.180
Mean of Skews	-0.010	-0.011	-0.005	1.004	0.962	-0.003
SD of Skews	0.613	0.594	0.590	0.613	0.608	0.380
Mean of Kurtosis	-1.001	-1.063	-1.111	0.553	0.216	-1.050
SD of Kurtosis	0.500	0.912	0.518	1.801	1.766	0.424

TABLE B - 36

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed(N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0000	.0004*	.0050*	.0434	.0212	.0090	.0056	.0018
Int.	Ord.	.0000	.0000	.0004	.0012*	.0064*	.0352	.0164	.0078	.0044	.0012
Int.	Per.	.0004	.0026	.0078	.0176	.0374	.0274*	.0120	.0046	.0024	.0002
Ord.	Int.	.0000	.0000	.0000	.0008*	.0060*	.0420	.0198	.0098	.0056	.0018
Ord.	Ord.	.0000	.0000	.0002	.0010*	.0064*	.0344	.0162	.0080	.0052	.0014
Ord.	Per.	.0004	.0032	.0082	.0190	.0404	.0266*	.0124	.0042	.0022	.0004
Per.	Int.	.0000	.0000	.0000	.0028*	.0116*	.0480	.0244	.0120	.0076	.0018
Per.	Ord.	.0000	.0000	.0004	.0026*	.0126*	.0404	.0186	.0088	.0062	.0018
Per.	Per.	.0010	.0074	.0136	.0280	.0562	.0438	.0196	.0068	.0038	.0012

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	49.946	49.936	50.008	50.140	50.102
SD of Means	1.802	1.803	2.162	2.060	2.069	1.235
Mean of SDs	3.336	3.409	4.098	7.407	7.472	4.591
SD of SDs	1.209	0.989	1.152	2.218	2.115	0.586
Mean of Skews	-0.001	-0.003	0.000	0.991	0.954	-0.018
SD of Skews	0.620	0.602	0.600	0.609	0.604	0.389
Mean of Kurtosis	-0.990	-1.073	-1.100	0.525	0.203	-1.037
SD of Kurtosis	0.501	0.554	0.526	1.737	1.713	0.442

TABLE B - 37

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Positive Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0002	.0006	.0030*	.0114*	.0442	.0234	.0118	.0066	.0028
Int.	Ord.	.0000	.0004	.0008	.0042*	.0144*	.0370	.0208	.0088	.0058	.0016
Int.	Per.	.0014	.0040	.0086	.0238	.0470	.0320	.0166	.0056	.0022	.0002
Ord.	Int.	.0000	.0002	.0008	.0022*	.0120*	.0398	.0234	.0110	.0066	.0020
Ord.	Ord.	.0000	.0004	.0012	.0042*	.0154*	.0340	.0194	.0078	.0060	.0014
Ord.	Per.	.0014	.0042	.0094	.0262	.0504	.0292*	.0154	.0060	.0022	.0000
Per.	Int.	.0000	.0006	.0012	.0048*	.0178*	.0450	.0252	.0120	.0064	.0026
Per.	Ord.	.0000	.0008	.0014	.0062	.0216*	.0378	.0218	.0098	.0062	.0020
Per.	Per.	.0018	.0076	.0130	.0332	.0612	.0378	.0190	.0080	.0046	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.988	49.922	49.907	49.966	50.094	50.086
SD of Means	1.031	1.027	1.231	1.441	1.443	0.874
Mean of SDs	3.802	3.830	4.594	7.647	7.682	4.685
SD of SDs	0.732	0.524	0.598	1.673	1.558	0.410
Mean of Skews	0.004	0.003	0.014	1.231	1.157	-0.015
SD of Skews	0.507	0.363	0.374	0.578	0.575	0.268
Mean of Kurtosis	-0.393	-0.974	-1.050	1.511	1.082	-1.108
SD of Kurtosis	0.760	0.464	0.410	2.383	2.305	0.258

TABLE B - 38

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0132	.0318*	.0490*	.0780*	.1168*	.2564*	.2180*	.1736*	.1444*	.1004*
Int.	Ord.	.0098	.0266*	.0376*	.0580*	.0848*	.2976*	.2548*	.2010*	.1676*	.1132*
Int.	Per.	.0390*	.0600*	.0718*	.0924*	.1228*	.2630*	.2340*	.1634*	.1350*	.0902*
Ord.	Int.	.0130	.0318*	.0488*	.0790*	.1192*	.2594*	.2164*	.1702*	.1434*	.0976*
Ord.	Ord.	.0102	.0266*	.0382*	.0588*	.0870*	.2966*	.2526*	.1976*	.1664*	.1114*
Ord.	Per.	.0386*	.0594*	.0724*	.0938*	.1236*	.2602*	.2116*	.1632*	.1342*	.0890*
Per.	Int.	.0002	.0024	.0040	.0100	.0226*	.0166*	.0074	.0020	.0012	.0000
Per.	Ord.	.0000	.0010	.0014	.0034*	.0118*	.0176*	.0078	.0026	.0014	.0000
Per.	Per.	.0008	.0032	.0048	.0158	.0340	.0798*	.0406	.0198	.0100	.0022

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.992	49.924	49.452	50.018	48.274	45.996
SD of Means	1.026	1.026	7.373	9.058	7.385	13.655
Mean of SDs	3.825	3.841	27.653	16.124	13.611	26.302
SD of SDs	0.718	0.514	3.522	8.387	5.821	7.320
Mean of Skews	-0.000	0.002	0.013	0.461	0.398	0.065
SD of Skews	0.519	0.372	0.382	0.592	0.596	0.599
Mean of Kurtosis	-0.371	-0.967	-1.044	-0.907	-0.940	-1.110
SD of Kurtosis	0.792	0.473	0.429	0.578	0.567	0.527

TABLE B - 39

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0044	.0150	.0256	.0486*	.0848*	.1574*	.1084*	.0636*	.0442*	.0156
Int.	Ord.	.0066	.0182	.0276	.0564*	.0918*	.1444*	.1012*	.0628*	.0444*	.0186
Int.	Per.	.0256*	.0512*	.0670*	.1002*	.1412*	.1298*	.0908*	.0588*	.0432*	.0214*
Ord.	Int.	.0042	.0152	.0254	.0514*	.0882*	.1498*	.1026*	.0588*	.0380*	.0116
Ord.	Ord.	.0058	.0178	.0288	.0580*	.0942*	.1402*	.0962*	.0582*	.0406*	.0140
Ord.	Per.	.0250*	.0520*	.0696*	.1042*	.1450*	.1270*	.0880*	.0570*	.0424*	.0204*
Per.	Int.	.0002	.0032	.0056	.0174	.0374	.0290*	.0134	.0038	.0022	.0006
Per.	Ord.	.0002	.0032	.0062	.0178	.0376	.0278*	.0134	.0034	.0020	.0004
Per.	Per.	.0012	.0074	.0124	.0294	.0582	.0440	.0230	.0088	.0034	.0002

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.003	49.939	49.853	50.010	50.134	50.150
SD of Means	1.043	1.035	2.482	3.596	3.577	4.277
Mean of SDs	3.822	3.839	9.198	6.442	6.502	8.297
SD of SDs	0.734	0.522	1.186	3.379	3.188	2.326
Mean of Skews	-0.002	-0.002	0.006	0.453	0.516	0.002
SD of Skews	0.528	0.375	0.380	0.593	0.620	0.594
Mean of Kurtosis	-0.371	-0.965	-1.048	-0.911	-1.652	-1.104
SD of Kurtosis	0.775	0.476	0.414	0.580	.882	0.521

TABLE B - 40

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Positive Skewed (N =5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0044	.0160	.0262	.0518*	.0854*	.1530*	.1040*	.0656*	.0442*	.0166
Int.	Ord.	.0062	.0186	.0306*	.0604*	.0924*	.1416*	.0978*	.0638*	.0440*	.0186
Int.	Per.	.0048	.0126	.0226	.0446*	.0750*	.0650	.0344	.0170	.0104	.0026
Ord.	Int.	.0050	.0158	.0276	.0530*	.0886*	.1460*	.0988*	.0592*	.0390*	.0124
Ord.	Ord.	.0060	.0196	.0314*	.0622*	.0944*	.1344*	.0938*	.0598*	.0422*	.0150
Ord.	Per.	.0038	.0138	.0216	.0452*	.0760*	.0608	.0322	.0150	.0076	.0016
Per.	Int.	.0028	.0126	.0214	.0448*	.0778*	.1158*	.0728*	.0364*	.0202	.0048
Per.	Ord.	.0046	.0142	.0242	.0510*	.0882*	.1110*	.0692*	.0368*	.0198	.0058
Per.	Per.	.0016	.0076	.0142	.0312	.0584	.0424	.0208	.0074	.0040	.0008

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.001	49.937	49.923	50.028	50.157	50.099
SD of Means	1.033	1.035	1.240	3.557	3.553	2.125
Mean of SDs	3.801	3.826	4.591	6.431	6.507	4.156
SD of SDs	0.724	0.523	0.593	3.310	3.167	1.166
Mean of Skews	-0.004	-0.000	0.006	0.447	0.509	-0.002
SD of Skews	0.523	0.376	0.385	0.593	0.615	0.591
Mean of Kurtosis	-0.372	-0.959	-1.038	-0.922	-1.461	-1.106
SD of Kurtosis	0.794	0.491	0.431	0.583	.970	0.862

TABLE B - 41

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 30) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0016	.0074	.0152	.0378	.0714*	.1240*	.0852*	.0490*	.0340*	.0152
Int.	Ord.	.0014	.0090	.0180	.0428	.0808*	.1138*	.0722*	.0424*	.0298*	.0142
Int.	Per.	.0026	.0090	.0190	.0404	.0724*	.0536	.0286	.0140	.0086	.0028
Ord.	Int.	.0012	.0076	.0168	.0406	.0740*	.1.08*	.0810*	.0446*	.0316*	.0134
Ord.	Ord.	.0014	.0090	.0194	.0444*	.0832*	.1270*	.0684*	.0382*	.0264*	.0138
Ord.	Per.	.0032	.0102	.0210	.0410	.0792*	.0472	.0254	.0128	.0074	.0018
Per.	Int.	.0012	.0060	.0130	.0344	.0692*	.1232*	.0620*	.0316*	.0208	.0096
Per.	Ord.	.0014	.0088	.0160	.0410	.0766*	.0914*	.0538*	.0272	.0182	.0082
Per.	Per.	.0016	.0068	.0142	.0340	.0636	.0392	.0190	.0088	.0050	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.001	49.939	49.925	50.020	50.147	50.101
SD of Means	0.739	0.737	0.884	2.064	2.069	1.235
Mean of SDs	3.903	3.912	4.689	7.437	7.492	4.591
SD of SDs	0.517	0.359	0.403	2.266	2.145	0.601
Mean of Skews	-0.002	-0.000	0.008	1.001	0.963	-0.014
SD of Skews	0.408	0.267	0.270	0.608	0.604	0.377
Mean of Kurtosis	-0.186	-1.012	-1.108	0.550	0.229	-1.047
SD of Kurtosis	0.701	0.343	0.267	1.767	1.750	0.432

TABLE B - 42

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0040	.0122	.0218	.0416	.0720*	.0336	.0132	.0042	.0020	.0002
Int.	Ord.	.0034	.0094	.0172	.0348	.0612	.0420	.0130	.0070	.0030	.0008
Int.	Per.	.0104	.0178	.0254	.0414	.0668	.0766*	.0520*	.0284	.0206	.0084
Ord.	Int.	.0048	.0152	.0228	.0418	.0732*	.0312	.0162	.0054	.0026	.0002
Ord.	Ord.	.0036	.0104	.0186	.0354	.0624	.0416	.0192	.0074	.0038	.0006
Ord.	Per.	.0104	.0184	.0258	.0420	.0678	.0766*	.0516*	.0286	.0200	.0084
Per.	Int.	.0106	.0218	.0306*	.0482*	.0704*	.0668	.0418	.0260	.0188	.0084
Per.	Ord.	.0102	.0212	.0304*	.0478*	.0694*	.0656	.0424	.0262	.0194	.0088
Per.	Per.	.0024	.0066	.0112	.0272	.0524	.0532	.0284	.0124	.0078	.0030

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.999	49.939	49.565	49.996	49.935	49.486
SD of Means	1.769	1.769	12.709	1.788	1.776	12.896
Mean of SDs	3.352	3.425	24.705	3.197	3.317	24.848
SD of SDs	1.210	0.996	6.954	1.614	1.256	6.848
Mean of Skews	-0.010	-0.008	-0.005	-0.426	-0.300	0.013
SD of Skews	0.617	0.595	0.591	0.602	0.608	0.601
Mean of Kurtosis	-0.996	-1.073	-1.111	-0.926	-0.952	-1.113
SD of Kurtosis	0.517	0.938	0.519	0.597	1.500	0.533

TABLE B - 43

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR Normal (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0032	.0144	.0244	.0464*	.0760*	.0324	.0134	.0048	.0018	.0004
Int.	Ord.	.0024	.0114	.0198	.0390	.0646	.0420	.0184	.0074	.0040	.0012
Int.	Per.	.0058	.0144	.0194	.0362	.0562	.0706*	.0424	.0220	.0152	.0072
Ord.	Int.	.0044	.0146	.0254	.0460*	.0754*	.0308	.0140	.0052	.0030	.0004
Ord.	Ord.	.0032	.0118	.0204	.0374	.0658	.0400	.0184	.0074	.0044	.0012
Ord.	Per.	.0066	.0142	.0188	.0374	.0570	.0682	.0418	.0212	.0146	.0070
Per.	Int.	.0058	.0160	.0234	.0446*	.0718*	.0566	.0328	.0174	.0106	.0038
Per.	Ord.	.0054	.0148	.0208	.0414	.0702	.0582	.0346	.0184	.0106	.0038
Per.	Per.	.0010	.0074	.0156	.0282	.0536	.0568	.0278	.0114	.0070	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.999	49.938	49.846	49.930	49.873	49.716
SD of Means	1.763	1.767	4.243	1.814	1.788	4.272
Mean of SDs	3.346	3.427	8.237	3.257	3.362	8.330
SD of SDs	1.209	0.990	2.312	1.693	1.323	2.354
Mean of Skews	0.004	0.003	0.011	-0.425	-0.301	0.021
SD of Skews	0.612	0.596	0.591	0.610	0.610	0.600
Mean of Kurtosis	-1.000	-1.078	-1.109	-0.921	-0.862	-1.111
SD of Kurtosis	0.505	0.756	0.521	0.630	2.870	0.530

TABLE B - 44

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0228*	.0500*	.0712*	.1038*	.1438*	.0228*	.0094	.0034	.0018	.0006
Int.	Ord.	.0236*	.0548*	.0764*	.1118*	.1544*	.0224*	.0102	.0034	.0020	.0008
Int.	Per.	.0124	.0276*	.0384*	.0630*	.0932*	.0536	.0074	.0200	.0142	.0064
Ord.	Int.	.0224*	.0516*	.0704*	.1072*	.1466*	.0178*	.0094	.0034	.0016	.0004
Ord.	Ord.	.0222*	.0558*	.0788*	.1132*	.1570*	.0220*	.0100	.0034	.0018	.0006
Ord.	Per.	.0126	.0272*	.0398*	.0638*	.0936*	.0534*	.0316*	.0194	.0146	.0062
Per.	Int.	.0052	.0172	.0254	.0450*	.0730*	.0424	.0222	.0092	.0050	.0018
Per.	Ord.	.0060	.0176	.0258	.0462*	.0762*	.0414	.0230	.0114	.0062	.0020
Per.	Per.	.0026	.0106	.0166	.0398	.0726*	.0370	.0188	.0086	.0048	.0018

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.019	49.956	49.669	50.080	51.231	52.855
SD of Means	1.794	1.790	12.841	8.870	7.294	13.506
Mean of SDs	3.377	3.435	24.745	16.023	13.548	26.309
SD of SDs	1.238	0.998	6.962	8.306	5.705	7.173
Mean of Skews	-0.011	-0.010	-0.008	-0.440	-0.376	-0.022
SD of Skews	0.621	0.601	0.596	0.605	0.611	0.604
Mean of Kurtosis	-0.991	-1.062	-1.104	-0.916	-1.354	-1.113
SD of Kurtosis	0.509	0.889	0.526	0.589	.922	0.536

TABLE B - 45

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0068	.0228	.0358*	.0670*	.1034*	.0234*	.0092	.0032	.0014	.0002
Int.	Ord.	.0114	.0286*	.0434*	.0690*	.1028*	.0260*	.0100	.0040	.0020	.0008
Int.	Per.	.0044	.0128	.0194	.0364	.0618	.0602	.0354	.0190	.0124	.0030
Ord.	Int.	.0052	.0222	.0358*	.0654*	.1046*	.0240*	.0088	.0034	.0012	.0004
Ord.	Ord.	.0082	.0270*	.0404*	.0684*	.1054*	.0252*	.0104	.0036	.0020	.0006
Ord.	Per.	.0040	.0120	.0196	.0370	.0634	.0594	.0342	.0184	.0122	.0032
Per.	Int.	.0046	.0132	.0208	.0376	.0686	.0410	.0164	.0070	.0038	.0018
Per.	Ord.	.0048	.0124	.0200	.0376	.0698*	.0390	.0152	.0064	.0042	.0014
Per.	Per.	.0018	.0058	.0118	.0312	.0538	.0486	.0246	.0106	.0048	.0026

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.032	49.964	49.913	50.028	50.114	50.084
SD of Means	1.783	1.787	4.275	3.587	3.495	4.313
Mean of SDs	3.355	3.418	8.220	6.384	6.322	8.294
SD of SDs	1.247	1.017	2.355	3.285	3.039	2.294
Mean of Skews	-0.001	-0.011	-0.002	-0.441	-0.508	-0.013
SD of Skews	0.606	0.594	0.585	0.604	0.627	0.602
Mean of Kurtosis	-1.010	-1.085	-1.122	-0.911	-1.007	-1.097
SD of Kurtosis	0.510	0.642	0.523	0.584	1.112	0.528

TABLE B - 46

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Negative Skewed (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0030	.0092	.0170	.0384	.0674	.0328	.0132	.0042	.0022	.0002
Int.	Ord.	.0018	.0064	.0126	.0268	.0548	.0418	.0172	.0056	.0034	.0008
Int.	Per.	.0016	.0076	.0134	.0272	.0546	.0616	.0338	.0154	.0096	.0030
Ord.	Int.	.0038	.0118	.0188	.0400	.0724*	.0326	.0126	.0040	.0020	.0006
Ord.	Ord.	.0020	.0080	.0150	.0296	.0606	.0394	.0172	.0052	.0032	.0010
Ord.	Per.	.0016	.0068	.0136	.0286	.0548	.0604	.0332	.0154	.0096	.0030
Per.	Int.	.0030	.0084	.0170	.0338	.0642	.0460	.0252	.0124	.0078	.0024
Per.	Ord.	.0028	.0084	.0174	.0334	.0642	.0468	.0256	.0120	.0080	.0024
Per.	Per.	.0014	.0052	.0096	.0274	.0526	.0458	.0228	.0088	.0044	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.993	49.930	49.491	50.006	49.946	49.591
SD of Means	1.033	1.033	7.413	1.049	1.040	7.527
Mean of SDs	3.795	3.818	27.495	3.716	3.749	27.542
SD of SDs	0.722	0.522	3.565	1.122	0.805	3.434
Mean of Skews	0.002	0.002	0.011	-0.993	-0.621	0.008
SD of Skews	0.526	0.375	0.387	0.602	0.485	0.390
Mean of Kurtosis	-0.358	-0.956	-1.033	0.545	-0.384	-1.057
SD of Kurtosis	0.787	0.469	0.427	1.720	1.154	0.434

TABLE B - 47

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0058	.0170	.0262	.0518*	.0812*	.0266*	.0106	.0036	.0014	.0000
Int.	Ord.	.0062	.0166	.0276	.0528*	.0858*	.0276*	.0104	.0034	.0022	.0002
Int.	Per.	.0020	.0062	.0120	.0236	.0488	.0502	.0270	.0120	.0082	.0028
Ord.	Int.	.0060	.0178	.0274	.0520*	.0840*	.0266*	.0106	.0036	.0014	.0002
Ord.	Ord.	.0064	.0184	.0304*	.0532*	.0876*	.0260*	.0098	.0032	.0020	.0002
Ord.	Per.	.0020	.0062	.0122	.0254	.0502	.0494	.0258	.0112	.0080	.0028
Per.	Int.	.0038	.0094	.0144	.0322	.0648	.0368	.0178	.0076	.0022	.0006
Per.	Ord.	.0044	.0098	.0168	.0336	.0686	.0360	.0178	.0074	.0026	.0006
Per.	Per.	.0016	.0058	.0106	.0260	.0502	.0444	.0216	.0110	.0052	.0012

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.993	49.929	49.826	50.000	50.074	50.012
SD of Means	1.052	1.049	2.514	2.067	2.044	2.461
Mean of SDs	3.815	3.833	9.198	7.381	7.303	9.151
SD of SDs	0.728	0.524	1.195	2.220	2.073	1.195
Mean of Skews	-0.001	-0.000	0.010	-0.988	-0.949	-0.005
SD of Skews	0.520	0.377	0.391	0.604	0.595	0.389
Mean of Kurtosis	-0.368	-0.954	-1.031	0.522	0.186	-1.032
SD of Kurtosis	0.796	0.497	0.457	1.724	1.686	0.438

TABLE B - 48

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0144	.0314*	.0424*	.0746*	.1064*	.0222*	.0080	.0010	.0002	.0000
Int.	Ord.	.0186	.0420*	.0572*	.0926*	.1402*	.0132*	.0052*	.0052	.0040	.0005
Int.	Per.	.0060	.0164	.0304*	.0572*	.0972*	.0276*	.0136	.0066	.0022	.0002
Ord.	Int.	.0150	.0318*	.0430*	.0754*	.1090*	.0214*	.0068	.0008	.0000	.0000
Ord.	Ord.	.0204*	.0434*	.0582*	.0942*	.1408*	.0128*	.0048*	.0008	.0000	.0000
Ord.	Per.	.0060	.0176	.0310*	.0576*	.0966*	.0272*	.0136	.0064	.0020	.0002
Per.	Int.	.0010	.0088	.0150	.0324	.0628	.0370	.0170	.0078	.0026	.0010
Per.	Ord.	.0016	.0090	.0200	.0452*	.0792*	.0298*	.0154	.0072	.0032	.0010
Per.	Per.	.0020	.0076	.0188	.0470*	.0894*	.0214*	.0122	.0040	.0022	.0004

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.989	49.926	49.446	50.025	51.252	52.673
SD of Means	1.036	1.025	7.375	5.161	4.181	7.757
Mean of SDs	3.802	3.828	27.536	18.424	15.215	28.817
SD of SDs	0.716	0.511	3.489	3.591	3.477	3.635
Mean of Skews	0.007	0.004	0.015	-1.002	-0.807	-0.039
SD of Skews	0.521	0.367	0.379	0.617	0.512	0.388
Mean of Kurtosis	-0.380	-0.969	-1.047	0.561	0.063	-1.046
SD of Kurtosis	0.775	0.471	0.428	1.804	1.277	0.427

TABLE B - 49

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0068	.0204	.0326*	.0548*	.0892*	.0308	.0124	.0032	.0010	.0000
Int.	Ord.	.0078	.0224	.0348*	.0578*	.0882*	.0304*	.0128	.0034	.0014	.0000
Int.	Per.	.0020	.0086	.0136	.0298	.0564	.0540	.0298	.0136	.0078	.0020
Ord.	Int.	.0072	.0228	.0342*	.0576*	.0934*	.0296*	.0118	.0030	.0008	.0000
Ord.	Ord.	.0080	.0230	.0354*	.0592*	.0930*	.0264*	.0112	.0036	.0012	.0000
Ord.	Per.	.0026	.0086	.0143	.0302	.0578	.0526	.0288	.0136	.0072	.0022
Per.	Int.	.0026	.0102	.0188	.0400	.0670	.0372	.0164	.0066	.0020	.0006
Per.	Ord.	.0026	.0110	.0200	.0400	.0692*	.0362	.0162	.0064	.0022	.0006
Per.	Per.	.0016	.0064	.0124	.0316	.0578	.0460	.0244	.0112	.0056	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.005	49.937	49.846	50.002	50.088	50.038
SD of Means	1.030	1.028	2.466	2.069	2.038	2.475
Mean of SDs	3.804	3.826	9.179	7.410	7.317	9.171
SD of SDs	0.720	0.512	1.169	2.235	2.050	1.187
Mean of Skews	0.009	0.006	0.015	-0.997	-0.957	-0.016
SD of Skews	0.529	0.377	0.387	0.603	0.605	0.387
Mean of Kurtosis	-0.365	-0.959	-1.036	0.528	0.208	-1.039
SD of Kurtosis	0.807	0.499	1.448	1.755	1.739	0.440

