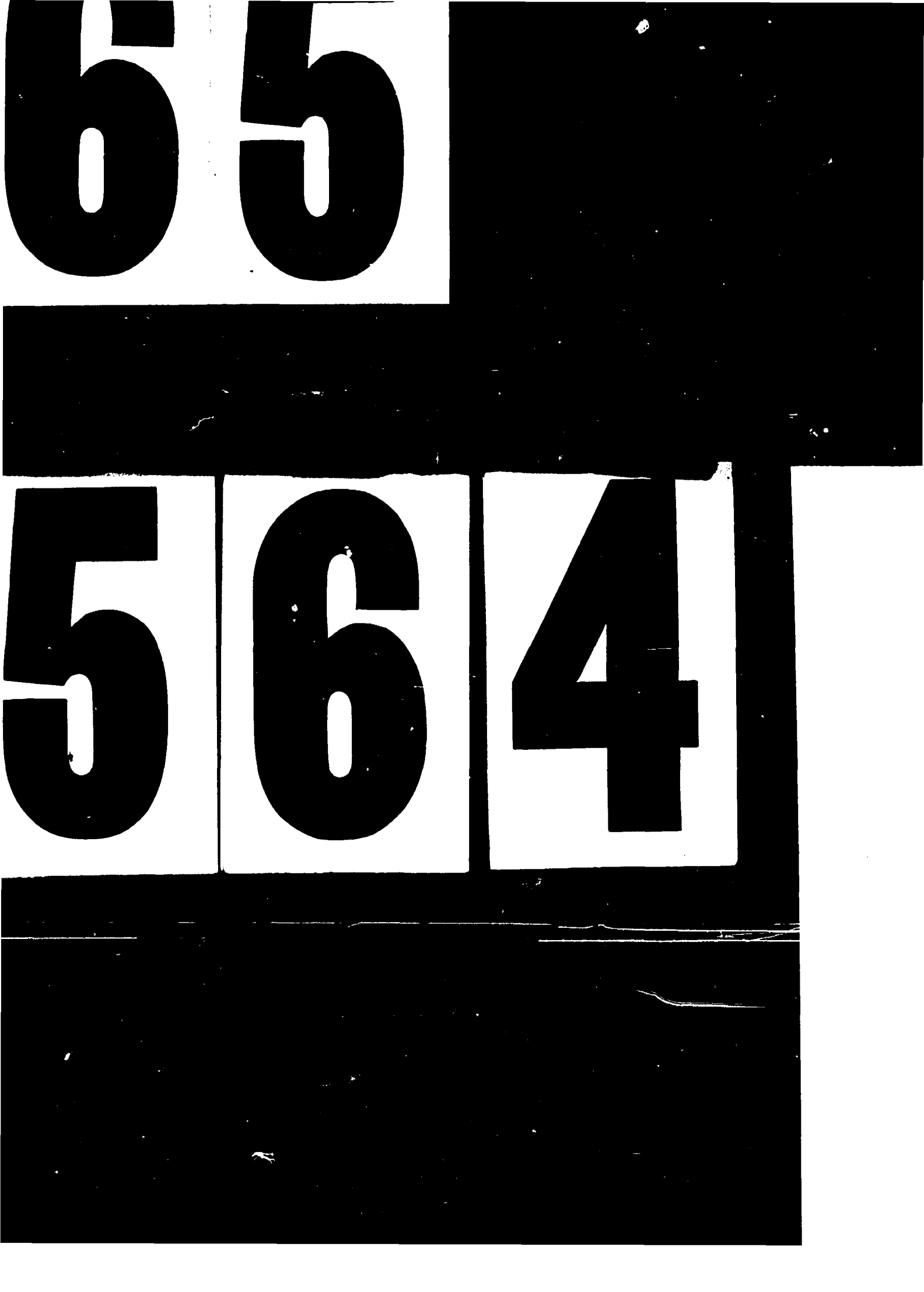
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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

A MULTIDIMENSIONAL ANALYSIS OF OVER- AND UNDER-ACHIEVING AIR TRAFFIC CONTROLLERS

A DISSERTATION

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A MULTIDIMENSIONAL ANALYSIS OF OVER- AND UNDER-ACHIEVING AIR TRAFFIC CONTROLLERS

CHAPTER I

INTRODUCTION

Background of the Problem

Many situations today require decisions regarding employees, particularly in the areas of selection of job applicants, training, retention, promotion, administration, educational planning, and vocational guidance. To ascertain whether a candidate is suitable for a job or action under consideration it is necessary to learn as much as possible about him. Unfortunately a consistent and accurate selection method is not available for every situation.

To resolve the problem a plethora of tests have been developed by commercial and governmental sources, but the problem still remains since it has not been possible to find a perfect predictor. This is a complex problem and in all likelihood has a complex answer. In order to find the answer, one should take a broader view of the selection process as a whole. Every selection decision involves three variables: (1) the available supply of candidates who are willing to take the job for the salary offered, (2) the actual requirements of the job in terms of human abilities, and (3) the actual capabilities of the available

candidates. The basic problem is to reduce the uncertainty in all three areas, so the final decision is based as much on fact and as little on faith as possible.

If it were possible to get access to a good supply of highly talented and motivated candidates, it wouldn't be necessary to have a highly sensitive testing and evaluation program. All too frequently this has not been possible and so the uncertainty in the selection process usually has to be reduced by evaluating the individual. Consequently, any process such as testing that can help to identify the most promising applicants pays off in the selection process. Stating this in another way, the goal of testing and evaluation is not perfection in prediction of success of candidates; rather, the goal is to improve present procedures for selection.

With this as an objective, the Psychological Laboratories of the Civil Aeromedical Research Institute, Federal Aviation Agency, Oklahoma City, Oklahoma, have conducted extensive experiments and investigated a number of tests for usefulness in specific, specialized occupational areas.

A series of empirical studies in Air Traffic Control identified a variety of tests and factors which are related to training grades and success on the job. The most promising tests were subsequently used in the selection process with substantial degrees of success. However, due to concomitant changing requirements and imperfections of prediction caused by the following four natural sources of error: (1) errors of measurement, in the predictors and the criterion; (2) criterion heterogeneity; (3) limited scope of predictors; and (4)

intervening experiences, the question persists as to why some people achieve above expectancy while others achieve below expectancy.[1]

Statement of the Problem

The purpose of this study is to explore some of the possible differences of air traffic controllers which were suggested by earlier research. It was decided to examine more thoroughly apparent differences in the characteristics of the over- and under-achieving groups and to investigate the possibility of underlying personality differences. The research design also called for a further comparison of the two groups with respect to certain demographic and experience information. In addition, the traits exhibited on the job and supervisory ratings obtained one year and three years later were examined to find any other underlying factors which distinguished the groups. Specifically, the present study sought answers to the following questions: (1) What team of variables, experimental aptitude tests, and biographical information, are the best predictors of total academic achievement as measured by the Combined Academic plus Laboratory Grade Average? (2) What are the weights which when used as multipliers of sets of predictor scores provide the most efficient prediction possible? (3) What is the correlation between the predicted score and actual achievement, i.e., the multiple regression coefficient based on the best predictors? (4) How do the extreme groups (air traffic controllers) compare with respect to certain measures of personality? (5) Do the divergent groups differ with respect to age, educational level, or previous experience?

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[1]Robert L. Thorndike, The Concepts of Over- and Underachievement, (New York: Columbia University, Bureau of Publications, 1963), p. 7.

(6) How do the two groups compare with respect to certain types of behavior on the job, i.e., what traits or factors distinguish the over- and under-achieving air traffic controllers? and (7) What other ways do they differ?

The study, therefore, consisted of two stages in investigating the multivariate relationships. In the first stage, the sample of the real population was selected, experimental tests were administered, biographical information was obtained, relevant criteria was determined, a multiple regression equation and multiple correlation coefficient statistically computed, and the team of best or optimal predictors identified. In the second stage, the "over" and "under" achieving groups were identified from the distribution of residual scores, job performance ratings were obtained from the supervisors at intervals of one and three years after training, and the "high" and "low" groups were compared to: the personality variables, the demographic and experience information, and the job performance traits and supervisory ratings.

The study was planned to investigate the following hypothesis: (1) There are no apparent differences between personality characteristics of air traffic controllers on the basis of statistically defined over- and under-achieving groups. (2) There are no significant differences between the extreme groups on demographic and experience information. (3) There are no apparent differences between the two groups on the basis of traits and job performance evaluations.

Limitations of the Study

The investigation necessarily was limited by a number of factors. To keep the data within manageable limits the subtests and

biographical data were included for which previous studies indicated a positive correlation. This limitation yielded a team of independent variables composed of 25 aptitude subtests and 5 non-test variables for the correlational analysis. Other restrictive factors characterized the sample in that all the constituents of the population were air traffic control trainees who attended the Enroute Course of the Federal Aviation Agency Academy and who subsequently were employed in an Air Traffic Control Center in the Federal Aviation Agency (FAA).

Finally, the use of extreme groups to test for the presence of a relationship has its limitations. The important consideration in this design is the choice of method in assigning individuals to contrasting groups to avoid systematic bias and deciding upon the upper and lower percentiles which define the over- and under-achieving groups to optimize the power of the difference approach.[1]

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[1]Leonard S. Feldt, "The Use of Extreme Groups To Test For The Presence of a Relationship," Psychometrika, 26 (1961), pp. 307-16.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The purpose of this chapter is to summarize some of the findings of those who have done research work in this field and to point out their more important conclusions, particularly those conclusions on which there seems to be fairly general agreement.

A multitude of research studies over the years have indicated conclusively that psychological tests and non-test data can identify and predict future achievement. Much of the literature in the field of job placement of personnel exists in the form of articles which have been published in various journals. An examination of some of these articles reveals that studies in the armed forces during World War II established clear superiority of the multidimensional approach to classifications as compared with the unidimensional approach developed in World War I.

Prediction Over Time Investigations

Most prediction studies use correlational techniques to find the degree of relationship between some predictor and criterion or evidence of success. The predictive value of the predictor is then judged from the size of the correlation coefficient.

A review of the most pertinent studies of prediction indicated that the real problem seems to be focused on predictive validity which

in turn depends upon testing. The problems appear related not so much to the format or content of the test given, but to the instability of the criterion used, i.e., grade-point average, thus introducing criterion heterogeneity. But the problems of prediction do not stop there. There are obvious differences between high school products and their success at various institutions. Pasanella found that when personality tests are added to entrance battery scores the results in multiple correlation are negligible.[1] The problems which face test constructors are not so much a matter of which items should be included, but rather how to obtain a stable, practical, and utilitarian criterion with which to measure success.

For many years both professionals and laymen were becoming increasingly aware that personality factors were of key and prime importance in occupational and job success. A number of studies have shown relationships between personality tests and job success. But just as many studies have failed to show any significant relationship. A more critical look at personality questionaires reveals that people do not necessarily answer some of the questions as an impartial observer would.[2]

Cline, Richards, and Abe conducted research concerning the usefulness of biographical information for predicting criteria of

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[1]Fishman A. Joshua and Ann K. Pasanella, "College Admission-Selection Studies," Review of Educational Research, 30 (1960), pp. 298-310.

[2]Lawrence Lipsett, Frank P. Rodgers, and Harold M. Kentner, Personnel Selection and Recruitment, (Boston: Allyn and Bacon, Inc.) (1964), pp. 150-52.

achievement in high school science.[1] The use of biographical information blanks as a formal prediction device appears to have been initiated by Goldsmith[2] and Kurtz[3] who used such blanks successfully to predict performance of salesmen. More important for the present study, biographical information may show a substantial potential as a predictor for air traffic controller performance. The primary reason found for the success of biographical information blanks as predictive devices appeared to be that they sample broadly from diverse realms of behavior and attitudes. The biographical information blank items basically fall into four categories: (1) demographic information, (2) early life experiences, (3) school accomplishments, and (4) current attitudes and achievements. It was concluded that biographical information items can be as powerful predictors of high school science achievement factors as other studies have shown this kind of information to be predictors of success and high achievement of adult scientists.

Table 1 summarizes a review of major studies conducted on prediction of success in colleges from approximately 1921 to 1945.[4]

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[1]Victor B. Cline, James M. Richards, Jr., and Clifford Abe, "Predicting Achievement in High School With A Biographical Information Blank," The Journal of Experimental Education, 32 (1964), pp. 395-98.

[2]D. B. Goldsmith, "The Use of the Personality History Blank as a Salesmanship Test," Journal of Applied Psychology, 6 (1922), pp. 149-54.

[3]A. K. Kurtz, "Recent Research in Selection of Life Insurance Salesmen," Journal of Applied Psychology, 25 (1942), pp. 18-29.

[4]Harley F. Garrett, "A Review and Interpretation of Investigations of Factors Related to Scholastic Success in Colleges of Arts and Science and Teachers Colleges," Journal of Experimental Education, 18 (1949), pp. 92-127.

TABLE 1

CORRELATIONS OF PREDICTORS AND CRITERIA OF SUCCESS[a]

Number of Studies	Predictor	Criterion	Median Correlation Coefficient
24	General achievement tests	General scholastic achievement	49
57	Achievement test in specific subject	General scholastic achievement	40
94	Intelligence tests	Scholastic success	47
28	College aptitude test	Achievement in college	43
15	Specific aptitude test	Achievement in college	41
63	Personality Inventory	College grades	09
14	Age	College grades	-09
59	Two variable 4	College grades	58
22	Three variable r	College grades	61
8	Four to seven variable r	College grades	55
29	High school rank	College grades	54
32	High school GPA	College grade average	56

[a]Decimals omitted.

Table 1 indicates that the best single predictor of success is the grade-point average (GPA) in high school, whereas the highest correlation was obtained with a team of three independent variables. It is important to note also that the addition of variables (four to seven) actually lowered the correlation from 0.61 to 0.55. On the basis of these results, one should expect to reach a maximum significant increase in a multiple correlation coefficient with a few variables although a whole host of variables actually may be available. Further, since aptitude tests and high school grades correlated substantially with scholastic success, this combination also should be expected to contribute the greatest portion to the multiple correlation coefficient. Other

important considerations are that variables such as personality inventory scores had low correlations (0.09) and age as a predictor was negative (-0.09). These observations indicate that a researcher using a team of predictors which included personality scores and age should not expect through a multiple regression analysis to find them in the group selected as the best predictors of success.

Although the studies in Table 1 do not show very high correlations, recent improvements in technique have improved the results. Lindquist in 1961 reported median correlations as high as 0.68 for 66 colleges when using achievement test scores and high school grades as predictors in a regression formula and college success as a criterion.[1]

Comparison of Contrasting Groups

The compelling drive to find better predictor measures and more deeply to understand the failure in predicting achievement or job success has led researchers into conducting studies of contrasting groups. Typically a group of "achievers" is defined and is compared with a group of "under-achievers" with respect to one or more facts that can be found out about the members of each group. Because this approach is used in this study, it is reported here.

De Sena investigated non-intellectual factors which characterized consistent over-, under-, and normal-achievers as individual groups which significantly distinguished them from each other in order to find other significant influences upon scholarship. He hypothesized that the consistency factor, selecting the criterion of grade-point average over one

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[1] E. F. Lindquist, ACT Research Service Reports, (Iowa City: American College Testing Program, 1961), pp. 4-5.

full academic year rather than the first semester, may have been responsible for the failure of standardized instruments in previous studies to discriminate significantly among achievement groups.[1]

From a total of 1,061 freshman male students enrolled in science curriculums at Pennsylvania State University, 42 each of over-, under-, and normal-achieving subgroups were identified. They were matched on such variables as age, sex, race, term in college, courses taken, predicted grade-point average, minimum deviation from predicted average of at least one probable error of estimation, and consistency of over-, under-, and normal-achievement during a three-term period.

The instruments used included: (1) Strong Vocational Interest Blank for Men; (2) Bernreuter Personality Inventory; (3) Twenty-four selected items from the Minnesota Multiphasic Personality Inventory: (4) Mooney Problem Check List; (5) Allport-Lindzey Study of Values; (6) Personal Background Questionaire; (7) The College Inventory of Academic Adjustment; and (8) Brown-Holtzman Survey of Study Habits and Attitudes. The tests were administered several days prior to the beginning of their first term as sophomore students. The "t" test technique was used to identify significant non-intellectual factors which differentiated the subgroups. This study revealed that all of the instruments were of some value in discriminating among the three groups. It was concluded that common nonintellectual factors in the areas of interests, personality, problem areas, values, personal background, and academic and social adjustment to college can be identified which characterize the subgroups and which significantly distinguish them from each other.

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[1]Paul A. De Sena, "The Role of Consistency in Identifying Characteristics of Three Levels of Achievement," The Personnel and Guidance Journal, 43 (1964), pp. 145-49.

A comparison of the number of significant differences in this study with others using identical instruments revealed that neglect of the consistency factor may have been responsible for the failure of instruments in previous studies to discriminate among achievement groups.

McKenzie investigated the personality dynamics underlying academic under- and over-achievement.[1] The subjects were male college students, enrolled in the University of Buffalo, who had taken the MMPI before beginning their college work. Total scores on the Cooperative School and College Ability Test (SCAT), Form 1A, served as the indices of ability. The criterion was the grade-point average (GPA). The under-achieving group comprised subjects whose GPA T scores were 10 or more points lower than their SCAT T scores; the normal achieving group, those whose GPA T scores did not differ by more than nine points from their SCAT T scores; the over-achieving group, those whose GPA T scores were 10 or more points higher than their SCAT T scores. Comparison of the mean scores of the under-achieving group with those of the over-achieving group on the MMPI scale yielded no significant differences; however, when the deviant groups were compared with the normal achievement group, significant differences emerged and were interpreted that the extreme groups may be more anxious than the normal achieving group.

Todd, Terrell, and Frank attempted to obtain descriptive information about bright normal achievement groups and under-achievement.[2]

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[1]James D. McKenzie, "The Dynamics of Deviant Achievement," The Personnel and Guidance Journal, 42 (1964), pp. 683-86.

[2]Frederick J. Todd, Glen Terrell, and Curtiss E. Frank, "Differences Between Normal and Underachievers of Superior Ability," Journal of Applied Psychology, 44 (1962), pp. 183-90.

The purpose was to find distinguishing non-intellective factors in under-achievement. The factors chosen for investigation were: affectional versus recognition needs, presence of long range goals, expectancy for certain academic pursuits to lead to attainment of goals, and expectancy for success in academic activities. The subjects used were sophomores, juniors, and seniors enrolled at the University of Colorado who had scored at the eightieth centile or above on the Colorado developed entrance Academic Aptitude Test. Under-achievement characterized those whose GPA was below 2.00 and normal-achievement those whose GPA was 3.00 or above. Three instruments were administered for investigation: (1) the Goal Preference Inventory, developed by Liverant; (2) the Inventory of Expectations, developed by Lessor and Mandell; and (3) the Vocational Goal Questionnaire, devised specifically for the study. Statistical analysis was accomplished through the use of the t-test of significance and chi-square tests. The results of the study supported the hypotheses that the measures would differentiate bright normal-achieving groups from bright under-achieving groups with respect to the four factors of goals, needs, expectancy for success, and expentancy that certain activities will lead to certain desired goals.

The vogue of studying over- and under-achieving students has produced new insights and conflicting results. For example, two parallel studies using the Edwards Personal Preference Schedule with male college populations are illustrative. Krug found over-achieving groups scoring significantly higher than under-achieving groups on the Achievement, Order and Endurance Scales.[1]

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[1]R. E. Krug, "Over- and Under-achievement and the Edwards PPS," Journal of Applied Psychology, 43 (1959), pp. 133-36.

On the other hand, Gebhart and Hoyt found over-achieving groups scoring high not only on the Achievement and Order Scales, but also on the Intraception and Consistency Scales.[1] Conflicting results of discrepant achievement studies are difficult to understand and as McNemar has indicated, such tests of significance are misleading and may represent only a small degree of relationship between the two variables.[2] Closer scrutiny of studies on deviant groups indicated that several different operational definitions of over- and under-achievement were used, each study being different but could be grouped into four somewhat distinct classifications of: Central Tendency Splits, Arbitrary Partitions-Middle Group Eliminated, Relative Discrepancy Splits, and Regression Model Selection. Each has its merits as shown below.

In the Central Tendency Split, under- and over-achievement is determined by dichotomizing a distribution of combined aptitude and achievement measures. Shaw and McCuen used a central tendency split technique. Under-achieving groups were identified by selecting individuals who had a GPA that was below the class mean, but were in the top 25 per cent of the class in ability on one intelligence scale (Pintner General Ability Test: Verbal Series). They did not study over-achievement but they could be determined by reversing the procedure.[3]

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[1]G. G. Gebhart and D. T. Hoyt, "Personality Needs of Under- and Over-achieving Freshmen," Journal of Applied Psychology, 42 (1942), pp. 125-28.

[2]Q. McNemar, "At Random: Sense and Nonsense," American Psychologist, 15 (1960), pp. 295-300.

[3]M. C. Shaw and J. T. McCuen, "The Onset of Academic Under-Achievement in Bright Children," Journal of Educational Psychology, 51 (1951), pp. 103-08.

Frankel used the Arbitrary Partitions-Middle Group Eliminated method.[1] In this technique, the cumulative grade-point averages and an aptitude measure is obtained of a class. Under-achieving groups are designated as those who had a standardized test score at or above 100, but whose GPA's were below 2.00. Conversely, over-achieving groups are identified as having T scores of 120 and below, but whose GPA was above 2.60. A third sample, "normals," may also be obtained by designating their T scores to be 130 or above and having a GPA of 2.60 or above.

The third technique of Relative Discrepancy Splits is a process whereby the GPA and aptitude predictors are ranked independently. Under- and over-achievement is determined by the discrepancy between the two ranks. This method appears to be the most popular, but as Thorndike indicates, not sufficient due to the introduction of bias known as the "regression effect."[2] An illustrative example is that of Diener wherein the over-achieving group was defined as those students whose T scores for the cumulative GPA were 15 or more points above the T scores for their American Council on Education Psychological Examination for Freshmen (ACE). The under-achieving group was those whose T scores for cumulative GPA were 15 or more points below the T scores for their ACE.[3]

The fourth technique is the Regression Model Selection which is a process whereby a regression equation is used to predict achievement from aptitude measures. Under- and over-achievement is then determined

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[1]E. Frankel, "A Comparative Study of Achieving and Under-Achieving High School Boys of High Intellectual Ability," Journal of Educational Research, 53 (1960), pp. 172-80.

[2]Thorndike, op. cit., p. 11.

[3]Charles L. Diener, "Similarities and Differences Between Over-Achieving and Under-Achieving Students," The Personnel and Guidance Journal, 38 (1960), pp. 396-400.

on the basis of the discrepancy between actual and predicted achievement. Representative of this method is Thorndike's techrique which involves the following steps: (1) predictions are made of a selected criterion using an aptitude measure or a team of independent variables, (2) the residual scores are computed which is the difference between actual achievement and predicted achievement, (3) the discrepant groups are determined by selecting a percentile at each end of the distribution of discrepancy scores above and below which the extreme groups lie.[1]

Survey of Selected Recent Investigations

The selected multiple regression analysis reported here is the previous research which was conducted specifically on air traffic controllers and is representative of investigations completed since 1956.

In 1956, a cooperative effort was initiated by the Federal Airways Standardization Division of the Federal Aviation Agency Aeronautical Center at Oklahoma City and the Personnel Laboratory of the United States Air Force.[2] The purpose of the research was to improve selection procedures for trainees in the Air Traffic Control School. Selection for this school was based upon a physical examination and experience in the air traffic control field. Two categories of training criteria measures were obtained; the academic grade and the instructor ratings of student capabilities in terms of demonstrated proficiency, personal ability, and capacity for growth. Each class was scheduled for twenty students and taught by four instructors who also accomplished the ratings by rating

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[1] Thorndike, op. cit., pp. 13-61.

[2] Leland D. Brokaw, School and Job Validation of Selection Measures for Air Traffic Control Training, A Report Prepared by the Personnel Laboratory, Wright Air Development Center, Air Research and Development Command, No. WADC-TN-59-39, (Lackland AFB, Texas: 1959), pp. 1-14.

each member of the class item by item with a discussion of each point and agreement secured before the pooled rating was made. For this study, each instructor also individually and independently rated each member and handed in the ratings before participating in the group rating session. The instructors were briefed as to proper rating methods which would minimize halo and increase objectivity. The evaluation form contained nine items on a five-step scale which were given numerical values of 0 through 4. The total rating score is the sum of the nine topic ratings. The independent ratings were called "Average Instructor Rating" and the group rating was called the "Composite Instructor Rating." The correlation of these two ratings was .93; consequently only the "Composite" instructor rating was used in the multiple regression analyses.

To obtain on-the-job criteria, supervisory ratings were collected a year after completion of training from unit supervisors and shift chiefs of the facilities to which the trainees were assigned. The evaluation form contained 12 statements on a five-point rating scale extending from "Excellent" to "Unsatisfactory" for which points were assigned from 4 to 0. These points were summed for each rater and the mean rating for the four raters computed.

The test battery administered was heterogeneous consisting of portions of the Bennett-Seashore-Wesman Differential Aptitude Tests, the California Test Bureau's (CTB) Personnel Selection and Classification Test, the CTB Test of Mental Maturity, the United States Air Force Airmen Classification Battery, the California Test of Personality, the CTB Mental Health Analysis, and the CTB Occupational Interest Inventory; also, three Air Problems Tests were developed and used. In addition, to the above, non-test variables as age, education, and previous experience were included.

Using these data on a sample of 142 students, in two regression analyses the best combination of predictors for each criteria was selected. The results indicated that an instrument for the selection of air traffic control trainees should have about 20 per cent of its items of the arithmetic reasoning type, 30 per cent of the symbolic reasoning type, 40 per cent air traffic problems, and 10 per cent code translation.

Trites conducted a five year longitudinal follow-up study in 1961 on the subjects tested by Brokaw in 1956 to determine if current job performance evaluations, retention in air traffic control work, incidents of unsatisfactory work, and medical history could be predicted by the data collected in 1956.[1] Of the original 197 subjects tested, 149 were located at their places of duty and information was obtained from their supervisors as to their promotional, disciplinary, and medical experiences. To provide a greater degree of reliability, each Chief was asked to have four of his supervisors rate each subject on a job performance evaluation form containing items related to job performance, ability as a controller, judgment, and personality characteristics.

These two sources provided six criterion measures which were: (1) Average Supervisor Rating; (2) Active vs. Inactive Controller; (3) With the FAA vs. Not With the FAA; (4) Mean Hours of Sick Leave; (5) No Symptoms vs. Symptoms; and (6) No Disciplinary Action vs. Disciplinary Action. Because the Brokaw study did not contain data sufficiently detailed to permit synthesizing raw-score regression equation weights; new regression equations, corresponding multiple correlations, beta weights, raw-score weights and constants were computed.

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[1]David K. Trites, "Problems in Air Traffic Management: I Longitudinal Prediction of Effectiveness in Air Traffic Controllers," Aerospace Medicine, 32 (1961), pp. 1112-118.

A total of seven regression equations were computed using various related combinations of psychological and biographical variables. The correlation matrix for computation of all regression equations was based on a sample of 135 controllers who had data for all variables and had successfully completed the training course. The inclusion of variables in each equation was terminated when a further statistically significant increase in the magnitude of the multiple correlation could not be obtained. Seven predicted scores were computed for each subject.

The regression analyses revealed that equations 1, 2, and 3 represented the psychological test variables plus the three biographical variables; equations 4 and 5 the psychological variables alone; and equation 6 the psychological test variables, three biographical variables, and two training school criterion measures. Equation 7 was computed for the psychological test variables recommended as predictors by Brokaw. In all instances highly significant multiple correlations were obtained. The overlap in the variables selected for each of the seven equations against the three different criteria: 1957 Average Lecture Grade, Composite Instructor Rating, and Average Supervisor Rating suggested that there is a considerable amount of variance common to all three criteria.

First order and partial correlations were computed between the 1961 criterion measures, the 1957 criterion measures, and scores predicted from regression equations where the first order correlations with the 1961 criteria were significant. First order and partial correlations were also computed between the 1961 criterion measures, the psychological test, and biographical measures, where the first order correlations with the 1961 criteria were statistically significant.

Some of the highlights of this sophisticated investigation were: (1) a remarkably high correlation, 0.43, between the Composite Instructor Rating and the 1961 Average Supervisor Rating, indicating that the instructors in 1956 made exceptionally valid judgments concerning a trainee's potential for air traffic control work; (2) regression 7 remained significant when age was eliminated, leaving little doubt that psychological tests can be used to select air traffic controllers; (3) comparison of the correlations between the 1956 criterions and 1961 criterions indicated that all three of the earlier measures could predict the 1961 Average Supervisor Rating; (4) two tests of the abstract reasoning type and two of the space relations or orientation type were predictive of the 1961 Average Supervisor Rating; (5) two biographical variables, Previous Flying Experience and any Air Traffic Experience, were significantly related to the 1961 Average Supervisor Rating, but when the effect of age was ruled out these relationships became negligible, inferring that none of biographical variables representing previous experience was related to subsequent job performance; finally (6) education was found to be negatively related to retention in the FAA; the reason for this was not clear.

In conclusion, the study indicated that: (1) psychological tests can make a useful contribution to personnel selection for air traffic control work, (2) instructors can make valid predictions of future job performance, (3) older trainees received poorer job performance ratings than their younger associates, and (4) medical history is not predictable by the type of tests used.

Cobb in 1960 conducted a study to find the most effective psychological test measure for predicting training course success of

CHAPTER III

DESIGN OF THE STUDY

The meaningful interpretation of the findings of this investigation necessitates a thorough understanding of the sources of the data analyzed and the sample. This chapter, therefore, is devoted to a description of the sample and tests by which they were measured. For the purpose of organization and continuity, an explanation of the methods by which the analysis of these data was made is also included here.

Subjects of the Sample

The population chosen for this investigation as subjects for this multiple regression and contrasting group analysis are the 338 applicants who entered training at the Federal Aviation Agency Academy for the position of Enroute Air Traffic Control Specialist during the years 1960-1961. The Academy, located in Oklahoma City, provides for the Enroute Air Traffic Control course at the Academy. Instruction and training offered in the eight-weeks course is orientated toward qualification for an Air Traffic Control Specialist Certificate. Upon completion of training, students are assigned to one of the Air Route Traffic Control Centers scattered throughout the country. Their principle task as Enroute Controllers is to insure the safe transit of aircraft between terminal areas.

The student input is programmed so that a new class begins every two weeks. Trainees receive classroom instruction in academic subjects directly related to air traffic control and in addition are required to perform laboratory work simulating that which will be experienced after assignment to an operational facility.

Recruits are selected by the FAA Regional Headquarters (there are seven in the Unites States) from eligibility rosters supplied by the United States Civil Service Commission (CSC). No formal assessment of aptitudes by testing was involved in the FAA's final choice for personnel training. Selection was based upon a physical examination and previous aeronautical experience, particularly air traffic control, air traffic communications, and/or piloting experience. In most instances, this qualifying experience was attained while recruits were members of the military services.

Data Collection

Beginning on September 23, 1960, and continuing through July 28, 1961, all incoming trainees to the FAA Academy Air Traffic Control classes were tested with a selected group of experimental aptitude and personality subtests by the Civil Aeromedical Research Institute, CARI. In addition, biographical and experience information was collected regarding age, experience in job related fields, and educational background.

Upon completion of the course, both the academic and laboratory grades were rendered by the instructors and forwarded to CARI. To provide for longitudinal data, at intervals of one and three years after training, an on-the-job performance evaluation form (shown in Appendix

B) bearing the individual's imprinted name was sent directly to each individual's supervisor with instructions for its completion and return.

Instruments Used in the Study

The tests employed in the study were selected for several reasons. All of them were standardized instruments. Separate answer sheets were available for all of them. All could be scored by machine or by hand. The time limits for administration were not excessive. The instructions for administering the tests and the directions for taking the tests were appropriate. The manuals contained adequate instructions for scoring and for interpreting the scores.

Some of the tests selected were those which Brokaw had reported as being highly predictive of training course and on-the-job criteria, several represented substitutes for the USAF tests used in the 1956 study, and others were selected on the assumption that they either provided more comprehensive and reliable measures of certain areas or because they provided measures relevant to the investigation of new or different areas.

TABLE 2

LISTING AND DESCRIPTION OF THE CRITERION AND TESTS INCLUDED IN THE ANALYSES

Criterion Variable:

A. Combined Academic+Laboratory Grade Average: A mean of the academic grade average plus the laboratory grade average.

Psychological Test Variables:

A. Subtests of the Bennet-Seashore-Wesman Differential Aptitude Test (DAT) Battery, Form A.

Test

1. Space Relations: A 35-item test of ability to visualize objects and forms in two or three dimensions. The task, for

TABLE 2 - Continued

each item, is to indicate how many of five depicted solid figures can be made from an unfolded pattern.

2. Numerical Ability: A 40-item test presenting a series of relatively simply numerical problems. Provides a measure of "number " ability.
3. Abstract Reasoning: A 50-item test wherein the task is to indicate, for each item, which of a series of choices (figures) properly carries out a principle of logical development exhibited by a sequence of figures. The test provides a nonverbal measure of reasoning.
4. Language Usage, Part II: Indicated all parts of sentences containing errors in grammer, punctuation, or spelling.
5. Mechanical Reasoning: Depicts the operation of physical and mechanical principles acquired through experience and training.

B. Air Traffic Problems Test Part I: Developed under contract in 1952 by the American Institute for Research for the Civil Aeronautics Administration.

Test

6. Air Traffic Problems, Part I: A 30-item test presenting highly simplified versions of Air Traffic Control situations. Good performance is not necessarily dependent on past ATC experience. Flight data displays are presented for several inbound aircraft, all flying the same speed and course, but at different altitudes and with different ETA's. Given a basic 5-minute time separation rule, the examinee must decide, for each item, whether or not sufficient time separation exists between certain aircraft to permit changes to certain specified altitudes.
7. Air Traffic Problems, Part II: Similar to Part I except that there were 60 items (Scored: Rights minus Wrongs).

C. California Psychological Inventory (CPI). Provides a comprehensive survey of the individual from a social interaction viewpoint, and are referred to below in terms of the factors measured.

Test

8. Ac (Achievement via Conformance): Identifies those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior.
9. Ai (Achievement via Independence): Identifies those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors.
10. Cm (Communality): To indicate the degree to which an individual's reactions and responses correspond to the model ("common") pattern established for the inventory.
11. Cs (Capacity for Status): An index of an individual's capacity for status (not his actual or achieved status). This scale attempts to measure the personal qualities and attributes which underlie and lead to status.

TABLE 2 - Continued

12. Do (Dominance): To assess factors of leadership ability, dominance, persistence, and social initiative.
13. Fe (Femininity): To assess the masculinity or feminity of interest. (High scores indicate more feminine interest, low scores more masculine).
14. Fx (Flexibility): To indicate the degree of flexibility and adaptability of a person's thinking and social behavior.
15. Gi (Good Impression): To identify persons capable of creating a favorable impression, and who are concerned about how others react to them.
16. Ie (Intellectual Efficiency): The degree of personal and intellectual efficiency which a person has attained.
17. Py (Psychological Mindedness): The degree to which the individual is interested in, and responsible to, the inner needs, motives, and experiences of others.
18. Re (Responsibility): To identify persons of conscientious, responsible, and dependable disposition and temperament.
19. Sa (Self Acceptance): To assess factors such as sense of personal worth, self-acceptance, and capacity for independent thinking and action.
20. Sc (Self Control): To assess the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness.
21. So (Socialization): To indicate the degree of social maturity, integrity, and rectitude which the individual has attained.
22. Sp (Social Presence): To assess factors such as poise, spontaneity, and self-confidence in personal and social interaction.
23. Sy (Sociability): Outgoing, sociable, participative temperament.
24. To (Tolerance): Permissive, accepting, and non-judgmental social beliefs and attitude.
25. Wb (Sense of Well Being): A scale identifying persons who minimize their worries and complaints, and who are relatively free from self doubt and disillusionment.

D. California Test of Mental Maturity (CTMM), Advanced Form A. 1957 edition): pertains to twelve subtests.

Test

26. Immediate Recall: Series of words are pronounced in pairs. After each series, the first word of each pair is pronounced again, and the word that went with it must be recalled from among three objects pictured in each item.
27. Delayed Recall: Recall of facts of a story after an intervening period.
28. Sensing Right and Left: Discriminate between right and left for pictured objects such as various parts of the human anatomy, clothing, etc.
29. Manipulation of Areas: Identify three dimensional spatial drawings representing different views of a stimulus object.

TABLE 2 - Continued

30. Opposites: Select from among several alternatives a pictured object which is most opposite to a stimulus object in terms of its nature, position, or meaning.
31. Similarities: Seven drawings of different objects are presented for each item. Select from the last four drawings one which is similar to the first three.
32. Analogies: A 15-item test, wherein seven drawings of different objects are presented for each item. The first object has a definite relationship to the second which the student must recognize in order to identify, by analogy, the drawing among the last four which is similarly related to the third drawing.
33. Inference: A 15-item test, wherein printed statements for each item present two premises. The student must select the logical conclusion, based on those premises, from the four possible alternatives offered.
34. Number Series: Indicate which of a series of numbers properly carries out a principle of logical development exhibited by a sequence of numbers.
35. Numerical Quantity, Coins: Manipulate mentally interrelated amount of money and numbers of coins.
36. Numerical Quantity, Arithmetic: Word problems must be solved involving simple arithmetic and mathematical situations.
37. Verbal Concepts: Multiple choice vocabulary test.

