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APPLICATION OF SELECTED MULTIVARIATE TECHNIQUES TO CATEGORICAL AND ORDINAL DATA: A SPECIFIC PROBLEM WITH CARPAL TUNNEL SYNDROME DATA

by

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CHAPTER I

STATEMENT OF THE PROBLEM

I. Introduction.

Today's world demands that research focus not on the understanding of problem areas from a univariate or bivariate viewpoint: rather, the problems faced in today's complex world demand the multivariate analysis of data. This is true whether the area of research is directed toward Educational problems, Sociological problems, Marketing problems, or, more specifically, toward Surgery of the Hand problems. Man does not live in a univariate or bivariate world. Man seldom faces problems in research that are limited to a univariate or bivariate nature.

II. Problem.

The problem of this research is twofold:

(1) Is it possible to employ multivariate statistical techniques to analyze a complex set of data in which there are categorical and ordinal scales of data such as that which is characteristic to Surgery of the Hand research?

(2) What is the potential impact on the training of Hand Surgery residents with respect to the utilization of multivariate statistical procedures in Surgery of the Hand research?

III. Discussion.

The multivariate statistical analysis of data associated with Surgery of the Hand research poses numerous, interesting problems and dilemmas for the researcher. In general, the majority of measures elicited via patient examination and treatment represent data of a categorical scale of measurement. In addition to the data being a categorical scale of measurement, problems in multivariate statistical analysis are also confronted due to undetermined degrees of correlation between data variables, undetermined interactions between data variables, little knowledge regarding the linear additive relationships between variables, and an excessive number of variables (25 or more).

Traditional methods of multivariate analysis assume two, three, or four combinations of the following assumptions:

1) All variables are of at least an interval scale of measurement.

2) Homoscedasticity.

3) Homogeneity of variance.

4) Variables conform to a linear additive structure.

Consequently, the use of standard multivariate techniques, such as factor analysis, principal components analysis, multiple regression analysis, and multivariate analysis of variance, all prove for one reason or another inadequate for analysis of categorical or ordinal data.

Therefore, it becomes necessary to search for alternate procedures of multivariate analysis, which still provide answers to the traditional questions of multivariate analysis, which are as follows:

1) What is the underlying structure of the data set?

2) When analyzing the complete set of data, what is the relationship between each independent variable and the dependent variables?

3) How much variability of the dependent variable is explained by each of the independent variables?

4) Is it possible to isolate a set of independent variables that provide the best explanation of the variability associated with the dependent variables?

5) Given a set of independent variables and dependent variables, is it possible to develop prediction equations that in fact accurately predict a particular dependent variable after providing the necessary information on a set of independent variables?

6) Is it possible to test for statistically significant differences between two or more dependent variables?

In order to examine the applicability of multivariate statistical analysis to categorical data, the proposed dissertation will focus on the statistical analysis of Carpal Tunnel Syndromes to determine to what extent aforementioned classical questions of multivariate analysis are applicable to researching this specific area of Hand Surgery. Depending on the results, appropriate recommendations will be made concerning the potential impact on the training of Hand Surgery residents.

IV. Significance.

The research of this dissertation is significant for three main reasons. First, it directs itself to the researching of problem areas in the multivariate sense, rather than limiting the scope of analysis to a univariate or bivariate situation. Numerous studies have been conducted in the area of Hand Surgery in the past, but the statistical emphasis has generally focused on the univariate or bivariate analysis of the problem area. Such analysis provides information of only limited value and applicability. Fred N. Kerlinger and Elazer J. Pedhazur (1973) very succinctly summarize the future direction of research:

> The traditional view of research amounts to studying the relation between one independent variable and one dependent variable, studying the relation between another independent variable and the dependent variable, and so on, and then trying to put the pieces together. The traditional research design is the so-called experimental group and control group setup. While one can hardly say that the traditional view is invalid, one can say that in the behavioral sciences it is obsolescent,

> even obsolete (Campbell & Stanley, 1963; Kerlinger, 1964, 1969). One simply cannot understand and explain phenomena in this way because of the complex interaction of independent variables as they impinge on dependent variables. (p. 4)

The second reason the research of this dissertation is significant is that it may provide a meaningful illustration of how to examine a very complex problem area of medicine. The complexity of the problem is in the multivariate sense, and the product of the research may demonstrate that if physicians are to be expected to conduct and analyze complex multivariate research problems, then somewhere during the training of physicians emphasis must be given to the application and analysis of multivariate statistical procedures. Alvan R. Feinstein, M.D. (1974) reviewed current medical literature to determine the extent to which medical literature referenced basic parametric and nonparametric univariate, bivariate and multivariate statistical procedures. He concludes his article as follows:

> If tomorrow's practicing doctor is to be intellectually prepared to evaluate issues ranging from the claims of the "detail man" to the blandishments of the academic entrepreneur, the medical curriculum will surely have to contain at least as much devotion to biostatistics, whose clinical 'relevance' has already been demonstrated, as to diverse elements of molecular biology whose clinical pertinence is currently

> unknown or uncertain. The contents of biostatistical courses may need revision, and the quality of teaching may need improvement, but the first step is to recognize that the subject is vitally important for the practicing doctor. It constantly confronts him in his ongoing postgraduate education and its undergraduate medical instruction must receive suitable amounts of time and attention. (p. 107)

Suffice it to say, the effective, efficient, and accurate multivariate statistical analysis of a Surgery of the Hand research area, specifically Carpal Tunnel Syndrome, in its practical implications may necessitate emphasis to multivariate statistical analysis procedures in the formative training of Hand Surgery residents.

The third reason for which the research of this dissertation is significant is that it provides the procedural considerations that a researcher must consider in collecting a large and complicated set of data as well as the procedural steps necessary to excogitate a plan whereby the data may be transferred to computer magnetic tape in an efficient, effective, comprehensive, and accurate manner.

The Carpal Tunnel Syndrome Protocol developed demonstrates considerations paramount to an investigator when a complex set of data are to be collected and analyzed. If the data to be collected are to be useful in

V. Definition of terms.

The following terms have characteristic meaning in this research:

Carpal Tunnel Syndrome is usually any condition that will result in narrowing the diameter of the carpal canal or carpal tunnel and thus cause compression of the median nerve at the wrist.

Carpal Tunnel Syndrome Protocol is the instrument developed to collect specific data on variables associated with the Carpal Tunnel Syndrome.

Multivariate statistical analysis is any statistical analysis where multiple variables (3 or more) are statistically analyzed at the same time.

binary discriminant analysis: Discriminant analysis in which the independent variable measures are any combination of variables with the minimum scale of measurement being nominal.

binary regression analysis: Regression analysis in which the dependent variable is measured by at least the nominal scale of measurement, and the independent variables are any combination of scales of measurement with the minimum scale of measurement being nominal.

<u>discriminant analysis</u>: Discriminant analysis in which all independent variables are measured by at least the interval scale of measurement.

<u>multiple classification analysis (MCA)</u>: The term is used synonomous to binary multiple regression analysis.

<u>multivariate nominal scale analysis (MNA)</u>: The term is used synonomous to binary discriminant analysis.

<u>THAID</u>: Theta automatic interaction detector is essentially a computer package (OSIRIS III, Volume 1, 1973) that enables the researcher to split the data set employing binary splits and thus discern the likelihood of data variables that are highly correlated as well as highly interactive.

CHAPTER II

REVIEW OF BACKGROUND AND RELATED LITERATURE

I. Introduction.

The multivariate statistical analysis of Carpal Tunnel Syndrome data is dependent upon the availability and accessibility of computers. Consequently, a review of appropriate multivariate statistical procedures as well as relevant computer packages and programs will be provided as background literature. A more detailed and exhaustive review of related literature will then follow. In general, the review of related literature will focus on the multivariate statistical analysis of data in Medicine. In particular, the review of related literature will focus on those multivariate statistical analyses concerned with Surgery of the Hand data and even more specific--multivariate statistical analyses concerned with Carpal Tunnel Syndrome data.

II. Background literature.

The most liberal definition of multivariate statistical analysis considers multivariate statistical analysis to encompass any situation in which the statistical analysis pertains to multiple variables (Feinstein, 1973, p. 462). A more definitive definition of multivariate statistical analysis involves those situations when the intent is to discern the relationship between at least one dependent variable and two or more independent variables (Kerlinger, 1973, p. 4). An even more definitive definition of multivariate statistical analysis limits the analysis to situations in which there are at least one dependent variable and more than one independent variables that are interdependent as well as intercorrelated (Dayton, 1970, p. 2). All three definitions are accurate and appropriate to the statistical analysis of Carpal Tunnel Syndrome.

The first phase of any multivariate statistical analysis is to determine the basic structure of the data set (Sonquist, 1971, pp. 5-13). It is, therefore, necessary to empirically describe the data set in an exhaustive, exclusive, and comprehensive manner.

Essentially, one must then provide a statistical description of the data set. Variables may be described statistically as follows:

1) Frequency counts and percentages obtained for each variable.
2) Means and standard deviations obtained for each variable.

3) Graphic representation obtained for the variable distributions.
4) Intercorrelations calculated between variables.
5) Graphic representations obtained to demonstrate relationship of variables.

In the case of Carpal Tunnel Syndrome data, the major emphasis will be on aforementioned item one. In order to provide the necessary descriptive information on Carpal Tunnel Syndrome data, four selected separate statistical packages--Console Statistics [CONSTAT] 1971), Statistical Package for the Social Sciences [SPSS] (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975), OSIRIS III (Volume 1, 1973), and Biomedical Computer Programs [BMD] (Dixon, 1974)--provide manageable and efficient computer programs.

In addition to the basic statistical description of the data set, multivariate statistical analysis is concerned with the structure of the data set as a statistical model. Oftentimes, the researcher is confronted with a data set when little information is available as to the linear structure of the data set or as to the additive relationship of the variables. Therefore, it is necessary to search the structure of the data set to determine whether the basic assumptions of more sophisticated multivariate statistical procedures are in fact existent in the data set. The evaluation of data characteristic to Carpal Tunnel Syndrome complicates the analysis. The variables are not measured for the most part at the interval or ratio scale of measurement. Consequently, classical multivariate techniques appropriate for model building are not applicable to the Carpal Tunnel Syndrome data set. Factor analysis, Path analysis, and Cluster analysis all demand a more stringent scale of measurement (Nie, et al., 1975) than available with the Carpal Tunnel Syndrome data set.

Fortunately, the OSIRIS III statistical package provides a program, THAID, that necessitates no assumptions as to the scale of measurement or as to the linear additive relationship of variables. THAID essentially is a program to search the data set for highly interactive and intercorrelated variables (OSIRIS III, Volume 1, 1973, pp. 567-574; Morgan, and Messenger, 1974).

Once the structure of the data set has been determined, the application of multivariate statistical analyses where the relationship between dependent and independent variables is of concern can be initiated. The multivariate statistical techniques appropriate to subsequent analyses in this research dissertation are as follows:

1) Regression analysis.
2) Binary regression analysis (multiple classification analysis).
3) Discriminant analysis.
4) Binary variable discriminant analysis (multivariate nominal scale analysis).

The use and the applicability of aforementioned multivariate statistical techniques demand that the researcher consider the appropriateness of the analyses in light of the basic structure of the data set. Figure 1 summarizes basic criteria of the data set to be considered by the researcher.

In regression analysis there is one dependent variable measured at the interval scale of measurement and one or more (k) independent variables of at least an interval scale of measurement. The essential assumptions necessary for the use of regression analysis are that of a linear and additive model.

Figure 1.

Data Set Criteria

Criteria	Multivariate Analyses				
	Multiple Regression Analysis[1]	Binary Variable Multiple Regression Analysis[2]	Discriminant Analysis[3]	Binary Variable Discriminant Analysis[4]	THAID[5]
Number of Variables:					
Dependent variable.	1	1	1	1	1
Independent variable.	k	k	k	k	k-40
Minimal Scale of Measurement:					
Dependent variable.	Interval	Interval	Nominal	Nominal	Nominal
Independent variable.	Interval	Nominal	Interval	Nominal	Nominal
Assumptions:					
Linear model.	x	x	x	x	-
Additive model.	x	x	x	x	-
No highly intercorrelated variables.	-	-	-	-	-
No highly interacting variables.	x	x	x	x	-
Homoscedasticity.	x	x	x	x	-
Random error.	x	x	x	x	-
Large number of cases.	-	x	-	x	x

References:

[1] (Dunn and Clark, 1974, pp. 221-294 and pp. 347-357; Draper and Smith, 1966, pp. 1-35; Kerlinger and Pedhazur, 1973.)
[2] (Kerlinger and Pedhazur, 1973; Andrews, Morgan, Sonquist, and Klein, 1974.)
[3] (Huberty, 1975, pp. 543-598.)
[4] (Andrews and Messenger, 1974.)
[5] (Morgan and Messenger, 1974; Sonquist, Baker, and Morgan, 1974.)

The linear and additive assumptions of the model demand that the data set contains no highly interacting variables. The use of regression techniques accounts for high intercorrelation in that the effect of only the major contributing variable will manifest itself in the regression equation and the other related variables will provide less relative influence on the dependent variable. A major problem in regression analysis occurs when the variables are intercorrelated and also interact. If interaction of variables occurs, the linear and additive requirement may not be met.

A further check on the linear and additive assumptions of the model concerns the presence of the condition of homoscedasticity. Homoscedasticity concerns the distribution of the independent variables at each point of the dependent variables. For homoscedasticity to exist the independent measures are normally distributed with equal variances at each value of the dependent variable. If homoscedasticity does not exist, then one should consider the possible influence of highly intercorrelated variables and also highly interacting variables.

Another assumption of regression analysis concerns the distribution of the residuals. The residuals will approximate a normal distribution with equal variance when the additive and linear assumptions of the model are met. A check of the residual distributions provides an excellent safeguard as to the possible correctness of previous assumptions made regarding the structure of the data set.

According to Everitt (1975), the approximate number of cases necessary for all aforementioned assumptions to be met is between a minimum of 5 to 10 cases per variable in a regression analysis where the appropriate scale of measurement and basic assumptions are maintained (pp. 237-238).

The transition from regression analysis to binary regression analysis involves a relaxation of the scale of measurement on the independent variable to a categorical scale of measurement. Hence, the main concern becomes the effect such a relaxation of requirements will have on the linear and additive nature of the model. The major effect resulting from a change in scale of measurement on the independent variables is the need for a large number of cases in order to approximate the condition of homoscedasticity. It is difficult to state the recommended appropriate number of cases now necessary in binary regression analysis since the number of cases are related to the number of independent variables as well as the mixture of variables in relation to different scales of measurement. Consequently, the most appropriate check is to analyze the residuals.

In the case of discriminant analyses, the major difference from regression analysis is that the scale of measurement on the dependent variable is categorical and the scale of measurement on the independent variables is interval. The basic assumptions made concerning the data set are similar to those made for regression analysis. However, despite the similarities, one word of caution concerning the dependent variable is worth noting. The categories of the dependent variable must be independent.

The transition to binary discriminate analysis is similar to the transition from regression analysis to binary regression analysis. Again, the number of cases becomes a matter of considerable importance.

One additional consideration is appropriate when analyzing the basic structure of the data set, especially when basic assumptions appropriate to the multivariate analysis are relaxed. That consideration concerns the frequency at which the variable occurs in a given population. Maxwell (1971) sums up this concern in relation to discriminant analysis as follows: "Discriminant function analysis works fairly well with dichotomously-scored data if the samples are large and the item incidences are within the 20 per cent-80 per cent range" (p. 124).

The last multivariate statistical analysis listed in Figure 1 considers the data set criteria for the THAID statistical analysis. THAID provides advantages in dealing with categorical and ordinal data in that the only assumption made concerns the need for a large number of cases. However, the restriction that the maximum number of independent variables is limited to 40 variables could possibly result in problems when analyzing data sets with over 40 independent variables.

III. Related literature.

The review of related literature encompasses a searching of 1858 articles related to statistical analyses published in medical or quasi-medical journals, and 217 articles were selected for review. Of the 217 articles reviewed, the author found many excellent applications of multivariate statistical analyses on medical data.

McCalister and Thiessen (1970) employing correlation analyses examined the relationship between 43 predictor variables which were measured at the nominal, ordinal, and interval scales of measurement and three criterion variables of which two were nominal measures and one was a ratio measure. One hundred and four cases were analyzed to determine possible factors influencing clinic attendance, clinic adoption of the pill or intra-uterine contraceptive device, use of the pill or intra-uterine contraceptive device at one year. Correlations were calculated between the predictor variables and the three criterion measures.

The results of the analysis based on a review of the individual contribution of each predictor variable led McCalister and Thiessen to conclude that "The predictive utility of all variables examined is low" (p. 1380). The results of the study are not surprising. In fact, the results further substantiate the need to examine not only the bivariate relationship between variables, but also the possibility of enhanced evaluation of a problem area by examining the contribution of a number of variables. A better summary of the results of this article would state that no one predictor considered independent of all other predictor variables demonstrates a strong relationship with any criterion measure.

In another article where considerable emphasis is placed on correlation analysis, Froelicher, Thompson, Davis, Stewart, and Triebwasser (1975) "Investigated the hypothesis that an individuals maximal oxygen consumption can be realistically predicted by the maximal time achieved in the Balke or Bruce treadmill protocols" (p. 333). The authors secured measures on two groups. Group one consisted of 79 subjects, and group two consisted of 77 subjects. The variable measures consisted of age, height, weight, maximal heart rate, maximal VE, maximal RQ, maximal oxygen consumption, and maximal treadmill time. The measures on each variable were reported in terms of descriptive indices including means, standard deviations and variable intercorrelations. A bivariate linear regression of age on maximum heart rate was also calculated. The results of the authors state that only minimal relationships were apparent from their analyses. Again, the conclusion is made that other factors were operating that were not considered in the analyses. As was seen with McCalister's and Thiessen's (1970) study, the analysis of a complex data set employing limited statistical analysis is of little value in understanding the complexity of a multivariate problem.

Besides the analyses emphasizing descriptive analyses or basic correlation analyses, numerous studies employing more sophisticated analyses were reviewed. Furukawa, Inoue, Kajiya, Inada, Takasugi, Fukui, Takeda, and Ahe (1975) conducted an excellent study employing multiple regression analysis as well as correlation analyses to predict chronological age of healthy subjects. Their study truly emphasizes the merits of multiple regression analyses when measures on both the dependent variable and independent variables are of at least the interval scale of measurement. In effect, Furukawa, et al., carried out four studies on four different groups--Group 1 = 53 subjects, Group II = 111 subjects, Group III = 34 male subjects and 31 female subjects, Group IV = 110 subjects. The results of their experiments illustrated that the combination of correlation analyses and multiple regression analysis were quite useful in prediction of chronological age of healthy subjects as well as in providing support of basic theoretical concepts related to the aging process.

Another interesting example of multiple regression analyses concerns an attempt to predict diastolic and systolic blood pressure. Indrayan, Kumar, Srivastava, and Bagchi (1974) conducted a multivariable analysis of

Elwood, et al., note that binary regression analysis is appropriate when large amounts of data are involved (p. 100), and they "conclude that binary regression models have useful applications to current medical problems which involve several interrelated variables postulated to be of aetiological importance" (p. 103).

Further substantiation and rationalization concerning the employment of binary regression analysis when all variables are dichotomous or categorical in nature is treated by Feldstein and Butler (1965).

Additional articles providing examples of specific applications of regression analysis that discern meaningful understanding of medical research problems are as follows: Downing, Rickels, and Dreesmann (1973) used regression analysis "to predict response to treatment in a group of 199 primarily anxious, neurotic outpatients treated for a 4 week period with either diazepam or phenobarbital" (p. 93). Hill and Nicholas (1974) consider the "analysis and design of experiments when data are available on both parents and offspring" (p. 447) to estimate heritability by regression analysis. And Sive, Medalie, Kahn, Nuefeld, and Riss (1971) examine the regression of 18 biological and environmental variables on systolic blood pressure - 10,000 cases were available for analysis and the majority of variables were categorical in nature - finding "that 14 of these were together significantly responsible for 21.6% of systolic variance in the total population" (p. 317).

Another method of multivariate statistical analyses which demonstrates broad application to medical research problems is that of discriminate analysis.

Lachin and Schachter (1974) provide a general description of discriminant analysis in non-mathematical terms as well as a specific application to physiologic data. The authors also contrast the results of their empirical applications using stepwise discriminant analysis and non-stepwise discriminant analysis. Other articles that consider a general review of the theoretical foundations as well as general examples of medical applications of discriminant analysis are provided by Eklund (1970) and Waard (1972). Eklund provides a very brief but succinct explanation of discriminant analysis. Waard provides an excellent basic theoretical background to discriminant analysis demonstrating the development of discriminant analysis for two groups as well as the expansion of use to more than two groups and also considers basic applications of discriminant analysis in anthropology and epidemiology.

Besides aforementioned general theoretical articles on discriminant analysis, numerous articles concerning specific applications of discriminant analysis to medical data were espied in review of related literature. Choi and Trotter (1970) examined 115 fetal skeletons to obtain a discriminant function by which the fetal skeletons could be classified according to sex membership given information on 21 independent variables. The majority of the independent variables approximated at least the interval scale of measurement. The authors were able to correctly classify the fetal skeletons by sex with 72 percent accuracy. Actually, the results are quite surprising in that skeletal structural characteristics are usually less evident prior to the age of puberty (p. 311).

Pipberger, Klingeman and Cosma (1968) conducted an extensive study employing discriminate analysis "to identify those signs, symptoms and laboratory tests which are essential for the description of disease and more important for the differentiation between diseases" (p. 89). The specific application pertained to the differential diagnosis of chest pain. Twelve hundred and thirty-eight patients were measured on 429 dichotomous independent variables as well as 69 interval (ratio) independent variables. The initial emphasis of the study relates to methods for reducing the independent variable data set. In order to accomplish a reduction in the independent variable data set, an incidence rate of 25 percent was required as well as a minimal chi-square value of 40 via contingency table analyses for entry into the data set. The authors found: 1) that by using 6 independent variables it was possible to correctly classify 95.3 percent of the patients as either having coronary artery diseases or pneumonia, 2) that by using the same 6 independent variables, it was possible to correctly classify 78 percent of the patients as either having angina pectoris or acute myocardial infarction, and 3) that by using 7 independent variables it was possible to correctly classify 95.2 percent of the patients as either having various diseases such as acute myocardial infarction and old myocardial infarction with angina pectoris versus patients having pneumonia.

The study by Pipberger, et al., is an excellent research example not only to the extent that it demonstrates a very interesting application of discriminant analysis, but, also, because it provides an excellent explanation of the procedures employed to collect the tremendous set of data utilized as well as cares and concerns paramount to the researcher in the preparation of a data set for subsequent analyses. The use of FODSIC sheets (p. 81) to collect the information demonstrates a valuable tool enabling the researcher to transfer a massive amount of information from the patient-protocol directly to computer magnetic tapes. Another merit of the article is that in appendix form the rationale of the statistical tests appropriate to the substance of the article is discussed. A particularly adept rationale for the utilization of dichotomous variables is presented (pp. 90-92).

Hall, Selander, and Wolodarski (1973) examined the usefulness of discriminant analysis in providing a mathematic model to accurately classify patients according to various diagnosis categories. The major categories of their study consisted of patients with lung cancer and patients without lung cancer. A total of 152 cases, 77 patients with lung cancer and 75 patients with various chest diseases, were used to develop the discriminant function. A total of 22 independent variables (20 dichotomous and 2 ratio) were included in the discriminant function. Hall, et al., found that the mathematic model produced by the discriminant analysis correctly classified 80 percent of the patients with lung cancer, and 90 percent of the patients with other chest diseases. Hall, et al., conclude "The results of this pilot study is extraordinary in regard to the fact that only questions in a self-administered questionnaire, the hemoglobine values and the sedimentation rates were used from the classification" (p. 329).

Parker and Boyd (1974) used discriminant analysis "1) To determine if the 60 independent variables in the questionnaire are adequate to assign patients to their appropriate level of care; 2) To determine which of the independent variables are key ones in making correct assignments" (p. 944). The data set consisted of 644 cases. The dependent variable, appropriate level of care, consisted of 6 specific categories. A majority of the 60 independent variables were measured at the nominal scale of measurement. The results of the discriminant analysis revealed that the overall prediction rate for appropriate classification of patients to the six levels of care was 77 percent. A total of 24 independent variables were found to provide a statistical significant contribution to the classification process. The authors conclude that "discriminant analysis is adequate to assign patients to appropriate level of care" (p. 956).

Additional articles providing examples of specific applications of discriminant analyses are as follows: Agnese and Balestra (1970) examine the usefulness of using discriminant analysis in preventive medicine. Anderson and Blair (1975) employed discriminant analysis as a screening device to classify patients with adult rheumatoid arthritis involving the temporomandibular joint. Cattell (1969) questions the use of discriminate analysis using a group of 146 cases of hip fracture with independent variable measures on "age, duration, prognostic group," etc., to predict future performance of activities of daily living. Feldman, Klein, and Honigfield (1969) used cross-sectional psychiatric interview data and compared successive screening analysis with discriminant analysis to provide a guide for group assignment--the authors concluded, "both techniques are highly effective" (p. 725). Jenden, Fairchild, Mickey, Silverman, and Yale (1972) found discriminant analysis helpful "to extract EEG information specifically relevant to drug action; to define the effect of the drug as a pattern in some specific objective way, and to measure the potency of the drug in producing this pattern" (p. 78). Jones, Lennard-Jones, Morson, Chapman, Sackin, Sneath, Spicer, and Card (1973) attempted to group patients with nonspecific colitis into two groups as either suffering from proctocolitis or colonic Crohn's disease using 109 consecutive patients with 107 clinical, radiological, and pathological attributes--stepwise discriminant analysis separated groups "almost entirely by the use of five of the 107 attributes recorded" (p. 716). Kramer, Lucas, El-Labban, and Lister (1970) employed discriminant analysis to differentiate histological features by surveying 235 cases. MacFadyen (1975) provides an extensive review of articles based on classification studies involving depressive disorders. Marthaler (1968) analyzed 99 cases of caries with measures of initial dental status employed as independent variables to calculate a discriminate function that would separate groups into strata.

At this point in the review of related literature the articles of interest will be those pertaining to Surgery of the Hand research as well as those articles in which authors employed specific statistical analyses to Carpal Tunnel Syndrome data.

Articles reviewed over the years 1974 and 1975 involving Hand Surgery stress anatomical considerations, physiological considerations, or surgical procedural considerations. The statistical considerations are generally limited to the descriptive nature of the data sets. Examples of the statistical descriptive areas of emphasis and application follow: Iregbulem, Nicolle, and Calnan (1974) used descriptive statistics such as frequency counts, means, standard deviations, and correlations as well as histograms in the presentation of data involving the measurement of ulnar or radial deviation of the metacarpophalangeal joints of digits. Bryan, Soule, Dobyns, Pritchard, and Linscheid (1974) examined 101 cases of primary soft-tissue and primary bone sarcomas involving the hand and forearm; statistical emphasis pertained to frequency counts of the type of tumor involved. Carr (1974) presents a review on local radical fasciectomy for Dupuytren's contracture involving 213 hands. The statistical analyses are all of a descriptive nature. Bar graphs are provided to illustrate the distribution of the age and sex of patients, and bar graphs are provided to illustrate the distribution of treatment duration. Frequency counts are also provided to enumerate postoperative complications and recurrence rates. Gelberman, Salamon, Jurist and Posch (1975) examined 419 normal wrists and 15 wrists of patients with Kienbock disease. Statistical representation of data was essentially descriptive in nature employing frequency counts, percents, and standard deviations. The authors also compared two groups employing a t-test to investigate the possibility of a statistically significant association between ulnar variance and Kienbock disease.

In addition to the general articles concerning Surgery of the Hand, those articles pertaining to Carpal Tunnel Syndrome essentially focus on similar types and methods of statistical analysis. Phalen (1966) reviews Carpal Tunnel Syndrome including an analysis of 640 hands. The statistical emphasis is on frequency counts and percentages of incidence regarding symptoms, history, durations, etc. Langloh and Linscheid (1972) investigate 26 cases of recurrent Carpal Tunnel Syndrome from an original series of 2053 surgical cases. The emphasis on statistical analysis concerns percentages and frequency counts. Posch and Prpic (1975) reported their findings concerning 300 cases of Carpal Tunnel Syndrome. The emphasis from a statistical point of view again concerned frequency counts, percentages, and distributions on such variable sets as symptoms, patient history, and operative findings. Seneviratna (1968) reported findings from an electro-physiological study of 100 patients diagnosed for Carpal Tunnel Syndrome using electro-diagnostic criteria. The statistical reporting of data consisted of frequency counts, graphical representations, and clinical correlates between clinical signs and the results of electro-diagnostic testing.

Overall, the use of statistical analyses with general Surgery of the Hand data and with Carpal Tunnel Syndrome data revealed that the analyses of multiple variables emphasized basic statistical description of data sets. The statistical descriptions involve descriptive indices of frequency counts, percentages, and arithmetic means. Only in rare instances are the distribution of data sets or the intercorrelation of variables considered.

IV. Summary.

The review of background literature and related literature demonstrates the general applicability of multivariate statistical analyses to medical research areas and demonstrates little research has been conducted on data sets which approximate either the complexity or uniqueness of data characteristic to Carpal Tunnel Syndrome.

The Carpal Tunnel Syndrome data set is complex and unique. The categories of variable sets consider numerous phases: 1) background information, previous treatment, symptoms, symptom durations, and medical history; 2) findings on examination; 3) treatment; 4) surgical and pathological findings; and 5) postoperative duration of treatment. The Carpal Tunnel Syndrome data are a mixture of nominal and interval scales of measurement with the majority of variables constituting the nominal scale of measurement.

CHAPTER III

THE PROTOCOL, COMPUTER PACKAGES, AND CONFIDENTIALITY OF PATIENT INFORMATION

I. The Carpal Tunnel Syndrome Protocol and Coding Form F.

The purpose of the Carpal Tunnel Syndrome Protocol is to provide a summary of data found in the patient's medical record. A major concern in the development of the Carpal Tunnel Syndrome Protocol is that the instrument provides valid and reliable information. The subsequent discussion reviews the development of the protocol used to abstract medical records of patients for this research.

The original Carpal Tunnel Syndrome Protocol used by Joseph L. Posch, M.D. and Associates, P.C. for abstracting data from the medical record of patients with Carpal Tunnel Syndrome was developed by Joseph L. Posch, M.D. (1971). See Appendix A.

The original Carpal Tunnel Syndrome Protocol was used to abstract the medical records of 300 cases of Carpal Tunnel Syndrome that were diagnosed and treated between January 1, 1960 and December 30, 1970.

Subsequent to this analysis, the Carpal Tunnel Syndrome Protocol was updated and refined by Joseph L. Posch, Jr. (1975). See Appendix B. The updated Carpal Tunnel Syndrome Protocol includes additional delineation of variables which were not found listed on the original Carpal Tunnel Syndrome Protocol. The addition of variables is based on a review of the data recorded during the initial review of 300 cases of Carpal Tunnel Syndrome (Posch, 1971; Posch, and Prpic, 1975).

The reason for the additional delineation of variables on the Carpal Tunnel Syndrome Protocol is to highlight as many variables as possible that are associated with the diagnosis and treatment of a Carpal Tunnel Syndrome.

The expansion of the number of listed variables permits reasonable assurance that all pertinent patient information found in the medical record will be included by coders when the medical records are abstracted.

The updated Carpal Tunnel Syndrome Protocol was piloted by abstracting one hundred medical records of patients with Carpal Tunnel Syndrome. Following the pilot test of the updated Carpal Tunnel Syndrome Protocol, a finalized version of the Carpal Tunnel Syndrome Protocol was developed (Posch, Jr., 1975). See Appendix

C. The final format of the Carpal Tunnel Syndrome Protocol provides many advantages over previously developed Carpal Tunnel Syndrome Protocols. For example, it provides for:

1. A further delineation of variables simplifying the task of abstracting the patient's medical record and increases accuracy.
2. A format that simplifies the abstracting process and follows the logical sequence of abstracting information from the patient's medical record.
3. The color coding of specific areas of the Carpal Tunnel Syndrome Protocol.
4. The coding of variables on the Carpal Tunnel Syndrome Protocol.
5. Ease and increased accuracy in the transfer of data to computer coding sheets which is necessary for the keypunching of data.

Due to the large number of variables recorded on each case of Carpal Tunnel Syndrome, it is necessary to use the computer to describe and analyze the data. Consequently, the final format of the Carpal Tunnel Syndrome Protocol provides for the transfer of the data to Hollerith cards by color coding the form and by coding the variables. On the Carpal Tunnel Syndrome Protocol, different colored inks distinguish which Hollerith card contains a particular set of variables. Since six Hollerith cards are needed to record the data, there are six color-coded areas on the Carpal Tunnel Syndrome Protocol. See Appendix C.

The variables are also coded to distinguish the appropriate column numbers where the data will be recorded on the Hollerith card. See Appendix C. The numerical entry for each column is dependent upon the information recorded. Figure 2 through Figure 7 summarize the appropriate entry to be recorded in each column for the six Hollerith cards.

Coding Form F provides a convenient format necessary for the transfer of data onto Hollerith cards. See Appendix D. The direct transfer of data from the Carpal Tunnel Syndrome Protocol by keypunch operators onto Hollerith cards would require time-consuming effort on the part of the keypunch operator. A lack of familiarity with the Carpal Tunnel Syndrome Protocol could promote error in the transfer procedure. Also, the specifying of the patient name on the Carpal Tunnel Syndrome Protocol prevents perusal of this form by any third party not directly employed in the offices of Joseph L. Posch, M.D. and Associates, P.C.