TABLE B - 50

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0066	.0164	.0260	.0492*	.0800*	.0358	.0134	.0046	.0020	.0002
Int.	Ord.	.0038	.0112	.0178	.0348	.0618	.0414	.0166	.0052	.0026	.0002
Int.	Per.	.0002	.0004	.0006	.0018*	.0054*	.0056*	.0014*	.0002	.0002	.0002
Ord.	Int.	.0068	.0188	.0288	.0540*	.0844*	.0338	.0142	.0048	.0022	.0000
Ord.	Ord.	.0046	.0128	.0198	.0386	.0672	.0388	.0170	.0048	.0024	.0002
Ord.	Per.	.0002	.0004	.0006	.0016*	.0052*	.0064*	.0014*	.0002	.0002	.0002
Per.	Int.	.0628*	.0934*	.1114*	.1504*	.1886*	.1692*	.1278*	.0942*	.0778*	.0526*
Per.	Ord.	.0634*	.0932*	.1110*	.1484*	.1866*	.1716*	.1290*	.0960*	.0780*	.0534*
Per.	Per.	.0012	.0054	.0128	.0270	.0514	.0464	.0224	.0088	.0036	.0006

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.008	49.940	49.563	50.007	49.947	49.594
SD of Means	1.814	1.795	12.893	1.030	1.015	7.334
Mean of SDs	3.416	3.463	24.941	3.720	3.759	27.589
SD of SDs	1.230	0.998	6.964	1.129	0.804	3.513
Mean of Skews	0.005	0.000	0.004	-0.990	-0.626	0.009
SD of Skews	0.617	0.595	0.595	0.600	0.485	0.382
Mean of Kurtosis	-0.995	-1.074	-1.108	0.532	-0.378	-1.072
SD of Kurtosis	0.505	0.616	0.526	1.739	1.174	0.426

TABLE B - 51

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0058	.0164	.0250	.0480*	.0762*	.0420	.0196	.0070	.0036	.0006
Int.	Ord.	.0030	.0086	.0176	.0332	.0598	.0460	.0222	.0082	.0040	.0006
Int.	Per.	.0000	.0002	.0008	.0042*	.0112*	.0142*	.0048*	.0008	.0002	.0000
Ord.	Int.	.0064	.0186	.0298*	.0526*	.0826*	.0410	.0202	.0088	.0042	.0004
Ord.	Ord.	.0036	.0098	.0200	.0372	.0656	.0454	.0232	.0094	.0046	.0004
Ord.	Per.	.0000	.0002	.0008	.0042*	.0112*	.0128*	.0048*	.0006	.0002	.0000
Per.	Int.	.0308*	.0532*	.0742*	.1114*	.1556*	.1300*	.0916*	.0612*	.0456*	.0250*
Per.	Ord.	.0292*	.0512*	.0668*	.1054*	.1480*	.1330*	.0942*	.0644*	.0472*	.0248*
Per.	Per.	.0008	.0060	.0102	.0278	.0504	.0506	.0254	.0120	.0064	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.019	49.950	49.876	50.006	49.942	49.846
SD of Means	1.822	1.802	4.315	1.048	1.031	2.482
Mean of SDs	3.392	3.445	8.265	3.697	3.746	9.190
SD of SDs	1.240	1.011	2.340	1.112	0.791	1.166
Mean of Skews	0.001	-0.003	-0.001	-0.971	-0.612	-0.012
SD of Skews	0.610	0.592	0.585	0.600	0.489	0.387
Mean of Kurtosis	-1.005	-1.078	-1.118	0.474	-0.410	-1.068
SD of Kurtosis	0.503	0.659	0.518	1.706	1.162	0.429

TABLE B - 52

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0014	.0046	.0068	.0146	.0268*	.0012*	.0004*	.0000	.0000	.0000
Int.	Ord.	.0014	.0060	.0086	.0192	.0372	.0010*	.0004*	.0000	.0000	.0000
Int.	Per.	.0006	.0010	.0020	.0048*	.0120*	.0026*	.0008*	.0002	.0002	.0000
Ord.	Int.	.0014	.0046	.0062	.0154	.0264*	.0010*	.0004*	.0000	.0000	.0000
Ord.	Ord.	.0016	.0054	.0082	.0204	.0382	.0010*	.0004*	.0000	.0000	.0000
Ord.	Per.	.0006	.0008	.0020	.0048*	.0116*	.0026*	.0008*	.0002	.0002	.0000
Per.	Int.	.0162	.0330*	.0472*	.0746*	.1094*	.0784*	.0462*	.0224*	.0128	.0042
Per.	Ord.	.0212*	.0432*	.0628*	.0994*	.1390*	.0856*	.0554*	.0294*	.0182	.0070
Per.	Per.	.0020	.0062	.0134	.0364	.0690	.0276*	.0118	.0036	.0016	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.983	49.921	49.429	49.994	51.162	52.574
SD of Means	1.791	1.791	12.853	5.141	4.163	7.732
Mean of SDs	3.339	3.417	24.657	18.461	15.332	28.990
SD of SDs	1.218	0.999	6.972	5.561	3.432	3.635
Mean of Skews	0.015	0.013	0.018	-0.990	-0.801	-0.041
SD of Skews	0.612	0.600	0.597	0.607	0.502	0.379
Mean of Kurtosis	-1.001	-1.066	-1.106	0.512	0.022	-1.102
SD of Kurtosis	0.501	0.693	0.526	1.776	1.252	0.419

TABLE B - 53

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0022	.0052	.0088	.0214	.0414	.0036*	.0010*	.0000	.0000	.0000
Int.	Ord.	.0026	.0054	.0090	.0204	.0426	.0036*	.0010*	.0000	.0000	.0000
Int.	Per.	.0002	.0008	.0022	.0046*	.0094*	.0110*	.0042*	.0008	.0002	.0000
Ord.	Int.	.0024	.0056	.0104	.0232	.0446	.0036*	.0006*	.0000	.0000	.0000
Ord.	Ord.	.0024	.0054	.0092	.0238	.0434	.0042*	.0008*	.0000	.0000	.0000
Ord.	Per.	.0002	.0012	.0022	.0044*	.0094*	.0100*	.0038*	.0002	.0000	.0000
Per.	Int.	.0118	.0262*	.0404*	.0640*	.0958*	.0570	.0322	.0142	.0074	.0014
Per.	Ord.	.0106	.0266*	.0388*	.0634*	.0974*	.0570	.0300	.0148	.0074	.0014
Per.	Per.	.0018	.0072	.0120	.0276	.0536	.0444	.0216	.0082	.0052	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.015	49.943	49.867	50.012	50.097	50.039
SD of Means	1.807	1.794	4.297	2.051	2.014	2.446
Mean of SDs	3.401	3.457	8.296	7.401	7.312	9.163
SD of SDs	1.239	1.012	2.346	2.233	2.056	1.183
Mean of Skews	0.022	0.017	0.023	-1.000	-0.960	-0.017
SD of Skews	0.612	0.595	0.589	0.600	0.598	0.376
Mean of Kurtosis	-1.002	-1.068	-1.112	0.539	0.210	-1.047
SD of Kurtosis	0.506	0.695	0.520	1.743	1.720	0.423

TABLE B - 54

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0980*	.1436*	.1676*	.2114*	.2534*	.1210*	.0788*	.0474*	.0316*	.0136
Int.	Ord.	.1004*	.1534*	.1834*	.2336*	.2762*	.0942*	.0626*	.0392*	.0264*	.0124
Int.	Per.	.0800*	.1168*	.1378*	.1846*	.2304*	.1334*	.1028*	.0740*	.0600*	.0378*
Ord.	Int.	.0986*	.1444*	.1682*	.2130*	.2554*	.1204*	.0764*	.0466*	.0306*	.0230
Ord.	Ord.	.1030*	.1534*	.1836*	.2342*	.2776*	.0924*	.0612*	.0368*	.0256*	.0132
Ord.	Per.	.0810*	.1174*	.1384*	.1854*	.2328*	.1332*	.1022*	.0736*	.0594*	.0382*
Per.	Int.	.0004	.0018	.0042	.0112	.0286*	.0234*	.0102	.0028	.0014	.0000
Per.	Ord.	.0004	.0014	.0034	.0098	.0266*	.0122*	.0052*	.0014	.0006	.0000
Per.	Per.	.0036	.0116	.0178	.0470*	.0830*	.0376	.0190	.0058	.0032	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.989	49.934	49.516	49.867	51.202	52.753
SD of Means	1.040	1.039	7.473	8.892	7.254	13.360
Mean of SDs	3.798	3.821	27.528	16.209	13.488	26.235
SD of SDs	0.720	0.518	3.564	8.435	5.771	7.225
Mean of Skews	-0.016	-0.008	0.001	-0.440	-0.373	-0.022
SD of Skews	0.520	0.374	0.387	0.596	0.593	0.593
Mean of Kurtosis	-0.380	-0.961	-1.036	-0.920	-0.959	-1.12[illegible]
SD of Kurtosis	0.788	0.494	0.448	0.578	0.566	0.523

TABLE B - 55

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0156	.0406*	.0624*	.1022*	.1462*	.0864*	.0472*	.0224	.0130	.0028
Int.	Ord.	.0210*	.0454*	.0658*	.1030*	.1446*	.0840*	.0476*	.0240	.0132	.0038
Int.	Per.	.0250*	.0490*	.0652*	.0968*	.1312*	.1294*	.0910*	.0598*	.0404*	.0208*
Ord.	Int.	.0136	.0392*	.0630*	.1036*	.1476*	.0800*	.0462*	.0218	.0122	.0024
Ord.	Ord.	.0194	.0458*	.0680*	.1044*	.1492*	.0802*	.0444*	.0226	.0130	.0030
Ord.	Per.	.0244*	.0504*	.0664*	.0998*	.1324*	.1264*	.0898*	.0542*	.0404*	.0196
Per.	Int.	.0002	.0018	.0034	.0132	.0334	.0242*	.0106	.0038	.0020	.0006
Per.	Ord.	.0000	.0016	.0040	.0140	.0352	.0222*	.0102	.0034	.0016	.0006
Per.	Per.	.0008	.0034	.0104	.0254	.0510	.0392	.0172	.0058	.0028	.0010

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.993	49.929	49.830	49.943	50.018	50.022
SD of Means	1.021	1.019	2.442	3.582	3.522	4.241
Mean of SDs	3.807	3.831	9.191	6.487	6.449	8.316
SD of SDs	0.728	0.521	1.190	3.379	3.161	2.309
Mean of Skews	-0.008	-0.001	0.010	-0.438	-0.528	0.002
SD of Skews	0.532	0.375	0.389	0.596	1.166	0.589
Mean of Kurtosis	-0.368	-0.964	-1.041	-0.922	-1.553	-1.108
SD of Kurtosis	0.778	0.468	0.427	0.582	0.565	0.516

TABLE B - 56

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0026	.0068	.0186	.0420	.0462	.0268	.0112	.0056	.0016
Int.	Ord.	.0004	.0034	.0076	.0222	.0448	.0526	.0272	.0132	.0070	.0014
Int.	Per.	.0124	.0230	.0302*	.0444*	.0634	.0672	.0482*	.0312*	.0250*	.0158
Ord.	Int.	.0012	.0046	.0088	.0218	.0456	.0454	.0256	.0114	.0074	.0018
Ord.	Ord.	.0012	.0052	.0088	.0230	.0450	.0496	.0280	.0124	.0076	.0014
Ord.	Per.	.0124	.0232	.0300*	.0446*	.0638	.0664	.0480*	.0312*	.0256*	.0155
Per.	Int.	.0096	.0198	.0280	.0474*	.0704*	.0662	.0412	.0270	.0198	.0112
Per.	Ord.	.0090	.0200	.0278	.0464*	.0704*	.0670	.0416	.0272	.0194	.0110
Per.	Per.	.0014	.0066	.0110	.0258	.0498	.0506	.0276	.0136	.0086	.0022

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.043	49.971	49.783	50.038	49.979	49.926
SD of Means	1.798	1.786	12.842	2.176	2.123	14.029
Mean of SDs	3.398	3.456	24.893	3.712	3.937	27.767
SD of SDs	1.243	1.010	6.991	2.432	1.876	7.194
Mean of Skews	0.008	0.003	0.004	-0.004	-0.007	0.002
SD of Skews	0.610	0.594	0.589	0.764	0.676	0.642
Mean of Kurtosis	-1.005	-1.086	-1.117	-0.906	-1.035	-1.148
SD of Kurtosis	0.496	0.560	0.517	0.658	1.772	0.581

TABLE B - 57

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0012	.0048	.0094	.0260	.0462	.0434	.0208	.0070	.0036	.0010
Int.	Ord.	.0018	.0056	.0120	.0244	.0454	.0492	.0240	.0080	.0046	.0014
Int.	Per.	.0070	.0146	.0202	.0346	.0534	.0602	.0408	.0250	.0160	.0104
Ord.	Int.	.0014	.0070	.0128	.0280	.0502	.0426	.0220	.0092	.0038	.0010
Ord.	Ord.	.0014	.0070	.0124	.0280	.0478	.0468	.0242	.0088	.0044	.0014
Ord.	Per.	.0068	.0152	.0212	.0350	.0534	.0602	.0388	.0234	.0152	.0060
Per.	Int.	.0064	.0158	.0242	.0396	.0644	.0588	.0334	.0166	.0122	.0042
Per.	Ord.	.0052	.0142	.0218	.0376	.0630	.0588	.0336	.0158	.0106	.0032
Per.	Per.	.0022	.0076	.0140	.0278	.0486	.0472	.0268	.0104	.0060	.0022

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.010	49.942	49.880	49.984	49.935	49.880
SD of Means	1.827	1.818	4.350	2.130	2.096	4.595
Mean of SDs	3.411	3.457	8.297	3.706	3.948	9.288
SD of SDs	1.241	1.002	2.330	2.389	1.872	2.348
Mean of Skews	-0.005	-0.003	-0.001	-0.009	-0.005	0.016
SD of Skews	0.613	0.593	0.588	0.758	0.665	0.629
Mean of Kurtosis	-0.997	-1.089	-1.115	-0.916	-1.074	-1.162
SD of Kurtosis	0.499	0.557	0.519	0.656	1.558	0.579

TABLE B - 58

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0054	.0110	.0166	.0306	.0520	.0542	.0334	.0202	.0156	.0088
Int.	Ord.	.0068	.0166	.0226	.0368	.0554	.0616	.0384	.0250	.0196	.0112
Int.	Per.	.0070	.0190	.0274	.0450*	.0662	.0734*	.0548*	.0314*	.0228	.0136
Ord.	Int.	.0050	.0108	.0158	.0308	.0508	.0546	.0330	.0206	.0154	.0084
Ord.	Ord.	.0068	.0164	.0220	.0376	.0544	.0604	.0286	.0244	.0190	.0110
Ord.	Per.	.0070	.0190	.0276	.0454*	.0672	.0734*	.0540*	.0312*	.0232	.0128
Per.	Int.	.0026	.0090	.0140	.0312	.0536	.0512	.0306	.0174	.0096	.0038
Per.	Ord.	.0022	.0088	.0154	.0328	.0558	.0538	.0334	.0192	.0108	.0036
Per.	Per.	.0016	.0066	.0100	.0240	.0476	.0534	.0304	.0154	.0090	.0030

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.981	49.918	49.402	49.902	49.700	49.583
SD of Means	1.786	1.782	12.871	10.828	7.988	15.334
Mean of SDs	3.351	3.424	24.677	18.675	15.106	29.820
SD of SDs	1.223	1.014	7.085	11.863	5.613	7.652
Mean of Skews	0.002	0.001	0.009	-0.002	-0.004	0.012
SD of Skews	0.613	0.599	0.592	0.761	0.674	0.627
Mean of Kurtosis	-0.999	-1.069	-1.105	-0.909	-1.038	-1.146
SD of Kurtosis	0.500	0.581	0.518	0.612	0.581	0.563

TABLE B - 59

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0024	.0078	.0132	.0248	.0510	.0500	.0244	.0140	.0086	.0028
Int.	Ord.	.0044	.0098	.0146	.0286	.0518	.0504	.0256	.0156	.0102	.0038
Int.	Per.	.0054	.0142	.0186	.0364	.0600	.0632	.0362	.0212	.0128	.0058
Ord.	Int.	.0014	.0076	.0122	.0256	.0512	.0458	.0244	.0132	.0080	.0020
Ord.	Ord.	.0034	.0094	.0134	.0298	.0538	.0468	.0260	.0158	.0094	.0032
Ord.	Per.	.0048	.0134	.0198	.0366	.0616	.0606	.0354	.0208	.0130	.0050
Per.	Int.	.0012	.0072	.0136	.0304	.0576	.0500	.0252	.0130	.0060	.0014
Per.	Ord.	.0020	.0072	.0156	.0310	.0582	.0492	.0276	.0124	.0062	.0016
Per.	Per.	.0018	.0070	.0138	.0288	.0548	.0498	.0268	.0134	.0080	.0016

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.988	49.920	49.804	49.920	49.995	49.878
SD of Means	1.772	1.778	4.254	4.422	3.620	4.262
Mean of SDs	3.355	3.427	8.244	7.478	6.472	8.303
SD of SDs	1.206	0.988	2.312	4.803	3.381	2.288
Mean of Skews	0.022	0.018	0.018	0.015	0.018	0.013
SD of Skews	0.607	0.592	0.585	0.742	0.760	0.594
Mean of Kurtosis	-1.007	-1.061	-1.117	-0.919	-0.979	-1.108
SD of Kurtosis	0.502	0.935	0.518	0.603	1.503	0.524

TABLE B - 60

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0034	.0080	.0218	.0478	.0522	.0260	.0092	.0050	.0010
Int.	Ord.	.0006	.0040	.0086	.0226	.0446	.0544	.0286	.0128	.0064	.0014
Int.	Per.	.0032	.0088	.0150	.0284	.0506	.0628	.0352	.0178	.0130	.0056
Ord.	Int.	.0006	.0042	.0086	.0250	.0528	.0470	.0230	.0088	.0052	.0012
Ord.	Ord.	.0008	.0050	.0096	.0246	.0490	.0484	.0270	.0116	.0062	.0014
Ord.	Per.	.0032	.0090	.0150	.0284	.0510	.0626	.0354	.0180	.0132	.0056
Per.	Int.	.0032	.0090	.0142	.0298	.0566	.0458	.0248	.0144	.0102	.0042
Per.	Ord.	.0032	.0084	.0138	.0292	.0558	.0460	.0250	.0144	.0102	.0042
Per.	Per.	.0012	.0070	.0114	.0252	.0518	.0496	.0282	.0126	.0078	.0022

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.000	49.936	49.540	49.996	49.943	49.649
SD of Means	1.033	1.029	7.399	1.284	1.264	8.265
Mean of SDs	3.821	3.840	27.610	4.365	4.467	30.563
SD of SDs	0.726	0.517	3.533	1.857	1.379	3.371
Mean of Skews	0.002	-0.002	0.009	0.002	0.002	0.017
SD of Skews	0.516	0.370	0.383	1.215	0.839	0.422
Mean of Kurtosis	-0.369	-0.967	-1.044	1.114	-0.133	-1.253
SD of Kurtosis	0.768	0.467	0.431	2.302	1.743	0.431

TABLE B - 61

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0020	.0052	.0116	.0248	.0466	.0482	.0230	.0092	.0046	.0008
Int.	Ord.	.0024	.0068	.0132	.0286	.0458	.0560	.0312	.0138	.0078	.0024
Int.	Per.	.0028	.0084	.0130	.0288	.0498	.0576	.0336	.0156	.0096	.0030
Ord.	Int.	.0020	.0052	.0116	.0254	.0476	.0486	.0222	.0090	.0048	.0008
Ord.	Ord.	.0026	.0066	.0136	.0288	.0484	.0544	.0310	.0128	.0080	.0022
Ord.	Per.	.0028	.0086	.0132	.0292	.0502	.0568	.0334	.0160	.0096	.0030
Per.	Int.	.0010	.0044	.0102	.0254	.0534	.0484	.0230	.0080	.0046	.0010
Per.	Ord.	.0010	.0056	.0124	.0282	.0560	.0462	.0236	.0106	.0064	.0018
Per.	Per.	.0014	.0068	.0108	.0288	.0524	.0458	.0236	.0096	.0050	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.993	49.926	49.445	49.986	49.826	49.738
SD of Means	1.023	1.027	7.386	6.455	4.643	8.852
Mean of SDs	3.779	3.818	27.481	22.204	17.092	33.104
SD of SDs	0.715	0.511	3.494	9.483	3.563	3.693
Mean of Skews	0.011	0.008	0.017	0.001	0.004	0.017
SD of Skews	0.526	0.377	0.388	1.199	0.629	0.406
Mean of Kurtosis	-0.380	-0.964	-1.040	1.075	-0.421	-1.236
SD of Kurtosis	0.782	0.476	0.426	2.291	1.015	0.412

TABLE B - 62

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0010	.0048	.0100	.0202	.0430	.0478	.0242	.0112	.0058	.0012
Int.	Ord.	.0000	.0028	.0060	.0148	.0348	.0436	.0206	.0082	.0036	.0010
Int.	Per.	.0000	.0000	.0006	.0018*	.0056*	.0082*	.0026*	.0010	.0004	.0000
Ord.	Int.	.0020	.0074	.0128	.0248	.0468	.0486	.0260	.0112	.0070	.0014
Ord.	Ord.	.0004	.0040	.0070	.0178	.0400	.0432	.0198	.0092	.0044	.0010
Ord.	Per.	.0000	.0000	.0006	.0020*	.0054*	.0080*	.0028*	.0012	.0004	.0000
Per.	Int.	.0546*	.0834*	.1046*	.1408*	.1786*	.1742*	.1364*	.0984*	.0792*	.0514*
Per.	Ord.	.0538*	.0822*	.1044*	.1416*	.1790*	.1752*	.1364*	.0996*	.0800*	.0506*
Per.	Per.	.0004	.0026	.0068	.0174	.0384	.0422	.0214	.0070	.0032	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.018	49.955	49.672	49.983	49.929	49.638
SD of Means	1.761	1.761	12.657	1.274	1.248	8.181
Mean of SDs	3.353	3.425	24.690	4.412	4.500	30.668
SD of SDs	1.219	0.991	6.925	1.905	1.390	3.293
Mean of Skews	0.011	0.013	0.013	-0.006	-0.012	0.020
SD of Skews	0.604	0.588	0.584	1.220	0.849	0.423
Mean of Kurtosis	-1.000	-1.076	-1.110	1.141	-0.112	-1.256
SD of Kurtosis	0.496	0.565	0.515	2.326	1.774	0.441

TABLE B - 63

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0010	.0050	.0102	.0246	.0488	.0502	.0272	.0102	.0046	.0010
Int.	Ord.	.0002	.0030	.0060	.0162	.0408	.0436	.0202	.0080	.0040	.0006
Int.	Per.	.0000	.0004	.0006	.0032*	.0104*	.0094*	.0034*	.0010	.0006	.0000
Ord.	Int.	.0014	.0070	.0120	.0288	.0534	.0500	.0264	.0102	.0060	.0010
Ord.	Ord.	.0012	.0042	.0078	.0202	.0440	.0412	.0212	.0078	.0036	.0008
Ord.	Per.	.0000	.0004	.0008	.0036*	.0108*	.0082*	.0030*	.0012	.0006	.0000
Per.	Int.	.0246*	.0480*	.0644*	.1022*	.1420*	.1210*	.0918*	.0576*	.0414*	.0206*
Per.	Ord.	.0208*	.0418*	.0588*	.0982*	.1362*	.1216*	.0878*	.0552*	.0386*	.0174
Per.	Per.	.0006	.0040	.0076	.0196	.0446	.0408	.0188	.0066	.0028	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.006	49.937	49.851	50.016	49.961	49.927
SD of Means	1.819	1.809	4.327	1.248	1.229	2.713
Mean of SDs	3.393	3.443	8.268	4.348	4.465	10.203
SD of SDs	1.247	1.009	2.341	1.811	1.332	1.095
Mean of Skews	-0.002	-0.004	0.002	0.016	0.007	0.010
SD of Skews	0.606	0.594	0.588	1.205	0.831	0.419
Mean of Kurtosis	-1.007	-1.076	-1.116	1.098	-0.139	-1.257
SD of Kurtosis	0.497	0.725	0.517	2.289	1.729	0.421