E. Moran Repetitive Measurements (RPM): Battery is composed of highly speeded perceptual, coordination, and memory tests. All RPM scores used in the present study were a measure of performance representing initial administration.

Test

38. A (Aiming): Measures the ability to carry out quickly and precisely a series of movements requiring eye-hand coordination. Specifically the student's task is to place a stylus point through the center of randomly positioned printed circles of .08-inch diameter.
39. FC (Flexibility of Closure): The ability to keep one or more definite configurations in mind so as to make identification in spite of perceptual distractions.
40. NF (Numerical Facility): Highly speeded test of ability to add one or two-digit numbers in sets of three.
41. PS (Perceptual Speed): Detect and cross out all numbers in a row that are like a circled number at beginning of each row.
42. SC (Speed of Closure): The ability to unify an apparently disparate perceptual field into a single precept.
43. V (Visualization): Speed in visually exploring a wide or complicated spatial field.
44. SM (Social Memory): This test measures the ability of a student to remember faces or photographs. After studying a group of 16 photographs for one minute, the student must turn to a second sheet and indicate recognition of the 16 faces from among a group of 32 pictures.

The experimental subtests and descriptions were obtained from the test manuals. The tests in Table 2 are grouped under the name of the test battery from which they were selected. The source of the tests is as follows: (1) The Differential Aptitude Test Battery, Form A, 1947, published by the Psychological Corporation, New York, N. Y.; (2) The Air Traffic Problems Tests Part I, and II originally developed by the American Institute for Research, Pittsburgh, Pa., under contract with the Civil Aeronautics Administration in 1950. Forms used in the present research are an extensive revision of the original test. The revision was prepared by the Selection Section, Psychology Branch, Civil Aeromedical Research Institute; (3) The California Psychological Inventory scales quoted were prepared by Dr. H. G. Gough for the CPI and published by Consulting Psychologist Press, 1960, Palo Alto, California; (4) The California Test of Mental Maturity, Advanced Form A, 1957, was published by the California Test Bureau, Los Angeles, California; and (5) The Repetitive Psychometric Measures were developed by Dr. L. J. Moran and published for experimental use in 1959, by the Hogg Foundation for Mental Health, The University of Texas, Austin, Texas.

The criterion measure Combined Academic plus Laboratory Grade Average (A+L) represented a mean (or average) of two separate averages: one based on a summation of all examination grades achieved by the student at various training levels for seven different academic subjects; the other based on the final performance grades for the laboratory-simulated air traffic control work. This score was rounded to overcome difficulties in dealing with fractional values.

Biographical Information

The source of this data was the "ATCS Registration Sheet" which

each student completed immediately after arrival at the FAA Aeronautical Center. The form was completed on the Saturday immediately preceding the start of his training course on the following Monday. Table 3 contains descriptions of the six specific types of biographical information recorded on the form, three variables representing individual types of experience and two demographic variables. In coding the variables, no attempt was made to achieve normalized distribution of the data.

TABLE 3

DESCRIPTION OF BIOGRAPHICAL VARIABLES INCLUDED IN THE ANALYSES

Variable Name & Abbreviation	Description and Coding
Experience Variables	**Coding for Pilot Experience**
	Amount of Experience — Code
1. Pilot Experience (Pil)	No experience reported — 1
	Less than 1 year — 2
	12 months through 23 months — 3
	2 years through 4 years — 4
	5 years through 6 years — 5
	7 years through 8 years — 6
	9 years through 10 years — 7
	11 years through 15 years — 8
	16 years or more — 9
2. Station (Stat)	A unit primarily engaged in ground to air communications and pilot briefings
3. Ground to Air Communications (Grnd/Air)	
4. Point to Point Communications (P to P)	Communications from one fixed ground point to another fixed ground point
5. VFR Tower (VFR Tow)	A tower controlling air traffic under Visual Flight Rules (VFR)
6. Approach Control: Tower (App Con Tow)	A tower capable of controlling air traffic under Instrument Flight Rules (IRF) but without access to radar
7. Radar Approach Control: Tower (Rad App Con Tow)	A tower with access to radar and an aid in controlling air traffic
8. Center (Cent)	An air route traffic control center

TABLE 3 - Continued

9.	Ground Controlled Approach (GCA)	A ground radar system used to assist aircraft during landing
10.	Radar Approach Control Center (RAPCON)	USAF radar system used for approach control at Air Force airfields; similar system in use by the Navy is called a Radar Air Traffic Control Center (ROTCC)

Coding for Variables 2 through 10

Amount of Experience	Code
No experience reported	1
Through 3 months	2
4 through 6 months	3
7 months through 1 year	4
13 months through 2 years	5
25 months through 3 years	6
37 months through 5 years	7
6 years through 10 years	8
11 years or more	9

11.	Sum of Communications Experience (Comm)	Sum of individual experience variables Nos. 2, 3, and 4
12.	Sum of Air Traffic Experience (AT)	Sum of individual experience variables Nos. 5 through 10

Demographic Variables

13.	Age	Chronological age to nearest birthday on date of entry into ATCS training
14.	Education (Educ)	

Coding for Education

Amount of Education	Code
None reported	Blank
Less than High School Graduate	1
High School Graduate	2
Less than 1 year of college	3
1 year of college	4
2 years of college	5
3 years of college	6
4 years of college	7
5 years of college	8
6 or more years of college	9

15.	Left FAA-With FAA	Individuals were dichotomized as being either with the Federal Aviation Agency or not with the FAA.

In addition to the above, the analyses included other variables

which need explanation but could not be included in a table, therefore are reported below.

The Academic Grade Average was obtained by averaging the grades obtained on academic examinations of seven areas administered at an intermediate stage and at the conclusion of the training course. In the latter instance, the seven individual subtests constituted the Air Traffic Control Specialist Certification Examination (ATCSCE). Normally, the Academic Grade Average was based upon the seven intermediate grades plus the seven final grades; but a failing grade of 70 or less at the intermediate stage of training for any of the seven academic areas usually entailed a "retake" of the examination for the specific areas involved. To be graduated from training, a trainee could not obtain more than two failing grades on the first administration of the ATCS Certification Examination; and he had to pass successfully the "retake" examination for these areas. A trainee automatically was eliminated if he had three or more failing grades on the ATCSCE. Thus, theoretically an academic grade average could be based on considerably more than 14 grades. In practice, the number infrequently exceeded 15 to 16.

The Laboratory Grade Average for the Enroute Sample trainees was based on three final laboratory grades reflecting performance in strip writing, control procedures as an assistant controller, and control procedures as a journeyman controller. These grades reflected performance in simulated air traffic control work. An unsatisfactory grade of 70 or less for any one of the three areas normally resulted in elimination of the trainee from the course.

Job Performance Variables

Approximately 10 months after the trainees had graduated from

the FAA Academy, and again 3 years after completion of training, a letter describing the research project and data collection forms were sent to the chiefs of the facilities to which the trainees had been assigned. For each member of the sample at his facility, the chief was asked to have four supervisors rate each subject, using the 17-item checklist performance evaluation form shown in Appendix B. The first 15 items of the form developed by the Psychology Branch, CARI, contained items related to traits of interpersonal orientation, job orientation, job potential, job performance, and emotional stability. The possible ratings were: Excellent, Very Good, Good, Fair, and Unsatisfactory. Items 16 and 17 measured potentially hazardous and marginal performance respectively.

The average Supervisory Rating represented a mean of all performance evaluations submitted by work supervisors of an individual at an operational facility. The use of a special rating form permitted each supervisor to rate a controller on a five-point scale for each of a series of work-related and proficiency items. The mean was computed on those who passed training by assigning weights of 4 through 0 to ratings of Excellent through Unsatisfactory, respectively, summing all of the items rated by all supervisors, and dividing the sum by the total number of items rated. Unfortunately, it was not possible to obtain four supervisory ratings on all subjects, but the average number of forms completed per subject was 3.8. In an earlier study by Brokaw a corrected split-half reliability of 0.75 was obtained for Average Supervisory Ratings computed from a rating form containing 12 of the 17 items used in the present form.[1]

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[1]Brokaw, op. cit., pp. 2-3.

To clarify the job performance variables in relation to the items on "Form B: Performance Evaluation," a more detailed description is presented in Table 4 as follows.

TABLE 4

JOB PERFORMANCE VARIABLES

Factor	Description
1. Halo effect (All Items)	Tendency of raters to rate men similarly on all traits.
2. Interpersonal Orientation (Items 3, 11 & 12)	The ability to get along with others and ability to work cooperatively with others.
3. Job Orientation (Items 1 & 2)	The ability to organize work and make the most effective use of time, equipment, and information currently available, also the steady attention to work and conduct.
4. Job Potential (Items 13 & 14)	The manner in which present performance of OJT duties were performed and the potential ability to perform journeyman duties.
5. Job Performance (Items 9, 16 & 17)	The demonstrated aptitude for air traffic control activities.
6. Emotional Stability (Items 8 & 10)	The emotional stability displayed under pressure and the potential for continued emotional stability in air traffic control activities.
7. Potentially Hazardous (Item 16)	An individual about whom one, or more facility supervisors answered "Yes" to the question, "Do the controller activities of this individual ever have an undesirable effect on air traffic safety?"
8. Marginal Work and/or Personal Traits (Item 17)	An individual about whom one, or more, facility supervisors answered "No" to the question, "If you were a Facility Chief, would you want this individual on your staff as an active controller?"

Finally, two more measures were derived through analysis and treatment of data entered by training school personnel on each student's

final "Evaluation of Performance" record. The measures are the Scaled Objective "Personality" Rating and the Scaled Subjective "Personality" Rating.

The Scaled Objective "Personality" Rating was a normalized 9-point score, or stanine, based upon a classification, by psychologist, of statements recorded by the senior and supervising instructors for the first four areas of the "Personality" profile section of the school's final evaluation form. The statements concerned: (1) performance under stress, (2) attitude toward instruction, (3) ability to work with others, and (4) job interest. It was training school policy to prepare "personality profiles" only for those students who successfully completed the course. For deviation of the criterion measure, the statements were classified as being either positive (favorable) or negative (unfavorable) and the algebraic sum of such frequencies was obtained as a raw score for each subject. Two sets of such scores, derived independently by different psychologists for all cases used in the study, correlated 0.92. An average of the two values was assigned each student of the pass group and stanining techniques were applied to the data of each class to determine the final ratings.

The Scaled Subjective "Personality" Rating was a normalized 9-point score, or stanine, based upon a different and subjective assessment of the same informative statements previously dichotomized in the derivation of the Objective Rating. Each of two psychologists, working independently, examined and compared the contextual meaningfulness of comments submitted for each student with those made for each classmate of the student, derived a ranking of the student for

each of the four areas, and summed the assigned rankings to obtain a raw score for each individual. Independently derived scores by two psychologists correlated 0.90. Consequently, each student was assigned an average of the two scores and stanining procedures (by class) were employed to establish the final rating.

Analytical Procedure

Raw scores on 25 experimental subtests and 5 biographical variables together with the Combined Academic plus Laboratory Grade Average of the Enroute Air Traffic Control Specialist course constituted the data for the regression analysis. The method was to record the data, punch the data on IBM cards, process them with IBM equipment to obtain the criterion correlations and the intercorrelations for each of the 30 variables as predictors, and compute the regression coefficients and multiple correlation coefficient.

The data were computed on the IBM 7040 computer by the Data Services Division, Aeronautical Center, Oklahoma City, Oklahoma, using the iterative multiple regression technique to obtain the most efficient multiple regression equation.[1] The inclusion of variables in the prediction equation was terminated when no further significant increase in the magnitude of the multiple correlation could be obtained.[2]

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[1]Robert A. Bottenberg, The Exploitation of Personnel Data by Means of a Multiple Linear Regression Model, Personnel Laboratory, Wright Air Development Division, Air Research and Development Command Paper No. WADD-TN-60-266 (Lackland Air Force Base, Texas: United States Air Force, 1960), pp. 1-10.

[2]Robert A. Bottenberg and Joe H. Ward Jr., Applied Multiple Linear Regression, 6570th Personnel Research Laboratory, Aerospace Medical Division, Air Force Systems Command Paper No. PRL-TDR-63-6 (Lackland Air Force Base, Texas: United States Air Force, 1963), pp. 96-122.

Since the purpose of this research was to identify crucial factors that will improve present procedures for selection, the residual scores were computed for each student, i.e., the discrepancy score between the Combined Academic plus Laboratory Grade Average and the predicted score, predicted from the multiple regression equation. These residual scores were compiled into a frequency distribution and the extreme groups selected using the procedure developed by Thorndike.[1] The over-achieving group consisted of those whose residual scores fell within 27 per cent of the positive extreme end of the distribution and under-achieving group were those whose residual scores fell within 27 per cent of the negative extreme end of the distribution.[2] Over- and under-achievement is then defined as the discrepancy of actual achievement from predicted value, predicted on the basis of a regression equation between a team of predictor variables and achievement. These residuals, the discrepancy score by which these groups are defined, are used to avoid introducing systematic bias (regression effect), i.e., since the correlation is less than perfect the top man on the aptitude test can only go down on the academic grade and visa versa. Thus the predicted value is an unbiased estimate of achievement because the residuals are uncorrelated with aptitude scores since the mean difference of discrepancy scores equal zero.

The over- and under-achievement analysis of the CPI subtests, biographical data, and job performance factors was made according to

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[1]Thorndike, op. cit., p. 63.

[2]Feldt, op. cit., p. 307.

the technique designed by DuBois whereby the point biserial r or the phi coefficient, as appropriate, were computed utilizing the extreme groups as a dichotomous variable since it is inappropriate to assume that a normal distribution underlies the dichotomy.[1]

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[1]Philip H. DuBois, An Introduction to Psychological Statistics, (New York: Harper and Row, Publishers, 1965), pp. 221-28.

CHAPTER IV

REGRESSION ANALYSIS

Introduction

The goal of this analytical approach is to select from among the experimental tests and to combine the chosen tests with the most effective weights for a composite prediction of the criterion. Two distinct problems are apparent at this point. One is the problem of predicting as accurately as possible the Combined Academic plus Laboratory Grade Average of the trainees in the Air Traffic Control En-route course. The other is properly identifying the students into either the over- or under-achieving groups. The solution of the prediction problem as well as the categorization of individuals into extreme groups was accomplished through the use of the iterative regression procedure developed by Greenberger and Ward.[1]

Multiple Linear Regression Model

The coefficient of multiple correlation R indicates strength of the relationship between one variable and two or more additional variables taken simultaneously. It measures the extent to which the dependent variable Y is associated with the joint relationship of the independent variables X_0, X_1, X_2, $X_3 \ldots X_k$. It serves as a mathematical

[1] Bottenberg, op. cit., p. 4.

tool for the solution of prediction problems by expressing each of a set of criterion observations in terms of a weighted sum of predictor scores on the corresponding individuals. The prediction equation is of the form:

$$Y' = w_o X_o + w_1 X_1 + w_2 X_2 + \cdots + w_k X_k$$

where X_1, X_2, X_k are a set of k predictor variables, w_o, w_1, w_2,..., w_k are weights, Y' is the predicted criterion score, X_o is a dummy variable taking the value of 1 for each individual.

Having formulated the model, it is next necessary to clarify certain points regarding the multiple linear regression model. First, the word "multiple" implies that any number of predictor variables may be introduced into the equation. This in turn necessitates a requirement for the use of high-speed computing equipment coupled with an efficient computing program. Next, the term linear in specifying the model implies only that the prediction equation is linear in the weights applied and not the form in which the predictor variables enter the system. This makes it possible to code categorical information as dichotomous variables, which may be used either alone or together with a team of measured variables. The advantages of this is that the researcher is free to introduce his hunches about categorical sources of criterion variance into his model and if the hunch is correct, it will be reflected in improved efficiency of the prediction equation. And last, in order that the correlation of predicted success with actual success is at a maximum and the errors in predictions are at a minimum, it is necessary that the regression weights w_o, w_1, w_2,... w_k be chosen in such a way as to match as closely as possible the predicted criterion scores Y' with the observed criterion scores Y. This matching

was made on the basis of the sum of the squared differences between Y and Y'. This sum reflects the magnitudes but not the directions of the errors of prediction. A set of weights were chosen which minimizes the sum of the squared errors of prediction, these are called "least squares weights."

Iterative Regression Analysis

This method of successive approximations, iterations, modifies in some details a procedure described by Kelley and Salisbury.[1] It is based upon the following:

Let $y, x_1, x_2, \ldots, x_k$ be the variables $Y, X_1, X_2, \ldots X_k$ expressed in standardized form, and let $w_1^{**} w_2^{**}, \ldots, w_k^{**}$ be any set of weights which maximizes the squared multiple correlation coefficient between y and $(w_1^{**} x_1 + w_2^{**} x_2 + \ldots w_k^{**} x_k)$. Let S^* be the covariance between y and $(w_1^{**} x_1 + w_2^{**} x_2 + \ldots + w_k^{**} x_k)$ and let s^* be the standard deviation of $(w_1^{**} x_1 + w_2^{**} x_2 + \ldots + w_k^{**} x_k)$.

$$\text{Then, } w_k^* = \frac{w_k^{**} S^*}{(s^*)^2}$$

The Greenberger-Ward program involves an iterative procedure which obtains a set of weights (w_i^*) in the following manner: (1) On a given iteration a correction is determined for each of the k weights. The value of the correction for each weight is determined to maximally increase the squared multiple correlation coefficient where the weights of x_i in the composite remain the same as those prior to entry into that iteration except for the single weight whose correction is being

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[1] T. L. Kelley and F. S. Salisbury, "An Iteration Method for Determining Multiple Correlation Constants," Journal of American Statistical Association, 21 (1926), pp. 282-92.

computed. The resulting squared multiple correlation coefficient is also computed. The program goes through the same procedure for each of the k weights in turn, obtaining both the maximizing correction and the resulting squared multiple correlation coefficient. (2) The k squared multiples are compared with each other and the largest one selected. Finally, (3) the single correction to the weight which produced this largest squared multiple is retained and the corrections to all other weights computed on that iteration are cancelled. Therefore, the result of a single iteration is to find a variable and a correction to be applied to the weight for that variable which maximally will increase the squared multiple correlation coefficient. It can and frequently does happen that the weight for a variable is corrected on each of several iterations. The entry weights for the first iteration are all zero. As iterations continue, increases in the size of the squared multiple from one iteration to the next tend to decrease. When it is apparent that additional iterations will not appreciably increase the squared multiple correlation coefficient, iterations are discontinued. At this stage, the set of obtained weights maximizes the squared multiple correlation coefficient between y and a weighted sum of the x_i. The weights w_i^{**} which have been obtained are then each multiplied by

$$\frac{S^*}{(s^*)^2}$$

to obtain the desired set of weights (w_i^*). An "iteration - stop criterion" of 0.0001 was employed to terminate the computation when the increase in the squared multiple correlation coefficient from one iteration to the next fell below this value.

Table 5 gives a summary of the set of iterations obtained as

part of the printed output of the prediction problem. Each line represents information for a single iteration. The numbers in the first column indicate the IBM tape numers which identify the variables selected from the 75-variable correlation matrix, used as input and shown in Appendix A, whose weights were selected for correction on the iterations. Numbers in the second column are the corrections computed on the corresponding weights. The third column shows the squared multiple correlation coefficient between the criterion and linear combination of standardized predictor variables using as weights in the composite those computed up to and including the corresponding iteration. The 4th and 5th column are the values of the covariance and variance of the approximated variables respectively, and the last column shows the iteration number.

This regression problem involved a subset of 30 perdictor variables, shown in Table 6, from a 75-variable matrix used as input.

TABLE 5

PRINTED IBM OUTPUT OF SUBSET OF PREDICTOR VARIABLES[a]

(N = 338)

Variable number	Weight Correction	Squared multiple	Covariance S^*	Variance $(s^*)^2$	Iteration count
36	.3557	.1265[b]	.1265	.1265	1
56	.2872	.2157[b]	.2072	.1991	2
3	.2210	.2534[b]	.2749	.2958	3
51	.1620	.2766[b]	.3063	.3392	4
4	.1443	.2906[c]	.3427	.4043	5
40	.1190	.3000[c]	.3635	.4405	6
36	-.1347	.3074	.3156	.3240	7
3	-.0427	.3087	.3026	.2966	8
4	-.0117	.3088	.2996	.2908	9
39	.0105	.3585	.3515	.3447	47

[a]Digets rounded off from eight decimal places to four.
[b]Significant at .01 level.
[c]Significant at .05 level.

The stop criterion was 0.0001 which was reached in 47 iterations. The last two rows of the table show that the final 38 iterations increased R^2 only from 0.3088 to 0.3585 and the R from 0.55 to 0.59; therefore, it seems quite likely that the squared multiple 0.3088 will not be increased significantly by additional variables.

The question whether the inclusion of additional variables in the multiple regression equation will significantly increase the accuracy of prediction was answered by computation of the F ratio with the formula[1]

$$F = \frac{(R_1^2 - R_2^2) / (m_1 - m_2)}{(1 - R_1^2) / (N - m_1 - 1)}$$

where R_1 = multiple based on m_1 independent variables

R_2 = value based on m_2 variables selected from among the m_1 variables

m_1 = total number of variables

m_2 = number of variables included in the R_2 multiple

$n_1 = m_1 - m_2$ (numerator)

$n_2 = N - m_1 - 1$ (denominator).

The computation revealed that variables represented by variable numbers 36, 56, 3, 51, 4, and 40 contributed significantly to the coefficient of determination or squared multiple.

The weights for variables 36, 3, and 4 were corrected on iterations 7, 8, and 9; other weights (not shown) were also corrected before iteration 47 was reached.

The importance of the raw-score weight is that they indicate the amount by which individual scores must be multiplied to give the best prediction of Y. Beta weights, on the other hand, give the relative

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[1]Quinn McNemar, Psychological Statistics, (New York: John Wiley & Sons, Inc., 1962), p. 284.

importance of the predictor variables in determining the predicted score and indicate the value for which the correlation of predicted success with actual success is a maximum and errors in prediction are a minimum.[1]

Table 6 shows the 25 test variables and 5 non-test variables used in the regression analysis. The first column shows the tape number which identifies the respective variable in the composite 75-variable triangular matrix presented in Appendix A.

TABLE 6

LISTING OF PREDICTOR VARIABLES[a]

Tape No.	Variable
Differential Aptitude Tests	
1.	Space Relations
2.	Numerical Ability
3.	Abstract Reasoning
4.	Language Usage
5.	Mechanical Reasoning
Air Problems Test	
6.	Air Traffic Problems
California Test of Mental Mat.	
26.	Immediate Recall
27.	Delayed Recall
28.	Sensing Right and Left
29.	Manipulation of Areas
30.	Opposites
31.	Similarities
32.	Analogies
33.	Inference
34.	Number Series
35.	Numerical Quantity, Coins
36.	Numerical Quantity, Arith.
37.	Verbal Concepts
Moran Repetitive Measurements	
38.	A, Aiming
39.	FC, Flexibility of Closure
40.	NF, Numerical Facility
41.	PS, Perceptual Speed
42.	SC, Speed of Closure
43.	V, Visualization
44.	SM, Social Memory
Biographical Variables	
51.	Age
53.	Education
55.	Sum of Communications Exper.
56.	Sum of Air Trf. Exper.
58.	Pilot Experience

[a]Variables 3, 4, 36, 40, 51, and 56 contributed significantly to R^2

[1]Henry E. Garrett, Statistics in Psychology and Education, (New York: David McKay Co., Inc., 1958), pp. 417-19.

Regression Equation

Since the purpose of the first stage of the analysis was to determine the extent that a battery of 30 experimental variables is able to predict success in training and the second stage to find other factors which distinguished the over-achieving group from the under-achieving group, a composite 75 variable in tape record correlation matrix was obtained with 2850 triangular matrix entries. These coefficients of correlation are presented in Appendix A along with the means and standard deviations for the respective variables. The determination of how much each variable is contributing to the criterion was accomplished through the Iterative Multiple Regression Method.

Table 7 gives the product moment correlations between the six variables selected from the team of 30 variables listed in Table 6 as contributing significantly to the multiple correlation.

The t test was used to determine the significance of coefficients of correlation. In testing the null hypothesis for a coefficient of correlation, the required t is estimated by the formula

$$t = r\sqrt{\frac{N - 2}{1 - r^2}}$$

where r = obtained coefficient of correlation

N = number of pairs of observations

$df = N - 2$.[1]

In this sample of 338 subjects, an r of 0.11 or greater is significant at the five per cent level of significance and an r of 0.14 or greater is significant at the one per cent level of significance.

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[1] McNemar, op. cit., p. 138.

TABLE 7

CRITERION CORRELATIONS AND INTERCORRELATIONS BETWEEN VARIABLES AND THE MEAN AND STANDARD DEVIATION OF EACH VARIABLE[a]

(N = 338)

Tape No.	Variable	3	4	36	40	51	56	49	Mean	Std. Dev.
3.	DAT-Abstract Reasoning		20	37	13	-12	-08	31	35.37	5.94
4.	DAT-Language II			30	07	10	06	25	36.95	13.09
36.	CTMM-Num. Q. Arith.				33	05	-05	36	8.71	2.49
40.	RPM-NF, Num. Facility					12	-16	17	37.30	9.39
51.	Age						-15	-19	27.45	5.73
56.	Sum of Air Traffic Exp.							28	11.93	4.76
49.	Acad. & Lab. Grade Avg.								84.47	3.74

[a]Decimals omitted on the coefficients of correlation.

$$t = 0.11\sqrt{\frac{338 - 2}{1 - (.11)^2}} = 2.06$$

$$t = 0.14\sqrt{\frac{338 - 2}{1 - (.14)^2}} = 2.59$$

All the measures in Table 7 correlated significantly with the criterion but not with each other. Nine of the 15 intercorrelations were significant from zero at the five per cent level and six at the one per cent level. Both the DAT-Abstract Reasoning Test and Sum of Air Traffic Experience yielded high validity coefficients and the intercorrelation was very low (-0.08). These two variables also significantly increased the squared multiple as shown in Table 5. The highest validity coefficient (0.36) was obtained by the subtest CTMM-Numerical Quantity, Arithmetic. It was also the first variable selected in the iterative regression procedure.

The variable Age appears to be a paradox to the rule that we can expect an increase in the multiple correlation when the intercorrelations among the predictor variables are low and high with the criterion. Such a variable is a "suppressant." An effective suppression test is one which measures only the non-valid variance which appears in an otherwise valid test. It will show a high correlation with the test for which it is a suppressor but a low correlation with the criterion and enter the composite prediction with a negative weight. While the variable Age does not meet all the requirements of a suppressant, possessing a negative weight and a negative validity r, it may

meet the requirements to some degree by virtue of being in a regression equation with a negative Beta.[1]

Table 8 gives the raw-score and Beta weights of each test selected from the battery of 30 predictors.

TABLE 8

RAW-SCORE WEIGHTS, BETA WEIGHTS, AND COEFFICIENT OF MULTIPLE CORRELATION OF THE OPTIMUM PREDICTORS DERIVED VIA ITERATIVE MULTIPLE REGRESSION ANALYSIS

(N = 338)

Tape No.	Variable	Raw-Score Weight	Beta Weight
Tests			
3.	DAT-Abstract Reasoning	0.11	0.18
4.	DAT-Language II	0.04	0.14
36.	CTMM-Num. Q. Arith.	0.34	0.23
40.	RPM-NF, Num. Facility	0.05	0.12
Background			
51.	Age	-0.11	-0.17
56.	Sum of Air Traffic Exp.	0.23	0.30
Constant		74.36	
Multiple Correlation R = 0.56			
Standard Error of Estimate S.E. est. = 3.11			

The other measures, although giving validity coefficients as high as 0.28 for the CTMM-Number Series Test; 0.27 for the CTMM-Numerical Quantity, Coins; 0.26 for the DAT-Numerical Ability; and 0.25 for the Air Traffic Problems Test, Part I, do not add significantly to the predictive power of the battery.

Using these weights in the prediction equation, or regression

[1]DuBois, op. cit., p. 184.

equation, the average or typical achievement score was computed for each trainee. This predicted value is an unbiased estimate of achievement, or the true score since at any aptitude level positive and negative discrepancies between predicted and actual achievement are equally likely and the average difference is zero, i.e., the residuals are uncorrelated with the aptitude score. These predicted scores were subtracted from the actual scores and the discrepancy scores or residuals were obtained for each individual. Students were then categorized into the extreme groups on the basis of positive and negative extreme ends of the distribution of residuals. The over-achieving group was designated as those whose discrepancy scores fell at or above the 73rd percentile and the under-achieving group those whose discrepancy scores fell at or below the 27th percentile.

In summary, the iterative multiple regression procedure was applied to a selected team of 30 variables consisting of the 25 experimental aptitude subtests and 5 non-test variables, presented in Table 6, to specifically find answers to the first three questions of the problem posed in Chapter Three which are restated below:

1. What team of variables, experimental aptitude tests and biographical information, are the best predictors of total academic achievement as measured by the Combined Academic plus Laboratory Grade Average?

2. What are the weights which when used as multipliers of sets of predictor scores provide the most efficient prediction possible?

3. What is the correlation between the predicted score and actual achievement?

First, the multiple regression analysis revealed the efficacy

of the 30 variables by identifying variables, 3 DAT-Abstract Reasoning, 4 DAT-Language II, 36 CTMM-Numerical Quantity Arithmetic, 40 RPM-Numerical Facility, 51 Age, and 56 Sum of Air Traffic Experience as the optimal predictors for use in the regression equation to predict the Combined Academic plus Laboratory Grade Average of each trainee. Second, the iterative method computation resulted in the calculation of the raw-score and Beta weights shown in Table 8 as the best set of regression weights, best in the sense that they reduce to a minimum the errors in predicting the criterion score. And third, the multiple correlation, i.e., the correlation between the predicted score and actual achievement was calculated to be 0.56. This is the maximum prediction that can be obtained from the additive combination of scores of the six predictor variables identified as the best predictors.

CHAPTER V

OVER- AND UNDER-ACHIEVEMENT ANALYSIS

Introduction

The purpose of this analysis was to investigate the relationship of the extreme groups with respect to certain measures of personality, biographical information, and behavioral traits exhibited on the job both within one year after completing training and three years later. The over- and under-achievement groups composed of 91 cases each and representing 27 per cent of the extreme ends of the distribution respectively, were selected by means of the regression equation as explained in Chapter Four. A 75-variable triangular matrix consisting of 2850 entries and containing all the necessary correlation coefficients was obtained through the use of an IBM 7040 computer and is shown in Appendix A. For the coefficients of correlation, t ratios and chi-square values were computed to test for significant differences from zero, i.e., an obtained correlation against the null hypothesis.

Personality Characteristics of the Deviant Groups

A subsidiary question of the stated problem was: How do the extreme groups compare with respect to certain measures of personality? For the two contrasting groups of over-achievement and under-achievement, point biserial coefficients of correlation were computed on each of the California Personality Inventory Scales. Table 9 reports the statistical

results of the study on the extreme groups.

Inspection of this table reveals that twelve of the eighteen scales are statistically significant. Specifically, four scales were significant at the 0.05 level of confidence, eight at the 0.01 level when the personality characteristics were compared. The over-achievement group was found to be positively related to the scales labeled Ac-Achievement via Conformance, Ai-Achievement via Independence, Cs-Capacity for Status, Do-Dominance, Gi-Good Impression, Ie-Intellectual Efficiency, Py-Psychological Mindedness, Re-Responsibility, Sc-Self Control, So-Socialization, To-Tolerance, and Wb-Sense of Well Being.

No significant differences were found for the scales, Cm-Communality, Fe-Femininity, Fx-Flexibility, Sa-Self Acceptance, Sp-Social Presence, and Sy-Sociability. It is noteworthy that none of the personality characteristics were statistically significant in favor of the under-achievement group.

Utilizing Gough's (Chapter Three) descriptive statements, characteristics of individuals in the over-achievement group may be described as those who tend to conform; to be independent; to be efficient and alert; to place high value on cognitive matters; to be observant; to be conscientious, responsible, and dependable, and to be free from impulsivity and self-centeredness. Additionally such a person may be described as permissive, accepting, non-judgmental of social beliefs, minimizing worries and complaints, and relatively free from self doubt and disillusionment.

The range of the point biserial r's extended from -0.10 for the two scales Sp-Social Presence and Fx-Flexibility to 0.33 for Ie-

Intellectual Efficiency. The lowest or negligable coefficients occurred in three cases for the relationships of scales, Cm-Communality, Fe-Femininity, and Sa-Self Acceptance.

TABLE 9

POINT BISERIAL COEFFICIENTS OF CORRELATION, MEANS AND STANDARD DEVIATIONS OF CALIFORNIA PSYCHOLOGICAL INVENTORY FOR OVER- AND UNDER-ACHIEVING GROUPS[a]

(N = 178)

Tape No.	Scale	Over-Achievement Mean	Over-Achievement Std. Dev.	Under-Achievement Mean	Under-Achievement Std. Dev.	r_{pb}	P[b]
		(n = 89)		(n = 89)			
8.	Ac	29.72	3.92	27.45	4.72	25	0.01
9.	Ai	18.97	4.14	17.13	3.25	24	0.01
10.	Cm	26.06	2.00	26.01	1.88	01	
11.	Cs	20.12	3.42	18.97	3.59	16	0.05
12.	Do	29.84	5.11	27.83	5.59	18	0.05
13.	Fe	15.97	2.86	15.70	2.86	05	
14.	Fx	8.17	4.22	8.92	3.50	-10	
15.	Gi	20.93	7.00	18.33	7.10	18	0.05
16.	Ie	39.98	4.50	36.78	4.80	33	0.01
17.	Py	12.09	2.61	11.22	2.73	16	0.05
18.	Re	32.07	4.45	29.44	5.19	26	0.01
19.	Sa	21.43	3.50	21.66	3.56	-03	
20.	Sc	32.30	7.00	28.84	7.53	23	0.01
21.	So	37.84	5.20	35.89	4.63	19	0.01
22.	Sp	35.63	5.40	36.62	4.91	-10	
23.	Sy	26.20	4.43	25.29	4.85	10	
24.	To	23.19	3.88	21.06	4.93	23	0.01
25.	Wb	39.87	2.85	37.75	4.22	28	0.01

[a]Decimals omitted on coefficients of correlation.
[b]Significance of point biserial r indicated under P at levels designated.

The results of this analysis have shown that the personality variables which seem most important for the over-achievement group are mostly those which are directly relevant to the task of academic learning, representing as they do the needs to understand and apply air traffic rules and regulations and to remain at the task until the job is done. Not inconsistent with this personality sketch of the air

traffic controller, the significantly higher CPI scores of the over-achievement group in Ie and Wb adds to the construct of the air traffic controller the traits of Intellectual Efficiency and Sense of Well Being.

Biographical Characteristics of the Extreme Groups

Another subsidiary question was: Do the divergent groups differ with respect to age, educational level, or previous experience? To answer this and other related questions, a point biserial correlation was computed for each of the biographical variables as a continuous measure and the subgroups as a dichotomy in order to reveal the characteristics which discriminate between the high- and the low-groups.[1] Table 10 gives the characteristics, means and standard deviations of the extreme groups, and the point biserial r.

Reference to the table reveals five of the ten correlations to be significantly different from zero at the 0.001 per cent level or beyond. The over-achievement group was found to be positively related to the biographical characteristics of Objective Personality Rating, Subjective Personality Rating, Combined Academic plus Laboratory Grade Average, Academic Grade Average, and Laboratory Grade Average. No significant differences were found for the variables Age, Educational Level, Sum of Air Traffic Experience, Sum of Communications Experience, and Pilot Experience.

The Combined Academic plus Laboratory Grade Average correlated highest with an r of 0.84, the next being Laboratory Grade Average with a point biserial r of 0.75, and Academic Grade Average with an r of 0.72.

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[1] Robert L. Thorndike, Personnel Selection, (New York: John Wiley & Sons, Inc., 1949), p. 239.

TABLE 10

POINT BISERIAL COEFFICIENTS OF CORRELATION, MEANS AND STANDARD DEVIATIONS OF BIOGRAPHICAL CHARACTERISTICS FOR OVER- AND UNDER-ACHIEVING GROUPS[a]

(N = 182)

Tape No.	Variable	Over-Achievement Mean	Over-Achievement Std. Dev.	Under-Achievement Mean	Under-Achievement Std. Dev.	r_{pb}	P[b]
		(n = 91)		(n = 91)			
47.	Objective Personality Rating	5.95	1.81	4.08	1.70	47	0.01
48.	Subjective Personality Rating	5.86	1.86	4.00	1.66	47	0.01
49.	Combined Acad.+ Lab. Gd. Avg.	88.36	2.57	80.62	2.45	84	0.01
51.	Age	27.84	5,85	27.71	6.11	01	
53.	Educational Level	2.82	1.38	2.68	1.55	05	
55.	Sum of Communications Exper.	4.15	2.80	4.82	3.52	-10	
56.	Sum of Air Traffic Exper.	12.01	4.90	12.13	4.99	-01	
58.	Pilot Experience	2.55	2.76	2.04	2.32	10	
72.	Academic Grade Average	89.91	3.48	82.62	3.60	72	0.01
73.	Laboratory Grade Average	86.85	3.42	78.62	3.78	75	0.01

[a]Decimals omitted on coefficients of correlation.
[b]Significance of point biserial r indicated under P at levels designated.