Figure 2.

HOLLERITH CARD FORMAT
Card 1.

Column(s)	Entry
1- 5	Protocol number.
6	Card number.
7	Sex: 1 = female 2 = male 9 or 0 = missing information blank = missing information.
8- 9	Age: 2 blanks = missing information.
10	Case classification: 1 = industrial 2 = nonindustrial 9 or 0 = missing information blank = missing information.
11	Hand dominance: 1 = right-handed 2 = left-handed 3 = bilateral right 4 = bilateral left 9 or 0 = missing information blank = missing information.
12-49	Previous treatment, symptoms, and history-- 1 column each for 38 measures: 1 = yes 2 or 0 = no blank = no 9 = missing information.
50-67	Grip in pounds--3 columns each for 6 measures: 999 = missing information.
68-76	Findings on examination-- 1 column each for 9 measures: 1 = yes 2 or 0 = no blank = no 9 = missing information.

Figure 3.

HOLLERITH CARD FORMAT
Card 2.

Column(s)	Entry
1- 5	Protocol number.
6	Card number.
7-11	Treatment--1 column each for 5 measures: 1 = yes 2 = no 0 = no blank = no 9 = missing information.
12-75	Duration in days--4 columns each for 16 measures: 0000 = not applicable 4 blanks = not applicable 9999 = missing information.

Figure 4.

HOLLERITH CARD FORMAT
Card 3.

Column(s)	Entry
1- 5	Protocol number.
6	Card number.
7	Surgeon number, values 1 through 8-- 1 row each: 9 = missing information 0 = missing information blank = missing information.
8-19	Date of surgery and date of discharge-- 6 columns each for 2 dates: month = first 2 columns day = second 2 columns year = third 2 columns 000000 = not applicable 6 blanks = not applicable 999999 = missing information.
20	Type of incision: 1 = thenar 2 = hypothenar 9 = missing information 0 = not applicable blank = not applicable
21-37	Surgical and pathological findings-- 1 column each for 17 measures: 1 = yes 2 = no 0 = no blank = no 9 = missing information.

Figure 5.

HOLLERITH CARD FORMAT
Card 4.

Column(s)	Entry
1- 5	Protocol number.
6	Card number.
7-24	Date splint removed, date of discharge, date of last office visi---6 columns each for 3 dates: month = first 2 columns day = second 2 columns year = third 2 columns 000000 = not applicable 6 clanks = not applicable 999999 = missing information.
25-26	Number of follow-up visits: 99 = missing information.
27-35	Postoperative factors-- 1 column for each measure: 1 = yes 2 = no 0 = no blank = no 9 = missing information.
36-71	Dates for postoperative factors-- 6 columns each for 6 dates: month = first 2 columns day = second 2 columns year = third 2 columns 000000 = not applicable 6 blanks = not applicable 999999 = missing information.

Figure 6.

HOLLERITH CARD FORMAT
Card 5.

Column(s)	Entry
1- 5	Protocol number.
6	Card number.
7-66	Dates for postoperative factors-- 6 columns each for 10 dates: month = first 2 columns day = second 2 columns year = third 2 columns 000000 = not applicable 6 blanks = not applicable 999999 = missing information.

Figure 7.

HOLLERITH CARD FORMAT
Card 6.

Column(s)	Entry
1- 5	Protocol number.
6	Card number.
7-12	Surgical results-- 1 column each for 6 measures: 1 = yes 2 = no 0 = no blank = no 9 = missing information.
13-18	Date of return to work-- 6 columns for date: month = first 2 columns day = second 2 columns year = third 2 columns 000000 = not applicable 6 blanks = not applicable 999999 = missing information.
19	Unable to state when patient returned to work: 1 = yes 2 = no 0 = no blank = no 9 = missing information.

The numbers across the top and bottom of Coding Form F represent the column on the Hollerith card where the data will be entered.

II. Computer packages.

Four commercial computer packages--Biomedical Computer Programs (BMD), Console Statistics (CONSTAT), OSIRIS III, and Statistical Package for the Social Sciences (SPSS)--will be used to analyze the Carpal Tunnel Syndrome data.

The CONSTAT and SPSS packages will be used when it is necessary to provide statistical description of variables, grouping of variables, transformation of variables, graphical representation of variables, recoding of variables, and to conduct specified multivariate statistical analyses.

The BMD package will also be used to conduct specified multivariate statistical analyses on the data.

The OSIRIS III package will be used to search for the basic structure of the data set and to conduct specified multivariate statistical analyses on the data.

III. Confidentiality of information.

The upholding and respecting of a patient's right to confidentiality of information regarding their treatment by a physician is of paramount importance when conducting medical research. During the research process, great care has been taken by the researcher to assure that the patients' rights of confidentiality of information regarding their treatment were not violated by this research endeavor. The following precautions were initiated:

1) Only persons employed by Joseph L. Posch, M.D. and Associates, P.C. were allowed access to the patient medical records abstracted as Carpal Tunnel Syndrome cases.
2) Only persons employed by Joseph L. Posch, M.D. and Associates, P.C. were allowed access to the completed Carpal Tunnel Syndrome Protocols.
3) Carpal Tunnel Syndrome data processed and stored outside of the offices of Joseph L. Posch, M.D. and Associates, P.C. are in a format which precludes the identification of patients. All data are in numerical format.

A legal opinion by Mr. Dennis M. Hertel, Attorney at Law, concerning the patient's right to confidentiality of information and the adherence of data preparation and data analyses in this dissertation to that right are provided in Appendix E.

CHAPTER IV

METHODOLOGY

I. Preparation of data.

The preparation of the data for computer processing entailed the following:

1. The identification of Carpal Tunnel Syndrome cases.
2. The location and isolation of medical records of patients diagnosed with Carpal Tunnel Syndrome.
3. The transfer of data from the patient medical record to the Carpal Tunnel Syndrome Protocol.
4. The transfer of data from the Carpal Tunnel Syndrome Protocol to Coding Form F.
5. The transfer of data from Coding Form F to Hollerith cards.
6. The transfer of data from Hollerith cards to magnetic tape.

A listing of all patients previously diagnosed positively for Carpal Tunnel Syndrome, treated, and discharged from care in the offices of Joseph L. Posch, M.D. and Associates, P.C. was compiled from a cross-reference diagnostic file kept on all patients. Nine hundred and forty-three cases of Carpal Tunnel Syndrome were identified.

The medical records of all 943 patients identified were isolated and filed in file cabinets located outside of the medical record department in the research suite.

The transfer of data from the patient medical record to the Carpal Tunnel Syndrome Protocol was conducted with the assistance of seven coders and one coding supervisor. Coders were those persons with at least two years medical secretarial experience at the office of Joseph L. Posch, M.D. and Associates, P.C. The coding supervisor was a person with at least five years medical secretary experience, and at least two years supervisory experience at the office of Joseph L. Posch, M.D. and Associates, P.C.

In order to assure the accurate transfer of data from the patient's medical record onto the Carpal Tunnel Syndrome Protocol, a systematic random sample of every fifth protocol form completed was made, and those forms were checked by the researcher and coding supervisor. All protocols were reviewed for missing information. The results of their reviews are recorded in Appendix F.

The production schedule for abstracting the medical records of patients with Carpal Tunnel Syndrome continued over a period of seven days with each of the seven coders abstracting approximately 19 medical records per day.

The transfer of data from the Carpal Tunnel Syndrome Protocol to Coding Form F was conducted with the assistance of two administrative secretaries. The administrative secretaries were persons employed in the offices of Joseph L. Posch, M.D. and Associates, P.C., and individuals known for a propensity for detail. To insure the accurate transfer of data from the Carpal Tunnel Syndrome Protocol to Coding Form F, all entries were checked by the researcher. The results of this review are recorded in Appendix F.

The complete transfer of data from the completed Carpal Tunnel Syndrome Protocol to the coding forms continued over a period of six days with each of the two administrative secretaries transferring approximately 79 cases per day.

The transfer of data from the coding statements to Hollerith cards was conducted with the assistance of an outside data processing firm with the capability of punching Hollerith cards. In order to assure the accurate transfer of data, all cards were punched and verified. Three days were necessary for the complete transfer of data.

The transfer of data from Hollerith cards to magnetic tape was conducted at the remote entry station, Science Library, of the data processing center, Wayne State University. In order to assure the accurate transfer of data, a systematic random sample was made of every twentieth card, and the accuracy between the data printed and the Hollerith card was checked by the researcher. The results are recorded in Appendix F.

II. Limitations of study.

The limitations of this research are as follows:

1) The study concerns the descriptive nature of the Carpal Tunnel Syndrome data set and, therefore, no inferences are made or will be made to any other cases of Carpal Tunnel Syndrome not included in the data set analyzed.

2) The hand will be used as a unit of datum rather than the patient. Since there are bilateral cases of Carpal

Tunnel Syndrome, 1142 hands will be analyzed rather than a data set containing 943 patients.

3) The cost of computer time is very expensive when conducting multivariate statistical analyses on a large data set. Consequently, the statistical analyses will be limited to three questions, and durations will not be considered when analyzing the data set.

III. Questions and statistical analyses.

Question 1: What is the difference between patients classified as surgical cases versus nonsurgical cases based on an analysis of preoperative data?

Statistical analyses:

1) Descriptive statistics calculated for the surgical case data set and the nonsurgical case data set.

2) Statistically search the data sets for discriminating variables employing the

Theta automatic interaction detector program (THAID).

3) Multivariate nominal scale analysis to determine which variables attribute to classification as surgical cases and which variables attribute to classification as nonsurgical cases.

4) Binary discriminant analyses to develop discriminant functions that provide maximal predictions for group membership.

Question 2: Is it possible to classify surgical patients into three groups which are based on the frequency of postoperative visits given information on preoperative variables?

1) Descriptive statistics calculated for each of the three groups.

2) Statistically search the data sets for discriminating variables employing the THAID program.

3) Multivariate nominal scale analysis to determine which variables attribute to the classification into each of the three groups.

4) Binary discriminant analyses to develop discriminant functions that provide maximal predictions for group membership.

<u>Question 3</u>: Is it possible to classify patients as surgical patients with a thenar incision versus surgical patients with a hypothenar incision based on postoperative considerations?

Statistical analyses:

1) Descriptive statistics calculated for the data set for patients with thenar incisions and for the data set for patients with hypothenar incisions.
2) Statistically search each data set for discriminating variables employing the THAID program.
3) Multivariate nominal scale analysis to determine which variables attribute to classification of patients as having thenar incisions and which variables attribute to classification of patients as having hypothenar incisions.

4) Binary discriminant analyses to develop discriminant functions that provide maximal predictions for group membership.

CHAPTER V

RESULTS AND DISCUSSION

I. Introduction.

The major emphasis on all data analyses will concern a data set composed of 92 variables. The 92 variables selected represent all variables in the original data set with the exception of measures on duration. Interval measures, specifically age, grip, and number of postoperative visits, have been reduced to an ordinal scale of measurement. Categorical measures have retained their original classification. A listing for all 92 variables and their respective category codes is provided in Figure 8.

The tables in which the results of statistical analyses are presented will generally provide the variable number and not the specific name for each variable. Consequently, the variable listing in Figure 8 also serves as a key for variable names.

The results of statistical analyses will be presented in the following manner. First of all, the descriptive statistics calculated for each of the three basic questions will be presented; the results will be analyzed to discern to what extent they answer each of

Figure 8.

K E Y

VARIABLE LISTING FOR ALL VARIABLES

	Code
General Information:	
(1) Sex.	1. = female. 2. = male. 0. = missing information.
(2) Age.	1. = 1-30 (years) 2. = 31-40 3. = 41-50 4. = 51-60 5. = 61-70 6. = 71-98 0. = missing information.
(3) Industrial or nonindustrial.	1. = industrial. 2. = nonindustrial. 0. = missing information.
(4) Location.	1. = right. 2. = left. 3. = bilateral right. 4. = bilateral left. 0. = missing information.
Previous Treatment:	
(5) Cortisone injection. (6) Splint/cast. (7) Surgery. (8) Physical therapy. (9) Other.	0. = no. 1. = yes. 2. = missing information.
Symptoms:	
(10) Cold. (11) Dryness of skin. (12) Nocturnal aggravation. (13) Pain. (14) Numbness. (15) Stiffness. (16) Swelling (17) Tingling.	0. = no. 1. = yes. 2. = missing information.

Figure 8. (continued)

	Code
History of:	
(18) Weakness.	0. = no.
(19) Other.	1. = yes.
(20) Acromegaly.	2. = missing information.
(21) Arthritis.	
(22) Congenital anomaly.	
(23) Cysts.	
(24) Diabetes.	
(25) Dupuytren's contracture.	
(26) Fracture of the wrist.	
(27) Hematoma.	
(28) Hypertension.	
(29) Infection.	
(30) Injury.	
(31) Leri's syndrome.	
(32) Menopause.	
(33) Myxedema or hypothyroidism.	
(34) Radical mastectomy.	
(35) Tenosynovitis.	
(36) Tumors.	
(37) Ulnar nerve symptoms.	
Previous Surgeries:	
(38) Extremity (same hand as carpal tunnel syndrome).	0. = no. 1. = yes.
(39) Extremity (opposite hand as carpal tunnel syndrome).	2. = missing information.
(40) Other location.	
(41) Other history.	
Findings on Examination:	
(42) Hand dominance.	1. = right. 2. = left. 3. = ambidextrous. 0. = missing information.
(43) Grip - right hand.	1. = 0- 19 (pounds) 2. = 20- 39 3. = 40- 59 4. = 60- 79 5. = 80- 99 6. = 100-119 0. = missing information.

Figure 8. (continued)

	Code
Findings on Examination: (cont.)	
(44) Grip - left hand.	1. = 0- 19 (pounds) 2. = 20- 39 3. = 40- 59 4. = 60- 79 5. = 80- 99 6. = 100-119 0. = missing information.
(45) Anesthesia. (46) Electromyogram +. (47) Phalen's sign +. (48) Tinel's sign +. (49) X-ray findings +. (50) First rib syndrome +. (51) Thoracic outlet syndrome +. (52) Thenar atrophy. (53) Other.	0. = no. 1. = yes. 2. = missing information.
Treatment:	
(54) Cortisone injection. (55) Splint/cast. (56) Surgery. (57) Physical therapy. (58) Other.	0. = no. 1. = yes. 2. = missing information.
Surgery:	
(59) Type of incision.	1. = thenar. 2. = hypothenar. 0. = missing information.
Surgical and Pathological Findings:	
(60) Aberrant artery. (61) Aberrant muscle. (62) Aberrant nerve. (63) Deformity due to fracture. (64) Dislocated lunate. (65) Fibrosis of tendons. (66) Ganglion cyst in canal. (67) Lacerated tendon in canal. (68) Osteophytes. (69) Scar tissue formation. (70) Synovitis.	0. = no. 1. = yes. 2. = missing information.

Figure 8. (continued)

	Code
Surgical and Path. Findings: (cont.)	
(71) Tumor in canal.	0. = no.
(72) Tenosynovitis--nonspecific.	1. = yes.
(73) Tenosynovitis--rheumatoid.	2. = missing information.
(74) Unusual recurrent branch of median nerve.	
(75) Other.	
(76) Surgery performed with carpal tunnel syndrome.	
Postoperative Care:	
(77) Number of follow-up visits.	1. = 1- 6
	2. = 7-11
	3. = 12 or more.
	0. = missing information.
(78) Edema.	0. = no.
(79) Neuritis.	1. = yes.
(80) Infection.	2. = missing information.
(81) Pain.	
(82) Acroparesthesia.	
(83) Weakness.	
(84) Physical therapy.	
(85) Cortisone injection.	
(86) Other.	
Surgical Results:	
(87) Complete relief.	0. = no.
(88) Prognosis is good for complete relief.	1. = yes.
(89) Unable to state result.	2. = missing information.
(90) No relief.	
(91) Further surgery for carpal tunnel necessary.	
(92) Additional surgery for carpal tunnel syndrome performed.	

the questions. Second, the results of the THAID analyses for each of the three basic questions will be presented; the results will be analyzed to discern to what extent they answer each of the questions. Third, the results of the multivariate nominal scale analyses for each of the three basic questions will be presented; the results will be analyzed to discern to what extent they answer each of the questions. Fourth, the results of discriminant analyses employing the identical variables used for the multivariate nominal scale analyses will be presented; the results will be analyzed to discern to what extent they answer each of the questions. Fifth, the results of discriminant analyses employing a selected set of variables will be presented; the results will be analyzed to discern to what extent they answer each of the questions. Sixth, and last of all, the results of the multivariate nominal scale analyses and the results of the discriminant analyses will be compared.

II. Descriptive statistical analyses.

Descriptive statistics, specifically frequency counts and percentages, have been calculated for three separate subgroup classifications. The subgrouping of the data set coincides with each of the three basic questions to be answered.

Table 1 provides frequencies and percentages based on subgroup classification for patients that have not had surgery and for patients that have had surgery. A discussion of these results immediately follows the completion of the table. Table 2 provides frequencies and percentages based on subgroup classification for patients into three frequency intervals for post-operative visits. Immediately following Table 2 the results are discussed. Table 3 provides frequencies and percentages based on the subgroup classification of patients according to the type of surgical incision. A discussion of the results immediately follows Table 4.

TABLE 1

FREQUENCIES AND PERCENTAGES FOR ALL VARIABLES BASED ON SUBGROUP CLASSIFICATION--NO SURGERY OR SURGERY

Variable Number	Variable Category Code	No Surgery (n = 463)		Surgery (n = 679)	
		Frequency	Percent[1]	Frequency	Percent[1]
1	1.	289	62.8	454	67.4
	2.	171	37.2	220	32.6
	0.	3	missing	5	missing
2	1.	61	13.5	63	9.4
	2.	83	18.4	116	17.3
	3.	105	23.2	187	27.9
	4.	124	27.4	178	26.6
	5.	54	11.9	95	14.2
	6.	25	5.5	31	4.6
	0.	11	missing	9	missing
3	1.	145	31.8	189	28.0
	2.	308	67.5	481	71.3
	3.	3	0.7	5	0.7
	0.	7	missing	4	missing
4	1.	190	41.2	302	44.9
	2.	82	17.8	147	21.8
	3.	82	17.8	121	18.0
	4.	103	22.3	98	14.6
	5.	4	0.9	5	0.7
	0.	2	missing	6	missing

[1]Percent represents the adjusted percents. Missing values are excluded.

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
5	0.	439	94.8	627	92.5
	1.	24	5.2	51	7.5
	2.	0	missing	1	missing
6	0.	450	97.2	635	93.7
	1.	43	6.3	13	2.8
	2.	0	missing	1	missing
7	0.	426	92.0	647	95.4
	1.	37	8.0	31	4.6
	2.	0	missing	1	missing
8	0.	437	94.4	644	95.0
	1.	26	5.6	34	5.0
	2.	0	missing	1	missing
9	0.	403	87.0	611	90.1
	1.	60	13.0	67	9.9
	2.	0	missing	1	missing
10	0.	451	97.4	664	97.9
	1.	12	2.6	14	2.1
	2.	0	missing	1	missing
11	0.	452	97.6	664	97.9
	1.	11	2.4	14	2.1
	2.	0	missing	1	missing

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
12	0.	336	72.6	484	71.4
	1.	127	27.4	194	28.6
	2.	0	missing	1	missing
13	0.	151	32.6	229	33.8
	1.	312	67.4	449	66.2
	2.	0	missing	1	missing
14	0.	127	27.4	208	30.7
	1.	336	72.6	470	69.3
	2.	0	missing	1	missing
15	0.	389	84.0	640	94.4
	1.	74	16.0	38	5.6
	2.	0	missing	1	missing
16	0.	354	76.5	543	80.1
	1.	109	23.5	135	19.9
	2.	0	missing	1	missing
17	0.	294	63.5	340	50.1
	1.	169	36.5	338	49.9
	2.	0	missing	1	missing
18	0.	358	77.3	565	83.3
	1.	105	22.7	113	16.7
	2.	0	missing	1	missing

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
19	0.	379	81.9	594	87.6
	1.	84	18.1	84	12.4
	2.	0	missing	1	missing
20	0.	460	99.4	672	99.1
	1.	3	0.6	6	0.9
	2.	0	missing	1	missing
21	0.	402	86.8	597	88.1
	1.	61	13.2	81	11.9
	2.	0	missing	1	missing
22	0.	458	98.9	667	98.4
	1.	5	1.1	11	1.6
	2.	0	missing	1	missing
23	0.	443	95.7	606	89.4
	1.	20	4.3	72	10.6
	2.	0	missing	1	missing
24	0.	435	94.0	647	95.4
	1.	28	6.0	31	4.6
	2.	0	missing	1	missing
25	0.	451	97.4	649	95.7
	1.	12	2.6	29	4.3
	2.	0	missing	1	missing

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	No Surgery (n = 463) Percent[1]	Surgery (n = 679) Frequency	Surgery (n = 679) Percent[1]
26	0.	437	94.4	641	94.5
	1.	26	5.6	37	5.5
	2.	0	missing	1	missing
27	0.	463	100.0	677	99.9
	1.	0	0.0	1	0.1
	2.	0	missing	1	missing
28	0.	420	90.7	628	92.6
	1.	43	9.3	50	7.4
	2.	0	missing	1	missing
29	0.	453	97.8	667	98.4
	1.	10	2.2	11	1.6
	2.	0	missing	1	missing
30	0.	355	76.7	530	78.2
	1.	108	23.3	148	21.8
	2.	0	missing	1	missing
31	0.	461	99.6	676	99.7
	1.	2	0.4	2	0.3
	2.	0	missing	1	missing
32	0.	438	94.6	630	92.9
	1.	25	5.4	48	7.1
	2.	0	missing	1	missing

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
33	0.	452	97.6	654	96.5
	1.	11	2.4	24	3.5
	2.	0	missing	1	missing
34	0.	459	99.1	672	99.1
	1.	4	0.9	6	0.9
	2.	0	missing	1	missing
35	0.	399	86.4	556	82.0
	1.	63	13.6	122	18.0
	2.	1	missing	1	missing
36	0.	451	97.4	657	96.9
	1.	12	2.6	21	3.1
	2.	0	missing	1	missing
37	0.	458	98.9	670	98.8
	1.	5	1.1	8	1.2
	2.	0	missing	1	missing
38	0.	410	88.6	589	86.9
	1.	53	11.4	89	13.1
	2.	0	missing	1	missing
39	0.	419	90.5	606	89.4
	1.	44	9.5	72	10.6
	2.	0	missing	1	missing

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
40	0.	381	82.3	586	86.4
	1.	82	17.7	92	13.6
	2.	0	missing	1	missing
41	0.	315	68.0	457	67.4
	1.	148	32.0	221	32.6
	2.	0	missing	1	missing
42	1.	352	90.0	468	90.0
	2.	27	6.9	42	8.1
	3.	12	3.1	10	1.9
	0.	72	missing	159	missing
43	1.	82	21.4	126	24.3
	2.	127	33.1	179	34.6
	3.	87	22.7	108	20.8
	4.	43	11.2	52	10.0
	5.	31	8.1	25	4.8
	6.	10	2.6	25	4.8
	7.	4	1.0	3	0.6
	0.	79	missing	161	missing
44	1.	77	20.0	73	14.0
	2.	127	33.0	177	34.0
	3.	84	21.8	136	26.2
	4.	46	11.9	72	13.8
	5.	31	8.1	44	8.5

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
	6.	19	4.9	12	2.3
	7.	1	0.3	6	1.2
	0.	78	missing	159	missing
45	0.	404	87.3	624	92.3
	1.	59	12.7	52	7.7
	2.	0	missing	3	missing
46	0.	377	82.1	540	80.1
	1.	82	17.9	134	19.9
	2.	4	missing	5	missing
47	0.	412	89.4	605	89.5
	1.	49	10.6	71	10.5
	2.	2	missing	3	missing
48	0.	425	92.4	616	91.0
	1.	35	7.6	61	9.0
	2.	3	missing	2	missing
49	0.	394	85.3	622	91.7
	1.	68	14.7	56	8.3
	2.	1	missing	1	missing
50	0.	463	100.0	677	99.9
	1.	0	0.0	1	0.1
	2.	0	missing	1	missing

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
51	0.	459	99.1	672	99.1
	1.	4	0.9	6	0.9
	2.	0	missing	1	missing
52	0.	416	89.8	599	88.3
	1.	47	10.2	79	11.7
	2.	0	missing	1	missing
53	0.	284	61.3	531	78.4
	1.	179	38.7	146	21.6
	2.	0	missing	2	missing
54	0.	444	96.1	661	97.3
	1.	18	3.9	18	2.7
	2.	1	missing	0	missing
55	0.	436	94.2	662	97.5
	1.	27	5.8	17	2.5
	2.	0	missing	0	missing
56	0.	463	100.0	0	0.0
	1.	0	0.0	679	100.0
	2.	0	missing	0	missing
57	0.	451	97.4	673	99.1
	1.	12	2.6	6	0.9
	2.	0	missing	0	missing

TABLE 1 (continued)

Variable Number	Variable Category Code	No Surgery (n = 463) Frequency	Percent[1]	Surgery (n = 679) Frequency	Percent[1]
58	0.	77	16.6	664	97.8
	1.	386	83.4	15	2.2
	2.	0	missing	0	missing

The basic question to be answered by examination of the results from Table 1 concerns the difference between patients classified as surgical cases and patients classified as nonsurgical cases. An indication of difference exists when the percent of occurrence on one variable differs dramatically from one group to the other. In the analysis of the results a deviation in percentage on each variable from one group to another of at least 25 percent will be considered a dramatic difference.

A review of the results in Table 1 demonstrates that variable 56 on which the groups were classified, and variable 58 (treatment-other) are the only two variables with dramatic differences. However, these basic differences do not provide meaningful information regarding group characteristics. The disparity on variable 56 means that all no-surgery cases are in fact no-surgery cases and that all surgery cases are surgery cases. The disparity on variable 58 illustrates that of the no-surgery cases 83.4 percent had treatment other than surgical intervention and that 16.6 percent of the no-surgery cases received treatment such as cortisone injection, splint/casts, etc. Also, the disparity on variable 56 illustrates that 2.2 percent of the surgical patients at some time during the course of medical care received other treatment besides surgical intervention.

In general, the descriptive statistics calculated for the no-surgery and the surgery group provide little information regarding group differences. The groups based on percentage differences are similar.

TABLE 2

FREQUENCIES AND PERCENTAGES FOR ALL VARIABLES
BASED ON SUBGROUP CLASSIFICATION--
FOLLOW-UP VISITS 1 THROUGH 6, FOLLOW-UP VISITS 7 THROUGH 11,
OR FOLLOW-UP VISITS OF 12 OR MORE

Variable Number	Variable Category Code	1-6 visits (n = 251)		7-11 visits (n = 218)		12 visits or more (n = 136)	
		Frequency	Percent[1]	Frequency	Percent[1]	Frequency	Percent[1]
1	1.	178	70.9	134	61.8	92	68.7
	2.	73	29.1	83	38.2	42	31.3
	0.	0	missing	1	missing	2	missing
2	1.	32	12.9	16	7.5	11	8.2
	2.	43	17.3	38	17.8	24	17.9
	3.	63	25.3	57	26.6	47	35.1
	4.	60	24.1	66	30.8	30	22.4
	5.	35	14.1	31	14.5	18	13.4
	6.	16	6.4	6	2.8	4	3.0
	0.	2	missing	4	missing	2	missing
3	1.	44	17.5	55	25.3	64	47.4
	2.	206	82.1	159	73.3	70	51.9
	3.	1	0.4	3	1.4	1	0.7
	0.	0	missing	1	missing	1	missing
4	1.	113	45.0	100	46.3	59	44.0
	2.	53	21.1	48	22.2	26	19.4
	3.	48	19.1	36	16.7	25	18.7
	4.	36	14.3	31	14.4	22	16.4
	5.	1	0.4	1	0.5	2	1.5
	0.	0	missing	2	missing	2	missing

[1]Percent represents the adjusted percents. Missing values are excluded.

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251)		7-11 visits (n = 218)		12 visits or more (n = 136)	
		Frequency	Percent[1]	Frequency	Percent[1]	Frequency	Percent[1]
5	0.	231	92.0	202	93.1	124	91.2
	1.	20	8.0	15	6.9	12	8.8
	2.	0	missing	1	missing	0	missing
6	0.	242	96.4	206	94.9	118	86.8
	1.	9	3.6	11	5.1	18	13.2
	2.	0	missing	1	missing	0	missing
7	0.	238	94.8	213	98.2	126	92.6
	1.	13	5.2	4	1.8	10	7.4
	2.	0	missing	1	missing	0	missing
8	0.	241	96.0	208	95.9	127	93.4
	1.	10	4.0	9	4.1	9	6.6
	2.	0	missing	1	missing	0	missing
9	0.	224	89.2	196	90.3	121	89.0
	1.	27	10.8	21	9.7	15	11.0
	2.	0	missing	1	missing	0	missing
10	0.	246	98.0	214	98.6	132	97.1
	1.	5	2.0	3	1.4	4	2.9
	2.	0	missing	1	missing	0	missing
11	0.	248	98.8	214	98.6	134	98.5
	1.	3	1.2	3	1.4	2	1.5
	2.	0	missing	1	missing	0	missing

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251) Frequency	Percent[1]	7-11 visits (n = 218) Frequency	Percent[1]	12 visits or more (n = 136) Frequency	Percent[1]
12	0.	178	70.9	156	71.9	101	74.3
	1.	73	29.1	61	28.1	35	25.7
	2.	0	missing	1	missing	0	missing
13	0.	82	32.7	80	36.9	41	30.1
	1.	169	67.3	137	63.1	95	69.9
	2.	0	missing	1	missing	0	missing
14	0.	65	25.9	69	31.8	51	37.5
	1.	186	74.1	148	68.2	85	62.5
	2.	0	missing	1	missing	0	missing
15	0.	236	94.0	207	95.4	124	91.2
	1.	15	6.0	10	4.6	12	8.8
	2.	0	missing	1	missing	0	missing
16	0.	207	82.5	183	84.3	97	71.3
	1.	44	17.5	34	15.7	39	28.7
	2.	0	missing	1	missing	0	missing
17	0.	119	47.4	103	47.5	70	51.5
	1.	132	52.6	114	52.5	66	48.5
	2.	0	missing	1	missing	0	missing
18	0.	220	87.6	179	82.5	102	75.0
	1.	31	12.4	38	17.5	34	25.0
	2.	0	missing	1	missing	0	missing

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251)		7-11 visits (n = 218)		12 visits or more (n = 136)	
		Frequency	Percent[1]	Frequency	Percent[1]	Frequency	Percent[1]
19	0.	217	86.5	197	90.8	118	86.8
	1.	34	13.5	20	9.2	18	13.2
	2.	0	missing	1	missing	0	missing
20	0.	248	98.8	215	99.1	136	100.0
	1.	3	1.2	2	0.9	0	0.0
	2.	0	missing	1	missing	0	missing
21	0.	224	89.2	198	91.2	113	83.1
	1.	27	10.8	19	8.8	23	16.9
	2.	0	missing	1	missing	0	missing
22	0.	244	97.2	215	99.1	135	99.3
	1.	7	2.8	2	0.9	1	0.7
	2.	0	missing	1	missing	0	missing
23	0.	221	88.0	192	88.5	119	87.5
	1.	30	12.0	25	11.5	17	12.5
	2.	0	missing	1	missing	0	missing
24	0.	241	96.0	204	94.0	134	98.5
	1.	10	4.0	13	6.0	2	1.5
	2.	0	missing	1	missing	0	missing
25	0.	248	98.8	202	93.1	127	93.4
	1.	3	1.2	15	6.9	9	6.6
	2.	0	missing	1	missing	0	missing

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251) Frequency	Percent[1]	7-11 visits (n = 218) Frequency	Percent[1]	12 visits or more (n - 136) Frequency	Percent[1]
26	0.	238	94.8	204	94.0	129	94.9
	1.	13	5.2	13	6.0	7	5.1
	2.	0	missing	1	missing	0	missing
27	0.	251	100.0	216	99.5	136	100.0
	1.	0	0.0	1	0.5	0	0.0
	2.	0	missing	1	missing	0	missing
28	0.	232	92.4	203	93.5	125	91.9
	1.	19	7.6	14	6.5	11	8.1
	2.	0	missing	1	missing	0	missing
29	0.	245	97.6	214	98.6	135	99.3
	1.	6	2.4	3	1.4	1	0.7
	2.	0	missing	1	missing	0	missing
30	0.	210	83.7	169	77.9	96	70.6
	1.	41	16.3	48	22.1	40	29.4
	2.	0	missing	1	missing	0	missing
31	0.	250	99.6	218	100.0	136	100.0
	1.	1	0.4	0	0.0	0	0.0
	2.	0	missing	0	missing	0	missing
32	0.	241	96.0	196	90.3	124	91.2
	1.	10	4.0	21	9.7	12	8.8
	2.	0	missing	1	missing	0	missing

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251) Frequency	Percent[1]	7-11 visits (n = 218) Frequency	Percent[1]	12 visits or more (n = 136) Frequency	Percent[1]
33	0.	246	98.0	209	96.3	127	93.4
	1.	5	2.0	8	3.7	9	6.6
	2.	0	missing	1	missing	0	missing
34	0.	248	98.8	216	99.5	135	99.3
	1.	3	1.2	1	0.5	1	0.7
	2.	0	missing	1	missing	0	missing
35	0.	208	82.9	185	85.3	101	74.3
	1.	43	17.1	32	14.7	35	25.7
	2.	0	missing	1	missing	0	missing
36	0.	246	98.0	206	94.9	131	96.3
	1.	5	2.0	11	5.1	5	3.7
	2.	0	missing	1	missing	0	missing
37	0.	247	98.4	214	98.6	135	99.3
	1.	4	1.6	3	1.4	1	0.7
	2.	0	missing	1	missing	0	missing
38	0.	224	89.2	190	87.6	110	80.9
	1.	27	10.8	27	12.4	26	19.1
	2.	0	missing	1	missing	0	missing
39	0.	216	86.1	205	94.5	122	89.7
	1.	35	13.9	12	5.5	14	10.3
	2.	0	missing	1	missing	0	missing

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251) Frequency	Percent[1]	7-11 visits (n = 218) Frequency	Percent[1]	12 visits or more (n = 136) Frequency	Percent[1]
40	0.	221	88.0	188	86.6	111	81.6
	1.	30	12.0	29	13.4	25	18.4
	2.	0	missing	1	missing	0	missing
41	0.	174	69.3	149	68.7	84	61.8
	1.	77	30.7	68	31.3	52	38.2
	2.	0	missing	1	missing	0	missing
42	1.	172	87.8	152	89.4	97	95.1
	2.	20	10.2	14	8.2	3	2.9
	3.	4	2.0	4	2.4	2	2.0
	0.	55	missing	48	missing	34	missing
43	1.	45	22.7	32	19.3	34	34.0
	2.	70	35.4	61	36.7	32	32.0
	3.	48	24.2	31	18.7	20	20.0
	4.	15	7.6	18	10.8	8	8.0
	5.	7	3.5	15	9.0	3	3.0
	6.	12	6.1	8	4.8	3	3.0
	7.	1	0.5	1	0.6	0	0.0
	0.	53	missing	52	missing	36	missing
44	1.	31	15.4	17	10.4	17	16.8
	2.	67	33.3	55	33.5	37	36.6
	3.	49	24.4	50	30.5	24	23.8
	4.	32	15.9	16	9.8	15	14.9
	5.	16	8.0	17	10.4	6	5.9

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251) Frequency	Percent[1]	7-11 visits (n = 218) Frequency	Percent[1]	12 visits or more (n = 136) Frequency	Percent[1]
	6.	4	2.0	7	4.3	0	0.0
	7.	2	1.0	2	1.2	2	2.0
	0.	50	missing	54	missing	35	missing
45	0.	230	91.6	201	92.6	124	92.5
	1.	21	8.4	16	7.4	10	7.5
	2.	0	missing	1	missing	2	missing
46	0.	197	79.1	170	78.3	107	79.9
	1.	52	20.9	47	21.7	27	20.1
	2.	2	missing	1	missing	2	missing
47	0.	224	89.2	198	91.2	120	89.6
	1.	27	10.8	19	8.8	14	10.4
	2.	0	missing	1	missing	2	missing
48	0.	224	89.2	195	89.9	132	97.1
	1.	27	10.8	22	10.1	4	2.9
	2	0	missing	1	missing	0	missing
49	0.	236	94.0	192	88.5	126	92.6
	1.	15	6.0	25	11.5	10	7.4
	2.	0	missing	1	missing	0	missing
50	0.	250	99.6	218	100.0	136	100.0
	1.	1	0.4	0	0.0	0	0.0
	2.	0	missing	0	missing	0	missing

TABLE 2 (continued)

Variable Number	Variable Category Code	1-6 visits (n = 251)		7-11 visits (n = 218)		12 visits or more (n = 136)	
		Frequency	Percent[1]	Frequency	Percent[1]	Frequency	Percent[1]
51	0.	228	90.8	215	99.1	136	100.0
	1.	23	9.2	2	0.9	0	0.0
	2.	0	missing	1	missing	0	missing
52	0.	202	80.5	189	87.1	117	86.0
	1.	49	19.5	28	12.9	19	14.0
	2.	0	missing	1	missing	0	missing
53	0.	245	97.6	165	76.0	110	80.9
	1.	6	2.4	52	24.0	26	19.1
	2.	0	missing	1	missing	0	missing

The basic question to be answered by examination of the results from Table 2 concerns the possibility of classifying surgical patients into three groups based on frequency intervals of postoperative visits. Frequencies and percentages for preoperative variables will be analyzed. In order to provide an index to assist in determining those variables that tend to contribute to group membership, a deviation in percentage on each variable from one group to another of at least 25 percent will be considered an appropriate discriminating index.