TABLE B - 64

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0006	.0018*	.0044*	.0058*	.0020*	.0008	.0004	.0002
Int.	Ord.	.0000	.0002	.0008	.0022*	.0062*	.0068*	.0028*	.0016	.0006	.0004
Int.	Per.	.0000	.0000	.0004	.0022*	.0064*	.0082*	.0042*	.0012	.0008	.0004
Ord.	Int.	.0000	.0000	.0008	.0016*	.0052*	.0064*	.0018*	.0008	.0002	.0002
Ord.	Ord.	.0000	.0002	.0010	.0022*	.0062*	.0066*	.0026*	.0016	.0004	.0004
Ord.	Per.	.0000	.0000	.0004	.0024*	.0066*	.0078*	.0040*	.0012	.0008	.0004
Per.	Int.	.0074	.0182	.0288	.0508*	.0828*	.0770*	.0464*	.0238	.0166	.0046
Per.	Ord.	.0098	.0242*	.0384*	.0650*	.1008*	.0998*	.0602*	.0332*	.0228	.0086
Per.	Per.	.0006	.0032	.0066	.0152	.0368	.0344	.0170	.0068	.0040	.0008

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.024	49.960	49.706	49.848	49.802	49.724
SD of Means	1.774	1.776	12.786	6.548	4.669	8.972
Mean of SDs	3.360	3.434	24.753	22.238	17.065	33.115
SD of SDs	1.209	0.990	6.915	9.506	3.475	3.681
Mean of Skews	0.011	0.009	0.009	-0.033	-0.001	0.026
SD of Skews	0.614	0.598	0.595	1.177	0.637	0.407
Mean of Kurtosis	-0.997	-1.068	-1.104	1.043	-0.425	-1.239
SD of Kurtosis	0.509	0.664	0.522	2.251	1.013	0.411

TABLE B - 65

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Leptokurtic (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0004	.0012	.0044*	.0138*	.0158*	.0062	.0024	.0014	.0000
Int.	Ord.	.0002	.0008	.0016	.0062	.0184*	.0206*	.0070	.0022	.0012	.0002
Int.	Per.	.0002	.0004	.0008	.0040*	.0122*	.0146*	.0054*	.0018	.0012	.0000
Ord.	Int.	.0000	.0004	.0014	.0062	.0148*	.0152*	.0060	.0026	.0014	.0004
Ord.	Ord.	.0000	.0008	.0018	.0074	.0190*	.0202*	.0072	.0028	.0014	.0004
Ord.	Per.	.0002	.0004	.0008	.0042*	.0126*	.0144*	.0068	.0020	.0010	.0000
Per.	Int.	.0044	.0124	.0198	.0412	.0688	.0632	.0380	.0190	.0116	.0048
Per.	Ord.	.0070	.0156	.0258	.0510*	.0798*	.0736*	.0452*	.0252	.0140	.0060
Per.	Per.	.0004	.0052	.0118	.0284	.0566	.0560	.0274	.0118	.0070	.0012

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.020	49.953	49.889	49.948	49.986	49.892
SD of Means	1.820	1.808	4.335	2.610	2.121	2.501
Mean of SDs	3.375	3.431	8.236	8.884	7.450	9.206
SD of SDs	1.246	1.015	2.348	3.742	2.374	1.185
Mean of Skews	0.011	0.009	0.011	0.025	0.028	0.021
SD of Skews	0.615	0.599	0.594	1.196	0.992	0.394
Mean of Kurtosis	-0.995	-1.079	-1.109	1.045	0.324	-1.058
SD of Kurtosis	0.502	0.588	0.623	2.309	1.930	0.454

TABLE B - 66

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 19) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0354*	.0626*	.0848*	.1306*	.1790*	.1762*	.1302*	.0846*	.0628*	.0354*
Int.	Ord.	.0382*	.0660*	.0868*	.1260*	.1654*	.1720*	.1300*	.0934*	.0708*	.0428*
Int.	Per.	.0576*	.0830*	.1016*	.1366*	.1794*	.1814*	.1434*	.1064*	.0892*	.0620*
Ord.	Int.	.0356*	.0632*	.0858*	.1324*	.1802*	.1742*	.1282*	.0842*	.0624*	.0344*
Ord.	Ord.	.0378*	.0674*	.0874*	.1272*	.1680*	.1706*	.1298*	.0914*	.0706*	.0422*
Ord.	Per.	.0586*	.0828*	.1020*	.1368*	.1800*	.1812*	.1436*	.1064*	.0880*	.0620*
Per.	Int.	.0000	.0014	.0040	.0140	.0318	.0296	.0102	.0024	.0010	.0004
Per.	Ord.	.0000	.0008	.0022	.0084	.0218*	.0230*	.0086	.0020	.0010	.0006
Per.	Per.	.0026	.0106	.0178	.0426	.0762*	.0732*	.0406	.0196	.0104	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.998	49.931	49.498	50.037	49.830	49.825
SD of Means	1.035	1.030	7.423	10.813	7.955	15.288
Mean of SDs	3.821	3.838	27.614	18.479	15.126	29.908
SD of SDs	0.738	0.528	3.615	11.879	5.553	7.731
Mean of Skews	0.003	0.005	0.013	0.006	-0.010	0.002
SD of Skews	0.526	0.379	0.385	0.750	0.666	0.629
Mean of Kurtosis	-0.369	-0.959	-1.042	-0.928	-1.054	-1.152
SD of Kurtosis	0.809	0.495	0.438	0.612	0.582	0.569

TABLE B - 67

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0086	.0282*	.0450*	.0832*	.1262*	.1150*	.0720*	.0386*	.0236	.0080
Int.	Ord.	.0090	.0268*	.0430*	.0780*	.1166*	.0990*	.0620*	.0346*	.0202	.0070
Int.	Per.	.0266*	.0532*	.0702*	.1010*	.1410*	.1362*	.1004*	.0624*	.0480*	.0230*
Ord.	Int.	.0080	.0278*	.0448*	.0820*	.1268*	.1134*	.0698*	.0350*	.0226	.0066
Ord.	Ord.	.0076	.0266*	.0416*	.0784*	.1206*	.0996*	.0598*	.0312*	.0200	.0058
Ord.	Per.	.0262*	.0538*	.0708*	.1012*	.1416*	.1332*	.0990*	.0610*	.0456*	.0232*
Per.	Int.	.0006	.0040	.0080	.0230	.0468	.0356	.0132	.0046	.0026	.0004
Per.	Ord.	.0004	.0038	.0070	.0182	.0374	.0274*	.0094	.0034	.0014	.0002
Per.	Per.	.0014	.0060	.0116	.0300	.0554	.0494	.0220	.0076	.0038	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.991	49.928	49.827	50.029	50.060	49.974
SD of Means	1.042	1.038	2.487	4.455	3.705	4.346
Mean of SDs	3.820	3.834	9.196	7.457	6.489	8.273
SD of SDs	0.736	0.526	1.200	4.666	3.345	2.297
Mean of Skews	0.001	0.004	0.012	0.008	0.006	0.003
SD of Skews	0.528	0.375	0.386	0.755	0.774	0.596
Mean of Kurtosis	-0.365	-0.960	-1.040	-0.913	-0.361	-1.112
SD of Kurtosis	0.788	0.478	0.434	0.611	0.861	0.526

TABLE B - 68

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0010	.0040	.0072	.0186	.0408	.0422	.0172	.0064	.0026	.0006
Int.	Ord.	.0014	.0050	.0114	.0240	.0500	.0382	.0160	.0068	.0030	.0006
Int.	Per.	.0088	.0194	.0270	.0444*	.0718*	.0672	.0450*	.0294*	.0214	.0102
Ord.	Int.	.0010	.0040	.0076	.0160	.0396	.0504	.0248	.0088	.0046	.0008
Ord.	Ord.	.0014	.0046	.0096	.0204	.0442	.0470	.0216	.0088	.0038	.0010
Ord.	Per.	.0086	.0188	.0262	.0438	.0722*	.0672	.0448*	.0298*	.0216	.0098
Per.	Int.	.0098	.0212	.0282	.0448*	.0642	.0668	.0452*	.0284	.0224	.0100
Per.	Ord.	.0096	.0214	.0284	.0442*	.0656	.0668	.0448*	.0280	.0212	.0100
Per.	Per.	.0018	.0054	.0116	.0232	.0438	.0480	.0250	.0098	.0050	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.010	50.037	50.267	49.998	50.027	50.139
SD of Means	1.785	1.767	12.706	1.812	1.794	12.852
Mean of SDs	3.217	3.356	24.873	3.203	3.347	24.875
SD of SDs	1.652	1.293	6.883	1.673	1.309	6.916
Mean of Skews	0.440	0.316	0.006	0.430	0.312	0.001
SD of Skews	0.604	0.602	0.589	0.601	0.604	0.592
Mean of Kurtosis	-0.907	-0.984	-1.117	-0.920	-0.997	-1.118
SD of Kurtosis	0.592	1.328	0.521	0.593	1.226	0.523

TABLE B - 69

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0012	.0032	.0072	.0212	.0470	.0426	.0196	.0068	.0034	.0008
Int.	Ord.	.0018	.0050	.0102	.0294	.0564	.0390	.0196	.0060	.0028	.0004
Int.	Per.	.0068	.0152	.0244	.0438	.0688	.0562	.0346	.0198	.0126	.0030
Ord.	Int.	.0006	.0032	.0074	.0196	.0430	.0522	.0240	.0124	.0066	.0016
Ord.	Ord.	.0016	.0048	.0086	.0254	.0494	.0474	.0216	.0106	.0044	.0014
Ord.	Per.	.0052	.0142	.0224	.0412	.0674	.0576	.0360	.0200	.0132	.0026
Per.	Int.	.0040	.0116	.0180	.0320	.0618	.0680	.0420	.0252	.0164	.0068
Per.	Ord.	.0034	.0112	.0180	.0344	.0624	.0634	.0394	.0232	.0152	.0054
Per.	Per.	.0018	.0062	.0104	.0268	.0542	.0460	.0268	.0132	.0072	.0022

Descriptions of Samples	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.997	50.030	50.068	50.036	50.067	50.145
SD of Means	1.789	1.782	4.302	1.797	1.782	4.283
Mean of SDs	3.202	3.347	8.276	3.238	3.369	8.335
SD of SDs	1.643	1.288	2.298	1.672	1.313	2.321
Mean of Skews	0.444	0.331	0.018	0.435	0.312	-0.000
SD of Skews	0.599	0.604	0.594	0.595	0.599	0.591
Mean of Kurtosis	-0.910	-1.000	-1.114	-0.926	-1.004	-1.119
SD of Kurtosis	0.603	0.838	0.528	0.598	1.361	0.524

TABLE B - 70

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0028	.0054	.0114	.0236*	.1422*	.1028*	.0708*	.0478*	.0246*
Int.	Ord.	.0006	.0032	.0058	.0106	.0198*	.1566*	.1158*	.0804*	.0590*	.0272*
Int.	Per.	.0080	.0132	.0196	.0312	.0446	.1008*	.0690*	.0432*	.0324*	.0152
Ord.	Int.	.0002	.0022	.0046	.0108	.0236*	.1420*	.1030*	.0708*	.0482*	.0242*
Ord.	Ord.	.0004	.0028	.0048	.0108	.0200*	.1570*	.1176*	.0796*	.0586*	.0268*
Ord.	Per.	.0074	.0140	.0194	.0314	.0450	.1012*	.0696*	.0434*	.0328*	.0152
Per.	Int.	.0022	.0068	.0114	.0232	.0492	.0646	.0388	.0254	.0144	.0068
Per.	Ord.	.0026	.0076	.0124	.0236	.0474	.0728*	.0440*	.0284	.0166	.0066
Per.	Per.	.0018	.0048	.0096	.0192	.0390	.0714*	.0392	.0194	.0096	.0030

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.951	49.984	49.944	50.023	48.401	46.405
SD of Means	1.789	1.792	12.995	8.898	7.322	13.574
Mean of SDs	3.146	3.303	24.727	15.872	13.530	26.210
SD of SDs	1.612	1.274	6.930	8.265	5.782	7.244
Mean of Skews	0.434	0.318	0.009	0.428	0.367	0.035
SD of Skews	0.599	0.604	0.590	0.598	0.602	0.597
Mean of Kurtosis	-0.917	-0.992	-1.117	-0.927	-0.953	-1.120
SD of Kurtosis	0.585	1.148	0.523	0.578	0.567	0.526

TABLE B - 71

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0032	.0060	.0124	.0294*	.1048*	.0636*	.0306*	.0172	.0038
Int.	Ord.	.0016	.0050	.0078	.0154	.0366	.0988*	.0644*	.0372*	.0242	.0090
Int.	Per.	.0074	.0184	.0286	.0470*	.0766*	.0566	.0326	.0182	.0108	.0040
Ord.	Int.	.0004	.0032	.0052	.0114	.0264*	.1086*	.0676*	.0320*	.0168	.0042
Ord.	Ord.	.0016	.0046	.0068	.0134	.0318	.1010*	.0664*	.0364*	.0226	.0074
Ord.	Per.	.0062	.0162	.0276	.0448*	.0714*	.0410	.0340	.0180	.0114	.0036
Per.	Int.	.0004	.0048	.0080	.0168	.0374	.0746*	.0436	.0232	.0144	.0038
Per.	Ord.	.0016	.0048	.0076	.0190	.0390	.0698*	.0420	.0206	.0128	.0036
Per.	Per.	.0030	.0074	.0124	.0254	.0554	.0546	.0282	.0108	.0062	.0012

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.009	50.044	50.111	50.109	50.232	50.301
SD of Means	1.791	1.794	4.326	3.660	3.665	4.327
Mean of SDs	3.192	3.338	8.295	6.407	6.489	8.248
SD of SDs	1.622	1.273	2.285	3.317	3.199	2.331
Mean of Skews	0.427	0.302	-0.006	0.436	0.517	-0.017
SD of Skews	0.595	0.602	0.590	0.602	1.148	0.597
Mean of Kurtosis	-0.925	-1.018	-1.120	-0.914	-1.285	-1.098
SD of Kurtosis	0.590	0.952	0.523	0.578	0.880	.521

TABLE B - 72

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0024	.0042	.0122	.0238*	.0920*	.0558*	.0312*	.0194	.0046
Int.	Ord.	.0012	.0042	.0062	.0136	.0298*	.0884*	.0588*	.0366*	.0256*	.0104
Int.	Per.	.0034	.0132	.0236	.0408	.0718*	.0384	.0190	.0084	.0038	.0010
Ord.	Int.	.0002	.0018	.0032	.0106	.0220*	.0944*	.0584*	.0322*	.0194	.0062
Ord.	Ord.	.0004	.0030	.0056	.0126	.0284*	.0894*	.0588*	.0388*	.0240	.0094
Ord.	Per.	.0024	.0088	.0186	.0364	.0622	.0408	.0216	.0094	.0048	.0014
Per.	Int.	.0002	.0008	.0032	.0084	.0224*	.0922*	.0564*	.0326*	.0192	.0074
Per.	Ord.	.0002	.0024	.0034	.0116	.0276*	.0820*	.0530*	.0308*	.0218	.0088
Per.	Per.	.0016	.0056	.0128	.0262	.0544	.0484	.0276	.0128	.0088	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.021	50.064	50.085	50.080	50.216	50.144
SD of Means	1.808	1.808	2.175	3.556	3.592	2.113
Mean of SDs	3.166	3.321	4.114	6.430	6.526	4.134
SD of SDs	1.642	1.300	1.170	3.296	3.185	1.148
Mean of Skews	0.419	0.303	-0.005	0.442	0.505	-0.016
SD of Skews	0.603	0.614	0.598	0.598	0.622	0.589
Mean of Kurtosis	-0.925	-0.992	-1.112	-0.912	-2.054	-1.107
SD of Kurtosis	0.609	1.218	0.531	0.574	.781	0.523

TABLE B - 73

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0036	.0074	.0232	.0438	.0486	.0260	.0112	.0056	.0016
Int.	Ord.	.0010	.0052	.0108	.0282	.0556	.0428	.0232	.0086	.0056	.0014
Int.	Per.	.0018	.0076	.0126	.0310	.0558	.0522	.0290	.0148	.0096	.0042
Ord.	Int.	.0004	.0028	.0052	.0184	.0390	.0600	.0318	.0150	.0080	.0026
Ord.	Ord.	.0010	.0034	.0084	.0238	.0464	.0518	.0278	.0124	.0068	.0020
Ord.	Per.	.0020	.0074	.0120	.0312	.0546	.0536	.0300	.0148	.0094	.0042
Per.	Int.	.0036	.0086	.0136	.0272	.0490	.0642	.0356	.0176	.0120	.0022
Per.	Ord.	.0036	.0086	.0138	.0280	.0494	.0642	.0346	.0172	.0124	.0034
Per.	Per.	.0012	.0032	.0096	.0244	.0496	.0536	.0276	.0142	.0088	.0026

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.022	50.057	50.372	50.007	50.040	50.202
SD of Means	1.047	1.042	7.510	1.045	1.040	7.432
Mean of SDs	3.724	3.794	27.677	3.738	3.802	27.695
SD of SDs	1.123	0.811	3.526	1.145	0.826	3.509
Mean of Skews	0.971	0.607	0.000	0.990	0.620	0.006
SD of Skews	0.600	0.487	0.386	0.614	0.496	0.385
Mean of Kurtosis	0.476	-0.420	-1.067	0.540	-0.385	-1.070
SD of Kurtosis	1.705	1.142	0.417	1.754	1.199	0.432

TABLE B - 74

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0004	.0024	.0068	.0230*	.1070*	.0708*	.0442*	.0338*	.0150
Int.	Ord.	.0000	.0006	.0018	.0048*	.0118*	.1500*	.0974*	.0620*	.0442*	.0210*
Int.	Per.	.0006	.0026	.0036	.0098	.0180*	.1180*	.0694*	.0352*	.0218	.0064
Ord.	Int.	.0000	.0006	.0024	.0062	.0222*	.1074*	.0722*	.0450*	.0338*	.0158
Ord.	Ord.	.0000	.0006	.0016	.0042*	.0114*	.1508*	.1008*	.0636*	.0450*	.0216*
Ord.	Per.	.0006	.0026	.0036	.0100	.0178*	.1196*	.0692*	.0350*	.0218	.0068
Per.	Int.	.0006	.0024	.0068	.0188	.0388	.0582	.0294	.0176	.0104	.0036
Per.	Ord.	.0006	.0024	.0050	.0138	.0278*	.0792*	.0434	.0236	.0136	.0046
Per.	Per.	.0002	.0016	.0030	.0094	.0222*	.0950*	.0520*	.0258	.0124	.0034

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.993	50.033	50.228	50.005	48.390	46.317
SD of Means	1.031	1.031	7.453	5.140	4.219	7.777
Mean of SDs	3.700	3.780	27.650	18.515	15.552	29.242
SD of SDs	1.120	0.808	3.496	5.690	3.521	3.659
Mean of Skews	0.971	0.609	0.001	0.986	0.807	0.070
SD of Skews	0.607	0.490	0.385	0.604	0.505	0.383
Mean of Kurtosis	0.492	-0.410	-1.065	0.504	0.049	-1.090
SD of Kurtosis	1.736	1.178	0.432	1.735	1.253	0.417

TABLE B - 75

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0018	.0038	.0148	.0338	.0848*	.0508*	.0262	.0148	.0044
Int.	Ord.	.0000	.0018	.0050	.0164	.0404	.0768*	.0420	.0202	.0140	.0040
Int.	Per.	.0036	.0110	.0182	.0368	.0652	.0422	.0214	.0096	.0052	.0018
Ord.	Int.	.0000	.0012	.0032	.0140	.0306	.0884*	.0534*	.0282	.0156	.0060
Ord.	Ord.	.0000	.0016	.0042	.0156	.0370	.0802*	.0478*	.0214	.0142	.0048
Ord.	Per.	.0034	.0098	.0172	.0352	.0640	.0448	.0226	.0108	.0054	.0020
Per.	Int.	.0006	.0038	.0074	.0214	.0450	.0658	.0362	.0194	.0106	.0022
Per.	Ord.	.0006	.0042	.0090	.0222	.0500	.0624	.0318	.0182	.0096	.0020
Per.	Per.	.0020	.0064	.0138	.0326	.0612	.0414	.0264	.0112	.0050	.0012

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.019	50.049	50.107	50.033	50.147	50.246
SD of Means	1.049	1.047	2.530	2.079	2.076	2.484
Mean of SDs	3.727	3.792	9.228	7.391	7.418	9.173
SD of SDs	1.108	0.798	1.190	2.233	2.049	1.169
Mean of Skews	0.987	0.619	0.009	0.975	0.939	-0.025
SD of Skews	0.601	0.487	0.391	0.601	0.594	0.383
Mean of Kurtosis	0.513	-0.399	-1.067	0.479	0.155	-1.037
SD of Kurtosis	1.726	1.157	0.438	1.714	1.681	0.430

TABLE B - 76

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Positive Skewed(N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0006	.0020	.0116	.0322	.0760*	.0440	.0232	.0134	.0036
Int.	Ord.	.0000	.0012	.0040	.0164	.0366	.0646	.0368	.0170	.0100	.0034
Int.	Per.	.0024	.0120	.0204	.0392	.0728*	.0334	.0142	.0042	.0024	.0006
Ord.	Int.	.0000	.0006	.0020	.0106	.0306*	.0812*	.0466*	.0248	.0152	.0042
Ord.	Ord.	.0000	.0014	.0036	.0146	.0330	.0690	.0380	.0188	.0116	.0038
Ord.	Per.	.0018	.0096	.0174	.0356	.0644	.0374	.0182	.0052	.0034	.0008
Per.	Int.	.0000	.0010	.0026	.0116	.0316	.0768*	.0438	.0212	.0138	.0040
Per.	Ord.	.0000	.0012	.0034	.0152	.0350	.0662	.0382	.0178	.0100	.0038
Per.	Per.	.0016	.0072	.0130	.0296	.0592	.0434	.0198	.0080	.0036	.0012

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.978	50.011	50.008	50.056	50.190	50.123
SD of Means	1.051	1.053	1.270	2.033	2.039	1.217
Mean of SDs	3.700	3.773	4.602	7.473	7.526	4.608
SD of SDs	1.113	0.797	0.581	2.227	2.126	0.582
Mean of Skews	0.987	0.625	0.011	0.995	0.953	-0.020
SD of Skews	0.607	0.492	0.392	0.592	0.593	0.374
Mean of Kurtosis	0.531	-0.370	-1.058	0.512	0.188	-1.052
SD of Kurtosis	1.731	1.160	0.418	1.706	1.688	0.409

TABLE B - 77

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 30) and Positive Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0020	.0028	.0138	.0326	.0748*	.0462*	.0220	.0148	.0042
Int.	Ord.	.0002	.0018	.0038	.0198	.0386	.0618	.0366	.0186	.0108	.0030
Int.	Per.	.0016	.0086	.0164	.0360	.0646	.0342	.0168	.0058	.0014	.0002
Ord.	Int.	.0000	.0018	.0032	.0010	.0312	.0774*	.0498*	.0252	.0162	.0058
Ord.	Ord.	.0000	.0016	.0038	.0158	.0362	.0648	.0378	.0224	.0132	.0036
Ord.	Per.	.0016	.0066	.0128	.0288	.0574	.0410	.0204	.0074	.0024	.0002
Per.	Int.	.0000	.0014	.0024	.0108	.0306*	.0746*	.0450*	.0264	.0152	.0042
Per.	Ord.	.0000	.0014	.0030	.0146	.0360	.0538	.0376	.0202	.0130	.0038
Per.	Per.	.0008	.0046	.0092	.0250	.0502	.0442	.0236	.0084	.0044	.0004

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.008	50.042	50.049	50.006	50.130	50.102
SD of Means	0.725	0.721	0.860	1.475	1.469	0.873
Mean of SDs	3.860	3.893	4.711	7.674	7.705	4.692
SD of SDs	0.821	0.580	0.408	1.691	1.578	0.403
Mean of Skews	1.225	0.716	0.004	1.218	1.143	-0.017
SD of Skews	0.562	0.434	0.263	0.570	0.564	0.266
Mean of Kurtosis	1.494	-0.095	-1.140	1.443	1.011	-1.115
SD of Kurtosis	2.313	1.478	0.257	2.345	2.249	0.260

TABLE B - 78

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed(N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0006	.0014	.0124	.0334	.0646	.0360	.0172	.0098	.0026
Int.	Ord.	.0002	.0008	.0018	.0144	.0400	.0530	.0258	.0124	.0080	.0012
Int.	Per.	.0002	.0006	.0010	.0018*	.0056*	.0062*	.0022*	.0006	.0004	.0002
Ord.	Int.	.0000	.0010	.0038	.0170	.0366	.0732*	.0406	.0230	.0136	.0048
Ord.	Ord.	.0002	.0010	.0038	.0180	.0412	.0568	.0312	.0150	.0088	.0034
Ord.	Per.	.0002	.0006	.0010	.0018*	.0052*	.0062*	.0020*	.0006	.0004	.0002
Per.	Int.	.0558*	.0868*	.1044*	.1350*	.1700*	.1818*	.1404*	.1074*	.0870*	.0582*
Per.	Ord.	.0562*	.0872*	.1040*	.1356*	.1720*	.1814*	.1402*	.1070*	.0866*	.0578*
Per.	Per.	.0008	.0034	.0112	.0250	.0490	.0484	.0256	.0098	.0064	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.021	50.052	50.366	50.013	50.048	50.342
SD of Means	1.796	1.783	12.792	1.058	1.049	7.527
Mean of SDs	3.213	3.350	24.872	3.711	3.784	27.609
SD of SDs	1.661	1.299	6.848	1.122	0.803	3.480
Mean of Skews	0.430	0.308	-0.007	0.977	0.616	0.001
SD of Skews	0.610	0.609	0.600	0.608	0.492	0.387
Mean of Kurtosis	-0.907	-0.993	-1.102	0.507	-0.393	-1.065
SD of Kurtosis	0.596	1.134	0.529	1.745	1.183	0.428