These high correlations are to be expected and may be ascribed to the fact that these measures were the composite of the criterion for the prediction equation and only the pass cases are represented. The other two significant characteristics, the Object Personality Rating and Subjective Personality Rating, were both derived from each student's final "Evaluation of Performance" record as explained in Chapter Three. The correlations, while significant, perhaps reveal that subjective judgments all too often lack the validity necessary for effective evaluation. Surprisingly variables Age and Educational Level had no effect on distinguishing the groups. The reasons for this are not clear. Perhaps the Enroute Air Traffic Training Course is of a nature that does not depend heavily on this type of experience.

The Sum of Communications Experience and Pilot Experience also did not discriminate between the subgroups, having an r of -0.10 and 0.10 respectively whereas an r of 0.15 is significant at the 0.05 level. This indicates that this type of experience is helpful but not to a high degree.

From the results of the biographical information obtained, significant differences found in this study revealed that the over-achievement group obtained higher grades and ratings than the under-achievement group, which was to be expected. Most importantly the study revealed that age, educational level, and experience such as pilot experience, previous communications experience, and air traffic experience did not distinguish the contrasting groups from each other.

Factors and Traits of the Extreme Groups

This last part of the study is concerned with the question: How do the extreme groups compare with respect to certain types of

behavior on the job, i.e., what factors and traits distinguish the over- and under-achieving Air Traffic Controllers on a longitudinal basis of one year and three years after completion of training? This analysis was conducted similarly as the previous studies on the extreme groups with the exception that the phi coefficient was computed on the variables that expressed a dichotomy. As with the point biserial coefficients, phi coefficients were calculated to determine the items that were discriminating between the upper and lower groups. Table 11 summarizes the significant relationships between discrepant groups and the eight factors described in Table 4 which emerged from four separate job performance ratings rendered by the supervisors on each of the 338 air traffic controllers one year and again three years after training. Table 11 also summarizes the two average supervisory rating scores and the retention status: Left FAA-With FAA. All these factors are listed and described in Chapter Three.

Whereas the "t" test was used to test for the significance of the point biserial r, the chi-square test is used to test for significance of the obtained phi coefficient ϕ against the null hypothesis.[1] Chi-square X^2 is related to ϕ by the following equation:

$$X^2 = N\phi^2$$

where df = 1.

Table 11 shows that eight significant differences were found among the thirteen that were tested. Seven of these differences were positively related to over-achievement and one to under-achievement. Specifically variables: Halo, Interpersonal Orientation, Job Orientation, Job Potential, Job Performance, Emotional Stability, and

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[1]Garrett, op. cit., p. 391.

TABLE 11

POINT BISERIAL COEFFICIENTS, PHI COEFFICIENTS, MEANS AND STANDARD DEVIATIONS OF FACTORS FOR OVER- AND UNDER-ACHIEVING GROUPS[a]

Tape No.	Factor	Over-Achievement n	Over-Achievement Mean	Over-Achievement Std. Dev.	Under-Achievement n	Under-Achievement Mean	Under-Achievement Std. Dev.	r_{pb}	ϕ	P[b]
52.	Avg. Supervy. Rtg-3rd yr.	45	2.87	0.54	35	2.78	0.49	08		
57.	Potentially Haz.-3rd yr.	45	1.84	0.36	35	1.74	0.44		13	
59.	Left FAA-With FAA	91	1.71	0.45	91	1.64	0.48		08	
62.	Halo	66	103.03	21.67	68	90.82	25.68	25		0.01
63.	Inter. Pers. Orientation	79	26.20	4.65	80	24.07	5.30	21		0.01
64.	Job Orientation	79	16.53	2.98	80	14.16	3.66	33		0.01
65.	Job Potential	66	10.12	2.83	67	8.90	3.15	20		0.01
66.	Job Performance	77	7.49	3.00	79	6.18	4.19	18		0.05
67.	Emotional Stability	79	14.77	3.26	80	13.27	4.00	20		0.01
68.	Marginal Work-3rd yr.	45	1.15	0.36	35	1.17	0.38		-02	
70.	Potentially Haz.-1st yr.	76	1.75	0.43	73	1.86	0.34		-14	
71.	Marginal Work-1st yr.	76	1.17	0.37	73	1.32	0.46		-17	0.05
74.	Avg. Supervy. Rtg-1st yr.	76	2.63	0.49	73	2.39	0.58	21		0.01

[a]Decimals omitted on coefficients of correlation.
[b]Significance of point biserial r and phi coefficient indicated under P at levels designated.

Average Supervisory Rating obtained the first year after training were statistically significant and positively related to over-achievement. Variable "Marginal Work" obtained in the first year after training was statistically significant and positively related to under-achievement.

The factor Job Orientation with a point biserial r of 0.33 is significantly different from zero at the 0.001 level. Job Orientation which relates to steady attention to work and ability to organize work appears to be an underlying factor which relates job success with scholastic success.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The major findings of this study are summarized in this chapter. To solve the problem stated in Chapter One, data were compiled for 338 FAA Air Traffic Control applicants who were recruited by the Civil Service Commission for the job of Enroute Air Traffic Control Specialist and entered the FAA Academy as trainees in the eight-week Enroute Air Traffic Control Course. After successful completion of training, the students were assigned to jobs at Enroute Air Traffic Control Centers throughout the United States.

The experimental subtests were administered and biographical information obtained after placement was already decided upon by previous non-test methods in order to eliminate any effect of the tests on job placement. A group of 43 experimental subtests were chosen from five batteries of tests (5 from DAT, 1 from Air Traffic Problems, 12 from CTMM, 18 from CPI, and 7 from RPM) in terms of extent to which they were considered to measure attributes that were judged to be important to job success and previous research. One year and again three years after completion of training, supervisory ratings of these former students were obtained of their job performance. Thus, the aptitude test data and psychological inventory, along with demographic, experience, and job performance information provided the

basis for the conduct of a regression analysis and a statistical analysis of the over- and under-achievement groups.

The iterative procedure for selecting a battery of optimal predictors of a single criterion, combined academic plus laboratory grade average (A+L), was applied to the data. The resulting intercorrelation matrix is provided in Appendix A. A multiple regression equation was derived from a composite of 25 test variables and five non-test variables, which resulted in the selection of six predictor variables. Predicted scores were calculated for each of the 338 air traffic control students in the sample. The coefficient of multiple correlation between the predicted and the actual scores was 0.56. The predictions were based upon the tests: DAT-Abstract Reasoning and Language II, CTMM-Numerical Quantity Arithmetic, RPM-Numerical Facility, and the non-test variables, Age and Sum of Air Traffic Experience Part I. The A+L's were the actual grade averages achieved by these students in the Enroute Air Traffic Control Course before entry on a job within the Agency. Also computed for each student was a difference score, obtained A+L minus predicted A+L.

Product-moment correlations were computed between each of the 67 variables (44 test and 23 non-test) and predicted A+L, obtained A+L, residuals between obtained and predicted A+L, high negative (27 per cent) residuals, high positive (27 per cent) residuals, high positive (2) and high negative (1) residual scores. The above computations were made in order to assign individuals to the contrasting achievement groups on the basis of the difference between actual achievement and predicted achievement so that the discrepancy score by which these groups are defined will be unrelated to achievement or to aptitude.

This design made it possible to deal only with the residual scores in finding other factors which effect achievement and job success. This was accomplished through the use of the product-moment correlations and their special cases of point biserial r and the phi coefficient to find the relationships of additional variables to the extent that they discriminate between the over- and under-achievement groups.

The hypotheses tested were:

1. There are no apparent differences between personality characteristics of air traffic controllers on the basis of statistically defined over- and under-achieving groups.

2. There are no significant differences between the extreme groups on demographic and experience information.

3. There are no apparent differences between the two groups on the basis of traits and job performance evaluations.

The hypothesis of no differences for personality characteristics was accepted for variables Cm-Communality, Fe-Femininity, Fx-Flexibility, Sa-Self Acceptance, Sp-Social Presence, and Sy-Sociability. There were significant differences between the extreme groups in favor of over-achievement on twelve variables: Ac-Achievement via Conformance, Ai-Achievement via Independence, Cs-Capacity for Status, Do-Dominance, Gi-Good Impression, Ie-Intellectual Efficiency, Py-Psychological Mindedness, Re-Responsibility, Sc-Self Control, So-Socialization, To-Tolerance, and Wb-Sense of Well Being.

The major findings of this analysis are:

1. Differences in personality characteristics do exist between the extreme groups.

2. The over-achievement group seems to be more efficient, observant, and responsible, than the under-achievement group.

3. The personality characteristics which distinguished the over-achievement group such as conformance, dependability, alertness, relative freedom from self doubt, impulsivity, and self-centeredness were also the characteristics which seem most important in the job success of an air traffic controller.

4. Because of the exceptionally high correlation (0.33) of the variable Intellectual Efficiency, it could be useful in a prediction equation for selection purposes.

5. None of the personality characteristics were statistically significant in favor of the under-achievement group.

Comparison of the biographical information of the two subgroups revealed that five of the ten correlations in this analysis were found to be statistically significant. On the other hand, the remaining five variables were found to be nonsignificant. More specifically, variables Objective Personality Rating, Subjective Personality Rating, Combined Academic plus Laboratory Grade Average, Academic Grade Average, and Laboratory Grade Average were found to be significant at the 0.01 level of confidence in favor of the over-achievement group and the variables Age, Education Level, Sum of Communications Experience, Sum of Air Traffic Experience, and Pilot Experience were found to be non-significant.

In general, this composite of variables appear to be divided into two parts; the experience and demographic variables which are not significant and the variables derived through ratings which are highly significant. On the basis of this study, it is too early to

discount the effectiveness of experience and demographic variables as evidenced by the fact that two variables, Sum of Communications Experience and Pilot Experience, each correlated with a point biserial r of 0.10 whereas r of 0.15 is significant at the 0.05 level. Another interesting finding is that the variable Age did not reveal any correlation with the extreme groups, but in the regression analysis it was selected as one of the six best predictors of academic success and increased the multiple r significantly. This may be further evidence that the variable Age acts as a suppressor in a regression equation.

The results of this analysis have indicated that the over-achievement group scored significantly higher in all five of the job performance ratings and that the experience and demographic variables did not distinguish between the subgroups.

Consideration of the point biserial r and the phi coefficient in respect to discrimination of the contrasting groups on the factors representing the job rating scales and job judgments of performance made one year and three years after training revealed that eight of the thirteen factors discriminated between the extreme groups significantly; therefore, the null hypothesis is rejected on these variables. The factors which were statistically significant and positively related to over-achievement are: Halo, Interpersonal Orientation, Job Orientation, Job Potential, Job Performance, Emotional Stability, and the Average Supervisory Rating obtained from the supervisor after the first year of employment.

The findings revealed that the over-achievement group obtained higher grades in school and possessed the following characteristics associated with academic and job success: persistence, dependability,

alertness, observant behavior, the ability to organize work and to work under pressure, and conform to rules and regulations. Only one variable "Marginal Work" distinguished the under-achievement group.

In view of the findings obtained from this study, it is recommended that:

1. In the selection procedure for Air Traffic Controllers, six variables (DAT-Abstract Reasoning, DAT-Language II, CTMM-Numerical Quantity Arithmetic, RPM-Numerical Facility, Age, and Air Traffic Experience) which were identified as the best predictors of academic success, should be considered.

2. The CPI personality variables (Ac-Achievement via Conformance, Ai-Achievement via Independence, Cs-Capacity for Status, Do-Dominance, Gi-Good Impression, Ie-Intellectual Efficiency, Py-Psychological Mindedness, Re-Responsibility, Sc-Self Control, So-Socialization, To-Tolerance, and Wb-Sense of Well Being) which significantly distinguished the extreme groups should be used in the selection procedure, also.

3. The factors obtained from the job performance ratings (Interpersonal Orientation, Job Orientation, Job Potential, Job Performance, and Emotional Stability) should be used directly in employee selection or incorporated into other representative test items for selection criteria.

The study of characteristics relating to the extreme groups is another step in understanding the problem of developing selection procedures through the use of the technique of multivariate prediction. Managers, administrators, personnel officers, and counselors should continue to improve procedures for selection that will permit them to understand and thereby be able to select at the optimum level of confidence.

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APPENDICES

COMPOSITE 75-VARIABLE TRIANGULAR MATRIX[a]

Index to Computer Tape Numbers of Enroute Classes 9230 thru 7281

Tape No.	Variable	Tape No.	Variable
1.	DAT Space Relations	38.	RPM A-Aiming
2.	DAT Num. Ability	39.	RPM Fc-Flex. of Closure
3.	DAT Abstr. Reasoning	40.	RPM NF-Num. Facility
4.	DAT Language II	41.	RPM PS-Perceptual Speed
5.	DAT Mech. Reasoning	42.	RPM SC-Speed of Closure
6.	Air Traffic Problem-I	43.	RPM V-Visualization
7.	Air Traffic Problem-II	44.	RPM SM-Social Memory
8.	CPI Ac-Achv. via Conf.	45.	Under-Achievement Group
9.	API Ai-Achv. via Indep.	46.	Over-achievement Group
10.	CPI Cm-Communality	47.	Obj. Pers. Rating
11.	CPI Cs-Cap. for Status	48.	Subj. Pers. Rating
12.	CPI Do-Dominance	49.	Acad.+Lab. Grade Average
13.	CPI Fe-Femininity	50.	Predicted A+L
14.	CPI Fx-Flexibility	51.	Age
15.	CPI Gi-Good Impression	52.	Average Supervy. Rtg.-3rd Yr.
16.	CPI Ie-Intellectual Eff.	53.	Education
17.	CPI Py-Psy. Mindedness	54.[b]	Hi Pos. (2) & Hi Neg. (1)
18.	CPI Re-Responsibility	55.	Sum of Comm. Experience
19.	CPI Sa-Self Acceptance	56.	Sum of Air Traffic Exp.
20.	CPI Sc-Self Control	57.[b]	Potentially Hazardous - 3rd Yr.
21.	CPI So-Socialization	58.	Pilot Experience
22.	CPI Sp-Social Presence	59.[b]	Left FAA(1)-With FAA(2)
23.	CPI Sy-Sociability	60.	Middle Group 46%
24.	CPI To-Tolerance	61.	Blank
25.	CPI Wb-Sense of W.B.	62.	Halo
26.	CTMM Immediate Recall	63.	Interpersonal Orientation
27.	CTMM Delayed Recall	64.	Job Orientation
28.	CTMM Sensing R. & L.	65.	Job Potential
29.	CTMM Manip. of Areas	66.	Job Performance
30.	CTMM Opposites	67.	Emotional Stability
31.	CTMM Similarities	68.[b]	Marginal Work - 3rd Yr.
32.	CTMM Analogies	69.	Residual Score
33.	CTMM Inference	70.[b]	Potentially Hazardous - 1st Yr.
34.	CTMM Number Series	71.[b]	Marginal Work - 1st Yr.
35.	CTMM Numerical Q. Coins	72.	Academic Grade Average
36.	CTMM Numerical Q. Arith.	73.	Lab. Grade Average
37.	CTMM Verbal Concepts	74.	Average Sup. Rating - 1st Yr.
		75.	Blank

[a]The raw scores from which these variables were derived on students of ATC Enroute Classes 9230 thru 7281 are on file at the Civil Aeromedical Research Institute, Federal Aviation Agency, Oklahoma City, Oklahoma.

[b]Dichotomy

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
1	1	338	64.1509	64.1509	17.4284	17.4284	1.000000
1	2	338	64.1509	23.4371	17.4284	7.7032	.325364
1	3	338	64.1509	35.3632	17.4284	5.9351	.562358
1	4	338	64.1509	36.9467	17.4284	13.0897	.201737
1	5	338	64.1509	44.8728	17.4284	11.6199	.470025
1	6	338	64.1509	14.4556	17.4284	5.7311	.118355
1	7	338	64.1509	11.4142	17.4284	6.0305	.213765
1	8	334	64.0689	28.4551	17.4597	4.3557	-.021041
1	9	334	64.0689	17.7934	17.4597	3.7944	.079077
1	10	334	64.0689	26.1617	17.4597	1.8009	-.011685
1	11	334	64.0689	19.5060	17.4597	3.5644	.081033
1	12	334	64.0689	28.8503	17.4597	5.4714	.031042
1	13	334	64.0689	15.8982	17.4597	2.8770	-.060657
1	14	334	64.0689	8.1317	17.4597	3.6877	.056357
1	15	334	64.0689	19.4671	17.4597	6.7276	.025955
1	16	334	64.0689	38.5210	17.4597	4.9456	.163797
1	17	334	64.0689	11.4731	17.4597	2.5058	.042300
1	18	334	64.0689	30.7126	17.4597	4.8289	.108153
1	19	334	64.0689	21.3713	17.4597	3.5512	-.036532
1	20	334	64.0689	30.4551	17.4597	7.4791	.012439
1	21	334	64.0689	36.7665	17.4597	4.9488	-.021332
1	22	334	64.0689	35.8413	17.4597	5.1302	.036122
1	23	334	64.0689	25.7335	17.4597	4.5954	.064263
1	24	334	64.0689	21.9790	17.4597	4.6355	.069972
1	25	334	64.0689	38.8293	17.4597	3.8502	.085866
1	26	338	64.1509	30.6154	17.4284	2.2188	.130034
1	27	338	64.1509	17.3136	17.4284	2.1571	.142126
1	28	338	64.1509	17.1420	17.4284	2.0563	.216686
1	29	338	64.1509	8.2485	17.4284	2.3503	.443567
1	30	338	64.1509	7.6095	17.4284	2.0672	.144191
1	31	338	64.1509	10.2367	17.4284	2.2155	.285104
1	32	338	64.1509	6.9852	17.4284	1.9052	.267009
1	33	338	64.1509	11.9970	17.4284	1.7088	.270619
1	34	338	64.1509	6.2515	17.4284	2.3694	.268820
1	35	338	64.1509	8.5444	17.4284	2.5823	.262709
1	36	338	64.1509	8.7101	17.4284	2.4935	.307292
1	37	338	64.1509	21.6006	17.4284	7.1458	.072275
1	38	338	64.1509	106.8314	17.4284	19.5052	.162475
1	39	338	64.1509	9.8728	17.4284	4.3925	.435719
1	40	338	64.1509	37.3047	17.4284	9.3868	-.056488
1	41	338	64.1509	85.4497	17.4284	14.9480	.045211
1	42	338	64.1509	19.8077	17.4284	6.1789	.026974
1	43	338	64.1509	34.7604	17.4284	7.3721	.320562
1	44	338	64.1509	30.6272	17.4284	7.1644	.156715
1	45	91	62.4615	1.0000	17.2724	.0000	.000000
1	46	91	63.7912	1.0000	16.2937	.0000	.000000
1	47	338	64.1509	4.9704	17.4284	1.8682	.092002
1	48	338	64.1509	4.9645	17.4284	1.9057	.075787
1	49	338	64.1509	84.4704	17.4284	3.7394	.244646
1	50	338	64.1509	84.4738	17.4284	2.0799	.392254

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
1	51	338	64.1509	27.4497	17.4284	5.7285	-.152167
1	52	152	64.3289	2.7402	16.3030	.5457	-.041804
1	53	338	64.1509	2.8166	17.4284	1.5294	.018575
1	54	182	63.1264	1.5000	16.8033	.5000	.039566
1	55	338	64.1509	4.5325	17.4284	3.1680	-.066776
1	56	338	64.1509	11.9260	17.4284	4.7646	-.004283
1	57	152	64.3289	1.7697	16.3030	.4210	-.058937
1	58	338	64.1509	2.1953	17.4284	2.4161	-.100399
1	59	338	64.1509	1.6598	17.4284	.4738	-.053260
1	60	156	65.3462	1.0000	18.0571	.0000	.000000
1	61	226	64.3584	1.9204	17.7300	.2707	.052957
1	62	248	64.9637	96.6569	16.8201	22.3135	.092674
1	63	292	64.6438	25.2654	16.8015	4.8223	.031864
1	64	292	64.6438	15.1318	16.8015	3.3017	.063524
1	65	248	64.8831	9.3575	16.8532	2.7823	.066001
1	66	289	64.5882	6.9164	16.8153	3.5898	.056981
1	67	292	64.6438	14.0291	16.8015	3.5645	-.007446
1	68	152	64.3289	1.2039	16.3030	.4029	.090941
1	69	338	64.1509	-.0034	17.4284	3.1089	.031835
1	70	279	64.5735	1.7957	16.9490	.4032	-.014325
1	71	279	64.5735	1.2007	16.9490	.4005	-.105654
1	72	338	64.1509	86.2604	17.4284	4.4824	.240361
1	73	338	64.1509	82.7278	17.4284	4.6508	.151984
1	74	279	64.5735	2.4722	16.9490	.5133	.050437
1	75	338	64.1509	1787.1487	17.4284	314.4291	.702913
2	2	338	23.4371	23.4371	7.7032	7.7032	1.000000
2	3	338	23.4371	35.3632	7.7032	5.9351	.402924
2	4	338	23.4371	36.9467	7.7032	13.0897	.327893
2	5	338	23.4371	44.8728	7.7032	11.6199	.302757
2	6	338	23.4371	14.4556	7.7032	5.7311	.212734
2	7	338	23.4371	11.4142	7.7032	6.0305	.229694
2	8	334	23.6228	28.4551	7.5447	4.3557	.118492
2	9	334	23.6228	17.7934	7.5447	3.7944	.167124
2	10	334	23.6228	26.1617	7.5447	1.8009	.045475
2	11	334	23.6228	19.5060	7.5447	3.5644	.201207
2	12	334	23.6228	28.8503	7.5447	5.4714	.134626
2	13	334	23.6228	15.8982	7.5447	2.8770	-.115255
2	14	334	23.6228	8.1317	7.5447	3.6877	.043485
2	15	334	23.6228	19.4671	7.5447	6.7276	.009031
2	16	334	23.6228	38.5210	7.5447	4.9456	.203019
2	17	334	23.6228	11.4731	7.5447	2.5058	.135538
2	18	334	23.6228	30.7126	7.5447	4.8289	.186159
2	19	334	23.6228	21.3713	7.5447	3.5512	.135164
2	20	334	23.6228	30.4551	7.5447	7.4791	-.001003
2	21	334	23.6228	36.7665	7.5447	4.9488	.024745
2	22	334	23.6228	35.8413	7.5447	5.1302	.093269
2	23	334	23.6228	25.7335	7.5447	4.5954	.114479
2	24	334	23.6228	21.9790	7.5447	4.6355	.090541
2	25	334	23.6228	38.8293	7.5447	3.8502	.098250
2	26	338	23.4371	30.6154	7.7032	2.2188	.185272

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
2	27	338	23.4371	17.3136	7.7032	2.1571	.136726
2	28	338	23.4371	17.1420	7.7032	2.0563	.047819
2	29	338	23.4371	8.2485	7.7032	2.3503	.181228
2	30	338	23.4371	7.6095	7.7032	2.0672	.061673
2	31	338	23.4371	10.2367	7.7032	2.2155	.155938
2	32	338	23.4371	6.9852	7.7032	1.9052	.223445
2	33	338	23.4371	11.9970	7.7032	1.7088	.361000
2	34	338	23.4371	6.2515	7.7032	2.3694	.365251
2	35	338	23.4371	8.5444	7.7032	2.5823	.403040
2	36	338	23.4371	8.7101	7.7032	2.4935	.617736
2	37	338	23.4371	21.6006	7.7032	7.1458	.267315
2	38	338	23.4371	106.8314	7.7032	19.5052	.146290
2	39	338	23.4371	9.8728	7.7032	4.3925	.237592
2	40	338	23.4371	37.3047	7.7032	9.3868	.310870
2	41	338	23.4371	85.4497	7.7032	14.9480	.045627
2	42	338	23.4371	19.8077	7.7032	6.1789	.184962
2	43	338	23.4371	34.7604	7.7032	7.3721	.204414
2	44	338	23.4371	30.6272	7.7032	7.1644	.105586
2	45	91	22.5907	1.0000	8.5377	.0000	.000000
2	46	91	23.3544	1.0000	7.3866	.0000	.000000
2	47	338	23.4371	4.9704	7.7032	1.8682	.035385
2	48	338	23.4371	4.9645	7.7032	1.9057	.004886
2	49	338	23.4371	84.4704	7.7032	3.7394	.256878
2	50	338	23.4371	84.4738	7.7032	2.0799	.455971
2	51	338	23.4371	27.4497	7.7032	5.7285	.110998
2	52	152	22.9934	2.7402	7.6960	.5457	-.113349
2	53	338	23.4371	2.8166	7.7032	1.5294	.292456
2	54	182	22.9725	1.5000	7.9921	.5000	.047781
2	55	338	23.4371	4.5325	7.7032	3.1680	-.097981
2	56	338	23.4371	11.9260	7.7032	4.7646	-.086680
2	57	152	22.9934	1.7697	7.6960	.4210	-.142097
2	58	338	23.4371	2.1953	7.7032	2.4161	.061502
2	59	338	23.4371	1.6598	7.7032	.4738	-.034233
2	60	156	23.9792	1.0000	7.3148	.0000	.000000
2	61	226	23.6029	1.9204	8.0194	.2707	.104142
2	62	248	23.4556	96.6569	7.8042	22.3135	.055183
2	63	292	23.4863	25.2654	7.7690	4.8223	.050847
2	64	292	23.4863	15.1318	7.7690	3.3017	.082373
2	65	248	23.5565	9.3575	7.7164	2.7823	.018835
2	66	289	23.4602	6.9164	7.8019	3.5898	.003870
2	67	292	23.4863	14.0291	7.7690	3.5645	.013046
2	68	152	22.9934	1.2039	7.6960	.4029	.191377
2	69	338	23.4371	-.0034	7.7032	3.1089	.003920
2	70	279	23.6075	1.7957	7.7663	.4032	-.064238
2	71	279	23.6075	1.2007	7.7663	.4005	.046640
2	72	338	23.4371	86.2604	7.7032	4.4824	.317162
2	73	338	23.4371	82.7278	7.7032	4.6508	.104567
2	74	279	23.6075	2.4722	7.7663	.5133	.031390
2	75	338	23.4371	1787.1487	7.7032	314.4291	.669305
3	3	338	35.3632	35.3632	5.9351	5.9351	1.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
3	4	338	35.3632	36.9467	5.9351	13.0897	.199715
3	5	338	35.3632	44.8728	5.9351	11.6199	.304816
3	6	338	35.3632	14.4556	5.9351	5.7311	.233763
3	7	338	35.3632	11.4142	5.9351	6.0305	.304640
3	8	334	35.3975	28.4551	5.9587	4.3557	.041106
3	9	334	35.3975	17.7934	5.9587	3.7944	.113377
3	10	334	35.3975	26.1617	5.9587	1.8009	.015635
3	11	334	35.3975	19.5060	5.9587	3.5644	.129665
3	12	334	35.3975	28.8503	5.9587	5.4714	.080023
3	13	334	35.3975	15.8982	5.9587	2.8770	-.041695
3	14	334	35.3975	8.1317	5.9587	3.6877	.041150
3	15	334	35.3975	19.4671	5.9587	6.7276	-.031088
3	16	334	35.3975	38.5210	5.9587	4.9456	.187456
3	17	334	35.3975	11.4731	5.9587	2.5058	.056536
3	18	334	35.3975	30.7126	5.9587	4.8289	.104849
3	19	334	35.3975	21.3713	5.9587	3.5512	.088004
3	20	334	35.3975	30.4551	5.9587	7.4791	-.004613
3	21	334	35.3975	36.7665	5.9587	4.9488	-.015330
3	22	334	35.3975	35.8413	5.9587	5.1302	.123095
3	23	334	35.3975	25.7335	5.9587	4.5954	.073600
3	24	334	35.3975	21.9790	5.9587	4.6355	.042684
3	25	334	35.3975	38.8293	5.9587	3.8502	.086805
3	26	338	35.3632	30.6154	5.9351	2.2188	.191744
3	27	338	35.3632	17.3136	5.9351	2.1571	.199837
3	28	338	35.3632	17.1420	5.9351	2.0563	.052805
3	29	338	35.3632	8.2485	5.9351	2.3503	.354671
3	30	338	35.3632	7.6095	5.9351	2.0672	.190905
3	31	338	35.3632	10.2367	5.9351	2.2155	.192025
3	32	338	35.3632	6.9852	5.9351	1.9052	.274543
3	33	338	35.3632	11.9970	5.9351	1.7088	.332440
3	34	338	35.3632	6.2515	5.9351	2.3694	.355152
3	35	338	35.3632	8.5444	5.9351	2.5823	.375887
3	36	338	35.3632	8.7101	5.9351	2.4935	.372454
3	37	338	35.3632	21.6006	5.9351	7.1458	.147736
3	38	338	35.3632	106.8314	5.9351	19.5052	.151780
3	39	338	35.3632	9.8728	5.9351	4.3925	.331758
3	40	338	35.3632	37.3047	5.9351	9.3868	.132875
3	41	338	35.3632	85.4497	5.9351	14.9480	.057778
3	42	338	35.3632	19.8077	5.9351	6.1789	.050391
3	43	338	35.3632	34.7604	5.9351	7.3721	.298833
3	44	338	35.3632	30.6272	5.9351	7.1644	.189185
3	45	91	34.9258	1.0000	5.5741	.0000	.000000
3	46	91	35.2857	1.0000	5.5884	.0000	.000000
3	47	338	35.3632	4.9704	5.9351	1.8682	.188280
3	48	338	35.3632	4.9645	5.9351	1.9057	.163118
3	49	338	35.3632	84.4704	5.9351	3.7394	.306044
3	50	338	35.3632	84.4738	5.9351	2.0799	.551711
3	51	338	35.3632	27.4497	5.9351	5.7285	-.116535
3	52	152	35.8503	2.7402	5.6668	.5457	-.039601
3	53	338	35.3632	2.8166	5.9351	1.5294	.084014

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
3	54	182	35.1058	1.5000	5.5842	.5000	.032224
3	55	338	35.3632	4.5325	5.9351	3.1680	.001830
3	56	338	35.3632	11.9260	5.9351	4.7646	-.084056
3	57	152	35.8503	1.7697	5.6668	.4210	-.062015
3	58	338	35.3632	2.1953	5.9351	2.4161	-.088452
3	59	338	35.3632	1.6598	5.9351	.4738	.007906
3	60	156	35.6635	1.0000	6.3067	.0000	.000000
3	61	226	35.2666	1.9204	5.9092	.2707	.038164
3	62	248	35.7480	96.6569	5.6877	22.3135	.152113
3	63	292	35.5899	25.2654	5.9173	4.8223	.039175
3	64	292	35.5899	15.1318	5.9173	3.3017	.113498
3	65	248	35.7601	9.3575	5.6840	2.7823	.132791
3	66	289	35.5692	6.9164	5.9331	3.5898	.111643
3	67	292	35.5899	14.0291	5.9173	3.5645	.071407
3	68	152	35.8503	1.2039	5.6668	.4029	.131503
3	69	338	35.3632	-.0034	5.9351	3.1089	-.000988
3	70	279	35.5842	1.7957	5.9639	.4032	-.007376
3	71	279	35.5842	1.2007	5.9639	.4005	-.109484
3	72	338	35.3632	86.2604	5.9351	4.4824	.247058
3	73	338	35.3632	82.7278	5.9351	4.6508	.245681
3	74	279	35.5842	2.4722	5.9639	.5133	.100734
3	75	338	35.3632	1787.1487	5.9351	314.4291	.737811
4	4	338	36.9467	36.9467	13.0897	13.0897	1.000000
4	5	338	36.9467	44.8728	13.0897	11.6199	.195384
4	6	338	36.9467	14.4556	13.0897	5.7311	.082591
4	7	338	36.9467	11.4142	13.0897	6.0305	.123476
4	8	334	37.0778	28.4551	13.0547	4.3557	.084780
4	9	334	37.0778	17.7934	13.0547	3.7944	.198819
4	10	334	37.0778	26.1617	13.0547	1.8009	.096631
4	11	334	37.0778	19.5060	13.0547	3.5644	.189929
4	12	334	37.0778	28.8503	13.0547	5.4714	.169257
4	13	334	37.0778	15.8982	13.0547	2.8770	-.005289
4	14	334	37.0778	8.1317	13.0547	3.6877	.056692
4	15	334	37.0778	19.4671	13.0547	6.7276	-.030822
4	16	334	37.0778	38.5210	13.0547	4.9456	.281089
4	17	334	37.0778	11.4731	13.0547	2.5058	.080331
4	18	334	37.0778	30.7126	13.0547	4.8289	.199116
4	19	334	37.0778	21.3713	13.0547	3.5512	.172717
4	20	334	37.0778	30.4551	13.0547	7.4791	-.033818
4	21	334	37.0778	36.7665	13.0547	4.9488	.052511
4	22	334	37.0778	35.8413	13.0547	5.1302	.165949
4	23	334	37.0778	25.7335	13.0547	4.5954	.110741
4	24	334	37.0778	21.9790	13.0547	4.6355	.160477
4	25	334	37.0778	38.8293	13.0547	3.8502	.113500
4	26	338	36.9467	30.6154	13.0897	2.2188	.195695
4	27	338	36.9467	17.3136	13.0897	2.1571	.202085
4	28	338	36.9467	17.1420	13.0897	2.0563	.055570
4	29	338	36.9467	8.2485	13.0897	2.3503	.159683
4	30	338	36.9467	7.6095	13.0897	2.0672	.067566
4	31	338	36.9467	10.2367	13.0897	2.2155	.077051

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
4	32	338	36.9467	6.9852	13.0897	1.9052	.165698
4	33	338	36.9467	11.9970	13.0897	1.7088	.306457
4	34	338	36.9467	6.2515	13.0897	2.3694	.166030
4	35	338	36.9467	8.5444	13.0897	2.5823	.150007
4	36	338	36.9467	8.7101	13.0897	2.4935	.304271
4	37	338	36.9467	21.6006	13.0897	7.1458	.468976
4	38	338	36.9467	106.8314	13.0897	19.5052	.135172
4	39	338	36.9467	9.8728	13.0897	4.3925	.189035
4	40	338	36.9467	37.3047	13.0897	9.3868	.070491
4	41	338	36.9467	85.4497	13.0897	14.9480	-.027835
4	42	338	36.9467	19.8077	13.0897	6.1789	.222279
4	43	338	36.9467	34.7604	13.0897	7.3721	.110762
4	44	338	36.9467	30.6272	13.0897	7.1644	.227030
4	45	91	36.5165	1.0000	11.8130	.0000	.000000
4	46	91	37.3077	1.0000	13.9171	.0000	.000000
4	47	338	36.9467	4.9704	13.0897	1.8682	.080873
4	48	338	36.9467	4.9645	13.0897	1.9057	.047958
4	49	338	36.9467	84.4704	13.0897	3.7394	.252364
4	50	338	36.9467	84.4738	13.0897	2.0799	.454070
4	51	338	36.9467	27.4497	13.0897	5.7285	.095724
4	52	152	36.1645	2.7402	12.7199	.5457	.049784
4	53	338	36.9467	2.8166	13.0897	1.5294	.238626
4	54	152	36.9121	1.5000	12.9140	.5000	.030634
4	55	338	36.9467	4.5325	13.0897	3.1680	-.069022
4	56	338	36.9467	11.9260	13.0897	4.7646	.057432
4	57	152	36.1645	1.7697	12.7199	.4210	.121327
4	58	338	36.9467	2.1953	13.0897	2.4161	.097245
4	59	338	36.9467	1.6598	13.0897	.4738	-.035838
4	60	156	36.9872	1.0000	13.2916	.0000	.000000
4	61	226	36.6416	1.9204	13.5578	.2707	.028387
4	62	248	36.1895	96.6569	12.7463	22.3135	.082919
4	63	292	36.8973	25.2654	13.1931	4.8223	.044218
4	64	292	36.8973	15.1318	13.1931	3.3017	.093005
4	65	248	36.3589	9.3575	12.8359	2.7823	.092080
4	66	239	36.8547	6.9164	13.2412	3.5898	.072126
4	67	292	36.8973	14.0291	13.1931	3.5645	.065586
4	68	152	36.1645	1.2039	12.7199	.4029	-.001410
4	69	338	36.9467	-.0034	13.0897	3.1089	-.000207
4	70	279	36.9606	1.7957	13.0999	.4032	.042584
4	71	279	36.9606	1.2007	13.0999	.4005	-.006006
4	72	338	36.9467	86.2604	13.0897	4.4824	.280899
4	73	338	36.9467	82.7278	13.0897	4.6508	.131319
4	74	279	36.9606	2.4722	13.0999	.5133	.060817
4	75	338	36.9467	1787.1487	13.0897	314.4291	.300594
5	5	338	44.8728	44.8728	11.6199	11.6199	1.000000
5	6	338	44.8728	14.4556	11.6199	5.7311	.015087
5	7	338	44.8728	11.4142	11.6199	6.0305	.208437
5	8	334	44.8293	28.4551	11.6225	4.3557	.055412
5	9	334	44.8293	17.7934	11.6225	3.7944	.255489
5	10	334	44.8293	26.1617	11.6225	1.8009	.013048