A review of the results in Table 2 reveals that none of the variables considered provide percent differences between groups establishing a sufficient discriminating index.

In general, the descriptive statistics calculated for the three groups provide little information regarding the possibility of classifying the surgical patients for group membership. Once again, the groups based on percentage differences are similar.

TABLE 3

FREQUENCIES AND PERCENTAGES FOR ALL VARIABLES
BASED ON SUBGROUP CLASSIFICATION--
THENAR INCISION OR HYPOTHENAR INCISION

Variable Number	Variable Category Code	Thenar (n = 501)		Hypothenar (n = 114)	
		Frequency	Percent[1]	Frequency	Percent[1]
59	1.	501	100.0	0	0.0
	2.	0	0.0	114	100.0
	0.	0	missing	0	missing
60	0.	492	98.6	111	97.4
	1.	7	1.4	3	2.6
	2.	2	missing	0	missing
61	0.	494	99.0	111	97.4
	1.	5	1.0	3	2.6
	2.	2	missing	0	missing
62	0.	487	97.6	107	93.9
	1.	12	2.4	7	6.1
	2.	2	missing	0	missing
63	0.	497	99.6	113	99.1
	1.	2	0.4	1	0.9
	2.	2	missing	0	missing
64	0.	497	99.6	113	99.1
	1.	2	0.4	1	0.9
	2.	2	missing	0	missing

[1]Percent represents the adjusted percents. Missing values are excluded.

TABLE 3 (continued)

Variable Number	Variable Category Code	Thenar (n = 501) Frequency	Percent[1]	Hypothenar (n = 114) Frequency	Percent[1]
65	0.	459	92.0	105	92.1
	1.	40	8.0	9	7.9
	2.	2	missing	0	missing
66	0.	491	98.4	114	100.0
	1.	8	1.6	0	0.0
	2.	2	missing	0	missing
67	0.	498	99.8	114	100.0
	1.	1	0.2	0	0.0
	2.	2	missing	0	missing
68	0.	498	99.8	114	100.0
	1.	1	0.2	0	0.0
	2.	2	missing	0	missing
69	0.	476	95.4	106	93.0
	1.	23	4.6	8	7.0
	2.	2	missing	0	missing
70	0.	351	70.3	78	68.4
	1.	148	29.7	36	31.6
	2.	2	missing	0	missing
71	0.	495	99.2	114	100.0
	1.	4	0.8	0	0.0
	2.	2	missing	0	missing

TABLE 3 (continued)

Variable Number	Variable Category Code	Thenar (n = 501)		Hypothenar (n = 114)	
		Frequency	Percent[1]	Frequency	Percent[1]
72	0.	306	61.3	65	57.0
	1.	193	38.7	49	43.0
	2.	2	missing	0	missing
73	0.	471	94.4	110	96.5
	1.	28	5.6	4	3.5
	2.	2	missing	0	missing
74	0.	498	99.8	113	99.1
	1.	1	0.2	1	0.9
	2.	2	missing	0	missing
75	0.	353	70.7	76	66.7
	1.	146	29.3	38	33.3
	2.	2	missing	0	missing
76	0.	350	70.0	84	73.7
	1.	150	30.0	30	26.3
	2.	1	missing	0	missing
77	1.	185	40.5	47	47.0
	2.	167	36.5	32	32.0
	3.	105	23.0	21	21.0
	0.	44	missing	14	missing
78	0.	401	80.2	88	77.2
	1.	99	19.8	26	22.8
	2.	1	missing	0	missing

TABLE 3 (continued)

Variable Number	Variable Category Code	Thenar (n = 501) Frequency	Percent[1]	Hypothenar (n = 114) Frequency	Percent[1]
79	0.	498	99.6	114	100.0
	1.	2	0.4	0	0.0
	2.	1	missing	0	missing
80	0.	499	99.8	114	100.0
	1.	1	0.2	0	0.0
	2.	1	missing	0	missing
81	0.	338	67.6	75	65.8
	1.	162	32.4	39	34.2
	2.	1	missing	0	missing
82	0.	322	64.4	64	56.1
	1.	178	35.6	50	43.9
	2.	1	missing	0	missing
83	0.	437	87.4	93	81.6
	1.	63	12.6	21	18.4
	2.	1	missing	0	missing
84	0.	453	90.6	102	89.5
	1.	47	9.4	12	10.5
	2.	1	missing	0	missing
85	0.	484	96.8	112	98.2
	1.	16	3.2	2	1.8
	2.	1	missing	0	missing

TABLE 3 (continued)

Variable Number	Variable Category Code	Thenar (n = 501) Frequency	Thenar (n = 501) Percent[1]	Hypothenar (n = 114) Frequency	Hypothenar (n = 114) Percent[1]
86	0.	337	67.4	80	70.2
	1.	163	32.6	34	29.8
	2.	1	missing	0	missing
87	0.	293	58.6	80	70.2
	1	207	41.4	34	29.8
	2.	1	missing	0	missing
88	0.	253	50.6	45	39.5
	1.	247	49.4	69	60.5
	2.	1	missing	0	missing
89	0.	472	94.4	107	93.9
	1.	28	5.6	7	6.1
	2.	1	missing	0	missing
90	0.	491	98.2	110	96.5
	1.	9	1.8	4	3.5
	2.	1	missing	0	missing
91	0.	489	97.8	113	99.1
	1.	11	2.2	1	0.9
	2.	1	missing	0	missing
92	0.	493	98.6	113	99.1
	1.	7	1.4	1	0.9
	2.	1	missing	0	missing

The basic question to be answered by examination of the results from Table 3 concerns the possibility of classifying patients as surgical patients with a thenar incision, and as surgical patients with a hypothenar incision, based on postoperative considerations. In order to determine those variables that tend to contribute to group membership, a percentage deviation on each variable between groups of at least 25 percent will be considered an appropriate discriminating index.

An examination of results in Table 3 reveals that only variable 59 (type of incision) provides an appropriate discriminating index. The disparity on variable 59 signifies that all thenar incision cases are in fact thenar incision cases, and all hypothenar incision cases are in fact hypothenar incision cases.

In general, the variables considered in Table 4 provide little information regarding the potential classification of patients into groups. Essentially, the groups based on percentage differences for each variable are quite similar.

III. THAID analyses.

Three separate THAID analyses were conducted on each of the three separate subgroup classifications to extract variables that provide possible discrimination for group membership. Each of the three separate subgroup classifications coincide with the three basic questions to be answered. In the case of the THAID analyses, as will be the case in all subsequent multivariate statistical analyses, the dependent variable represents the classification variable, and the independent variables represent the variables associated with group membership.

The results of the three THAID analyses provide Theta values (discrimination index) based on the Delta criterion. The minimum Theta value necessary for inclusion of a variable in the following three tables is as follows: Table 4, 0.060; Table 5, 0.059; Table 6, 0.055. The minimum Theta value represents the value necessary during the course of the THAID analyses which provided substantial discrimination for the bivariate separation of the dependent variable into sixteen separate subgroups.

The results of the THAID analyses are provided in Table 4, Table 5, Table 6. Table 4 provides discriminating Theta values for the dependent variable "treatment classification." Table 5 provides discriminating Theta values for the dependent variable "postoperative visit classification." Table 6 provides discriminating Theta values for the dependent variable "incision classification."

Following the three tables for the THAID analyses, a discussion of the import of these analyses to subsequent analyses is presented.

TABLE 4

VARIABLES WITH THETA VALUES GREATER THAN 0.060--
DEPENDENT VARIABLE: TREATMENT CLASSIFICATION
(No Surgery; Surgery)

Variable Number	Theta Value
1	0.066
2	0.065
3	0.068
4	0.125
6	0.063
7	0.074
13	0.089
14	0.131
15	0.115
16	0.066
17	0.134
18	0.077
23	0.080
28	0.064
35	0.078
42	0.133
43	0.144
44	0.084
46	0.112

TABLE 4 (continued)

Variable Number	Theta Value
48	0.066
49	0.123
52	0.069

TABLE 5

VARIABLES WITH THETA VALUES GREATER THAN 0.059--
DEPENDENT VARIABLE:
POSTOPERATIVE VISIT CLASSIFICATION
(1 through 6; 7 through 11; 12+)

Variable Number	Theta Value
2	0.71
3	0.139
13	0.066
14	0.080
16	0.063
17	0.060
18	0.076
21	0.087
25	0.062
30	0.073
39	0.069
42	0.083
43	0.071
44	0.071
46	0.074
49	0.066

TABLE 6

VARIABLES WITH THETA VALUES GREATER THAN 0.0055--
DEPENDENT VARIABLE: INCISION CLASSIFICATION
(Thenar; Hypothenar)

Variable Number	Theta Value
62	0.075
65	0.055
70	0.119
72	0.079
76	0.096
77	0.100
78	0.118
81	0.073
82	0.163
83	0.065
87	0.114
88	0.138

The results revealed in Table 4, Table 5, and Table 6, are extremely important to subsequent analyses for the multivariate nominal scale analyses and for the discriminant analyses. Essentially, the reduction in the number of variables increases the assurance that the variables selected for analyses provide discrimination as to group membership. The variables eliminated because their Theta values were less than the minimum value set represent variables that were highly correlated with the variables selected to the extent that successful completion of subsequent multivariate nominal scale analyses would be impossible. The inclusion of one or two variables not included in the previous three tables actually prevents the successful completion of statistical analyses with multivariate nominal scale analysis. For example, if variable 10 was included in the variable list for Table 4, it is very possible that a multivariate nominal scale analysis on the data would terminate unsuccessfully. This would occur because variable 10 is correlated to the extent with all other variables that after taking into account their respective contribution to the dependent variables, variable 10's contribution would be very close to zero.

Consequently, the program would terminate prior to completion.

Suffice it to say, the THAID analyses not only assist in determining which variables possibly discriminate as to group membership, but also are essential to the efficient analysis of the data set using multivariate nominal scale analysis. Consequently, the results of the THAID analyses serve as one criteria for the inclusion of variables in subsequent multivariate nominal scale analyses.

IV. Multivariate nominal scale analysis.

Three separate multivariate nominal scale analyses were conducted on each of three separate subgroup classifications to determine the possibility of classifying patients into specified groups, and also to determine the relative importance of variables selected.

Prior to the actual analyses the variables were selected for each analyses based on two major considerations. First, only those variables demonstrating a potential to discriminate were included. Second, consideration was given to variables with a large number of missing values. The first analysis concerns the classification variable "treatment." Examination of the frequency counts for this classification (Table 1) shows that variable 42, variable 43, and variable 44 have a large number of missing values. Therefore, variable 43 and variable 44 were eliminated. Variable 42 was retained for the first analysis since the number of missing values was minimal with respect to the 1142 cases. A final listing of variables included in the analysis based on "treatment" classification is found in Figure 9. The second analysis concerns the classification variable "postoperative visit." Examination of the frequency counts for this classification (Table 2) shows

Figure 9.

VARIABLE LIST FOR MULTIVARIATE NOMINAL SCALE ANALYSIS: DEPENDENT VARIABLE--TREATMENT CLASSIFICATION (No Surgery; Surgery)

Variable Number	Variable Name
1	Sex.
2	Age.
3	Industrial or nonindustrial.
4	Location.
6	Previous treatment--Splint/cast.
7	Previous treatment--Surgery.
13	Symptom--Pain.
14	Symptom--Numbness.
15	Symptom--Stiffness.
16	Symptom--Swelling.
17	Symptom--Tingling.
18	Symptom--Weakness.
23	History--Cysts.
28	History--Hypertension.
35	History--Tenosynovitis.
42	Hand dominance.
46	Finding--EMG +.
48	Finding--Tinel's sign +.
49	Finding--X-ray +.

that variable 32, variable 43, and variable 44 have large numbers of missing values. Since the data set consists of 679 cases, all three variables with large numbers of missing values were excluded from the variable list. A final listing of variables included in the analysis based on "postoperative visit" classification is found in Figure 10. The third analysis concerns the classification variable "incision." Examination of the frequency counts for this classification (Table 3) shows that none of the variables have large numbers of missing values. Consequently, the THAID selected variables will all be included in the analysis. The listing of variables included in the analysis based on "incision" classification is found in Figure 11.

Each of the three multivariate nominal scale analyses results in two tables. The first table provides general information as well as variable-specific information. The general information provided is as follows: overall number of cases in each group, overall percent of cases in each group, generalized R^2 which represents the coefficient of determination when taking all variables into account, and the multivariate Theta which represents the proportion of cases classified correctly when taking the influence of all variables

Figure 10.

VARIABLE LIST FOR MULTIVARIATE NOMINAL SCALE ANALYSIS: DEPENDENT VARIABLE--POSTOPERATIVE VISIT CLASSIFICATION (1 through 6; 7 through 11; 12+)

Variable Number	Variable Name
2	Age.
3	Industrial or nonindustrial.
13	Symptom--Pain.
14	Symptom--Numbness.
16	Symptom--Swelling.
17	Symptom--Tingling.
18	Symptom--Weakness.
21	History--Arthritis.
25	History--Dupuytren's contracture.
30	History--Injury.
39	History--Surgery (opposite hand as Carpal Tunnel Syndrome).
46	Finding--EMG +.
49	Finding--X-ray +.

Figure 11.

VARIABLE LIST FOR MULTIVARIATE NOMINAL SCALE
ANALYSIS: DEPENDENT VARIABLE--
INCISION CLASSIFICATION
(Thenar; Hypothenar)

Variable Number	Variable Name
62	Finding--Aberrant nerve.
65	Finding--Fibrosis of tendons.
70	Finding--Synovitis.
72	Finding--Tenosynovitis (nonspecific).
76	Surgery performed with Carpal Tunnel Syndrome.
77	Category of postoperative visits.
78	Postoperative edema.
81	Postoperative pain.
82	Postoperative acroparesthesia.
83	Postoperative weakness.
87	Result--Complete relief.
88	Result--Prognosis good for complete relief.

into account. The variable-specific information is as follows: generalized Eta-square which represents the coefficient of determination between the specific variable and the dependent variable taking all groups into consideration; bivariate Theta which represents the proportion of cases classified correctly knowing the values on the variable specified; Eta-squared which tells the amount of variance accounted for in each group by the specific variable under consideration; and Beta-squared which shows the importance of the variable in distinguishing group membership. The second table for each variable presents an overall summary matrix based on frequency and percentages of cases classified correctly as well as cases classified incorrectly.

The results of the multivariate nominal scale analyses specific to each question will be presented in the following manner. Table 7 and Table 8 which concern the first basic question will be presented followed by a discussion of the results. Table 9 and Table 10 which concern the second basic question will be presented next followed by a discussion of the results. And, finally, Table 11 and Table 12 which concern the third basic question will be presented followed by a discussion of the results.

TABLE 7

MULTIVARIATE STATISTICS
FOR MULTIVARIATE NOMINAL SCALE ANALYSIS:
DEPENDENT VARIABLE--
TREATMENT (No Surgery; Surgery)

			No Surgery	Surgery
I.	General.			
	Overall number		463	678
	Overall percent		40.58	59.42
	Generalized R^2	0.1250		
	Multivariate Theta	0.6582		
II.	Variable-specific.			
	Variable 1: Sex.			
	Generalized Eta-square	0.0022		
	Bivariate Theta	0.5942		
	Eta-squared		0.0022	0.0022
	Beta-squared		0.0009	0.0009
	Variable 2: Age.			
	Generalized Eta-square	0.0086		
	Bivariate Theta	0.0960		
	Eta-squared		0.0086	0.0086
	Beta-squared		0.0099	0.0099
	Variable 3: Industrial or non-industrial.			
	Generalized Eta-square	0.0116		
	Bivariate Theta	0.5986		

TABLE 7 (continued)

		No Surgery	Surgery
Eta-squared		0.0038	0.0038
Beta-squared		0.0050	0.0050
Variable 4: Location.			
Generalized Eta-square	0.0116		
Bivariate Theta	0.5986		
Eta-squared		0.0116	0.0116
Beta-squared		0.0158	0.0158
Variable 6: Previous treatment--Splint/cast.			
Generalized Eta-square	0.0065		
Bivariate Theta	0.5942		
Eta-squared		0.0065	0.0065
Beta-squared		0.0078	0.0078
Variable 7: Previous treatment--Surgery.			
Generalized Eta-square	0.0050		
Bivariate Theta	0.5995		
Eta-squared		0.0050	0.0050
Beta-squared		0.0044	0.0044
Variable 13: Symptom--Pain.			
Generalized Eta-square	0.0001		
Bivariate Theta	0.5942		
Eta-squared		0.0001	0.0001
Beta-squared		0.0000	0.0000

TABLE 7 (continued)

		No Surgery	Surgery
Variable 14: Symptom--Numbness.			
Generalized Eta-square	0.0012		
Bivariate Theta	0.5942		
Eta-squared		0.0012	0.0012
Beta-squared		0.0021	0.0021
Variable 15: Symptom--Stiffness.			
Generalized Eta-square	0.0293		
Bivariate Theta	0.6258		
Eta-squared		0.0293	0.0293
Beta-squared		0.0243	0.0243
Variable 16: Symptom--Swelling.			
Generalized Eta-square	0.0019		
Bivariate Theta	0.5942		
Eta-squared		0.0019	0.0019
Beta-squared		0.0007	0.0007
Variable 17: Symptom--Tingling.			
Generalized Eta-square	0.0174		
Bivariate Theta	0.5942		
Eta-squared		0.0174	0.0174
Beta-squared		0.0103	0.0103
Variable 18: Symptom--Weakness.			
Generalized Eta-square	0.0056		
Bivariate Theta	0.5942		
Eta-squared		0.0056	0.0056
Beta-squared		0.0037	0.0037

TABLE 7 (continued)

		No Surgery	Surgery
Variable 23: History--Cysts.			
Generalized Eta-square	0.0129		
Bivariate Theta	0.5942		
Eta-squared		0.0129	0.0129
Beta-squared		0.0084	0.0084
Variable 28: History--Hypertension.			
Generalized Eta-square	0.0012		
Bivariate Theta	0.5942		
Eta-squared		0.0012	0.0012
Beta-squared		0.0010	0.0010
Variable 35: History--Tenosynovitis.			
Generalized Eta-square	0.0046		
Bivariate Theta	0.5951		
Eta-squared		0.0046	0.0046
Beta-squared		0.0037	0.0037
Variable 42: Hand dominance.			
Generalized Eta-square	0.0104		
Bivariate Theta	0.5960		
Eta-squared		0.0104	0.0104
Beta-squared		0.0098	0.0098
Variable 46: Findings--EMG +.			
Generalized Eta-square	0.0009		
Bivariate Theta	0.5942		
Eta-squared		0.0009	0.0009
Beta-squared		0.0006	0.0006

TABLE 7 (continued)

		No Surgery	Surgery
Variable 48: Findings--Tinel's sign +.			
Generalized Eta-square	0.0023		
Bivariate Theta	0.5960		
Eta-squared		0.0023	0.0023
Beta-squared		0.0009	0.0009
Variable 49: Findings--X-ray +.			
Generalized Eta-square	0.0116		
Bivariate Theta	0.6056		
Eta-squared		0.0116	0.0116
Beta-squared		0.0104	0.0104

TABLE 8

CLASSIFICATION MATRIX
FOR MULTIVARIATE NOMINAL SCALE ANALYSIS
USING THAID SELECTED VARIABLE SET:
DEPENDENT VARIABLE--TREATMENT CLASSIFICATION
(No Surgery; Surgery)

		Predicted		
		No Surgery	Surgery	Total
Actual	No Surgery	188	275	463
	Percent	40.60	59.40	
	Surgery	115	563	678
	Percent	16.96	83.04	
	Total	303	838	1141

The basic question to be answered by examination of the results in Table 7 and Table 8 concerns the possibility of classifying patients as either non-surgical patients or as surgical patients, as well as the importance of specific variables in contributing to this classification.

The results in Table 7 provide general and specific information on the characteristics of the data set. The overall percents tell us the likelihood that a case belongs to either the nonsurgical group or the surgery group based on information regarding the frequency of case occurrence in each group. Consequently, the best prediction for group membership would be 59.42 percent for the surgical cases. One could conclude with 59.42 percent accuracy that a case selected at random from the data set would be a surgical case. The multivariate Theta also provides information regarding the prediction for group membership. However, in this case the probability measure takes into account the overall influence of all variables included in the analysis. By considering the effects of the 19 independent variables, one's predictive power is raised from 59.42 percent to 65.82 percent. As a result, one could conclude with 65.82 percent accuracy that a case belongs to either the nonsurgical group or the surgery group. The generalized R^2 tells one that the influence of all variables taken as a set explains 12.5 percent of the variance associated with the dependent variable. Another interpretation would be that 87.5 percent of the total variance of the dependent variable is associated with variables not considered in the analysis.

If, next, one looks to the variable-specific information, additional answers to the first basic question of this research can be answered. The bivariate Theta provides information regarding the prediction for group membership in the bivariate situation. Consequently, an examination of Table 7 reveals that variable 1, variable 6, variable 13, variable 14, variable 16, variable 17, variable 18, variable 23, variable 28, and variable 46 provide no additional predictive power beyond that established by the proportion of the overall frequency. In each instance the probability for classification is 59.42 percent. Further examination of the results reveals that all other variables with the exceptions of variable 2 and variable 35 provide an increase in prediction over that achieved by examination of the overall frequency distribution. However, in no instance does this increase in probability approximate the multivariate Theta. The best bivariate predictor variable for group membership is variable 15. In order to achieve an overall predictive power, the influences of more than one variable must be considered.

The generalized Eta-square statistics demonstrate the amount of dependent variable variance accounted for by each variable in the bivariate situation. In general, the specific variables do not explain too much of the variance associated with the dependent variable. In fact, the variable with the greatest explanatory power would be variable 15, and this variable accounts for only 2.93 percent of the total variance. Consequently, one must conclude that in order to explain at least 12.50 percent of the variability, all variables must be considered as a set.

The Eta-square statistic reveals how well each group is distinguished by the specific variable when the influence of the variable is considered in the bivariate situation. An examination of the Eta-squares for all variables reveals that the statistic value was equal for each group. The variables provide equal explanation of variance within groups at four significant digits.

The Beta-squares for all variables show that the relative importance of the variables in distinguishing group membership are essentially the same for each group.

In addition to the basic summary statistics provided for variable-specific information, specific-detail information is also provided for each variable. The detailed information is provided in Appendix H.

Table 8 provides a general summary for case classification based on the equations generated by the multivariate nominal scale analysis. It is evident from the table that the best classification was achieved with surgery cases. Of the total number of cases (678), 83.04 percent (563) were classified correctly and only 16.96 percent (115) were classified incorrectly. The no-surgery cases were classified almost the same as they were distributed in the data set. The results in Table 8 demonstrate that the overall classification of cases has been improved by considering the effect of all variables. However, it is evident that additional factors are operating that prevent better classification.

Subsequent to the completion of the multivariate nominal scale analysis, an examination of the residuals was conducted. It was found that the distribution of the residuals approximated a normal distribution.

TABLE 9

MULTIVARIATE STATISTICS FOR MULTIVARIATE NOMINAL SCALE ANALYSES:
DEPENDENT VARIABLE--POSTOPERATIVE VISIT CLASSIFICATION
(1 through 6; 7 through 11; 12+)

		1 through 6	7 through 11	12+
I. General.				
Overall number		251	217	136
Overall percent		41.56	35.93	22.52
Generalized R^2	0.0954			
Multivariate Theta	0.5315			
II. Variable-specific.				
Variable 2: Age.				
Generalized Eta-square	0.0132			
Bivariate Theta	0.4272			
Eta-squared		0.0176	0.0120	0.0087
Beta-squared		0.0176	0.0112	0.0104

TABLE 9 (continued)

		1 through 6	7 through 11	12+
Variable 3: Industrial or non-industrial.				
Generalized Eta-square	0.0319			
Bivariate Theta	0.4536			
Eta-squared		0.0378	0.0030	0.0617
Beta-squared		0.0416	0.0027	0.0633
Variable 13: Symptom--Pain.				
Generalized Eta-square	0.0015			
Bivariate Theta	0.4156			
Eta-squared		0.0003	0.0027	0.0016
Beta-squared		0.0025	0.0013	0.0003
Variable 14: Symptom--Numbness.				
Generalized Eta-square	0.0047			
Bivariate Theta	0.4222			
Eta-squared		0.0075	0.0004	0.0065
Beta-squared		0.0077	0.0012	0.0040

TABLE 9 (continued)

		1 through 6	7 through 11	12+
<u>Variable 16: Symptom--Swelling.</u>				
Generalized Eta-square	0.0067			
Bivariate Theta	0.4156			
Eta-squared		0.0015	0.0049	0.0161
Beta-squared		0.0006	0.0030	0.0085
<u>Variable 17: Symptom--Tingling.</u>				
Generalized Eta-square	0.0005			
Bivariate Theta	0.4156			
Eta-squared		0.0002	0.0002	0.0011
Beta-squared		0.0001	0.0003	0.0001
<u>Variable 18: Symptom--Weakness.</u>				
Generalized Eta-square	0.0077			
Bivariate Theta	0.4272			
Eta-squared		0.0111	0.0001	0.0130
Beta-squared		0.0119	0.0009	0.0088

TABLE 9 (continued)

		1 through 6	7 through 11	12+
Variable 21: History--Arthritis.				
Generalized Eta-square	0.0038			
Bivariate Theta	0.4156			
Eta-squared		0.0003	0.0039	0.0086
Beta-squared		0.0002	0.0064	0.0117
Variable 25: History--Dupuytren's contracture.				
Generalized Eta-square	0.0103			
Bivariate Theta	0.4354			
Eta-squared		0.0179	0.0078	0.0031
Beta-squared		0.0175	0.0049	0.0057
Variable 30: History--Injury.				
Generalized Eta-square	0.0071			
Bivariate Theta	0.4272			
Eta-squared		0.0107	0.0002	0.0112
Beta-squared		0.0026	0.0000	0.0039

TABLE 9 (continued)

		1 through 6	7 through 11	12+
Variable 39: History--Previous surgery (opposite extremity as Carpal Tunnel Syndrome).				
Generalized Eta-square	0.0089			
Bivariate Theta	0.4156			
Eta-squared		0.0116	0.0129	0.0000
Beta-squared		0.0093	0.0097	0.0000
Variable 46: Finding--EMG +.				
Generalized Eta-square	0.0023			
Bivariate Theta	0.4156			
Eta-squared		0.0002	0.0039	0.0030
Beta-squared		0.0029	0.0075	0.0018
Variable 49: Finding--X-ray +.				
Generalized Eta-square	0.0047			
Bivariate Theta	0.4321			
Eta-squared		0.0050	0.0078	0.0003
Beta-squared		0.0015	0.0095	0.0043

TABLE 10

CLASSIFICATION MATRIX
FOR MULTIVARIATE NOMINAL SCALE ANALYSIS
USING THAID SELECTED VARIABLE SET:
DEPENDENT VARIABLE--
POSTOPERATIVE VISIT CLASSIFICATION
(1 through 6; 7 through 11; 12+)

		Predicted			
		1 through 6	7 through 11	12+	Total
Actual	1 through 6	191	41	19	251
	Percent	76.10	16.33	7.57	
	7 through 11	105	86	26	217
	Percent	48.39	39.63	11.98	
	12+	59	33	44	136
	Percent	43.38	24.26	32.35	
	Total	355	160	89	604

The basic question to be answered by examination of the results in Table 9 and Table 10 concerns the possibility of classifying patients according to "post-operative visit" classification as well as the importance of specific variables in contributing to this classification.

The results in Table 9 provide general and variable-specific information on the characteristics of the data set. The overall percents tell us the likelihood that a case belongs to either the first group (1-6 visits), the second group (7-11 visits), or the third group (12+ visits) based on information regarding the frequency of case occurrence in each group. The best prediction for group membership would be 41.56 percent for the first group (1-6 visits). Consequently, one could conclude with 41.56 percent accuracy that a case selected at random from the data set would be in the first group. The multivariate Theta also provides information regarding the prediction for group membership. However, in this case the probability measure takes into account the overall influence of all variables included in the analysis. By considering the effect of the 13 independent variables, one's predictive power is raised from 41.56 percent to 53.15 percent.

Consequently, one could predict with 53.15 percent accuracy that a case belongs to the appropriate group. The generalized R^2 tells the influence of all variables taken as a set and explains 9.54 percent of the variance associated with the dependent variable.

If, next, one examines the variable-specific results, additional answers to the second basic question of this research can be provided. The bivariate Theta provides information regarding the prediction for group membership in the bivariate situation. Consequently, an examination of Table 9 reveals that variable 13, variable 17, variable 21, variable 39, and variable 46 provide no additional predictive potential beyond that established by the proportion of overall frequency. In each instance the probability of classification is 59.42 percent. Further examination of the results reveals that all other variables provide an increase in prediction over that achieved by examination of the overall frequency distribution. However, in no instance does this increase in probability approximate the multivariate Theta. The best bivariate predictor variable for group membership is variable 15. In order to achieve an overall predictive power of 43.15 percent, the influences of more than one variable must be considered.