TABLE B - 79

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =5) and Positive Skewed(N =15) DISTRIBUTIONS

Scales A	B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0016	.0020	.0118	.0354	.0698*	.0380	.0216	.0104	.0028
Int.	Ord.	.0004	.0014	.0032	.0136	.0402	.0564	.0302	.0144	.0066	.0020
Int.	Per.	.0000	.0004	.0012	.0046*	.0124*	.0144*	.0036*	.0010	.0002	.0002
Ord.	Int.	.0000	.0018	.0044	.0170	.0400	.0784*	.0452*	.0238	.0138	.0052
Ord.	Ord.	.0004	.0018	.0042	.0170	.0436	.0630	.0350	.0156	.0084	.0028
Ord.	Per.	.0000	.0004	.0012	.0050*	.0114*	.0132*	.0044*	.0016	.0002	.0002
Per.	Int.	.0252*	.0456*	.0616*	.0932*	.1312*	.1486*	.1092*	.0766*	.0566*	.0308*
Per.	Ord.	.0242*	.0462*	.0610*	.0946*	.1346*	.1424*	.1048*	.0712*	.0528*	.0278*
Per.	Per.	.0008	.0050	.0090	.0272	.0530	.0532	.0290	.0106	.0052	.0014

	Descriptions of Samples					
	Sample A Interval	Ordinal	Percentile	Sample B Interval	Ordinal	Percentile
Means of Means	50.030	50.053	50.108	49.972	50.010	50.030
SD of Means	1.827	1.810	4.322	1.036	1.038	2.499
Mean of SDs	3.224	3.360	8.300	3.678	3.759	9.196
SD of SDs	1.630	1.271	2.267	1.119	0.807	1.190
Mean of Skews	0.438	0.313	0.003	0.971	0.610	0.005
SD of Skews	0.604	0.606	0.600	0.597	0.484	0.386
Mean of Kurtosis	-0.911	-1.007	-1.105	0.488	-0.406	-1.059
SD of Kurtosis	0.592	0.800	0.526	1.713	1.153	0.434

TABLE B - 80

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0006	.0032	.0100	.0344	.0626	.0360	.0174	.0104	.0034
Int.	Ord.	.0000	.0014	.0036	.0140	.0384	.0532	.0270	.0116	.0064	.0022
Int.	Per.	.0002	.0016	.0040	.0118	.0352	.0314	.0142	.0052	.0026	.0004
Ord.	Int.	.0000	.0016	.0044	.0132	.0394	.0754*	.0420	.0226	.0136	.0044
Ord.	Ord.	.0000	.0014	.0052	.0160	.0436	.0604	.0326	.0158	.0082	.0032
Ord.	Per.	.0002	.0022	.0046	.0130	.0358	.0360	.0162	.0056	.0030	.0006
Per.	Int.	.0014	.0072	.0124	.0328	.0608	.0982*	.0656*	.0346*	.0230	.0108
Per.	Ord.	.0012	.0076	.0116	.0344	.0638	.0850*	.0502*	.0250	.0164	.0064
Per.	Per.	.0004	.0046	.0086	.0242	.0546	.0530	.0270	.0108	.0056	.0016

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.023	50.058	50.065	50.011	50.047	50.055
SD of Means	1.800	1.795	2.138	1.032	1.030	1.243
Mean of SDs	3.204	3.342	4.126	3.712	3.790	4.622
SD of SDs	1.678	1.319	1.159	1.106	0.793	0.586
Mean of Skews	0.435	0.309	0.001	0.968	0.605	-0.004
SD of Skews	0.596	0.603	0.589	0.597	0.486	0.383
Mean of Kurtosis	-0.918	-1.012	-1.123	0.473	-0.421	-1.077
SD of Kurtosis	0.602	0.824	0.540	1.711	1.161	0.418

TABLE B - 81

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Positive Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0018	.0060	.0182	.0452	.0486	.0246	.0096	.0050	.0008
Int.	Ord.	.0000	.0036	.0082	.0242	.0532	.0412	.0208	.0082	.0036	.0002
Int.	Per.	.0004	.0028	.0082	.0222	.0472	.0290*	.0122	.0042	.0018	.0000
Ord.	Int.	.0000	.0016	.0050	.0174	.0414	.0560	.0304	.0130	.0072	.0016
Ord.	Ord.	.0000	.0036	.0074	.0220	.0478	.0490	.0248	.0100	.0044	.0004
Ord.	Per.	.0004	.0024	.0070	.0210	.0422	.0324	.0156	.0050	.0028	.0002
Per.	Int.	.0006	.0042	.0090	.0272	.0520	.0716*	.0420	.0202	.0120	.0038
Per.	Ord.	.0010	.0062	.0108	.0298	.0576	.0624	.0376	.0172	.0100	.0030
Per.	Per.	.0004	.0066	.0104	.0270	.0502	.0464	.0234	.0096	.0044	.0002

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.979	50.016	50.021	50.003	50.035	50.038
SD of Means	1.022	1.021	1.233	0.718	0.719	0.871
Mean of SDs	3.687	3.769	4.609	3.870	3.900	4.714
SD of SDs	1.092	0.780	0.580	0.823	0.583	0.400
Mean of Skews	0.970	0.610	0.008	1.233	0.724	0.008
SD of Skews	0.599	0.483	0.379	0.579	0.451	0.268
Mean of Kurtosis	0.471	-0.417	01.071	1.526	-0.064	-1.137
SD of Kurtosis	1.724	1.161	0.427	2.390	1.537	0.258

TABLE B - 82

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0000	.0002*	.0008*	.0352	.0190	.0086	.0044	.0004
Int.	Ord.	.0000	.0000	.0000	.0000*	.0010*	.0478	.0238	.0076	.0050	.0018
Int.	Per.	.0000	.0002	.0002	.0002*	.0024*	.0178*	.0060	.0018	.0014	.0002
Ord.	Int.	.0000	.0000	.0000	.0002*	.0008*	.0366	.0186	.0088	.0042	.0018
Ord.	Ord.	.0000	.0000	.0000	.0000*	.0012*	.0488	.0262	.0124	.0058	.0020
Ord.	Per.	.0000	.0002	.0002	.0004*	.0028*	.0178*	.0068	.0018	.0014	.0002
Per.	Int.	.0064	.0180	.0256	.0506*	.0776*	.1122*	.0744*	.0438*	.0312*	.0130
Per.	Ord.	.0090	.0218	.0324*	.0532*	.0804*	.1422*	.0950*	.0592*	.0446*	.0216*
Per.	Per.	.0006	.0040	.0084	.0148	.0270*	.0732*	.0400	.0164	.0114	.0028

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.998	50.025	50.156	49.905	48.384	46.299
SD of Means	1.792	1.783	12.901	5.186	4.298	7.952
Mean of SDs	3.204	3.347	24.884	18.358	15.525	29.160
SD of SDs	1.652	1.301	7.018	5.566	3.546	3.724
Mean of Skews	0.440	0.320	0.013	0.989	0.811	0.077
SD of Skews	0.595	0.604	0.594	0.602	0.508	0.388
Mean of Kurtosis	-0.918	-1.003	-1.119	0.507	0.058	-1.084
SD of Kurtosis	0.590	0.824	0.525	1.743	1.271	0.439

TABLE B - 83

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0000	.0004*	.0022*	.0412	.0196	.0090	.0052	.0010
Int.	Ord.	.0000	.0000	.0002	.0004*	.0030*	.0338	.0178	.0086	.0042	.0014
Int.	Per.	.0002	.0006	.0016	.0048*	.0126*	.0092*	.0048*	.0010	.0002	.0000
Ord.	Int.	.0000	.0000	.0000	.0004*	.0026*	.0442	.0208	.0100	.0060	.0012
Ord.	Ord.	.0000	.0000	.0000	.0008*	.0030*	.0360	.0184	.0092	.0050	.0014
Ord.	Per.	.0002	.0006	.0014	.0044*	.0126*	.0108*	.0046*	.0010	.0002	.0000
Per.	Int.	.0012	.0060	.0138	.0322	.0626	.0968*	.0600*	.0348*	.0232	.0094
Per.	Ord.	.0010	.0062	.0140	.0336	.0640	.0880*	.0554*	.0318*	.0216	.0074
Per.	Per.	.0010	.0050	.0104	.0254	.0512	.0486	.0244	.0096	.0046	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.026	50.051	50.106	50.017	50.129	50.198
SD of Means	1.812	1.802	4.307	2.094	2.076	2.481
Mean of SDs	3.226	3.360	8.286	7.433	7.464	9.177
SD of SDs	1.687	1.324	2.335	2.281	2.112	1.188
Mean of Skews	0.437	0.319	0.003	0.998	0.957	-0.012
SD of Skews	0.605	0.611	0.599	0.615	0.604	0.377
Mean of Kurtosis	-0.909	-0.991	-1.107	0.545	0.206	-1.046
SD of Kurtosis	0.608	1.727	0.530	1.797	1.750	0.416

TABLE B - 84

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0002	.0006*	.0032*	.0382	.0186	.0090	.0050	.0014
Int.	Ord.	.0000	.0000	.0004	.0008*	.0040*	.0330	.0172	.0070	.0038	.0012
Int.	Per.	.0004	.0038	.0060	.0148	.0398	.0306*	.0130	.0042	.0020	.0006
Ord.	Int.	.0000	.0000	.0002	.0006*	.0036*	.0422	.0200	.0090	.0052	.0018
Ord.	Ord.	.0000	.0002	.0004	.0008*	.0040*	.0346	.0172	.0070	.0044	.0016
Ord.	Per.	.0006	.0040	.0064	.0156	.0420	.0324	.0142	.0046	.0024	.0004
Per.	Int.	.0000	.0000	.0004	.0024*	.0088*	.0474	.0252	.0104	.0072	.0022
Per.	Ord.	.0000	.0004	.0004	.0026*	.0098*	.0410	.0220	.0090	.0052	.0024
Per.	Per.	.0014	.0064	.0112	.0280	.0576	.0484	.0252	.0104	.0052	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.967	49.994	49.997	50.037	50.167	50.111
SD of Means	1.782	1.779	2.147	2.126	2.127	1.263
Mean of SDs	3.172	3.316	4.128	7.430	7.470	4.590
SD of SDs	1.630	1.283	1.154	2.256	2.119	0.589
Mean of Skews	0.434	0.309	0.013	0.995	0.953	-0.022
SD of Skews	0.600	0.604	0.596	0.607	0.604	0.389
Mean of Kurtosis	-0.919	-1.005	-1.117	0.542	0.208	-1.034
SD of Kurtosis	0.594	1.031	0.531	1.749	1.720	0.436

TABLE B - 85

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Positive Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0000	.0002	.0018*	.0096*	.0398	.0212	.0074	.0034	.0010
Int.	Ord.	.0000	.0000	.0004	.0028*	.0128	.0322	.0152	.0058	.0026	.0008
Int.	Per.	.0006	.0034	.0084	.0250	.0502	.0282*	.0102	.0030	.0010	.0002
Ord.	Int.	.0000	.0000	.0004	.0018*	.0104*	.0424	.0224	.0076	.0040	.0006
Ord.	Ord.	.0000	.0000	.0006	.0024*	.0136*	.0338	.0168	.0066	.0032	.0006
Ord.	Per.	.0006	.0028	.0078	.0228	.0448	.0316	.0120	.0038	.0016	.0004
Per.	Int.	.0000	.0002	.0008	.0036*	.0150*	.0480	.0242	.0100	.0048	.0012
Per.	Ord.	.0000	.0006	.0010	.0052*	.0180*	.0384	.0192	.0074	.0032	.0008
Per.	Per.	.0014	.0062	.0120	.0304	.0562	.0460	.0180	.0066	.0038	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.025	50.059	50.063	49.995	50.130	50.098
SD of Means	1.041	1.036	1.246	1.453	1.454	0.869
Mean of SDs	3.733	3.799	4.620	7.671	7.714	4.698
SD of SDs	1.115	0.800	0.582	1.644	1.572	0.404
Mean of Skews	0.979	0.611	-0.004	1.224	1.154	-0.020
SD of Skews	0.598	0.483	0.384	0.574	0.575	0.264
Mean of Kurtosis	0.503	-0.405	-1.065	1.477	1.068	-1.115
SD of Kurtosis	1.717	1.151	0.426	2.377	2.324	0.260

TABLE B - 86

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0138	.0292*	.0450*	.0760*	.1118*	.2570*	.2156*	.1670*	.1418*	.0950*
Int.	Ord.	.0106	.0240	.0350*	.0552*	.0840*	.2920*	.2446*	.1928*	.1612*	.1074*
Int.	Per.	.0358*	.0548*	.0678*	.0912*	.1168*	.2480*	.1966*	.1492*	.1252*	.0834*
Ord.	Int.	.0130	.0288*	.0428*	.0740*	.1128*	.2598*	.2150*	.1688*	.1406*	.0952*
Ord.	Ord.	.0100	.0246*	.0348*	.0560*	.0838*	.2932*	.2456*	.1930*	.1616*	.1090*
Ord.	Per.	.0348*	.0552*	.0682*	.0904*	.1172*	.2502*	.1966*	.1500*	.1250*	.0836*
Per.	Int.	.0002	.0014	.0030	.0086	.0228*	.0216*	.0094	.0026	.0012	.0002
Per.	Ord.	.0002	.0010	.0020	.0052*	.0132*	.0224*	.0086	.0030	.0014	.0002
Per.	Per.	.0012	.0036	.0068	.0160	.0300*	.0828*	.0468*	.0222	.0104	.0034

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.000	50.030	50.164	49.865	48.380	46.255
SD of Means	1.039	1.035	7.427	8.729	7.319	13.524
Mean of SDs	3.731	3.794	27.696	15.877	13.659	26.420
SD of SDs	1.126	0.813	5.539	8.019	5.756	7.255
Mean of Skews	0.993	0.624	0.006	0.435	0.382	0.046
SD of Skews	0.609	0.486	0.386	0.592	0.596	0.591
Mean of Kurtosis	0.551	-0.375	-1.063	-0.929	-0.952	-1.123
SD of Kurtosis	1.741	1.164	0.435	0.576	0.564	0.525

TABLE B - 87

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0070	.0192	.0312*	.0580*	.0926*	.1448*	.0940*	.0550*	.0360*	.0140
Int.	Ord.	.0078	.0246*	.0352*	.0642*	.1004*	.1328*	.0924*	.0574*	.0404*	.0158
Int.	Per.	.0312*	.0566*	.0740*	.1144*	.1568*	.1178*	.0812*	.0524*	.0400*	.0224*
Ord.	Int.	.0056	.0174	.0274	.0510*	.0880*	.1430*	.0980*	.0542*	.0342*	.0100
Ord.	Ord.	.0064	.0212	.0334*	.0578*	.0934*	.1352*	.0952*	.0564*	.0378*	.0116
Ord.	Per.	.0294*	.0520*	.0692*	.1078*	.1486*	.1188*	.0812*	.0534*	.0404*	.0218*
Per.	Int.	.0000	.0014	.0048	.0136	.0312	.0302*	.0124	.0038	.0012	.0004
Per.	Ord.	.0000	.0014	.0052	.0150	.0336	.0290*	.0126	.0040	.0010	.0002
Per.	Per.	.0008	.0060	.0124	.0254	.0496	.0464	.0232	.0074	.0050	.0008

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.995	50.027	50.064	49.992	50.107	50.237
SD of Means	1.031	1.025	2.464	3.503	3.513	4.225
Mean of SDs	3.710	3.783	9.230	6.318	6.400	8.223
SD of SDs	1.109	0.797	1.162	3.212	3.045	2.325
Mean of Skews	0.976	0.611	0.006	0.437	0.504	-0.009
SD of Skews	0.595	0.484	0.383	0.588	0.616	0.581
Mean of Kurtosis	0.482	-0.416	-1.069	-0.925	-2.106	-1.119
SD of Kurtosis	1.711	1.164	0.446	0.573	.585	0.511

TABLE B - 88

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0082	.0182	.0304*	.0578*	.0910*	.1524*	.1006*	.0600*	.0370*	.0132
Int.	Ord.	.0092	.0230	.0348*	.0654*	.0982*	.1376*	.0948*	.0602*	.0432*	.0158
Int.	Per.	.0096	.0256*	.0382*	.0656*	.0986*	.0542	.0280	.0124	.0066	.0006
Ord.	Int.	.0064	.0160	.0260	.0530*	.0866*	.1532*	.1008*	.0590*	.0356*	.0102
Ord.	Ord.	.0074	.0194	.0308*	.0600*	.0940*	.1410*	.0954*	.0584*	.0414*	.0142
Ord.	Per.	.0040	.0170	.0266	.0516*	.0850*	.0570	.0320	.0124	.0056	.0012
Per.	Int.	.0020	.0110	.0184	.0382	.0676	.1196*	.0730*	.0358*	.0216	.0054
Per.	Ord.	.0032	.0138	.0222	.0442*	.0748*	.1122*	.0686*	.0362*	.0210	.0060
Per.	Per.	.0008	.0044	.0094	.0256	.0520	.0454	.0218	.0076	.0044	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.003	50.037	50.047	49.973	50.099	50.074
SD of Means	1.042	1.034	1.244	3.562	3.563	2.128
Mean of SDs	3.706	3.779	4.606	6.379	6.452	4.146
SD of SDs	1.125	0.806	0.582	3.281	3.116	1.148
Mean of Skews	0.970	0.609	-0.000	0.440	0.508	-0.005
SD of Skews	0.607	0.493	0.382	0.600	0.619	0.593
Mean of Kurtosis	0.486	-0.404	-1.073	-0.920	-1.087	-1.109
SD of Kurtosis	1.732	1.180	0.412	0.583	.525	0.525

TABLE B - 89

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 30) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0020	.0084	.0162	.0370	.0690	.1134*	.0732*	.0422*	.0272*	.0122
Int.	Ord.	.0026	.0120	.0192	.0436	.0790*	.0982*	.0622*	.0364*	.0256*	.0108
Int.	Per.	.0032	.0142	.0248	.0470*	.0784*	.0410	.0184	.0080	.0050	.0010
Ord.	Int.	.0016	.0084	.0144	.0344	.0652	.1180*	.0768*	.0448*	.0292*	.0132
Ord.	Ord.	.0016	.0106	.0166	.0412	.0744*	.1008*	.0662*	.0398*	.0280*	.0118
Ord.	Per.	.0028	.0110	.0182	.0420	.0690	.0484	.0222	.0096	.0052	.0010
Per.	Int.	.0010	.0058	.0122	.0268	.0582	.1028*	.0638*	.0358*	.0250*	.0082
Per.	Ord.	.0014	.0080	.0138	.0322	.0670	.0918*	.0546*	.0328*	.0210	.0066
Per.	Per.	.0010	.0050	.0094	.0254	.0508	.0416	.0200	.0094	.0036	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.003	50.035	50.041	50.043	50.172	50.124
SD of Means	0.719	0.718	0.874	2.060	2.065	1.235
Mean of SDs	3.862	3.896	4.703	7.424	7.477	4.592
SD of SDs	0.830	0.589	0.405	2.238	2.117	0.592
Mean of Skews	1.234	0.727	0.011	0.987	0.947	-0.024
SD of Skews	0.584	0.454	0.269	0.603	0.598	0.382
Mean of Kurtosis	1.535	-0.056	-1.135	0.516	0.190	-1.044
SD of Kurtosis	2.417	1.550	0.261	1.739	1.704	0.445

TABLE B - 90

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0118	.0326*	.0460*	.0752*	.1102*	.0174*	.0058	.0018	.0012	.0002
Int.	Ord.	.0090	.0230	.0360*	.0596*	.0888*	.0240*	.0094	.0030	.0010	.0002
Int.	Per.	.0092	.0222	.0284	.0466*	.0672	.0724*	.0488*	.0304*	.0182	.0104
Ord.	Int.	.0086	.0242*	.0382*	.0604*	.0932*	.0230*	.0102	.0028	.0018	.0006
Ord.	Ord.	.0070	.0182	.0292*	.0482*	.0760*	.0282*	.0138	.0048	.0024	.0006
Ord.	Per.	.0096	.0222	.0286	.0462*	.0676	.0718*	.0490*	.0308*	.0186	.0104
Per.	Int.	.0090	.0216	.0310*	.0468*	.0750*	.0674	.0462*	.0288	.0232	.0104
Per.	Ord.	.0090	.0218	.0298*	.0470*	.0740*	.0686	.0468*	.0292*	.0232	.0104
Per.	Per.	.0012	.0060	.0108	.0240	.0472	.0478	.0264	.0126	.0074	.0016

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.964	49.993	49.966	50.013	49.951	49.622
SD of Means	1.797	1.792	12.911	1.777	1.762	12.811
Mean of SDs	3.171	3.319	24.801	3.191	3.317	24.845
SD of SDs	1.628	1.278	6.953	1.628	1.270	6.888
Mean of Skews	0.436	0.317	0.013	-0.429	-0.308	0.006
SD of Skews	0.600	0.604	0.598	0.593	0.604	0.588
Mean of Kurtosis	-0.913	-1.016	-1.107	-0.932	-0.967	-1.126
SD of Kurtosis	0.601	0.890	0.528	0.601	1.464	0.525

TABLE B - 91

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0138	.0340*	.0492*	.0776*	.1176*	.0206*	.0076	.0010	.0004	.0002
Int.	Ord.	.0100	.0260*	.0380*	.0618*	.0944*	.0282*	.0120	.0032	.0010	.0002
Int.	Per.	.0066	.0156	.0246	.0424	.0686	.0648	.0396	.0212	.0134	.0054
Ord.	Int.	.0092	.0260*	.0380*	.0636*	.0968*	.0264*	.0106	.0022	.0006	.0000
Ord.	Ord.	.0058	.0192	.0312*	.0514*	.0806*	.0346	.0158	.0042	.0018	.0002
Ord.	Per.	.0062	.0128	.0230	.0402	.0664	.0668	.0398	.0216	.0140	.0052
Per.	Int.	.0060	.0156	.0228	.0394	.0642	.0616	.0374	.0188	.0134	.0048
Per.	Ord.	.0048	.0130	.0202	.0380	.0612	.0638	.0390	.0204	.0134	.0048
Per.	Per.	.0012	.0064	.0134	.0272	.0512	.0572	.0296	.0168	.0084	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.997	50.032	50.072	50.037	49.978	49.925
SD of Means	1.777	1.773	4.241	1.796	1.781	4.314
Mean of SDs	3.204	3.353	8.305	3.157	3.281	8.242
SD of SDs	1.646	1.292	2.286	1.635	1.285	2.320
Mean of Skews	0.439	0.316	0.006	-0.417	-0.298	0.013
SD of Skews	0.600	0.603	0.594	0.603	0.606	0.595
Mean of Kurtosis	0.908	-1.001	-1.111	-0.929	-0.948	-1.116
SD of Kurtosis	0.585	1.162	0.525	0.592	1.775	0.529

TABLE B - 92

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0110	.0284*	.0454*	.0770*	.1148*	.0176*	.0068	.0018	.0010	.0004
Int.	Ord.	.0072	.0216	.0354*	.0606*	.0900*	.0230*	.0100	.0036	.0014	.0006
Int.	Per.	.0044	.0122	.0216	.0402	.0636	.0398	.0196	.0082	.0046	.0008
Ord.	Int.	.0074	.0224	.0332*	.0592*	.0954*	.0240*	.0104	.0032	.0014	.0004
Ord.	Ord.	.0054	.0172	.0266	.0472*	.0766*	.0304*	.0132	.0042	.0022	.0006
Ord.	Per.	.0034	.0090	.0172	.0314	.0564	.0434	.0218	.0112	.0048	.0010
Per.	Int.	.0048	.0120	.0192	.0358	.0636	.0400	.0202	.0088	.0048	.0010
Per.	Ord.	.0032	.0096	.0138	.0310	.0550	.0450	.0230	.0098	.0056	.0012
Per.	Per.	.0018	.0060	.0094	.0224	.0468	.0496	.0272	.0128	.0076	.0022

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.036	50.082	50.099	50.036	49.974	49.962
SD of Means	1.798	1.804	2.156	1.787	1.773	2.143
Mean of SDs	3.200	3.344	4.134	3.175	3.294	4.121
SD of SDs	1.620	1.270	1.133	1.652	1.290	1.151
Mean of Skews	0.429	0.304	-0.010	-0.423	-0.300	0.017
SD of Skews	0.605	0.611	0.599	0.603	0.607	0.590
Mean of Kurtosis	-0.912	-0.980	-1.106	-0.922	-0.932	-1.115
SD of Kurtosis	0.593	1.594	0.534	0.598	2.232	0.529