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
5	11	334	44.8293	19.5060	11.6225	3.5644	.191725
5	12	334	44.8293	28.8503	11.6225	5.4714	.128793
5	13	334	44.8293	15.8982	11.6225	2.8770	-.211475
5	14	334	44.8293	8.1317	11.6225	3.6877	.104887
5	15	334	44.8293	19.4671	11.6225	6.7276	.056120
5	16	334	44.8293	38.5210	11.6225	4.9456	.213231
5	17	334	44.8293	11.4731	11.6225	2.5058	.094061
5	18	334	44.8293	30.7126	11.6225	4.8289	.174689
5	19	334	44.8293	21.3713	11.6225	3.5512	-.008403
5	20	334	44.8293	30.4551	11.6225	7.4791	.055659
5	21	334	44.8293	36.7665	11.6225	4.9488	-.002098
5	22	334	44.8293	35.8413	11.6225	5.1302	.047751
5	23	334	44.8293	25.7335	11.6225	4.5954	.097137
5	24	334	44.8293	21.9790	11.6225	4.6355	.194327
5	25	334	44.8293	38.8293	11.6225	3.8502	.148351
5	26	338	44.8728	30.6154	11.6199	2.2188	.117904
5	27	338	44.8728	17.3136	11.6199	2.1571	.198001
5	28	338	44.8728	17.1420	11.6199	2.0563	.194165
5	29	338	44.8728	8.2485	11.6199	2.3503	.234611
5	30	338	44.8728	7.6095	11.6199	2.0672	.036729
5	31	338	44.8728	10.2367	11.6199	2.2155	.187575
5	32	338	44.8728	6.9852	11.6199	1.9052	.154668
5	33	338	44.8728	11.9970	11.6199	1.7088	.196063
5	34	338	44.8728	6.2515	11.6199	2.3694	.082399
5	35	338	44.8728	8.5444	11.6199	2.5823	.091541
5	36	338	44.8728	8.7101	11.6199	2.4935	.283510
5	37	338	44.8728	21.6006	11.6199	7.1458	.225682
5	38	338	44.8728	106.8314	11.6199	19.5052	.190135
5	39	338	44.8728	9.8728	11.6199	4.3925	.387699
5	40	338	44.8728	37.3047	11.6199	9.3868	-.151461
5	41	338	44.8728	85.4497	11.6199	14.9480	-.059712
5	42	338	44.8728	19.8077	11.6199	6.1789	.058626
5	43	338	44.8728	34.7604	11.6199	7.3721	.263406
5	44	338	44.8728	30.6272	11.6199	7.1644	.055582
5	45	91	43.4066	1.0000	12.0229	.0000	.000000
5	46	91	46.3626	1.0000	11.2196	.0000	.000000
5	47	338	44.8728	4.9704	11.6199	1.8682	.018907
5	48	338	44.8728	4.9645	11.6199	1.9057	.011420
5	49	338	44.8728	84.4704	11.6199	3.7394	.167449
5	50	338	44.8728	84.4738	11.6199	2.0799	.146788
5	51	338	44.8728	27.4497	11.6199	5.7285	.195226
5	52	152	43.6842	2.7402	11.0991	.5457	-.154314
5	53	338	44.8728	2.8166	11.6199	1.5294	.139193
5	54	182	44.8846	1.5000	11.7217	.5000	.126093
5	55	338	44.8728	4.5325	11.6199	3.1680	-.141060
5	56	338	44.8728	11.9260	11.6199	4.7646	-.049012
5	57	152	43.6842	1.7697	11.0991	.4210	-.105670
5	58	338	44.8728	2.1953	11.6199	2.4161	.204797
5	59	338	44.8728	1.6598	11.6199	.4738	-.138450
5	60	156	44.8590	1.0000	11.5000	.0000	.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
5	61	226	45.5619	1.9204	11.4191	.2707	.068862
5	62	248	44.3589	96.6569	11.7235	22.3135	-.032998
5	63	292	44.7945	25.2654	11.5829	4.8223	.002110
5	64	292	44.7945	15.1318	11.5829	3.3017	-.006903
5	65	248	44.3589	9.3575	11.7235	2.7823	-.046603
5	66	289	44.7197	6.9164	11.6004	3.5898	-.016614
5	67	292	44.7945	14.0291	11.5829	3.5645	-.032723
5	68	152	43.6842	1.2039	11.0991	.4029	.255660
5	69	338	44.8728	-.0034	11.6199	3.1089	.103199
5	70	279	44.6846	1.7957	11.4504	.4032	-.064421
5	71	279	44.6846	1.2007	11.4504	.4005	-.022145
5	72	338	44.8728	86.2604	11.6199	4.4824	.330490
5	73	338	44.8728	82.7278	11.6199	4.6508	-.046243
5	74	279	44.6846	2.4722	11.4504	.5133	.004451
5	75	338	44.8728	1787.1487	11.6199	314.4291	.384165
6	6	338	14.4556	14.4556	5.7311	5.7311	1.000000
6	7	338	14.4556	11.4142	5.7311	6.0305	.393708
6	8	334	14.5180	28.4551	5.7303	4.3557	-.006445
6	9	334	14.5180	17.7934	5.7303	3.7944	.061929
6	10	334	14.5180	26.1617	5.7303	1.8009	.116638
6	11	334	14.5180	19.5060	5.7303	3.5644	.125984
6	12	334	14.5180	28.8503	5.7303	5.4714	.059484
6	13	334	14.5180	15.8982	5.7303	2.8770	-.069082
6	14	334	14.5180	8.1317	5.7303	3.6877	.070162
6	15	334	14.5180	19.4671	5.7303	6.7276	-.043476
6	16	334	14.5180	38.5210	5.7303	4.9456	.115775
6	17	334	14.5180	11.4731	5.7303	2.5058	.083437
6	18	334	14.5180	30.7126	5.7303	4.8289	.006029
6	19	334	14.5180	21.3713	5.7303	3.5512	.076328
6	20	334	14.5180	30.4551	5.7303	7.4791	-.088703
6	21	334	14.5180	36.7665	5.7303	4.9488	-.043562
6	22	334	14.5180	35.8413	5.7303	5.1302	.136416
6	23	334	14.5180	25.7335	5.7303	4.5954	.079827
6	24	334	14.5180	21.9790	5.7303	4.6355	.011230
6	25	334	14.5180	38.8293	5.7303	3.8502	.025448
6	26	338	14.4556	30.6154	5.7311	2.2188	.203168
6	27	338	14.4556	17.3136	5.7311	2.1571	.125092
6	28	338	14.4556	17.1420	5.7311	2.0563	-.005741
6	29	338	14.4556	8.2485	5.7311	2.3503	.200693
6	30	338	14.4556	7.6095	5.7311	2.0672	.098175
6	31	338	14.4556	10.2367	5.7311	2.2155	.153215
6	32	338	14.4556	6.9852	5.7311	1.9052	.194348
6	33	338	14.4556	11.9970	5.7311	1.7088	.271420
6	34	338	14.4556	6.2515	5.7311	2.3694	.297670
6	35	338	14.4556	8.5444	5.7311	2.5823	.334488
6	36	338	14.4556	8.7101	5.7311	2.4935	.320407
6	37	338	14.4556	21.6006	5.7311	7.1458	.136287
6	38	338	14.4556	106.8314	5.7311	19.5052	.160332
6	39	338	14.4556	9.8720	5.7311	4.3925	.219370
6	40	338	14.4556	37.3047	5.7311	9.3868	.352416

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
6	41	338	14.4556	85.4497	5.7311	14.9480	.224124
6	42	338	14.4556	19.8077	5.7311	6.1789	.187866
6	43	338	14.4556	34.7604	5.7311	7.3721	.230446
6	44	338	14.4556	30.6272	5.7311	7.1644	.135926
6	45	91	13.8901	1.0000	5.7712	.0000	.000000
6	46	91	14.7253	1.0000	5.8235	.0000	.000000
6	47	338	14.4556	4.9704	5.7311	1.8682	.159868
6	48	338	14.4556	4.9645	5.7311	1.9057	.134484
6	49	338	14.4556	84.4704	5.7311	3.7394	.248296
6	50	338	14.4556	84.4738	5.7311	2.0799	.333864
6	51	338	14.4556	27.4497	5.7311	5.7285	-.111046
6	52	152	14.7105	2.7402	5.6831	.5457	-.118640
6	53	338	14.4556	2.8166	5.7311	1.5294	.054427
6	54	182	14.3077	1.5000	5.8124	.5000	.071843
6	55	338	14.4556	4.5325	5.7311	3.1680	.036337
6	56	338	14.4556	11.9260	5.7311	4.7646	-.011334
6	57	152	14.7105	1.7697	5.6831	.4210	-.107600
6	58	338	14.4556	2.1953	5.7311	2.4161	-.044670
6	59	338	14.4556	1.6598	5.7311	.4738	.101763
6	60	156	14.6282	1.0000	5.6298	.0000	.000000
6	61	226	14.3319	1.9204	5.7707	.2707	.096215
6	62	248	14.7944	96.6569	5.6506	22.3135	.159534
6	63	292	14.7123	25.2654	5.4446	4.8223	.050322
6	64	292	14.7123	15.1318	5.4446	3.3017	.142566
6	65	248	14.7984	9.3575	5.6476	2.7823	.174251
6	66	289	14.7197	6.9164	5.4475	3.5898	.117115
6	67	292	14.7123	14.0291	5.4446	3.5645	.154571
6	68	152	14.7105	1.2039	5.6831	.4029	.051639
6	69	338	14.4556	-.0034	5.7311	3.1089	.075287
6	70	279	14.7563	1.7957	5.4868	.4032	-.007927
6	71	279	14.7563	1.2007	5.4868	.4005	-.082118
6	72	338	14.4556	86.2604	5.7311	4.4824	.171130
6	73	338	14.4556	82.7278	5.7311	4.6508	.218213
6	74	279	14.7563	2.4722	5.4868	.5133	.117383
6	75	338	14.4556	1787.1487	5.7311	314.4291	.554680
7	7	338	11.4142	11.4142	6.0305	6.0305	1.000000
7	8	334	11.4790	28.4551	6.0158	4.3557	.048925
7	9	334	11.4790	17.7934	6.0158	3.7944	.123171
7	10	334	11.4790	26.1617	6.0158	1.8009	.035686
7	11	334	11.4790	19.5060	6.0158	3.5644	.173703
7	12	334	11.4790	28.8503	6.0158	5.4714	.098600
7	13	334	11.4790	15.8982	6.0158	2.8770	-.089559
7	14	334	11.4790	8.1317	6.0158	3.6877	.002824
7	15	334	11.4790	19.4671	6.0158	6.7276	-.019510
7	16	334	11.4790	38.5210	6.0158	4.9456	.213407
7	17	334	11.4790	11.4731	6.0158	2.5058	.042168
7	18	334	11.4790	30.7126	6.0158	4.8289	.076782
7	19	334	11.4790	21.3713	6.0158	3.5512	.151866
7	20	334	11.4790	30.4551	6.0158	7.4791	-.055153
7	21	334	11.4790	36.7665	6.0158	4.9488	-.061209

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
7	22	334	11.4790	35.8413	6.0158	5.1302	.107430
7	23	334	11.4790	25.7335	6.0158	4.5954	.129274
7	24	334	11.4790	21.9790	6.0158	4.6355	.069182
7	25	334	11.4790	38.8293	6.0158	3.8502	.081217
7	26	338	11.4142	30.6154	6.0305	2.2188	.120251
7	27	338	11.4142	17.3136	6.0305	2.1571	.172645
7	28	338	11.4142	17.1420	6.0305	2.0563	.054665
7	29	338	11.4142	8.2485	6.0305	2.3503	.132801
7	30	338	11.4142	7.6095	6.0305	2.0672	.078476
7	31	338	11.4142	10.2367	6.0305	2.2155	.110247
7	32	338	11.4142	6.9852	6.0305	1.9052	.167652
7	33	338	11.4142	11.9970	6.0305	1.7088	.195346
7	34	338	11.4142	6.2515	6.0305	2.3694	.198936
7	35	338	11.4142	8.5444	6.0305	2.5823	.279053
7	36	338	11.4142	8.7101	6.0305	2.4935	.342265
7	37	338	11.4142	21.6006	6.0305	7.1458	.130029
7	38	338	11.4142	106.8314	6.0305	19.5052	.123841
7	39	338	11.4142	9.8728	6.0305	4.3925	.224364
7	40	338	11.4142	37.3047	6.0305	9.3868	.138939
7	41	338	11.4142	85.4497	6.0305	14.9480	.101122
7	42	338	11.4142	19.8077	6.0305	6.1789	.045013
7	43	338	11.4142	34.7604	6.0305	7.3721	.195091
7	44	338	11.4142	30.6272	6.0305	7.1644	.128752
7	45	91	10.3846	1.0000	5.8475	.0000	.000000
7	46	91	11.8352	1.0000	5.8634	.0000	.000000
7	47	338	11.4142	4.9704	6.0305	1.8682	.052821
7	48	338	11.4142	4.9645	6.0305	1.9057	.046330
7	49	338	11.4142	84.4704	6.0305	3.7394	.278162
7	50	338	11.4142	84.4738	6.0305	2.0799	.342680
7	51	338	11.4142	27.4497	6.0305	5.7285	-.126148
7	52	152	10.9868	2.7402	5.8523	.5457	.008618
7	53	338	11.4142	2.8166	6.0305	1.5294	.076242
7	54	182	11.1099	1.5000	5.9002	.5000	.122924
7	55	338	11.4142	4.5325	6.0305	3.1680	.078120
7	56	338	11.4142	11.9260	6.0305	4.7646	.005494
7	57	152	10.9868	1.7697	5.8523	.4210	-.006570
7	58	338	11.4142	2.1953	6.0305	2.4161	-.107484
7	59	338	11.4142	1.6598	6.0305	.4738	-.039728
7	60	156	11.7692	1.0000	6.1601	.0000	.000000
7	61	226	12.0929	1.9204	5.8895	.2707	-.025883
7	62	248	11.2944	96.6569	5.9540	22.3135	.175532
7	63	292	11.5514	25.2654	6.0035	4.8223	.046225
7	64	292	11.5514	15.1318	6.0035	3.3017	.126865
7	65	248	11.3306	9.3575	5.9490	2.7823	.187502
7	66	289	11.5744	6.9164	6.0301	3.5898	.119865
7	67	292	11.5514	14.0291	6.0035	3.5645	.163364
7	68	152	10.9868	1.2039	5.8523	.4029	.031828
7	69	338	11.4142	-.0034	6.0305	3.1089	.105315
7	70	279	11.4767	1.7957	6.0184	.4032	-.033719
7	71	279	11.4767	1.2007	6.0184	.4005	-.152695

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
7	72	338	11.4142	86.2604	6.0305	4.4824	.244354
7	73	338	11.4142	82.7278	6.0305	4.6508	.193897
7	74	279	11.4767	2.4722	6.0184	.5133	.171011
7	75	338	11.4142	1787.1487	6.0305	314.4291	.403700
8	8	334	28.4551	28.4551	4.3557	4.3557	1.000000
8	9	334	28.4551	17.7934	4.3557	3.7944	.451328
8	10	334	28.4551	26.1617	4.3557	1.8009	.061612
8	11	334	28.4551	19.5060	4.3557	3.5644	.444520
8	12	334	28.4551	28.8503	4.3557	5.4714	.400354
8	13	334	28.4551	15.0982	4.3557	2.8770	.128652
8	14	334	28.4551	8.1317	4.3557	3.6877	-.072139
8	15	334	28.4551	19.4671	4.3557	6.7276	.658495
8	16	334	28.4551	38.5210	4.3557	4.9456	.527564
8	17	334	28.4551	11.4731	4.3557	2.5058	.466899
8	18	334	28.4551	30.7126	4.3557	4.8289	.613886
8	19	334	28.4551	21.3713	4.3557	3.5512	-.011697
8	20	334	28.4551	30.4551	4.3557	7.4791	.649850
8	21	334	28.4551	36.7665	4.3557	4.9488	.432595
8	22	334	28.4551	35.8413	4.3557	5.1302	.105328
8	23	334	28.4551	25.7335	4.3557	4.5954	.438639
8	24	334	28.4551	21.9790	4.3557	4.6355	.592426
8	25	334	28.4551	38.8293	4.3557	3.8502	.589309
8	26	334	28.4551	30.6287	4.3557	2.2253	.036273
8	27	334	28.4551	17.3263	4.3557	2.1622	.127926
8	28	334	28.4551	17.1347	4.3557	2.0655	-.085020
8	29	334	28.4551	8.2605	4.3557	2.3512	.003043
8	30	334	28.4551	7.6317	4.3557	2.0632	-.010336
8	31	334	28.4551	10.2275	4.3557	2.2258	.008157
8	32	334	28.4551	7.0120	4.3557	1.8986	.054372
8	33	334	28.4551	12.0060	4.3557	1.7042	.020607
8	34	334	28.4551	6.2754	4.3557	2.3679	.076675
8	35	334	28.4551	8.5749	4.3557	2.5709	.027705
8	36	334	28.4551	8.7485	4.3557	2.4828	.109974
8	37	334	28.4551	21.6796	4.3557	7.1495	.146683
8	38	334	28.4551	106.8772	4.3557	19.4967	.031295
8	39	334	28.4551	9.8713	4.3557	4.4065	-.020190
8	40	334	28.4551	37.4611	4.3557	9.2670	.070904
8	41	334	28.4551	85.4701	4.3557	14.9670	.069557
8	42	334	28.4551	19.9192	4.3557	6.1163	.052403
8	43	334	28.4551	34.7305	4.3557	7.4048	.016984
8	44	334	28.4551	30.6228	4.3557	7.1991	-.033194
8	45	89	27.4494	1.0000	4.7167	.0000	.000000
8	46	89	29.7191	1.0000	3.9234	.0000	.000000
8	47	334	28.4551	4.9641	4.3557	1.8713	.146365
8	48	334	28.4551	4.9581	4.3557	1.9092	.145948
8	49	334	28.4551	84.5000	4.3557	3.7238	.218367
8	50	334	28.4551	84.4914	4.3557	2.0796	.096670
8	51	334	28.4551	27.4641	4.3557	5.7521	.104377
8	52	150	28.3267	2.7408	4.2214	.5467	.019830
8	53	334	28.4551	2.8263	4.3557	1.5359	.223046

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
8	54	178	28.5843	1.5000	4.4842	.5000	.253073
8	55	334	28.4551	4.5269	4.3557	3.1638	-.048687
8	56	334	28.4551	11.8802	4.3557	4.7630	.062806
8	57	150	28.3267	1.7667	4.2214	.4230	-.024519
8	58	334	28.4551	2.2096	4.3557	2.4270	.112196
8	59	334	28.4551	1.6617	4.3557	.4731	-.034249
8	60	156	28.3077	1.0000	4.1995	.0000	.000000
8	61	223	28.3094	1.9193	4.4438	.2724	-.005299
8	62	244	28.4467	96.9580	4.2649	21.9845	.067068
8	63	288	28.4410	25.2873	4.3177	4.8285	.071826
8	64	288	28.4410	15.1641	4.3177	3.2797	.074889
8	65	245	28.4653	9.3626	4.2661	2.7926	.077028
8	66	285	28.4421	6.9509	4.3352	3.5501	.043055
8	67	288	28.4410	14.0660	4.3177	3.5342	.058051
8	68	150	28.3267	1.2067	4.2214	.4049	-.000494
8	69	334	28.4551	.0085	4.3557	3.0975	.197598
8	70	276	28.4058	1.7971	4.3207	.4022	.003596
8	71	276	28.4058	1.2029	4.3207	.4022	-.020277
8	72	334	28.4551	86.3054	4.3557	4.4671	.250445
8	73	334	28.4551	82.7335	4.3557	4.6549	.119387
8	74	276	28.4058	2.4731	4.3207	.5153	.065840
8	75	334	28.4551	1791.9835	4.3557	312.5548	.055159
9	9	334	17.7934	17.7934	3.7944	3.7944	1.000000
9	10	334	17.7934	26.1617	3.7944	1.8009	-.068720
9	11	334	17.7934	19.5060	3.7944	3.5644	.411290
9	12	334	17.7934	28.8503	3.7944	5.4714	.167821
9	13	334	17.7934	15.8982	3.7944	2.8770	-.025513
9	14	334	17.7934	8.1317	3.7944	3.6877	.434376
9	15	334	17.7934	19.4671	3.7944	6.7276	.350362
9	16	334	17.7934	38.5210	3.7944	4.9456	.583776
9	17	334	17.7934	11.4731	3.7944	2.5058	.480408
9	18	334	17.7934	30.7126	3.7944	4.8289	.392848
9	19	334	17.7934	21.3713	3.7944	3.5512	.051910
9	20	334	17.7934	30.4551	3.7944	7.4791	.392195
9	21	334	17.7934	36.7665	3.7944	4.9488	.046381
9	22	334	17.7934	35.8413	3.7944	5.1302	.313619
9	23	334	17.7934	25.7335	3.7944	4.5954	.274322
9	24	334	17.7934	21.9790	3.7944	4.6355	.674346
9	25	334	17.7934	38.8293	3.7944	3.8502	.527970
9	26	334	17.7934	30.6287	3.7944	2.2253	.026730
9	27	334	17.7934	17.3263	3.7944	2.1622	.189229
9	28	334	17.7934	17.1347	3.7944	2.0655	-.021661
9	29	334	17.7934	8.2605	3.7944	2.3512	.087248
9	30	334	17.7934	7.6317	3.7944	2.0632	.051474
9	31	334	17.7934	10.2275	3.7944	2.2258	.088520
9	32	334	17.7934	7.0120	3.7944	1.8986	.168247
9	33	334	17.7934	12.0060	3.7944	1.7042	.169657
9	34	334	17.7934	6.2754	3.7944	2.3679	.094975
9	35	334	17.7934	8.5749	3.7944	2.5709	-.029874
9	36	334	17.7934	8.7485	3.7944	2.4828	.190257

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
9	37	334	17.7934	21.6796	3.7944	7.1495	.284621
9	38	334	17.7934	106.8772	3.7944	19.4967	.097032
9	39	334	17.7934	9.8713	3.7944	4.4065	.124114
9	40	334	17.7934	37.4611	3.7944	9.2670	-.031776
9	41	334	17.7934	85.4701	3.7944	14.9670	.068243
9	42	334	17.7934	19.9192	3.7944	6.1163	.123387
9	43	334	17.7934	34.7305	3.7944	7.4048	.061955
9	44	334	17.7934	30.6228	3.7944	7.1991	.086475
9	45	89	17.1348	1.0000	3.2471	.0000	.000000
9	46	89	18.9663	1.0000	4.1366	.0000	.000000
9	47	334	17.7934	4.9641	3.7944	1.8713	.044917
9	48	334	17.7934	4.9581	3.7944	1.9092	.014510
9	49	334	17.7934	84.5000	3.7944	3.7238	.180006
9	50	334	17.7934	84.4914	3.7944	2.0796	.052875
9	51	334	17.7934	27.4641	3.7944	5.7521	.166399
9	52	156	17.3200	2.7408	3.7064	.5467	-.082412
9	53	334	17.7934	2.8263	3.7944	1.5359	.230677
9	54	178	18.0506	1.5000	3.8296	.5000	.239113
9	55	334	17.7934	4.5269	3.7944	3.1638	-.090443
9	56	334	17.7934	11.8802	3.7944	4.7630	-.101596
9	57	156	17.3200	1.7667	3.7064	.4230	-.152245
9	58	334	17.7934	2.2096	3.7944	2.4270	.256671
9	59	334	17.7934	1.6617	3.7944	.4731	-.033929
9	60	156	17.5000	1.0000	3.7322	.0000	.000000
9	61	223	17.7849	1.9193	3.8583	.2724	-.029331
9	62	244	17.7828	96.9580	3.8055	21.9845	-.023510
9	63	289	17.8194	25.2373	3.7484	4.8285	-.056269
9	64	289	17.8194	15.1641	3.7484	3.2797	-.005287
9	65	245	17.7714	9.3626	3.8018	2.7926	.004666
9	66	295	17.7825	6.9509	3.7184	3.5501	.035959
9	67	289	17.8194	14.0660	3.7484	3.5342	.047224
9	68	156	17.3200	1.2067	3.7064	.4049	.120293
9	69	334	17.7934	.0065	3.7944	3.0975	.180903
9	70	276	17.8007	1.7971	3.7812	.4022	-.033737
9	71	276	17.8007	1.2029	3.7812	.4022	.019441
9	72	334	17.7934	86.3054	3.7944	4.4671	.254021
9	73	334	17.7934	82.7335	3.7944	4.6549	.043668
9	74	276	17.8007	2.4731	3.7812	.5153	-.024607
9	75	334	17.7934	1791.9835	3.7944	312.5548	.179724
10	10	334	26.1617	26.1617	1.8009	1.8009	1.000000
10	11	334	26.1617	19.5060	1.8009	3.5644	-.083171
10	12	334	26.1617	28.8503	1.8009	5.4714	.034968
10	13	334	26.1617	15.8982	1.8009	2.8770	.044783
10	14	334	26.1617	8.1317	1.8009	3.6877	-.313368
10	15	334	26.1617	19.4671	1.8009	6.7276	-.167104
10	16	334	26.1617	38.5210	1.8009	4.9456	.134417
10	17	334	26.1617	11.4731	1.8009	2.5058	-.073340
10	18	334	26.1617	30.7126	1.8009	4.8289	.076609
10	19	334	26.1617	21.3713	1.8009	3.5512	.049603
10	20	334	26.1617	30.4551	1.8009	7.4791	-.073482

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
10	21	334	26.1617	36.7665	1.8009	4.9488	.207145
10	22	334	26.1617	35.8413	1.8009	5.1302	-.089255
10	23	334	26.1617	25.7335	1.8009	4.5954	-.011074
10	24	334	26.1617	21.9790	1.8009	4.6355	-.080648
10	25	334	26.1617	38.8293	1.8009	3.8502	-.038767
10	26	334	26.1617	30.6287	1.8009	2.2253	.076239
10	27	334	26.1617	17.3263	1.8009	2.1622	.104093
10	28	334	26.1617	17.1347	1.8009	2.0655	.046463
10	29	334	26.1617	8.2605	1.8009	2.3512	.047329
10	30	334	26.1617	7.6317	1.8009	2.0632	-.069390
10	31	334	26.1617	10.2275	1.8009	2.2258	-.033825
10	32	334	26.1617	7.0120	1.8009	1.8986	.037963
10	33	334	26.1617	12.0060	1.8009	1.7042	.061143
10	34	334	26.1617	6.2754	1.8009	2.3679	.047832
10	35	334	26.1617	8.5749	1.8009	2.5709	-.047879
10	36	334	26.1617	8.7485	1.8009	2.4828	.041904
10	37	334	26.1617	21.6796	1.8009	7.1495	-.080153
10	38	334	26.1617	106.8772	1.8009	19.4967	.044309
10	39	334	26.1617	9.8713	1.8009	4.4065	.003755
10	40	334	26.1617	37.4611	1.8009	9.2670	.034105
10	41	334	26.1617	85.4701	1.8009	14.9670	-.054359
10	42	334	26.1617	19.9192	1.8009	6.1163	-.136621
10	43	334	26.1617	34.7305	1.8009	7.4048	-.042534
10	44	334	26.1617	30.6228	1.8009	7.1991	.057126
10	45	89	26.0112	1.0000	1.8753	.0000	.000000
10	46	89	26.0562	1.0000	2.0020	.0000	.000000
10	47	334	26.1617	4.9641	1.8009	1.8713	.085235
10	48	334	26.1617	4.9581	1.8009	1.9092	.082955
10	49	334	26.1617	84.5000	1.8009	3.7238	.076791
10	50	334	26.1617	84.4914	1.8009	2.0796	.114952
10	51	334	26.1617	27.4641	1.8009	5.7521	-.102908
10	52	150	26.0467	2.7408	1.7333	.5467	.037783
10	53	334	26.1617	2.8263	1.8009	1.5359	-.034228
10	54	178	26.0337	1.5000	1.9398	.5000	.011585
10	55	334	26.1617	4.5269	1.8009	3.1638	-.068550
10	56	334	26.1617	11.8802	1.8009	4.7630	.057406
10	57	150	26.0467	1.7667	1.7333	.4230	.033040
10	58	334	26.1617	2.2096	1.8009	2.4270	-.052962
10	59	334	26.1617	1.6617	1.8009	.4731	.004461
10	60	156	26.3077	1.0000	1.6157	.0000	.000000
10	61	223	26.0762	1.9193	1.8482	.2724	.119110
10	62	244	26.0451	96.9580	1.8692	21.9845	.120687
10	63	288	26.1042	25.2873	1.8342	4.8285	.101790
10	64	288	26.1042	15.1641	1.8342	3.2797	.131507
10	65	245	26.0490	9.3626	1.8664	2.7926	.166659
10	66	285	26.1053	6.9509	1.8380	3.5501	.118641
10	67	288	26.1042	14.0660	1.8342	3.5342	.124814
10	68	150	26.0467	1.2067	1.7333	.4049	-.184716
10	69	334	26.1617	.0085	1.8009	3.0975	.015109
10	70	276	26.1232	1.7971	1.8156	.4022	.068968

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
10	71	276	26.1232	1.2029	1.8156	.4022	-.054080
10	72	334	26.1617	86.3054	1.8009	4.4671	.068672
10	73	334	26.1617	82.7335	1.8009	4.6549	.050499
10	74	276	26.1232	2.4731	1.8156	.5153	.123322
10	75	334	26.1617	1791.9835	1.8009	312.5548	.064318
11	11	334	19.5060	19.5060	3.5644	3.5644	1.000000
11	12	334	19.5060	28.8503	3.5644	5.4714	.569613
11	13	334	19.5060	15.8982	3.5644	2.8770	-.076726
11	14	334	19.5060	8.1317	3.5644	3.6877	.188082
11	15	334	19.5060	19.4671	3.5644	6.7276	.443241
11	16	334	19.5060	38.5210	3.5644	4.9456	.578474
11	17	334	19.5060	11.4731	3.5644	2.5058	.333549
11	18	334	19.5060	30.7126	3.5644	4.8289	.340338
11	19	334	19.5060	21.3713	3.5644	3.5512	.386324
11	20	334	19.5060	30.4551	3.5644	7.4791	.190038
11	21	334	19.5060	36.7665	3.5644	4.9488	.051000
11	22	334	19.5060	35.8413	3.5644	5.1302	.553870
11	23	334	19.5060	25.7335	3.5644	4.5954	.683443
11	24	334	19.5060	21.9790	3.5644	4.6355	.537191
11	25	334	19.5060	38.8293	3.5644	3.8502	.438036
11	26	334	19.5060	30.6287	3.5644	2.2253	.101441
11	27	334	19.5060	17.3263	3.5644	2.1622	.133970
11	28	334	19.5060	17.1347	3.5644	2.0655	-.047079
11	29	334	19.5060	8.2605	3.5644	2.3512	.045007
11	30	334	19.5060	7.6317	3.5644	2.0632	.076637
11	31	334	19.5060	10.2275	3.5644	2.2258	.136062
11	32	334	19.5060	7.0120	3.5644	1.8986	.150854
11	33	334	19.5060	12.0060	3.5644	1.7042	.121740
11	34	334	19.5060	6.2754	3.5644	2.3679	.097003
11	35	334	19.5060	8.5749	3.5644	2.5709	.070523
11	36	334	19.5060	8.7485	3.5644	2.4828	.210942
11	37	334	19.5060	21.6796	3.5644	7.1495	.291265
11	38	334	19.5060	106.8772	3.5644	19.4967	.029975
11	39	334	19.5060	9.8713	3.5644	4.4065	.099076
11	40	334	19.5060	37.4611	3.5644	9.2670	.002545
11	41	334	19.5060	85.4701	3.5644	14.9670	.019955
11	42	334	19.5060	19.9192	3.5644	6.1163	.118884
11	43	334	19.5060	34.7305	3.5644	7.4048	.053376
11	44	334	19.5060	30.6228	3.5644	7.1991	.048509
11	45	89	18.9663	1.0000	3.5898	.0000	.000000
11	46	89	20.1236	1.0000	3.4244	.0000	.000000
11	47	334	19.5060	4.9641	3.5644	1.8713	.069159
11	48	334	19.5060	4.9581	3.5644	1.9092	.003557
11	49	334	19.5060	84.5000	3.5644	3.7238	.177636
11	50	334	19.5060	84.4914	3.5644	2.0796	.127537
11	51	334	19.5060	27.4641	3.5644	5.7521	.140417
11	52	150	19.2000	2.7408	3.8349	.5467	-.057430
11	53	334	19.5060	2.8263	3.5644	1.5359	.264882
11	54	178	19.5449	1.5000	3.5555	.5000	.162750
11	55	334	19.5060	4.5269	3.5644	3.1638	-.118424

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
11	56	334	19.5060	11.8802	3.5644	4.7630	-.011950
11	57	150	19.2000	1.7667	3.8349	.4230	-.094534
11	58	334	19.5060	2.2096	3.5644	2.4270	.156638
11	59	334	19.5060	1.6617	3.5644	.4731	-.054721
11	60	156	19.4615	1.0000	3.5741	.0000	.000000
11	61	223	19.4484	1.9193	3.6783	.2724	.045076
11	62	244	19.4590	96.9580	3.6297	21.9845	.045426
11	63	288	19.5694	25.2873	3.5817	4.8285	.027682
11	64	288	19.5694	15.1641	3.5817	3.2797	.033208
11	65	245	19.4612	9.3626	3.6224	2.7926	.060197
11	66	285	19.5544	6.9509	3.5769	3.5501	.079281
11	67	288	19.5694	14.0660	3.5817	3.5342	.077607
11	68	150	19.2000	1.2067	3.8349	.4049	.016315
11	69	334	19.5060	.0085	3.5644	3.0975	.127928
11	70	276	19.5435	1.7971	3.5409	.4022	-.016704
11	71	276	19.5435	1.2029	3.5409	.4022	-.087615
11	72	334	19.5060	86.3054	3.5644	4.4671	.217633
11	73	334	19.5060	82.7335	3.5644	4.6549	.082110
11	74	276	19.5435	2.4731	3.5409	.5153	.042940
11	75	334	19.5060	1791.9835	3.5644	312.5548	.211384
12	12	334	28.8503	28.8503	5.4714	5.4714	1.000000
12	13	334	28.8503	15.8982	5.4714	2.8770	-.098353
12	14	334	28.8503	8.1317	5.4714	3.6877	-.036416
12	15	334	28.8503	19.4671	5.4714	6.7276	.253561
12	16	334	28.8503	38.5210	5.4714	4.9456	.373770
12	17	334	28.8503	11.4731	5.4714	2.5058	.246253
12	18	334	28.8503	30.7126	5.4714	4.8289	.296177
12	19	334	28.8503	21.3713	5.4714	3.5512	.505982
12	20	334	28.8503	30.4551	5.4714	7.4791	-.013041
12	21	334	28.8503	36.7665	5.4714	4.9488	.004128
12	22	334	28.8503	35.8413	5.4714	5.1302	.387309
12	23	334	28.8503	25.7335	5.4714	4.5954	.636202
12	24	334	28.8503	21.9790	5.4714	4.6355	.292286
12	25	334	28.8503	38.8293	5.4714	3.8502	.195206
12	26	334	28.8503	30.6287	5.4714	2.2253	.098716
12	27	334	28.8503	17.3263	5.4714	2.1622	.173193
12	28	334	28.8503	17.1347	5.4714	2.0655	.026689
12	29	334	28.8503	8.2605	5.4714	2.3512	.077975
12	30	334	28.8503	7.6317	5.4714	2.0632	.069912
12	31	334	28.8503	10.2275	5.4714	2.2258	.128673
12	32	334	28.8503	7.0120	5.4714	1.8986	.156966
12	33	334	28.8503	12.0060	5.4714	1.7042	.100281
12	34	334	28.8503	6.2754	5.4714	2.3679	.097472
12	35	334	28.8503	8.5749	5.4714	2.5709	.108072
12	36	334	28.8503	8.7485	5.4714	2.4828	.196032
12	37	334	28.8503	21.6796	5.4714	7.1495	.281737
12	38	334	28.8503	106.8772	5.4714	19.4967	.010942
12	39	334	28.8503	9.8713	5.4714	4.4065	.020188
12	40	334	28.8503	37.4611	5.4714	9.2670	.023269
12	41	334	28.8503	85.4701	5.4714	14.9670	.010329