The Eta-square statistic demonstrates the amount of dependent variable variance accounted for by each variable in the bivariate situation. In general, the only variable that tends to account for considerable variance associated with group membership would be variable 3. In the first category variable 3 accounts for 3.78 percent of the variance associated with this group. In the third category variable 3 accounts for 6.17 percent of the variance associated with this group. Consequently, one may conclude that in order to explain at least 9.54 percent of the variability all variables must be considered as a set.

The Beta-squares provide an indication of the relative importance of the variables in distinguishing group membership. An examination of the Beta-squares in Table 9 reveals that variable 2, variable 3, variable 18, and variable 25 tend to contribute to classification for the second group. Variable 3 and variable 21 seem to provide important contributions to the classification of cases into the third group.

In addition to the basic summary statistics provided for variable-specific information, specific-detail information is also provided for each variable. The detailed information is provided in Appendix I.

Table 10 provides a general summary for case classification based on the equations generated by the multivariate nominal scale analysis. The best prediction was achieved for the cases in the first group (1-6 visits). Out of the total number of cases (251) in this group, a total of 76.10 percent were classified correctly. The other groups were classified better than the prediction of classification would have been considering only their frequency distributions. However, the classification probability is rather low. The results in Table 8 demonstrate that the overall classification of cases has been improved by considering the effect of all variables. Nevertheless, it is evident that additional factors are operating which contribute to the appropriate classification of cases.

Subsequent to the completion of the multivariate nominal scale analysis, an examination of the residuals was conducted. It was found that the distribution of the residuals approximated a normal distribution.

TABLE 11

MULTIVARIATE STATISTICS
FOR MULTIVARIATE NOMINAL SCALE ANALYSIS:
DEPENDENT VARIABLE--
INCISION CLASSIFICATION
(Thenar; Hypothenar)

			Thenar	Hypothenar
I.	General.			
	Overall number		501	114
	Overall percent		81.46	18.54
	Generalized R^2	.0361		
	Multivariate Theta	0.8146		
II.	Variable-specific.			
	Variable 62: Finding--Aberrant nerve.			
	Generalized Eta-square	0.0078		
	Bivariate Theta	0.8146		
	Eta-squared		0.0078	0.0078
	Beta-squared		6961.7109	4.0295
	Variable 65: Finding--Fibrosis of tendons.			
	Generalized Eta-square	0.0007		
	Bivariate Theta	0.8146		
	Eta-squared		0.0007	0.0007
	Beta-squared		4814.5000	6.9042
	Variable 70: Finding--Synovitis.			
	Generalized Eta-square	0.0010		
	Bivariate Theta	0.8146		

TABLE 11 (continued)

		Thenar	Hypothenar
Eta-squared		0.0010	0.0010
Beta-squared		168.1332	1.5963
Variable 72: Finding--Tenosynovitis (nonspecific).			
Generalized Eta-square	0.0019		
Bivariate Theta	0.8146		
Eta-squared		0.0019	0.0019
Beta-squared		728.9917	0.4365
Variable 76: Surgery with Carpal Tunnel Syndrome.			
Generalized Eta-square	0.0014		
Bivariate Theta	0.8146		
Eta-squared		0.0014	0.0014
Beta-squared		0.0015	0.0015
Variable 77: Category of postoperative visits.			
Generalized Eta-square	0.0045		
Bivariate Theta	0.8146		
Eta-squared		0.0045	0.0045
Beta-squared		0.0070	0.0070
Variable 78: Postoperative edema.			
Generalized Eta-square	0.0012		
Bivariate Theta	0.8146		
Eta-squared		0.0012	0.0012
Beta-squared		929.5303	0.1736

TABLE 11 (continued)

		Thenar	Hypothenar
Variable 81: Postoperative pain.			
Generalized Eta-square	0.0006		
Bivariate Theta	0.8146		
Eta-squared		0.0006	0.0006
Beta-squared		0.5959	0.0832
Variable 82: Postoperative acroparesthesia.			
Generalized Eta-square	0.0048		
Bivariate Theta	0.8146		
Eta-squared		0.0048	0.0048
Beta-squared		357.1851	0.1250
Variable 83: Postoperative weakness.			
Generalized Eta-square	0.0047		
Bivariate Theta	0.8146		
Eta-squared		0.0047	0.0047
Beta-squared		738.0723	0.3423
Variable 87: Result--Complete relief.			
Generalized Eta-square	0.0089		
Bivariate Theta	0.8146		
Eta-squared		0.0089	0.0089
Beta-squared		868.2122	0.4450
Variable 88: Result--Prognosis good for complete relief.			
Generalized Eta-square	0.0079		
Bivariate Theta	0.8146		

TABLE 11 (continued)

	Thenar	Hypothenar
Eta-squared	0.0079	0.0079
Beta-squared	120.1680	0.0552

TABLE 12

CLASSIFICATION MATRIX
FOR MULTIVARIATE NOMINAL SCALE ANALYSIS
USING THAID SELECTED VARIABLE SET:
DEPENDENT VARIABLE--INCISION CLASSIFICATION
(Thenar; Hypothenar)

		Predicted		
		Thenar	Hypothenar	Total
Actual	Thenar	501	0	501
	Percent	100.00	0.0	
	Hypothenar	114	0	114
	Percent	100.00	0.0	
	Total	615		615

The basic question to be answered by examination of the results in Table 11 and Table 12 concerns the possibility of classifying patients according to "incision" classification, as well as the importance of specific variables in contributing to this classification.

The results in Table 11 provide general and variable-specific information on the characteristics of the data set. The overall percents tell us the likelihood that a case belongs to either the thenar incision group or the hypothenar incision group based on information regarding the frequency of case occurrence in each group. The best prediction for group membership should be 81.46 percent for the thenar incision cases. Consequently, one could conclude with 81.46 percent accuracy that a case selected at random from the data set would be a thenar incision case. The multivariate Theta also provides information regarding the prediction for group membership. However, in this case the probability measure takes into account the overall influence of all variables included in the analysis. By considering the effects of the 12 independent variables, one's predictive power is not raised even after considering the influence of all variables. The generalized R^2 indicates that the influence of all variables taken as a set explains only 3.61 percent of the variance associated with the dependent variable.

If, next, one looks to the variable-specific information, additional answers to the third basic question of this research can be answered. The bivariate Theta provides information regarding the prediction for group membership in the bivariate situation. Consequently, an examination of Table 11 reveals that none of the variables provide additional predictive power.

The generalized Eta-square statistic reveals how well each group is distinguished by the specific variable when the influence of the variable is considered in the bivariate situation. An examination of the Eta-squares for all variables reveals that the statistic value was equal for each group. The variables provide equal explanation of variance within groups at four significant digits.

The Beta-squares for all variables show that the relative importance of the variables was extremely high for group one. The extreme values for the thenar incision group illustrate the domination of group one due to the large number of cases in this group.

In addition to the basic summary statistics provided for variable-specific information, specific-detail information is also provided for each variable. The detailed information is provided in Appendix J.

Table 12 provides a general summary for case classification based on the equations generated by the multivariate nominal scale analysis. The results in Table 12 indicate that the maximum prediction is achieved by considering the frequency distribution as the main criteria. Consequently, the multivariate analysis in this instance did not provide additional information.

Subsequent to the completion of the multivariate nominal scale analysis, an examination of the residuals was conducted. It was found that the distribution of the residuals approximated a normal distribution.

V. Discriminant analyses with THAID selected variables.

Three separate discriminant analyses with THAID selected variables were conducted on each of the three separate subgroup classifications to determine the possibility of classifying patients into specified groups, and also to determine the relative importance of each variable. All analyses were conducted using the BMD07M statistical program, part of the Biomedical Computer Programs package (Dixon, 1974, pp. 233-253).

The BMD07M program does not provide for the exclusion of cases with missing values. Consequently, prior to the statistical analyses, cases with missing values were excluded. Variable 42, variable 43, and variable 44 were not included in the case elimination process and were not considered in the analyses. Inclusion of these variables would have resulted in the loss of an extreme number of cases. Subsequent to the elimination of missing cases, the data set will be used for the discriminant analyses using THAID selected variables as well as for the discriminant analyses using a large number of selected variables.

Each of the three discriminant analyses will result in two tables. The first table provides general information regarding each variable's contribution to the classification process. The general information provided concerns the classification subsequent to the inclusion of each variable. The second table for each analysis presents an overall summary matrix based on frequencies and percentages of cases classified correctly, as well as classified incorrectly.

The results of the discriminant analyses specific to each question will be presented in the following manner. Table 13 and Table 14 which concern the first basic question will be presented--followed by a discussion of the results. Table 15 and Table 16 which concern the second basic question will be presented--followed by a discussion of the results. And, finally, Table 17 and Table 18 which concern the third basic question will be presented--followed by a discussion of the results.

TABLE 13

MULTIVARIATE STATISTICS FOR DISCRIMINANT ANALYSIS
USING THAID SELECTED VARIABLE SET:
DEPENDENT VARIABLE--TREATMENT CLASSIFICATION
(NO SURGERY; SURGERY)

Step Number	Variable Number	Cases Classified into Groups[1]		
1.	4		ns	s
		ns	293	144
		s	81	487
2.	1		ns	s
		ns	293	144
		s	81	487
3.	18		ns	s
		ns	313	124
		s	130	438
4.	49		ns	s
		ns	311	126
		s	122	446
5.	6		ns	s
		ns	308	129
		s	124	444
6.	48		ns	s
		ns	306	131
		s	120	448
7.	15		ns	s
		ns	307	130
		s	118	450
8.	23		ns	s
		ns	305	132
		s	114	454
9.	28		ns	s
		ns	308	129
		s	116	452

[1] ns = No Surgery; s = Surgery.

TABLE 13 (continued)

Step Number	Variable Number	Cases Classified into Groups[1]		
10.	14		ns	s
		ns	305	132
		s	107	461
11.	2		ns	s
		ns	304	133
		s	115	453
12.	13		ns	s
		ns	308	129
		s	112	456
13.	7		ns	s
		ns	307	130
		s	113	455
14.	3		ns	s
		ns	305	132
		s	111	457
15.	17		ns	s
		ns	307	130
		s	113	455
16.	42		ns	s
		ns	308	129
		s	114	454
17.	35		ns	s
		ns	309	128
		s	114	454
18.	16		ns	s
		ns	308	129
		s	111	457
19.	46		ns	s
		ns	308	129
		s	110	458

TABLE 14

CLASSIFICATION MATRIX FOR DISCRIMINANT ANALYSIS USING THAID SELECTED VARIABLE SET: DEPENDENT VARIABLE--TREATMENT CLASSIFICATION (No Surgery; Surgery)

		Predicted		
		No Surgery	Surgery	Total
Actual	No Surgery	308	129	437
	Percent	70.48	29.52	
	Surgery	110	458	568
	Percent	19.37	80.63	
	Total	418	587	1005

The basic question to be answered by examination of the results in Table 13 and Table 14 concerns the possibility of classifying patients as either non-surgical patients or as surgical patients, as well as the importance of specific variables in contributing to this classification.

The step number at which a variable enters the equation represents the point at which a particular variable contributes more to the overall variance of the dependent variable than all other variables considered. Consequently, in Table 14 variable 4 was entered first. This means that when taking all variables into account variable 4 contributed most to the overall variance of the dependent variable. Next, variable 1 was entered into the equation as the variable that explained the remaining variance the best. In this particular analysis, 19 steps were completed based on aforementioned criteria.

The "cases classified into groups" section of Table 14 provides information regarding each variable's contribution to the classification process. At step number 1, it was possible in the bivariate situation to classify 293 nonsurgical cases correctly and 487 surgery cases correctly. It is interesting to note that at step number 1 the maximum number for the surgery cases were classified correctly. The number of cases classified correctly in each group provided valuable information regarding the particular influence of each variable. When variable 1 entered at step number 2, it is interesting to note that the inclusion of this variable did not contribute to the classification process. One may conclude this variable merely substantiates the previous classification. At step number 3, one can observe that variable 18 contributes to the classification of nonsurgical cases; however, it severely reduced the classification of surgery cases. At step number 4, one can observe that variable 49 reduces the classification effectiveness for the no-surgery cases, but it increases the classification of surgery cases. The process continues with the addition of variables until all variables are included that provide a significant statistical contribution. The fact that a variable contributes to one group and not the other provides information as to a particular variable's influence on group membership.

Table 14 provides the final results of the classification process. One can observe from this table that 70.48 percent (308) of the nonsurgical cases were classified correctly, and 80.63 percent (458) of the surgical cases were classified correctly. Actually, the overall prediction is high at 76.22 percent. In general, one could conclude that discriminant analysis using the THAID selected variables was quite effective in the classification of cases into both groups.

In addition to the statistics presented in Table 13 and Table 14, Appendix K provides detailed information regarding the classification process. The square of the distances from the group mean are provided. These distance measures actually represent the residual measure. Also, the probability of group membership of classification for each case is provided. These probabilities provide valuable information for subsequent analyses on the data in that the researcher can examine the records of the patients classified correctly, as well as examine the records of the patients classified incorrectly.

Following the statistical analysis, the residuals were examined. An analysis of these residuals revealed that they approximated a normal distribution.

TABLE 15

MULTIVARIATE STATISTICS FOR DISCRIMINANT ANALYSIS
USING THAID SELECTED VARIABLE SET:
DEPENDENT VARIABLE--
POSTOPERATIVE VISIT CLASSIFICATION
(1 through 6; 7 through 11; 12+)

Step Number	Variable Number	Cases Classified into Groups[1]			
1.	3		A	B	C
		A	186	0	41
		B	147	0	47
		C	63	0	58
2.	25		A	B	C
		A	183	3	41
		B	134	13	47
		C	58	5	58
3.	18		A	B	C
		A	160	26	41
		B	109	38	47
		C	44	19	58
4.	21		A	B	C
		A	141	24	62
		B	100	35	59
		C	30	15	76
5.	49		A	B	C
		A	140	32	55
		B	87	53	54
		C	29	20	72
6.	39		A	B	C
		A	148	27	52
		B	89	52	53
		C	31	18	72
7.	14		A	B	C
		A	126	56	45
		B	70	73	51
		C	28	26	67

[1]A = 1 through 6 visits; B = 7 through 11 visits; C = 12+ visits.

TABLE 15 (continued)

Step Number	Variable Number	Cases Classified into Groups[1]	A	B	C
8.	30		A	B	C
		A	127	53	47
		B	69	72	53
		C	29	26	66
9.	25		A	B	C
		A	129	43	55
		B	71	61	62
		C	29	22	70
10.	13		A	B	C
		A	143	29	55
		B	85	48	61
		C	36	16	69
11.	17		A	B	C
		A	119	53	55
		B	67	66	61
		C	29	24	68
12.	2		A	B	C
		A	131	41	55
		B	75	58	61
		C	28	25	68
13.	16		A	B	C
		A	132	42	53
		B	74	59	61
		C	31	22	68

TABLE 16

CLASSIFICATION MATRIX FOR DISCRIMINANT ANALYSIS
USING THAID SELECTED VARIABLE SET:
DEPENDENT VARIABLE--
POSTOPERATIVE VISIT CLASSIFICATION
(1 through 6; 7 through 11; 12+)

		Predicted			
		1 through 6	7 through 11	12+	Total
Actual	1 through 6	132	42	53	227
	Percent	58.15	18.50	23.35	
	7 through 11	74	59	61	194
	Percent	38.15	30.41	31.44	
	12+	31	22	68	121
	Percent	25.62	18.18	56.20	
	Total	237	123	182	542

The basic question to be answered by examination of the results in Table 15 and Table 16 concerns the possibility of classifying patients into one of three groups (1-6 visits, 7-11 visits, 12+ visits) as well as the importance of specific variables in contributing to the classification process.

An examination of the results in Table 16 reveals that at step number 1 variable 3 contributes to classification of cases into the first group and the third group. At step number 2 it can be seen that variable 45 contributes to the classification into the second group, but it provides little influence on the classification into either the first group or the second group. Variable 18 at the third step also tends to contribute to the second group, but it affects the number of cases classified correctly in the first group. The classification process through each step remains fairly constant after the second step for the third group. After step 5, the classification of patients remains fairly constant for the second group. The classification process for the first group is at a maximum of 186 at step 1, then with the addition of variables continues to drop to a low of 119, and finally reaches 132 at step 13. Obviously, the variables where an extreme gain is demonstrated, and where an extreme loss is demonstrated affect this classification the most. For example, variable 13 and variable 2 tend to contribute to classification as group one cases; and variable 18, variable 21, and variable 17 definitely contribute to classification into other groups.

The final outcome for the 13 steps of the discriminant analysis results in the classification matrix found in Table 16. A total of 58.15 percent (132) of the cases in group one were classified correctly, a total of 30.41 percent (59) of the cases in group two were classified correctly, and 56.20 percent (68) of the cases in group three were classified correctly. Overall, 47.79 percent of the cases were classified correctly. Considering that in total, 549 cases were available for classification and that three groups were considered, the results of the classification process are quite good.

In addition to the statistics presented in Table 15 and Table 16, Appendix L provides detailed information regarding the classification process. The square of the distances from the group mean are provided, and the probability of group membership of classification for each case is provided.

Following the statistical analysis, the residuals were examined. An analysis of these residuals revealed that they approximated a normal distribution.

TABLE 17

MULTIVARIATE STATISTICS FOR DISCRIMINANT ANALYSIS
USING THAID SELECTED VARIABLES:
DEPENDENT VARIABLE--INCISION CLASSIFICATION
(THENAR; HYPOTHENAR)

Step Number	Variable Number	Cases Classified into Groups[1]		
1.	76		T	H
		T	333	114
		H	53	48
2.	62		T	H
		T	335	112
		H	56	45
3.	87		T	H
		T	335	112
		H	56	45
4.	72		T	H
		T	335	112
		H	54	47
5.	88		T	H
		T	305	142
		H	44	57
6.	65		T	H
		T	306	141
		H	44	57
7.	70		T	H
		T	306	141
		H	44	57
8.	82		T	H
		T	298	149
		H	44	57
9.	81		T	H
		T	286	161
		H	41	60

[1]T = Thenar incision; H = Hypothenar incision.

TABLE 17 (continued)

Step Number	Variable Number	Cases Classified into Groups[1]		
10.	77		T	H
		T	299	148
		H	44	57
11.	78		T	H
		T	300	147
		H	44	57
12.	83		T	H
		T	300	147
		H	43	58

TABLE 18

CLASSIFICATION MATRIX FOR DISCRIMINANT ANALYSIS
USING THAID SELECTED VARIABLE SET:
DEPENDENT VARIABLE--INCISION CLASSIFICATION
(Thenar; Hypothenar)

		Predicted		
		Thenar	Hypothenar	Total
Actual	Thenar	300	147	447
	Percent	67.11	32.89	
	Hypothenar	43	58	101
	Percent	42.57	57.43	
	Total	343	205	548

The basic question to be answered by examination of the results in Table 17 and Table 18 concerns the possibility of classifying patients as either thenar incision patients or as hypothenar incision patients, as well as the importance of specific variables in contributing to this classification.

The step number at which a variable enters the equation represents the point at which a particular variable contributes more to the overall variance of the dependent variable than all other variables considered. Consequently, in Table 17 variable 76 was entered first. This means that when taking all variables into account variable 76 contributed most to the overall variance of the dependent variable. Next, variable 62 was entered into the equation as the variable that explained the remaining variance the best. In this particular analysis, 12 steps were completed based on aforementioned criteria.

The "cases classified into groups" section of Table 17 provides information regarding each variable's contribution to the classification process. At step number 1, it was possible in the bivariate situation to classify 333 thenar cases correctly and only 48 hypothenar cases correctly. The number of cases classified correctly in each group provides valuable information regarding the particular influence of each variable. When variable 62 entered at step number 2, it is interesting to note that the inclusion of this variable contributed only slightly to the classification process. Variable 62 contributes to classification as thenar incision cases, but it reduces classification for hypothenar incision cases. At step number 5, one can observe that variable 88 contributes to the classification of hypothenar cases; however, it severely reduces the classification of thenar incision cases. At step number 9, variable 81 reduces the classification effectiveness for the thenar cases, but it increases the classification of hypothenar cases to the maximum value achieved in all steps. Table 18 provides the final results of the classification process. One can observe from this table that 67.11 percent (300) of the thenar incision cases were classified correctly, and 57.43 percent (58) of the hypothenar incision cases were classified correctly. Actually, the overall prediction is very high at 65.33 percent when one considers the original frequency distribution of cases for each group.

In addition to the statistics presented in Table 17 and Table 18, Appendix M provides detailed information regarding the classification process. The square of the distances from the group mean are provided. These distance measures actually represent the residual measure. Also, the probability of group membership of classification for each case is provided. These probabilities provide valuable information for subsequent analyses on the data in that the researcher can examine the records of the patients classified correctly, as well as examine the records of the patients classified incorrectly.

Following the statistical analysis, the residuals were examined. An analysis of these residuals revealed that they approximated a normal distribution.

VI. Discriminant analyses with selected variables.

Three separate discriminant analyses with a selected set of variables were conducted on each of three separate subgroup classifications to determine the probability of classifying patients into specified groups, and also to determine the relative importance of each variable. All analyses were conducted using the BMD07M statistical program.

All variables of concern were selected for the analyses with the exception of variable 42, variable 43, variable 44, and variables with the classification "other."

Each of the three discriminant analyses will result in two tables. The first table provides general information regarding each variable's contribution to the classification process. The general information provided concerns the classification subsequent to the inclusion of each variable. The second table for each analysis presents an overall summary matrix based on frequencies and percentages of cases classified correctly, as well as classified incorrectly.

The results of the discriminant analyses specific to each question will be presented in the following manner. Table 19 and Table 20 which concern the first basic question will be presented--followed by a discussion of the results. Table 21 and Table 22 which concerns the second basic question will be presented--followed by a discussion of the results. And, finally, Table 23 and Table 24 which concerns the third basic question will be presented--followed by a discussion of the results.

TABLE 19

MULTIVARIATE STATISTICS FOR DISCRIMINANT ANALYSIS USING FORTY-FIVE SELECTED PREOPERATIVE VARIABLES: DEPENDENT VARIABLE--TREATMENT CLASSIFICATION (No Surgery; Surgery)

Step Number	Variable Number	Cases Classified into Groups[1]		
1.	15		ns	s
		ns	72	365
		s	36	532
2.	23		ns	s
		ns	72	365
		s	36	522
3.	17		ns	s
		ns	285	152
		s	251	317
4.	49		ns	s
		ns	296	141
		s	272	296
5.	6		ns	s
		ns	295	142
		s	253	315
6.	4		ns	s
		ns	295	142
		s	254	314
7.	7		ns	s
		ns	229	208
		s	181	387
8.	35		ns	s
		ns	285	152
		s	241	327
9.	45		ns	s
		ns	235	202
		s	177	391

[1]ns = No Surgery; s = Surgery.

Step Number	Variable Number	Cases Classified into Groups[1]		
10.	18		ns	s
		ns	262	175
		s	197	371
11.	14		ns	s
		ns	253	184
		s	188	380
12.	25		ns	s
		ns	249	188
		s	181	387
13.	26		ns	s
		ns	274	163
		s	208	360
14.	38		ns	s
		ns	269	168
		s	200	368
15.	52		ns	s
		ns	262	175
		s	189	379
16.	39		ns	s
		ns	285	152
		s	209	359
17.	27		ns	s
		ns	285	152
		s	208	360
18.	5		ns	s
		ns	283	154
		s	202	366
19.	11		ns	s
		ns	283	154
		s	201	367
20.	16		Not Printed	

Step Number	Variable Number	Cases Classified into Groups[1]
21.	31	Not Printed
22.	32	Not Printed
23.	28	Not Printed
24.	2	Not Printed
25.	24	Not Printed
26.	33	Not Printed
27.	12	Not Printed
28.	30	Not Printed
29.	21	Not Printed
30.	37	Not Printed
31.	22	Not Printed
32.	1	Not Printed
33.	8	Not Printed
34.	47	Not Printed
35.	48	Not Printed
36.	36	Not Printed
37.	13	Not Printed
38.	20	Not Printed
39.	10	Not Printed
40.	46	Not Printed
41.	29	Not Printed

Step Number	Variable Number	Cases Classified into Groups[1]
42.	3	Not Printed
43.	34	Not Printed
44.	51	Not Printed
45.	50	Not Printed

TABLE 20

CLASSIFICATION MATRIX FOR DISCRIMINANT ANALYSIS
USING FORTY-FIVE SELECTED PREOPERATIVE VARIABLES:
DEPENDENT VARIABLE--TREATMENT CLASSIFICATION
(No Surgery; Surgery)

		Predicted		
		No Surgery	Surgery	Total
Actual	No Surgery	287	150	437
	Percent	65.68	34.32	
	Surgery	190	378	568
	Percent	33.45	66.55	
	Total	477	528	1005

The basic question to be answered by examination of the results in Table 19 and Table 20 concerns the possibility of classifying patients as either nonsurgical patients or as surgical patients, as well as the importance of specific variables in contributing to this classification.

The step number at which a variable enters the equation represents the point at which a particular variable contributes more to the overall variance of the dependent variable than all other variables considered. Consequently, in Table 19 variable 15 was entered first. This means that when taking all variables into account, variable 15 contributed most to the overall variance of the dependent variable. Next, variable 23 was entered into the equation as the variable that explained the remaining variance the best. In this particular analysis 45 steps were completed based on aforementioned criteria.

In this analysis, only, no limitation is placed on the number of steps. However, only the first 19 steps were printed. The number of steps was unlimited to demonstrate that the remaining variables do provide some contribution, although minimal, to the selection process.

The "cases classified into groups" section of Table 19 provides information regarding each variable's contribution to the classification process. At step number 1, it was possible in the bivariate situation to classify 72 nonsurgical cases correctly and 532 surgery cases correctly. It is interesting to note that at step number 1 variable 15 seems to contribute substantially to inclusion as a surgical case. The number of cases classified correctly in each group provides valuable information regarding the particular influence of each variable. When variable 23 entered at step number 2, the inclusion of this variable actually reduced the effectiveness of classifying surgery cases. One may conclude that variable 23 merely substantiates the no-surgery classification, but actually results in surgical cases being misclassified. At step number 3, one can observe that variable 17 contributes to the classification of nonsurgical cases; however, it severely reduced the classification of surgery cases. At step number 4, one can observe that variable 19 increases the classification effectiveness for the no-surgery cases, but it reduces the classification of surgery cases. The process continues with the addition of variables until all variables are included that provide a significant statistical contribution. The fact that a variable contributes to one group and not the other provides information as to a particular variable's influence on group membership.

Table 20 provides the final results of the classification process. One can observe from this table that 65.68 percent (287) of the nonsurgical cases were classified correctly and 66.55 percent (378) of the surgical cases were classified correctly. Actually, the overall prediction is quite high at 66.16 percent. In general, one could conclude that discriminant analysis using the forty-five selected variables was quite effective in the classification of cases into both groups.

In addition to the statistics presented in Table 19 and Table 20, Appendix N provides detailed information regarding the classification process. The square of the distances from the group mean are provided. These distance measures actually represent the residual measure. Also, the probability of group membership of classification for each case is provided. These probabilities provide valuable information for subsequent analyses of the data in that the researcher can examine the records of the patients classified incorrectly.

Following the statistical analysis, the residuals were examined. An analysis of these residuals revealed that they approximated a normal distribution.

TABLE 21

MULTIVARIATE STATISTICS FOR DISCRIMINANT ANALYSIS USING FORTY-FIVE SELECTED PREOPERATIVE VARIABLES: DEPENDENT VARIABLE-- POSTOPERATIVE VISIT CLASSIFICATION (1 THROUGH 6; 7 THROUGH 11; 12+)

Step Number	Variable Number	Cases Classified into Groups[1]			
			A	B	C
1.	3	A	186	0	41
		B	147	0	47
		C	63	0	58
2.	25		A	B	C
		A	183	3	41
		B	134	13	47
		C	58	5	58
3.	18		A	B	C
		A	160	26	41
		B	109	38	47
		C	44	19	58
4.	33		A	B	C
		A	156	25	46
		B	101	38	55
		C	39	18	64
5.	48		A	B	C
		A	156	14	57
		B	101	22	71
		C	39	6	76
6.	21		A	B	C
		A	156	30	41
		B	101	39	54
		C	39	15	67
7.	49		A	B	C
		A	136	37	54
		B	82	55	57
		C	27	18	76

[1]A = 1 through 6 visits; B = 7 through 11 visits; C = 12+ visits.

Step Number	Variable Number	Cases Classified into Groups[1]			
8.	6		A	B	C
		A	134	38	55
		B	81	52	61
		C	26	20	75
9.	7		A	B	C
		A	134	38	55
		B	82	51	61
		C	27	19	75
10.	4		A	B	C
		A	141	33	53
		B	87	46	61
		C	32	16	73
11.	24		A	B	C
		A	140	34	53
		B	84	51	59
		C	31	14	76
12.	32		A	B	C
		A	143	33	51
		B	84	52	58
		C	30	14	77
13.	39		A	B	C
		A	145	35	47
		B	82	54	58
		C	29	16	76
14.	1		A	B	C
		A	132	47	48
		B	77	60	57
		C	28	14	79
15.	23		A	B	C
		A	123	57	47
		B	68	74	52
		C	29	17	75

Step Number	Variable Number		Cases Classified into Groups[1]		
			A	B	C
16.	37	A	127	56	44
		B	70	74	50
		C	29	17	75
			A	B	C
17.	16	A	125	54	48
		B	69	73	52
		C	28	19	74
			A	B	C
18.	30	A	122	54	51
		B	67	77	50
		C	29	19	73
			A	B	C
19.	14	A	131	45	51
		B	72	72	50
		C	33	15	73
			A	B	C
20.	22	A	123	53	51
		B	70	74	50
		C	27	21	73

TABLE 22

CLASSIFICATION MATRIX FOR DISCRIMINANT ANALYSIS
USING FORTY-FIVE SELECTED PREOPERATIVE VARIABLES:
DEPENDENT VARIABLE--
POSTOPERATIVE VISIT CLASSIFICATION
(1 through 6; 7 through 11; 12+)

		Predicted			
		1 through 6	7 through 11	12+	Total
Actual	1 through 6	123	53	51	227
	Percent	54.18	23.35	22.47	
	7 through 11	70	74	50	194
	Percent	36.08	38.14	25.78	
	12+	27	21	73	121
	Percent	22.31	17.36	60.33	
	Total	220	148	174	542

The basic question to be answered by examination of the results in Table 21 and Table 22 concerns the possibility of classifying patients into one of three groups (1-6 visits, 7-11 visits, 12+ visits), as well as the importance of specific variables in contributing to the classification process.

An initial analysis of the results in Table 21 reveals the following: Variable 3 provides substantial classification into groups one and three; variable 25 contributes to classification of group two; and variable 18 reduces the classification for group one, but it contributes to the classification of group two. Additional analysis reveals that subsequent to step 5 group three stabilizes. Group two fluctuates somewhat, but generally it is fairly stable with the inclusion of variables. Group one tends to fluctuate somewhat, and the ability to classify is reduced as the number of steps is increased. In general, the addition of variables demonstrates that the influence of the variables does provide an effect on the ultimate classification.

Table 22 provides a summary of the results. The first group of cases was classified with 54.18 percent (123) accuracy, the second group of cases was classified with 38.14 percent (74) accuracy, and the third group of cases was classified with 60.33 percent (73) accuracy. Overall, the cases were classified with 49.82 percent accuracy. The final percentage for the cases classified correctly is extremely good--considering there are only 542 cases and three groups were considered. The variables, obviously, as a set provide discriminating potential.

In addition to the statistics presented in Table 21 and Table 22, Appendix O provides detailed information regarding the classification process. The square of the distances from the group mean are provided. These distance measures actually represent the residual measure. Also, the probability of group membership of classification for each case is provided. These probabilities provide valuable information for subsequent analyses on the data in that the researcher can examine the records of the patients classified correctly, as well as examine the records of the patients classified incorrectly.

Following the statistical analysis, the residuals were examined. An analysis of these residuals revealed that they approximated a normal distribution.

TABLE 23

MULTIVARIATE STATISTICS FOR DISCRIMINANT ANALYSIS USING THIRTY-ONE SELECTED POSTOPERATIVE VARIABLES: DEPENDENT VARIABLE--INCISION CLASSIFICATION (THENAR; HYPOTHENAR)

Step Number	Variable Number	Cases Classified into Groups[1]		
1.	83		T	H
		T	413	34
		H	81	20
2.	76		T	H
		T	309	138
		H	43	58
3.	64		T	H
		T	310	137
		H	43	58
4.	69		T	H
		T	301	146
		H	41	60
5.	87		T	H
		T	301	146
		H	41	60
6.	90		T	H
		T	306	141
		H	41	60
7.	88		T	H
		T	287	160
		H	33	68
8.	89		T	H
		T	303	144
		H	35	66
9.	70		T	H
		T	303	144
		H	35	66

[1]T = Thenar incision; H = Hypothenar incision.