TABLE B - 93

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0292*	.0562*	.0738*	.1068*	.1478*	.0248*	.0104	.0034	.0018	.0000
Int.	Ord.	.0306*	.0608*	.0762*	.1108*	.1532*	.0220*	.0104	.0038	.0022	.0002
Int.	Per.	.0148	.0320*	.0428*	.0678*	.0962*	.0546	.0360	.0214	.0156	.0066
Ord.	Int.	.0276*	.0544*	.0726*	.1056*	.1466*	.0250*	.0108	.0032	.0018	.0000
Ord.	Ord.	.0280*	.0566*	.0760*	.1092*	.1512*	.0228*	.0098	.0040	.0022	.0002
Ord.	Per.	.0146	.0324*	.0432*	.0672*	.0956*	.0544	.0360	.0214	.0156	.0068
Per.	Int.	.0054	.0138	.0188	.0356	.0618	.0490	.0256	.0106	.0056	.0020
Per.	Ord.	.0066	.0144	.0210	.0396	.0660	.0480	.0274	.0120	.0064	.0018
Per.	Per.	.0036	.0096	.0194	.0344	.0588	.0428	.0230	.0096	.0042	.0006

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.984	50.017	50.108	50.030	51.192	52.623
SD of Means	1.782	1.781	12.819	9.074	7.350	13.759
Mean of SDs	3.191	3.339	24.933	15.699	13.297	25.883
SD of SDs	1.624	1.279	6.995	8.152	5.674	7.195
Mean of Skews	0.434	0.308	-0.000	-0.428	-0.376	-0.028
SD of Skews	0.603	0.606	0.602	0.596	0.596	0.600
Mean of Kurtosis	-0.897	-0.986	-1.105	-0.933	-0.963	-1.118
SD of Kurtosis	0.616	1.286	0.529	0.577	0.651	0.530

TABLE B - 94

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0146	.0346*	.0516*	.0848*	.1234*	.0212*	.0050*	.0022	.0004	.0000
Int.	Ord.	.0188	.0400*	.0544*	.0840*	.1186*	.0202*	.0076	.0026	.0010	.0000
Int.	Per.	.0052	.0136	.0234	.0386	.0646	.0556	.0352	.0206	.0114	.0028
Ord.	Int.	.0108	.0278*	.0424*	.0746*	.1114*	.0190*	.0060	.0024	.0010	.0000
Ord.	Ord.	.0146	.0318*	.0464*	.0744*	.1104*	.0216*	.0090	.0034	.0010	.0002
Ord.	Per.	.0048	.0116	.0210	.0376	.0602	.0576	.0350	.0198	.0110	.0024
Per.	Int.	.0048	.0134	.0216	.0400	.0670	.0408	.0204	.0082	.0046	.0006
Per.	Ord.	.0046	.0136	.0208	.0396	.0678	.0406	.0204	.0078	.0036	.0008
Per.	Per.	.0026	.0072	.0126	.0262	.0474	.0500	.0268	.0122	.0060	.0018

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.967	50.005	50.007	49.910	49.982	49.904
SD of Means	1.796	1.798	4.310	3.588	3.543	4.270
Mean of SDs	3.168	3.322	8.262	6.386	6.350	8.245
SD of SDs	1.648	1.301	2.277	3.295	3.107	2.320
Mean of Skews	0.434	0.314	0.007	-0.425	-0.485	0.012
SD of Skews	0.600	0.608	0.595	0.592	0.633	0.585
Mean of Kurtosis	-0.910	-1.014	-1.108	-0.933	1.394	-1.116
SD of Kurtosis	0.604	0.844	0.524	0.572	.556	0.515

TABLE B - 95

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0120	.0324*	.0500*	.0858*	.1254*	.0200*	.0072	.0022	.0008	.0002
Int.	Ord.	.0176	.0366*	.0534*	.0830*	.1180*	.0232*	.0098	.0028	.0014	.0002
Int.	Per.	.0034	.0104	.0166	.0366	.0626	.0416	.0198	.0094	.0040	.0006
Ord.	Int.	.0094	.0242*	.0394*	.0730*	.1166*	.0226*	.0078	.0022	.0008	.0000
Ord.	Ord.	.0124	.0300*	.0428*	.0744*	.1108*	.0236*	.0098	.0034	.0014	.0002
Ord.	Per.	.0032	.0090	.0146	.0292	.0552	.0458	.0236	.0090	.0056	.0002
Per.	Int.	.0056	.0126	.0232	.0502*	.0900*	.0280*	.0098	.0028	.0014	.0000
Per.	Ord.	.0062	.0156	.0260	.0522*	.0918	.0284*	.0122	.0032	.0016	.0002
Per.	Per.	.0028	.0066	.0102	.0244	.0452	.0526	.0282	.0132	.0064	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.953	49.989	49.987	50.008	50.078	50.015
SD of Means	1.782	1.784	2.148	3.587	3.546	2.141
Mean of SDs	3.157	3.320	4.141	6.346	6.327	4.124
SD of SDs	1.621	1.285	1.158	3.235	3.074	1.153
Mean of Skews	0.430	0.315	0.013	-0.431	-0.500	-0.009
SD of Skews	0.596	0.599	0.591	0.596	0.622	0.592
Mean of Kurtosis	-0.928	-0.989	-1.127	-0.934	-1.570	-1.111
SD of Kurtosis	0.591	1.448	0.527	0.589	.575	0.556

TABLE B - 96

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0076	.0210	.0308*	.0504*	.0774*	.0244*	.0070	.0026	.0016	.0000
Int.	Ord.	.0044	.0126	.0222	.0404	.0642	.0322	.0106	.0030	.0022	.0002
Int.	Per.	.0020	.0056	.0108	.0216	.0404	.0626	.0366	.0170	.0098	.0030
Ord.	Int.	.0022	.0150	.0248	.0436	.0662	.0302	.0104	.0030	.0024	.0004
Ord.	Ord.	.0034	.0102	.0178	.0342	.0556	.0400	.0158	.0042	.0028	.0006
Ord.	Per.	.0020	.0056	.0108	.0210	.0400	.0630	.0366	.0176	.0104	.0028
Per.	Int.	.0038	.0088	.0122	.0284	.0506	.0568	.0322	.0150	.0074	.0026
Per.	Ord.	.0038	.0088	.0120	.0280	.0500	.0582	.0324	.0152	.0070	.0026
Per.	Per.	.0008	.0040	.0082	.0208	.0404	.0574	.0308	.0106	.0068	.0020

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.012	50.044	50.301	49.992	49.926	49.434
SD of Means	1.036	1.033	7.464	1.023	1.010	7.300
Mean of SDs	3.725	3.789	27.654	3.716	3.763	27.600
SD of SDs	1.118	0.805	3.533	1.131	0.808	3.497
Mean of Skews	0.986	0.615	0.001	-0.969	-0.611	0.017
SD of Skews	0.610	0.498	0.386	0.607	0.488	0.380
Mean of Kurtosis	0.535	-0.383	-1.062	0.479	-0.406	-1.078
SD of Kurtosis	1.757	1.209	0.438	1.729	1.167	0.427

TABLE B - 97

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Negative Skewed(N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0094	.0254*	.0390*	.0666*	.1014*	.0208*	.0076	.0032	.0008	.0000
Int.	Ord.	.0060	.0182	.0274	.0506*	.0818*	.0282*	.0104	.0038	.0020	.0000
Int.	Per.	.0028	.0080	.0142	.0308	.0550	.0560	.0292	.0128	.0068	.0020
Ord.	Int.	.0060	.0180	.0312*	.0538*	.0870*	.0264*	.0088	.0040	.0012	.0000
Ord.	Ord.	.0040	.0126	.0212	.0414	.0702*	.0356	.0134	.0050	.0030	.0004
Ord.	Per.	.0022	.0082	.0132	.0296	.0548	.0584	.0316	.0140	.0076	.0022
Per.	Int.	.0038	.0092	.0166	.0322	.0614	.0500	.0246	.0108	.0064	.0022
Per.	Ord.	.0038	.0080	.0152	.0296	.0568	.0532	.0276	.0110	.0068	.0028
Per.	Per.	.0018	.0058	.0106	.0258	.0532	.0534	.0262	.0110	.0062	.0024

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.989	50.019	50.037	50.033	49.966	49.882
SD of Means	1.041	1.038	2.502	1.031	1.022	2.476
Mean of SDs	3.711	3.783	9.223	3.670	3.722	9.137
SD of SDs	1.119	0.808	1.169	1.122	0.806	1.187
Mean of Skews	0.981	0.617	0.009	-0.984	-0.624	0.005
SD of Skews	0.605	0.487	0.388	0.603	0.485	0.379
Mean of Kurtosis	0.507	-0.400	-1.066	0.525	-0.373	-1.063
SD of Kurtosis	1.737	1.169	0.446	1.741	1.179	0.440

TABLE B - 98

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Negative Skewed (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0088	.0252*	.0350*	.0578*	.0862*	.0252*	.0088	.0020	.0010	.0000
Int.	Ord.	.0042	.0162	.0246	.0464*	.0740*	.0328	.0128	.0034	.0016	.0000
Int.	Per.	.0022	.0080	.0136	.0306	.0570	.0456	.0220	.0086	.0036	.0002
Ord.	Int.	.0054	.0168	.0270	.0454*	.0734*	.0318	.0120	.0034	.0016	.0000
Ord.	Ord.	.0030	.0104	.0194	.0364	.0620	.0398	.0166	.0056	.0020	.0000
Ord.	Per.	.0014	.0070	.0114	.0248	.0508	.0502	.0264	.0114	.0052	.0004
Per.	Int.	.0026	.0100	.0142	.0354	.0566	.0430	.0182	.0072	.0036	.0002
Per.	Ord.	.0020	.0068	.0130	.0282	.0504	.0494	.0236	.0106	.0050	.0008
Per.	Per.	.0014	.0050	.0096	.0204	.0450	.0568	.0284	.0146	.0082	.0012

	Descriptions of Samples					
	Sample A Interval	Ordinal	Percentile	Sample B Interval	Ordinal	Percentile
Means of Means	49.991	50.022	50.029	50.005	49.942	49.924
SD of Means	1.036	1.029	1.232	1.040	1.032	1.244
Mean of SDs	3.705	3.778	4.603	3.705	3.749	4.595
SD of SDs	1.135	0.815	0.580	1.098	0.778	0.579
Mean of Skews	0.976	0.618	0.008	-0.977	-0.615	0.008
SD of Skews	0.602	0.486	0.379	0.600	0.485	0.390
Mean of Kurtosis	0.497	-0.394	-1.070	0.485	-0.412	-1.069
SD of Kurtosis	1.714	1.164	0.418	1.714	1.150	0.427

TABLE B - 99

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 30) and Negative Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0036	.0142	.0230	.0422	.0734*	.0304*	.0144	.0048	.0016	.0002
Int.	Ord.	.0024	.0088	.0174	.0360	.0598	.0398	.0172	.0056	.0026	.0004
Int.	Per.	.0008	.0060	.0110	.0268	.0508	.0484	.0220	.0092	.0042	.0006
Ord.	Int.	.0020	.0102	.0160	.0366	.0612	.0374	.0170	.0066	.0022	.0002
Ord.	Ord.	.0008	.0064	.0122	.0286	.0510	.0440	.0214	.0080	.0036	.0006
Ord.	Per.	.0002	.0046	.0086	.0206	.0440	.0542	.0276	.0104	.0056	.0010
Per.	Int.	.0008	.0064	.0098	.0252	.0536	.0418	.0210	.0086	.0034	.0006
Per.	Ord.	.0002	.0052	.0078	.0202	.0432	.0516	.0264	.0102	.0058	.0014
Per.	Per.	.0002	.0028	.0058	.0180	.0386	.0584	.0292	.0142	.0066	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.004	50.036	50.042	49.986	49.922	49.899
SD of Means	0.733	0.727	0.866	0.737	0.729	0.876
Mean of SDs	3.859	3.891	4.708	3.859	3.861	4.700
SD of SDs	0.839	0.594	0.399	0.827	0.379	0.395
Mean of Skews	1.221	0.716	0.006	-1.212	-0.709	0.017
SD of Skews	0.572	0.444	0.265	0.571	0.444	0.269
Mean of Kurtosis	1.475	-0.094	-1.139	1.449	-0.113	-1.145
SD of Kurtosis	2.350	1.505	0.253	2.350	1.508	0.254

TABLE B - 100

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0172	.0366*	.0490*	.0782*	.1108*	.0256*	.0082	.0016	.0008	.0002
Int.	Ord.	.0200	.0456*	.0606*	.0956*	.1364*	.0174*	.0070	.0014	.0008	.0002
Int.	Per.	.0070	.0202	.0300*	.0594*	.1012*	.0248*	.0150	.0078	.0044	.0010
Ord.	Int.	.0178	.0362*	.0488*	.0764*	.1086*	.0250*	.0084	.0016	.0008	.0002
Ord.	Ord.	.0192	.0436*	.0586*	.0928*	.1338*	.0172*	.0074	.0012	.0008	.0002
Ord.	Per.	.0072	.0202	.0306*	.0592*	.1010*	.0256*	.0160	.0078	.0042	.0010
Per.	Int.	.0040	.0082	.0144	.0316	.0558	.0490	.0248	.0076	.0020	.0006
Per.	Ord.	.0046	.0094	.0158	.0370	.0668	.0390	.0214	.0072	.0026	.0004
Per.	Per.	.0034	.0106	.0188	.0438	.0798*	.0340	.0156	.0052	.0020	.0004

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.982	50.017	50.110	50.062	51.276	52.808
SD of Means	1.041	1.039	7.535	5.177	4.174	7.699
Mean of SDs	3.696	3.775	27.676	18.467	15.295	28.968
SD of SDs	1.082	0.772	3.427	5.687	3.523	3.640
Mean of Skews	0.981	0.614	0.013	-0.990	-0.809	-0.048
SD of Skews	0.594	0.481	0.390	0.592	0.495	0.385
Mean of Kurtosis	0.490	-0.417	-1.065	0.498	0.040	-1.092
SD of Kurtosis	1.712	1.145	0.428	1.696	1.227	0.424

TABLE B - 101

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Negative Skewed(N =15) DISTRIBUTIONS

Scales A	B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0090	.0218	.0348*	.0576*	.0906*	.0262*	.0098	.0016	.0004	.0000
Int.	Ord.	.0084	.0232	.0348*	.0570*	.0962*	.0238*	.0090	.0014	.0004	.0000
Int.	Per.	.0018	.0076	.0132	.0286	.0524	.0476	.0250	.0114	.0070	.0020
Ord.	Int.	.0076	.0190	.0298*	.0526*	.0872*	.0278*	.0118	.0020	.0004	.0000
Ord.	Ord.	.0070	.0202	.0310*	.0540*	.0868*	.0266*	.0094	.0022	.0004	.0000
Ord.	Per.	.0014	.0070	.0140	.0276	.0524	.0482	.0262	.0124	.0072	.0018
Per.	Int.	.0028	.0110	.0168	.0324	.0570	.0450	.0210	.0060	.0028	.0006
Per.	Ord.	.0022	.0108	.0172	.0346	.0602	.0450	.0198	.0066	.0022	.0004
Per.	Per.	.0014	.0054	.0116	.0264	.0464	.0528	.0280	.0112	.0056	.0010

	Descriptions of Samples					
	Interval	Sample A Ordinal	Percentile	Interval	Sample B Ordinal	Percentile
Means of Means	50.054	50.088	50.195	50.065	50.147	50.105
SD of Means	1.050	1.054	2.527	2.039	2.009	2.445
Mean of SDs	3.750	3.807	9.234	7.370	7.297	9.161
SD of SDs	1.112	0.802	1.183	2.209	2.061	1.179
Mean of Skews	0.977	0.605	-0.009	-1.004	-0.966	-0.025
SD of Skews	0.604	0.494	0.390	0.601	0.601	0.384
Mean of Kurtosis	0.501	-0.409	-1.066	0.546	0.217	-1.039
SD of Kurtosis	1.724	1.172	0.427	1.762	1.747	0.445

TABLE B - 102

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Negative Skewed (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0108	.0236	.0362*	.0654*	.1022*	.0272*	.0118	.0028	.0016	.0004
Int.	Ord.	.0104	.0230	.0358*	.0640*	.1008*	.0270*	.0122	.0032	.0018	.0004
Int.	Per.	.0020	.0094	.0162	.0346	.0598	.0390	.0202	.0090	.0042	.0012
Ord.	Int.	.0086	.0192	.0330*	.0612*	.0932*	.0286*	.0128	.0038	.0016	.0004
Ord.	Ord.	.0088	.0198	.0316*	.0588*	.0944*	.0270*	.0120	.0042	.0018	.0006
Ord.	Per.	.0014	.0074	.0122	.0276	.0542	.0446	.0222	.0110	.0056	.0014
Per.	Int.	.0040	.0146	.0252	.0488*	.0822*	.0314	.0130	.0048	.0020	.0004
Per.	Ord.	.0050	.0142	.0242	.0480*	.0830*	.0310	.0142	.0050	.0024	.0008
Per.	Per.	.0016	.0050	.0096	.0238	.0450	.0494	.0252	.0118	.0062	.0018

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.010	50.041	50.050	50.049	50.122	50.035
SD of Means	1.036	1.027	1.231	2.070	2.028	1.239
Mean of SDs	3.718	3.787	4.610	7.344	7.271	4.577
SD of SDs	1.127	0.812	0.577	2.183	2.033	0.588
Mean of Skews	0.981	0.614	0.002	-0.987	-0.955	-0.009
SD of Skews	0.603	0.485	0.387	0.602	0.596	0.384
Mean of Kurtosis	0.507	-0.401	-1.068	0.518	0.200	-1.037
SD of Kurtosis	1.731	1.155	0.429	1.731	1.717	0.447

TABLE B - 103

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 30) and Negative Skewed(N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0068	.0188	.0264	.0494*	.0794*	.0312*	.0128	.0028	.0008	.0000
Int.	Ord.	.0064	.0196	.0296*	.0506*	.0844*	.0282*	.0114	.0028	.0008	.0000
Int.	Per.	.0022	.0082	.0130	.0316	.0560	.0418	.0186	.0074	.0034	.0006
Ord.	Int.	.0056	.0164	.0246	.0472*	.0736*	.0330	.0138	.0034	.0012	.0000
Ord.	Ord.	.0060	.0164	.0276	.0486*	.0794*	.0304*	.0124	.0032	.0010	.0000
Ord.	Per.	.0020	.0064	.0128	.0268	.0482	.0472	.0228	.0092	.0050	.0008
Per.	Int.	.0038	.0124	.0192	.0430	.0684	.0358	.0158	.0042	.0016	.0002
Per.	Ord.	.0034	.0130	.0220	.0444*	.0732*	.0342	.0136	.0044	.0014	.0002
Per.	Per.	.0006	.0044	.0100	.0232	.0440	.0522	.0262	.0108	.0062	.0012

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.009	50.044	50.047	50.012	50.084	50.021
SD of Means	0.732	0.734	0.884	1.458	1.435	0.877
Mean of SDs	3.868	3.900	4.711	7.681	7.585	4.689
SD of SDs	0.842	0.600	0.400	1.661	1.540	0.407
Mean of Skews	1.228	0.722	0.002	-1.229	-1.157	-0.014
SD of Skews	0.585	0.460	0.275	0.578	0.578	0.264
Mean of Kurtosis	1.519	-0.056	-1.131	1.490	1.073	-1.118
SD of Kurtosis	2.428	1.588	0.264	2.403	2.339	0.259

TABLE B - 104

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0062	.0174	.0284	.0506*	.0824*	.0364	.0168	.0060	.0028	.0002
Int.	Ord.	.0020	.0080	.0144	.0324	.0612	.0426	.0210	.0068	.0034	.0000
Int.	Per.	.0002	.0008	.0010	.0022*	.0056*	.0076*	.0014*	.0008	.0002	.0000
Ord.	Int.	.0062	.0170	.0264	.0458*	.0758*	.0404	.0198	.0080	.0036	.0002
Ord.	Ord.	.0014	.0084	.0148	.0326	.0580	.0450	.0236	.0086	.0038	.0004
Ord.	Per.	.0002	.0008	.0010	.0020*	.0056*	.0076*	.0016*	.0008	.0004	.0000
Per.	Int.	.0584*	.0880*	.1048*	.1406*	.1782*	.1822*	.1444*	.1088*	.0914*	.0574*
Per.	Ord.	.0584*	.0878*	.1048*	.1398*	.1776*	.1836*	.1460*	.1096*	.0922*	.0578*
Per.	Per.	.0006	.0032	.0070	.0194	.0418	.0546	.0318	.0136	.0070	.0010

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	50.050	50.373	50.000	49.937	49.498
SD of Means	1.798	1.795	12.926	1.022	1.017	7.416
Mean of SDs	3.173	3.325	24.739	3.714	3.753	27.586
SD of SDs	1.646	1.294	6.923	1.115	0.796	3.500
Mean of Skews	0.415	0.294	-0.016	-0.982	-0.614	0.015
SD of Skews	0.606	0.609	0.597	0.601	0.482	0.384
Mean of Kurtosis	-0.915	-0.993	-1.110	0.510	-0.404	-1.073
SD of Kurtosis	0.605	1.159	0.530	1.719	1.151	0.430

TABLE B - 105

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0074	.0192	.0308*	.0572*	.0886*	.0340	.0132	.0050	.0024	.0004
Int.	Ord.	.0034	.0094	.0180	.0360	.0664	.0394	.0162	.0058	.0034	.0002
Int.	Per.	.0000	.0004	.0004	.0030*	.0098*	.0142*	.0048*	.0022	.0006	.0000
Ord.	Int.	.0076	.0204*	.0304*	.0520*	.0822*	.0374	.0188	.0064	.0036	.0008
Ord.	Ord.	.0036	.0108	.0186	.0364	.0640	.0440	.0214	.0068	.0038	.0002
Ord.	Per.	.0000	.0004	.0004	.0026*	.0106*	.0140*	.0054*	.0020	.0008	.0000
Per.	Int.	.0320*	.0538*	.0726*	.1038*	.1406*	.1322*	.0952*	.0606*	.0454*	.0242*
Per.	Ord.	.0274*	.0508*	.0696*	.0978*	.1366*	.1352*	.0968*	.0632*	.0474*	.0242*
Per.	Per.	.0006	.0068	.0108	.0242	.0482	.0522	.0268	.0132	.0078	.0022

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.952	49.989	49.974	49.987	49.925	49.801
SD of Means	1.766	1.769	4.282	1.033	1.018	2.458
Mean of SDs	3.167	3.324	8.293	3.718	3.753	9.197
SD of SDs	1.622	1.282	2.320	1.106	0.786	1.161
Mean of Skews	0.438	0.314	0.010	-0.981	-0.613	0.014
SD of Skews	0.588	0.596	0.591	0.597	0.486	0.382
Mean of Kurtosis	-0.917	-1.004	-1.114	0.502	-0.400	-1.067
SD of Kurtosis	0.597	1.026	0.524	1.696	1.143	0.421

TABLE B - 106

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0090	.0210	.0310*	.0554*	.0872*	.0314	.0144	.0044	.0014	.0000
Int.	Ord.	.0042	.0124	.0188	.0368	.0666	.0350	.0162	.0052	.0016	.0000
Int.	Per.	.0002	.0024	.0060	.0150	.0306*	.0318	.0120	.0050	.0008	.0000
Ord.	Int.	.0090	.0190	.0296*	.0514*	.0818*	.0342	.0152	.0046	.0020	.0002
Ord.	Ord.	.0044	.0132	.0184	.0364	.0648	.0386	.0182	.0052	.0020	.0000
Ord.	Per.	.0004	.0034	.0072	.0156	.0322	.0328	.0154	.0042	.0018	.0000
Per.	Int.	.0110	.0222	.0342*	.0588*	.0904*	.0588	.0296	.0128	.0062	.0012
Per.	Ord.	.0072	.0172	.0245	.0484*	.0766*	.0646	.0326	.0130	.0068	.0008
Per.	Per.	.0014	.0062	.0120	.0252	.0500	.0490	.0244	.0106	.0042	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.973	50.006	50.005	50.027	49.970	49.960
SD of Means	1.763	1.755	2.124	1.042	1.026	1.233
Mean of SDs	3.192	3.339	4.155	3.707	3.746	4.596
SD of SDs	1.641	1.296	1.155	1.116	0.794	0.577
Mean of Skews	0.433	0.315	0.008	-0.994	-0.629	-0.001
SD of Skews	0.594	0.598	0.589	0.599	0.483	0.383
Mean of Kurtosis	-0.923	-1.009	-1.118	0.536	-0.378	-1.069
SD of Kurtosis	0.585	0.870	0.523	1.736	1.163	0.423