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
12	42	334	28.8503	19.9192	5.4714	6.1163	.124983
12	43	334	28.8503	34.7305	5.4714	7.4048	.051399
12	44	334	28.8503	30.6228	5.4714	7.1991	.096545
12	45	89	27.8315	1.0000	5.5934	.0000	.000000
12	46	89	29.8427	1.0000	5.1076	.0000	.000000
12	47	334	28.8503	4.9641	5.4714	1.8713	.043047
12	48	334	28.8503	4.9581	5.4714	1.9092	.023189
12	49	334	28.8503	84.5000	5.4714	3.7238	.195886
12	50	334	28.8503	84.4914	5.4714	2.0796	.157823
12	51	334	28.8503	27.4641	5.4714	5.7521	.125500
12	52	150	28.5467	2.7408	5.5095	.5467	-.066789
12	53	334	28.8503	2.8263	5.4714	1.5359	.239888
12	54	178	28.8371	1.5000	5.4496	.5000	.184530
12	55	334	28.8503	4.5269	5.4714	3.1638	-.136752
12	56	334	28.8503	11.8802	5.4714	4.7630	.079964
12	57	150	28.5467	1.7667	5.5095	.4230	-.031089
12	58	334	28.8503	2.2096	5.4714	2.4270	.119834
12	59	334	28.8503	1.6617	5.4714	.4731	-.094741
12	60	156	28.8654	1.0000	5.4960	.0000	.000000
12	61	223	28.7130	1.9193	5.4261	.2724	.008598
12	62	244	28.6944	96.9580	5.4730	21.9845	.094658
12	63	238	28.8229	25.2873	5.4658	4.8285	.046002
12	64	238	28.8229	15.1641	5.4658	3.2797	.095032
12	65	245	28.6816	9.3626	5.4620	2.7926	.098549
12	66	235	28.8316	6.9509	5.4528	3.5501	.063616
12	67	238	28.8229	14.0660	5.4658	3.5342	.097397
12	68	150	28.5467	1.2067	5.5095	.4049	.015101
12	69	334	28.8503	.0085	5.4714	3.0975	.129533
12	70	276	28.8152	1.7971	5.4439	.4022	-.023745
12	71	276	28.8152	1.2029	5.4439	.4022	-.035833
12	72	334	28.8503	86.3054	5.4714	4.4671	.224576
12	73	334	28.8503	82.7335	5.4714	4.6549	.101178
12	74	276	28.8152	2.4731	5.4439	.5153	.076215
12	75	334	28.8503	1791.9835	5.4714	312.5548	.140359
13	13	334	15.8982	15.8982	2.8770	2.8770	1.000000
13	14	334	15.8982	8.1317	2.8770	3.6877	-.103714
13	15	334	15.8982	19.4671	2.8770	6.7276	.047625
13	16	334	15.8982	38.5210	2.8770	4.9456	-.000481
13	17	334	15.8982	11.4731	2.8770	2.5058	-.025713
13	18	334	15.8982	30.7126	2.8770	4.8289	.214049
13	19	334	15.8982	21.3713	2.8770	3.5512	-.096231
13	20	334	15.8982	30.4551	2.8770	7.4791	.155630
13	21	334	15.8982	36.7665	2.8770	4.9488	.230490
13	22	334	15.8982	35.8413	2.8770	5.1302	-.267236
13	23	334	15.8982	25.7335	2.8770	4.5954	-.089012
13	24	334	15.8982	21.9790	2.8770	4.6355	-.016324
13	25	334	15.8982	38.8293	2.8770	3.8502	-.048057
13	26	334	15.8982	30.6287	2.8770	2.2253	-.068101
13	27	334	15.8982	17.3263	2.8770	2.1622	-.076001
13	28	334	15.8982	17.1347	2.8770	2.0655	.002813

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
13	29	334	15.8982	8.2605	2.8770	2.3512	-.104965
13	30	334	15.8982	7.6317	2.8770	2.0632	-.068358
13	31	334	15.8982	10.2275	2.8770	2.2258	-.108127
13	32	334	15.8982	7.0120	2.8770	1.8986	-.125847
13	33	334	15.8982	12.0060	2.8770	1.7042	-.129948
13	34	334	15.8982	6.2754	2.8770	2.3679	-.045987
13	35	334	15.8982	8.5749	2.8770	2.5709	-.071831
13	36	334	15.8982	8.7485	2.8770	2.4828	-.110887
13	37	334	15.8982	21.6796	2.8770	7.1495	-.154713
13	38	334	15.8982	106.8772	2.8770	19.4967	-.102173
13	39	334	15.8982	9.8713	2.8770	4.4065	-.051809
13	40	334	15.8982	37.4611	2.8770	9.2670	-.016095
13	41	334	15.8982	85.4701	2.8770	14.9670	-.003617
13	42	334	15.8982	19.9192	2.8770	6.1163	.002935
13	43	334	15.8982	34.7305	2.8770	7.4048	-.072120
13	44	334	15.8982	30.6228	2.8770	7.1991	-.023537
13	45	89	15.6966	1.0000	2.8577	.0000	.000000
13	46	89	15.9663	1.0000	2.8618	.0000	.000000
13	47	334	15.8982	4.9641	2.8770	1.8713	.009887
13	48	334	15.8982	4.9581	2.8770	1.9092	.012851
13	49	334	15.8982	84.5000	2.8770	3.7238	-.018165
13	50	334	15.8982	84.4914	2.8770	2.0796	-.031365
13	51	334	15.8982	27.4641	2.8770	5.7521	-.085796
13	52	150	16.0000	2.7408	2.8519	.5467	.030985
13	53	334	15.8982	2.8263	2.8770	1.5359	-.036523
13	54	178	15.8315	1.5000	2.8629	.5000	.047096
13	55	334	15.8982	4.5269	2.8770	3.1638	-.014171
13	56	334	15.8982	11.8802	2.8770	4.7630	.012438
13	57	150	16.0000	1.7667	2.8519	.4230	-.016581
13	58	334	15.8982	2.2096	2.8770	2.4270	-.050115
13	59	334	15.8982	1.6617	2.8770	.4731	.029687
13	60	156	15.9744	1.0000	2.8911	.0000	.000000
13	61	223	15.8655	1.9193	2.9540	.2724	-.019067
13	62	244	15.8115	96.9580	2.9610	21.9845	.041766
13	63	288	15.8472	25.2873	2.9459	4.8285	.014132
13	64	288	15.8472	15.1641	2.9459	3.2797	.040690
13	65	245	15.8122	9.3626	2.9550	2.7926	.054084
13	66	285	15.8175	6.9509	2.9347	3.5501	.038880
13	67	288	15.8472	14.0660	2.9459	3.5342	-.013539
13	68	150	16.0000	1.2067	2.8519	.4049	-.011546
13	69	334	15.8982	.0085	2.8770	3.0975	-.000771
13	70	276	15.8587	1.7971	2.9325	.4022	.027917
13	71	276	15.8587	1.2029	2.9325	.4022	-.021773
13	72	334	15.8982	86.3054	2.8770	4.4671	-.095891
13	73	334	15.8982	82.7335	2.8770	4.6549	.057219
13	74	276	15.8587	2.4731	2.9325	.5153	-.002369
13	75	334	15.8982	1791.9835	2.8770	312.5548	-.127881
14	14	334	8.1317	8.1317	3.6877	3.6877	1.000000
14	15	334	8.1317	19.4671	3.6877	6.7276	.010312
14	16	334	8.1317	38.5210	3.6877	4.9456	.123791

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
14	17	334	8.1317	11.4731	3.6877	2.5058	.249862
14	18	334	8.1317	30.7126	3.6877	4.8289	-.052347
14	19	334	8.1317	21.3713	3.6877	3.5512	.058452
14	20	334	8.1317	30.4551	3.6877	7.4791	-.039082
14	21	334	8.1317	36.7665	3.6877	4.9488	-.218479
14	22	334	8.1317	35.8413	3.6877	5.1302	.348317
14	23	334	8.1317	25.7335	3.6877	4.5954	.070797
14	24	334	8.1317	21.9790	3.6877	4.6355	.250620
14	25	334	8.1317	38.8293	3.6877	3.8502	.162897
14	26	334	8.1317	30.6287	3.6877	2.2253	.063240
14	27	334	8.1317	17.3263	3.6877	2.1622	.073087
14	28	334	8.1317	17.1347	3.6877	2.0655	-.001151
14	29	334	8.1317	8.2605	3.6877	2.3512	.098255
14	30	334	8.1317	7.6317	3.6877	2.0632	.078783
14	31	334	8.1317	10.2275	3.6877	2.2258	.087903
14	32	334	8.1317	7.0120	3.6877	1.8986	.125924
14	33	334	8.1317	12.0060	3.6877	1.7042	.155185
14	34	334	8.1317	6.2754	3.6877	2.3679	.046247
14	35	334	8.1317	8.5749	3.6877	2.5709	-.002619
14	36	334	8.1317	8.7485	3.6877	2.4828	.039262
14	37	334	8.1317	21.6796	3.6877	7.1495	.136053
14	38	334	8.1317	106.8772	3.6877	19.4967	.047655
14	39	334	8.1317	9.8713	3.6877	4.4065	.096299
14	40	334	8.1317	37.4611	3.6877	9.2670	-.032003
14	41	334	8.1317	85.4701	3.6877	14.9670	.092180
14	42	334	8.1317	19.9192	3.6877	6.1163	.093921
14	43	334	8.1317	34.7305	3.6877	7.4048	.081668
14	44	334	8.1317	30.6228	3.6877	7.1991	.127842
14	45	89	8.9213	1.0000	3.5035	.0000	.000000
14	46	89	8.1685	1.0000	4.2194	.0000	.000000
14	47	334	8.1317	4.9641	3.6877	1.8713	-.169823
14	48	334	8.1317	4.9581	3.6877	1.9092	-.178247
14	49	334	8.1317	84.5000	3.6877	3.7238	-.094623
14	50	334	8.1317	84.4914	3.6877	2.0796	-.037487
14	51	334	8.1317	27.4641	3.6877	5.7521	.009398
14	52	150	8.2000	2.7408	3.8730	.5467	.036784
14	53	334	8.1317	2.8263	3.6877	1.5359	.119801
14	54	178	8.5449	1.5000	3.8962	.5000	-.096608
14	55	334	8.1317	4.5269	3.6877	3.1638	.021508
14	56	334	8.1317	11.8802	3.6877	4.7630	-.133932
14	57	150	8.2000	1.7667	3.8730	.4230	-.256396
14	58	334	8.1317	2.2096	3.6877	2.4270	.039400
14	59	334	8.1317	1.6617	3.6877	.4731	.073591
14	60	156	7.6603	1.0000	3.3732	.0000	.000000
14	61	223	8.2018	1.9193	3.6086	.2724	-.029049
14	62	244	8.4918	96.9580	3.8512	21.9845	-.141435
14	63	288	8.3542	25.2873	3.7684	4.8285	-.135401
14	64	288	8.3542	15.1641	3.7684	3.2797	-.105278
14	65	245	8.4694	9.3626	3.8593	2.7926	-.150427
14	66	285	8.3193	6.9509	3.7566	3.5501	-.087707

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
14	67	288	8.3542	14.0660	3.7694	3.5342	-.110534
14	68	150	8.2000	1.2067	3.8730	.4049	.016154
14	69	334	8.1317	.0085	3.6877	3.0975	-.088588
14	70	276	8.3587	1.7971	3.8181	.4022	-.058786
14	71	276	8.3587	1.2029	3.8181	.4022	.065865
14	72	334	8.1317	86.3054	3.6877	4.4671	-.071142
14	73	334	8.1317	82.7335	3.6877	4.6549	-.086731
14	74	276	8.3587	2.4731	3.8181	.5153	-.157769
14	75	334	8.1317	1791.9835	3.6877	312.5548	.104153
15	15	334	19.4671	19.4671	6.7276	6.7276	1.000000
15	16	334	19.4671	38.5210	6.7276	4.9456	.381873
15	17	334	19.4671	11.4731	6.7276	2.5058	.433732
15	18	334	19.4671	30.7126	6.7276	4.8289	.500228
15	19	334	19.4671	21.3713	6.7276	3.5512	-.163157
15	20	334	19.4671	30.4551	6.7276	7.4791	.800325
15	21	334	19.4671	36.7665	6.7276	4.9488	.294193
15	22	334	19.4671	35.8413	6.7276	5.1302	.049685
15	23	334	19.4671	25.7335	6.7276	4.5954	.344624
15	24	334	19.4671	21.9790	6.7276	4.6355	.614368
15	25	334	19.4671	38.8293	6.7276	3.8502	.645506
15	26	334	19.4671	30.6287	6.7276	2.2253	.024182
15	27	334	19.4671	17.3263	6.7276	2.1622	.013398
15	28	334	19.4671	17.1347	6.7276	2.0655	-.048482
15	29	334	19.4671	8.2605	6.7276	2.3512	.039251
15	30	334	19.4671	7.6317	6.7276	2.0632	.026844
15	31	334	19.4671	10.2275	6.7276	2.2258	-.000099
15	32	334	19.4671	7.0120	6.7276	1.8986	.077852
15	33	334	19.4671	12.0000	6.7276	1.7042	-.006250
15	34	334	19.4671	6.2754	6.7276	2.3679	.019740
15	35	334	19.4671	8.5749	6.7276	2.5709	.000402
15	36	334	19.4671	8.7485	6.7276	2.4828	.040731
15	37	334	19.4671	21.6796	6.7276	7.1495	.025271
15	38	334	19.4671	106.8772	6.7276	19.4967	.024884
15	39	334	19.4671	9.8713	6.7276	4.4065	-.032209
15	40	334	19.4671	37.4611	6.7276	8.2670	-.026996
15	41	334	19.4671	85.4701	6.7276	14.9670	.036266
15	42	334	19.4671	19.9192	6.7276	6.1163	.054179
15	43	334	19.4671	34.7305	6.7276	7.4048	.018874
15	44	334	19.4671	30.6228	6.7276	7.1991	-.056819
15	45	89	19.3258	1.0000	7.1087	.0000	.000000
15	46	89	20.9326	1.0000	7.0005	.0000	.000000
15	47	334	19.4671	4.9641	6.7276	1.8713	.060789
15	48	334	19.4671	4.9581	6.7276	1.9092	.042783
15	49	334	19.4671	84.5000	6.7276	3.7238	.132656
15	50	334	19.4671	84.4914	6.7276	2.0796	-.004994
15	51	334	19.4671	27.4641	6.7276	3.7521	.042599
15	52	150	19.2867	2.7408	6.5933	.5467	-.014430
15	53	334	19.4671	2.8263	6.7276	1.5359	.120272
15	54	178	19.6292	1.5000	7.1742	.5000	.191675
15	55	334	19.4671	4.5269	6.7276	3.1638	-.024082

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
15	56	334	19.4671	11.8802	6.7276	4.7630	.028188
15	57	150	19.2867	1.7667	6.5933	.4230	-.009483
15	58	334	19.4671	2.2096	6.7276	2.4270	.025361
15	59	334	19.4671	1.6617	6.7276	.4731	-.036892
15	60	156	19.2821	1.0000	6.1736	.0000	.000000
15	61	223	19.2601	1.9193	6.8648	.2724	-.055919
15	62	244	19.5533	96.9580	6.8168	21.9845	.037933
15	63	288	19.4201	25.2873	6.7660	4.8285	.004382
15	64	288	19.4201	15.1641	6.7660	3.2797	-.022783
15	65	245	19.5633	9.3626	6.8046	2.7926	.031423
15	66	285	19.4035	6.9509	6.7701	3.5501	.031336
15	67	288	19.4201	14.0660	6.7660	3.5342	-.020145
15	68	150	19.2867	1.2067	6.5933	.4049	.022757
15	69	334	19.4671	.0085	6.7276	3.0975	.162831
15	70	276	19.3478	1.7971	6.7305	.4022	.023396
15	71	276	19.3478	1.2029	6.7305	.4022	-.036782
15	72	334	19.4671	86.3054	6.7276	4.4671	.143197
15	73	334	19.4671	82.7335	6.7276	4.6549	.082370
15	74	276	19.3478	2.4731	6.7305	.5153	.007549
15	75	334	19.4671	1791.9835	6.7276	312.5548	.012061
16	16	334	38.5210	38.5210	4.9456	4.9456	1.000000
16	17	334	38.5210	11.4731	4.9456	2.5058	.404348
16	18	334	38.5210	30.7126	4.9456	4.8289	.546350
16	19	334	38.5210	21.3713	4.9456	3.5512	.132699
16	20	334	38.5210	30.4551	4.9456	7.4791	.350635
16	21	334	38.5210	36.7665	4.9456	4.9488	.218194
16	22	334	38.5210	35.8413	4.9456	5.1302	.352905
16	23	334	38.5210	25.7335	4.9456	4.5954	.488532
16	24	334	38.5210	21.9790	4.9456	4.6355	.643414
16	25	334	38.5210	38.8293	4.9456	3.8502	.533920
16	26	334	38.5210	30.6287	4.9456	2.2253	.143804
16	27	334	38.5210	17.3263	4.9456	2.1622	.320652
16	28	334	38.5210	17.1347	4.9456	2.0655	-.072524
16	29	334	38.5210	8.2605	4.9456	2.3512	.090294
16	30	334	38.5210	7.6317	4.9456	2.0632	.071032
16	31	334	38.5210	10.2275	4.9456	2.2258	.196756
16	32	334	38.5210	7.0120	4.9456	1.8986	.163549
16	33	334	38.5210	12.0060	4.9456	1.7042	.204249
16	34	334	38.5210	6.2754	4.9456	2.3679	.148562
16	35	334	38.5210	8.5749	4.9456	2.5709	.048267
16	36	334	38.5210	8.7485	4.9456	2.4828	.235484
16	37	334	38.5210	21.6796	4.9456	7.1495	.308365
16	38	334	38.5210	106.8772	4.9456	19.4967	.091176
16	39	334	38.5210	9.8713	4.9456	4.4065	.132356
16	40	334	38.5210	37.4611	4.9456	9.2670	-.048030
16	41	334	38.5210	85.4701	4.9456	14.9670	.019828
16	42	334	38.5210	19.9192	4.9456	6.1163	.022376
16	43	334	38.5210	34.7305	4.9456	7.4048	.077332
16	44	334	38.5210	30.6228	4.9456	7.1991	.169078
16	45	89	36.7753	1.0000	4.7964	.0000	.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
16	46	89	39.9775	1.0000	4.4996	.0000	.000000
16	47	334	38.5210	4.9641	4.9456	1.8713	.175426
16	48	334	38.5210	4.9581	4.9456	1.9092	.136126
16	49	334	38.5210	84.5000	4.9456	3.7238	.340751
16	50	334	38.5210	84.4914	4.9456	2.0796	.226314
16	51	334	38.5210	27.4641	4.9456	5.7521	.043282
16	52	150	38.1133	2.7408	4.9820	.5467	-.024796
16	53	334	38.5210	2.8263	4.9456	1.5359	.178636
16	54	178	38.3764	1.5000	4.9183	.5000	.325543
16	55	334	38.5210	4.5269	4.9456	3.1638	-.111495
16	56	334	38.5210	11.8802	4.9456	4.7630	.042432
16	57	150	38.1133	1.7667	4.9820	.4230	-.000105
16	58	334	38.5210	2.2096	4.9456	2.4270	.117620
16	59	334	38.5210	1.6617	4.9456	.4731	-.038554
16	60	156	38.6859	1.0000	4.9715	.0000	.000000
16	61	223	38.7265	1.9193	5.0265	.2724	-.029225
16	62	244	38.3361	96.9580	5.0157	21.9845	.121400
16	63	288	38.5035	25.2873	4.9490	4.8285	.063909
16	64	288	38.5035	15.1641	4.9490	3.2797	.103904
16	65	245	38.3429	9.3626	5.0066	2.7926	.127392
16	66	285	38.4912	6.9509	4.9733	3.5501	.095762
16	67	288	38.5035	14.0660	4.9490	3.5342	.130757
16	68	150	38.1133	1.2067	4.9820	.4049	-.021525
16	69	334	38.5210	.0085	4.9456	3.0975	.257720
16	70	276	38.4855	1.7971	4.9207	.4022	-.001485
16	71	276	38.4855	1.2029	4.9207	.4022	-.055272
16	72	334	38.5210	86.3054	4.9456	4.4671	.372533
16	73	334	38.5210	82.7335	4.9456	4.6549	.191096
16	74	276	38.4855	2.4731	4.9207	.5153	.102988
16	75	334	38.5210	1791.9835	4.9456	312.5548	.255528
17	17	334	11.4731	11.4731	2.5058	2.5058	1.000000
17	18	334	11.4731	30.7126	2.5058	4.8289	.400937
17	19	334	11.4731	21.3713	2.5058	3.5512	-.023100
17	20	334	11.4731	30.4551	2.5058	7.4791	.434228
17	21	334	11.4731	36.7665	2.5058	4.9488	.120936
17	22	334	11.4731	35.8413	2.5058	5.1302	.264822
17	23	334	11.4731	25.7335	2.5058	4.5954	.318530
17	24	334	11.4731	21.9790	2.5058	4.6355	.544717
17	25	334	11.4731	38.8293	2.5058	3.8502	.453063
17	26	334	11.4731	30.6287	2.5058	2.2253	.058342
17	27	334	11.4731	17.3263	2.5058	2.1622	.046661
17	28	334	11.4731	17.1347	2.5058	2.0655	-.119907
17	29	334	11.4731	8.2605	2.5058	2.3512	.020757
17	30	334	11.4731	7.6317	2.5058	2.0632	.005899
17	31	334	11.4731	10.2275	2.5058	2.2258	-.017152
17	32	334	11.4731	7.0120	2.5058	1.8986	.090690
17	33	334	11.4731	12.0060	2.5058	1.7042	.107309
17	34	334	11.4731	6.2754	2.5058	2.3679	.020930
17	35	334	11.4731	8.5749	2.5058	2.5709	.003799
17	36	334	11.4731	8.7485	2.5058	2.4828	.148576

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
17	37	334	11.4731	21.6796	2.5058	7.1495	.145663
17	38	334	11.4731	106.8772	2.5058	19.4967	.030666
17	39	334	11.4731	9.8713	2.5058	4.4065	.070320
17	40	334	11.4731	37.4611	2.5058	9.2670	.064744
17	41	334	11.4731	85.4701	2.5058	14.9670	.020096
17	42	334	11.4731	19.9192	2.5058	6.1163	.063444
17	43	334	11.4731	34.7305	2.5058	7.4048	.054631
17	44	334	11.4731	30.6228	2.5058	7.1991	-.052511
17	45	89	11.2247	1.0000	2.7345	.0000	.000000
17	46	89	12.0899	1.0000	2.6079	.0000	.000000
17	47	334	11.4731	4.9641	2.5058	1.8713	.008094
17	48	334	11.4731	4.9581	2.5058	1.9092	.022920
17	49	334	11.4731	84.5000	2.5058	3.7238	.181285
17	50	334	11.4731	84.4914	2.5058	2.0796	.118116
17	51	334	11.4731	27.4641	2.5058	5.7521	.097352
17	52	150	11.4933	2.7408	2.3202	.5467	.077981
17	53	334	11.4731	2.8263	2.5058	1.5359	.167591
17	54	178	11.6573	1.5000	2.7067	.5000	.159818
17	55	334	11.4731	4.5269	2.5058	3.1638	-.018602
17	56	334	11.4731	11.8802	2.5058	4.7630	.064450
17	57	150	11.4933	1.7667	2.3202	.4230	-.066123
17	58	334	11.4731	2.2096	2.5058	2.4270	.070344
17	59	334	11.4731	1.6617	2.5058	.4731	-.039255
17	60	156	11.2628	1.0000	2.2364	.0000	.000000
17	61	223	11.3453	1.9193	2.5202	.2724	.086322
17	62	244	11.6516	96.9580	2.3914	21.9845	-.037846
17	63	288	11.4896	25.2873	2.4181	4.8285	-.053236
17	64	288	11.4896	15.1641	2.4181	3.2797	-.057961
17	65	245	11.6449	9.3626	2.3888	2.7926	-.021489
17	66	285	11.4912	6.9509	2.4129	3.5501	-.065180
17	67	288	11.4896	14.0660	2.4181	3.5342	-.055176
17	68	150	11.4933	1.2067	2.3202	.4049	-.073043
17	69	334	11.4731	.0085	2.5058	3.0975	.138637
17	70	276	11.5036	1.7971	2.4100	.4022	-.044102
17	71	276	11.5036	1.2029	2.4100	.4022	.103916
17	72	334	11.4731	86.3054	2.5058	4.4671	.215516
17	73	334	11.4731	82.7335	2.5058	4.6549	.089094
17	74	276	11.5036	2.4731	2.4100	.5153	-.091197
17	75	334	11.4731	1791.9835	2.5058	312.5548	.126328
18	18	334	30.7126	30.7126	4.8289	4.8289	1.000000
18	19	334	30.7126	21.3713	4.8289	3.5512	-.116343
18	20	334	30.7126	30.4551	4.8289	7.4791	.569746
18	21	334	30.7126	36.7665	4.8289	4.9488	.431059
18	22	334	30.7126	35.8413	4.8289	5.1302	-.079067
18	23	334	30.7126	25.7335	4.8289	4.5954	.265042
18	24	334	30.7126	21.9790	4.8289	4.6355	.562972
18	25	334	30.7126	38.8293	4.8289	3.8502	.507679
18	26	334	30.7126	30.6287	4.8289	2.2253	.072542
18	27	334	30.7126	17.3263	4.8289	2.1622	.158385
18	28	334	30.7126	17.1347	4.8289	2.0655	.004785

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
18	29	334	30.7126	8.2605	4.8289	2.3512	.080696
18	30	334	30.7126	7.6317	4.8289	2.0632	.025438
18	31	334	30.7126	10.2275	4.8289	2.2258	.006921
18	32	334	30.7126	7.0120	4.8289	1.8986	.047075
18	33	334	30.7126	12.0060	4.8289	1.7042	.077340
18	34	334	30.7126	6.2754	4.8289	2.3679	.088620
18	35	334	30.7126	8.5749	4.8289	2.5709	.033326
18	36	334	30.7126	8.7485	4.8289	2.4828	.148051
18	37	334	30.7126	21.6796	4.8289	7.1495	.180575
18	38	334	30.7126	106.8772	4.8289	19.4967	.052702
18	39	334	30.7126	9.8713	4.8289	4.4065	.004593
18	40	334	30.7126	37.4611	4.8289	9.2670	-.039590
18	41	334	30.7126	85.4701	4.8289	14.9670	-.032224
18	42	334	30.7126	19.9192	4.8289	6.1163	.025469
18	43	334	30.7126	34.7305	4.8289	7.4048	.052008
18	44	334	30.7126	30.6228	4.8289	7.1991	-.012678
18	45	89	29.4382	1.0000	5.1863	.0000	.000000
18	46	89	32.0674	1.0000	4.4515	.0000	.000000
18	47	334	30.7126	4.9641	4.8289	1.8713	.126089
18	48	334	30.7126	4.9581	4.8289	1.9092	.115930
18	49	334	30.7126	84.5000	4.8289	3.7238	.240760
18	50	334	30.7126	84.4914	4.8289	2.0796	.128998
18	51	334	30.7126	27.4641	4.8289	5.7521	.123585
18	52	150	30.8333	2.7408	4.9267	.5467	.044844
18	53	334	30.7126	2.8263	4.8289	1.5359	.199145
18	54	178	30.7528	1.5000	5.0085	.5000	.262476
18	55	334	30.7126	4.5269	4.8289	3.1638	-.118643
18	56	334	30.7126	11.8802	4.8289	4.7630	.057993
18	57	150	30.8333	1.7667	4.9267	.4230	-.021862
18	58	334	30.7126	2.2096	4.8289	2.4270	.153312
18	59	334	30.7126	1.6617	4.8289	.4731	-.022905
18	60	156	30.6667	1.0000	4.8151	.0000	.000000
18	61	223	30.6547	1.9193	4.9547	.2724	.122219
18	62	244	30.5615	96.9580	4.9597	21.9845	.055766
18	63	288	30.6632	25.2873	4.8799	4.8285	.094071
18	64	288	30.6632	15.1641	4.8799	3.2797	.070003
18	65	245	30.5714	9.3626	4.9520	2.7926	.034504
18	66	285	30.6842	6.9509	4.8895	3.5501	.007596
18	67	288	30.6632	14.0660	4.8799	3.5342	-.010690
18	68	150	30.8333	1.2067	4.9267	.4049	.003899
18	69	334	30.7126	.0085	4.8289	3.0975	.202823
18	70	276	30.6159	1.7971	4.8846	.4022	-.015691
18	71	276	30.6159	1.2029	4.8846	.4022	-.004597
18	72	334	30.7126	86.3054	4.8289	4.4671	.291240
18	73	334	30.7126	82.7335	4.8289	4.6549	.100752
18	74	276	30.6159	2.4731	4.8846	.5153	.035992
18	75	334	30.7126	1791.9835	4.8289	312.5548	.138653
19	19	334	21.3713	21.3713	3.5512	3.5512	1.000000
19	20	334	21.3713	30.4551	3.5512	7.4791	-.404971
19	21	334	21.3713	36.7665	3.5512	4.9488	-.222847

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
19	22	334	21.3713	35.8413	3.5512	5.1302	.568899
19	23	334	21.3713	25.7335	3.5512	4.5954	.539039
19	24	334	21.3713	21.9790	3.5512	4.6355	-.044998
19	25	334	21.3713	38.8293	3.5512	3.8502	-.107919
19	26	334	21.3713	30.6287	3.5512	2.2253	.063286
19	27	334	21.3713	17.3263	3.5512	2.1622	.096133
19	28	334	21.3713	17.1347	3.5512	2.0655	.058492
19	29	334	21.3713	8.2605	3.5512	2.3512	-.006203
19	30	334	21.3713	7.6317	3.5512	2.0632	.000272
19	31	334	21.3713	10.2275	3.5512	2.2258	.121889
19	32	334	21.3713	7.0120	3.5512	1.8986	.111691
19	33	334	21.3713	12.0060	3.5512	1.7042	.084233
19	34	334	21.3713	6.2754	3.5512	2.3679	.093946
19	35	334	21.3713	8.5749	3.5512	2.5709	.107144
19	36	334	21.3713	8.7485	3.5512	2.4828	.131481
19	37	334	21.3713	21.6796	3.5512	7.1495	.170134
19	38	334	21.3713	106.8772	3.5512	19.4967	.023967
19	39	334	21.3713	9.8713	3.5512	4.4065	-.005173
19	40	334	21.3713	37.4611	3.5512	9.2670	.049296
19	41	334	21.3713	85.4701	3.5512	14.9670	-.007790
19	42	334	21.3713	19.9192	3.5512	6.1163	.002071
19	43	334	21.3713	34.7305	3.5512	7.4048	-.013388
19	44	334	21.3713	30.6228	3.5512	7.1991	.112402
19	45	89	21.6629	1.0000	3.5631	.0000	.000000
19	46	89	21.4382	1.0000	3.4995	.0000	.000000
19	47	334	21.3713	4.9641	3.5512	1.8713	.021832
19	48	334	21.3713	4.9581	3.5512	1.9092	.009803
19	49	334	21.3713	84.5000	3.5512	3.7238	.040076
19	50	334	21.3713	84.4914	3.5512	2.0796	.164862
19	51	334	21.3713	27.4641	3.5512	5.7521	.015604
19	52	150	21.3533	2.7408	3.4682	.5467	-.120595
19	53	334	21.3713	2.8263	3.5512	1.5359	.077142
19	54	178	21.5506	1.5000	3.5332	.5000	-.031801
19	55	334	21.3713	4.5269	3.5512	3.1638	-.040863
19	56	334	21.3713	11.8802	3.5512	4.7630	.063167
19	57	150	21.3533	1.7667	3.4682	.4230	-.011968
19	58	334	21.3713	2.2096	3.5512	2.4270	.044470
19	59	334	21.3713	1.6617	3.5512	.4731	.017734
19	60	156	21.1667	1.0000	3.5605	.0000	.000000
19	61	223	21.3184	1.9193	3.5877	.2724	-.037942
19	62	244	21.2664	96.9580	3.6606	21.9845	.059611
19	63	288	21.3993	25.2873	3.6387	4.8285	-.011323
19	64	288	21.3993	15.1641	3.6387	3.2797	.090600
19	65	245	21.2612	9.3626	3.6541	2.7926	.066649
19	66	285	21.4105	6.9509	3.6404	3.5501	.096356
19	67	288	21.3993	14.0660	3.6387	3.5342	.121410
19	68	150	21.3533	1.2067	3.4682	.4049	.057188
19	69	334	21.3713	.0085	3.5512	3.0975	-.062505
19	70	276	21.4275	1.7971	3.5578	.4022	-.002678
19	71	276	21.4275	1.2029	3.5578	.4022	-.075822

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
19	72	334	21.3713	86.3054	3.5512	4.4671	.057781
19	73	334	21.3713	82.7335	3.5512	4.6549	.000008
19	74	276	21.4275	2.4731	3.5578	.5153	.072367
19	75	334	21.3713	1791.9835	3.5512	312.5548	.112093
20	20	334	30.4551	30.4551	7.4791	7.4791	1.000000
20	21	334	30.4551	36.7665	7.4791	4.9488	.417364
20	22	334	30.4551	35.8413	7.4791	5.1302	-.199907
20	23	334	30.4551	25.7335	7.4791	4.5954	.082104
20	24	334	30.4551	21.9790	7.4791	4.6355	.626816
20	25	334	30.4551	38.8293	7.4791	3.8502	.684031
20	26	334	30.4551	30.6287	7.4791	2.2253	.015728
20	27	334	30.4551	17.3263	7.4791	2.1622	.056543
20	28	334	30.4551	17.1347	7.4791	2.0655	-.053778
20	29	334	30.4551	8.2605	7.4791	2.3512	-.013892
20	30	334	30.4551	7.6317	7.4791	2.0632	.009697
20	31	334	30.4551	10.2275	7.4791	2.2258	-.008019
20	32	334	30.4551	7.0120	7.4791	1.8986	.003412
20	33	334	30.4551	12.0060	7.4791	1.7042	-.019006
20	34	334	30.4551	6.2754	7.4791	2.3679	-.029226
20	35	334	30.4551	8.5749	7.4791	2.5709	-.015941
20	36	334	30.4551	8.7485	7.4791	2.4828	.009711
20	37	334	30.4551	21.6796	7.4791	7.1495	.001159
20	38	334	30.4551	106.8772	7.4791	19.4967	-.010129
20	39	334	30.4551	9.8713	7.4791	4.4065	-.050096
20	40	334	30.4551	37.4611	7.4791	9.2670	-.056291
20	41	334	30.4551	85.4701	7.4791	14.9670	-.052462
20	42	334	30.4551	19.9192	7.4791	6.1163	.000870
20	43	334	30.4551	34.7305	7.4791	7.4048	-.023141
20	44	334	30.4551	30.6228	7.4791	7.1991	-.082334
20	45	89	28.8427	1.0000	7.5311	.0000	.000000
20	46	89	32.3034	1.0000	6.9982	.0000	.000000
20	47	334	30.4551	4.9641	7.4791	1.8713	.095082
20	48	334	30.4551	4.9581	7.4791	1.9092	.059627
20	49	334	30.4551	84.5000	7.4791	3.7238	.136205
20	50	334	30.4551	84.4914	7.4791	2.0796	-.057410
20	51	334	30.4551	27.4641	7.4791	5.7521	.095377
20	52	150	30.5400	2.7408	7.2034	.5467	.006277
20	53	334	30.4551	2.8263	7.4791	1.5359	.066565
20	54	178	30.5730	1.5000	7.4726	.5000	.231557
20	55	334	30.4551	4.5269	7.4791	3.1638	.032759
20	56	334	30.4551	11.8802	7.4791	4.7630	-.019734
20	57	150	30.5400	1.7667	7.2034	.4230	.023851
20	58	334	30.4551	2.2096	7.4791	2.4270	.062043
20	59	334	30.4551	1.6617	7.4791	.4731	-.052944
20	60	156	30.3205	1.0000	7.4842	.0000	.000000
20	61	223	30.0404	1.9193	7.4517	.2724	.003814
20	62	244	30.4549	96.9580	7.5456	21.9845	-.022805
20	63	288	30.3194	25.2873	7.4625	4.8285	.003596
20	64	288	30.3194	15.1641	7.4625	3.2797	-.058108
20	65	245	30.4735	9.3626	7.5358	2.7926	-.044201