Step Number	Variable Number		Cases Classified into Groups[1]	
10.	67		T	H
		T	304	143
		H	35	66
11.	61		T	H
		T	302	145
		H	33	68
12.	91		T	H
		T	302	145
		H	33	68
13.	71		T	H
		T	301	146
		H	33	68
14.	68		T	H
		T	301	146
		H	33	68
15.	82		T	H
		T	316	131
		H	37	64
16.	62		T	H
		T	316	131
		H	38	63
17.	80		T	H
		T	318	129
		H	38	63
18.	85		T	H
		T	321	126
		H	37	64
19.	81		T	H
		T	319	128
		H	38	63

Step Number	Variable Number	Cases Classified into Groups[1]		
20.	83		T	H
		T	321	126
		H	38	63

TABLE 24

CLASSIFICATION MATRIX FOR DISCRIMINANT ANALYSIS
USING THIRTY-ONE SELECTED POSTOPERATIVE VARIABLES:
DEPENDENT VARIABLE--INCISION CLASSIFICATION
(Thenar; Hypothenar)

		Predicted		
		Thenar	Hypothenar	Total
Actual	Thenar	321	126	447
	Percent	71.81	28.19	
	Hypothenar	38	63	101
	Percent	37.62	62.38	
	Total	359	189	548

The basic question to be answered by examination of the results in Table 23 and Table 24 concerns the possibility of classifying patients as either thenar incision patients or hypothenar incision patients, as well as the importance of specific variables in contributing to this classification.

An examination of the results in Table 23 shows that variable 84 was entered first. This means that when taking all variables into account variable 84 contributes most to the overall variance of the dependent variable. Next, variable 76 was entered into the equation as the variable that explained the remaining variance the best. In this particular analysis 20 steps were completed based on aforementioned criteria.

The "cases classified into groups" section of Table 23 provides information regarding each variable's contribution to the classification process. At step number 1, it was possible in the bivariate situation to classify 413 thenar incision cases correctly, and only 20 hypothenar cases correctly. Next, when variable 76 enters, it is interesting to note that the inclusion of this variable contributes considerably to the classification of hypothenar incision cases. At step number 7, one can observe that variable 88 contributes considerably to the classification of hypothenar incision cases; however, it reduces the classification of thenar incision cases. At step number 15, one can observe that variable 82 increases the classification effectiveness for thenar incision cases, but it reduces the classification of hypothenar incision cases.

Table 24 provides the final results of the classification process. One can observe that 71.81 percent (321) of the thenar incision cases were classified correctly, and 62.38 percent (63) of the surgical cases were classified correctly. Actually, the overall prediction is quite high at 69.94 percent. In general, one could conclude that discriminant analysis using the 31 selected variables was quite effective in the classification of cases into both groups.

In addition to the statistics presented in Table 23 and Table 24, Appendix P provides detailed information regarding the classification process. The square of the distances from the group mean are provided. Also, the probability of group membership of classification for each case is provided.

Following the statistical analysis, the residuals were examined. An analysis of these residuals revealed that they approximated a normal distribution.

VII. Comparison of multivariate statistical analyses.

Table 25 provides a general summary of the overall percentages for the increased potential of correct classification using multivariate nominal scale analysis, and discriminant analyses, with selected variables. The overall percentage for the increased potential of correct classification reflects the difference between the best prediction based on the frequency distribution of cases in groups and the overall prediction based on the statistical analysis. For example, for question one with multivariate nominal scale analysis, the best prediction based on the frequency distribution of cases in groups is 59.42 percent, and the overall prediction based on the statistical analysis is 65.82 percent. The overall percentage for the increased potential of correct classification is 6.40 percent (65.82 -59.42 = 6.40).

In comparing the results of the analyses for the first question, one can see that discriminant analysis with THAID selected variables provides the best overall prediction for case classification. Multivariate nominal scale analysis provides the poorest value for the overall percentage difference (6.40) for cases

TABLE 25

SUMMARY OF OVERALL PERCENTAGES
FOR THE INCREASED POTENTIAL
OF CORRECT CLASSIFICATION
USING MULTIVARIATE STATISTICAL ANALYSES

	Question 1	Question 2	Question 3
Multivariate nominal scale analysis.	6.40	11.59	0.00
Discriminant analysis--THAID selected variables.	9.70	5.91	-16.24
Discriminant analysis--selected variables.	9.64	7.94	-11.63

classified correctly, and discriminant analysis with selected variables provides an overall percentage difference of 9.65 percent which is similar to the results for the THAID discriminant analysis.

In comparing the results of the analyses for the second question, one can see that the multivariate nominal scale analysis clearly provides the best overall prediction for the number of cases classified with a percentage difference of 11.59 percent. The discriminant analyses with THAID selected variables provides the lowest value for the percentage difference (5.91), and discriminant analysis with selected variables somewhat better predictions with a percentage difference of 7.94 percent.

In comparing the results of the analyses for the third question, one can see that the multivariate nominal scale analysis provides the best overall prediction of case classification. However, multivariate nominal scale analysis achieves this prediction by classifying all cases as thenar incision cases. Consequently, the results of the analysis maximize the number of cases classified correctly for the first group--and simply misclassifies all cases for the second group. The overall prediction appears extremely high, but in reality it merely reflects the frequency distribution for all cases with the dependent variables. If one wishes to know how well the independent variables taken as a set contribute to the classification of cases with respect to the dependent variable category, then the results of the discriminant analyses must be considered. An examination of the results in Table 25 reveals that discriminant analysis provides a -11.63 percentage difference, and discriminant analysis with THAID selected variables provides a -16.24 percentage difference.

Even with a cursory examination of the results in Table 25, it is evident that the three methods of multivariate statistical analysis provide somewhat different results. The reason for this difference is that the selection methods for defining the relationship of variables are different for multivariate nominal scale analysis and for the two discriminant analyses. Multivariate nominal scale analysis bases the relationship of independent variables to the dependent variable on the magnitude of the relationship. The discriminant analyses base the relationship of the independent variables to the dependent variable on the statistical significance of the relationship. Consequently, the results are different, but it is not correct to say that either one method or the other method is wrong. The method selected pertains to the particular needs of the researcher. Also, a difference in results between the first two analyses and the last analysis will occur since different variables were entered into the discriminant functions. In general, discriminant analysis with selected variables resulted in the inclusion of more variables as well as different variables than those selected via the THAID selection process. Again, the method selected pertains to the particular needs of the researcher.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

I. Conclusions.

The results of the statistical analyses reported and discussed in the previous chapter demonstrate that it is possible to employ multivariate statistical techniques to analyze a complex set of data in which there are categorical and ordinal scales of data.

The descriptive analyses did not provide information which enabled the researcher to discriminate groups. However, in the process of the entire statistical evaluation of each question proposed, they provided necessary information regarding the basic structure of the data set necessary for the accurate multivariate statistical analyses of data.

The THAID analyses provided valuable information regarding the discriminating potential of variables, and this information was used to select the set of variables for the multivariate nominal scale analyses and the discriminant analyses with the THAID selected variables.

The multivariate nominal scale analyses with the first two questions provided improved probability for the assignment of cases into groups over that based on the frequency distribution of cases within each group. Knowledge concerning the variable set improves assignment. For the third question, the analysis did not improve the probability for classification into groups above that based on the frequency distribution of cases within each group. Knowledge concerning the variable set did not improve assignment. Although, classification was not increased by the consideration of the variables for all three questions, variable-specific information was discerned from each analysis that assists the researcher in understanding the particular effect on the dependent variable by each independent variable. The generalized Eta-square statistic accounts for the total variance of the dependent variable accounted for by the specific variable. The bivariate Theta provides the value for the proportion of cases classified correctly when the specific variable was considered in relation to the dependent variable. The Eta-squared provides the value for the amount of importance one could contribute to the variable in distinguishing group membership.

Both methods of discriminant analysis concerning the first two questions provided improved probability for the assignment of cases into groups over that based on the frequency distribution of cases within each group. The assignment of cases into groups was improved by considering all variables as a set. In regard to the third question, both methods of analysis provided a lower probability for the assignment of cases into groups than the probability based on the frequency distribution of cases within each group. Knowledge concerning the variable set included in the discriminant function did not provide sufficient information to improve the final assignment. Each method of discriminant analysis also provides variable-specific information. At each step of the analysis it is possible to descry the relative importance of each variable according to the group, or groups, that it contributes to classification potential or in fact decreases the classification potential.

Suffice it to say, the use of multivariate statistical techniques provided substantial information in the analyses of a complex set of data in which there were both categorical and ordinal scales of data.

The results of the statistical analyses reported and discussed in the previous chapter also provide insight into the potential impact on the training of Hand Surgery residents with respect to the utilization of multivariate statistical procedures in Surgery of the Hand research.

At the present time it is possible to make a definitive statement regarding the training of Hand Surgery residents with respect to the utilization of multivariate statistical procedures in Surgery of the Hand research. It is evident that the results of the analyses help clarify an extremely complex syndrome. Awareness of the availability for statistical analyses definitely provides a valuable resource in the investigation and interpretation of complex problems.

A basic question then arises as to how sophisticated should the resident be in conducting multivariate statistical analyses. Alvin Feinstein (1974) reported that the physician should have considerable knowledge of statistics and should be trained to use statistics in medical school. The author concludes that the knowledge in multivariate statistical analyses of the Hand Surgery resident should be such that interpretation of results is possible and that there exists an awareness for the potential advantages in employing multivariate statistical analyses. Such awareness could be provided through a series of short courses where the potential applications to medicine are explored, or as part of a medical school curriculum. When the need for the analyses is manifested in the future, the appropriate resource persons should be consulted for assistance with the detailed considerations of analysis as demonstrated by the protocol refined for this research, as well as for the conducting of specified tests.

II. Recommendations for future research.

Six major recommendations are advanced for future research potential. First of all, those cases that were classified correctly as well as those cases misclassified employing the discriminant analyses should be sampled by a random procedure to discern the reason for the classification selected; and the results of all statistical analyses should be reviewed by a physician. Second, the data set should be analyzed including categorical groups based on duration. Third, the analyses should be conducted with a new set of data using cross-validation procedures. Fourth, samples of various sizes should be taken for the Carpal Tunnel Syndrome data set to determine if fewer cases substantially affect either the classification process, the variable-specific information, or the distribution of residuals. Fifth, alternate methods of selecting variables should be considered and evaluated. And sixth, considerable emphasis should be given to the use of the THAID program.

The first recommendation to analyze specific cases provides additional insight into the actual validity of the statistical techniques and provides knowledge as to the reasons for classification and misclassification. Attention should be given to variables that were not included in the analyses to discern the potential of improving future analyses. Also, the basic theories and assumptions concerning Carpal Tunnel Syndrome should be investigated to determine to what extent the statistical analyses substantiate the theory. Areas where discrepancies exist should be further evaluated. Finally, the results of the statistical analyses, the results of the case analyses, and the relation to theory should be investigated thoroughly by a physician to determine the appropriateness of the composite results.

The second recommendation that the data set should be analyzed including categorical groups based on duration of selected variables is directly associated with basic medical theory that duration of symptoms and postoperative complications make a difference in classification. It would be interesting to see how much the classification process for each of the three questions would be changed by the inclusion of durations.

The third recommendation of this study concerns the conducting of analyses with a new set of data with cross-validation procedures. The study of the Carpal

Tunnel Syndrome set has been limited to the descriptive analysis of the data set. Consequently, no inferences can be made or are to be made about cases not included in the data set. This constraint severely limits the validation of the classification equations developed. Albeit, the residuals were analyzed, and this provides some degree of assurance. It would also be advantageous to test the equations on a fresh set of data to determine the effectiveness of classification. The new set of data selected for such analyses need not be limited to Carpal Tunnel Syndrome cases, but it should be comparable in regard to the complexity and general makeup of variables.

The fourth recommendation concerns the sampling of the Carpal Tunnel Syndrome data set to determine if fewer cases in the analysis substantially affect the classification process, to determine if major changes occur for the variable-specific information, and to determine the resultant effect on the residual distributions. A basic assumption of this research is the validity of the statistical tests due to a large number of cases. It would be informative to test this assumption by comparing the results of the previous tests and the results of selected random samples.

The fifth recommendation of this research concerns the possibility of alternate methods of selecting variables. The procedure presented in this research provides two methods of variable selection. The first concerns the use of THAID analysis. The second concerns the use of stepwise discriminant analysis. Other possible methods of selection are as follows: the use of contingency table chi-square values to select discriminating variables; the combination of contingency table chi-square values along with THAID analysis; the use of stepwise discriminant analyses followed by a THAID analysis and/or contingency table analysis on the significant variables.

The final recommendation for future research concerns the use of THAID analysis. THAID analysis provides four iterations and the formation of 16 subgroup classifications. It would be of considerable interest to analyze each of the subgroup classifications to determine which variables are associated with inclusion in each of the subgroups.

APPENDIX A

ORIGINAL

CARPAL TUNNEL SYNDROME PROTOCOL

CARPAL TUNNEL SYNDROME

NAME____________________CHART#________HOSPITAL#________

ADDRESS____________________PHONE#________AGE____________

SYMPTOMS: DURATION:

Anesthesia________________ ____________________

Thenar Atrophy______________ ____________________

Tinel's Sign ________________ ____________________

Phalen's Sign ________________ ____________________

Injection ________________ ____________________

HISTORY OF:

1. Diabetes________________
2. Hypertension______________
3. Arthritis________________
4. Tenosynovitis______________
5. Fracture of the Wrist________
6. Other__________________

X-RAY FINDINGS:____________________________________

EMG:____

SURGERY:____

Hospital Stay________days Length of follow-up visits__________
Date:________________________

RESULTS:
Tingling__________________
Neuritis__________________
Post-operative pain__________

PATHOLOGICAL DIAGNOSIS:______________________________

UNUSUAL FINDINGS:__________________________________

ACCOMPANYING DISEASES:
Dupuytren's________________
DeQuervain's_______________
Snapping Finger_____________

APPENDIX B

REVISED

CARPAL TUNNEL SYNDROME PROTOCOL

GENERAL INFORMATION

NAME: __________ CHART# __________ HOSPITAL# __________

FEMALE: _____ MALE: _____ AGE: _____ INDUSTRIAL: _____ NON-INDUSTRIAL _____

LOCATION

RIGHT: _____ LEFT: _____ BI-LATERAL (RIGHT): _____ BI-LATERAL (LEFT): _____

PREVIOUS TREATMENT(Elsewhere)

	Duration in days
____ CORTISONE INJECTIONS	
____ SPLINT	
____ SURGERY	Not applicable
____ OTHER (Describe)	

SYMPTOMS

	Duration in days		Duration in days
____ ACROPARATHESIA		____ SWELLING	
____ ANESTHESIA		____ THENAR ATROPHY	
____ COLD		____ WEAKNESS	
____ DRYNESS OF SKIN		____ OTHER ____	
____ NOCTURNAL AGGRAVATION		____ OTHER ____	
____ PAIN		____ OTHER ____	

HISTORY OF

____ ACROMEGALY
____ ARTHRITIS
____ CONGENITAL ANOMALY
____ CYSTS
____ DIABETES
____ DUPUYTREN'S CONTRACTURE
____ FRACTURE OF WRIST
____ HEMATOMA
____ HYPERTENSION
____ INFECTION
____ INJURY
____ LERI'S SYNDROME
____ MENOPAUSE
____ MYXEDEMA OR HYPOTHYROIDISM
____ OBESITY

____ PREVIOUS SURGERY(S) describe
____ RADICAL MASTECTOMY
____ TENOSYNOVITIS(Snapping finger or DeQuervain's)
____ TUMORS
____ ULNAR NERVE SYMPTOMS
____ OTHER(Describe)

FINDINGS ON EXAMINATION

____ EMG +
____ PHALEN'S SIGN +
____ TINEL'S SIGN +
____ XRAY FINDINGS + __________
____ FIRST RIB SYNDROME +
____ THORACIC OUTLET SYNDROME +
____ OTHER __________

GRIP: RT. HAND ___ ___ ___ LT. HAND ___ ___ ___
PATIENT IS; ____ RIGHT HANDED ____ LEFT HANDED ____ AMBIDEXTROUS

TREATMENT

	Duration in days
____ CORTISONE INJECTION	
____ SPLINT	
____ SURGERY	NA

SURGERY

DATE OF SURGERY: ______________________ DATE OF DISCHARGE: ______________________

TYPE OF INCISION: THENAR____
HYPOTHENAR_____
Describe incision: ______________________

SURGICAL AND PATHOLOGICAL FINDINGS:

____ABERRANT ARTERY
____ABERRANT MUSCLE
____ABERRANT NERVE
____DEFORMITY DUE TO FRACTURE
____DISLOCATED LUNATE
____FIBROSIS OF TENDONS
____GANGLION CYST IN CANAL
____LACERATED TENDON IN CANAL
____OSTEOPHYTES
____SCAR TISSUE FORMATION
____TUMOR IN CANAL
____TENOSYNOVITIS (NON-SPECIFIC)
____TENOSYNOVITIS (RHEUMATOID)
____UNUSUAL RECURRENT BRANCH OF THE MEDIAN NERVE(MOTOR NERVE)
____OTHER(Be sure to note any unusual findings) ______________________

POST OPERATIVE CARE

DATE SPLINT REMOVED ____________
DATE OF DISCHARGE ____________
NUMBER OF FOLLOW UP VISITS ____________

	From	To	
____EDEMA			
____NEURITIS			
____INFECTION			
____PAIN			
____ACROPARESTHESIA			
____WEAKNESS			
____PHYSICAL THERAPY			
____CORTISONE INJECTION			
____OTHER			

SURGICAL RESULTS

AT DISCHARGE (If bi-lateral CTS then note results at time of second surgery, if applicable.)

____ COMPLETE RELIEF
____ NO RELIEF
____ FURTHER SURGERY FOR CTS NECESSARY

LENGTH OF DISABILITY

PATIENT STARTED NORMAL WORK WITH HAND ON: ______________________ ______

CODED BY ______________________

APPENDIX C

FINAL

CARPAL TUNNEL SYNDROME PROTOCOL

CARPAL TUNNEL SYNDROME

Card One

___ ___ ___ ___ ___ ___
1 2 3 4 5 6

NAME: ______________ CHART# ______ (7)FEMALE(1- ___ MALE(2 ___ (8-9)AGE ___ (10)INDUSTRIAL(1 ___ NON-INDUSTRIAL(2 ___ (11)LOCATION:RT(1 ___ LT(2 ___ BI-RT(3 ___ BI-LT(4 ___

PREVIOUS TREATMENT(elsewhere) DURATION (in days)

(12)CORTISONE INJECTION 1. 2. 9. ______ 12, 13, 14, 15,
(13)SPLINT/CAST 1. 2. 9. ______ 16, 17, 18, 19,
(14)SURGERY 1. 2. 9. ______ 20, 21, 22, 23,
(15)PHYSICAL THERAPY 1. 2. 9. ______ 24, 25, 26, 27,
(16)OTHER 1. 2. 9. ______

SYMPTOMS DURATION(in days)

(17)COLD 1. 2. 9. ______ 28, 29, 30, 31,
(18)DRYNESS OF SKIN 1. 2. 9. ______ [illegible], [illegible], 34, 35,
(19)NOCTURNAL AGGRAVATION 1. 2. 9. ______ [illegible]
(20)PAIN 1. 2. 9. ______ 40, [illegible], [illegible], 43,
(21)NUMBNESS 1. 2. 9. ______ 44, 45, 46, 47,
(22)STIFFNESS 1. 2. 9. ______ 48, [illegible]
(23)SWELLING 1. 2. 9. ______ [illegible], [illegible], 54, 55,
(24)TINGLING 1. 2. 9. ______ [illegible]
(25)WEAKNESS 1. 2. 9. ______ [illegible]
(26)OTHER 1. 2. 9. ______

HISTORY OF:

(27)ACROMEGALY 1. 2. 9.
(28)ARTHRITIS 1. 2. 9.
(29)CONGENITAL ANOMALY 1. 2. 9. (specify) ______
(30)CYSTS 1. 2. 9.
(31)DIABETES 1. 2. 9.
(32)DUPUYTREN'S CONTRACTURE 1. 2. 9.
(33)FRACTURE OF WRIST 1. 2. 9.
(34)HEMATOMA 1. 2. 9.
(35)HYPERTENSION 1. 2. 9.
(36)INFECTION 1. 2. 3. (specify) ______
(37)INJURY 1. 2. 9. (specify) ______
(38)LERI'S SYNDROME 1. 2. 9.
(39)MENOPAUSE 1. 2. 9.
(40)MYXEDEMA OR HYPOTHYROIDISM 1. 2. 3.
(41)RADICAL MASTECTOMY 1. 2. 9.
(42)TENOSYNOVITIS(snapping finger of DeQuervain's 1. 2. 9.
(43)TUMORS 1. 2. 9.
(44)ULNAR NERVE SYMPTOMS 1. 2. 9.

PREVIOUS SURGERIES

(45)EXTREMITY(same hand as CTS)specify 1. 2. 9. ______
(46)EXTREMITY(opposite hand of CTS)specify 1. 2. 9. ______
(47)OTHER LOCATION(specify) 1. 2. 9. ______
(48)OTHER HISTORY(describe) ______

FINDINGS ON EXAMINATION

PATIENT IS:
(49)RT. HANDED(1. LT. HANDED(2. AMBIDEXTROUS(3. UNK.(9.

GRIP

RT. HAND: ___ ___ ___ ___ ___ ___ ___ ___ ___
50 51 52 53 54 55 56 57 58

LT. HAND ___ ___ ___ ___ ___ ___ ___ ___ ___
59 60 61 62 63 64 65 56 67

(68)ANESTHESIA 1. 2. 9.
(69)EMG + 1. 2. 9.
(70)PHALEN'S SIGN + 1. 2. 9.
(71)TINEL'S SIGN + 1. 2. 9.
(72)X-RAY FINDINGS + 1. 2. 9. ______
(73)FIRST RIB SYNDROME 1. 2. 9.
(74)THORACIC OUTLET SYNDROME 1. 2. 9.
(75)THENAR ATROPHY 1. 2. 9.
(76)OTHER 1. 2. 9. ______

TREATMENT:

___ ___ ___ ___ ___ ___
1 2 3 4 5 6

DURATION(in days)

(7)CORTISONE INJECTION 1. 2. 3. ______ 64, 65, 66, 67,
(8)SPLINT/CAST 1. 2. 9. ______ 68, 69, 70, 71,
(9)SURGERY 1. 2. 3. ______
(10)PHYS. THERAPY 1. 2. 9. ______ 72, 73, 74, 75
( )OTHER 1. 2. 9. ______

199.

SURGERY: Card Three
1 2 3 4 5 6

(7) SURGEON: DOCTOR ______________________________

DATE OF SURGERY __________________ 8, 9, 10, 11, 12, 13,

DATE OF DISCHARGE __________________ 14, 15, 16, 17, 18, 19,

(20) TYPE OF INCISION: THENAR (1. ______
HYPOTHENAR (2. ______

SURGICAL AND PATHOLOGICAL FINDINGS:

(21)___ ABERRANT ARTERY 1. 2. 9.
(22)___ ABERRANT MUSCLE 1. 2. 9.
(23)___ ABERRANT NERVE 1. 2. 9.
(24)___ DEFORMITY DUE TO FRACTURE 1. 2. 9.
(25)___ DISLOCATED LUNATE 1. 2. 9.
(26)___ FIBROSIS OF TENDONS 1. 2. 9.
(27)___ GANGLION CYST IN CANAL 1. 2. 9.
(28)___ LACERATED TENDON IN CANAL 1. 2. 9.
(29)___ OSTEOPHYTES 1. 2. 9.
(30)___ SCAR TISSUE FORMATION 1. 2. 9.
(31)___ SYNOVITIS 1. 2. 9.
(32)___ TUMOR IN CANAL 1. 2. 9.
(33)___ TENOSYNOVITIS-NON SPECIFIC 1. 2. 9.
(34)___ TENOSYNOVITIS-RHEUMATOID 1. 2. 9.
(35)___ UNUSUAL RECURRENT BRANCH OF MEDIAN NERVE (MOTOR NERVE) 1. 2. 9.
(36)___ OTHER (Be sure to note any unusual findings) ______
1. 2. 9. ______________________________

(37)___ SURGERY PERFORMED WITH CTS (Identify) 1. 2. 9.

Card Four
1 2 3 4 5 6

POST - OPERATIVE CARE Card Five
1 2 3 4 5 6

DATE SPLINT REMOVED __________________ 7, 8, 9, 10, 11, 12,

DATE OF DISCHARGE __________________ 13, 14, 15, 16, 17, 18,

LAST OV (if no discharge) __________________ 19, 20, 21, 22, 23, 24,

NUMBER OF FOLLOW UP VISITS __________________ 25, 26,

(27)___ EDEMA 1. 2. 9.	36, 37, 38, 39, 40, 41,	42, 43, 44, 45, 46, 47,
(28)___ NEURITIS 1. 2. 9.	48, 49, 50, 51, 52, 53,	54, 55, 56, 57, 58, 59,
(29)___ INFECTION 1. 2. 9.	60, 61, 62, 63, 64, 65,	66, 67, 68, 69, 70, 71
(30)___ PAIN 1. 2. 9.	7, 8, 9, 10, 11, 12,	13, 14, 15, 16, 17, 18
(31)___ ACROPARATHESIA 1. 2. 9.	19, 20, 21, [illegible], [illegible], 24,	25, [illegible], [illegible], 28, 29, 30,
(32)___ WEAKNESS 1. 2. 9.	31, 32, 33, 34, 35, 36,	37, 38, 39, 40, 41, 42,
(33)___ PHYS THERAPY 1. 2. 9.	43, 44, 45, [illegible], 47, 48,	49, 50, [illegible], 52, 53, 54,
(34)___ CORTIS. INJEC. 1. 2. 9.	55, [illegible], [illegible], 58, 59, 60,	61, [illegible], [illegible], 64, 65, 66
(35)___ OTHER 1. 2. 9. (Describe briefly)		

SURGICAL RESULTS Card Six
1. 2 3 4 5 6

AT DISCHARGE (If bi-lateral CTS then note results at time of second surgery, if applicable)

(7)___ COMPLETE RELIEF 1. 2. 9.
(8)___ PROGNOSIS IS GOOD FOR COMPLETE RELIEF 1. 2. 9.
(9)___ UNABLE TO STATE RESULT 1. 2. 9.
(10)___ NO RELIEF 1. 2. 9.
(11)___ FURTHER SURGERY FOR CTS NECESSARY 1. 2. 9.
(12)___ ADDITIONAL SURGERY FOR CTS PERFORMED 1. 2. 9.

PATIENT STARTED NORMAL WORK WITH HAND ON __________________ 13, 14, 15, 16, 17, 18,

(19) UNABLE TO STATE WHEN PATIENT STARTED NORMAL WORK WITH HAND 1. 2. 9.

CODED BY. ______________________________

APPENDIX D

CODING FORM F

WAYNE STATE UNIVERSITY
Computing and Data Processing Center

CODING FORM F
REV. 4 71

RECEIPT

STUDENTS: INDICATE DELIVERY CODE, NAME, AND COURSE OR PROJECT NO. WITHIN SINGLE QUOTES IN YOUR SIGNON LINE.

DATE ____________ PAGE ____ OF ____________

NAME ______________________________

STATEMENT NUMBER	CONT.	FORTRAN STATEMENT	LINE NUMBER
1 2 3 4 5	6	7 … 72	73 … 80

APPENDIX E

LEGAL OPINION REGARDING

THE CONFIDENTIAL TREATMENT

OF PATIENT MEDICAL DATA

D E N N I S M. H E R T E L

Attorney-at-Law

5951 Whittier

Detroit, Michigan 48224

April 23, 1976

Mr. Joseph L. Posch, Jr.
65 Fontana Lane
Grosse Pointe Shores, Michigan 48236

Dear Mr. Posch:

This is in reply to your inquiry about the protection of a patient's right to confidentiality of information regarding their treatment by a physician in regard to medical research data.

As you know, anyone employed in a physician's office, from M.D. to secretary, is prohibited from revealing information about an individual patient's personal medical concerns under the doctor-patient relationship. Therefore, when researching data, as always, only those employees of the physician's office may have access to a patient's personal medical records of that office. Any medical research data gathered from personal medical histories to be used outside the scope of the patient's own physician's office and treatment must remain totally anonymous. No names, addresses or personal information may be included or connected to the medical data in any way. Alphabetical or numerical symbols should be used for all purposes of identification and discussion.

I hope I have sufficiently addressed your concerns. Please feel free to contact me should you have additional questions.

Sincerely,

Dennis M. Hertel

DENNIS M. HERTEL
Attorney

DMH/mm

APPENDIX F

QUALITY CONTROL CHECKS

FOR DATA TRANSFERS

<u>Transfer of data from patient's medical record to Carpal Tunnel Syndrome Protocol</u>.

A total of 225 Carpal Tunnel Syndrome Protocols were checked to assure that the transfer of data was accurate. Errors were detected in instances where information was recorded in the patient's medical record, but the information was not present on the Carpal Tunnel Syndrome Protocol. The following errors were detected:

- Three cases where age was not recorded on the protocol.
- Two cases where hand dominance was not recorded on the protocol.
- Three cases where grip was not recorded on the protocol.
- One case where number of postoperative visits was not recorded on the protocol.
- Four cases where the final result for surgery was not recorded on the protocol.

<u>Transfer of data from patient's medical record to Coding Form F</u>.

A total of 1142 case entries on Coding Form F were checked for accuracy. A total of 21 errors were detected. The errors in the transfer of information all concerned the placement of the category code either one column to the right, or one column to the left, of the appropriate column entry.

Transfer of data from Hollerith cards to computer magnetic tape.

A total of 57 transfers were checked for accuracy. In no instances did the information on the Hollerith cards differ from that recorded on magnetic tape.

APPENDIX G

FREQUENCIES AND PERCENTAGES

FOR ALL VARIABLES

FREQUENCIES AND PERCENTAGES FOR ALL VARIABLES

Variable Number	Variable Code	Frequency	Percent[1]
1	1.	743	65.5
1	2.	391	34.5
1	0.	8	missing
2	1.	124	11.1
2	2.	199	17.7
2	3.	292	26.0
2	4.	302	26.9
2	5.	149	13.3
2	6.	56	5.0
2	0.	20	missing
3	1.	334	29.5
3	2.	789	69.8
3	3.	8	0.7
3	0.	11	missing
4	1.	492	43.4
4	2.	229	20.2
4	3.	203	17.9
4	4.	201	17.7
4	5.	9	0.8
4	0.	8	missing
5	0.	1066	93.4
5	1.	75	6.6
5	2.	1	missing
6	0.	1085	95.1
6	1.	56	4.9
6	2.	1	missing
7	0.	1073	94.0
7	1.	68	6.0
7	2.	1	missing
8	0.	1081	94.7
8	1.	60	5.3
8	2.	1	missing

[1]Percent represents the adjusted percents. Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
9	0.	1014	88.9
9	1.	127	11.1
9	2.	1	missing
10	0.	1115	97.7
10	1.	26	2.3
10	2.	1	missing
11	0.	1116	97.8
11	1.	25	2.2
11	2.	1	missing
12	0.	820	71.9
12	1.	321	28.1
12	2.	1	missing
13	0.	380	33.3
13	1.	761	66.7
13	2.	1	missing
14	0.	335	29.4
14	1.	806	70.6
14	2.	1	missing
15	0.	1029	90.2
15	1.	112	9.8
15	2.	1	missing
16	0.	897	78.6
16	1.	244	21.4
16	2.	1	missing
17	0.	634	55.6
17	1.	507	44.4
17	2.	1	missing
18	0.	923	80.9
18	1.	218	19.1
18	2.	1	missing

[1]Percent represents the adjusted percents.
Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
19	0.	973	85.3
19	1.	168	14.7
19	2.	1	missing
20	0.	1132	99.2
20	1.	9	0.8
20	2.	1	missing
21	0.	999	87.6
21	1.	142	12.4
21	2.	1	missing
22	0.	1125	98.6
22	1.	16	1.4
22	2.	1	missing
23	0.	1049	91.9
23	1.	92	8.1
23	2.	1	missing
24	0.	1082	94.8
24	1.	59	5.2
24	2.	1	missing
25	0.	1100	96.4
25	1.	41	3.6
25	2.	1	missing
26	0.	1078	94.5
26	1.	63	5.5
26	2.	1	missing
27	0.	1140	99.9
27	1.	1	0.1
27	2.	1	missing
28	0.	1048	91.8
28	1.	93	8.2
28	2.	1	missing

[1]Percent represents the adjusted percents. Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
29	0.	1120	98.2
29	1.	21	1.8
29	2.	1	missing
30	0.	885	77.6
30	1.	256	22.4
30	2.	1	missing
31	0.	1137	99.6
31	1.	4	0.4
31	2.	1	missing
32	0.	1068	93.6
32	1.	73	6.4
32	2.	1	missing
33	0.	1106	96.9
33	1.	35	3.1
33	2.	1	missing
34	0.	1131	99.1
34	1.	10	0.9
34	2.	1	missing
35	0.	955	83.8
35	1.	185	16.2
35	2.	2	missing
36	0.	1108	97.1
36	1.	33	2.9
36	2.	1	missing
37	0.	1128	98.9
37	1.	13	1.1
37	2.	1	missing
38	0.	999	87.6
38	1.	142	12.4
38	2.	1	missing

[1]Percent represents the adjusted percents.
Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
39	0.	1025	89.8
39	1.	116	10.2
39	2.	1	missing
40	0.	967	84.8
40	1.	174	15.2
40	2.	1	missing
41	0.	772	67.7
41	1.	369	32.3
41	2.	1	missing
42	1.	820	90.0
42	2.	69	7.6
42	3.	22	2.4
42	0.	231	missing
43	1.	208	23.1
43	2.	306	33.9
43	3.	195	21.6
43	4.	95	10.5
43	5.	56	6.2
43	6.	35	3.9
43	7.	7	0.8
43	0.	240	missing
44	1.	150	16.6
44	2.	304	33.6
44	3.	220	24.3
44	4.	118	13.0
44	5.	75	8.3
44	6.	31	3.4
44	7.	7	0.8
44	0.	237	missing
45	0.	1028	90.3
45	1.	111	9.7
45	2.	3	missing

[1]Percent represents the adjusted percents. Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
46	0.	917	80.9
46	1.	216	19.1
46	2.	9	missing
47	0.	1017	89.4
47	1.	120	10.6
47	2.	5	missing
48	0.	1041	91.6
48	1.	96	8.4
48	2.	5	missing
49	0.	1016	89.1
49	1.	124	10.9
49	2.	2	missing
50	0.	1140	99.9
50	1.	1	0.1
50	2.	1	missing
51	0.	1131	99.1
51	1.	10	0.9
51	2.	1	missing
52	0.	1015	89.0
52	1.	126	11.0
52	2.	1	missing
53	0.	815	71.5
53	1.	325	28.5
53	2.	2	missing
54	0.	1105	96.8
54	1.	36	3.2
54	2.	1	missing
55	0.	1098	96.1
55	1.	44	3.9

[1]Percent represents the adjusted percents. Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
56	0.	463	40.5
56	1.	679	59.5
57	0.	1124	98.4
57	1.	18	1.6
58	0.	741	64.9
58	1.	401	35.1
59	1.	517	81.4
59	2.	118	18.6
59	0.	0	missing
60	0.	1128	98.9
60	1.	12	1.1
60	2.	2	missing
61	0.	1131	99.2
61	1.	9	0.8
61	2.	2	missing
62	0.	1120	98.2
62	1.	20	1.8
62	2.	2	missing
63	0.	1137	99.7
63	1.	3	0.3
63	2.	2	missing
64	0.	1137	99.7
64	1.	3	0.3
64	2.	2	missing
65	0.	1086	95.3
65	1.	54	4.7
65	2.	2	missing
66	0.	1132	99.3

[1]Percent represents the adjusted percents.
Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
66	1.	8	0.7
66	2.	2	missing
67	0.	1139	99.9
67	1.	1	0.1
67	2.	2	missing
68	0.	1139	99.9
68	1.	1	0.1
68	2.	2	missing
69	0.	1103	96.8
69	1.	37	3.2
69	2.	2	missing
70	0.	940	82.5
70	1.	200	17.5
70	2.	2	missing
71	0.	1134	99.5
71	1.	6	0.5
71	2.	2	missing
72	0.	866	76.0
72	1.	274	24.0
72	2.	2	missing
73	0.	1104	96.8
73	1.	36	3.2
73	2.	2	missing
74	0.	1138	99.8
74	1.	2	0.2
74	2.	2	missing
75	0.	929	81.5
75	1.	211	18.5
75	2.	2	missing

[1]Percent represents the adjusted percents.
Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
76	0.	932	81.7
76	1.	209	18.3
76	2.	1	missing
77	1.	262	42.0
77	2.	222	35.6
77	3.	140	22.4
77	0.	518	missing
78	0.	1000	87.7
78	1.	140	12.3
78	2.	2	missing
79	0.	1138	99.8
79	1.	2	0.2
79	2.	2	missing
80	0.	1138	99.8
80	1.	2	0.2
80	2.	2	missing
81	0.	915	80.3
81	1.	225	19.7
81	2.	2	missing
82	0.	887	77.8
82	1.	253	22.2
82	2.	2	missing
83	0.	1050	92.1
83	1.	90	7.9
83	2.	2	missing
84	0.	1076	94.4
84	1.	64	5.6
84	2.	2	missing
85	0.	1119	98.2
85	1.	21	1.8

[1]Percent represents the adjusted percents. Missing values are excluded.