TABLE B - 107

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Negative Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0058	.0172	.0242	.0488*	.0790*	.0296*	.0124	.0040	.0018	.0000
Int.	Ord.	.0018	.0110	.0172	.0346	.0610	.0372	.0156	.0056	.0024	.0004
Int.	Per.	.0002	.0024	.0056	.0176	.0380	.0324	.0156	.0046	.0022	.0006
Ord.	Int.	.0036	.0150	.0214	.0422	.0706*	.0348	.0132	.0054	.0022	.0000
Ord.	Ord.	.0022	.0088	.0152	.0302	.0550	.0424	.0186	.0066	.0038	.0006
Ord.	Per.	.0004	.0032	.0060	.0176	.0334	.0390	.0166	.0062	.0024	.0008
Per.	Int.	.0038	.0142	.0220	.0418	.0714*	.0526	.0256	.0108	.0062	.0016
Per.	Ord.	.0022	.0104	.0170	.0332	.0588	.0616	.0310	.0138	.0078	.0018
Per.	Per.	.0012	.0042	.0080	.0210	.0412	.0540	.0238	.0106	.0064	.0012

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.000	50.034	50.039	50.004	49.941	49.923
SD of Means	1.028	1.024	1.230	0.718	0.707	0.851
Mean of SDs	3.713	3.785	4.602	3.859	3.865	4.704
SD of SDs	1.119	0.801	0.586	0.837	0.587	0.395
Mean of Skews	0.981	0.620	0.009	-1.222	-0.719	0.012
SD of Skews	0.603	0.486	0.379	0.586	0.456	0.261
Mean of Kurtosis	0.498	-0.397	-1.070	1.497	-0.075	-1.151
SD of Kurtosis	1.740	1.180	0.428	2.473	1.612	0.250

TABLE B - 108

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0014	.0032	.0052	.0132	.0300	.0006*	.0000*	.0000	.0000	.0000
Int.	Ord.	.0014	.0042	.0064	.0178	.0392	.0004*	.0000*	.0000	.0000	.0000
Int.	Per.	.0000	.0006	.0014	.0046*	.0132*	.0028*	.0006*	.0002	.0000	.0000
Ord.	Int.	.0014	.0030	.0052	.0130	.0294*	.0008*	.0000*	.0000	.0000	.0000
Ord.	Ord.	.0012	.0036	.0060	.0164	.0370	.0004*	.0000*	.0000	.0000	.0000
Ord.	Per.	.0000	.0006	.0014	.0046*	.0122*	.0024*	.0008*	.0002	.0000	.0000
Per.	Int.	.0102	.0240	.0386*	.0708*	.1000*	.0830*	.0482*	.0258	.0166	.0050
Per.	Ord.	.0174	.0376*	.0538*	.0880*	.1224*	.0898*	.0572*	.0316*	.0226	.0088
Per.	Per.	.0016	.0060	.0098	.0286	.0596	.0312	.0140	.0042	.0020	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.022	50.049	50.240	50.084	51.274	52.813
SD of Means	1.825	1.799	12.765	5.208	4.237	7.911
Mean of SDs	3.229	3.372	24.957	18.397	15.294	28.909
SD of SDs	1.693	1.333	6.862	5.482	3.451	3.624
Mean of Skews	0.432	0.309	0.005	-1.003	-0.821	-0.047
SD of Skews	0.596	0.607	0.591	0.598	0.508	0.392
Mean of Kurtosis	-0.922	-0.996	-1.116	0.546	0.089	-1.072
SD of Kurtosis	0.577	0.933	0.522	1.722	1.283	0.436

TABLE B - 109

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0024	.0064	.0124	.0234	.0434	.0070*	.0016*	.0000	.0000	.0000
Int.	Ord.	.0018	.0060	.0106	.0214	.0416	.0066*	.0018*	.0000	.0000	.0000
Int.	Per.	.0002	.0004	.0008	.0040*	.0118*	.0126*	.0054*	.0016	.0004	.0000
Ord.	Int.	.0022	.0064	.0116	.0226	.0418	.0074*	.0010*	.0000	.0000	.0000
Ord.	Ord.	.0020	.0070	.0096	.0216	.0404	.0076*	.0012*	.0000	.0000	.0000
Ord.	Per.	.0002	.0002	.0006	.0046*	.0116*	.0146*	.0052*	.0010	.0004	.0000
Per.	Int.	.0106	.0234	.0356*	.0568*	.0884*	.0594	.0352	.0150	.0068	.0012
Per.	Ord.	.0100	.0220	.0352*	.0580*	.0900*	.0608	.0356	.0144	.0056	.0012
Per.	Per.	.0008	.0066	.0124	.0266	.0532	.0488	.0252	.0100	.0066	.0016

	Descriptions of Samples: Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.939	49.977	49.931	49.979	50.055	49.998
SD of Means	1.780	1.783	4.301	2.074	2.040	2.452
Mean of SDs	3.156	3.325	8.284	7.407	7.340	9.155
SD of SDs	1.626	1.290	2.327	2.249	2.100	1.190
Mean of Skews	0.424	0.313	0.006	-0.991	-0.953	-0.011
SD of Skews	0.604	0.608	0.597	0.609	0.605	0.385
Mean of Kurtosis	-0.916	-0.997	-1.112	0.528	0.207	-1.043
SD of Kurtosis	0.596	1.383	0.526	1.742	1.728	0.427

TABLE B - 110

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =5) and Negative Skewed (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0016	.0046	.0082	.0226	.0424	.0068*	.0038*	.0012	.0006	.0000
Int.	Ord.	.0014	.0040	.0082	.0208	.0422	.0076*	.0038*	.0012	.0006	.0000
Int.	Per.	.0002	.0012	.0028	.0096	.0298*	.0342	.0164	.0066	.0030	.0018
Ord.	Int.	.0016	.0050	.0074	.0226	.0412	.0070*	.0030*	.0008	.0004	.0000
Ord.	Ord.	.0016	.0040	.0072	.0208	.0404	.0072*	.0028*	.0010	.0004	.0000
Ord.	Per.	.0004	.0018	.0034	.0098	.0288*	.0372	.0182	.0062	.0034	.0016
Per.	Int.	.0012	.0064	.0096	.0242	.0470	.0106*	.0038*	.0010	.0004	.0000
Per.	Ord.	.0016	.0056	.0082	.0234	.0472	.0096*	.0038*	.0018	.0004	.0000
Per.	Per.	.0008	.0042	.0078	.0210	.0460	.0580	.0288	.0106	.0052	.0020

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.978	50.018	50.031	49.943	50.019	49.975
SD of Means	1.760	1.765	2.131	2.111	2.081	1.255
Mean of SDs	3.168	3.324	4.142	7.414	7.347	4.574
SD of SDs	1.572	1.233	1.133	2.243	2.099	0.591
Mean of Skews	0.439	0.315	0.011	-0.987	-0.951	-0.002
SD of Skews	0.603	0.607	0.596	0.608	0.607	0.387
Mean of Kurtosis	-0.907	-0.999	-1.108	0.517	0.203	-1.034
SD of Kurtosis	0.588	0.944	0.525	1.743	1.729	0.443

TABLE B - 111

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Negative Skewed (N = 30) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0026	.0068	.0138	.0286	.0514	.0092*	.0020*	.0002	.0000	.0000
Int.	Ord.	.0020	.0070	.0136	.0298	.0530	.0090*	.0018*	.0002	.0000	.0000
Int.	Per.	.0004	.0036	.0086	.0236	.0460	.0322	.0136	.0042	.0014	.0000
Ord.	Int.	.0016	.0068	.0118	.0280	.0474	.0092*	.0020*	.0002	.0000	.0000
Ord.	Ord.	.0014	.0066	.0120	.0274	.0498	.0086*	.0024*	.0000	.0000	.0000
Ord.	Per.	.0004	.0028	.0072	.0228	.0434	.0362	.0152	.0050	.0024	.0000
Per.	Int.	.0018	.0076	.0136	.0286	.0532	.0122*	.0038*	.0010	.0000	.0000
Per.	Ord.	.0016	.0084	.0136	.0286	.0542	.0130*	.0040*	.0006	.0000	.0000
Per.	Per.	.0008	.0050	.0118	.0298	.0516	.0474	.0226	.0094	.0046	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.979	50.011	50.005	50.019	50.097	50.021
SD of Means	1.025	1.026	1.233	1.458	1.428	0.868
Mean of SDs	3.713	3.788	4.620	7.672	7.571	4.682
SD of SDs	1.112	0.799	0.582	1.678	1.560	0.401
Mean of Skews	0.987	0.623	0.015	-1.232	-1.161	-0.012
SD of Skews	0.603	0.486	0.382	0.573	0.571	0.265
Mean of Kurtosis	0.512	-0.397	-1.076	1.501	1.080	-1.110
SD of Kurtosis	1.746	1.178	0.421	2.379	2.304	0.254

TABLE B - 112

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.1018*	.1530*	.1802*	.2230*	.2648*	.1286*	.0866*	.0514*	.0356*	.0142
Int.	Ord.	.1018*	.1560*	.1870*	.2368*	.2784*	.1050*	.0672*	.0410*	.0288*	.0132
Int.	Per.	.0796*	.1166*	.1410*	.1874*	.2352*	.1444*	.1124*	.0870*	.0702*	.0438*
Ord.	Int.	.1006*	.1516*	.1774*	.2256*	.2632*	.1294*	.0868*	.0514*	.0356*	.0148
Ord.	Ord.	.0988*	.1526*	.1860*	.2340*	.2760*	.1046*	.0674*	.0422*	.0306*	.0134
Ord.	Per.	.0798*	.1154*	.1410*	.1880*	.2352*	.1454*	.1114*	.0864*	.0700*	.0444*
Per.	Int.	.0000	.0012	.0024	.0068	.0190*	.0264*	.0092	.0030	.0010	.0002
Per.	Ord.	.0000	.0014	.0030	.0064	.0188*	.0140*	.0054*	.0014	.0006	.0000
Per.	Per.	.0020	.0088	.0184	.0384	.0774*	.0418	.0196	.0092	.0036	.0008

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.015	50.048	50.319	49.957	51.119	52.559
SD of Means	1.041	1.034	7.391	9.125	7.407	13.739
Mean of SDs	3.725	3.796	27.676	15.790	13.410	25.973
SD of SDs	1.133	0.816	3.515	8.175	5.693	7.221
Mean of Skews	0.981	0.615	0.003	-0.436	-0.384	-0.031
SD of Skews	0.605	0.493	0.386	0.591	0.597	0.598
Mean of Kurtosis	0.511	-0.393	-1.066	-0.930	-0.951	-1.118
SD of Kurtosis	1.736	1.182	0.432	0.575	0.568	0.525

TABLE B - 113

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0316*	.0690*	.0940*	.1324*	.1780*	.0860*	.0528*	.0248	.0134	.0046
Int.	Ord.	.0368*	.0708*	.0904*	.1334*	.1742*	.0842*	.0512*	.0242	.0150	.0060
Int.	Per.	.0338*	.0580*	.0748*	.1140*	.1532*	.1342*	.0916*	.0628*	.0474*	.0238*
Ord.	Int.	.0192	.0538*	.0766*	.1208*	.1682*	.0876*	.0522*	.0248	.0142	.0040
Ord.	Ord.	.0236*	.0562*	.0784*	.1230*	.1706*	.0872*	.0516*	.0248	.0144	.0054
Ord.	Per.	.0270*	.0528*	.0714*	.1062*	.1508*	.1376*	.0938*	.0640*	.0472*	.0238*
Per.	Int.	.0002	.0018	.0042	.0110	.0270*	.0334	.0148	.0050	.0022	.0002
Per.	Ord.	.0002	.0020	.0040	.0108	.0284*	.0306*	.0130	.0052	.0020	.0002
Per.	Per.	.0004	.0042	.0086	.0240	.0470	.0516	.0234	.0108	.0054	.0014

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.000	50.032	50.072	50.030	50.120	50.106
SD of Means	1.038	1.033	2.486	3.665	3.588	4.328
Mean of SDs	3.715	3.785	9.217	6.356	6.316	8.228
SD of SDs	1.115	0.802	1.165	3.345	3.120	2.324
Mean of Skews	0.982	0.617	0.007	-0.442	-0.521	-0.018
SD of Skews	0.607	0.486	0.391	0.593	0.617	0.591
Mean of Kurtosis	0.512	-0.396	-1.064	-0.922	-0.306	-1.108
SD of Kurtosis	1.717	1.140	0.433	0.575	.480	0.516

TABLE B - 114

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Negative Skewed (N =5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0336*	.0606*	.0824*	.1224*	.1712*	.0842*	.0496*	.0250	.0174	.0056
Int.	Ord.	.0366*	.0620*	.0830*	.1228*	.1686*	.0836*	.0502*	.0242	.0170	.0056
Int.	Per.	.0104	.0274*	.0376*	.0590*	.0900*	.0608	.0356	.0166	.0090	.0020
Ord.	Int.	.0252*	.0482*	.0698*	.1134*	.1596*	.0856*	.0520*	.0258	.0172	.0060
Ord.	Ord.	.0282*	.0520*	.0740*	.1150*	.1578*	.0846*	.0510*	.0258	.0180	.0056
Ord.	Per.	.0060	.0174	.0280	.0488*	.0798*	.0636	.0368	.0182	.0088	.0024
Per.	Int.	.0070	.0224	.0386*	.0714*	.1184*	.0768*	.0462*	.0210	.0142	.0036
Per.	Ord.	.0076	.0266*	.0402*	.0770*	.1230*	.0750*	.0432	.0220	.0152	.0040
Per.	Per.	.0012	.0060	.0102	.0268	.0506	.0524	.0288	.0128	.0060	.0016

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.027	50.058	50.067	49.947	50.035	50.004
SD of Means	1.042	1.033	1.233	3.630	3.556	2.169
Mean of SDs	3.731	3.794	4.610	6.418	6.362	4.139
SD of SDs	1.123	0.810	0.594	3.266	3.046	1.163
Mean of Skews	0.983	0.614	0.002	-0.445	-0.511	-0.010
SD of Skews	0.597	0.482	0.372	0.594	0.622	0.592
Mean of Kurtosis	0.500	-0.405	-1.078	-0.920	-1.226	-1.105
SD of Kurtosis	1.735	1.180	0.418	0.578	.661	0.520

TABLE B - 115

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 30) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0200	.0380*	.0534*	.0870*	.1304*	.0602	.0318	.0122	.0064	.0012
Int.	Ord.	.0184	.0406*	.0550*	.0890*	.1308*	.0582	.0300	.0130	.0058	.0016
Int.	Per.	.0026	.0128	.0222	.0422	.0694*	.0492	.0250	.0098	.0048	.0008
Ord.	Int.	.0160	.0340*	.0500*	.0822*	.1206*	.0622	.0332	.0144	.0066	.0012
Ord.	Ord.	.0150	.0360*	.0512*	.0822*	.1230*	.0630	.0322	.0146	.0070	.0016
Ord.	Per.	.0016	.0104	.0176	.0330	.0620	.0564	.0276	.0122	.0066	.0006
Per.	Int.	.0076	.0216	.0352*	.0642*	.1034*	.0602	.0324	.0142	.0058	.0008
Per.	Ord.	.0072	.0218	.0358*	.0652*	.1024*	.0588	.0314	.0138	.0066	.0012
Per.	Per.	.0006	.0030	.0086	.0240	.0450	.0526	.0250	.0126	.0064	.0006

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.989	50.022	50.024	50.000	50.066	50.005
SD of Means	0.731	0.727	0.877	2.055	2.025	1.219
Mean of SDs	3.852	3.886	4.705	7.391	7.331	4.577
SD of SDs	0.827	0.584	0.401	2.227	2.106	0.589
Mean of Skews	1.234	0.724	0.009	-0.995	-0.956	-0.005
SD of Skews	0.580	0.448	0.268	0.606	0.601	0.377
Mean of Kurtosis	1.536	-0.066	-1.134	0.540	0.211	-1.042
SD of Kurtosis	2.410	1.535	0.260	1.749	1.731	0.437

TABLE B - 116

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0038	.0134	.0214	.0404	.0734*	.0270*	.0094	.0032	.0014	.0002
Int.	Ord.	.0052	.0120	.0190	.0410	.0666	.0378	.0150	.0052	.0024	.0006
Int.	Per.	.0112	.0212	.0306*	.0442*	.0672	.0750*	.0548*	.0364*	.0250*	.0148
Ord.	Int.	.0032	.0106	.0178	.0348	.0656	.0374	.0146	.0062	.0040	.0010
Ord.	Ord.	.0032	.0098	.0166	.0344	.0600	.0432	.0198	.0070	.0048	.0008
Ord.	Per.	.0110	.0212	.0300*	.0444*	.0680	.0758*	.0556*	.0362*	.0252*	.0148
Per.	Int.	.0086	.0186	.0262	.0462*	.0724*	.0718*	.0496*	.0318*	.0222	.0110
Per.	Ord.	.0084	.0188	.0254	.0458*	.0718*	.0738*	.0496*	.0322*	.0222	.0108
Per.	Per.	.0026	.0080	.0124	.0274	.0512	.0566	.0314	.0146	.0084	.0030

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.005	50.035	50.197	50.003	49.952	49.789
SD of Means	1.809	1.802	12.964	2.228	2.193	14.257
Mean of SDs	3.201	3.345	24.884	3.724	3.942	27.648
SD of SDs	1.646	1.293	7.010	2.452	1.874	7.163
Mean of Skews	0.437	0.317	0.007	-0.002	-0.008	0.002
SD of Skews	0.600	0.602	0.593	0.771	0.682	0.650
Mean of Kurtosis	-0.915	-0.991	-1.116	-0.892	-1.027	-1.137
SD of Kurtosis	0.603	1.303	0.522	0.673	0.845	0.586

TABLE B - 117

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0080	.0174	.0232	.0354	.0578	.0512	.0334	.0204	.0152	.0070
Int.	Ord.	.0110	.0212	.0270	.0394	.0592	.0590	.0376	.0268	.0212	.0098
Int.	Per.	.0100	.0220	.0294*	.0470*	.0684	.0692*	.0486*	.0322*	.0240	.0122
Ord.	Int.	.0072	.0164	.0226	.0348	.0568	.0528	.0340	.0208	.0152	.0068
Ord.	Ord.	.0096	.0216	.0258	.0390	.0582	.0600	.0384	.0262	.0208	.0090
Ord.	Per.	.0100	.0222	.0296*	.0460*	.0682	.0698*	.0488*	.0322*	.0240	.0122
Per.	Int.	.0016	.0082	.0152	.0280	.0524	.0502	.0274	.0134	.0092	.0030
Per.	Ord.	.0014	.0082	.0146	.0296	.0528	.0552	.0286	.0146	.0100	.0032
Per.	Per.	.0020	.0060	.0108	.0236	.0494	.0528	.0260	.0146	.0068	.0026

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.984	50.017	50.108	50.280	49.880	49.937
SD of Means	1.782	1.781	12.819	11.247	8.029	15.272
Mean of SDs	3.191	3.339	24.933	18.742	15.059	29.798
SD of SDs	1.624	1.279	6.995	12.318	5.642	7.737
Mean of Skews	0.434	0.308	-0.000	0.003	-0.013	0.005
SD of Skews	0.603	0.606	0.602	0.755	0.666	0.627
Mean of Kurtosis	-0.897	-0.986	-1.105	-0.919	-1.048	-1.147
SD of Kurtosis	0.616	1.286	0.529	0.621	0.585	0.591

TABLE B - 118

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Leptokurtic (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0024	.0082	.0160	.0376	.0724*	.0362	.0136	.0038	.0018	.0000
Int.	Ord.	.0022	.0064	.0146	.0392	.0662	.0412	.0166	.0044	.0022	.0000
Int.	Per.	.0040	.0102	.0154	.0298	.0564	.0554	.0290	.0142	.0080	.0024
Ord.	Int.	.0020	.0050	.0132	.0320	.0606	.0424	.0186	.0056	.0022	.0002
Ord.	Ord.	.0016	.0050	.0112	.0320	.0584	.0480	.0196	.0074	.0028	.0000
Ord.	Per.	.0038	.0100	.0160	.0300	.0566	.0562	.0290	.0146	.0080	.0026
Per.	Int.	.0030	.0088	.0142	.0296	.0572	.0560	.0320	.0166	.0092	.0024
Per.	Ord.	.0030	.0090	.0142	.0292	.0536	.0558	.0320	.0170	.0090	.0024
Per.	Per.	.0010	.0042	.0094	.0262	.0532	.0492	.0252	.0108	.0062	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.984	50.016	50.114	50.018	49.967	49.816
SD of Means	1.034	1.029	7.397	1.285	1.256	8.250
Mean of SDs	3.702	3.775	27.639	4.401	4.487	30.680
SD of SDs	1.106	0.796	3.535	1.899	1.361	3.358
Mean of Skews	0.984	0.619	0.011	0.003	0.005	0.013
SD of Skews	0.600	0.484	0.381	1.212	0.832	0.424
Mean of Kurtosis	0.510	-0.397	-1.064	1.120	-0.138	-1.259
SD of Kurtosis	1.720	1.164	0.426	2.310	1.727	0.418

TABLE B - 119

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0016	.0048	.0092	.0218	.0482	.0468	.0206	.0084	.0038	.0006
Int.	Ord.	.0028	.0072	.0136	.0268	.0534	.0548	.0283	.0122	.0064	.0018
Int.	Per.	.0040	.0100	.0146	.0300	.0546	.0580	.0334	.0144	.0094	.0032
Ord.	Int.	.0010	.0050	.0090	.0214	.0482	.0478	.0216	.0084	.0042	.0006
Ord.	Ord.	.0028	.0070	.0134	.0268	.0522	.0552	.0284	.0120	.0064	.0016
Ord.	Per.	.0042	.0100	.0140	.0298	.0538	.0584	.0324	.0140	.0088	.0032
Per.	Int.	.0008	.0038	.0074	.0196	.0398	.0496	.0232	.0094	.0040	.0012
Per.	Ord.	.0014	.0050	.0094	.0206	.0428	.0532	.0280	.0116	.0056	.0014
Per.	Per.	.0012	.0050	.0088	.0212	.0432	.0532	.0278	.0098	.0050	.0008

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.011	50.046	50.322	49.919	49.845	49.816
SD of Means	1.017	1.008	7.243	6.285	4.645	8.942
Mean of SDs	3.721	3.794	27.735	21.982	17.011	33.080
SD of SDs	1.110	0.801	3.520	9.097	3.530	3.609
Mean of Skews	0.975	0.607	-0.002	-0.009	-0.002	0.018
SD of Skews	0.608	0.484	0.374	1.178	0.622	0.407
Mean of Kurtosis	0.501	-0.415	-1.081	1.038	-0.450	-1.237
SD of Kurtosis	1.757	1.177	0.414	2.244	0.987	0.406

TABLE B - 120

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0054	.0098	.0264	.0492	.0378	.0196	.0096	.0048	.0002
Int.	Ord.	.0002	.0034	.0058	.0170	.0380	.0358	.0176	.0074	.0032	.0006
Int.	Per.	.0002	.0006	.0012	.0030*	.0068*	.0086*	.0042*	.0018	.0012	.0002
Ord.	Int.	.0012	.0050	.0120	.0286	.0496	.0420	.0218	.0118	.0058	.0014
Ord.	Ord.	.0002	.0030	.0076	.0172	.0404	.0400	.0210	.0090	.0032	.0010
Ord.	Per.	.0002	.0006	.0012	.0030*	.0070*	.0084*	.0044*	.0018	.0012	.0002
Per.	Int.	.0526*	.0858*	.1048*	.1410*	.1762*	.1728*	.1362*	.1026*	.0824*	.0542*
Per.	Ord.	.0522*	.0864*	.1050*	.1380*	.1748*	.1738*	.1368*	.1038*	.0824*	.0550*
Per.	Per.	.0006	.0032	.0068	.0192	.0390	.0480	.0222	.0094	.0040	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.957	49.991	49.949	49.979	49.920	49.498
SD of Means	1.770	1.761	12.722	1.266	1.249	8.258
Mean of SDs	3.171	3.325	24.855	4.365	4.469	30.554
SD of SDs	1.624	1.276	6.863	1.861	1.371	3.379
Mean of Skews	0.441	0.318	0.015	-0.002	0.000	0.025
SD of Skews	0.591	0.592	0.586	1.198	0.837	0.423
Mean of Kurtosis	-0.918	-1.023	-1.123	1.096	-0.128	-1.248
SD of Kurtosis	0.592	0.910	0.522	2.299	1.754	0.455