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
20	66	285	30.2947	6.9509	7.4949	3.5501	-.056666
20	67	288	30.3194	14.0660	7.4625	3.5342	-.060535
20	68	150	30.5400	1.2067	7.2034	.4049	.069164
20	69	334	30.4551	.0085	7.4791	3.0975	.202275
20	70	276	30.2319	1.7971	7.4501	.4022	-.052017
20	71	276	30.2319	1.2029	7.4501	.4022	.029041
20	72	334	30.4551	86.3054	7.4791	4.4671	.147738
20	73	334	30.4551	82.7335	7.4791	4.6549	.078130
20	74	276	30.2319	2.4731	7.4501	.5153	-.040553
20	75	334	30.4551	1791.9835	7.4791	312.5548	-.025634
21	21	334	36.7665	36.7665	4.9488	4.9488	1.000000
21	22	334	36.7665	35.8413	4.9488	5.1302	-.228943
21	23	334	36.7665	25.7335	4.9488	4.5954	.050847
21	24	334	36.7665	21.9790	4.9488	4.6355	.190209
21	25	334	36.7665	38.8293	4.9488	3.8502	.308721
21	26	334	36.7665	30.6287	4.9488	2.2253	-.049468
21	27	334	36.7665	17.3263	4.9488	2.1622	-.056393
21	28	334	36.7665	17.1347	4.9488	2.0655	.001908
21	29	334	36.7665	9.2605	4.9488	2.3512	.006001
21	30	334	36.7665	7.6317	4.9488	2.0632	-.096102
21	31	334	36.7665	10.2275	4.9488	2.2258	-.078093
21	32	334	36.7665	7.0120	4.9488	1.8986	-.071400
21	33	334	36.7665	12.0060	4.9488	1.7042	-.130479
21	34	334	36.7665	6.2754	4.9488	2.3679	-.037946
21	35	334	36.7665	8.5749	4.9488	2.5709	.003497
21	36	334	36.7665	8.7485	4.9488	2.4828	.028361
21	37	334	36.7665	21.6796	4.9488	7.1495	-.042394
21	38	334	36.7665	106.8772	4.9488	19.4967	.065737
21	39	334	36.7665	9.8713	4.9488	4.4065	-.032133
21	40	334	36.7665	37.4611	4.9488	9.2670	.077296
21	41	334	36.7665	85.4701	4.9488	14.9670	-.025600
21	42	334	36.7665	19.9192	4.9488	6.1163	-.035442
21	43	334	36.7665	34.7305	4.9488	7.4048	.004493
21	44	334	36.7665	30.6228	4.9488	7.1991	.004839
21	45	89	35.8876	1.0000	4.6336	.0000	.000000
21	46	89	37.8427	1.0000	5.2013	.0000	.000000
21	47	334	36.7665	4.9641	4.9488	1.8713	.063756
21	48	334	36.7665	4.9581	4.9488	1.9092	.116848
21	49	334	36.7665	84.5000	4.9488	3.7238	.130302
21	50	334	36.7665	84.4914	4.9488	2.0796	.056013
21	51	334	36.7665	27.4641	4.9488	5.7521	-.040367
21	52	150	37.0067	2.7408	5.2820	.5467	.006230
21	53	334	36.7665	2.8263	4.9488	1.5359	.035630
21	54	178	36.8652	1.5000	5.0217	.5000	.194660
21	55	334	36.7665	4.5269	4.9488	3.1638	.003079
21	56	334	36.7665	11.8802	4.9488	4.7630	.014310
21	57	150	37.0067	1.7667	5.2820	.4230	-.032129
21	58	334	36.7665	2.2096	4.9488	2.4270	-.030326
21	59	334	36.7665	1.6617	4.9488	.4731	.036585
21	60	156	36.6538	1.0000	4.8617	.0000	.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
21	61	223	36.6726	1.9193	4.9794	.2724	.129292
21	62	244	36.7582	96.9580	4.9301	21.9845	.037743
21	63	288	36.7326	25.2873	5.0458	4.8285	.095112
21	64	288	36.7326	15.1641	5.0458	3.2797	.028879
21	65	245	36.7673	9.3626	4.9221	2.7926	.024744
21	66	285	36.7474	6.9509	4.9968	3.5501	.081451
21	67	288	36.7326	14.0660	5.0458	3.5342	.026739
21	68	150	37.0067	1.2067	5.2820	.4049	.033643
21	69	334	36.7665	.0085	4.9488	3.0975	.119050
21	70	276	36.7572	1.7971	4.9588	.4022	.097031
21	71	276	36.7572	1.2029	4.9588	.4022	-.031623
21	72	334	36.7665	86.3054	4.9488	4.4671	.163042
21	73	334	36.7665	82.7335	4.9488	4.6549	.051368
21	74	276	36.7572	2.4731	4.9588	.5153	.026974
21	75	334	36.7665	1791.9835	4.9488	312.5548	-.039104
22	22	334	35.8413	35.8413	5.1302	5.1302	1.000000
22	23	334	35.8413	25.7335	5.1302	4.5954	.585189
22	24	334	35.8413	21.9790	5.1302	4.6355	.272936
22	25	334	35.8413	38.8293	5.1302	3.8502	.175975
22	26	334	35.8413	30.6287	5.1302	2.2253	.041522
22	27	334	35.8413	17.3263	5.1302	2.1622	.068909
22	28	334	35.8413	17.1347	5.1302	2.0655	-.036973
22	29	334	35.8413	8.2605	5.1302	2.3512	.013604
22	30	334	35.8413	7.6317	5.1302	2.0632	.101969
22	31	334	35.8413	10.2275	5.1302	2.2258	.120889
22	32	334	35.8413	7.0120	5.1302	1.8986	.165262
22	33	334	35.8413	12.0060	5.1302	1.7042	.109353
22	34	334	35.8413	6.2754	5.1302	2.3679	.108347
22	35	334	35.8413	8.5749	5.1302	2.5709	.064121
22	36	334	35.8413	8.7485	5.1302	2.4828	.104289
22	37	334	35.8413	21.6796	5.1302	7.1495	.227907
22	38	334	35.8413	106.8772	5.1302	19.4967	.057308
22	39	334	35.8413	9.8713	5.1302	4.4065	.103724
22	40	334	35.8413	37.4611	5.1302	9.2670	.044048
22	41	334	35.8413	85.4701	5.1302	14.9670	.059305
22	42	334	35.8413	19.9192	5.1302	6.1163	-.017297
22	43	334	35.8413	34.7305	5.1302	7.4048	.098101
22	44	334	35.8413	30.6228	5.1302	7.1991	.017349
22	45	89	36.6180	1.0000	4.9116	.0000	.000000
22	46	89	35.6292	1.0000	5.4016	.0000	.000000
22	47	334	35.8413	4.9641	5.1302	1.8713	.007515
22	48	334	35.8413	4.9581	5.1302	1.9092	-.039806
22	49	334	35.8413	84.5000	5.1302	3.7238	.005094
22	50	334	35.8413	84.4914	5.1302	2.0796	.117472
22	51	334	35.8413	27.4641	5.1302	5.7521	.037195
22	52	150	35.9333	2.7408	5.4707	.5467	.032094
22	53	334	35.8413	2.8263	5.1302	1.5359	.098715
22	54	178	36.1236	1.5000	5.1860	.5000	-.095330
22	55	334	35.8413	4.5269	5.1302	3.1638	-.010896
22	56	334	35.8413	11.8802	5.1302	4.7630	-.009477

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
22	57	150	35.9333	1.7667	5.4707	.4230	-.029772
22	58	334	35.8413	2.2096	5.1302	2.4270	.085872
22	59	334	35.8413	1.6617	5.1302	.4731	.065459
22	60	156	35.5192	1.0000	5.0465	.0000	.000000
22	61	223	35.8969	1.9193	5.0240	.2724	-.065063
22	62	244	36.1926	96.9580	5.1906	21.9845	.101728
22	63	288	36.0729	25.2873	5.2366	4.8285	.011944
22	64	288	36.0729	15.1641	5.2366	3.2797	.100341
22	65	245	36.2000	9.3626	5.1813	2.7926	.118167
22	66	285	36.0632	6.9509	5.2505	3.5501	.123995
22	67	288	36.0729	14.0660	5.2366	3.5342	.110150
22	68	150	35.9333	1.2067	5.4707	.4049	-.035914
22	69	334	35.8413	.0085	5.1302	3.0975	-.072729
22	70	276	36.1522	1.7971	5.2474	.4022	.024933
22	71	276	36.1522	1.2029	5.2474	.4022	-.127949
22	72	334	35.8413	86.3054	5.1302	4.4671	.055941
22	73	334	35.8413	82.7335	5.1302	4.6549	-.036999
22	74	276	36.1522	2.4731	5.2474	.5153	.102073
22	75	334	35.8413	1791.9835	5.1302	312.5548	.168438
23	23	334	25.7335	25.7335	4.5954	4.5954	1.000000
23	24	334	25.7335	21.9790	4.5954	4.6355	.419427
23	25	334	25.7335	38.8293	4.5954	3.8502	.326897
23	26	334	25.7335	30.6287	4.5954	2.2253	.061472
23	27	334	25.7335	17.3263	4.5954	2.1622	.182017
23	28	334	25.7335	17.1347	4.5954	2.0655	-.027760
23	29	334	25.7335	8.2605	4.5954	2.3512	.027762
23	30	334	25.7335	7.6317	4.5954	2.0632	.074597
23	31	334	25.7335	10.2275	4.5954	2.2258	.069740
23	32	334	25.7335	7.0120	4.5954	1.8986	.171947
23	33	334	25.7335	12.0060	4.5954	1.7042	.106105
23	34	334	25.7335	6.2754	4.5954	2.3679	.077460
23	35	334	25.7335	8.5749	4.5954	2.5709	.118895
23	36	334	25.7335	8.7485	4.5954	2.4828	.122972
23	37	334	25.7335	21.6796	4.5954	7.1495	.231055
23	38	334	25.7335	106.8772	4.5954	19.4967	.021557
23	39	334	25.7335	9.8713	4.5954	4.4065	.064988
23	40	334	25.7335	37.4611	4.5954	9.2670	.040358
23	41	334	25.7335	85.4701	4.5954	14.9670	.039476
23	42	334	25.7335	19.9192	4.5954	6.1163	.011910
23	43	334	25.7335	34.7305	4.5954	7.4048	.036692
23	44	334	25.7335	30.6228	4.5954	7.1991	.063208
23	45	89	25.2921	1.0000	4.8510	.0000	.000000
23	46	89	26.2022	1.0000	4.4347	.0000	.000000
23	47	334	25.7335	4.9641	4.5954	1.8713	.025696
23	48	334	25.7335	4.9581	4.5954	1.9092	.038654
23	49	334	25.7335	84.5000	4.5954	3.7238	.109789
23	50	334	25.7335	84.4914	4.5954	2.0796	.086542
23	51	334	25.7335	27.4641	4.5954	5.7521	.125081
23	52	150	25.5333	2.7408	4.4895	.5467	-.130491
23	53	334	25.7335	2.8263	4.5954	1.5359	.188572

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
23	54	178	25.7472	1.5000	4.6698	.5000	.097447
23	55	334	25.7335	4.5269	4.5954	3.1638	-.069831
23	56	334	25.7335	11.8802	4.5954	4.7630	.025763
23	57	150	25.5333	1.7667	4.4895	.4230	-.064367
23	58	334	25.7335	2.2096	4.5954	2.4270	.132790
23	59	334	25.7335	1.6617	4.5954	.4731	-.044217
23	60	156	25.7179	1.0000	4.5090	.0000	.000000
23	61	223	25.6816	1.9193	4.6402	.2724	.000915
23	62	244	25.8197	96.9580	4.6280	21.9845	.070148
23	63	208	25.7917	25.2873	4.6493	4.8285	.031319
23	64	288	25.7917	15.1641	4.6493	3.2797	.045166
23	65	245	25.8163	9.3626	4.6188	2.7926	.066763
23	66	285	25.8035	6.9509	4.6683	3.5501	.037455
23	67	288	25.7917	14.0660	4.6493	3.5342	.055565
23	68	156	25.5333	1.2067	4.4895	.4049	.064056
23	69	334	25.7335	.0085	4.5954	3.0975	.073883
23	70	276	25.8514	1.7971	4.5829	.4022	-.039944
23	71	276	25.8514	1.2029	4.5829	.4022	-.034759
23	72	334	25.7335	86.3054	4.5954	4.4671	.173444
23	73	334	25.7335	82.7335	4.5954	4.6549	.015717
23	74	276	25.8514	2.4731	4.5829	.5153	.039486
23	75	334	25.7335	1791.9835	4.5954	312.5548	.154630
24	24	334	21.9790	21.9790	4.6355	4.6355	1.000000
24	25	334	21.9790	38.8293	4.6355	3.8502	.735068
24	26	334	21.9790	30.6287	4.6355	2.2253	.059617
24	27	334	21.9790	17.3263	4.6355	2.1622	.187386
24	28	334	21.9790	17.1347	4.6355	2.0655	-.052552
24	29	334	21.9790	8.2605	4.6355	2.3512	.053521
24	30	334	21.9790	7.6317	4.6355	2.0632	.028308
24	31	334	21.9790	10.2275	4.6355	2.2258	.103477
24	32	334	21.9790	7.0120	4.6355	1.8986	.103448
24	33	334	21.9790	12.0060	4.6355	1.7042	.136080
24	34	334	21.9790	6.2754	4.6355	2.3679	.001071
24	35	334	21.9790	8.5749	4.6355	2.5709	-.074106
24	36	334	21.9790	8.7485	4.6355	2.4828	.063798
24	37	334	21.9790	21.6796	4.6355	7.1495	.199450
24	38	334	21.9790	106.8772	4.6355	19.4967	.034525
24	39	334	21.9790	9.8713	4.6355	4.4065	.072276
24	40	334	21.9790	37.4611	4.6355	9.2670	-.084737
24	41	334	21.9790	85.4701	4.6355	14.9670	-.049399
24	42	334	21.9790	19.9192	4.6355	6.1163	.027502
24	43	334	21.9790	34.7305	4.6355	7.4048	.006988
24	44	334	21.9790	30.6228	4.6355	7.1991	.005774
24	45	89	21.0562	1.0000	4.9295	.0000	.000000
24	46	89	23.1910	1.0000	3.8828	.0000	.000000
24	47	334	21.9790	4.9641	4.6355	1.8713	.065149
24	48	334	21.9790	4.9581	4.6355	1.9092	.030349
24	49	334	21.9790	84.5000	4.6355	3.7238	.164864
24	50	334	21.9790	84.4914	4.6355	2.0796	.004780
24	51	334	21.9790	27.4641	4.6355	5.7521	.139264

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
24	52	150	21.6800	2.7408	4.7782	.5467	-.048113
24	53	334	21.9790	2.8263	4.6355	1.5359	.182416
24	54	178	22.1236	1.5000	4.5637	.5000	.233892
24	55	334	21.9790	4.5269	4.6355	3.1638	-.075599
24	56	334	21.9790	11.8802	4.6355	4.7630	-.026964
24	57	150	21.6800	1.7667	4.7782	.4230	-.017154
24	58	334	21.9790	2.2096	4.6355	2.4270	.180028
24	59	334	21.9790	1.6617	4.6355	.4731	-.029170
24	60	156	21.8141	1.0000	4.7106	.0000	.000000
24	61	223	21.8879	1.9193	4.7683	.2724	.013748
24	62	244	21.8975	96.9580	4.8182	21.9845	.005738
24	63	288	21.9549	25.2873	4.6370	4.8285	.033340
24	64	288	21.9549	15.1641	4.6370	3.2797	.001286
24	65	245	21.9020	9.3626	4.8089	2.7926	-.012552
24	66	285	21.9333	6.9509	4.6543	3.5501	-.000128
24	67	288	21.9549	14.0660	4.6370	3.5342	.002406
24	68	150	21.6800	1.2067	4.7782	.4049	.072085
24	69	334	21.9790	.0085	4.6355	3.0975	.194991
24	70	276	21.9094	1.7971	4.6768	.4022	-.011698
24	71	276	21.9094	1.2029	4.6768	.4022	.015551
24	72	334	21.9790	86.3054	4.6355	4.4671	.251173
24	73	334	21.9790	82.7335	4.6355	4.6549	.021664
24	74	276	21.9094	2.4731	4.6768	.5153	.007012
24	75	334	21.9790	1791.9835	4.6355	312.5548	.097754
25	25	334	38.8293	38.8293	3.8502	3.8502	1.000000
25	26	334	38.8293	30.6287	3.8502	2.2253	.097790
25	27	334	38.8293	17.3263	3.8502	2.1622	.190832
25	28	334	38.8293	17.1347	3.8502	2.0655	-.062991
25	29	334	38.8293	8.2605	3.8502	2.3512	.035339
25	30	334	38.8293	7.6317	3.8502	2.0632	.000758
25	31	334	38.8293	10.2275	3.8502	2.2258	.084536
25	32	334	38.8293	7.0120	3.8502	1.8986	.112095
25	33	334	38.8293	12.0060	3.8502	1.7042	.116971
25	34	334	38.8293	6.2754	3.8502	2.3679	.050148
25	35	334	38.8293	8.5749	3.8502	2.5709	.006282
25	36	334	38.8293	8.7485	3.8502	2.4828	.103566
25	37	334	38.8293	21.6796	3.8502	7.1495	.183459
25	38	334	38.8293	106.8772	3.8502	19.4967	.070996
25	39	334	38.8293	9.8713	3.8502	4.4065	.117646
25	40	334	38.8293	37.4611	3.8502	9.2670	-.059218
25	41	334	38.8293	85.4701	3.8502	14.9670	.003575
25	42	334	38.8293	19.9192	3.8502	6.1163	.062602
25	43	334	38.8293	34.7305	3.8502	7.4048	.020756
25	44	334	38.8293	30.6228	3.8502	7.1991	.014744
25	45	89	37.7528	1.0000	4.2248	.0000	.000000
25	46	89	39.8652	1.0000	2.8529	.0000	.000000
25	47	334	38.8293	4.9641	3.8502	1.8713	.117582
25	48	334	38.8293	4.9581	3.8502	1.9092	.064196
25	49	334	38.8293	84.5000	3.8502	3.7238	.198073
25	50	334	38.8293	84.4914	3.8502	2.0796	.051249

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
25	51	334	38.8293	27.4641	3.8502	5.7521	.102940
25	52	150	38.8800	2.7408	3.8469	.5467	-.027994
25	53	334	38.8293	2.8263	3.8502	1.5359	.133206
25	54	178	38.8090	1.5000	3.7563	.5000	.281178
25	55	334	38.8293	4.5269	3.8502	3.1638	.021638
25	56	334	38.8293	11.8802	3.8502	4.7630	-.006992
25	57	150	38.8800	1.7667	3.8469	.4230	.003278
25	58	334	38.8293	2.2096	3.8502	2.4270	.075279
25	59	334	38.8293	1.6617	3.8502	.4731	.022542
25	60	156	38.8526	1.0000	3.9546	.0000	.000000
25	61	223	38.7175	1.9193	3.9157	.2724	-.042400
25	62	244	38.9180	96.9580	3.8615	21.9845	.045540
25	63	288	38.8681	25.2873	3.8383	4.8285	.069304
25	64	288	38.8681	15.1641	3.8383	3.2797	.033303
25	65	245	38.9265	9.3626	3.8559	2.7926	-.007572
25	66	285	38.8491	6.9509	3.8537	3.5501	.067422
25	67	288	38.8681	14.0660	3.8383	3.5342	.060280
25	68	150	38.8800	1.2067	3.8469	.4049	.092959
25	69	334	38.8293	.0085	3.8502	3.0975	.203716
25	70	276	38.8913	1.7971	3.8215	.4022	.011584
25	71	276	38.8913	1.2029	3.8215	.4022	-.082308
25	72	334	38.8293	86.3054	3.8502	4.4671	.227247
25	73	334	38.8293	82.7335	3.8502	4.6549	.093518
25	74	276	38.8913	2.4731	3.8215	.5153	.022298
25	75	334	38.8293	1791.9835	3.8502	312.5548	.124542
26	26	338	30.6154	30.6154	2.2188	2.2188	1.000000
26	27	338	30.6154	17.3136	2.2188	2.1571	.276170
26	28	338	30.6154	17.1420	2.2188	2.0563	.048286
26	29	338	30.6154	8.2485	2.2188	2.3503	.150518
26	30	338	30.6154	7.6095	2.2188	2.0672	.051105
26	31	338	30.6154	10.2367	2.2188	2.2155	.121436
26	32	338	30.6154	6.9852	2.2188	1.9052	.256905
26	33	338	30.6154	11.9970	2.2188	1.7088	.229111
26	34	338	30.6154	6.2515	2.2188	2.3694	.140515
26	35	338	30.6154	8.5444	2.2188	2.5823	.191971
26	36	338	30.6154	8.7101	2.2188	2.4935	.227968
26	37	338	30.6154	21.6006	2.2188	7.1458	.171874
26	38	338	30.6154	106.8314	2.2188	19.5052	.082587
26	39	338	30.6154	9.8728	2.2188	4.3925	.053567
26	40	338	30.6154	37.3047	2.2188	9.3868	-.021220
26	41	338	30.6154	85.4497	2.2188	14.9480	.079523
26	42	338	30.6154	19.8077	2.2188	6.1789	.125812
26	43	338	30.6154	34.7604	2.2188	7.3721	.107049
26	44	338	30.6154	30.6272	2.2188	7.1644	.228652
26	45	91	30.3407	1.0000	2.5256	.0000	.000000
26	46	91	30.7363	1.0000	1.9091	.0000	.000000
26	47	338	30.6154	4.9704	2.2188	1.8682	.153563
26	48	338	30.6154	4.9645	2.2188	1.9057	.049247
26	49	338	30.6154	84.4704	2.2188	3.7394	.218999
26	50	338	30.6154	84.4738	2.2188	2.0799	.286702

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
26	51	338	30.6154	27.4497	2.2188	5.7285	-.107431
26	52	152	30.7039	2.7402	1.8455	.5457	-.066734
26	53	338	30.6154	2.8166	2.2188	1.5294	.012340
26	54	182	30.5385	1.5000	2.2474	.5000	.088015
26	55	338	30.6154	4.5325	2.2188	3.1680	.039242
26	56	338	30.6154	11.9260	2.2188	4.7646	.101976
26	57	152	30.7039	1.7697	1.8455	.4210	-.036934
26	58	338	30.6154	2.1953	2.2188	2.4161	-.065462
26	59	338	30.6154	1.6598	2.2188	.4738	.038752
26	60	156	30.7051	1.0000	2.1816	.0000	.000000
26	61	226	30.8717	1.9204	1.8474	.2707	.068035
26	62	248	30.6129	96.6569	2.0604	22.3135	.193926
26	63	292	30.6370	25.2654	2.0369	4.8223	.079713
26	64	292	30.6370	15.1318	2.0369	3.3017	.136716
26	65	248	30.6250	9.3575	2.0597	2.7823	.167517
26	66	289	30.6505	6.9164	1.9911	3.5898	.135090
26	67	292	30.6370	14.0291	2.0369	3.5645	.167130
26	68	152	30.7039	1.2039	1.8455	.4029	.072352
26	69	338	30.6154	-.0034	2.2188	3.1089	.071597
26	70	279	30.6344	1.7957	2.0309	.4032	.000707
26	71	279	30.6344	1.2007	2.0309	.4005	-.147729
26	72	338	30.6154	86.2604	2.2188	4.4824	.220684
26	73	338	30.6154	82.7278	2.2188	4.6508	.133494
26	74	279	30.6344	2.4722	2.0309	.5133	.160705
26	75	338	30.6154	1787.1487	2.2188	314.4291	.295857
27	27	338	17.3136	17.3136	2.1571	2.1571	1.000000
27	28	338	17.3136	17.1420	2.1571	2.0563	-.033385
27	29	338	17.3136	8.2485	2.1571	2.3503	.055238
27	30	338	17.3136	7.6095	2.1571	2.0672	.134283
27	31	338	17.3136	10.2367	2.1571	2.2155	.147902
27	32	338	17.3136	6.9852	2.1571	1.9052	.101192
27	33	338	17.3136	11.9970	2.1571	1.7088	.338959
27	34	338	17.3136	6.2515	2.1571	2.3694	.065030
27	35	338	17.3136	8.5444	2.1571	2.5823	.191899
27	36	338	17.3136	8.7101	2.1571	2.4935	.219320
27	37	338	17.3136	21.6006	2.1571	7.1458	.287012
27	38	338	17.3136	106.8314	2.1571	19.5052	.058214
27	39	338	17.3136	9.8728	2.1571	4.3925	.109125
27	40	338	17.3136	37.3047	2.1571	9.3868	-.092826
27	41	338	17.3136	85.4497	2.1571	14.9480	-.101082
27	42	338	17.3136	19.8077	2.1571	6.1789	.059130
27	43	338	17.3136	34.7604	2.1571	7.3721	-.007181
27	44	338	17.3136	30.6272	2.1571	7.1644	.192878
27	45	91	16.9780	1.0000	2.4087	.0000	.000000
27	46	91	17.3846	1.0000	2.0422	.0000	.000000
27	47	338	17.3136	4.9704	2.1571	1.8682	.039744
27	48	338	17.3136	4.9645	2.1571	1.9057	.013504
27	49	338	17.3136	84.4704	2.1571	3.7394	.154101
27	50	338	17.3136	84.4738	2.1571	2.0799	.159609
27	51	338	17.3136	27.4497	2.1571	5.7285	.119074

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
27	52	152	17.2303	2.7402	2.0244	.5457	-.159669
27	53	338	17.3136	2.8166	2.1571	1.5294	.088282
27	54	182	17.1813	1.5000	2.2422	.5000	.090668
27	55	338	17.3136	4.5325	2.1571	3.1680	-.078124
27	56	338	17.3136	11.9260	2.1571	4.7646	.019241
27	57	152	17.2303	1.7697	2.0244	.4210	-.022700
27	58	338	17.3136	2.1953	2.1571	2.4161	.114840
27	59	338	17.3136	1.6598	2.1571	.4738	-.034549
27	60	156	17.4679	1.0000	2.0426	.0000	.000000
27	61	226	17.4071	1.9204	2.1765	.2707	.047514
27	62	248	17.2782	96.6569	2.2359	22.3135	.023196
27	63	292	17.2911	25.2654	2.2240	4.8223	.006847
27	64	292	17.2911	15.1318	2.2240	3.3017	.047593
27	65	248	17.2984	9.3575	2.2288	2.7823	.000027
27	66	289	17.2941	6.9164	2.2291	3.5898	-.045645
27	67	292	17.2911	14.0291	2.2240	3.5645	-.008738
27	68	152	17.2303	1.2039	2.0244	.4029	.152128
27	69	338	17.3136	-.0034	2.1571	3.1089	.078584
27	70	279	17.2796	1.7957	2.2514	.4032	-.095019
27	71	279	17.2796	1.2007	2.2514	.4005	.033165
27	72	338	17.3136	86.2604	2.1571	4.4824	.227470
27	73	338	17.3136	82.7278	2.1571	4.6508	.029744
27	74	279	17.2796	2.4722	2.2514	.5133	.005598
27	75	338	17.3136	1787.1487	2.1571	314.4291	.214708
28	28	338	17.1420	17.1420	2.0563	2.0563	1.000000
28	29	338	17.1420	8.2485	2.0563	2.3503	.172063
28	30	338	17.1420	7.6095	2.0563	2.0672	.090303
28	31	338	17.1420	10.2367	2.0563	2.2155	.066007
28	32	338	17.1420	6.9852	2.0563	1.9052	.067747
28	33	338	17.1420	11.9970	2.0563	1.7088	.075898
28	34	338	17.1420	6.2515	2.0563	2.3694	.035176
28	35	338	17.1420	8.5444	2.0563	2.5823	.115264
28	36	338	17.1420	8.7101	2.0563	2.4935	.068040
28	37	338	17.1420	21.6006	2.0563	7.1458	-.029161
28	38	338	17.1420	106.8314	2.0563	19.5052	.005023
28	39	338	17.1420	9.8728	2.0563	4.3925	.099611
28	40	338	17.1420	37.3047	2.0563	9.3868	-.016803
28	41	338	17.1420	85.4497	2.0563	14.9480	-.043850
28	42	338	17.1420	19.8077	2.0563	6.1789	.109729
28	43	338	17.1420	34.7604	2.0563	7.3721	.161892
28	44	338	17.1420	30.6272	2.0563	7.1644	.138147
28	45	91	17.4066	1.0000	1.7287	.0000	.000000
28	46	91	17.2967	1.0000	1.6935	.0000	.000000
28	47	338	17.1420	4.9704	2.0563	1.8682	.031900
28	48	338	17.1420	4.9645	2.0563	1.9057	.017141
28	49	338	17.1420	84.4704	2.0563	3.7394	.039026
28	50	338	17.1420	84.4738	2.0563	2.0799	.048539
28	51	338	17.1420	27.4497	2.0563	5.7285	-.006677
28	52	152	17.0724	2.7402	1.9129	.5457	-.093870
28	53	338	17.1420	2.8166	2.0563	1.5294	-.016176

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
28	54	182	17.3516	1.5000	1.7121	.5000	-.032092
28	55	338	17.1420	4.5325	2.0563	3.1680	-.043855
28	56	338	17.1420	11.9260	2.0563	4.7646	-.016442
28	57	152	17.0724	1.7697	1.9129	.4210	.118722
28	58	338	17.1420	2.1953	2.0563	2.4161	.035508
28	59	333	17.1420	1.6598	2.0563	.4738	-.026324
28	60	156	16.8974	1.0000	2.3729	.0000	.000000
28	61	226	17.1549	1.9204	1.9043	.2707	.058252
28	62	248	17.1331	96.6569	2.0913	22.3135	.000306
28	63	292	17.1849	25.2654	2.0591	4.8223	-.072974
28	64	292	17.1849	15.1318	2.0591	3.3017	.002459
28	65	248	17.1331	9.3575	2.0913	2.7823	.041141
28	66	289	17.1695	6.9164	2.0619	3.5898	-.038521
28	67	292	17.1849	14.0291	2.0591	3.5645	-.005983
28	68	152	17.0724	1.2039	1.9129	.4029	-.002078
28	69	338	17.1420	-.0034	2.0563	3.1089	.014467
28	70	279	17.2043	1.7957	2.0297	.4032	-.032212
28	71	279	17.2043	1.2007	2.0297	.4005	.064190
28	72	338	17.1420	86.2604	2.0563	4.4824	.028732
28	73	338	17.1420	82.7278	2.0563	4.6508	.021059
28	74	279	17.2043	2.4722	2.0297	.5133	.035589
28	75	338	17.1420	1787.1487	2.0563	314.4291	.119478
29	29	338	8.2485	8.2485	2.3503	2.3503	1.000000
29	30	338	8.2485	7.6095	2.3503	2.0672	.231272
29	31	338	8.2485	10.2367	2.3503	2.2155	.126770
29	32	338	8.2485	6.9852	2.3503	1.9052	.269065
29	33	338	8.2485	11.9970	2.3503	1.7088	.186554
29	34	338	8.2485	6.2515	2.3503	2.3694	.270346
29	35	338	8.2485	8.5444	2.3503	2.5823	.238508
29	36	338	8.2485	8.7101	2.3503	2.4935	.268746
29	37	338	8.2485	21.6006	2.3503	7.1458	.141024
29	38	338	8.2485	106.8314	2.3503	19.5052	.104431
29	39	338	8.2485	9.8728	2.3503	4.3925	.254676
29	40	338	8.2485	37.3047	2.3503	9.3868	.004882
29	41	338	8.2485	85.4497	2.3503	14.9480	.024441
29	42	338	8.2485	19.8077	2.3503	6.1789	.044443
29	43	338	8.2485	34.7604	2.3503	7.3721	.238732
29	44	338	8.2485	30.6272	2.3503	7.1644	.091947
29	45	91	8.3077	1.0000	2.1621	.0000	.000000
29	46	91	8.1648	1.0000	1.9904	.0000	.000000
29	47	338	8.2485	4.9704	2.3503	1.8682	.042102
29	48	338	8.2485	4.9645	2.3503	1.9057	.060757
29	49	338	8.2485	84.4704	2.3503	3.7394	.127075
29	50	338	8.2485	84.4738	2.3503	2.0799	.277337
29	51	338	8.2485	27.4497	2.3503	5.7285	-.047195
29	52	152	8.1974	2.7402	2.3341	.5457	-.079679
29	53	338	8.2485	2.8166	2.3503	1.5294	.093341
29	54	182	8.2363	1.5000	2.0793	.5000	-.034353
29	55	338	8.2485	4.5325	2.3503	3.1680	-.122676
29	56	338	8.2485	11.9260	2.3503	4.7646	-.008398

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
29	57	152	8.1974	1.7697	2.3341	.4210	.046249
29	58	338	8.2485	2.1953	2.3503	2.4161	-.013756
29	59	338	8.2485	1.6598	2.3503	.4738	-.035655
29	60	156	8.2628	1.0000	2.6314	.0000	.000000
29	61	226	8.3097	1.9204	2.4207	.2707	.084900
29	62	248	8.2339	96.6569	2.3249	22.3135	.105482
29	63	292	8.2534	25.2654	2.2989	4.8223	.075949
29	64	292	8.2534	15.1318	2.2989	3.3017	.109411
29	65	248	8.2258	9.3575	2.3257	2.7823	.025120
29	66	289	8.2595	6.9164	2.3066	3.5898	.053812
29	67	292	8.2534	14.0291	2.2989	3.5645	.076936
29	68	152	8.1974	1.2039	2.3341	.4029	-.014819
29	69	338	8.2485	-.0034	2.3503	3.1089	-.032693
29	70	279	8.2401	1.7957	2.2930	.4032	.029807
29	71	279	8.2401	1.2007	2.2930	.4005	-.056385
29	72	338	8.2485	86.2604	2.3503	4.4824	.158145
29	73	338	8.2485	82.7278	2.3503	4.6508	.045435
29	74	279	8.2401	2.4722	2.2930	.5133	.108984
29	75	338	8.2485	1787.1487	2.3503	314.4291	.444696
30	30	338	7.6095	7.6095	2.0672	2.0672	1.000000
30	31	338	7.6095	10.2367	2.0672	2.2155	.099637
30	32	338	7.6095	6.9852	2.0672	1.9052	.141256
30	33	338	7.6095	11.9970	2.0672	1.7088	.173038
30	34	338	7.6095	6.2515	2.0672	2.3694	.146892
30	35	338	7.6095	8.5444	2.0672	2.5823	.167852
30	36	338	7.6095	8.7101	2.0672	2.4935	.119800
30	37	338	7.6095	21.6006	2.0672	7.1458	.172297
30	38	338	7.6095	106.8314	2.0672	19.5052	-.014840
30	39	338	7.6095	9.8728	2.0672	4.3925	.080870
30	40	338	7.6095	37.3047	2.0672	9.3868	-.066746
30	41	338	7.6095	85.4497	2.0672	14.9480	.009896
30	42	338	7.6095	19.8077	2.0672	6.1789	.005701
30	43	338	7.6095	34.7604	2.0672	7.3721	.089760
30	44	338	7.6095	30.6272	2.0672	7.1644	.051098
30	45	91	7.6264	1.0000	2.0789	.0000	.000000
30	46	91	7.6264	1.0000	1.9252	.0000	.000000
30	47	338	7.6095	4.9704	2.0672	1.8682	.009265
30	48	338	7.6095	4.9645	2.0672	1.9057	.048298
30	49	338	7.6095	84.4704	2.0672	3.7394	.070076
30	50	338	7.6095	84.4738	2.0672	2.0799	.104705
30	51	338	7.6095	27.4497	2.0672	5.7285	.032818
30	52	152	7.7961	2.7402	2.0848	.5457	.042430
30	53	338	7.6095	2.8166	2.0672	1.5294	.005415
30	54	182	7.6264	1.5000	2.0036	.5000	.000000
30	55	338	7.6095	4.5325	2.0672	3.1680	-.022906
30	56	338	7.6095	11.9260	2.0672	4.7646	.000972
30	57	152	7.7961	1.7697	2.0848	.4210	.021451
30	58	338	7.6095	2.1953	2.0672	2.4161	-.031527
30	59	338	7.6095	1.6598	2.0672	.4738	.060682
30	60	156	7.5897	1.0000	2.1390	.0000	.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
30	61	226	7.5752	1.9204	2.0080	.2707	-.078509
30	62	248	7.6855	96.6569	2.0433	22.3135	.167544
30	63	292	7.6678	25.2654	2.0597	4.8223	.068353
30	64	292	7.6678	15.1318	2.0597	3.3017	.117987
30	65	248	7.6935	9.3575	2.0327	2.7823	.093045
30	66	289	7.6782	6.9164	2.0639	3.5898	.088837
30	67	292	7.6678	14.0291	2.0597	3.5645	.123528
30	68	152	7.7961	1.2039	2.0848	.4029	.018188
30	69	338	7.6095	-.0034	2.0672	3.1089	.014237
30	70	279	7.6738	1.7957	2.0699	.4032	.096241
30	71	279	7.6738	1.2007	2.0699	.4005	-.033439
30	72	338	7.6095	86.2604	2.0672	4.4824	.020870
30	73	338	7.6095	82.7278	2.0672	4.6508	.103110
30	74	279	7.6738	2.4722	2.0699	.5133	.081470
30	75	338	7.6095	1787.1487	2.0672	314.4291	.192195
31	31	338	10.2367	10.2367	2.2155	2.2155	1.000000
31	32	338	10.2367	6.9852	2.2155	1.9052	.186569
31	33	338	10.2367	11.9970	2.2155	1.7088	.193208
31	34	338	10.2367	6.2515	2.2155	2.3694	.183100
31	35	338	10.2367	8.5444	2.2155	2.5823	.184851
31	36	338	10.2367	8.7101	2.2155	2.4935	.120066
31	37	338	10.2367	21.6006	2.2155	7.1458	.119407
31	38	338	10.2367	106.8314	2.2155	19.5052	.107316
31	39	338	10.2367	9.8728	2.2155	4.3925	.188847
31	40	338	10.2367	37.3047	2.2155	9.3868	-.039318
31	41	338	10.2367	85.4497	2.2155	14.9480	.065039
31	42	338	10.2367	19.8077	2.2155	6.1789	.053033
31	43	338	10.2367	34.7604	2.2155	7.3721	.173746
31	44	338	10.2367	30.6272	2.2155	7.1644	.110499
31	45	91	10.0549	1.0000	2.4645	.0000	.000000
31	46	91	10.4725	1.0000	2.0019	.0000	.000000
31	47	338	10.2367	4.9704	2.2155	1.8682	.110341
31	48	338	10.2367	4.9645	2.2155	1.9057	.095887
31	49	338	10.2367	84.4704	2.2155	3.7394	.163692
31	50	338	10.2367	84.4738	2.2155	2.0799	.164300
31	51	338	10.2367	27.4497	2.2155	5.7285	-.089744
31	52	152	10.3882	2.7402	1.9969	.5457	-.057661
31	53	338	10.2367	2.8166	2.2155	1.5294	.025037
31	54	182	10.2637	1.5000	2.2548	.5000	.092597
31	55	338	10.2367	4.5325	2.2155	3.1680	-.014165
31	56	338	10.2367	11.9260	2.2155	4.7646	.027163
31	57	152	10.3882	1.7697	1.9969	.4210	-.104978
31	58	338	10.2367	2.1953	2.2155	2.4161	-.039585
31	59	338	10.2367	1.6598	2.2155	.4738	.051351
31	60	156	10.2051	1.0000	2.1683	.0000	.000000
31	61	226	10.3319	1.9204	2.2520	.2707	-.036479
31	62	248	10.2782	96.6569	2.1116	22.3135	.066588
31	63	292	10.2877	25.2654	2.1501	4.8223	.018151
31	64	292	10.2877	15.1318	2.1501	3.3017	.049051
31	65	248	10.2661	9.3575	2.1217	2.7823	.015871