Variable Number	Variable Code	Frequency	Percent[1]
85	2.	2	missing
86	0.	909	79.7
86	1.	231	20.3
86	2.	2	missing
87	0.	873	76.5
87	1.	268	23.5
87	2.	1	missing
88	0.	790	69.2
88	1.	351	30.8
88	2.	1	missing
89	0.	1097	96.1
89	1.	44	3.9
89	2.	1	missing
90	0.	1126	98.7
90	1.	15	1.3
90	2.	1	missing
91	0.	1128	98.9
91	1.	13	1.1
91	2.	1	missing
92	0.	1132	99.2
92	1.	9	0.8
92	2.	1	missing

[1]Percent represents the adjusted percents. Missing values are excluded.

APPENDIX H

PERCENTAGES AND ADJUSTED PERCENTAGES

FOR MULTIVARIATE NOMINAL SCALE ANALYSIS:

DEPENDENT VARIABLE--

TREATMENT CLASSIFICATION

(No Surgery; Surgery)

Explanation:

The percents provide the bivariate distribution of the variable in each group.

The adjusted percent, when examined in relation to the overall percent, provides an indication of the variables's importance to each group. If the difference is slight, then the effect of the variable can be considered slight.

The coefficient provides an indication of the likelihood of membership in each group.

TEST
DEPENDENT VARIABLE V 56 TSUR

CODE	N	W	PERCENT
0	463	463.	40.58
1	678	678.	59.42

V 1.SEX

CODE			Y	0	1
0	N	8	PERCENT	37.50	62.50
	SUM W	8.	ADJ PCT	40.67	59.33
	PCT	0.70	COEFF	0.09	-0.09
1	N	742	PERCENT	38.95	61.05
	SUM W	742.	ADJ PCT	39.49	60.51
	PCT	65.03	COEFF	-1.08	1.08
2	N	391	PERCENT	43.73	56.27
	SUM W	391.	ADJ PCT	42.63	57.37
	PCT	34.27	COEFF	2.06	-2.06

V 2.AGE

CODE			Y	0	1
0	N	20	PERCENT	55.00	45.00
	SUM W	20.	ADJ PCT	45.99	54.01
	PCT	1.75	COEFF	5.41	-5.41
1	N	124	PERCENT	49.19	50.81
	SUM W	124.	ADJ PCT	48.32	51.68
	PCT	10.87	COEFF	7.74	-7.74
2	N	199	PERCENT	41.71	58.29
	SUM W	199.	ADJ PCT	43.48	56.52
	PCT	17.44	COEFF	2.90	-2.90
3	N	292	PERCENT	35.96	64.04
	SUM W	292.	ADJ PCT	36.78	63.22
	PCT	25.59	COEFF	-3.80	3.80
4	N	301	PERCENT	41.20	58.80
	SUM W	301.	ADJ PCT	42.29	57.71
	PCT	26.38	COEFF	1.72	-1.72
5	N	149	PERCENT	36.24	63.76
	SUM W	149.	ADJ PCT	31.86	68.14
	PCT	13.06	COEFF	-8.72	8.72
6	N	56	PERCENT	44.64	55.36
	SUM W	56.	ADJ PCT	44.96	55.04
	PCT	4.91	COEFF	4.38	-4.38

V 3.I-NI

CODE			Y	0	1
0	N	11	PERCENT	63.64	36.36
	SUM W	11.	ADJ PCT	73.62	26.38
	PCT	0.96	COEFF	33.04	-33.04
1	N	334	PERCENT	43.41	56.59
	SUM W	334.	ADJ PCT	42.05	57.95
	PCT	29.27	COEFF	1.47	-1.47
2	N	788	PERCENT	39.09	60.91
	SUM W	788.	ADJ PCT	39.52	60.48
	PCT	69.06	COEFF	-1.06	1.06
3	N	8	PERCENT	37.50	62.50
	SUM W	8.	ADJ PCT	38.08	61.92
	PCT	0.70	COEFF	-2.50	2.50

V 4.LOC

CODE			Y	0	1
0	N	8	PERCENT	25.00	75.00

	SUM W	8.	ADJ PCT	11.96	88.04
	PCT	0.70	COEFF	-28.62	28.62
1	N	491	PERCENT	38.70	61.30
	SUM W	491.	ADJ PCT	38.66	61.34
	PCT	43.03	COEFF	-1.92	1.92
2	N	229	PERCENT	35.81	64.19
	SUM W	229.	ADJ PCT	34.50	65.50
	PCT	20.07	COEFF	-6.08	6.08
3	N	203	PERCENT	40.39	59.61
	SUM W	203.	ADJ PCT	41.75	58.25
	PCT	17.79	COEFF	1.17	-1.17
4	N	201	PERCENT	51.24	48.76
	SUM W	201.	ADJ PCT	52.02	47.98
	PCT	17.62	COEFF	11.44	-11.44
5	N	9	PERCENT	44.44	55.56
	SUM W	9.	ADJ PCT	43.49	56.51
	PCT	0.79	COEFF	2.91	-2.91
V	6.PSPC				
CODE			Y	0	1
0	N	1085	PERCENT	41.47	58.53
	SUM W	1085.	ADJ PCT	41.56	58.44
	PCT	95.09	COEFF	0.98	-0.98
1	N	56	PERCENT	23.21	76.79
	SUM W	56.	ADJ PCT	21.55	78.45
	PCT	4.91	COEFF	-19.03	19.03
V	7.PSUR				
CODE			Y	0	1
0	N	1073	PERCENT	39.70	60.30
	SUM W	1073.	ADJ PCT	39.76	60.24
	PCT	94.04	COEFF	-0.82	0.82
1	N	68	PERCENT	54.41	45.59
	SUM W	68.	ADJ PCT	53.56	46.44
	PCT	5.96	COEFF	12.98	-12.98
V	13.SPAI				
CODE			Y	0	1
0	N	380	PERCENT	39.74	60.26
	SUM W	380.	ADJ PCT	40.16	59.84
	PCT	33.30	COEFF	-0.42	0.42
1	N	761	PERCENT	41.00	59.00
	SUM W	761.	ADJ PCT	40.79	59.21
	PCT	66.70	COEFF	0.21	-0.21
V	14.SNUM				
CODE			Y	0	1
0	N	335	PERCENT	37.91	62.09
	SUM W	335.	ADJ PCT	37.05	62.95
	PCT	29.36	COEFF	-3.53	3.53
1	N	806	PERCENT	41.69	58.31
	SUM W	806.	ADJ PCT	42.04	57.96
	PCT	70.64	COEFF	1.47	-1.47
V	15.SSTI				
CODE			Y	0	1
0	N	1029	PERCENT	37.80	62.20
	SUM W	1029.	ADJ PCT	38.05	61.95
	PCT	90.18	COEFF	-2.53	2.53
1	N	112	PERCENT	66.07	33.93

	SUM W	112.	ADJ PCT		63.79	36.21
	PCT	9.82	COEFF		23.22	-23.22
V 16.SSWE						
CODE			Y		0	1
0	N	897	PERCENT		39.46	60.54
	SUM W	897.	ADJ PCT		39.92	60.08
	PCT	78.62	COEFF		-0.66	0.66
1	N	244	PERCENT		44.67	55.33
	SUM W	244.	ADJ PCT		43.02	56.98
	PCT	21.38	COEFF		2.44	-2.44
V 17.STIN						
CODE			Y		0	1
0	N	634	PERCENT		46.37	53.63
	SUM W	634.	ADJ PCT		45.03	54.97
	PCT	55.57	COEFF		4.45	-4.45
1	N	507	PERCENT		33.33	66.67
	SUM W	507.	ADJ PCT		35.01	64.99
	PCT	44.43	COEFF		-5.57	5.57
V 18.SWTA						
CODE			Y		0	1
0	N	923	PERCENT		38.79	61.21
	SUM W	923.	ADJ PCT		39.13	60.87
	PCT	80.89	COEFF		-1.45	1.45
1	N	218	PERCENT		48.17	51.83
	SUM W	218.	ADJ PCT		46.73	53.27
	PCT	19.11	COEFF		6.15	-6.15
V 23.HCYS						
CODE			Y		0	1
0	N	1049	PERCENT		42.23	57.77
	SUM W	1049.	ADJ PCT		41.91	58.09
	PCT	91.94	COEFF		1.33	-1.33
1	N	92	PERCENT		21.74	78.26
	SUM W	92.	ADJ PCT		25.40	74.60
	PCT	8.06	COEFF		-15.17	15.17
V 28.HHYP						
CODE			Y		0	1
0	N	1048	PERCENT		40.08	59.92
	SUM W	1048.	ADJ PCT		40.12	59.88
	PCT	91.85	COEFF		-0.46	0.46
1	N	93	PERCENT		46.24	53.76
	SUM W	93.	ADJ PCT		45.76	54.24
	PCT	8.15	COEFF		5.18	-5.18
V 35.HTEN						
CODE			Y		0	1
0	N	955	PERCENT		41.78	58.22
	SUM W	955.	ADJ PCT		41.62	58.38
	PCT	83.70	COEFF		1.04	-1.04
1	N	185	PERCENT		34.05	65.95
	SUM W	185.	ADJ PCT		34.91	65.09
	PCT	16.21	COEFF		-5.67	5.67
2	N	1	PERCENT		100.00	0.0
	SUM W	1.	ADJ PCT		97.03	2.97
	PCT	0.09	COEFF		56.45	-56.45
V 42.HDOM						

CODE			Y	0	1
0	N	230	PERCENT	31.30	68.70
	SUM W	230.	ADJ PCT	31.68	68.32
	PCT	20.16	COEFF	-8.90	8.90
1	N	820	PERCENT	42.93	57.07
	SUM W	820.	ADJ PCT	42.76	57.24
	PCT	71.87	COEFF	2.18	-2.18
2	N	69	PERCENT	39.13	60.87
	SUM W	69.	ADJ PCT	39.65	60.35
	PCT	6.05	COEFF	-0.93	0.93
3	N	22	PERCENT	54.55	45.45
	SUM W	22.	ADJ PCT	55.40	44.60
	PCT	1.93	COEFF	14.82	-14.82

V 46.FEMG

CODE			Y	0	1
0	N	917	PERCENT	41.11	58.89
	SUM W	917.	ADJ PCT	41.13	58.87
	PCT	80.37	COEFF	0.55	-0.55
1	N	216	PERCENT	37.96	62.04
	SUM W	216.	ADJ PCT	38.13	61.87
	PCT	18.93	COEFF	-2.45	2.45
2	N	8	PERCENT	50.00	50.00
	SUM W	8.	ADJ PCT	43.74	56.26
	PCT	0.70	COEFF	3.17	-3.17

V 48.FTIN

CODE			Y	0	1
0	N	1041	PERCENT	40.83	59.17
	SUM W	1041.	ADJ PCT	40.88	59.12
	PCT	91.24	COEFF	0.31	-0.31
1	N	96	PERCENT	36.46	63.54
	SUM W	96.	ADJ PCT	36.65	63.35
	PCT	8.41	COEFF	-3.92	3.92
2	N	4	PERCENT	75.00	25.00
	SUM W	4.	ADJ PCT	55.22	44.78
	PCT	0.35	COEFF	14.64	-14.64

V 49.EXP

CODE			Y	0	1
0	N	1016	PERCENT	38.78	61.22
	SUM W	1016.	ADJ PCT	38.90	61.10
	PCT	89.04	COEFF	-1.68	1.68
1	N	124	PERCENT	54.84	45.16
	SUM W	124.	ADJ PCT	53.86	46.14
	PCT	10.87	COEFF	13.28	-13.28
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	103.05	-3.05
	PCT	0.09	COEFF	62.47	-62.47

*****TIME 4 45 22 0

APPENDIX I

PERCENTAGES AND ADJUSTED PERCENTAGES

FOR MULTIVARIATE NOMINAL SCALE ANALYSIS:

DEPENDENT VARIABLE--

TREATMENT CLASSIFICATION

(1 through 6; 7 through 11; 12+)

Explanation:

The percents provide the bivariate distribution of the variable in each group.

The adjusted percent, when examined in relation to the overall percent, provides an indication of the variable's importance to each group. If the difference is slight, then the effect of the variable can be considered slight.

The coefficient provides an indication of the likelihood of membership in each group.

TEST
DEPENDENT VARIABLE V 77 VERF

CODE	N	W	PERCENT
1	251	251.	41.56
2	217	217.	35.93
3	136	136.	22.52

V 2.AGE

CODE			Y	1	2	3
0	N	8	PERCENT	25.00	50.00	25.00
	SUM W	8.	ADJ PCT	43.04	51.32	5.64
	PCT	1.32	COEFF	1.48	15.39	-16.87
1	N	59	PERCENT	54.24	27.12	18.64
	SUM W	59.	ADJ PCT	56.92	28.48	14.60
	PCT	9.77	COEFF	15.36	-7.44	-7.92
2	N	105	PERCENT	40.95	36.19	22.86
	SUM W	105.	ADJ PCT	41.56	36.11	22.33
	PCT	17.38	COEFF	0.01	0.18	-0.19
3	N	167	PERCENT	37.72	34.13	28.14
	SUM W	167.	ADJ PCT	37.12	35.38	27.50
	PCT	27.65	COEFF	-4.44	-0.55	4.99
4	N	155	PERCENT	38.71	41.94	19.35
	SUM W	155.	ADJ PCT	38.19	41.27	20.55
	PCT	25.66	COEFF	-3.37	5.34	-1.97
5	N	84	PERCENT	41.67	36.90	21.43
	SUM W	84.	ADJ PCT	40.65	35.38	23.97
	PCT	13.91	COEFF	-0.91	-0.55	1.46
6	N	26	PERCENT	61.54	23.08	15.38
	SUM W	26.	ADJ PCT	57.76	20.82	21.42
	PCT	4.30	COEFF	16.20	-15.11	-1.09

V 3.I-NI

CODE			Y	1	2	3
0	N	2	PERCENT	0.0	50.00	50.00
	SUM W	2.	ADJ PCT	-14.68	49.76	64.92
	PCT	0.33	COEFF	-56.24	13.84	42.40
1	N	163	PERCENT	26.99	33.74	39.26
	SUM W	163.	ADJ PCT	26.78	34.08	39.15
	PCT	26.99	COEFF	-14.78	-1.85	16.63
2	N	434	PERCENT	47.47	36.41	16.13
	SUM W	434.	ADJ PCT	47.65	36.29	16.06
	PCT	71.85	COEFF	6.09	0.36	-6.45
3	N	5	PERCENT	20.00	60.00	20.00
	SUM W	5.	ADJ PCT	17.24	59.15	23.61
	PCT	0.83	COEFF	-24.32	23.22	1.10

V 13.SPAI

CODE			Y	1	2	3
0	N	203	PERCENT	40.39	39.41	20.20
	SUM W	203.	ADJ PCT	38.08	38.32	23.60
	PCT	33.61	COEFF	-3.48	2.40	1.08
1	N	401	PERCENT	42.14	34.16	23.69
	SUM W	401.	ADJ PCT	43.32	34.71	21.97
	PCT	66.39	COEFF	1.76	-1.21	-0.55

V 14.SNUM

CODE			Y	1	2	3
0	N	185	PERCENT	35.14	37.30	27.57
	SUM W	185.	ADJ PCT	35.04	38.47	26.49
	PCT	30.63	COEFF	-6.51	2.54	3.97

1	N	419	PERCENT	44.39	35.32	20.29
	SUM W	419.	ADJ PCT	44.43	34.81	20.76
	PCT	69.37	COEFF	2.88	-1.12	-1.75

V 15.SSWE

CODE			Y	1	2	3
0	N	487	PERCENT	42.51	37.58	19.92
	SUM W	487.	ADJ PCT	42.16	37.21	20.63
	PCT	80.63	COEFF	0.61	1.28	-1.89
1	N	117	PERCENT	37.61	29.06	33.33
	SUM W	117.	ADJ PCT	39.03	30.60	30.37
	PCT	19.37	COEFF	-2.53	-5.32	7.85

V 17.STIN

CODE			Y	1	2	3
0	N	292	PERCENT	40.75	35.27	23.97
	SUM W	292.	ADJ PCT	42.04	35.10	22.86
	PCT	48.34	COEFF	0.49	-0.83	0.34
1	N	312	PERCENT	42.31	36.54	21.15
	SUM W	312.	ADJ PCT	41.10	36.70	22.20
	PCT	51.66	COEFF	-0.46	0.77	-0.32

V 18.SWEA

CODE			Y	1	2	3
0	N	501	PERCENT	43.91	35.73	20.36
	SUM W	501.	ADJ PCT	43.99	35.26	20.74
	PCT	82.95	COEFF	2.44	-0.66	-1.77
1	N	103	PERCENT	30.10	36.89	33.01
	SUM W	103.	ADJ PCT	29.70	39.16	31.14
	PCT	17.05	COEFF	-11.86	3.23	8.63

V 21.HART

CODE			Y	1	2	3
0	N	535	PERCENT	41.87	37.01	21.12
	SUM W	535.	ADJ PCT	41.80	37.31	20.89
	PCT	88.58	COEFF	0.24	1.38	-1.63
1	N	69	PERCENT	39.13	27.54	33.33
	SUM W	69.	ADJ PCT	39.67	25.21	35.12
	PCT	11.42	COEFF	-1.88	-10.72	12.60

V 25.HDUC

CODE			Y	1	2	3
0	N	577	PERCENT	42.98	35.01	22.01
	SUM W	577.	ADJ PCT	42.97	35.20	21.83
	PCT	95.53	COEFF	1.41	-0.73	-0.68
1	N	27	PERCENT	11.11	55.56	33.33
	SUM W	27.	ADJ PCT	11.40	51.47	37.13
	PCT	4.47	COEFF	-30.15	15.54	14.61

V 30.HINJ

CODE			Y	1	2	3
0	N	475	PERCENT	44.21	35.58	20.21
	SUM W	475.	ADJ PCT	42.86	35.99	21.15
	PCT	78.64	COEFF	1.30	0.06	-1.36
1	N	129	PERCENT	31.78	37.21	31.01
	SUM W	129.	ADJ PCT	36.76	35.70	27.54
	PCT	21.36	COEFF	-4.80	-0.23	5.02

V 39.HPSN

CODE			Y	1	2	3

0	N	543	PERCENT	39.78	37.75	22.47
	SUM W	543.	ADJ PCT	39.96	37.51	22.53
	PCT	89.90	COEFF	-1.59	1.58	0.01
1	N	61	PERCENT	57.38	19.67	22.95
	SUM W	61.	ADJ PCT	55.72	21.84	22.44
	PCT	10.10	COEFF	14.17	-14.09	-0.08

V 46.FEMG

CODE			Y	1	2	3
0	N	474	PERCENT	41.56	35.86	22.57
	SUM W	474.	ADJ PCT	42.09	35.74	22.17
	PCT	78.48	COEFF	0.53	-0.18	-0.35
1	N	126	PERCENT	41.27	37.30	21.43
	SUM W	126.	ADJ PCT	38.68	38.18	23.13
	PCT	20.86	COEFF	-2.88	2.26	0.62
2	N	4	PERCENT	50.00	0.0	50.00
	SUM W	4.	ADJ PCT	69.45	-13.37	43.92
	PCT	0.66	COEFF	27.89	-49.30	21.41

V 49.FXR

CODE			Y	1	2	3
0	N	554	PERCENT	42.60	34.66	22.74
	SUM W	554.	ADJ PCT	42.14	34.52	23.34
	PCT	91.72	COEFF	0.58	-1.41	0.83
1	N	50	PERCENT	30.00	50.00	20.00
	SUM W	50.	ADJ PCT	35.13	51.50	13.37
	PCT	8.28	COEFF	-6.42	15.57	-9.15

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APPENDIX J

PERCENTAGES AND ADJUSTED PERCENTAGES

FOR MULTIVARIATE NOMINAL SCALE ANALYSIS:

DEPENDENT VARIABLE--

TREATMENT CLASSIFICATION

(Thenar; Hypothenar)

TEST
DEPENDENT VARIABLE V 59 INCT

CODE	N	W	PERCENT
1	501	501.	81.46
2	114	114.	18.54

V 62.OABN

CODE			Y	1	2
0	N	594	PERCENT	81.99	18.01
	SUM W	594.	ADJ PCT	-103.20	13.52
	PCT	96.59	COEFF	-184.67	-5.01
1	N	19	PERCENT	63.16	36.84
	SUM W	19.	ADJ PCT	-121.30	31.60
	PCT	3.09	COEFF	-202.76	13.06
2	N	2	PERCENT	100.00	0.0
	SUM W	2.	ADJ PCT	56844.97	1383.09
	PCT	0.33	COEFF	56763.53	1364.55

V 65.OPIT

CODE			Y	1	2
0	N	564	PERCENT	81.38	18.62
	SUM W	564.	ADJ PCT	235.54	24.34
	PCT	91.71	COEFF	154.08	5.81
1	N	49	PERCENT	81.63	18.37
	SUM W	49.	ADJ PCT	235.20	24.70
	PCT	7.97	COEFF	153.74	6.16
2	N	2	PERCENT	100.00	0.0
	SUM W	2.	ADJ PCT	-47123.44	-1769.04
	PCT	0.33	COEFF	-47204.91	-1787.58

V 70.OSYN

CODE			Y	1	2
0	N	429	PERCENT	81.82	18.18
	SUM W	429.	ADJ PCT	53.73	14.68
	PCT	69.76	COEFF	-27.73	-3.85
1	N	184	PERCENT	80.43	19.57
	SUM W	184.	ADJ PCT	50.23	18.18
	PCT	29.92	COEFF	-31.23	-0.36
2	N	2	PERCENT	100.00	0.0
	SUM W	2.	ADJ PCT	8902.84	877.63
	PCT	0.33	COEFF	8821.37	859.09

V 72.OTNS

CODE			Y	1	2
0	N	371	PERCENT	82.48	17.52
	SUM W	371.	ADJ PCT	143.29	18.10
	PCT	60.33	COEFF	61.83	-0.44
1	N	242	PERCENT	79.75	20.25
	SUM W	242.	ADJ PCT	138.49	22.91
	PCT	39.35	COEFF	57.02	4.37
2	N	2	PERCENT	100.00	0.0
	SUM W	2.	ADJ PCT	-18286.97	-429.07
	PCT	0.33	COEFF	-18368.43	-447.61

V 76.SUP+

CODE			Y	1	2
0	N	434	PERCENT	80.65	19.35
	SUM W	434.	ADJ PCT	80.50	19.50
	PCT	70.57	COEFF	-0.96	0.96
1	N	180	PERCENT	83.33	16.67

	SUM W	180.	ADJ PCT	83.76	16.24
	PCT	29.27	COEFF	2.30	-2.30
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	85.00	14.99
	PCT	0.16	COEFF	3.54	-3.54

V 77.VFRE

CODE			Y	1	2
0	N	58	PERCENT	75.86	24.14
	SUM W	58.	ADJ PCT	75.64	24.36
	PCT	9.43	COEFF	-5.82	5.82
1	N	232	PERCENT	79.74	20.26
	SUM W	232.	ADJ PCT	78.95	21.05
	PCT	37.72	COEFF	-2.51	2.51
2	N	199	PERCENT	83.92	16.08
	SUM W	199.	ADJ PCT	83.40	16.60
	PCT	32.36	COEFF	1.93	-1.93
3	N	126	PERCENT	83.33	16.67
	SUM W	126.	ADJ PCT	85.72	14.28
	PCT	20.49	COEFF	4.26	-4.26

V 78.AEDE

CODE			Y	1	2
0	N	489	PERCENT	82.00	18.00
	SUM W	489.	ADJ PCT	129.80	18.67
	PCT	79.51	COEFF	48.34	0.14
1	N	125	PERCENT	79.20	20.80
	SUM W	125.	ADJ PCT	127.29	21.20
	PCT	20.33	COEFF	45.83	2.67
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	-29275.56	-381.83
	PCT	0.16	COEFF	-29357.03	-400.37

V 81.APAI

CODE			Y	1	2
0	N	413	PERCENT	81.84	18.16
	SUM W	413.	ADJ PCT	76.59	19.26
	PCT	67.15	COEFF	-4.87	0.72
1	N	201	PERCENT	80.60	19.40
	SUM W	201.	ADJ PCT	77.42	18.43
	PCT	32.68	COEFF	-4.04	-0.11
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	2904.54	-258.99
	PCT	0.16	COEFF	2823.08	-277.52

V 82.AACR

CODE			Y	1	2
0	N	386	PERCENT	83.42	16.58
	SUM W	386.	ADJ PCT	113.35	16.83
	PCT	62.76	COEFF	31.89	-1.71
1	N	228	PERCENT	78.07	21.93
	SUM W	228.	ADJ PCT	107.30	22.89
	PCT	37.07	COEFF	25.83	4.35
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	-18116.55	-314.04
	PCT	0.16	COEFF	-18198.01	-332.57

V 83.AWEA

CODE			Y	1	2
0	N	530	PERCENT	82.45	17.55

	SUM W	530.	ADJ PCT	38.81	16.39
	PCT	86.18	COEFF	-42.65	-2.15
1	N	84	PERCENT	75.00	25.00
	SUM W	84.	ADJ PCT	29.75	25.45
	PCT	13.66	COEFF	-51.71	6.92
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	27026.56	576.58
	PCT	0.16	COEFF	26945.12	558.05

V 87.CPEL

CODE			Y	1	2
0	N	373	PERCENT	78.55	21.45
	SUM W	373.	ADJ PCT	34.17	18.55
	PCT	60.65	COEFF	-47.29	0.02
1	N	241	PERCENT	85.89	14.11
	SUM W	241.	ADJ PCT	36.88	15.85
	PCT	39.19	COEFF	-44.58	-2.69
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	28453.66	660.01
	PCT	0.16	COEFF	28372.22	641.48

V 88.PCRE

CODE			Y	1	2
0	N	298	PERCENT	84.90	15.10
	SUM W	298.	ADJ PCT	100.98	16.57
	PCT	48.46	COEFF	19.52	-1.97
1	N	316	PERCENT	78.16	21.84
	SUM W	316.	ADJ PCT	96.46	21.09
	PCT	51.38	COEFF	15.00	2.55
2	N	1	PERCENT	100.00	0.0
	SUM W	1.	ADJ PCT	-10473.80	-200.64
	PCT	0.16	COEFF	-10555.26	-219.18

*****TIME 1 50 8 0

APPENDIX K

SQUARE OF THE DISTANCES

FROM GROUP MEAN AND POSTERIOR PROBABILITIES

FOR GROUP MEMBERSHIP

BASED ON DISCRIMINANT ANALYSIS

USING THAID SELECTED VARIABLES:

DEPENDENT VARIABLE--

TREATMENT CLASSIFICATION

(No Surgery; Surgery)

Explanation:

Column one represents the case reference number.

Column two represents the group into which the case was classified.

Column three represents the square of the distance from the group mean for the first group.

Column four represents the probability that a case would be included in group one.

Column five represents the square of the distance from the group mean for the second group.

Column six represents the probability that a case would be included in group two.

It should be noted that the sum of the probabilities for inclusion into each group must equal one if the basic assumptions of an additive linear model have been met.