TABLE B - 121

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Leptokurtic (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0004	.0010	.0016*	.0034*	.0054*	.0016*	.0006	.0006	.0002
Int.	Ord.	.0002	.0004	.0012	.0018*	.0044*	.0076*	.0022*	.0006	.0004	.0004
Int.	Per.	.0004	.0008	.0012	.0024*	.0046*	.0076*	.0030*	.0012	.0004	.0002
Ord.	Int.	.0002	.0004	.0010	.0016*	.0034*	.0048*	.0016*	.0004	.0002	.0002
Ord.	Ord.	.0002	.0004	.0010	.0018*	.0046*	.0072*	.0024*	.0008	.0004	.0002
Ord.	Per.	.0004	.0008	.0012	.0024*	.0046*	.0072*	.0032*	.0010	.0004	.0002
Per.	Int.	.0060	.0186	.0278	.0494*	.0748*	.0754*	.0476*	.0238*	.0170	.0074
Per.	Ord.	.0082	.0230	.0368*	.0616*	.0980*	.1000*	.0622*	.0346*	.0226	.0092
Per.	Per.	.0000	.0028	.0052	.0138	.0332	.0376	.0158	.0062	.0034	.0004

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.981	50.012	50.004	50.009	49.822	49.681
SD of Means	1.789	1.782	12.831	6.300	4.644	8.890
Mean of SDs	3.202	3.359	25.080	22.194	17.111	33.140
SD of SDs	1.632	1.284	6.867	9.283	3.550	3.716
Mean of Skews	0.429	0.305	-0.000	0.014	0.008	0.025
SD of Skews	0.589	0.597	0.588	1.185	0.633	0.407
Mean of Kurtosis	-0.931	-1.012	-1.124	1.053	-0.429	-1.237
SD of Kurtosis	0.583	1.319	0.522	2.236	0.998	0.414

TABLE B - 122

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0416*	.0726*	.0954*	.1344*	.1826*	.1774*	.1284*	.0870*	.0656*	.0364*
Int.	Ord.	.0418*	.0706*	.0932*	.1306*	.1700*	.1828*	.1312*	.0924*	.0736*	.0416*
Int.	Per.	.0622*	.0852*	.1052*	.1440*	.1802*	.1886*	.1478*	.1118*	.0924*	.0656*
Ord.	Int.	.0404*	.0698*	.0928*	.1342*	.1820*	.1810*	.1294*	.0872*	.0668*	.0350*
Ord.	Ord.	.0396*	.0684*	.0886*	.1294*	.1696*	.1846*	.1328*	.0930*	.0746*	.0416*
Ord.	Per.	.0626*	.0848*	.1050*	.1426*	.1788*	.1902*	.1490*	.1122*	.0924*	.0662*
Per.	Int.	.0000	.0016	.0046	.0122	.0294*	.0268*	.0104	.0032	.0016	.0004
Per.	Ord.	.0000	.0008	.0018	.0072	.0202*	.0198*	.0084	.0026	.0014	.0004
Per.	Per.	.0024	.0102	.0168	.0370	.0630	.0722*	.0424	.0166	.0098	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.993	50.031	50.238	50.054	49.762	49.635
SD of Means	1.037	1.039	7.510	10.677	8.076	15.364
Mean of SDs	3.694	3.775	27.627	18.374	15.078	29.774
SD of SDs	1.109	0.798	3.475	11.713	5.718	7.753
Mean of Skews	0.975	0.610	-0.001	0.010	-0.001	0.014
SD of Skews	0.608	0.489	0.388	0.740	0.662	0.634
Mean of Kurtosis	0.506	-0.402	-1.067	-0.941	-1.059	-1.740
SD of Kurtosis	1.737	1.157	0.421	0.611	0.582	41.595

TABLE B - 123

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Negative Skewed (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0016	.0036	.0122	.0308	.0742*	.0414	.0174	.0090	.0032
Int.	Ord.	.0010	.0034	.0044	.0146	.0352	.0720*	.0402	.0192	.0102	.0036
Int.	Per.	.0104	.0220	.0288	.0418	.0616	.0720*	.0506*	.0354*	.0264*	.0144
Ord.	Int.	.0012	.0030	.0074	.0180	.0376	.0632	.0354	.0144	.0088	.0016
Ord.	Ord.	.0018	.0040	.0078	.0202	.0404	.0634	.0334	.0132	.0086	.0030
Ord.	Per.	.0106	.0222	.0290	.0422	.0620	.0720*	.0504*	.0348*	.0265*	.0146
Per.	Int.	.0118	.0260*	.0332*	.0526*	.0764*	.0634	.0426	.0268	.0196	.0108
Per.	Ord.	.0122	.0246*	.0338*	.0534*	.0766*	.0638	.0422	.0264	.0194	.0106
Per.	Per.	.0030	.0086	.0140	.0282	.0522	.0514	.0262	.0110	.0070	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.980	49.922	49.442	49.957	49.908	49.423
SD of Means	1.840	1.814	13.008	2.174	2.146	14.079
Mean of SDs	3.208	3.320	24.715	3.686	3.928	27.669
SD of SDs	1.673	1.301	6.887	2.411	1.895	7.047
Mean of Skews	-0.443	-0.320	-0.006	0.006	0.014	0.026
SD of Skews	0.596	0.605	0.596	0.763	0.676	0.644
Mean of Kurtosis	-0.919	-0.955	-1.114	-0.962	-1.033	-1.137
SD of Kurtosis	0.599	1.351	0.531	0.651	1.534	0.582

TABLE B - 124

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Negative Skewed (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0058	.0130	.0192	.0336	.0560	.0566	.0346	.0240	.0178	.0090
Int.	Ord.	.0098	.0196	.0258	.0382	.0598	.0648	.0416	.0300*	.0236	.0124
Int.	Per.	.0092	.0224	.0310*	.0478*	.0710*	.0736*	.0544*	.0354*	.0280*	.0156
Ord.	Int.	.0054	.0132	.0196	.0348	.0580	.0566	.0352	.0238	.0170	.0086
Ord.	Ord.	.0088	.0200	.0260	.0394	.0612	.0636	.0412	.0298*	.0224	.0106
Ord.	Per.	.0094	.0222	.0310*	.0494*	.0710*	.0726*	.0548*	.0352*	.0276*	.0154
Per.	Int.	.0008	.0072	.0140	.0314	.0572	.0552	.0284	.0150	.0088	.0024
Per.	Ord.	.0016	.0090	.0154	.0310	.0586	.0568	.0334	.0164	.0098	.0032
Per.	Per.	.0018	.0080	.0136	.0298	.0508	.0514	.0304	.0164	.0104	.0028

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.016	49.947	49.582	49.866	49.882	49.812
SD of Means	1.816	1.790	12.863	10.826	8.112	15.537
Mean of SDs	3.166	3.294	24.651	18.381	15.120	29.691
SD of SDs	1.669	1.305	6.853	11.762	5.781	7.883
Mean of Skews	-0.418	-0.304	0.012	-0.019	-0.012	0.000
SD of Skews	0.601	0.606	0.589	0.758	0.684	0.648
Mean of Kurtosis	-0.943	-0.972	-1.127	-0.911	-1.024	-1.122
SD of Kurtosis	0.611	1.576	0.525	0.613	0.590	0.580

TABLE B - 125

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Negative Skewed (N = 15) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0010	.0036	.0152	.0374	.0676	.0376	.0164	.0086	.0032
Int.	Ord.	.0004	.0016	.0050	.0166	.0372	.0678	.0380	.0170	.0084	.0036
Int.	Per.	.0024	.0086	.0124	.0282	.0506	.0592	.0310	.0152	.0098	.0024
Ord.	Int.	.0006	.0020	.0064	.0206	.0490	.0566	.0254	.0104	.0068	.0018
Ord.	Ord.	.0006	.0032	.0074	.0200	.0456	.0578	.0302	.0102	.0074	.0024
Ord.	Per.	.0024	.0088	.0124	.0290	.0518	.0574	.0302	.0154	.0098	.0028
Per.	Int.	.0042	.0110	.0180	.0386	.0628	.0500	.0248	.0118	.0070	.0026
Per.	Ord.	.0040	.0104	.0182	.0380	.0624	.0502	.0260	.0122	.0072	.0026
Per.	Per.	.0016	.0064	.0122	.0274	.0560	.0500	.0244	.0092	.0060	.0020

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.989	49.930	49.481	50.019	49.967	49.761
SD of Means	1.045	1.039	7.529	1.276	1.251	8.211
Mean of SDs	3.731	3.759	27.624	4.385	4.490	30.602
SD of SDs	1.110	0.793	3.463	1.885	1.384	3.334
Mean of Skews	-0.991	-0.615	0.014	0.007	0.009	0.011
SD of Skews	0.599	0.487	0.387	1.225	0.855	0.426
Mean of Kurtosis	0.535	-0.397	-1.072	1.145	-0.090	-1.250
SD of Kurtosis	1.732	1.167	0.418	2.341	1.774	0.427

TABLE B - 126

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Negative Skewed (N = 15) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0008	.0048	.0092	.0246	.0500	.0508	.0236	.0102	.0058	.0014
Int.	Ord.	.0012	.0062	.0114	.0234	.0488	.0580	.0294	.0150	.0082	.0026
Int.	Per.	.0028	.0082	.0136	.0288	.0516	.0574	.0312	.0154	.0098	.0040
Ord.	Int.	.0008	.0050	.0094	.0270	.0514	.0496	.0228	.0102	.0052	.0018
Ord.	Ord.	.0012	.0064	.0114	.0242	.0500	.0534	.0288	.0140	.0078	.0024
Ord.	Per.	.0028	.0080	.0132	.0296	.0522	.0564	.0302	.0148	.0102	.0040
Per.	Int.	.0004	.0048	.0112	.0288	.0530	.0478	.0256	.0110	.0064	.0008
Per.	Ord.	.0004	.0062	.0090	.0300	.0562	.0530	.0292	.0138	.0080	.0010
Per.	Per.	.0014	.0044	.0098	.0256	.0496	.0482	.0278	.0130	.0066	.0020

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	49.945	49.612	50.104	49.804	49.723
SD of Means	1.055	1.041	7.487	6.360	4.634	8.849
Mean of SDs	3.714	3.756	27.647	22.050	17.059	33.084
SD of SDs	1.125	0.791	3.487	9.396	3.536	3.632
Mean of Skews	-0.981	-0.614	0.014	0.024	-0.002	0.019
SD of Skews	0.604	0.487	0.391	1.173	0.632	0.403
Mean of Kurtosis	0.517	-0.397	-1.073	1.007	-0.433	-1.241
SD of Kurtosis	1.731	1.149	0.429	2.268	1.008	0.398

TABLE B - 127

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Negative Skewed (N = 5) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0008	.0038	.0062	.0190	.0362	.0464	.0230	.0102	.0054	.0012
Int.	Ord.	.0006	.0022	.0044	.0144	.0320	.0398	.0168	.0058	.0022	.0006
Int.	Per.	.0000	.0004	.0010	.0028*	.0058*	.0064*	.0018*	.0006	.0000	.0000
Ord.	Int.	.0018	.0054	.0096	.0206	.0420	.0468	.0224	.0110	.0064	.0016
Ord.	Ord.	.0010	.0036	.0052	.0184	.0370	.0380	.0170	.0064	.0028	.0006
Ord.	Per.	.0000	.0004	.0012	.0028*	.0056*	.0062*	.0018*	.0006	.0000	.0000
Per.	Int.	.0600*	.0872*	.1078*	.1542*	.1958*	.1706*	.1322*	.0978*	.0784*	.0540*
Per.	Ord.	.0586*	.0870*	.1072*	.1522*	.1940*	.1720*	.1334*	.0988*	.0794*	.0546*
Per.	Per.	.0006	.0040	.0076	.0180	.0386	.0396	.0180	.0062	.0032	.0008

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.990	49.928	49.476	50.011	49.952	49.680
SD of Means	1.796	1.786	12.968	1.271	1.249	8.214
Mean of SDs	3.197	3.316	24.718	4.366	4.461	30.584
SD of SDs	1.658	1.290	6.900	1.787	1.321	3.353
Mean of Skews	-0.432	-0.311	0.006	0.009	0.005	0.015
SD of Skews	0.603	0.611	0.592	1.227	0.840	0.423
Mean of Kurtosis	-0.924	-0.962	-1.121	1.169	-0.115	-1.249
SD of Kurtosis	0.596	1.407	0.526	2.300	1.733	0.426

TABLE B - 128

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Negative Skewed (N = 5) and Leptokurtic (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0002	.0004	.0014*	.0046*	.0036*	.0012*	.0006	.0004	.0002
Int.	Ord.	.0000	.0002	.0004	.0020*	.0062*	.0066*	.0022*	.0010	.0008	.0002
Int.	Per.	.0002	.0004	.0008	.0026*	.0076*	.0064*	.0020*	.0008	.0004	.0002
Ord.	Int.	.0000	.0004	.0006	.0014*	.0054*	.0038*	.0014*	.0006	.0004	.0002
Ord.	Ord.	.0000	.0004	.0004	.0018*	.0064*	.0062*	.0024*	.0012	.0008	.0002
Ord.	Per.	.0002	.0004	.0008	.0024*	.0072*	.0064*	.0020*	.0008	.0004	.0002
Per.	Int.	.0066	.0156	.0256	.0512*	.0816*	.0756*	.0494*	.0290	.0186	.0068
Per.	Ord.	.0096	.0212	.0334*	.0636*	.0998*	.0946*	.0646*	.0370*	.0234	.0102
Per.	Per.	.0004	.0020	.0040	.0144	.0356	.0346	.0152	.0068	.0034	.0008

	Descriptions of Samples: Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.036	49.984	49.896	50.271	50.094	50.228
SD of Means	1.792	1.765	12.809	6.500	4.681	8.833
Mean of SDs	3.203	3.309	24.819	22.180	17.115	33.107
SD of SDs	1.672	1.302	6.943	9.248	3.521	3.670
Mean of Skews	-0.446	-0.322	-0.006	0.013	-0.003	0.003
SD of Skews	0.601	0.605	0.600	1.212	0.632	0.403
Mean of Kurtosis	-0.907	-0.951	-1.108	1.107	-0.416	-1.241
SD of Kurtosis	0.602	1.614	0.532	2.323	0.999	0.414

TABLE B - 129

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Negative Skewed (N =15) and Leptokurtic (N =5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0350*	.0658*	.0922*	.1384*	.1872*	.1832*	.1328*	.0894*	.0664*	.0372*
Int.	Ord.	.0396*	.0666*	.0896*	.1270*	.1662*	.1820*	.1388*	.0952*	.0730*	.0420*
Int.	Per.	.0580*	.0878*	.1040*	.1400*	.1760*	.1882*	.1482*	.1090*	.0890*	.0602*
Ord.	Int.	.0364*	.0666*	.0934*	.1406*	.1886*	.1806*	.1302*	.0878*	.0654*	.0350*
Ord.	Ord.	.0394*	.0696*	.0914*	.1276*	.1682*	.1818*	.1346*	.0926*	.0700*	.0416*
Ord.	Per.	.0588*	.0882*	.1048*	.1406*	.1768*	.1876*	.1486*	.1084*	.0894*	.0594*
Per.	Int.	.0000	.0016	.0046	.0154	.0340	.0290*	.0128	.0042	.0012	.0002
Per.	Ord.	.0000	.0006	.0016	.0088	.0218*	.0218*	.0076	.0016	.0008	.0004
Per.	Per.	.0014	.0106	.0164	.0372	.0686	.0684	.0392	.0190	.0106	.0030

	Descriptions of Samples: Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	49.945	49.612	50.189	49.823	49.808
SD of Means	1.055	1.041	7.487	11.225	8.049	15.313
Mean of SDs	3.714	3.756	27.647	18.748	15.074	29.797
SD of SDs	1.125	0.791	3.487	12.169	5.633	7.786
Mean of Skews	-0.981	-0.614	0.014	-0.003	-0.016	0.005
SD of Skews	0.604	0.487	0.391	0.751	0.665	0.624
Mean of Kurtosis	0.517	-0.397	-1.073	-0.922	-1.048	-1.148
SD of Kurtosis	1.731	1.149	0.429	0.615	0.582	0.586

TABLE B - 130

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Leptokurtic (N = 5) and Lepoturtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0012	.0044	.0072	.0180	.0442	.0416	.0186	.0058	.0026	.0008
Int.	Ord.	.0012	.0060	.0104	.0224	.0464	.0452	.0224	.0082	.0044	.0008
Int.	Per.	.0136	.0250*	.0326*	.0478*	.0698*	.0698*	.0476*	.0304*	.0234	.0130
Ord.	Int.	.0016	.0052	.0096	.0270	.0498	.0438	.0206	.0092	.0036	.0004
Ord.	Ord.	.0014	.0058	.0102	.0242	.0496	.0470	.0230	.0084	.0046	.0006
Ord.	Per.	.0136	.0254*	.0330*	.0476*	.0688	.0700*	.0468*	.0300*	.0240	.0124
Per.	Int.	.0144	.0248*	.0350*	.0504*	.0722*	.0634	.0422	.0276	.0200	.0100
Per.	Ord.	.0142	.0252*	.0348*	.0502*	.0726*	.0636	.0422	.0278	.0198	.0096
Per.	Per.	.0020	.0080	.0130	.0286	.0532	.0502	.0268	.0104	.0060	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.014	49.953	49.660	50.016	49.959	49.727
SD of Means	2.244	2.202	14.199	2.208	2.190	14.335
Mean of SDs	3.740	3.953	27.672	3.657	3.912	27.599
SD of SDs	2.504	1.922	7.042	2.402	1.895	7.027
Mean of Skews	0.001	-0.001	0.007	0.011	0.005	0.014
SD of Skews	0.768	0.679	0.647	0.766	0.684	0.657
Mean of Kurtosis	-0.896	-1.024	-1.137	-0.905	-1.039	-1.132
SD of Kurtosis	0.638	0.835	0.579	0.659	1.542	0.592

TABLE B - 131

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Leptokurtic (N = 5) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0076	.0134	.0184	.0322	.0546	.0522	.0314	.0178	.0134	.0074
Int.	Ord.	.0096	.0176	.0234	.0350	.0590	.0604	.0344	.0234	.0178	.0108
Int.	Per.	.0100	.0190	.0284	.0464*	.0684	.0698*	.0480*	.0294*	.0222	.0124
Ord.	Int.	.0066	.0128	.0178	.0328	.0552	.0522	.0310	.0178	.0130	.0066
Ord.	Ord.	.0078	.0178	.0234	.0358	.0600	.0592	.0342	.0226	.0174	.0104
Ord.	Per.	.0098	.0200	.0282	.0458*	.0684	.0698*	.0466*	.0300*	.0214	.0120
Per.	Int.	.0060	.0136	.0194	.0366	.0602	.0560	.0318	.0142	.0092	.0038
Per.	Ord.	.0052	.0138	.0224	.0394	.0630	.0584	.0330	.0158	.0096	.0036
Per.	Per.	.0018	.0074	.0134	.0262	.0524	.0486	.0254	.0120	.0076	.0024

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.997	49.951	49.585	49.956	49.892	49.722
SD of Means	2.236	2.205	14.385	11.030	7.985	15.344
Mean of SDs	3.658	3.888	27.440	18.631	15.051	29.822
SD of SDs	2.384	1.835	7.238	11.999	5.604	7.719
Mean of Skews	0.002	0.011	0.021	0.013	0.024	0.024
SD of Skews	0.778	0.676	0.645	0.755	0.672	0.636
Mean of Kurtosis	-0.887	-1.036	-1.143	-0.917	-1.042	-0.953
SD of Kurtosis	0.664	1.549	0.587	0.618	0.585	9.512

TABLE B - 132

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Leptokurtic (N = 15) and Leptokurtic (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0002	.0036	.0070	.0222	.0496	.0442	.0202	.0058	.0030	.0002
Int.	Ord.	.0006	.0030	.0072	.0216	.0464	.0500	.0220	.0080	.0038	.0004
Int.	Per.	.0026	.0082	.0134	.0298	.0486	.0568	.0338	.0158	.0110	.0044
Ord.	Int.	.0006	.0046	.0084	.0250	.0526	.0416	.0210	.0064	.0022	.0006
Ord.	Ord.	.0006	.0046	.0084	.0248	.0496	.0436	.0230	.0082	.0042	.0008
Ord.	Per.	.0026	.0086	.0138	.0286	.0510	.0560	.0338	.0160	.0106	.0044
Per.	Int.	.0028	.0116	.0164	.0338	.0558	.0502	.0236	.0118	.0066	.0032
Per.	Ord.	.0030	.0112	.0160	.0324	.0556	.0512	.0244	.0120	.0068	.0030
Per.	Per.	.0010	.0058	.0112	.0256	.0504	.0474	.0226	.0098	.0060	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.003	49.947	49.647	49.997	49.948	49.746
SD of Means	1.280	1.260	8.227	1.272	1.258	8.253
Mean of SDs	4.402	4.501	30.645	4.383	4.483	30.601
SD of SDs	1.889	1.398	3.312	1.869	1.375	3.352
Mean of Skews	0.007	0.004	0.020	-0.026	-0.016	0.009
SD of Skews	1.223	0.861	0.423	1.212	0.847	0.420
Mean of Kurtosis	1.137	-0.097	-1.252	1.133	-0.112	-1.252
SD of Kurtosis	2.343	1.803	0.419	2.323	1.792	0.428

TABLE B - 133

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Leptokurtic (N = 15) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0014	.0058	.0102	.0248	.0520	.0470	.0216	.0082	.0050	.0010
Int.	Ord.	.0020	.0080	.0120	.0276	.0514	.0592	.0330	.0140	.0076	.0012
Int.	Per.	.0040	.0100	.0164	.0310	.0528	.0580	.0328	.0170	.0104	.0030
Ord.	Int.	.0016	.0058	.0104	.0254	.0530	.0458	.0210	.0092	.0042	.0008
Ord.	Ord.	.0022	.0080	.0128	.0286	.0536	.0572	.0304	.0148	.0072	.0010
Ord.	Per.	.0040	.0100	.0166	.0306	.0536	.0570	.0336	.0172	.0102	.0026
Per.	Int.	.0012	.0064	.0104	.0258	.0550	.0488	.0252	.0120	.0068	.0018
Per.	Ord.	.0012	.0056	.0098	.0250	.0504	.0524	.0280	.0140	.0088	.0018
Per.	Per.	.0006	.0042	.0098	.0240	.0480	.0524	.0284	.0130	.0064	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.030	49.979	49.836	49.998	49.857	49.754
SD of Means	1.286	1.259	8.252	6.402	4.679	8.934
Mean of SDs	4.417	4.501	30.660	22.045	17.013	33.112
SD of SDs	1.917	1.384	3.389	9.176	3.429	3.633
Mean of Skews	0.016	0.014	0.010	-0.003	0.012	0.015
SD of Skews	1.220	0.847	0.426	1.193	0.631	0.407
Mean of Kurtosis	1.145	-0.111	-1.254	1.053	-0.442	-1.236
SD of Kurtosis	2.324	1.762	0.429	2.277	0.996	0.420

TABLE B - 134

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Leptokurtic (N = 5) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0008	.0046	.0088	.0230	.0444	.0494	.0214	.0082	.0044	.0008
Int.	Ord.	.0010	.0032	.0070	.0168	.0376	.0462	.0194	.0076	.0030	.0002
Int.	Per.	.0006	.0008	.0010	.0028*	.0068*	.0088*	.0028*	.0010	.0002	.0000
Ord.	Int.	.0028	.0090	.0138	.0284	.0550	.0504	.0256	.0126	.0060	.0016
Ord.	Ord.	.0016	.0058	.0096	.0240	.0438	.0466	.0238	.0092	.0062	.0004
Ord.	Per.	.0006	.0008	.0010	.0024*	.0070*	.0086*	.0028*	.0010	.0000	.0000
Per.	Int.	.0590*	.0800*	.0960*	.1340*	.1732*	.1694*	.1288*	.0958*	.0786*	.0508*
Per.	Ord.	.0590*	.0798*	.0954*	.1326*	.1724*	.1692*	.1308*	.0976*	.0786*	.0514*
Per.	Per.	.0014	.0058	.0098	.0258	.0472	.0494	.0252	.0124	.0060	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.014	49.956	49.790	49.973	49.926	49.532
SD of Means	2.186	2.129	13.971	1.291	1.270	8.265
Mean of SDs	3.726	3.949	27.771	4.393	4.486	30.574
SD of SDs	2.460	1.902	7.138	1.875	1.374	3.356
Mean of Skews	-0.002	-0.006	0.011	-0.001	0.007	0.027
SD of Skews	0.765	0.676	0.639	1.206	0.837	0.422
Mean of Kurtosis	-0.905	-1.024	-1.148	1.125	-0.118	-1.249
SD of Kurtosis	0.649	1.901	0.575	2.282	1.736	0.431