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
31	66	289	10.2803	6.9164	2.1487	3.5898	-.000102
31	67	292	10.2877	14.0291	2.1501	3.5645	.095762
31	68	152	10.3882	1.2039	1.9969	.4029	.106028
31	69	338	10.2367	-.0034	2.2155	3.1089	.086964
31	70	279	10.2581	1.7957	2.1330	.4032	-.034551
31	71	279	10.2581	1.2007	2.1330	.4005	.010691
31	72	338	10.2367	86.2604	2.2155	4.4824	.168376
31	73	338	10.2367	82.7278	2.2155	4.6508	.102729
31	74	279	10.2581	2.4722	2.1330	.5133	.040992
31	75	338	10.2367	1787.1487	2.2155	314.4291	.300889
32	32	338	6.9852	6.9852	1.9052	1.9052	1.000000
32	33	338	6.9852	11.9970	1.9052	1.7088	.257156
32	34	338	6.9852	6.2515	1.9052	2.3694	.262316
32	35	338	6.9852	8.5444	1.9052	2.5823	.212111
32	36	338	6.9852	8.7101	1.9052	2.4935	.215816
32	37	338	6.9852	21.6006	1.9052	7.1458	.150300
32	38	338	6.9852	106.8314	1.9052	19.5052	.172612
32	39	338	6.9852	9.8728	1.9052	4.3925	.169466
32	40	338	6.9852	37.3047	1.9052	9.3868	.030195
32	41	338	6.9852	85.4497	1.9052	14.9480	.160008
32	42	338	6.9852	19.8077	1.9052	6.1789	.118379
32	43	338	6.9852	34.7604	1.9052	7.3721	.202805
32	44	338	6.9852	30.6272	1.9052	7.1644	.176462
32	45	91	6.7253	1.0000	2.0438	.0000	.000000
32	46	91	7.0879	1.0000	1.8316	.0000	.000000
32	47	338	6.9852	4.9704	1.9052	1.8682	.026475
32	48	338	6.9852	4.9645	1.9052	1.9057	.054449
32	49	338	6.9852	84.4704	1.9052	3.7394	.223978
32	50	338	6.9852	84.4738	1.9052	2.0799	.284660
32	51	338	6.9852	27.4497	1.9052	5.7285	-.131405
32	52	152	6.9145	2.7402	1.9498	.5457	-.042231
32	53	338	6.9852	2.8166	1.9052	1.5294	.172689
32	54	182	6.9066	1.5000	1.9491	.5000	.093027
32	55	338	6.9852	4.5325	1.9052	3.1680	-.092809
32	56	338	6.9852	11.9260	1.9052	4.7646	.035078
32	57	152	6.9145	1.7697	1.9498	.4210	.024096
32	58	338	6.9852	2.1953	1.9052	2.4161	-.102206
32	59	338	6.9852	1.6598	1.9052	.4738	-.005575
32	60	156	7.0769	1.0000	1.8486	.0000	.000000
32	61	226	6.9690	1.9204	1.8682	.2707	-.004877
32	62	248	6.9718	96.6569	1.9968	22.3135	.124159
32	63	292	7.0274	25.2654	1.9425	4.8223	.047209
32	64	292	7.0274	15.1318	1.9425	3.3017	.131999
32	65	248	6.9718	9.3575	1.9968	2.7823	.102822
32	66	289	7.0173	6.9164	1.9482	3.5898	.076811
32	67	292	7.0274	14.0291	1.9425	3.5645	.117353
32	68	152	6.9145	1.2039	1.9498	.4029	.005454
32	69	338	6.9852	-.0034	1.9052	3.1089	.078960
32	70	279	7.0251	1.7957	1.9203	.4032	-.081336
32	71	279	7.0251	1.2007	1.9203	.4005	-.039167

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
32	72	338	6.9852	86.2604	1.9052	4.4824	.229098
32	73	338	6.9852	82.7278	1.9052	4.6508	.131099
32	74	279	7.0251	2.4722	1.9203	.5133	.112206
32	75	338	6.9852	1787.1487	1.9052	314.4291	.593188
33	33	338	11.9970	11.9970	1.7088	1.7088	1.000000
33	34	338	11.9970	6.2515	1.7088	2.3694	.235468
33	35	338	11.9970	8.5444	1.7088	2.5823	.304089
33	36	338	11.9970	8.7101	1.7088	2.4935	.367101
33	37	338	11.9970	21.6006	1.7088	7.1458	.235408
33	38	338	11.9970	106.8314	1.7088	19.5052	.116442
33	39	338	11.9970	9.8728	1.7088	4.3925	.211611
33	40	338	11.9970	37.3047	1.7088	9.3868	.148720
33	41	338	11.9970	85.4497	1.7088	14.9480	-.045235
33	42	338	11.9970	19.8077	1.7088	6.1789	.068315
33	43	338	11.9970	34.7604	1.7088	7.3721	.264386
33	44	338	11.9970	30.6272	1.7088	7.1644	.206288
33	45	91	11.8791	1.0000	1.5179	.0000	.000000
33	46	91	11.8571	1.0000	1.7702	.0000	.000000
33	47	338	11.9970	4.9704	1.7088	1.8682	.096353
33	48	338	11.9970	4.9645	1.7088	1.9057	.032673
33	49	338	11.9970	84.4704	1.7088	3.7394	.238203
33	50	338	11.9970	84.4738	1.7088	2.0799	.354931
33	51	338	11.9970	27.4497	1.7088	5.7285	-.023438
33	52	152	11.9671	2.7402	1.6440	.5457	-.091499
33	53	338	11.9970	2.8166	1.7088	1.5294	.043942
33	54	182	11.8681	1.5000	1.6489	.5000	-.006664
33	55	338	11.9970	4.5325	1.7088	3.1680	-.057093
33	56	338	11.9970	11.9260	1.7088	4.7646	-.038544
33	57	152	11.9671	1.7697	1.6440	.4210	-.058469
33	58	338	11.9970	2.1953	1.7088	2.4161	-.036406
33	59	338	11.9970	1.6598	1.7088	.4738	-.034131
33	60	156	12.1474	1.0000	1.7643	.0000	.000000
33	61	226	12.0929	1.9204	1.7486	.2707	-.068483
33	62	248	11.9758	96.6569	1.6630	22.3135	.033489
33	63	292	11.9692	25.2654	1.7189	4.8223	-.022978
33	64	292	11.9692	15.1318	1.7189	3.3017	.048992
33	65	248	11.9839	9.3575	1.6679	2.7823	.037156
33	66	289	11.9792	6.9164	1.7007	3.5898	-.005481
33	67	292	11.9692	14.0291	1.7189	3.5645	.036058
33	68	152	11.9671	1.2039	1.6440	.4029	.059785
33	69	338	11.9970	-.0034	1.7088	3.1089	.049042
33	70	279	11.9642	1.7957	1.7389	.4032	-.005332
33	71	279	11.9642	1.2007	1.7389	.4005	.010329
33	72	338	11.9970	86.2604	1.7088	4.4824	.237262
33	73	338	11.9970	82.7278	1.7088	4.6508	.159230
33	74	279	11.9642	2.4722	1.7389	.5133	.015946
33	75	338	11.9970	1787.1487	1.7088	314.4291	.458227
34	34	338	6.2515	6.2515	2.3694	2.3694	1.000000
34	35	338	6.2515	8.5444	2.3694	2.5823	.423934
34	36	338	6.2515	8.7101	2.3694	2.4935	.402426

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
34	37	338	6.2515	21.6006	2.3694	7.1458	.139606
34	38	338	6.2515	106.8314	2.3694	19.5052	.134518
34	39	338	6.2515	9.8728	2.3694	4.3925	.149185
34	40	338	6.2515	37.3047	2.3694	9.3868	.232135
34	41	338	6.2515	85.4497	2.3694	14.9480	.103227
34	42	338	6.2515	19.8077	2.3694	6.1789	.154459
34	43	338	6.2515	34.7604	2.3694	7.3721	.174348
34	44	338	6.2515	30.6272	2.3694	7.1644	.097544
34	45	91	5.9560	1.0000	2.3901	.0000	.000000
34	46	91	6.3407	1.0000	2.1648	.0000	.000000
34	47	338	6.2515	4.9704	2.3694	1.8682	.087231
34	48	338	6.2515	4.9645	2.3694	1.9057	.050462
34	49	338	6.2515	84.4704	2.3694	3.7394	.281163
34	50	338	6.2515	84.4738	2.3694	2.0799	.392468
34	51	338	6.2515	27.4497	2.3694	5.7285	-.125600
34	52	152	6.4605	2.7402	2.4812	.5457	.047492
34	53	338	6.2515	2.8166	2.3694	1.5294	.127027
34	54	182	6.1484	1.5000	2.2883	.5000	.084040
34	55	338	6.2515	4.5325	2.3694	3.1680	-.026907
34	56	338	6.2515	11.9260	2.3694	4.7646	-.036614
34	57	152	6.4605	1.7697	2.4812	.4210	.000746
34	58	338	6.2515	2.1953	2.3694	2.4161	-.050955
34	59	338	6.2515	1.6598	2.3694	.4738	.047227
34	60	156	6.3718	1.0000	2.4553	.0000	.000000
34	61	226	6.1372	1.9204	2.3712	.2707	-.065689
34	62	248	6.2379	96.6569	2.3426	22.3135	.290953
34	63	292	6.2808	25.2654	2.3459	4.8223	.143261
34	64	292	6.2808	15.1318	2.3459	3.3017	.179156
34	65	248	6.2298	9.3575	2.3468	2.7823	.285475
34	66	289	6.2768	6.9164	2.3455	3.5898	.180556
34	67	292	6.2808	14.0291	2.3459	3.5645	.175024
34	68	152	6.4605	1.2039	2.4812	.4029	.070568
34	69	338	6.2515	-.0034	2.3694	3.1089	.075611
34	70	279	6.2832	1.7957	2.3757	.4032	.075362
34	71	279	6.2832	1.2007	2.3757	.4005	-.165197
34	72	338	6.2515	86.2604	2.3694	4.4824	.238694
34	73	338	6.2515	82.7278	2.3694	4.6508	.209717
34	74	279	6.2832	2.4722	2.3757	.5133	.225306
34	75	333	6.2515	1787.1487	2.3694	314.4291	.475129
35	35	338	8.5444	8.5444	2.5823	2.5823	1.000000
35	36	338	8.5444	8.7101	2.5823	2.4935	.478937
35	37	338	8.5444	21.6006	2.5823	7.1458	.163942
35	38	338	8.5444	106.8314	2.5823	19.5052	.170346
35	39	338	8.5444	9.8728	2.5823	4.3925	.183212
35	40	338	8.5444	37.3047	2.5823	9.3868	.331622
35	41	338	8.5444	85.4497	2.5823	14.9480	.184970
35	42	338	8.5444	19.8077	2.5823	6.1789	.178265
35	43	338	8.5444	34.7604	2.5823	7.3721	.270434
35	44	338	8.5444	30.6272	2.5823	7.1644	.119555
35	45	91	8.3187	1.0000	2.5241	.0000	.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
35	46	91	8.5604	1.0000	2.6027	.0000	.000000
35	47	338	8.5444	4.9704	2.5823	1.8682	.064666
35	48	338	8.5444	4.9645	2.5823	1.9057	.038797
35	49	338	8.5444	84.4704	2.5823	3.7394	.267007
35	50	338	8.5444	84.4738	2.5823	2.0799	.408775
35	51	338	8.5444	27.4497	2.5823	5.7285	-.041750
35	52	152	8.5395	2.7402	2.5518	.5457	.023915
35	53	338	8.5444	2.8166	2.5823	1.5294	.082217
35	54	182	8.4396	1.5000	2.5665	.5000	.047099
35	55	338	8.5444	4.5325	2.5823	3.1680	-.033268
35	56	338	8.5444	11.9260	2.5823	4.7646	-.064298
35	57	152	8.5395	1.7697	2.5518	.4210	-.037469
35	58	338	8.5444	2.1953	2.5823	2.4161	-.082952
35	59	338	8.5444	1.6598	2.5823	.4738	.001460
35	60	156	8.6667	1.0000	2.5952	.0000	.000000
35	61	226	8.6903	1.9204	2.5454	.2707	.047671
35	62	248	8.5121	96.6569	2.6089	22.3135	.136303
35	63	292	8.5411	25.2654	2.5579	4.8223	.042913
35	64	292	8.5411	15.1318	2.5579	3.3017	.140071
35	65	248	8.5282	9.3575	2.5995	2.7823	.096076
35	66	289	8.5536	6.9164	2.5677	3.5898	.037493
35	67	292	8.5411	14.0291	2.5579	3.5645	.092549
35	68	152	8.5395	1.2039	2.5518	.4029	.084949
35	69	338	8.5444	-.0034	2.5823	3.1089	.047683
35	70	279	8.5699	1.7957	2.5431	.4032	-.026273
35	71	279	8.5699	1.2007	2.5431	.4005	-.010253
35	72	338	8.5444	86.2604	2.5823	4.4824	.236715
35	73	338	8.5444	82.7278	2.5823	4.6508	.207201
35	74	279	8.5699	2.4722	2.5431	.5133	.101504
35	75	338	8.5444	1787.1487	2.5823	314.4291	.487784
36	36	338	8.7101	8.7101	2.4935	2.4935	1.000000
36	37	338	8.7101	21.6006	2.4935	7.1458	.295863
36	38	338	8.7101	106.8314	2.4935	19.5052	.071808
36	39	338	8.7101	9.8728	2.4935	4.3925	.196519
36	40	338	8.7101	37.3047	2.4935	9.3868	.332040
36	41	338	8.7101	85.4497	2.4935	14.9480	.042154
36	42	338	8.7101	19.8077	2.4935	6.1789	.165170
36	43	338	8.7101	34.7604	2.4935	7.3721	.224923
36	44	338	8.7101	30.6272	2.4935	7.1644	.118821
36	45	91	8.6264	1.0000	2.8348	.0000	.000000
36	46	91	8.7582	1.0000	2.4510	.0000	.000000
36	47	338	8.7101	4.9704	2.4935	1.8682	.103585
36	48	338	8.7101	4.9645	2.4935	1.9057	.096203
36	49	338	8.7101	84.4704	2.4935	3.7394	.355725
36	50	338	8.7101	84.4738	2.4935	2.0799	.640766
36	51	338	8.7101	27.4497	2.4935	5.7285	.046617
36	52	152	8.6184	2.7402	2.4946	.5457	-.075540
36	53	338	8.7101	2.8166	2.4935	1.5294	.188534
36	54	182	8.6923	1.5000	2.6507	.5000	.024874
36	55	338	8.7101	4.5325	2.4935	3.1680	-.064723

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
36	56	338	8.7101	11.9260	2.4935	4.7646	-.048870
36	57	152	8.6184	1.7697	2.4946	.4210	-.102456
36	58	338	8.7101	2.1953	2.4935	2.4161	.039353
36	59	338	8.7101	1.6598	2.4935	.4738	-.060962
36	60	156	8.7308	1.0000	2.2964	.0000	.000000
36	61	226	8.8009	1.9204	2.4639	.2707	.022658
36	62	248	8.6048	96.6569	2.4522	22.3135	.210599
36	63	292	8.6473	25.2654	2.4303	4.8223	.090831
36	64	292	8.6473	15.1318	2.4303	3.3017	.150055
36	65	248	8.6250	9.3575	2.4512	2.7823	.199194
36	66	289	8.6332	6.9164	2.4219	3.5898	.135902
36	67	292	8.6473	14.0291	2.4303	3.5645	.137967
36	68	152	8.6184	1.2039	2.4946	.4029	.116697
36	69	338	8.7101	-.0034	2.4935	3.1089	-.000813
36	70	279	8.6774	1.7957	2.4282	.4032	-.019722
36	71	279	8.6774	1.2007	2.4282	.4005	-.102952
36	72	338	8.7101	86.2604	2.4935	4.4824	.370718
36	73	338	8.7101	82.7278	2.4935	4.6508	.202900
36	74	279	8.6774	2.4722	2.4282	.5133	.171658
36	75	338	8.7101	1787.1487	2.4935	314.4291	.566563
37	37	338	21.6006	21.6006	7.1458	7.1458	1.000000
37	38	338	21.6006	106.8314	7.1458	19.5052	.102381
37	39	338	21.6006	9.8728	7.1458	4.3925	.177703
37	40	338	21.6006	37.3047	7.1458	9.3868	.071991
37	41	338	21.6006	85.4497	7.1458	14.9480	-.048950
37	42	338	21.6006	19.8077	7.1458	6.1789	.289942
37	43	338	21.6006	34.7604	7.1458	7.3721	.070632
37	44	338	21.6006	30.6272	7.1458	7.1644	.184563
37	45	91	21.2637	1.0000	7.1803	.0000	.000000
37	46	91	21.9451	1.0000	6.2711	.0000	.000000
37	47	338	21.6006	4.9704	7.1458	1.8682	.014628
37	48	338	21.6006	4.9645	7.1458	1.9057	-.043188
37	49	338	21.6006	84.4704	7.1458	3.7394	.116536
37	50	338	21.6006	84.4738	7.1458	2.0799	.154198
37	51	338	21.6006	27.4497	7.1458	5.7285	.359262
37	52	152	21.5526	2.7402	6.2931	.5457	-.073334
37	53	338	21.6006	2.8166	7.1458	1.5294	.318149
37	54	182	21.6044	1.5000	6.7497	.5000	.050471
37	55	338	21.6006	4.5325	7.1458	3.1680	-.054382
37	56	338	21.6006	11.9260	7.1458	4.7646	-.073687
37	57	152	21.5526	1.7697	6.2931	.4210	.023198
37	58	338	21.6006	2.1953	7.1458	2.4161	.265845
37	59	338	21.6006	1.6598	7.1458	.4738	-.029652
37	60	156	21.5962	1.0000	7.5818	.0000	.000000
37	61	226	21.6372	1.9204	7.1995	.2707	.003335
37	62	248	21.2984	96.6569	7.2262	22.3135	.035187
37	63	292	21.5411	25.2654	7.2670	4.8223	.030569
37	64	292	21.5411	15.1318	7.2670	3.3017	.085772
37	65	248	21.3548	9.3575	7.2236	2.7823	.049996
37	66	289	21.4291	6.9164	7.2012	3.5898	-.017084

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
37	67	292	21.5411	14.0291	7.2670	3.5645	.055910
37	68	152	21.5526	1.2039	6.2931	.4029	.046361
37	69	338	21.6006	-.0034	7.1458	3.1089	.037001
37	70	279	21.5376	1.7957	7.2263	.4032	-.092700
37	71	279	21.5376	1.2007	7.2263	.4005	.074167
37	72	338	21.6006	86.2604	7.1458	4.4824	.176159
37	73	338	21.6006	82.7278	7.1458	4.6508	.018362
37	74	279	21.5376	2.4722	7.2263	.5133	.039832
37	75	338	21.6006	1787.1487	7.1458	314.4291	.237577
38	38	338	106.8314	106.8314	19.5052	19.5052	1.000000
38	39	338	106.8314	9.8728	19.5052	4.3925	.258356
38	40	338	106.8314	37.3047	19.5052	9.3868	.136373
38	41	338	106.8314	85.4497	19.5052	14.9480	.327804
38	42	338	106.8314	19.8077	19.5052	6.1789	.130082
38	43	338	106.8314	34.7604	19.5052	7.3721	.294827
38	44	338	106.8314	30.6272	19.5052	7.1644	.174660
38	45	91	104.2637	1.0000	18.2346	.0000	.000000
38	46	91	109.5494	1.0000	20.5091	.0000	.000000
38	47	338	106.8314	4.9704	19.5052	1.8682	-.006632
38	48	338	106.8314	4.9645	19.5052	1.9057	.017031
38	49	338	106.8314	84.4704	19.5052	3.7394	.137421
38	50	338	106.8314	84.4738	19.5052	2.0799	.142322
38	51	338	106.8314	27.4497	19.5052	5.7285	-.040151
38	52	152	107.7105	2.7402	20.0452	.5457	.024955
38	53	338	106.8314	2.8166	19.5052	1.5294	.126106
38	54	182	106.9066	1.5000	19.5843	.5000	.134947
38	55	338	106.8314	4.5325	19.5052	3.1680	-.033930
38	56	338	106.8314	11.9260	19.5052	4.7646	-.023756
38	57	152	107.7105	1.7697	20.0452	.4210	.059146
38	58	338	106.8314	2.1953	19.5052	2.4161	-.027050
38	59	338	106.8314	1.6598	19.5052	.4738	.116727
38	60	156	106.7436	1.0000	19.4122	.0000	.000000
38	61	226	107.2212	1.9204	18.8303	.2707	.125832
38	62	248	107.2702	96.6569	19.7571	22.3135	.074985
38	63	292	106.9863	25.2654	19.5129	4.8223	.054612
38	64	292	106.9863	15.1318	19.5129	3.3017	.031205
38	65	248	107.3065	9.3575	19.7667	2.7823	.094297
38	66	289	106.8408	6.9164	19.5569	3.5898	.087876
38	67	292	106.9863	14.0291	19.5129	3.5645	.095735
38	68	152	107.7105	1.2039	20.0452	.4029	-.018756
38	69	338	106.8314	-.0034	19.5052	3.1089	.070066
38	70	279	107.4014	1.7957	19.4587	.4032	-.048023
38	71	279	107.4014	1.2007	19.4587	.4005	-.079319
38	72	338	106.8314	86.2604	19.5052	4.4824	.161443
38	73	338	106.8314	82.7278	19.5052	4.6508	.060679
38	74	279	107.4014	2.4722	19.4587	.5133	.065729
38	75	338	106.8314	1787.1487	19.5052	314.4291	.244583
39	39	338	9.8728	9.8728	4.3925	4.3925	1.000000
39	40	338	9.8728	37.3047	4.3925	9.3868	.043922
39	41	338	9.8728	85.4497	4.3925	14.9480	.213551

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
39	42	338	9.8728	19.8077	4.3925	6.1789	.263659
39	43	338	9.8728	34.7604	4.3925	7.3721	.355287
39	44	338	9.8728	30.6272	4.3925	7.1644	.178246
39	45	91	9.5714	1.0000	4.1115	.0000	.000000
39	46	91	10.2637	1.0000	4.5157	.0000	.000000
39	47	338	9.8728	4.9704	4.3925	1.8682	.020452
39	48	338	9.8728	4.9645	4.3925	1.9057	.021373
39	49	338	9.8728	84.4704	4.3925	3.7394	.147562
39	50	338	9.8728	84.4738	4.3925	2.0799	.188655
39	51	338	9.8728	27.4497	4.3925	5.7285	.068000
39	52	152	9.2105	2.7402	4.1827	.5457	-.028655
39	53	338	9.8728	2.8166	4.3925	1.5294	.121157
39	54	182	9.9176	1.5000	4.3322	.5000	.079903
39	55	338	9.8728	4.5325	4.3925	3.1680	.012098
39	56	338	9.8728	11.9260	4.3925	4.7646	-.070001
39	57	152	9.2105	1.7697	4.1827	.4210	.005113
39	58	338	9.8728	2.1953	4.3925	2.4161	.070082
39	59	338	9.8728	1.6598	4.3925	.4738	.014742
39	60	156	9.8205	1.0000	4.4614	.0000	.000000
39	61	226	10.2345	1.9204	4.6309	.2707	.127830
39	62	248	9.9718	96.6569	4.3081	22.3135	.086291
39	63	292	9.8801	25.2654	4.2887	4.8223	.077668
39	64	292	9.8801	15.1318	4.2887	3.3017	.065450
39	65	248	9.9677	9.3575	4.3076	2.7823	.020700
39	66	269	9.8754	6.9164	4.3072	3.5898	.080411
39	67	292	9.8801	14.0291	4.2887	3.5645	.073818
39	68	152	9.2105	1.2039	4.1827	.4029	.013560
39	69	338	9.8728	-.0034	4.3925	3.1089	.051275
39	70	279	9.9462	1.7957	4.3106	.4032	.008116
39	71	279	9.9462	1.2007	4.3106	.4005	-.074712
39	72	338	9.8728	86.2604	4.3925	4.4824	.146537
39	73	338	9.8728	82.7278	4.3925	4.6508	.080275
39	74	279	9.9462	2.4722	4.3106	.5133	.056552
39	75	338	9.8728	1787.1487	4.3925	314.4291	.430537
40	40	338	37.3047	37.3047	9.3868	9.3868	1.000000
40	41	338	37.3047	85.4497	9.3868	14.9480	.289287
40	42	338	37.3047	19.8077	9.3868	6.1789	.307785
40	43	338	37.3047	34.7604	9.3868	7.3721	.174978
40	44	338	37.3047	30.6272	9.3868	7.1644	.103490
40	45	91	37.0549	1.0000	9.1584	.0000	.000000
40	46	91	37.5824	1.0000	9.9029	.0000	.000000
40	47	338	37.3047	4.9704	9.3868	1.8682	.117599
40	48	338	37.3047	4.9645	9.3868	1.9057	.135065
40	49	338	37.3047	84.4704	9.3868	3.7394	.174862
40	50	338	37.3047	84.4738	9.3868	2.0799	.297942
40	51	338	37.3047	27.4497	9.3868	5.7285	.123285
40	52	152	36.7500	2.7402	9.0097	.5457	.146705
40	53	338	37.3047	2.8166	9.3868	1.5294	.041195
40	54	182	37.3187	1.5000	9.5416	.5000	.027641
40	55	338	37.3047	4.5325	9.3868	3.1680	.100303

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
40	56	338	37.3047	11.9260	9.3868	4.7646	-.155944
40	57	152	36.7500	1.7697	9.0097	.4210	.036857
40	58	338	37.3047	2.1953	9.3868	2.4161	.093780
40	59	338	37.3047	1.6598	9.3868	.4738	.020652
40	60	156	37.2885	1.0000	9.2028	.0000	.000000
40	61	226	36.8938	1.9204	9.4844	.2707	-.079112
40	62	248	37.2258	96.6569	9.1403	22.3135	.131975
40	63	292	37.2397	25.2654	8.9468	4.8223	.093579
40	64	292	37.2397	15.1318	8.9468	3.3017	.124199
40	65	248	37.3306	9.3575	9.1601	2.7823	.130448
40	66	289	37.2699	6.9164	8.9224	3.5898	.104719
40	67	292	37.2397	14.0291	8.9468	3.5645	.067031
40	68	152	36.7500	1.2039	9.0097	.4029	-.156306
40	69	338	37.3047	-.0034	9.3868	3.1089	.011004
40	70	279	37.3835	1.7957	9.0913	.4032	.099601
40	71	279	37.3835	1.2007	9.0913	.4005	-.037872
40	72	338	37.3047	86.2604	9.3868	4.4824	.085729
40	73	338	37.3047	82.7278	9.3868	4.6508	.193691
40	74	279	37.3835	2.4722	9.0913	.5133	.119197
40	75	338	37.3047	1787.1487	9.3868	314.4291	.239924
41	41	338	85.4497	85.4497	14.9480	14.9480	1.000000
41	42	338	85.4497	19.8077	14.9480	6.1789	.302072
41	43	338	85.4497	34.7604	14.9480	7.3721	.409333
41	44	338	85.4497	30.6272	14.9480	7.1644	.181992
41	45	91	85.1099	1.0000	15.9742	.0000	.000000
41	46	91	85.3626	1.0000	15.3211	.0000	.000000
41	47	338	85.4497	4.9704	14.9480	1.8682	.038616
41	48	338	85.4497	4.9645	14.9480	1.9057	.081361
41	49	338	85.4497	84.4704	14.9480	3.7394	.037290
41	50	338	85.4497	84.4738	14.9480	2.0799	.063522
41	51	338	85.4497	27.4497	14.9480	5.7285	-.030589
41	52	152	86.4211	2.7402	14.4069	.5457	-.021260
41	53	338	85.4497	2.8166	14.9480	1.5294	.086949
41	54	182	85.2363	1.5000	15.6516	.5000	.008074
41	55	338	85.4497	4.5325	14.9480	3.1680	.033991
41	56	338	85.4497	11.9260	14.9480	4.7646	-.073309
41	57	152	86.4211	1.7697	14.4069	.4210	-.052350
41	58	338	85.4497	2.1953	14.9480	2.4161	-.009886
41	59	338	85.4497	1.6598	14.9480	.4738	.153613
41	60	156	85.6987	1.0000	14.0787	.0000	.000000
41	61	226	86.9204	1.9204	13.9040	.2707	-.039298
41	62	248	86.4476	96.6569	13.5895	22.3135	.145360
41	63	292	85.9966	25.2654	13.8595	4.8223	.072416
41	64	292	85.9966	15.1318	13.8595	3.3017	.088622
41	65	248	86.3347	9.3575	13.7579	2.7823	.103704
41	66	289	86.0415	6.9164	13.9117	3.5898	.095141
41	67	292	85.9966	14.0291	13.8595	3.5645	.145628
41	68	152	86.4211	1.2039	14.4069	.4029	-.105459
41	69	338	85.4497	-.0034	14.9480	3.1089	.002355
41	70	279	86.1935	1.7957	13.8804	.4032	-.008945

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
41	71	279	86.1935	1.2007	13.8804	.4005	-.054050
41	72	338	85.4497	86.2604	14.9480	4.4824	.009956
41	73	338	85.4497	82.7278	14.9480	4.6508	.043298
41	74	279	86.1935	2.4722	13.8804	.5133	.097956
41	75	338	85.4497	1787.1487	14.9480	314.4291	.165871
42	42	338	19.8077	19.8077	6.1789	6.1789	1.000000
42	43	338	19.8077	34.7604	6.1789	7.3721	.173184
42	44	338	19.8077	30.6272	6.1789	7.1644	.251344
42	45	91	19.0440	1.0000	6.4381	.0000	.000000
42	46	91	20.2308	1.0000	6.5802	.0000	.000000
42	47	338	19.8077	4.9704	6.1789	1.8682	.091261
42	48	338	19.8077	4.9645	6.1789	1.9057	.054444
42	49	338	19.8077	84.4704	6.1789	3.7394	.116853
42	50	338	19.8077	84.4738	6.1789	2.0799	.094060
42	51	338	19.8077	27.4497	6.1789	5.7285	.245176
42	52	152	19.0395	2.7402	5.8274	.5457	-.139391
42	53	338	19.8077	2.8166	6.1789	1.5294	.157186
42	54	182	19.6374	1.5000	6.5365	.5000	.090784
42	55	338	19.8077	4.5325	6.1789	3.1680	.004476
42	56	338	19.8077	11.9260	6.1789	4.7646	-.073744
42	57	152	19.0395	1.7697	5.8274	.4210	-.023111
42	58	338	19.8077	2.1953	6.1789	2.4161	.184046
42	59	338	19.8077	1.6598	6.1789	.4738	-.019318
42	60	156	20.0064	1.0000	5.7272	.0000	.000000
42	61	226	19.5442	1.9204	6.5270	.2707	.054576
42	62	248	19.6250	96.6569	6.2920	22.3135	.002123
42	63	292	19.7466	25.2654	6.1770	4.8223	.019561
42	64	292	19.7466	15.1318	6.1770	3.3017	.018767
42	65	248	19.6452	9.3575	6.2884	2.7823	-.027857
42	66	289	19.6886	6.9164	6.1773	3.5898	-.058102
42	67	292	19.7466	14.0291	6.1770	3.5645	-.043721
42	68	152	19.0395	1.2039	5.8274	.4029	.097439
42	69	338	19.8077	-.0034	6.1789	3.1089	.077617
42	70	279	19.7634	1.7957	6.2614	.4032	-.064576
42	71	279	19.7634	1.2007	6.2614	.4005	.113257
42	72	338	19.8077	86.2604	6.1789	4.4824	.080536
42	73	338	19.8077	82.7278	6.1789	4.6508	.103295
42	74	279	19.7634	2.4722	6.2614	.5133	-.012995
42	75	338	19.8077	1787.1487	6.1789	314.4291	.177979
43	43	338	34.7604	34.7604	7.3721	7.3721	1.000000
43	44	338	34.7604	30.6272	7.3721	7.1644	.228254
43	45	91	34.9780	1.0000	8.0534	.0000	.000000
43	46	91	34.3846	1.0000	7.1280	.0000	.000000
43	47	338	34.7604	4.9704	7.3721	1.8682	.062426
43	48	338	34.7604	4.9645	7.3721	1.9057	.070572
43	49	338	34.7604	84.4704	7.3721	3.7394	.124937
43	50	338	34.7604	84.4738	7.3721	2.0799	.227701
43	51	338	34.7604	27.4497	7.3721	5.7285	-.070167
43	52	152	34.8553	2.7402	6.8532	.5457	.019897
43	53	338	34.7604	2.8166	7.3721	1.5294	.119692

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
43	54	182	34.6813	1.5000	7.6105	.5000	-.038986
43	55	338	34.7604	4.5325	7.3721	3.1680	-.045968
43	56	338	34.7604	11.9260	7.3721	4.7646	-.094168
43	57	152	34.8553	1.7697	6.8532	.4210	-.086799
43	58	338	34.7604	2.1953	7.3721	2.4161	-.048698
43	59	338	34.7604	1.6598	7.3721	.4738	.047808
43	60	156	34.8526	1.0000	7.0827	.0000	.000000
43	61	226	36.4381	1.9204	7.1432	.2707	-.089492
43	62	248	35.2621	96.6569	6.9060	22.3135	.145260
43	63	292	34.8493	25.2654	7.1086	4.8223	.070125
43	64	292	34.8493	15.1318	7.1086	3.3017	.100252
43	65	248	35.2702	9.3575	6.9127	2.7823	.119264
43	66	289	34.8547	6.9164	7.1208	3.5898	.093985
43	67	292	34.8493	14.0291	7.1086	3.5645	.122048
43	68	152	34.8553	1.2039	6.8532	.4029	-.120348
43	69	338	34.7604	-.0034	7.3721	3.1089	-.002053
43	70	279	34.9211	1.7957	7.0391	.4032	.038525
43	71	279	34.9211	1.2007	7.0391	.4005	-.059221
43	72	338	34.7604	86.2604	7.3721	4.4824	.145677
43	73	338	34.7604	82.7278	7.3721	4.6508	.057208
43	74	279	34.9211	2.4722	7.0391	.5133	.127042
43	75	338	34.7604	1787.1487	7.3721	314.4291	.386504
44	44	338	30.6272	30.6272	7.1644	7.1644	1.000000
44	45	91	29.5165	1.0000	7.1135	.0000	.000000
44	46	91	31.0110	1.0000	7.3282	.0000	.000000
44	47	338	30.6272	4.9704	7.1644	1.8682	.121192
44	48	338	30.6272	4.9645	7.1644	1.9057	.132070
44	49	338	30.6272	84.4704	7.1644	3.7394	.191415
44	50	338	30.6272	84.4738	7.1644	2.0799	.233516
44	51	338	30.6272	27.4497	7.1644	5.7285	-.130648
44	52	152	31.1118	2.7402	7.3980	.5457	-.019689
44	53	338	30.6272	2.8166	7.1644	1.5294	.069362
44	54	182	30.2637	1.5000	7.2602	.5000	.102924
44	55	338	30.6272	4.5325	7.1644	3.1680	-.022408
44	56	338	30.6272	11.9260	7.1644	4.7646	.008293
44	57	152	31.1118	1.7697	7.3980	.4210	.080087
44	58	338	30.6272	2.1953	7.1644	2.4161	-.055103
44	59	338	30.6272	1.6598	7.1644	.4738	.136956
44	60	156	31.0513	1.0000	7.0272	.0000	.000000
44	61	226	30.6018	1.9204	6.9722	.2707	.020702
44	62	248	30.5323	96.6569	7.1306	22.3135	.048067
44	63	292	30.8733	25.2654	7.1492	4.8223	-.005481
44	64	292	30.8733	15.1318	7.1492	3.3017	.045721
44	65	248	30.5363	9.3575	7.1329	2.7823	.078721
44	66	289	30.9135	6.9164	7.1617	3.5898	.043751
44	67	292	30.8733	14.0291	7.1492	3.5645	.055244
44	68	152	31.1118	1.2039	7.3980	.4029	.027661
44	69	338	30.6272	-.0034	7.1644	3.1089	.074005
44	70	279	30.9462	1.7957	7.0964	.4032	-.052694
44	71	279	30.9462	1.2007	7.0964	.4005	-.030250