1	S	11.098	0.285,	9.259	0.715,
2	S	18.941	0.261,	16.861	0.739,
3	N	31.651	0.514,	31.761	0.486,
4	S	7.204	0.410,	6.473	0.590,
5	S	13.397	0.297,	11.670	0.703,
6	S	26.226	0.337,	24.872	0.663,
7	S	16.976	0.149,	13.496	0.851,
8	S	30.110	0.381,	29.140	0.619,
9	S	6.742	0.316,	5.200	0.684,
10	S	18.462	0.310,	16.865	0.690,
11	S	23.509	0.400,	22.696	0.600,
12	S	9.111	0.211,	6.474	0.789,
13	S	15.454	0.138,	11.787	0.862,
14	S	22.043	0.164,	18.766	0.836,
15	S	26.779	0.073,	21.683	0.927,
16	N	31.309	0.721,	33.208	0.279,
17	N	32.954	0.883,	36.989	0.117,
18	N	13.649	0.812,	16.576	0.188,
19	N	12.398	0.598,	13.189	0.402,
20	N	5.346	0.807,	8.208	0.193,
21	N	7.079	0.912,	11.756	0.088,
22	N	36.081	0.519,	36.232	0.481,
23	S	25.927	0.305,	24.278	0.695,
24	N	26.830	0.779,	29.354	0.221,
25	S	17.523	0.477,	17.336	0.523,
26	N	12.423	0.909,	17.032	0.091,
27	S	26.039	0.159,	22.703	0.841,
28	S	9.867	0.240,	7.565	0.760,
29	S	15.745	0.270,	13.754	0.730,
30	S	6.475	0.318,	4.949	0.682,
31	S	10.313	0.209,	7.655	0.791,
32	S	11.828	0.317,	10.291	0.683,
33	N	36.120	0.632,	37.199	0.368,
34	S	18.249	0.484,	18.120	0.516,
35	S	10.421	0.419,	9.770	0.581,
36	S	34.278	0.112,	30.143	0.888,
37	S	16.596	0.451,	16.201	0.549,
38	S	13.545	0.469,	13.298	0.531,
39	S	18.030	0.160,	14.708	0.840,
40	S	8.598	0.225,	6.128	0.775,
41	S	6.561	0.422,	5.929	0.578,
42	S	16.242	0.233,	13.858	0.767,
43	S	9.944	0.212,	7.318	0.788,
44	N	6.314	0.788,	8.941	0.212,
45	N	7.610	0.915,	12.373	0.085,
46	N	18.429	0.838,	21.719	0.162,
47	N	17.421	0.640,	18.575	0.360,
48	N	22.246	0.753,	24.475	0.247,
49	N	10.882	0.814,	13.830	0.186,
50	N	12.172	0.927,	17.256	0.073,
51	N	9.203	0.705,	10.949	0.295,
52	N	10.251	0.874,	14.133	0.126,
53	N	13.852	0.793,	16.541	0.207,
54	N	23.552	0.849,	27.013	0.151,

55	N	16.334	0.856,	19.900	0.144,
56	N	19.567	0.879,	23.542	0.121,
57	N	5.867	0.777,	8.362	0.223,
58	N	7.214	0.910,	11.845	0.090,
59	N	14.327	0.730,	16.321	0.270,
60	N	12.823	0.915,	17.581	0.085,
61	N	36.587	0.855,	40.133	0.145,
62	N	12.779	0.918,	17.623	0.082,
63	N	11.318	0.884,	15.380	0.116,
64	N	8.282	0.858,	11.881	0.142,
65	N	7.248	0.675,	8.711	0.325,
66	N	7.845	0.789,	10.484	0.211,
67	N	8.958	0.916,	13.733	0.084,
68	N	9.443	0.674,	10.892	0.326,
69	N	10.484	0.857,	14.069	0.143,
70	S	12.317	0.432,	11.773	0.568,
71	S	35.277	0.374,	34.249	0.626,
72	S	22.697	0.401,	21.893	0.599,
73	N	9.004	0.530,	9.244	0.470,
74	N	12.134	0.710,	13.922	0.290,
75	N	13.510	0.877,	17.434	0.123,
76	S	15.422	0.174,	12.313	0.826,
77	S	19.170	0.231,	16.770	0.769,
78	N	11.450	0.904,	15.924	0.096,
79	N	14.088	0.775,	16.564	0.225,
80	S	10.874	0.431,	10.316	0.569,
81	S	11.197	0.266,	9.169	0.734,
82	N	8.593	0.786,	11.194	0.214,
83	N	6.909	0.902,	11.344	0.098,
84	N	23.899	0.535,	24.177	0.465,
85	S	46.022	0.238,	43.691	0.762,
86	S	11.686	0.207,	9.003	0.793,
87	N	22.650	0.861,	26.291	0.139,
88	N	16.288	0.765,	18.652	0.235,
89	S	12.966	0.328,	11.534	0.672,
90	S	31.846	0.220,	29.310	0.780,
91	N	19.365	0.886,	23.461	0.114,
92	N	17.937	0.727,	19.897	0.273,
93	S	11.774	0.274,	9.822	0.726,
94	S	17.800	0.176,	14.712	0.824,
95	S	26.422	0.312,	24.838	0.688,
96	S	29.414	0.429,	28.839	0.571,
97	S	9.111	0.211,	6.474	0.789,
98	S	11.364	0.186,	8.418	0.814,
99	S	13.531	0.279,	11.636	0.721,
100	N	6.263	0.501,	6.273	0.499,
101	N	8.103	0.764,	10.457	0.236,
102	N	9.306	0.904,	13.796	0.096,
103	N	15.209	0.924,	20.203	0.076,
104	N	17.034	0.817,	20.026	0.183,
105	S	16.189	0.260,	14.093	0.740,
106	N	13.154	0.779,	15.672	0.221,
107	N	8.872	0.913,	13.573	0.087,
108	S	28.023	0.140,	24.397	0.860,
109	N	17.682	0.909,	22.274	0.091,
110	N	11.400	0.827,	14.527	0.173,
111	S	14.978	0.200,	12.211	0.800,
112	N	10.810	0.902,	15.249	0.098,
113	N	4.519	0.771,	6.950	0.229,
114	S	14.384	0.242,	12.102	0.758,

115	S	11.168	0.316,	9.626	0.684,
116	S	17.466	0.216,	14.868	0.784,
117	N	4.950	0.536,	5.240	0.464,
118	S	19.106	0.227,	16.652	0.773,
119	S	15.688	0.460,	15.371	0.540,
120	S	15.777	0.191,	12.886	0.809,
121	S	35.866	0.253,	33.704	0.747,
122	S	9.368	0.278,	7.460	0.722,
123	S	18.219	0.167,	15.008	0.833,
124	S	24.345	0.095,	19.845	0.905,
125	S	12.848	0.292,	11.031	0.708,
126	S	8.211	0.253,	6.049	0.747,
127	S	17.260	0.302,	15.587	0.698,
128	S	19.170	0.231,	16.770	0.769,
129	N	40.532	0.960,	46.906	0.040,
130	S	13.046	0.449,	12.633	0.551,
131	S	8.032	0.272,	6.059	0.728,
132	S	12.938	0.289,	11.136	0.711,
133	S	13.653	0.218,	11.101	0.782,
134	S	9.391	0.432,	8.844	0.568,
135	S	11.731	0.403,	10.949	0.597,
136	S	6.742	0.316,	5.200	0.684,
137	S	10.159	0.253,	7.989	0.747,
138	N	9.982	0.504,	10.017	0.496,
139	S	46.324	0.361,	45.184	0.639,
140	S	45.874	0.409,	45.138	0.591,
141	S	12.401	0.222,	9.899	0.778,
142	S	17.342	0.344,	16.051	0.656,
143	S	18.840	0.268,	16.826	0.732,
144	S	11.040	0.196,	8.214	0.804,
145	S	63.240	0.243,	60.967	0.757,
146	S	10.335	0.263,	8.274	0.737,
147	S	17.441	0.285,	15.602	0.715,
148	S	71.174	0.249,	68.971	0.751,
149	N	38.641	0.721,	39.940	0.279,
150	S	27.053	0.231,	24.652	0.769,
151	S	33.927	0.361,	32.786	0.639,
152	S	18.640	0.242,	15.762	0.758,
153	S	10.305	0.226,	7.847	0.774,
154	S	11.542	0.201,	8.784	0.799,
155	S	17.155	0.251,	14.969	0.749,
156	S	28.652	0.159,	25.320	0.841,
157	S	37.732	0.223,	35.233	0.777,
158	S	37.307	0.405,	36.540	0.595,
159	S	17.116	0.223,	14.616	0.777,
160	S	25.653	0.176,	22.562	0.824,
161	S	23.924	0.100,	19.520	0.900,
162	N	15.147	0.578,	15.778	0.422,
163	S	12.627	0.465,	12.350	0.535,
164	S	13.938	0.197,	11.128	0.803,
165	N	8.363	0.541,	8.694	0.459,
166	S	29.593	0.449,	29.186	0.551,
167	N	6.263	0.501,	6.273	0.499,
168	S	10.705	0.313,	9.129	0.687,
169	S	48.605	0.310,	47.007	0.690,
170	S	13.844	0.179,	10.792	0.821,
171	S	14.903	0.277,	12.984	0.723,
172	N	23.058	0.644,	24.247	0.356,
173	S	29.437	0.157,	26.080	0.843,
174	S	17.666	0.236,	15.312	0.764,

175	S	11.715	0.200,	8.936	0.800,
176	S	18.121	0.208,	15.447	0.792,
177	N	23.627	0.573,	24.215	0.427,
178	S	29.486	0.182,	26.477	0.818,
179	N	17.691	0.946,	23.469	0.054,
180	N	16.144	0.857,	19.726	0.143,
181	N	3.618	0.789,	6.250	0.211,
182	N	5.085	0.916,	9.853	0.084,
183	N	5.346	0.807,	8.208	0.193,
184	N	9.129	0.909,	13.733	0.091,
185	N	32.412	0.810,	35.316	0.190,
186	N	34.391	0.926,	39.431	0.074,
187	N	15.552	0.893,	15.804	0.107,
188	N	12.694	0.772,	15.130	0.228,
189	N	16.547	0.894,	20.802	0.106,
190	N	15.534	0.743,	17.653	0.257,
191	N	32.941	0.839,	36.250	0.161,
192	N	25.678	0.821,	28.726	0.179,
193	N	12.868	0.838,	16.151	0.162,
194	N	14.243	0.748,	16.423	0.252,
195	N	21.494	0.845,	24.893	0.155,
196	N	13.859	0.744,	15.993	0.256,
197	N	12.525	0.903,	16.979	0.097,
198	N	4.806	0.783,	7.368	0.217,
199	N	15.553	0.894,	19.825	0.106,
200	N	5.456	0.914,	10.190	0.086,
201	N	3.976	0.786,	6.574	0.214,
202	N	11.231	0.922,	16.164	0.078,
203	N	5.265	0.791,	7.928	0.209,
204	N	28.046	0.670,	29.464	0.330,
205	N	27.464	0.878,	31.412	0.122,
206	S	29.373	0.440,	28.891	0.560,
207	N	30.264	0.696,	31.919	0.304,
208	N	17.319	0.923,	22.299	0.077,
209	N	11.050	0.795,	13.758	0.205,
210	N	8.708	0.882,	12.726	0.118,
211	N	7.600	0.719,	9.481	0.281,
212	N	9.278	0.873,	13.130	0.127,
213	N	14.442	0.680,	15.952	0.320,
214	N	15.531	0.861,	19.177	0.139,
215	N	17.496	0.693,	19.125	0.307,
216	N	18.672	0.868,	22.437	0.132,
217	N	13.441	0.901,	17.858	0.099,
218	N	17.865	0.689,	19.454	0.311,
219	N	14.431	0.861,	18.084	0.139,
220	N	13.230	0.681,	14.748	0.319,
221	N	12.169	0.549,	12.560	0.451,
222	N	12.499	0.909,	17.098	0.091,
223	N	7.079	0.912,	11.756	0.088,
224	N	5.880	0.781,	8.421	0.219,
225	N	11.973	0.594,	12.735	0.406,
226	N	13.872	0.862,	17.532	0.138,
227	N	17.277	0.773,	19.728	0.227,
228	N	18.878	0.908,	23.464	0.092,
229	N	23.085	0.735,	25.125	0.265,
230	N	26.037	0.890,	30.211	0.110,
231	N	18.278	0.800,	21.055	0.200,
232	N	15.680	0.741,	17.784	0.259,
233	N	14.639	0.910,	19.273	0.090,
234	N	36.858	0.833,	40.068	0.167,

235	N	24.525	0.747,	26.694	0.253,
236	N	21.494	0.845,	24.893	0.155,
237	N	7.762	0.735,	9.805	0.265,
238	N	7.248	0.675,	8.711	0.325,
239	N	8.282	0.858,	11.881	0.142,
240	N	9.053	0.655,	10.336	0.345,
241	N	9.053	0.655,	10.336	0.345,
242	N	32.363	0.511,	32.454	0.489,
243	N	33.191	0.753,	35.418	0.247,
244	N	8.321	0.769,	10.722	0.231,
245	N	9.605	0.906,	14.142	0.094,
246	N	25.203	0.639,	26.346	0.361,
247	N	12.526	0.883,	16.574	0.117,
248	N	22.523	0.885,	26.610	0.115,
249	N	21.939	0.726,	23.890	0.274,
250	N	7.173	0.683,	8.713	0.317,
251	N	8.604	0.863,	12.280	0.137,
252	N	10.470	0.865,	14.191	0.135,
253	N	7.528	0.912,	12.212	0.088,
254	N	6.078	0.781,	8.626	0.219,
255	N	5.509	0.802,	8.304	0.198,
256	N	5.890	0.907,	10.435	0.093,
257	N	5.346	0.807,	8.208	0.193,
258	N	6.724	0.924,	11.722	0.076,
259	N	17.217	0.679,	18.714	0.321,
260	N	18.526	0.860,	22.159	0.140,
261	N	20.365	0.935,	25.709	0.065,
262	N	27.792	0.641,	28.953	0.359,
263	N	13.420	0.624,	14.436	0.376.
264	N	14.620	0.829,	17.773	0.171,
265	N	14.044	0.884,	18.111	0.116,
266	N	12.481	0.724,	14.412	0.276,
267	N	9.226	0.885,	13.309	0.115,
268	N	10.595	0.721,	12.497	0.279,
269	N	11.763	0.883,	15.801	0.117,
270	N	18.650	0.916,	23.430	0.084,
271	N	14.929	0.832,	18.135	0.168,
272	N	9.783	0.738,	11.849	0.262,
273	N	14.569	0.598,	15.367	0.402,
274	N	11.529	0.876,	15.438	0.124,
275	N	10.543	0.740,	12.636	0.260,
276	N	17.406	0.834,	20.634	0.166,
277	N	13.481	0.915,	18.241	0.085,
278	N	12.265	0.788,	14.889	0.212,
279	N	8.496	0.669,	9.905	0.331,
280	N	10.269	0.822,	13.326	0.178,
281	N	9.640	0.910,	14.264	0.090,
282	N	8.366	0.776,	10.853	0.224,
283	N	35.389	0.547,	35.767	0.453,
284	N	29.412	0.752,	31.630	0.248,
285	N	6.807	0.751,	9.012	0.249,
286	N	8.216	0.898,	12.557	0.102,
287	N	25.615	0.945,	31.297	0.055,
288	N	33.632	0.799,	36.398	0.201,
289	N	8.140	0.732,	10.154	0.268,
290	N	9.544	0.888,	13.694	0.112,
291	N	7.720	0.909,	12.330	0.091,
292	N	6.544	0.775,	9.018	0.225,
293	N	12.137	0.794,	14.832	0.206,
294	N	14.685	0.889,	16.848	0.111,

295	N	12.823	0.684,	14.385	0.316,
296	N	14.043	0.863,	17.721	0.137,
297	N	10.502	0.754,	12.748	0.246,
298	N	9.002	0.924,	14.011	0.076,
299	N	4.806	0.783,	7.368	0.217,
300	N	10.810	0.869,	14.600	0.131,
301	N	6.175	0.913,	10.874	0.087,
302	N	4.806	0.783,	7.368	0.217,
303	N	8.496	0.669,	9.905	0.331,
304	N	10.588	0.834,	13.813	0.166,
305	N	9.131	0.797,	11.866	0.203,
306	N	10.553	0.920,	15.424	0.080,
307	N	19.703	0.869,	23.485	0.131,
308	N	18.447	0.695,	20.092	0.305,
309	N	9.367	0.916,	14.159	0.084,
310	S	23.413	0.236,	21.061	0.764,
311	N	10.089	0.848,	13.526	0.152,
312	N	8.104	0.760,	10.405	0.240,
313	N	9.352	0.902,	13.789	0.098,
314	N	18.946	0.915,	23.686	0.085,
315	N	11.692	0.768,	13.485	0.232,
316	N	14.973	0.848,	18.407	0.152,
317	S	17.280	0.365,	16.171	0.635,
318	N	15.344	0.710,	17.134	0.290,
319	N	10.892	0.892,	15.107	0.108,
320	N	8.388	0.768,	10.788	0.232,
321	N	34.318	0.661,	35.656	0.339,
322	N	29.930	0.909,	34.523	0.091,
323	N	16.089	0.916,	20.870	0.084,
324	N	15.057	0.790,	17.701	0.210,
325	N	12.396	0.675,	13.857	0.325,
326	N	18.462	0.793,	21.148	0.207,
327	N	8.056	0.695,	9.706	0.305,
328	N	5.904	0.901,	10.318	0.099,
329	N	19.316	0.659,	20.631	0.341,
330	N	14.695	0.923,	19.649	0.077,
331	N	10.274	0.770,	12.689	0.230,
332	N	9.708	0.915,	14.463	0.085,
333	N	19.009	0.760,	21.317	0.240,
334	N	6.970	0.691,	8.585	0.309,
335	N	7.573	0.904,	12.052	0.096,
336	N	36.750	0.741,	38.852	0.259,
337	N	19.352	0.576,	19.963	0.424,
338	N	13.273	0.856,	16.836	0.144,
339	N	11.860	0.671,	13.287	0.329,
340	N	8.402	0.771,	10.835	0.229,
341	N	9.824	0.908,	14.393	0.092,
342	N	25.786	0.905,	30.283	0.095,
343	N	24.540	0.765,	26.901	0.235,
344	N	8.893	0.817,	11.689	0.183,
345	N	10.220	0.929,	15.352	0.071,
346	N	6.970	0.691,	8.585	0.309,
347	N	25.789	0.877,	29.717	0.123,
348	N	12.917	0.737,	14.974	0.263,
349	N	4.519	0.771,	6.950	0.229,
350	N	5.940	0.907,	10.507	0.093,
351	N	9.869	0.783,	12.452	0.217,
352	N	5.591	0.907,	10.154	0.093,
353	N	38.026	0.818,	41.025	0.182,
354	N	40.226	0.899,	44.602	0.101,

355	N	23.414	0.866,	27.146	0.134,
356	N	19.816	0.683,	21.348	0.317,
357	N	21.537	0.612,	22.451	0.388,
358	N	22.189	0.821,	25.240	0.179,
359	N	29.274	0.637,	30.403	0.363,
360	N	30.408	0.837,	33.673	0.163,
361	N	5.473	0.747,	7.636	0.253,
362	N	6.820	0.896,	11.119	0.104,
363	N	7.501	0.783,	10.066	0.217,
364	N	8.872	0.913,	13.573	0.087,
365	N	10.823	0.679,	12.323	0.321,
366	N	12.129	0.860,	15.765	0.140,
367	N	18.802	0.789,	21.440	0.211,
368	N	20.255	0.916,	25.029	0.084,
369	S	25.917	0.478,	25.743	0.522,
370	N	16.224	0.841,	19.555	0.159,
371	N	23.733	0.739,	25.818	0.261,
372	S	22.952	0.494,	22.900	0.506,
373	N	16.182	0.835,	19.427	0.165,
374	N	17.558	0.936,	22.958	0.064,
375	N	16.021	0.857,	19.602	0.143,
376	N	17.567	0.680,	19.076	0.320,
377	N	17.166	0.566,	17.695	0.434,
378	N	17.971	0.791,	20.637	0.209,
379	N	8.140	0.732,	10.154	0.268,
380	N	9.544	0.888,	13.694	0.112,
381	N	7.762	0.735,	9.805	0.265,
382	N	8.981	0.890,	13.161	0.110,
383	N	9.112	0.636,	10.228	0.364,
384	N	10.231	0.836,	13.463	0.164,
385	N	12.837	0.755,	15.091	0.245,
386	N	13.805	0.900,	18.195	0.100,
387	N	25.550	0.668,	26.951	0.332,
388	N	26.956	0.854,	30.493	0.146,
389	N	10.249	0.688,	11.835	0.312,
390	N	11.652	0.865,	15.374	0.135,
391	N	5.509	0.802,	8.304	0.198,
392	N	28.991	0.842,	32.339	0.158,
393	N	7.106	0.704,	8.842	0.296,
394	N	8.411	0.874,	12.283	0.126,
395	N	16.110	0.654,	17.382	0.346,
396	N	13.168	0.879,	17.139	0.121,
397	N	31.093	0.882,	35.113	0.118,
398	N	9.081	0.896,	13.384	0.104,
399	N	15.431	0.678,	16.918	0.322,
400	N	16.250	0.859,	19.872	0.141,
401	N	21.135	0.560,	21.615	0.440,
402	N	22.074	0.787,	24.690	0.213,
403	N	14.717	0.795,	17.433	0.205,
404	N	11.486	0.564,	12.002	0.436,
405	N	27.199	0.560,	27.680	0.440,
406	N	25.704	0.782,	28.256	0.218,
407	N	21.476	0.578,	22.105	0.422,
408	N	22.521	0.799,	25.286	0.201,
409	N	5.157	0.742,	7.267	0.258,
410	N	6.400	0.893,	10.646	0.107,
411	N	29.983	0.793,	32.675	0.207,
412	N	32.956	0.586,	33.649	0.414,
413	N	25.706	0.816,	28.583	0.184,
414	N	27.226	0.928,	32.339	0.072,

415	N	13.084	0.633,	14.173	0.367,
416	N	11.728	0.873,	15.580	0.127,
417	N	26.367	0.761,	28.688	0.239,
418	N	25.323	0.523,	25.508	0.477,
419	S	29.073	0.272,	27.103	0.728,
420	N	29.773	0.521,	29.939	0.479,
421	S	12.821	0.239,	10.507	0.761,
422	S	228.805	0.300,	227.107	0.700,
423	N	15.126	0.604,	15.971	0.396,
424	S	14.948	0.165,	11.712	0.835,
425	S	10.051	0.259,	7.946	0.741,
426	S	43.900	0.183,	40.912	0.817,
427	S	25.652	0.264,	23.602	0.736,
428	S	12.748	0.181,	9.728	0.819,
429	S	14.585	0.245,	12.331	0.755,
430	S	8.242	0.472,	8.016	0.528,
431	N	28.080	0.596,	28.861	0.404,
432	S	19.335	0.199,	16.548	0.801,
433	S	31.110	0.247,	28.877	0.753,
434	S	8.714	0.291,	6.937	0.709,
435	N	27.593	0.504,	27.623	0.496,
436	S	9.263	0.305,	7.618	0.695,
437	S	19.716	0.116,	15.661	0.884,

GROUP S

CASE		N		S	
1	S	18.615	0.208,	15.941	0.792,
2	S	24.831	0.160,	21.513	0.840,
3	S	11.542	0.201,	8.784	0.799,
4	S	21.210	0.172,	18.061	0.828,
5	S	25.153	0.171,	21.989	0.829,
6	S	13.278	0.458,	12.942	0.542,
7	S	11.364	0.186,	8.418	0.814,
8	S	11.944	0.331,	10.538	0.669,
9	S	14.242	0.492,	14.181	0.508,
10	S	16.139	0.430,	15.579	0.570,
11	S	15.129	0.292,	13.355	0.708,
12	S	11.994	0.327,	10.548	0.673,
13	S	38.939	0.385,	38.000	0.615,
14	S	8.623	0.214,	6.022	0.786,
15	S	12.414	0.171,	9.257	0.829,
16	S	31.665	0.097,	27.192	0.903,
17	S	14.055	0.156,	10.677	0.844,
18	S	268.737	0.491,	268.664	0.509,
19	S	270.163	0.024,	262.763	0.976,
20	S	9.734	0.259,	7.630	0.741,
21	S	21.983	0.246,	19.740	0.754,
22	S	37.213	0.039,	30.781	0.961,
23	S	39.217	0.227,	36.767	0.773,
24	S	30.254	0.219,	27.715	0.781,
25	S	14.248	0.266,	12.223	0.734,
26	S	25.564	0.123,	21.643	0.877,
27	S	29.018	0.251,	26.830	0.749,
28	S	31.990	0.165,	28.741	0.835,
29	S	51.167	0.219,	48.629	0.781,
30	S	10.359	0.235,	7.997	0.765,
31	S	22.000	0.110,	17.813	0.890,
32	S	8.934	0.200,	6.165	0.800,
33	S	11.124	0.237,	8.787	0.763,

34	S	15.391	0.219,	12.842	0.781,
35	S	42.847	0.274,	40.903	0.726,
36	S	26.607	0.334,	25.225	0.666,
37	S	31.806	0.119,	27.805	0.881,
38	S	26.850	0.223,	24.350	0.777,
39	S	41.077	0.318,	39.555	0.682,
40	S	9.529	0.262,	7.462	0.738,
41	S	13.009	0.169,	9.824	0.831,
42	N	5.412	0.541,	5.743	0.459,
43	S	9.575	0.176,	6.486	0.824,
44	S	7.639	0.406,	6.874	0.594,
45	S	11.497	0.477,	11.313	0.523,
46	S	13.641	0.214,	11.043	0.786,
47	S	17.036	0.318,	15.512	0.682,
48	S	7.606	0.298,	5.896	0.702,
49	S	10.924	0.427,	10.340	0.573,
50	S	23.295	0.112,	19.146	0.888,
51	S	20.596	0.433,	20.053	0.567,
52	S	8.886	0.436,	8.375	0.564,
53	S	19.072	0.389,	18.166	0.611,
54	S	28.304	0.171,	25.140	0.829,
55	S	14.169	0.240,	11.860	0.760,
56	S	14.994	0.332,	13.592	0.668,
57	S	20.595	0.389,	19.689	0.611,
58	S	24.214	0.170,	21.046	0.830,
59	S	12.551	0.438,	12.055	0.562,
60	S	17.535	0.120,	13.548	0.880,
61	S	14.229	0.316,	12.683	0.684,
62	S	12.074	0.294,	10.318	0.706,
63	S	15.537	0.301,	13.852	0.699,
64	S	38.483	0.348,	37.229	0.652,
65	N	27.725	0.514,	27.839	0.486,
66	S	22.177	0.205,	19.461	0.795,
67	S	32.493	0.201,	29.727	0.799,
68	S	14.985	0.210,	12.333	0.790,
69	N	232.552	0.920,	237.432	0.080,
70	S	26.175	0.189,	23.260	0.811,
71	S	24.595	0.093,	20.037	0.907,
72	S	10.867	0.384,	9.925	0.616,
73	S	23.496	0.128,	19.656	0.872,
74	S	17.939	0.349,	16.695	0.651,
75	S	26.127	0.283,	24.269	0.717,
76	S	29.475	0.330,	28.061	0.670,
77	S	12.461	0.222,	9.899	0.778,
78	S	41.740	0.289,	39.943	0.711,
79	S	13.647	0.330,	12.233	0.670,
80	S	13.916	0.334,	12.536	0.666,
81	S	26.319	0.097,	21.848	0.903,
82	S	18.220	0.097,	13.762	0.903,
83	N	32.036	0.951,	37.967	0.049,
84	S	14.993	0.350,	13.754	0.650,
85	S	44.846	0.252,	42.675	0.748,
86	S	16.545	0.134,	12.809	0.866,
87	S	8.032	0.272,	6.059	0.728,
88	S	21.667	0.160,	18.355	0.840,
89	S	28.344	0.128,	24.508	0.872,
90	S	22.204	0.322,	20.713	0.678,
91	S	17.947	0.177,	14.868	0.823,
92	S	11.138	0.229,	8.712	0.771,
93	N	12.538	0.509,	12.614	0.491,

94	S	25.778	0.186,	22.824	0.814,
95	N	16.879	0.584,	17.556	0.416,
96	S	32.778	0.184,	29.794	0.816,
97	S	14.985	0.210,	12.333	0.790,
98	S	18.492	0.200,	15.714	0.800,
99	S	24.909	0.109,	20.710	0.891,
100	S	13.817	0.168,	10.614	0.832,
101	S	29.046	0.354,	27.844	0.646,
102	S	20.873	0.088,	16.185	0.912,
103	S	9.734	0.259,	7.630	0.741,
104	S	11.072	0.490,	10.993	0.510,
105	N	5.811	0.520,	5.974	0.480,
106	S	13.008	0.177,	9.930	0.823,
107	S	24.810	0.144,	21.246	0.856,
108	N	8.703	0.520,	8.867	0.480,
109	S	6.742	0.316,	5.200	0.684,
110	S	26.531	0.120,	22.542	0.880,
111	N	14.193	0.531,	14.438	0.469,
112	N	9.004	0.530,	9.244	0.470,
113	S	11.364	0.186,	8.418	0.814,
114	N	32.585	0.728,	34.551	0.272,
115	N	34.333	0.531,	34.580	0.469,
116	S	16.064	0.283,	14.204	0.717,
117	S	20.007	0.330,	18.594	0.670,
118	S	10.724	0.345,	9.446	0.655,
119	S	7.995	0.309,	6.386	0.691,
120	S	22.475	0.278,	20.563	0.722,
121	S	38.195	0.125,	34.311	0.875,
122	S	15.215	0.181,	12.199	0.819,
123	S	18.081	0.117,	14.045	0.883,
124	S	35.766	0.408,	35.022	0.592,
125	S	20.368	0.290,	18.581	0.710,
126	S	31.390	0.098,	26.940	0.902,
127	S	23.074	0.235,	20.716	0.765,
128	S	24.614	0.163,	21.339	0.837,
129	S	30.620	0.287,	28.804	0.713,
130	S	11.516	0.202,	8.765	0.798,
131	N	8.884	0.533,	9.149	0.467,
132	S	14.563	0.339,	13.227	0.661,
133	S	13.766	0.477,	13.581	0.523,
134	S	40.958	0.332,	39.557	0.668,
135	S	6.557	0.302,	4.683	0.698,
136	S	10.944	0.286,	9.113	0.714,
137	S	18.794	0.114,	14.700	0.886,
138	S	25.136	0.278,	23.224	0.722,
139	S	31.526	0.181,	28.511	0.819,
140	S	18.972	0.374,	17.944	0.626,
141	N	41.299	0.583,	41.969	0.417,
142	S	47.482	0.499,	47.470	0.501,
143	S	26.827	0.400,	26.014	0.600,
144	S	22.871	0.307,	21.244	0.693,
145	N	10.027	0.567,	10.567	0.433,
146	N	15.813	0.593,	16.567	0.407,
147	S	38.570	0.312,	36.985	0.688,
148	S	14.556	0.174,	11.435	0.826,
149	S	27.001	0.350,	25.763	0.650,
150	S	6.742	0.316,	5.200	0.684,
151	S	28.841	0.156,	25.466	0.844,
152	S	17.100	0.119,	13.093	0.881,
153	S	12.948	0.406,	12.183	0.594,

154	S	28.442	0.376,	27.427	0.624,
155	S	10.872	0.244,	8.614	0.756,
156	S	28.869	0.353,	27.658	0.647,
157	S	17.645	0.185,	14.682	0.815,
158	S	27.759	0.098,	23.314	0.902,
159	S	18.091	0.227,	15.639	0.773,
160	S	9.394	0.453,	9.015	0.547,
161	S	11.294	0.282,	9.423	0.718,
162	S	18.262	0.259,	16.159	0.741,
163	S	6.742	0.315,	5.200	0.684,
164	S	44.095	0.095,	39.592	0.905,
165	S	10.152	0.399,	9.333	0.601,
166	S	37.977	0.313,	36.406	0.687,
167	S	23.609	0.198,	20.806	0.802,
168	S	13.351	0.247,	11.118	0.753,
169	S	21.932	0.297,	20.210	0.703,
170	S	25.638	0.291,	23.854	0.709,
171	S	12.054	0.462,	11.753	0.538,
172	N	16.167	0.588,	16.881	0.412,
173	S	15.944	0.136,	12.245	0.864,
174	S	31.710	0.466,	31.440	0.534,
175	S	11.516	0.202,	8.765	0.798,
176	S	36.352	0.384,	35.406	0.616,
177	S	20.482	0.212,	17.860	0.788,
178	S	10.201	0.444,	9.748	0.556,
179	S	49.596	0.203,	46.857	0.797,
180	N	12.731	0.566,	13.259	0.434,
181	S	202.217	0.006,	192.020	0.994,
182	S	17.606	0.247,	15.381	0.753,
183	S	17.851	0.153,	14.422	0.847,
184	S	20.684	0.500,	20.682	0.500,
185	S	11.210	0.204,	8.485	0.796,
186	S	11.487	0.464,	11.201	0.536,
187	S	11.521	0.193,	8.658	0.807,
188	S	8.349	0.460,	8.027	0.540,
189	S	9.734	0.259,	7.630	0.741,
190	S	10.170	0.317,	8.630	0.683,
191	S	28.045	0.436,	27.527	0.564,
192	S	8.598	0.225,	6.128	0.775,
193	S	23.283	0.270,	21.297	0.730,
194	S	17.681	0.238,	15.358	0.762,
195	S	29.147	0.258,	27.039	0.742,
196	S	21.631	0.178,	18.571	0.822,
197	S	11.903	0.475,	11.706	0.525,
198	S	27.831	0.182,	24.825	0.818,
199	S	11.105	0.209,	8.437	0.791,
200	S	7.959	0.429,	7.391	0.571,
201	S	11.212	0.325,	9.746	0.675,
202	S	27.156	0.222,	24.650	0.778,
203	S	14.428	0.190,	11.532	0.810,
204	S	20.524	0.169,	17.344	0.831,
205	N	33.965	0.581,	34.620	0.419,
206	S	21.853	0.291,	20.071	0.709,
207	S	30.292	0.155,	26.893	0.845,
208	S	30.764	0.191,	27.874	0.809,
209	S	31.290	0.268,	29.278	0.732,
210	S	19.191	0.166,	15.959	0.834,
211	S	10.064	0.459,	9.734	0.541,
212	S	18.658	0.420,	18.010	0.580,
213	N	18.616	0.565,	19.137	0.435,

214	S	14.523	0.195,	11.688	0.805,
215	S	19.863	0.159,	16.535	0.841,
216	S	22.998	0.101,	18.616	0.899,
217	S	19.120	0.220,	16.588	0.780,
218	N	8.884	0.533,	9.149	0.467,
219	S	18.538	0.216,	15.956	0.784,
220	S	32.476	0.324,	31.002	0.676,
221	S	14.935	0.445,	14.496	0.555,
222	S	47.680	0.308,	46.000	0.692,
223	S	27.352	0.316,	25.812	0.684,
224	S	39.144	0.357,	37.966	0.643,
225	S	10.724	0.345,	9.446	0.655,
226	S	17.753	0.106,	13.491	0.894,
227	N	10.174	0.724,	12.099	0.276,
228	S	12.753	0.186,	9.798	0.814,
229	S	22.681	0.192,	19.860	0.808,
230	N	10.618	0.683,	12.158	0.317,
231	N	8.375	0.731,	10.375	0.269,
232	N	15.412	0.696,	17.073	0.304,
233	S	27.614	0.151,	24.158	0.849,
234	S	38.985	0.164,	35.721	0.836,
235	S	42.218	0.358,	41.050	0.642,
236	S	11.171	0.302,	9.500	0.698,
237	S	11.556	0.279,	9.660	0.721,
238	S	15.896	0.275,	13.955	0.725,
239	S	13.563	0.370,	12.499	0.630,
240	S	21.003	0.197,	18.193	0.803,
241	S	22.635	0.297,	20.909	0.703,
242	S	18.071	0.179,	15.028	0.821,
243	S	21.355	0.111,	17.194	0.889,
244	S	22.852	0.130,	19.053	0.870,
245	S	17.764	0.490,	17.682	0.510,
246	S	14.169	0.240,	11.860	0.760,
247	S	10.201	0.444,	9.748	0.556,
248	S	13.217	0.342,	11.908	0.658,
249	S	23.145	0.251,	20.956	0.749,
250	N	13.876	0.554,	14.310	0.446,
251	S	18.956	0.146,	15.423	0.854,
252	S	14.428	0.190,	11.532	0.810,
253	S	35.825	0.253,	33.662	0.747,
254	S	20.625	0.190,	17.724	0.810,
255	S	12.893	0.217,	10.328	0.783,
256	S	26.643	0.302,	24.971	0.698,
257	S	34.283	0.151,	30.827	0.849,
258	S	11.809	0.362,	10.674	0.638,
259	S	16.538	0.177,	13.469	0.823,
260	S	11.556	0.279,	9.660	0.721,
261	S	13.319	0.288,	11.510	0.712,
262	S	13.711	0.223,	11.220	0.777,
263	N	16.010	0.961,	22.396	0.039,
264	N	59.558	0.965,	66.188	0.035,
265	S	9.557	0.300,	7.856	0.700,
266	S	7.024	0.383,	6.071	0.617,
267	S	27.322	0.236,	24.970	0.764,
268	S	12.613	0.280,	10.725	0.720,
269	S	10.665	0.272,	8.699	0.728,
270	S	17.415	0.253,	15.249	0.747,
271	S	25.939	0.158,	22.599	0.842,
272	S	28.586	0.125,	24.701	0.875,
273	S	8.256	0.493,	8.198	0.507,