TABLE B - 135

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Leptokurtic (N = 5) and Leptokurtic (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0000	.0002	.0008	.0018*	.0052*	.0058*	.0022*	.0006	.0002	.0000
Int.	Ord.	.0000	.0002	.0006	.0026*	.0070*	.0078*	.0026*	.0008	.0002	.0000
Int.	Per.	.0000	.0000	.0006	.0022*	.0064*	.0078*	.0028*	.0010	.0006	.0002
Ord.	Int.	.0000	.0004	.0008	.0022*	.0066*	.0054*	.0022*	.0006	.0002	.0000
Ord.	Ord.	.0000	.0004	.0008	.0028*	.0086*	.0084*	.0032*	.0008	.0004	.0000
Ord.	Per.	.0000	.0000	.0006	.0026*	.0062*	.0076*	.0030*	.0010	.0006	.0000
Per.	Int.	.0116	.0242*	.0350*	.0614*	.0910*	.0878*	.0572*	.0316*	.0212	.0086
Per.	Ord.	.0160	.0342*	.0478*	.0726*	.1064*	.1082*	.0712*	.0426*	.0296*	.0134
Per.	Per.	.0014	.0038	.0090	.0224	.0454	.0450	.0238	.0090	.0046	.0006

	Descriptions of Samples					
	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.029	49.971	49.800	49.879	49.830	49.771
SD of Means	2.209	2.183	14.115	6.360	4.695	8.988
Mean of SDs	3.732	3.951	27.673	22.035	17.051	33.082
SD of SDs	2.491	1.927	7.088	9.261	3.493	3.645
Mean of Skews	-0.004	-0.007	0.000	-0.028	-0.010	0.022
SD of Skews	0.765	0.674	0.642	1.178	0.630	0.408
Mean of Kurtosis	-0.899	-1.028	-1.141	1.017	-0.432	-1.233
SD of Kurtosis	0.637	0.834	0.576	2.253	1.006	0.425

TABLE B - 136

OBTAINED PERCENTAGES OF t VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Leptokurtic (N = 15) and Leptokurtic (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0336*	.0574*	.0796*	.1196*	.1710*	.1722*	.1274*	.0858*	.0628*	.0346*
Int.	Ord.	.0378*	.0612*	.0780*	.1166*	.1616*	.1684*	.1292*	.0916*	.0702*	.0400*
Int.	Per.	.0566*	.0802*	.0986*	.1350*	.1768*	.1848*	.1504*	.1108*	.0910*	.0642*
Ord.	Int.	.0334*	.0566*	.0774*	.1206*	.1706*	.1720*	.1256*	.0826*	.0600*	.0318*
Ord.	Ord.	.0376*	.0604*	.0770*	.1184*	.1620*	.1670*	.1286*	.0898*	.0674*	.0376*
Ord.	Per.	.0568*	.0802*	.0998*	.1368*	.1768*	.1832*	.1490*	.1094*	.0910*	.0638*
Per.	Int.	.0008	.0014	.0024	.0096	.0246*	.0216*	.0098	.0038	.0018	.0002
Per.	Ord.	.0002	.0012	.0022	.0068	.0154*	.0154*	.0048*	.0022	.0014	.0002
Per.	Per.	.0018	.0060	.0138	.0286	.0540	.0566	.0300	.0108	.0050	.0012

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.976	49.921	49.505	50.012	49.794	49.611
SD of Means	1.252	1.234	8.098	10.967	8.025	15.325
Mean of SDs	4.385	4.482	30.629	18.681	15.097	29.834
SD of SDs	1.859	1.381	3.383	12.262	5.664	7.766
Mean of Skews	-0.012	-0.006	0.024	-0.004	-0.016	0.000
SD of Skews	1.214	0.837	0.418	0.756	0.672	0.628
Mean of Kurtosis	1.142	-0.123	-1.257	-0.924	-1.046	-1.148
SD of Kurtosis	2.307	1.746	0.437	0.614	0.581	0.567

APPENDIX C

TABLES OF SAMPLING DISTRIBUTIONS OF THE PRODUCT

MOMENT CORRELATION COEFFICIENT

TABLE C - 1

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0008	.0048	.0106	.0250	.0450	.0462	.0224	.0076	.0034	.0008
Int.	Ord.	.0012	.0042	.0088	.0214	.0432	.0440	.0206	.0076	.0036	.0008
Int.	Per.	.0018	.0038	.0082	.0226	.0436	.0460	.0210	.0074	.0030	.0004
Ord.	Int.	.0004	.0042	.0088	.0226	.0470	.0454	.0222	.0070	.0034	.0010
Ord.	Ord.	.0008	.0042	.0076	.0224	.0424	.0454	.0198	.0080	.0034	.0004
Ord.	Per.	.0012	.0046	.0080	.0212	.0454	.0456	.0218	.0068	.0034	.0004
Per.	Int.	.0008	.0038	.0092	.0248	.0456	.0434	.0212	.0076	.0022	.0006
Per.	Ord.	.0010	.0040	.0086	.0222	.0454	.0418	.0212	.0076	.0036	.0010
Per.	Per.	.0010	.0046	.0090	.0236	.0462	.0434	.0208	.0068	.0028	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.003	49.941	49.564	49.997	49.924	49.452
SD of Means	1.807	1.804	12.990	1.798	1.791	12.870
Mean of SDs	3.360	3.428	24.721	3.401	3.457	24.907
SD of SDs	1.199	0.987	6.907	1.207	0.979	6.852
Mean of Skews	-0.011	-0.009	-0.005	-0.001	-0.003	0.006
SD of Skews	0.614	0.594	0.594	0.609	0.593	0.588
Mean of Kurtosis	-0.998	-1.075	-1.106	-0.993	-1.062	-1.109
SD of Kurtosis	0.507	0.615	0.520	0.494	1.164	0.515

TABLE C - 2

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Normal (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0056	.0104	.0254	.0538	.0544	.0266	.0102	.0042	.0006
Int.	Ord.	.0010	.0046	.0104	.0270	.0520	.0554	.0262	.0102	.0048	.0008
Int.	Per.	.0010	.0052	.0116	.0252	.0524	.0566	.0240	.0090	.0044	.0004
Ord.	Int.	.0004	.0042	.0092	.0254	.0532	.0562	.0268	.0092	.0046	.0010
Ord.	Ord.	.0006	.0044	.0094	.0256	.0516	.0558	.0266	.0086	.0050	.0004
Ord.	Per.	.0004	.0054	.0100	.0268	.0522	.0566	.0272	.0100	.0052	.0008
Per.	Int.	.0006	.0040	.0092	.0262	.0530	.0558	.0270	.0106	.0050	.0008
Per.	Ord.	.0006	.0040	.0088	.0256	.0498	.0538	.0272	.0100	.0048	.0008
Per.	Per.	.0002	.0054	.0108	.0256	.0528	.0552	.0262	.0106	.0054	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.007	49.940	49.572	50.056	49.772	49.639
SD of Means	1.822	1.809	12.994	7.321	7.160	12.782
Mean of SDs	3.386	3.440	24.773	13.900	13.517	24.936
SD of SDs	1.231	0.990	6.918	5.123	5.130	7.011
Mean of Skews	0.003	0.005	0.007	-0.001	0.002	-0.000
SD of Skews	0.615	0.595	0.599	0.617	0.630	0.592
Mean of Kurtosis	-0.994	-1.079	-1.101	-1.002	-0.988	-1.117
SD of Kurtosis	0.513	0.549	0.526	0.501	0.511	0.520

TABLE C - 3

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Normal (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0010	.0042	.0064	.0178	.0376	.0582	.0294	.0130	.0080	.0008
Int.	Ord.	.0010	.0032	.0066	.0190	.0390	.0578	.0296	.0126	.0072	.0014
Int.	Per.	.0012	.0026	.0060	.0200	.0374	.0582	.0294	.0128	.0072	.0012
Ord.	Int.	.0006	.0030	.0058	.0166	.0370	.0596	.0294	.0122	.0072	.0010
Ord.	Ord.	.0004	.0026	.0064	.0180	.0372	.0568	.0314	.0112	.0070	.0020
Ord.	Per.	.0006	.0024	.0066	.0176	.0362	.0608	.0304	.0116	.0068	.0016
Per.	Int.	.0008	.0032	.0062	.0162	.0358	.0572	.0298	.0138	.0072	.0008
Per.	Ord.	.0004	.0026	.0050	.0184	.0374	.0580	.0310	.0126	.0072	.0014
Per.	Per.	.0008	.0028	.0058	.0188	.0364	.0608	.0306	.0136	.0068	.0016

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.002	49.937	49.534	50.008	49.947	49.614
SD of Means	1.027	1.024	7.374	1.031	1.028	7.402
Mean of SDs	3.803	3.830	27.579	3.798	3.826	27.533
SD of SDs	0.710	0.514	3.514	0.716	0.516	3.518
Mean of Skews	-0.002	-0.001	0.007	-0.009	-0.006	-0.000
SD of Skews	0.526	0.373	0.384	0.521	0.371	0.382
Mean of Kurtosis	-0.383	-0.969	-1.047	-0.375	-0.965	-1.043
SD of Kurtosis	0.785	0.480	0.432	0.782	0.478	0.429

TABLE C - 4

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Normal (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0036	.0072	.0222	.0482	.0560	.0288	.0128	.0068	.0010
Int.	Ord.	.0008	.0034	.0060	.0214	.0466	.0564	.0308	.0130	.0070	.0012
Int.	Per.	.0006	.0040	.0064	.0202	.0456	.0576	.0304	.0136	.0060	.0012
Ord.	Int.	.0008	.0040	.0080	.0222	.0500	.0560	.0278	.0118	.0060	.0010
Ord.	Ord.	.0008	.0034	.0072	.0210	.0456	.0546	.0296	.0118	.0060	.0010
Ord.	Per.	.0006	.0040	.0084	.0222	.0472	.0552	.0288	.0128	.0070	.0010
Per.	Int.	.0006	.0044	.0082	.0232	.0488	.0546	.0278	.0114	.0066	.0006
Per.	Ord.	.0008	.0034	.0074	.0226	.0474	.0564	.0294	.0124	.0064	.0010
Per.	Per.	.0006	.0042	.0082	.0224	.0462	.0546	.0294	.0128	.0066	.0008

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	49.989	49.921	49.440	49.990	49.719	49.556
SD of Means	1.023	1.025	7.377	4.269	4.182	7.538
Mean of SDs	3.817	3.835	27.605	15.514	15.163	27.565
SD of SDs	0.725	0.520	3.532	3.029	3.057	3.659
Mean of Skews	0.005	0.002	0.013	-0.010	-0.010	0.005
SD of Skews	0.526	0.375	0.384	0.517	0.554	0.385
Mean of Kurtosis	-0.363	-0.961	-1.041	-0.368	-0.266	-1.038
SD of Kurtosis	0.778	0.475	0.421	0.770	0.824	0.447

TABLE C - 5

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0046	.0096	.0240	.0546	.0510	.0256	.0090	.0042	.0006
Int.	Ord.	.0008	.0046	.0106	.0244	.0520	.0510	.0246	.0090	.0046	.0004
Int.	Per.	.0004	.0046	.0098	.0244	.0560	.0504	.0248	.0098	.0048	.0010
Ord.	Int.	.0014	.0048	.0096	.0258	.0534	.0530	.0256	.0084	.0040	.0010
Ord.	Ord.	.0010	.0042	.0110	.0270	.0518	.0526	.0236	.0102	.0042	.0006
Ord.	Per.	.0006	.0048	.0110	.0260	.0524	.0528	.0252	.0104	.0048	.0000
Per.	Int.	.0010	.0046	.0106	.0228	.0544	.0528	.0244	.0086	.0044	.0008
Per.	Ord.	.0012	.0040	.0110	.0260	.0522	.0520	.0250	.0098	.0040	.0006
Per.	Per.	.0006	.0052	.0104	.0258	.0530	.0522	.0256	.0104	.0048	.0006

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.013	49.944	49.585	49.959	49.996	49.968
SD of Means	1.795	1.792	12.896	2.590	2.185	4.861
Mean of SDs	3.343	3.418	24.641	3.167	3.328	24.883
SD of SDs	1.216	0.998	6.979	1.629	1.283	6.806
Mean of Skews	0.012	0.013	0.015	0.422	0.307	0.007
SD of Skews	0.617	0.602	0.597	0.597	0.605	0.594
Mean of Kurtosis	-0.996	-1.071	-1.102	-0.938	-1.018	-1.126
SD of Kurtosis	0.506	0.573	0.525	0.594	0.651	0.526

TABLE C - 6

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 5) and Positive Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0004	.0044	.0102	.0262	.0494	.0498	.0272	.0094	.0042	.0010
Int.	Ord.	.0008	.0052	.0110	.0266	.0496	.0520	.0282	.0100	.0042	.0010
Int.	Per.	.0006	.0056	.0122	.0254	.0506	.0512	.0268	.0114	.0050	.0016
Ord.	Int.	.0004	.0046	.0098	.0254	.0508	.0486	.0250	.0098	.0048	.0004
Ord.	Ord.	.0006	.0048	.0112	.0268	.0504	.0506	.0264	.0100	.0050	.0004
Ord.	Per.	.0006	.0072	.0118	.0250	.0502	.0496	.0266	.0108	.0060	.0016
Per.	Int.	.0006	.0044	.0098	.0238	.0514	.0496	.0258	.0104	.0042	.0004
Per.	Ord.	.0008	.0054	.0114	.0246	.0502	.0522	.0274	.0088	.0042	.0002
Per.	Per.	.0010	.0058	.0120	.0250	.0512	.0506	.0254	.0112	.0046	.0008

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.040	49.972	49.785	49.934	49.326	49.294
SD of Means	1.811	1.796	12.898	8.884	7.295	13.511
Mean of SDs	3.379	3.437	24.745	15.800	13.476	26.256
SD of SDs	1.229	0.998	6.951	8.115	5.688	7.216
Mean of Skews	0.002	-0.000	0.002	0.428	0.369	0.043
SD of Skews	0.615	0.597	0.592	0.592	0.593	0.588
Mean of Kurtosis	-0.996	-1.068	-1.107	-0.936	-0.964	-1.132
SD of Kurtosis	0.510	0.655	0.519	0.576	0.562	0.526

TABLE C - 7

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N = 15) and Positive Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0006	.0040	.0100	.0276	.0510	.0440	.0190	.0092	.0056	.0008
Int.	Ord.	.0006	.0050	.0112	.0264	.0494	.0434	.0190	.0092	.0052	.0010
Int.	Per.	.0014	.0060	.0104	.0278	.0492	.0458	.0218	.0090	.0046	.0010
Ord.	Int.	.0008	.0044	.0102	.0266	.0492	.0426	.0202	.0074	.0034	.0010
Ord.	Ord.	.0012	.0052	.0126	.0278	.0502	.0440	.0212	.0098	.0042	.0010
Ord.	Per.	.0020	.0062	.0128	.0284	.0516	.0472	.0212	.0096	.0042	.0016
Per.	Int.	.0008	.0048	.0104	.0260	.0494	.0432	.0200	.0078	.0036	.0010
Per.	Ord.	.0016	.0054	.0122	.0276	.0506	.0446	.0206	.0094	.0040	.0010
Per.	Per.	.0016	.0066	.0126	.0296	.0522	.0462	.0214	.0098	.0038	.0014

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.988	49.917	49.408	49.997	50.033	50.226
SD of Means	1.029	1.026	7.379	1.027	1.027	7.461
Mean of SDs	3.806	3.830	25.574	3.709	3.780	27.675
SD of SDs	0.720	0.515	3.523	1.102	0.794	3.447
Mean of Skews	0.020	0.014	0.021	0.978	0.611	0.004
SD of Skews	0.520	0.367	0.381	0.593	0.484	0.389
Mean of Kurtosis	-0.375	-0.971	-1.045	0.495	-0.409	-1.060
SD of Kurtosis	0.781	0.464	0.425	1.679	1.131	0.432

TABLE C - 8

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Normal (N =15) and Positive Skewed (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0014	.0066	.0120	.0304	.0534	.0462	.0252	.0098	.0046	.0006
Int.	Ord.	.0012	.0058	.0116	.0288	.0558	.0480	.0240	.0110	.0052	.0008
Int.	Per.	.0014	.0062	.0112	.0282	.0554	.0476	.0218	.0094	.0042	.0010
Ord.	Int.	.0010	.0052	.0106	.0286	.0524	.0464	.0238	.0098	.0050	.0006
Ord.	Ord.	.0010	.0056	.0112	.0288	.0538	.0464	.0262	.0108	.0052	.0010
Ord.	Per.	.0014	.0072	.0124	.0272	.0536	.0478	.0234	.0106	.0054	.0020
Per.	Int.	.0012	.0054	.0106	.0276	.0534	.0474	.0252	.0092	.0050	.0004
Per.	Ord.	.0012	.0054	.0112	.0286	.0540	.0470	.0262	.0102	.0050	.0008
Per.	Per.	.0012	.0072	.0116	.0288	.0546	.0492	.0238	.0100	.0054	.0024

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	50.002	49.940	49.542	50.043	48.404	46.383
SD of Means	1.016	1.016	7.303	5.134	4.223	7.824
Mean of SDs	3.786	3.819	27.485	18.553	15.511	29.203
SD of SDs	0.725	0.521	3.556	5.574	3.457	3.616
Mean of Skews	-0.004	-0.002	0.006	0.999	0.802	0.072
SD of Skews	0.523	0.372	0.383	0.610	0.494	0.389
Mean of Kurtosis	-0.372	-0.959	-1.040	0.543	0.020	-1.085
SD of Kurtosis	0.778	0.484	0.438	1.769	1.218	0.439

TABLE C - 9

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed (N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0016	.0074	.0124	.0312	.0600	.0410	.0186	.0056	.0022	.0004
Int.	Ord.	.0012	.0052	.0116	.0298	.0556	.0464	.0216	.0070	.0040	.0004
Int.	Per.	.0004	.0042	.0088	.0212	.0444	.0570	.0264	.0102	.0064	.0008
Ord.	Int.	.0014	.0070	.0124	.0290	.0560	.0460	.0216	.0072	.0032	.0004
Ord.	Ord.	.0012	.0056	.0108	.0264	.0530	.0472	.0250	.0088	.0034	.0006
Ord.	Per.	.0006	.0038	.0074	.0224	.0448	.0554	.0284	.0116	.0054	.0006
Per.	Int.	.0014	.0052	.0104	.0232	.0470	.0550	.0264	.0092	.0032	.0008
Per.	Ord.	.0012	.0058	.0098	.0242	.0484	.0550	.0294	.0116	.0056	.0008
Per.	Per.	.0010	.0044	.0102	.0230	.0456	.0558	.0304	.0122	.0054	.0012

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.954	49.993	49.966	50.013	49.951	49.622
SD of Means	1.797	1.792	12.911	1.777	1.762	12.811
Mean of SDs	3.171	3.319	24.801	3.191	3.317	24.845
SD of SDs	1.628	1.278	6.953	1.628	1.270	6.888
Mean of Skews	0.436	0.317	0.013	-0.429	-0.308	0.006
SD of Skews	0.600	0.604	0.598	0.593	0.604	0.588
Mean of Kurtosis	-0.913	-1.016	-1.107	-0.932	-0.967	-1.126
SD of Kurtosis	0.601	0.890	0.528	0.601	1.464	0.525

TABLE C - 10

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 5) and Negative Skewed(N = 5) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0018	.0066	.0134	.0348	.0626	.0378	.0144	.0060	.0038	.0004
Int.	Ord.	.0016	.0064	.0130	.0338	.0622	.0380	.0166	.0074	.0040	.0008
Int.	Per.	.0010	.0044	.0096	.0260	.0508	.0434	.0218	.0104	.0044	.0010
Ord.	Int.	.0016	.0068	.0128	.0304	.0612	.0404	.0176	.0070	.0028	.0006
Ord.	Ord.	.0016	.0062	.0122	.0298	.0620	.0408	.0184	.0080	.0038	.0008
Ord.	Per.	.0010	.0042	.0110	.0280	.0502	.0444	.0226	.0096	.0048	.0008
Per.	Int.	.0006	.0048	.0126	.0250	.0474	.0488	.0238	.0082	.0042	.0010
Per.	Ord.	.0006	.0048	.0126	.0270	.0480	.0500	.0258	.0108	.0046	.0014
Per.	Per.	.0012	.0042	.0110	.0252	.0486	.0492	.0236	.0086	.0042	.0010

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.984	50.017	50.108	50.030	51.192	52.623
SD of Means	1.782	1.781	12.819	9.074	7.350	13.759
Mean of SDs	3.191	3.339	24.933	15.699	13.297	25.883
SD of SDs	1.624	1.279	6.995	8.152	5.674	7.195
Mean of Skews	0.434	0.308	-0.000	-0.428	-0.376	-0.028
SD of Skews	0.603	0.606	0.602	0.596	0.596	0.600
Mean of Kurtosis	-0.897	-0.986	-1.105	-0.933	-0.963	-1.118
SD of Kurtosis	0.616	1.286	0.529	0.577	0.651	0.530

TABLE C - 11

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N =15) and Negative Skewed (N =15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0022	.0078	.0130	.0310	.0556	.0298*	.0108	.0022	.0014	.0002
Int.	Ord.	.0018	.0066	.0110	.0264	.0518	.0358	.0122	.0030	.0016	.0008
Int.	Per.	.0012	.0042	.0092	.0200	.0444	.0454	.0194	.0058	.0022	.0018
Ord.	Int.	.0018	.0054	.0104	.0252	.0508	.0348	.0134	.0024	.0016	.0006
Ord.	Ord.	.0018	.0056	.0102	.0254	.0488	.0378	.0158	.0032	.0018	.0008
Ord.	Per.	.0016	.0056	.0100	.0212	.0448	.0440	.0194	.0062	.0026	.0016
Per.	Int.	.0008	.0034	.0076	.0196	.0436	.0442	.0198	.0060	.0028	.0006
Per.	Ord.	.0012	.0050	.0092	.0202	.0430	.0438	.0194	.0072	.0030	.0008
Per.	Per.	.0022	.0056	.0110	.0230	.0460	.0466	.0200	.0070	.0032	.0010

	Descriptions of Samples					
	Sample A			Sample B		
	Interval	Ordinal	Percentile	Interval	Ordinal	Percentile
Means of Means	50.012	50.044	50.301	49.992	49.926	49.434
SD of Means	1.036	1.033	7.464	1.023	1.010	7.300
Mean of SDs	3.725	3.789	27.654	3.716	3.763	27.600
SD of SDs	1.118	0.805	3.533	1.131	0.808	3.497
Mean of Skews	0.986	0.615	0.001	-0.969	-0.611	0.017
SD of Skews	0.610	0.498	0.386	0.607	0.488	0.380
Mean of Kurtosis	0.535	-0.383	-1.062	0.479	-0.406	-1.078
SD of Kurtosis	1.757	1.209	0.438	1.729	1.167	0.427

TABLE C - 12

OBTAINED PERCENTAGES OF r VALUES FOR GIVEN LEVELS OF SIGNIFICANCE FOR

Positive Skewed (N = 15) and Negative Skewed (N = 15) DISTRIBUTIONS

Scales A	Scales B	Levels of Significance .0010	.0050	.0100	.0250	.0500	.0500	.0250	.0100	.0050	.0010
Int.	Int.	.0024	.0116	.0194	.0376	.0652	.0364	.0150	.0046	.0024	.0004
Int.	Ord.	.0024	.0094	.0172	.0380	.0646	.0392	.0140	.0030	.0020	.0004
Int.	Per.	.0002	.0046	.0094	.0240	.0510	.0508	.0248	.0074	.0030	.0004
Ord.	Int.	.0016	.0092	.0148	.0326	.0580	.0412	.0192	.0058	.0028	.0006
Ord.	Ord.	.0018	.0068	.0130	.0314	.0604	.0434	.0176	.0052	.0018	.0004
Ord.	Per.	.0004	.0052	.0106	.0236	.0490	.0494	.0256	.0084	.0040	.0006
Per.	Int.	.0004	.0042	.0106	.0244	.0478	.0496	.0246	.0116	.0050	.0018
Per.	Ord.	.0006	.0048	.0088	.0234	.0498	.0522	.0248	.0104	.0030	.0012
Per.	Per.	.0004	.0046	.0096	.0258	.0470	.0524	.0278	.0106	.0044	.0012

Descriptions of Samples

	Sample A Interval	Sample A Ordinal	Sample A Percentile	Sample B Interval	Sample B Ordinal	Sample B Percentile
Means of Means	49.982	50.017	50.110	50.062	51.276	52.808
SD of Means	1.041	1.039	7.535	5.177	4.174	7.699
Mean of SDs	3.696	3.775	27.676	18.467	15.295	28.968
SD of SDs	1.082	0.772	3.427	5.687	3.523	3.640
Mean of Skews	0.981	0.614	0.013	-0.990	-0.809	-0.046
SD of Skews	0.594	0.481	0.390	0.592	0.495	0.385
Mean of Kurtosis	0.490	-0.417	-1.065	0.498	0.040	-1.092
SD of Kurtosis	1.712	1.145	0.428	1.696	1.227	0.424