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
44	72	338	30.6272	86.2604	7.1644	4.4824	.117631
44	73	338	30.6272	82.7278	7.1644	4.6508	.187148
44	74	279	30.9462	2.4722	7.0964	.5133	.053526
44	75	338	30.6272	1787.1487	7.1644	314.4291	.232730
45	45	91	1.0000	1.0000	.0000	.0000	.000000
45	46		.0000	.0000	.0000	.0000	.000000
45	47	91	1.0000	4.0769	.0000	1.7047	.000000
45	48	91	1.0000	4.0000	.0000	1.6575	.000000
45	49	91	1.0000	80.6154	.0000	2.4485	.000000
45	50	91	1.0000	84.3845	.0000	1.9670	.000000
45	51	91	1.0000	27.7143	.0000	6.1148	.000000
45	52	35	1.0000	2.7815	.0000	.4892	.000000
45	53	91	1.0000	2.6813	.0000	1.5540	.000000
45	54	91	1.0000	1.0000	.0000	.0000	.000000
45	55	91	1.0000	4.8242	.0000	3.5195	.000000
45	56	91	1.0000	12.1319	.0000	4.9994	.000000
45	57	35	1.0000	1.7429	.0000	.4371	.000000
45	58	91	1.0000	2.0440	.0000	2.3153	.000000
45	59	91	1.0000	1.6374	.0000	.4808	.000000
45	60		.0000	.0000	.0000	.0000	.000000
45	61	66	1.0000	1.9091	.0000	.2875	.000000
45	62	68	1.0000	90.8186	.0000	25.6778	.000000
45	63	80	1.0000	24.0687	.0000	5.2968	.000000
45	64	80	1.0000	14.1625	.0000	3.6636	.000000
45	65	67	1.0000	8.9005	.0000	3.1451	.000000
45	66	79	1.0000	6.1814	.0000	4.1934	.000000
45	67	80	1.0000	13.2687	.0000	3.9951	.000000
45	68	35	1.0000	1.1714	.0000	.3769	.000000
45	69	91	1.0000	-3.7691	.0000	1.1964	.000000
45	70	73	1.0000	1.8630	.0000	.3438	.000000
45	71	73	1.0000	1.3151	.0000	.4645	.000000
45	72	91	1.0000	82.6154	.0000	3.5972	.000000
45	73	91	1.0000	78.6154	.0000	3.7761	.000000
45	74	73	1.0000	2.3911	.0000	.5820	.000000
45	75	91	1.0000	1736.9698	.0000	322.3453	.000000
46	46	91	1.0000	1.0000	.0000	.0000	.000000
46	47	91	1.0000	5.9451	.0000	1.8179	.000000
46	48	91	1.0000	5.8571	.0000	1.8550	.000000
46	49	91	1.0000	88.3626	.0000	2.5743	.000000
46	50	91	1.0000	84.4867	.0000	2.3605	.000000
46	51	91	1.0000	27.8352	.0000	5.8484	.000000
46	52	45	1.0000	2.8693	.0000	.5413	.000000
46	53	91	1.0000	2.8242	.0000	1.3795	.000000
46	54	91	1.0000	2.0000	.0000	.0000	.000000
46	55	91	1.0000	4.1538	.0000	2.8047	.000000
46	56	91	1.0000	12.0110	.0000	4.9001	.000000
46	57	45	1.0000	1.8444	.0000	.3624	.000000
46	58	91	1.0000	2.5495	.0000	2.7626	.000000
46	59	91	1.0000	1.7143	.0000	.4518	.000000
46	60		.0000	.0000	.0000	.0000	.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
46	61	56	1.0000	1.9464	.0000	.2252	.000000
46	62	66	1.0000	103.0366	.0000	21.6677	.000000
46	63	77	1.0000	26.2025	.0000	4.6530	.000000
46	64	79	1.0000	16.5348	.0000	2.9811	.000000
46	65	66	1.0000	10.1237	.0000	2.8282	.000000
46	66	77	1.0000	7.4913	.0000	3.0001	.000000
46	67	79	1.0000	14.7658	.0000	3.2570	.000000
46	68	45	1.0000	1.1556	.0000	.3624	.000000
46	69	91	1.0000	3.8759	.0000	1.6052	.000000
46	70	76	1.0000	1.7500	.0000	.4330	.000000
46	71	76	1.0000	1.1711	.0000	.3766	.000000
46	72	91	1.0000	89.9121	.0000	3.4820	.000000
46	73	91	1.0000	86.8462	.0000	3.4159	.000000
46	74	76	1.0000	2.6276	.0000	.4920	.000000
46	75	91	1.0000	1792.7170	.0000	307.0994	.000000
47	47	338	4.9704	4.9704	1.8682	1.8682	1.000000
47	48	338	4.9704	4.9645	1.8682	1.9057	.812402
47	49	338	4.9704	84.4704	1.8682	3.7394	.427614
47	50	338	4.9704	84.4738	1.8682	2.0799	.233591
47	51	338	4.9704	27.4497	1.8682	5.7285	-.087497
47	52	152	5.2500	2.7402	1.8182	.5457	.138031
47	53	338	4.9704	2.8166	1.8682	1.5294	-.187244
47	54	182	5.0110	1.5000	1.9945	.5000	.468328
47	55	338	4.9704	4.5325	1.8682	3.1680	.000163
47	56	338	4.9704	11.9260	1.8682	4.7646	.106779
47	57	152	5.2500	1.7697	1.8182	.4210	.161149
47	58	338	4.9704	2.1953	1.8682	2.4161	-.036736
47	59	338	4.9704	1.6598	1.8682	.4738	.112300
47	60	156	4.9231	1.0000	1.7080	.0000	.000000
47	61	226	4.9779	1.9204	1.8895	.2707	-.072638
47	62	248	4.9879	96.6569	1.8611	22.3135	.336334
47	63	292	5.0171	25.2654	1.8422	4.8223	.284862
47	64	292	5.0171	15.1318	1.8422	3.3017	.348589
47	65	248	4.9839	9.3575	1.8664	2.7823	.255145
47	66	289	5.0415	6.9164	1.8335	3.5898	.258655
47	67	292	5.0171	14.0291	1.8422	3.5645	.287422
47	68	152	5.2500	1.2039	1.8182	.4029	-.132456
47	69	333	4.9704	-.0034	1.8682	3.1089	.358060
47	70	279	5.0179	1.7957	1.8616	.4032	.066956
47	71	279	5.0179	1.2007	1.8616	.4005	-.254781
47	72	338	4.9704	86.2604	1.8682	4.4824	.269429
47	73	338	4.9704	82.7278	1.8682	4.6508	.410065
47	74	279	5.0179	2.4722	1.8616	.5133	.323503
47	75	338	4.9704	1787.1487	1.8682	314.4291	.151934
48	48	338	4.9645	4.9645	1.9057	1.9057	1.000000
48	49	338	4.9645	84.4704	1.9057	3.7394	.404223
48	50	338	4.9645	84.4738	1.9057	2.0799	.234279
48	51	338	4.9645	27.4497	1.9057	5.7285	-.073677
48	52	152	5.2566	2.7402	1.9143	.5457	.141240
48	53	338	4.9645	2.8166	1.9057	1.5294	-.154493

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
48	54	182	4.9286	1.5000	1.9891	.5000	.466835
48	55	338	4.9645	4.5325	1.9057	3.1680	-.046363
48	56	338	4.9645	11.9260	1.9057	4.7646	.145030
48	57	152	5.2566	1.7697	1.9143	.4210	.171270
48	58	338	4.9645	2.1953	1.9057	2.4161	-.062106
48	59	338	4.9645	1.6598	1.9057	.4738	.120966
48	60	156	5.0064	1.0000	1.8028	.0000	.000000
48	61	226	4.9646	1.9204	1.8928	.2707	-.022770
48	62	248	5.0161	96.6569	1.9239	22.3135	.256790
48	63	292	5.0308	25.2654	1.9023	4.8223	.234109
48	64	292	5.0308	15.1318	1.9023	3.3017	.248533
48	65	248	5.0121	9.3575	1.9292	2.7823	.179114
48	66	289	5.0484	6.9164	1.9000	3.5898	.201992
48	67	292	5.0308	14.0291	1.9023	3.5645	.184080
48	68	152	5.2566	1.2039	1.9143	.4029	-.170197
48	69	338	4.9645	-.0034	1.9057	3.1089	.329468
48	70	279	5.0502	1.7957	1.9282	.4032	.040849
48	71	279	5.0502	1.2007	1.9282	.4005	-.194037
48	72	338	4.9645	86.2604	1.9057	4.4824	.263264
48	73	338	4.9645	82.7278	1.9057	4.6508	.387455
48	74	279	5.0502	2.4722	1.9282	.5133	.216004
48	75	338	4.9645	1787.1487	1.9057	314.4291	.130155
49	49	338	84.4704	84.4704	3.7394	3.7394	1.000000
49	50	338	84.4704	84.4738	3.7394	2.0799	.555201
49	51	338	84.4704	27.4497	3.7394	5.7285	-.194122
49	52	152	84.9145	2.7402	3.6652	.5457	.156796
49	53	338	84.4704	2.8166	3.7394	1.5294	-.022676
49	54	182	84.4890	1.5000	4.6169	.5000	.839009
49	55	338	84.4704	4.5325	3.7394	3.1680	-.164505
49	56	338	84.4704	11.9260	3.7394	4.7646	.280929
49	57	152	84.9145	1.7697	3.6652	.4210	.093827
49	58	338	84.4704	2.1953	3.7394	2.4161	-.119214
49	59	338	84.4704	1.6598	3.7394	.4738	.073640
49	60	156	84.4487	1.0000	2.3296	.0000	.000000
49	61	226	84.3451	1.9204	3.6899	.2707	.076237
49	62	248	84.4798	96.6569	3.6654	22.3135	.386953
49	63	292	84.4897	25.2654	3.6822	4.8223	.233952
49	64	292	84.4897	15.1318	3.6822	3.3017	.379277
49	65	248	84.5081	9.3575	3.6189	2.7823	.344840
49	66	289	84.4810	6.9164	3.6905	3.5898	.297949
49	67	292	84.4897	14.0291	3.6822	3.5645	.288797
49	68	152	84.9145	1.2039	3.6652	.4029	-.104014
49	69	338	84.4704	-.0034	3.7394	3.1089	.831298
49	70	279	84.5699	1.7957	3.6192	.4032	-.011092
49	71	279	84.5699	1.2007	3.6192	.4005	-.254460
49	72	338	84.4704	86.2604	3.7394	4.4824	.803236
49	73	338	84.4704	82.7278	3.7394	4.6508	.827686
49	74	279	84.5699	2.4722	3.6192	.5133	.326786
49	75	338	84.4704	1787.1487	3.7394	314.4291	.391997
50	50	338	84.4738	84.4738	2.0799	2.0799	1.000000

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
50	51	338	84.4738	27.4497	2.0799	5.7285	-.350023
50	52	152	84.7290	2.7402	1.9632	.5457	.123286
50	53	338	84.4738	2.8166	2.0799	1.5294	-.048153
50	54	182	84.4356	1.5000	2.1736	.5000	.023503
50	55	338	84.4738	4.5325	2.0799	3.1680	-.179374
50	56	338	84.4738	11.9260	2.0799	4.7646	.509852
50	57	152	84.7290	1.7697	1.9632	.4210	.045775
50	58	338	84.4738	2.1953	2.0799	2.4161	-.354967
50	59	338	84.4738	1.6598	2.0799	.4738	.099184
50	60	156	84.5184	1.0000	1.9624	.0000	.000000
50	61	226	84.4452	1.9204	2.0680	.2707	.030811
50	62	248	84.5181	96.6569	1.9754	22.3135	.353375
50	63	292	84.5464	25.2654	2.0372	4.8223	.139927
50	64	292	84.5464	15.1318	2.0372	3.3017	.256939
50	65	248	84.5271	9.3575	1.9670	2.7823	.359908
50	66	289	84.5555	6.9164	2.0281	3.5898	.305182
50	67	292	84.5464	14.0291	2.0372	3.5645	.272539
50	68	152	84.7290	1.2039	1.9632	.4029	-.054961
50	69	338	84.4738	-.0034	2.0799	3.1089	-.000188
50	70	279	84.5624	1.7957	2.0440	.4032	.093618
50	71	279	84.5624	1.2007	2.0440	.4005	-.240636
50	72	338	84.4738	86.2604	2.0799	4.4824	.431801
50	73	338	84.4738	82.7278	2.0799	4.6508	.462225
50	74	279	84.5624	2.4722	2.0440	.5133	.297276
50	75	338	84.4738	1787.1487	2.0799	314.4291	.615522
51	51	338	27.4497	27.4497	5.7285	5.7285	1.000000
51	52	152	26.1447	2.7402	4.6840	.5457	-.199106
51	53	338	27.4497	2.8166	5.7285	1.5294	.262682
51	54	182	27.7747	1.5000	5.9834	.5000	.010101
51	55	338	27.4497	4.5325	5.7285	3.1680	-.005534
51	56	338	27.4497	11.9260	5.7285	4.7646	-.152487
51	57	152	26.1447	1.7697	4.6840	.4210	-.096532
51	58	338	27.4497	2.1953	5.7285	2.4161	.665930
51	59	338	27.4497	1.6598	5.7285	.4738	-.204154
51	60	156	27.0705	1.0000	5.3912	.0000	.000000
51	61	226	27.2301	1.9204	5.5143	.2707	.074514
51	62	248	27.0242	96.6569	5.4202	22.3135	-.209585
51	63	292	27.0548	25.2654	5.3248	4.8223	.012571
51	64	292	27.0548	15.1318	5.3248	3.3017	-.120357
51	65	248	27.0565	9.3575	5.4674	2.7823	-.249478
51	66	289	26.9931	6.9164	5.2409	3.5898	-.301654
51	67	292	27.0548	14.0291	5.3248	3.5645	-.215880
51	68	152	26.1447	1.2039	4.6840	.4029	.148196
51	69	338	27.4497	-.0034	5.7285	3.1089	.000671
51	70	279	27.0968	1.7957	5.4135	.4032	-.142017
51	71	279	27.0968	1.2007	5.4135	.4005	.328256
51	72	338	27.4497	86.2604	5.7285	4.4824	-.012049
51	73	338	27.4497	82.7278	5.7285	4.6508	-.288572
51	74	279	27.0968	2.4722	5.4135	.5133	-.197613
51	75	338	27.4497	1787.1487	5.7285	314.4291	-.121499

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
52	52	152	2.7402	2.7402	.5457	.5457	1.000000
52	53	152	2.7402	2.6184	.5457	1.1467	-.221443
52	54	80	2.8309	1.5625	.5210	.4961	.093630
52	55	152	2.7402	4.5000	.5457	3.1498	-.006899
52	56	152	2.7402	12.5526	.5457	4.2778	.142105
52	57	152	2.7402	1.7697	.5457	.4210	.329776
52	58	152	2.7402	1.7566	.5457	1.9802	-.162539
52	59	152	2.7402	2.0000	.5457	.0000	.000000
52	60	72	2.6395	1.0000	.5548	.0000	.000000
52	61	91	2.7294	1.9121	.5526	.2832	-.087686
52	62	133	2.7435	100.2362	.5434	19.2435	.343602
52	63	150	2.7380	25.6983	.5465	4.6233	.313842
52	64	150	2.7380	15.5200	.5465	3.0076	.291360
52	65	133	2.7435	9.6153	.5434	2.4481	.327901
52	66	148	2.7464	7.2827	.5359	3.0211	.384542
52	67	150	2.7380	14.3600	.5465	2.9838	.177560
52	68	152	2.7402	1.2039	.5457	.4029	-.675173
52	69	152	2.7402	.1854	.5457	2.9891	.111340
52	70	149	2.7363	1.7785	.5479	.4152	.344337
52	71	149	2.7363	1.1678	.5479	.3737	-.252038
52	72	152	2.7402	86.4474	.5457	4.5056	.035027
52	73	152	2.7402	83.4276	.5457	4.3944	.239622
52	74	149	2.7363	2.5108	.5479	.4574	.284890
52	75	152	2.7402	1790.3914	.5457	307.0448	-.113150
53	53	338	2.8166	2.8166	1.5294	1.5294	1.000000
53	54	182	2.7527	1.5000	1.4711	.5000	.048555
53	55	338	2.8166	4.5325	1.5294	3.1680	-.048229
53	56	338	2.8166	11.9260	1.5294	4.7646	-.266981
53	57	152	2.6184	1.7697	1.1467	.4210	-.141118
53	58	338	2.8166	2.1953	1.5294	2.4161	.257091
53	59	338	2.8166	1.6598	1.5294	.4738	-.082045
53	60	156	2.8910	1.0000	1.5915	.0000	.000000
53	61	226	2.7965	1.9204	1.5581	.2707	.160866
53	62	248	2.8105	96.6569	1.4757	22.3135	-.095733
53	63	292	2.7740	25.2654	1.4608	4.8223	-.032565
53	64	292	2.7740	15.1318	1.4608	3.3017	-.067136
53	65	248	2.8266	9.3575	1.4886	2.7823	-.086608
53	66	289	2.7647	6.9164	1.4600	3.5898	-.070436
53	67	292	2.7740	14.0291	1.4608	3.5645	-.079141
53	68	152	2.6184	1.2039	1.1467	.4029	.239626
53	69	338	2.8166	-.0034	1.5294	3.1089	.004933
53	70	279	2.8172	1.7957	1.4807	.4032	-.044544
53	71	279	2.8172	1.2007	1.4807	.4005	.079996
53	72	338	2.8166	86.2604	1.5294	4.4824	.053575
53	73	338	2.8166	82.7278	1.5294	4.6508	-.084799
53	74	279	2.8172	2.4722	1.4807	.5133	-.114822
53	75	338	2.8166	1787.1487	1.5294	314.4291	.190653
54	54	182	1.5000	1.5000	.5000	.5000	1.000000
54	55	182	1.5000	4.4890	.5000	3.1998	-.104745
54	56	182	1.5000	12.0714	.5000	4.9503	-.012209

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
54	57	80	1.5625	1.8000	.4961	.4000	.125988
54	58	182	1.5000	2.2967	.5000	2.5613	.098679
54	59	182	1.5000	1.6758	.5000	.4681	.082171
54	60		.0000	.0000	.0000	.0000	.000000
54	61	122	1.4590	1.9262	.4983	.2614	.071179
54	62	134	1.4925	96.8364	.4999	24.5591	.248719
54	63	159	1.4969	25.1299	.5000	5.1002	.209183
54	64	159	1.4969	15.3412	.5000	3.5462	.334476
54	65	133	1.4962	9.5075	.5000	3.0539	.206271
54	66	156	1.4936	6.8230	.5000	3.7117	.176443
54	67	159	1.4969	14.0126	.5000	3.7231	.201048
54	68	80	1.5625	1.1625	.4961	.3689	-.021345
54	69	182	1.5000	.0534	.5000	4.0762	.937756
54	70	149	1.5101	1.8054	.4999	.3959	-.142695
54	71	149	1.5101	1.2416	.4999	.4281	-.168185
54	72	182	1.5000	86.2637	.5000	5.0836	.717676
54	73	182	1.5000	82.7308	.5000	5.4681	.752617
54	74	149	1.5101	2.5117	.4999	.5508	.214639
54	75	182	1.5000	1764.8434	.5000	316.0450	.088195
55	55	338	4.5325	4.5325	3.1680	3.1680	1.000000
55	56	338	4.5325	11.9260	3.1680	4.7646	-.301204
55	57	152	4.5000	1.7697	3.1498	.4210	-.022326
55	58	338	4.5325	2.1953	3.1680	2.4161	-.080843
55	59	338	4.5325	1.6598	3.1680	.4738	-.005435
55	60	156	4.5833	1.0000	3.1296	.0000	.000000
55	61	226	4.4646	1.9204	3.1498	.2707	-.231603
55	62	248	4.5282	96.6569	3.1939	22.3135	-.113692
55	63	292	4.5000	25.2654	3.1400	4.8223	-.135927
55	64	292	4.5000	15.1318	3.1400	3.3017	-.113058
55	65	248	4.5282	9.3575	3.1939	2.7823	-.094307
55	66	289	4.5052	6.9164	3.1525	3.5898	-.077953
55	67	292	4.5000	14.0291	3.1400	3.5645	-.071445
55	68	152	4.5000	1.2039	3.1498	.4029	.116635
55	69	338	4.5325	-.0034	3.1680	3.1089	-.077860
55	70	279	4.4875	1.7957	3.1325	.4032	-.040341
55	71	279	4.4875	1.2007	3.1325	.4005	.059141
55	72	338	4.5325	86.2604	3.1680	4.4824	-.259576
55	73	338	4.5325	82.7278	3.1680	4.6508	-.035343
55	74	279	4.4875	2.4722	3.1325	.5133	-.096771
55	75	338	4.5325	1787.1487	3.1680	314.4291	-.068564
56	56	338	11.9260	11.9260	4.7646	4.7646	1.000000
56	57	152	12.5526	1.7697	4.2778	.4210	.092575
56	58	338	11.9260	2.1953	4.7646	2.4161	-.350582
56	59	338	11.9260	1.6598	4.7646	.4738	.121223
56	60	156	11.7564	1.0000	4.5325	.0000	.000000
56	61	226	11.7522	1.9204	4.8846	.2707	.075415
56	62	248	12.0242	96.6569	4.7357	22.3135	.179198
56	63	292	12.0548	25.2654	4.7669	4.8223	.114008
56	64	292	12.0548	15.1318	4.7669	3.3017	.134397
56	65	248	11.9919	9.3575	4.7494	2.7823	.182287

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
56	66	289	12.0969	6.9164	4.7648	3.5898	.157587
56	67	292	12.0548	14.0291	4.7669	3.5645	.183517
56	68	152	12.5526	1.2039	4.2778	.4029	-.149358
56	69	338	11.9260	-.0034	4.7646	3.1089	-.003203
56	70	279	12.0609	1.7957	4.7474	.4032	.057063
56	71	279	12.0609	1.2007	4.7474	.4005	-.106334
56	72	338	11.9260	86.2604	4.7646	4.4824	.200524
56	73	338	11.9260	82.7278	4.7646	4.6508	.256106
56	74	279	12.0609	2.4722	4.7474	.5133	.176504
56	75	338	11.9260	1787.1487	4.7646	314.4291	-.044547
57	57	152	1.7697	1.7697	.4210	.4210	1.000000
57	58	152	1.7697	1.7566	.4210	1.9802	-.059344
57	59	152	1.7697	2.0000	.4210	.0000	.000000
57	60	72	1.7361	1.0000	.4407	.0000	.000000
57	61	91	1.7802	1.9121	.4141	.2832	.022657
57	62	133	1.7444	100.2362	.4362	19.2435	.084671
57	63	150	1.7667	25.6983	.4230	4.6233	.034747
57	64	150	1.7667	15.5200	.4230	3.0076	.044285
57	65	133	1.7444	9.6153	.4362	2.4481	.080402
57	66	148	1.7703	7.2827	.4207	3.0211	.145910
57	67	150	1.7667	14.3600	.4230	2.9838	.103540
57	68	152	1.7697	1.2039	.4210	.4029	-.343690
57	69	152	1.7697	.1854	.4210	2.9891	.084988
57	70	149	1.7651	1.7785	.4239	.4152	.085718
57	71	149	1.7651	1.1678	.4239	.3737	-.174867
57	72	152	1.7697	86.4474	.4210	4.5056	.075119
57	73	152	1.7697	83.4276	.4210	4.3944	.099454
57	74	149	1.7651	2.5108	.4239	.4574	.064882
57	75	152	1.7697	1790.3914	.4210	307.0448	-.109451
58	58	338	2.1953	2.1953	2.4161	2.4161	1.000000
58	59	338	2.1953	1.6598	2.4161	.4738	-.195246
58	60	156	2.0769	1.0000	2.2290	.0000	.000000
58	61	226	2.0575	1.9204	2.2064	.2707	.111367
58	62	248	2.0685	96.6569	2.3843	22.3135	-.185664
58	63	292	2.0582	25.2654	2.3438	4.8223	-.018866
58	64	292	2.0582	15.1318	2.3438	3.3017	-.109973
58	65	248	2.0806	9.3575	2.3864	2.7823	-.227214
58	66	289	2.0484	6.9164	2.3480	3.5898	-.208195
58	67	292	2.0582	14.0291	2.3438	3.5645	-.208853
58	68	152	1.7566	1.2039	1.9802	.4029	.119942
58	69	338	2.1953	-.0034	2.4161	3.1089	.094088
58	70	279	2.0609	1.7957	2.3417	.4032	-.058943
58	71	279	2.0609	1.2007	2.3417	.4005	.246812
58	72	338	2.1953	86.2604	2.4161	4.4824	.090920
58	73	338	2.1953	82.7278	2.4161	4.6508	-.266196
58	74	279	2.0609	2.4722	2.3417	.5133	-.196594
58	75	338	2.1953	1787.1487	2.4161	314.4291	-.082178
59	59	338	1.6598	1.6598	.4738	.4738	1.000000
59	60	156	1.6410	1.0000	.4797	.0000	.000000
59	61	226	1.6593	1.9204	.4739	.2707	.064388

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
59	62	248	1.7540	96.6569	.4307	22.3135	.255153
59	63	292	1.7500	25.2654	.4330	4.8223	.149861
59	64	292	1.7500	15.1318	.4330	3.3017	.178161
59	65	248	1.7581	9.3575	.4283	2.7823	.228824
59	66	289	1.7509	6.9164	.4325	3.5898	.215754
59	67	292	1.7500	14.0291	.4330	3.5645	.216053
59	68	152	2.0000	1.2039	.0000	.4029	.000000
59	69	338	1.6598	-.0034	.4738	3.1089	.022219
59	70	279	1.7849	1.7957	.4109	.4032	.037690
59	71	279	1.7849	1.2007	.4109	.4005	-.129744
59	72	338	1.6598	86.2604	.4738	4.4824	.030566
59	73	338	1.6598	82.7278	.4738	4.6508	.085526
59	74	279	1.7849	2.4722	.4109	.5133	.199765
59	75	338	1.6598	1787.1487	.4738	314.4291	.005205
60	60	156	1.0000	1.0000	.0000	.0000	.000000
60	61	104	1.0000	1.9135	.0000	.2812	.000000
60	62	114	1.0000	96.4459	.0000	19.3413	.000000
60	63	133	1.0000	25.4286	.0000	4.4620	.000000
60	64	133	1.0000	14.8816	.0000	2.9637	.000000
60	65	115	1.0000	9.1841	.0000	2.4192	.000000
60	66	133	1.0000	7.0200	.0000	3.4386	.000000
60	67	133	1.0000	14.0489	.0000	3.3651	.000000
60	68	72	1.0000	1.2500	.0000	.4330	.000000
60	69	156	1.0000	-.0697	.0000	1.2443	.000000
60	70	130	1.0000	1.7846	.0000	.4111	.000000
60	71	130	1.0000	1.1538	.0000	.3608	.000000
60	72	156	1.0000	86.2564	.0000	3.6583	.000000
60	73	156	1.0000	82.7244	.0000	3.4615	.000000
60	74	130	1.0000	2.4268	.0000	.4625	.000000
60	75	156	1.0000	1813.1715	.0000	310.5188	.000000
61	61	226	1.9204	1.9204	.2707	.2707	1.000000
61	62	160	1.9312	98.3526	.2530	22.7628	-.049234
61	63	190	1.9263	25.4855	.2613	5.0491	-.072627
61	64	190	1.9263	15.4605	.2613	3.4467	-.026609
61	65	160	1.9312	9.4365	.2530	2.7482	-.025756
61	66	189	1.9259	7.2681	.2619	3.3939	-.054053
61	67	190	1.9263	14.3592	.2613	3.5518	-.043793
61	68	91	1.9121	1.2088	.2832	.4064	-.031477
61	69	226	1.9204	-.1001	.2707	3.1323	.069270
61	70	181	1.9227	1.8343	.2671	.3719	-.017821
61	71	181	1.9227	1.1602	.2671	.3668	.070088
61	72	226	1.9204	86.6239	.2707	4.4059	.160357
61	73	226	1.9204	82.1372	.2707	4.4168	-.024166
61	74	181	1.9227	2.5284	.2671	.5151	-.040671
61	75	226	1.9204	1786.1759	.2707	315.0914	.092657
62	62	248	96.6569	96.6569	22.3135	22.3135	1.000000
62	63	248	96.6569	25.0827	22.3135	4.9474	.820476
62	64	248	96.6569	14.9446	22.3135	3.2801	.903229
62	65	247	96.9490	9.3448	21.8803	2.7807	.877235
62	66	245	96.8690	6.8245	22.3663	3.5988	.833657

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
62	67	248	96.6569	13.8649	22.3135	3.4605	.897829
62	68	133	100.2362	1.2105	19.2435	.4077	-.212552
62	69	248	96.6569	-.0383	22.3135	3.0680	.234834
62	70	241	97.6327	1.7925	21.5402	.4055	.371404
62	71	241	97.6327	1.2158	21.5402	.4114	-.641633
62	72	248	96.6569	86.0806	22.3135	4.2948	.297382
62	73	248	96.6569	82.9032	22.3135	4.6679	.336954
62	74	241	97.6327	2.4440	21.5402	.5189	.993186
62	75	248	96.6569	1803.0927	22.3135	310.8542	.178337
63	63	292	25.2654	25.2654	4.8223	4.8223	1.000000
63	64	292	25.2654	15.1318	4.8223	3.3017	.776910
63	65	247	25.1113	9.3448	4.9368	2.7807	.613576
63	66	289	25.3028	6.9164	4.8215	3.5898	.588217
63	67	292	25.2654	14.0291	4.8223	3.5645	.655487
63	68	150	25.6983	1.2067	4.6233	.4049	-.185711
63	69	292	25.2654	-.0567	4.8223	3.0524	.188871
63	70	278	25.3930	1.7950	4.7990	.4037	.250455
63	71	278	25.3930	1.2014	4.7990	.4011	-.488724
63	72	292	25.2654	86.1918	4.8223	4.3476	.204572
63	73	292	25.2654	82.8185	4.8223	4.6550	.192080
63	74	278	25.3930	2.4698	4.7990	.5127	.819504
63	75	292	25.2654	1800.6079	4.8223	309.4099	.067926
64	64	292	15.1318	15.1318	3.3017	3.3017	1.000000
64	65	247	14.9808	9.3448	3.2369	2.7807	.727690
64	66	289	15.1393	6.9164	3.3177	3.5898	.675088
64	67	292	15.1318	14.0291	3.3017	3.5645	.756113
64	68	150	15.5200	1.2067	3.0076	.4049	-.151201
64	69	292	15.1318	-.0567	3.3017	3.0524	.286071
64	70	278	15.2293	1.7950	3.2385	.4037	.234050
64	71	278	15.2293	1.2014	3.2385	.4011	-.521597
64	72	292	15.1318	86.1918	3.3017	4.3476	.305351
64	73	292	15.1318	82.8185	3.3017	4.6550	.315461
64	74	278	15.2293	2.4698	3.2385	.5127	.903149
64	75	292	15.1318	1800.6079	3.3017	309.4099	.163735
65	65	248	9.3575	9.3575	2.7823	2.7823	1.000000
65	66	244	9.3695	6.8689	2.7868	3.5387	.745979
65	67	247	9.3448	13.9028	2.7807	3.4157	.765934
65	68	133	9.6153	1.2105	2.4481	.4077	-.201352
65	69	248	9.3575	-.0191	2.7823	3.0417	.177550
65	70	242	9.4339	1.7934	2.7327	.4049	.392256
65	71	242	9.4339	1.2149	2.7327	.4107	-.515637
65	72	248	9.3575	86.1089	2.7823	4.2512	.255507
65	73	248	9.3575	82.9315	2.7823	4.6411	.309578
65	74	242	9.4339	2.4468	2.7327	.5197	.858880
65	75	248	9.3575	1804.1613	2.7823	309.5559	.151521
66	66	289	6.9164	6.9164	3.5898	3.5898	1.000000
66	67	289	6.9164	14.0450	3.5898	3.5750	.714463
66	68	148	7.2827	1.2027	3.0211	.4020	-.260434
66	69	289	6.9164	-.0746	3.5898	3.0381	.158214
66	70	275	7.0673	1.8036	3.4164	.3972	.701914

VAR1	VAR2	N	MEAN1	MEAN2	SIGMA1	SIGMA2	CORRELATION
66	71	275	7.0673	1.1927	3.4164	.3944	-.812416
66	72	289	6.9164	86.1903	3.5898	4.3508	.205983
66	73	289	6.9164	82.8062	3.5898	4.6724	.280212
66	74	275	7.0673	2.4733	3.4164	.5144	.760317
66	75	289	6.9164	1799.2837	3.5898	309.7554	.110511
67	67	292	14.0291	14.0291	3.5645	3.5645	1.000000
67	68	150	14.3600	1.2067	2.9838	.4049	-.089171
67	69	292	14.0291	-.0567	3.5645	3.0524	.166509
67	70	278	14.1583	1.7950	3.3265	.4037	.217012
67	71	278	14.1583	1.2014	3.3265	.4011	-.532124
67	72	292	14.0291	86.1918	3.5645	4.3476	.197586
67	73	292	14.0291	82.8185	3.5645	4.6550	.278740
67	74	278	14.1583	2.4698	3.3265	.5127	.902558
67	75	292	14.0291	1800.6079	3.5645	309.4099	.106010
68	68	152	1.2039	1.2039	.4029	.4029	1.000000
68	69	152	1.2039	.1854	.4029	2.9891	-.091437
68	70	149	1.2081	1.7785	.4059	.4152	-.284070
68	71	149	1.2081	1.1678	.4059	.3737	.123832
68	72	152	1.2039	86.4474	.4029	4.5056	.022221
68	73	152	1.2039	83.4276	.4029	4.3944	-.201595
68	74	149	1.2081	2.5108	.4059	.4574	-.155465
68	75	152	1.2039	1790.3914	.4029	307.0448	.144209
69	69	338	-.0034	-.0034	3.1089	3.1089	1.000000
69	70	279	.0074	1.7957	3.0255	.4032	-.076521
69	71	279	.0074	1.2007	3.0255	.4005	-.141813
69	72	338	-.0034	86.2604	3.1089	4.4824	.677224
69	73	338	-.0034	82.7278	3.1089	4.6508	.686269
69	74	279	.0074	2.4722	3.0255	.5133	.190167
69	75	338	-.0034	1787.1487	3.1089	314.4291	.059720
70	70	279	1.7957	1.7957	.4032	.4032	1.000000
70	71	279	1.7957	1.2007	.4032	.4005	-.323131
70	72	279	1.7957	86.2581	.4032	4.2735	-.048446
70	73	279	1.7957	82.9140	.4032	4.5366	.033503
70	74	279	1.7957	2.4722	.4032	.5133	.289873
70	75	279	1.7957	1802.3602	.4032	309.9177	-.054835
71	71	279	1.2007	1.2007	.4005	.4005	1.000000
71	72	279	1.2007	86.2581	.4005	4.2735	-.199870
71	73	279	1.2007	82.9140	.4005	4.5366	-.223256
71	74	279	1.2007	2.4722	.4005	.5133	-.594138
71	75	279	1.2007	1802.3602	.4005	309.9177	-.087031
72	72	338	86.2604	86.2604	4.4824	4.4824	1.000000
72	73	338	86.2604	82.7278	4.4824	4.6508	.342304
72	74	279	86.2581	2.4722	4.2735	.5133	.255938
72	75	338	86.2604	1787.1487	4.4824	314.4291	.370384
73	73	338	82.7278	82.7278	4.6508	4.6508	1.000000
73	74	279	82.9140	2.4722	4.5366	.5133	.290154
73	75	338	82.7278	1787.1487	4.6508	314.4291	.259276
74	74	279	2.4722	2.4722	.5133	.5133	1.000000
74	75	279	2.4722	1802.3602	.5133	309.9177	.125387
75	75	338	1787.1487	1787.1487	314.4291	314.4291	1.000000

END OF LISTING

FORM B: PERFORMANCE EVALUATION

Name_____ Facility_____

TO THE RATER: Please evaluate the employee whose name appears above. Rate the items independently and without prior discussion with any other personnel who may also be rating him. If you are asked to rate more than one employee, rate each item for all employees being evaluated before considering the next item. For example, rate all employees on "steady attention to work and conduct" before rating them on "ability to organize work and make most effective use of time, equipment, and information currently available." Please place a check mark in the complete items 13-15 only for employees in training status.

E-Excellent; VG-Very Good: G-Good; F-Fair; U-Unsatisfactory

	E	VG	G	F	U
1. Steady attention to work and conduct.					
2. Ability to organize work and make effective use of time, equipment, and information currently available.					
3. Demonstrated attitude and character.					
4. Rate of continued improvement.					
5. Ability to understand and apply controller procedures.					
6. Ability to make decisions required by his position.					
7. Display of good judgment.					
8. Emotional stability under pressure.					
9. Demonstrated aptitude for air traffic control activities.					
10. Potential for continued emotional stability in air traffic control activities.					
11. Ability to get along well with others.					
12. Ability to work cooperatively with others.					

FORM B: Continued

	E	VG	G	F	U
(Complete only for trainees) 13. Present performance of OJT duties.					
(Complete only for trainees) 14. Potential ability to perform journeyman duties.					
(Complete only for trainees) 15. If trainee has resigned, how satisfactory was his performance.					

16. Do the controller activities of this individual ever have an undesirable effect on air traffic safety?
Yes____ No____

17. If you were a facility chief, would you want this individual on your staff as an active controller? Yes____ No____. If no, please check at least one reason: Unsafe____: Hard to get along with____: Better as a supervisor or in a staff position ____: Unsatisfactory performance____: Physical limitations____: None of these____.

Remarks:

Date_____ _____
Signature and title of rater