274	S	14.166	0.303,	12.496	0.697,
275	S	31.851	0.191,	28.964	0.809,
276	S	12.925	0.158,	9.572	0.842,
277	S	10.395	0.328,	8.960	0.672,
278	S	7.606	0.298,	5.896	0.702,
279	S	12.139	0.259,	10.034	0.741,
280	S	27.964	0.188,	25.033	0.812,
281	S	10.987	0.339,	9.652	0.661,
282	S	13.161	0.186,	10.211	0.814,
283	S	10.359	0.235,	7.997	0.765,
284	N	7.881	0.504,	7.912	0.496,
285	S	22.977	0.286,	21.144	0.714,
286	S	17.938	0.256,	15.804	0.744,
287	S	30.290	0.179,	27.250	0.821,
288	S	9.867	0.240,	7.565	0.760,
289	S	8.211	0.253,	6.049	0.747,
290	S	31.789	0.139,	28.148	0.861,
291	S	27.668	0.231,	25.266	0.769,
292	S	23.545	0.151,	20.091	0.849,
293	S	41.351	0.375,	40.327	0.625,
294	S	10.299	0.299,	8.592	0.701,
295	S	16.256	0.477,	16.069	0.523,
296	N	17.037	0.726,	18.987	0.274,
297	N	16.097	0.531,	16.342	0.469,
298	S	43.627	0.144.	40.062	0.856,
299	N	31.567	0.867,	35.324	0.133,
300	S	12.716	0.286,	10.887	0.714,
301	N	8.378	0.587,	9.079	0.413,
302	S	23.362	0.315,	21.811	0.685,
303	S	19.350	0.292,	17.580	0.708,
304	S	10.846	0.422,	10.216	0.578,
305	S	7.943	0.476,	7.750	0.524,
306	S	20.943	0.179,	17.894	0.821,
307	S	18.835	0.196,	16.017	0.804,
308	S	17.138	0.319,	15.626	0.681,
309	S	14.595	0.147,	11.084	0.853,
310	S	13.767	0.285,	11.927	0.715,
311	S	11.556	0.279,	9.660	0.721,
312	S	20.326	0.095,	15.821	0.905,
313	S	11.567	0.310,	9.968	0.690,
314	N	8.375	0.731,	10.375	0.269,
315	S	20.937	0.271,	18.954	0.729,
316	N	29.494	0.619,	30.468	0.381,
317	N	30.210	0.826,	33.320	0.174,
318	N	4.059	0.797,	6.789	0.203,
319	N	5.488	0.919,	10.354	0.081,
320	N	5.437	0.759,	7.736	0.241,
321	N	7.415	0.887,	11.529	0.113,
322	N	25.328	0.705,	27.071	0.295,
323	N	27.064	0.874,	30.943	0.126,
324	N	23.750	0.766,	26.118	0.234,
325	N	25.761	0.905,	30.265	0.095,
326	N	33.072	0.605,	33.928	0.395,
327	N	34.608	0.817,	37.600	0.183,
328	N	35.164	0.914,	39.888	0.086,
329	N	14.424	0.645,	15.617	0.355,
330	N	4.796	0.743,	6.923	0.257,
331	N	7.650	0.890,	11.839	0.110,
332	N	14.535	0.856,	18.093	0.144,
333	N	13.241	0.671,	14.663	0.329,

334	N	8.140	0.732,	10.154	0.268,
335	N	9.544	0.888,	13.694	0.112,
336	N	20.907	0.623,	21.912	0.377,
337	N	21.888	0.828,	25.029	0.172,
338	N	20.083	0.830,	23.253	0.170,
339	N	9.578	0.888,	13.713	0.112,
340	N	12.073	0.863,	15.748	0.137,
341	N	11.318	0.884,	15.380	0.116,
342	N	15.444	0.702,	17.161	0.298,
343	N	16.604	0.873,	20.457	0.127,
344	S	26.447	0.486,	26.334	0.514,
345	N	22.433	0.847,	25.854	0.153,
346	S	25.505	0.286,	23.672	0.714,
347	S	13.217	0.342,	11.908	0.658,
348	S	13.578	0.206,	10.884	0.794,
349	N	10.727	0.558,	11.190	0.442,
350	S	23.219	0.125,	19.328	0.875,
351	S	11.774	0.274,	9.822	0.726,
352	S	46.140	0.084,	41.366	0.916,
353	S	14.381	0.225,	11.903	0.775,
354	S	9.672	0.382,	8.712	0.618,
355	S	26.866	0.417,	26.196	0.583,
356	S	10.897	0.297,	9.177	0.703,
357	S	15.412	0.350,	14.172	0.650,
358	S	7.678	0.283,	5.816	0.717,
359	S	30.887	0.118,	26.866	0.882,
360	S	20.048	0.277,	18.130	0.723,
361	S	19.559	0.197,	16.745	0.803,
362	S	28.283	0.271,	26.308	0.729,
363	S	15.410	0.167,	12.192	0.833,
364	S	22.513	0.336,	21.148	0.664,
365	S	13.400	0.172,	10.255	0.828,
366	S	21.535	0.222,	19.031	0.778,
367	S	8.604	0.257,	6.478	0.743,
368	S	12.026	0.166,	8.797	0.834,
369	S	8.132	0.331,	6.721	0.669,
370	S	13.048	0.493,	12.994	0.507,
371	S	20.470	0.215,	17.883	0.785,
372	S	9.254	0.188,	6.332	0.812,
373	N	11.001	0.557,	11.459	0.443,
374	S	15.997	0.249,	13.785	0.751,
375	S	33.889	0.338,	32.541	0.662,
376	S	28.714	0.170,	25.541	0.830,
377	S	31.831	0.087,	27.126	0.913,
378	S	8.132	0.331,	6.721	0.669,
379	S	32.907	0.292,	31.133	0.708,
380	S	17.284	0.281,	15.405	0.719,
381	S	28.766	0.367,	27.675	0.633,
382	S	20.216	0.119,	16.220	0.881,
383	S	25.666	0.337,	24.309	0.663,
384	S	39.696	0.131,	35.915	0.869,
385	S	17.354	0.135,	13.639	0.865,
386	S	10.705	0.313,	9.129	0.687,
387	S	20.626	0.232,	18.236	0.768,
388	S	17.661	0.213,	15.047	0.787,
389	S	13.470	0.196,	10.652	0.804,
390	S	7.539	0.269,	5.545	0.731,
391	N	16.713	0.534,	16.982	0.466,
392	S	14.623	0.414,	13.928	0.586,
393	S	20.482	0.212,	17.860	0.788,

394	S	35.606	0.423,	34.981	0.577,
395	S	10.668	0.492,	10.606	0.508,
396	S	27.884	0.148,	24.383	0.852,
397	S	20.653	0.336,	19.295	0.664,
398	S	22.657	0.426,	22.058	0.574,
399	S	32.481	0.144,	28.908	0.856,
400	S	18.071	0.179,	15.028	0.821,
401	S	25.612	0.069,	20.412	0.931,
402	S	19.769	0.361,	18.630	0.639,
403	S	16.143	0.400,	15.332	0.600,
404	S	21.842	0.358,	20.673	0.642,
405	S	24.424	0.251,	22.234	0.749,
406	S	7.024	0.383,	6.071	0.617,
407	S	6.687	0.438,	6.186	0.562,
408	S	17.974	0.134,	14.241	0.866,
409	S	22.510	0.197,	19.697	0.803,
410	S	30,710	0.209,	28.043	0.791,
411	S	14.187	0.272,	12.213	0.728,
412	S	13.319	0.288,	11.510	0.712,
413	S	15.425	0.438,	14.928	0.562,
414	N	6.865	0.561,	7.356	0.439,
415	S	18.257	0.224,	15.772	0.776,
416	S	33.701	0.202,	30.952	0.798,
417	S	15.454	0.138,	11.787	0.862,
418	S	38.994	0.262,	36.924	0.738,
419	S	27.659	0.118,	23.628	0.882,
420	S	7.539	0.269,	5.545	0.731,
421	S	10.725	0.250,	8.525	0.750,
422	S	13.319	0.288,	11.510	0.712,
423	S	31.769	0.155,	26.375	0.845,
424	S	14.715	0.377,	13.708	0.623,
425	S	16.117	0.104,	11.811	0.896,
426	S	9.368	0.278,	7.460	0.722,
427	S	11.259	0.306,	9.625	0.694,
428	S	17.043	0.459,	16.716	0.541,
429	S	16.266	0.132,	12.493	0.868,
430	S	13.470	0.196,	10.652	0.804,
431	S	15.489	0.245,	13.234	0.755,
432	S	23.099	0.124,	19.197	0.876,
433	S	13.385	0.213,	10.777	0.787,
434	S	225.763	0.473,	225.548	0.527,
435	N	8.567	0.577,	9.190	0.423,
436	S	7.678	0.283,	5.816	0.717,
437	S	18.450	0.119,	14.444	0.881,
438	S	20.334	0.142,	16.734	0.858,
439	S	14.561	0.312,	12.984	0.688,
440	S	16.370	0.201,	13.615	0.799,
441	S	62.003	0.086,	57.267	0.914,
442	S	10.455	0.290,	8.668	0.710,
443	N	12.790	0.568,	13.341	0.432,
444	S	34.456	0.056,	28.792	0.944,
445	S	41.997	0.214,	39.399	0.786,
446	S	28.804	0.227,	26.353	0.773,
447	S	29.866	0.294,	28.114	0.706,
448	S	23.962	0.371,	22.909	0.629,
449	S	15.943	0.247,	13.717	0.753,
450	S	6.742	0.316,	5.200	0.684,
451	N	4.639	0.769,	7.049	0.231,
452	N	5.890	0.907,	10.435	0.093,
453	N	20.009	0.601,	20.829	0.399,

454	N	14.134	0.828,	17.271	0.172,
455	N	41.774	0.716,	43.626	0.284,
456	N	24.056	0.627,	25.099	0.373,
457	N	4.602	0.757,	6.880	0.243,
458	N	5.904	0.901,	10.318	0.099,
459	S	15.265	0.231,	12.860	0.769,
460	S	15.790	0.222,	13.285	0.778,
461	S	14.088	0.318,	12.564	0.682,
462	S	22.222	0.120,	18.247	0.880,
463	N	5.816	0.590,	6.541	0.410,
464	S	14.440	0.265,	12.400	0.735,
465	S	15.784	0.192,	12.916	0.808,
466	S	14.088	0.318,	12.534	0.682,
467	S	9.263	0.305,	7.618	0.695,
468	S	19.676	0.233,	17.297	0.767,
469	S	259.469	0.014,	250.925	0.986,
470	S	30.746	0.120,	26.769	0.880,
471	S	19.986	0.151,	16.531	0.849,
472	S	25.868	0.168,	22.692	0.832,
473	S	26.704	0.153,	23.277	0.847,
474	S	35.934	0.223,	33.441	0.777,
475	S	6.687	0.438,	6.186	0.562,
476	S	23.047	0.197,	20.240	0.803,
477	S	26.090	0.137,	22.410	0.863,
478	S	15.666	0.122,	11.726	0.878,
479	S	9.182	0.199,	6.392	0.801,
480	S	23.445	0.153,	20.023	0.847,
481	S	9.374	0.314,	7.807	0.686,
482	S	15.374	0.305,	13.725	0.695,
483	S	8.598	0.225,	6.128	0.775,
484	S	15.940	0.183,	12.946	0.817,
485	S	24.878	0.243,	22.604	0.757,
486	S	34.250	0.177,	31.177	0.823,
487	S	46.468	0.385,	45.532	0.615,
488	S	11.138	0.229,	8.712	0.771,
489	S	20.853	0.197,	18.047	0.803,
490	S	25.401	0.393,	24.532	0.607,
491	S	24.970	0.390,	24.079	0.610,
492	S	22.124	0.159,	18.789	0.841,
493	S	21.512	0.354,	20.307	0.646,
494	S	12.853	0.417,	12.181	0.583,
495	S	30.499	0.089,	25.854	0.911,
496	S	18.987	0.113,	14.858	0.887,
497	S	24.020	0.160,	20.703	0.840,
498	S	23.276	0.167,	20.068	0.833,
499	S	10.377	0.393,	9.510	0.607,
500	S	13.432	0.215,	10.843	0.785,
501	S	29.762	0.163,	26.484	0.837,
502	S	24.899	0.120,	20.913	0.880,
503	S	21.934	0.385,	20.996	0.615,
504	S	35.741	0.190,	32.846	0.810,
505	S	15.646	0.113,	11.515	0.887,
506	S	11.363	0.421,	10.727	0.579,
507	S	10.577	0.357,	9.398	0.643,
508	S	18.091	0.227,	15.639	0.773,
509	S	31.269	0.363,	30.145	0.637,
510	S	32.435	0.104,	28.134	0.896,
511	S	24.116	0.360,	22.968	0.640,
512	S	6.742	0.316,	5.200	0.684,
513	S	39.514	0.065,	34.198	0.935,

514	S	39.324	0.364,	38.206	0.636,
515	S	25.937	0.131,	22.155	0.869,
516	S	18.071	0.179,	15.028	0.821,
517	S	55.217	0.106,	50.948	0.894,
518	S	14.422	0.226,	11.958	0.774,
519	S	37.587	0.128,	33.747	0.872,
520	S	40.369	0.272,	38.403	0.728,
521	S	20.430	0.387,	19.506	0.613,
522	S	17.191	0.261,	15.113	0.739,
523	S	14.343	0.130,	10.533	0.870,
524	S	35.556	0.453,	35.177	0.547,
525	S	37.277	0.162,	33.995	0.838,
526	S	13.676	0.252,	11.497	0.748,
527	S	34.191	0.469,	33.946	0.531,
528	N	14.496	0.883,	18.536	0.117,
529	N	10.327	0.685,	11.884	0.315,
530	N	11.913	0.864,	15.607	0.136,
531	N	15.439	0.763,	17.783	0.237,
532	N	15.439	0.763,	17.783	0.237,
533	N	17.440	0.624,	18.453	0.376,
534	N	22.486	0.838,	25.769	0.162,
535	N	13.632	0.552,	14.049	0.448,
536	N	15.189	0.782,	17.741	0.218,
537	N	15.709	0.798,	18.460	0.202,
538	N	14.061	0.918,	18.883	0.082,
539	N	15.293	0.698,	16.969	0.302,
540	N	19.480	0.951,	25.428	0.049,
541	N	27.683	0.576,	28.294	0.424,
542	N	26.677	0.793,	29.360	0.207,
543	N	38.355	0.858,	41.961	0.142,
544	N	9.278	0.873,	13.130	0.127,
545	N	20.947	0.711,	22.746	0.289,
546	N	5.499	0.908,	10.078	0.092,
547	N	9.112	0.636,	10.228	0.364,
548	N	10.231	0.836,	13.483	0.164,
549	N	4.602	0.757,	6.880	0.243,
550	N	5.904	0.901,	10.318	0.099,
551	N	16.630	0.686,	18.194	0.314,
552	N	7.290	0.795,	9.995	0.205,
553	N	13.970	0.923,	18.948	0.077,
554	N	19.238	0.690,	20.841	0.310,
555	N	11.838	0.850,	15.307	0.150,
556	S	9.731	0.289,	7.933	0.711,
557	S	14.209	0.162,	10.923	0.838,
558	S	14.084	0.465,	13.801	0.535,
559	S	23.578	0.203,	20.837	0.797,
560	N	5.235	0.534,	5.509	0.466,
561	N	16.654	0.507,	16.706	0.493,
562	S	15.060	0.219,	12.516	0.781,
563	S	26.655	0.283,	24.799	0.717,
564	S	11.789	0.347,	10.522	0.653,
565	N	18.624	0.539,	18.935	0.461,
566	N	9.836	0.522,	10.012	0.478,
567	S	13.458	0.406,	12.693	0.594,
568	S	16.700	0.170,	13.529	0.830,

APPENDIX L

FOR GROUP MEMBERSHIP

BASED ON DISCRIMINANT ANALYSIS

USING THAID SELECTED VARIABLES:

DEPENDENT VARIABLE--

POSTOPERATIVE VISIT CLASSIFICATION

(1 through 6; 7 through 11; 12+)

Explanation:

Column one represents the case reference number.

Column two represents the group into which the case was classified.

Column three represents the square of the distance from the group mean for the first group.

Column four represents the probability that a case would be included in group one.

Column five represents the square of the distance from the group mean for the second group.

Column six represents the probability that a case would be included in group two.

Column seven represents the square of the distance from the group mean for the third group.

Column eight represents the probability that a case would be included in group three.

It should be noted that the sum of the probabilities for inclusion into each group must equal one if the basic assumptions of an additive linear model have been met.

1	C	8.705	0.338,	9.221	0.261,	8.370	0.400,
2	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
3	C	31.741	0.093,	29.700	0.259,	27.862	0.648,
4	A	20.269	0.505,	21.716	0.245,	21.670	0.250,
5	A	12.314	0.447,	13.506	0.246,	13.071	0.306,
6	C	12.199	0.240,	12.378	0.219,	10.570	0.541,
7	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
8	B	20.906	0.294,	19.436	0.613,	23.221	0.092,
9	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
10	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
11	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
12	A	11.815	0.412,	12.205	0.339,	12.819	0.249,
13	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
14	A	14.997	0.405,	16.414	0.199,	15.042	0.396,
15	A	16.579	0.532,	17.692	0.305,	18.953	0.162,
16	A	6.565	0.490,	7.252	0.347,	8.770	0.163,
17	B	28.147	0.160,	25.500	0.600,	27.324	0.241,
18	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
19	A	13.523	0.410,	14.416	0.262,	13.972	0.328,
20	A	4.628	0.544,	5.734	0.313,	7.298	0.143,
21	C	7.579	0.289,	7.500	0.301,	6.876	0.411,
22	A	15.605	0.412,	17.280	0.178,	15.620	0.409,
23	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
24	A	7.450	0.468,	7.868	0.380,	9.707	0.152,
25	C	13.336	0.330,	13.425	0.315,	13.187	0.355,
26	B	4.293	0.405,	4.188	0.427,	6.059	0.168,
27	A	8.029	0.433,	8.233	0.391,	9.834	0.176,
28	A	7.847	0.526,	8.852	0.318,	10.282	0.156,
29	A	4.628	0.544,	5.734	0.313,	7.298	0.143,
30	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
31	A	8.282	0.427,	8.736	0.340,	9.501	0.232,
32	C	13.264	0.135,	12.065	0.246,	10.220	0.619,
33	B	8.383	0.407,	8.361	0.412,	10.005	0.181,
34	C	22.487	0.229,	22.374	0.242,	20.812	0.529,
35	B	7.351	0.353,	6.892	0.443,	8.444	0.204,
36	A	10.543	0.365,	10.642	0.347,	11.019	0.288,
37	A	3.902	0.525,	4.824	0.331,	6.481	0.145,
38	C	13.972	0.230,	13.360	0.312,	12.588	0.459,
39	C	21.012	0.263,	21.291	0.229,	19.691	0.509,
40	A	13.993	0.439,	15.092	0.253,	14.704	0.308,
41	A	12.314	0.447,	13.506	0.246,	13.071	0.306,
42	A	9.050	0.443,	9.346	0.382,	10.901	0.175,
43	A	17.249	0.586,	18.949	0.251,	19.802	0.164,
44	C	16.587	0.171,	16.218	0.206,	14.004	0.623,
45	A	8.540	0.462,	9.311	0.314,	9.987	0.224,
46	A	7.286	0.461,	7.695	0.375,	9.353	0.164,
47	A	8.362	0.436,	8.909	0.332,	9.627	0.232,
48	A	8.362	0.436,	8.909	0.332,	9.627	0.232,
49	A	13.783	0.622,	15.782	0.229,	16.644	0.149,
50	A	9.063	0.461,	9.592	0.354,	10.878	0.186,
51	A	15.718	0.668,	18.321	0.187,	19.136	0.125,
52	A	23.266	0.399,	23.950	0.283,	23.720	0.318,
53	A	28.437	0.422,	29.409	0.260,	29.004	0.318,
54	B	20.467	0.302,	20.036	0.375,	20.333	0.323,

55	A	13.841	0.542,	15.047	0.297,	16.262	0.162,
56	A	13.841	0.542,	15.047	0.297,	16.262	0.162,
57	A	9.462	0.409,	9.794	0.346,	10.491	0.245,
58	C	20.117	0.253,	21.123	0.153,	18.404	0.595,
59	A	10.010	0.421,	10.493	0.330,	11.059	0.249,
60	A	17.444	0.554,	19.331	0.216,	19.195	0.231,
61	A	21.363	0.483,	23.473	0.168,	22.012	0.349,
62	C	14.775	0.172,	14.283	0.220,	12.244	0.609,
63	B	22.729	0.256,	21.339	0.513,	22.939	0.231,
64	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
65	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
66	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
67	C	19.880	0.375,	21.267	0.187,	19.566	0.438,
68	A	4.227	0.508,	5.017	0.342,	6.669	0.150,
69	A	4.685	0.478,	5.197	0.370,	6.988	0.151,
70	C	6.903	0.324,	7.233	0.275,	6.475	0.401,
71	C	16.066	0.289,	16.753	0.205,	14.950	0.505,
72	A	22.542	0.491,	25.303	0.124,	23.029	0.385,
73	A	22.542	0.491,	25.303	0.124,	23.029	0.385,
74	A	14.857	0.583,	16.938	0.206,	16.890	0.211,
75	A	4.227	0.508,	5.017	0.342,	6.669	0.150,
76	A	13.130	0.549,	14.560	0.268,	15.325	0.183,
77	C	14.399	0.207,	14.198	0.229,	12.396	0.564,
78	C	13.415	0.333,	13.542	0.312,	13.288	0.355,
79	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
80	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
81	C	14.853	0.300,	14.746	0.316,	14.353	0.385,
82	C	14.853	0.300,	14.746	0.316,	14.353	0.385,
83	A	7.699	0.440,	8.284	0.329,	8.985	0.231,
84	A	17.444	0.554,	19.331	0.216,	19.195	0.231,
85	B	8.383	0.407,	8.361	0.412,	10.005	0.181,
86	A	7.835	0.423,	7.993	0.390,	9.465	0.187,
87	A	15.688	0.565,	17.249	0.259,	18.020	0.176,
88	A	14.753	0.457,	15.381	0.334,	16.318	0.209,
89	C	7.579	0.289,	7.500	0.301,	6.876	0.411,
90	A	4.685	0.478,	5.197	0.370,	6.988	0.151,
91	A	10.846	0.417,	10.918	0.402,	12.514	0.181,
92	C	8.593	0.265,	8.308	0.306,	7.628	0.429,
93	C	22.400	0.225,	22.743	0.190,	20.494	0.585,
94	B	24.043	0.170,	21.534	0.595,	23.394	0.235,
95	C	9.452	0.228,	8.663	0.338,	8.165	0.434,
96	B	9.549	0.358,	9.387	0.388,	10.230	0.254,
97	A	13.841	0.542,	15.047	0.297,	16.262	0.162,
98	B	31.777	0.363,	31.589	0.399,	32.617	0.238,
99	A	4.628	0.544,	5.734	0.313,	7.298	0.143,
100	B	13.428	0.286,	12.726	0.406,	13.274	0.309,
101	A	4.685	0.478,	5.197	0.370,	6.988	0.151,
102	C	15.621	0.321,	15.888	0.281,	15.196	0.397,
103	C	11.593	0.180,	11.196	0.219,	9.179	0.601,
104	B	21.487	0.205,	19.854	0.463,	20.520	0.332,
105	A	6.919	0.516,	7.831	0.327,	9.308	0.156,
106	A	17.847	0.562,	19.704	0.222,	19.767	0.215,
107	A	7.297	0.507,	8.116	0.336,	9.639	0.157,
108	C	18.331	0.253,	17.964	0.304,	17.205	0.444,
109	A	9.324	0.425,	9.536	0.382,	10.910	0.192,
110	A	8.400	0.505,	9.136	0.349,	10.886	0.146,
111	B	28.458	0.199,	26.388	0.561,	28.082	0.240,
112	A	15.029	0.354,	15.119	0.339,	15.315	0.307,
113	C	10.978	0.187,	10.356	0.255,	8.789	0.558,
114	C	11.644	0.230,	11.172	0.291,	10.178	0.479,

115	A	5.824	0.406,	5.850	0.401,	7.317	0.193,
116	A	4.628	0.544,	5.734	0.313,	7.298	0.143,
117	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
118	C	11.867	0.158,	11.060	0.236,	9.178	0.606,
119	B	7.699	0.329,	7.016	0.463,	8.609	0.209,
120	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
121	C	10.886	0.246,	10.376	0.317,	9.737	0.437,
122	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
123	C	16.185	0.161,	15.217	0.261,	13.624	0.578,
124	A	6.921	0.416,	7.040	0.392,	8.461	0.193,
125	B	11.384	0.346,	10.887	0.444,	12.386	0.210,
126	B	11.384	0.346,	10.887	0.444,	12.386	0.210,
127	B	11.064	0.332,	10.585	0.401,	11.509	0.266,
128	C	22.148	0.210,	22.622	0.166,	19.970	0.624,
129	A	13.349	0.603,	14.430	0.351,	18.488	0.046,
130	A	4.155	0.451,	4.460	0.387,	6.196	0.162,
131	A	4.353	0.441,	4.566	0.396,	6.348	0.163,
132	C	20.086	0.276,	21.053	0.170,	18.691	0.554,
133	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
134	A	7.450	0.468,	7.868	0.380,	9.707	0.152,
135	B	7.699	0.329,	7.016	0.463,	8.609	0.209,
136	C	26.158	0.202,	26.361	0.182,	23.927	0.616,
137	C	19.314	0.371,	20.541	0.201,	19.033	0.427,
138	A	6.921	0.416,	7.040	0.392,	8.461	0.193,
139	B	5.660	0.396,	5.462	0.437,	7.379	0.168,
140	A	7.699	0.440,	8.284	0.329,	8.985	0.231,
141	A	10.846	0.417,	10.918	0.402,	12.514	0.181,
142	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
143	B	7.547	0.388,	7.387	0.420,	8.948	0.192,
144	A	7.286	0.461,	7.695	0.375,	9.353	0.164,
145	C	15.773	0.155,	14.733	0.261,	13.120	0.584,
146	A	8.029	0.434,	8.202	0.398,	9.933	0.168,
147	B	8.840	0.380,	8.671	0.413,	10.051	0.207,
148	A	11.278	0.378,	11.340	0.367,	12.073	0.254,
149	C	31.982	0.079,	29.417	0.286,	27.828	0.634,
150	A	9.054	0.391,	9.209	0.362,	9.964	0.248,
151	A	5.263	0.460,	5.661	0.377,	7.350	0.162,
152	B	10.339	0.324,	9.869	0.410,	10.738	0.266,
153	A	7.699	0.440,	8.284	0.329,	8.985	0.231,
154	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
155	B	16.876	0.280,	16.166	0.399,	16.603	0.321,
156	B	15.010	0.228,	13.645	0.451,	14.324	0.321,
157	C	22.585	0.232,	21.772	0.348,	21.391	0.421,
158	A	6.183	0.432,	6.434	0.381,	7.860	0.187,
159	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
160	A	12.462	0.386,	12.562	0.367,	13.347	0.248,
161	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
162	A	11.777	0.631,	13.785	0.231,	14.828	0.137,
163	A	11.869	0.407,	11.979	0.385,	13.219	0.207,
164	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
165	C	11.255	0.290,	11.352	0.277,	10.455	0.433,
166	A	6.919	0.516,	7.831	0.327,	9.308	0.156,
167	A	4.227	0.508,	5.017	0.342,	6.669	0.150,
168	C	7.579	0.289,	7.500	0.301,	6.876	0.411,
169	C	19.197	0.122,	18.500	0.173,	15.691	0.705,
170	A	11.612	0.405,	11.667	0.394,	13.006	0.202,
171	C	17.386	0.331,	17.805	0.268,	17.006	0.400,
172	B	8.840	0.380,	8.671	0.413,	10.051	0.207,
173	B	17.056	0.261,	16.029	0.437,	16.769	0.302,
174	B	12.778	0.330,	12.590	0.363,	12.926	0.307,

175	B	16.068	0.264,	14.993	0.451,	15.909	0.285,
176	A	7.450	0.468,	7.868	0.380,	9.707	0.152,
177	A	6.949	0.554,	8.149	0.304,	9.666	0.142,
178	A	4.628	0.544,	5.734	0.313,	7.298	0.143,
179	A	6.183	0.432,	6.434	0.381,	7.860	0.187,
180	B	11.064	0.332,	10.686	0.401,	11.509	0.266,
181	B	27.789	0.165,	25.235	0.592,	27.013	0.243,
182	A	13.360	0.497,	15.054	0.213,	14.439	0.290,
183	A	6.949	0.554,	8.149	0.304,	9.666	0.142,
184	B	24.186	0.256,	23.154	0.429,	23.778	0.314,
185	A	12.573	0.444,	13.158	0.331,	13.928	0.225,
186	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
187	A	4.155	0.451,	4.460	0.387,	6.196	0.162,
188	C	15.276	0.126,	14.859	0.155,	11.798	0.718,
189	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
190	B	29.044	0.203,	27.683	0.401,	27.713	0.395,
191	C	10.245	0.192,	9.716	0.249,	8.103	0.559,
192	A	9.462	0.409,	9.794	0.346,	10.491	0.245,
193	A	8.401	0.475,	9.302	0.302,	9.915	0.223,
194	A	8.401	0.475,	9.302	0.302,	9.915	0.223,
195	A	8.667	0.421,	8.693	0.416,	10.569	0.163,
196	A	17.870	0.521,	19.021	0.293,	19.927	0.186,
197	C	17.351	0.099,	16.271	0.169,	13.341	0.732,
198	A	7.851	0.484,	8.845	0.294,	9.412	0.222,
199	C	11.034	0.172,	10.189	0.263,	8.663	0.564,
200	C	14.125	0.300,	13.897	0.337,	13.747	0.363,
201	B	14.096	0.298,	13.533	0.395,	14.040	0.307,
202	B	15.184	0.300,	14.614	0.398,	15.167	0.302,
203	C	8.736	0.309,	8.935	0.280,	8.172	0.410,
204	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
205	A	15.114	0.472,	16.584	0.226,	16.010	0.302,
206	B	28.836	0.235,	27.103	0.558,	29.090	0.207,
207	B	24.820	0.344,	24.552	0.393,	25.360	0.263,
208	C	20.070	0.368,	21.115	0.218,	19.834	0.414,
209	C	10.640	0.229,	10.634	0.230,	8.919	0.541,
210	A	5.263	0.460,	5.661	0.377,	7.350	0.162,
211	A	3.902	0.525,	4.824	0.331,	6.481	0.145,
212	A	16.955	0.535,	18.598	0.235,	18.639	0.230,
213	A	12.062	0.390,	12.292	0.348,	12.855	0.262,
214	B	4.232	0.415,	4.220	0.417,	6.044	0.168,
215	C	23.358	0.206,	24.081	0.143,	21.056	0.651,
216	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
217	A	7.287	0.449,	7.964	0.320,	8.618	0.231,
218	B	7.225	0.398,	7.111	0.421,	8.801	0.181,
219	A	9.906	0.414,	9.924	0.410,	11.619	0.176,
220	A	6.183	0.432,	6.434	0.381,	7.860	0.187,
221	B	10.613	0.361,	10.489	0.384,	11.315	0.254,
222	C	13.361	0.182,	13.615	0.160,	10.785	0.658,
223	A	10.793	0.413,	10.858	0.400,	12.377	0.187,
224	A	7.297	0.507,	8.116	0.336,	9.639	0.157,
225	C	11.885	0.218,	11.088	0.325,	10.409	0.457,
225	B	4.293	0.405,	4.188	0.427,	6.059	0.168,
227	B	4.232	0.415,	4.220	0.417,	6.044	0.168,
GROUP		A		B		C	

B

CASE							
1	A	12.279	0.373,	12.323	0.365,	12.979	0.263,
2	B	36.132	0.227,	34.702	0.464,	35.510	0.310,
3	C	15.928	0.283,	15.740	0.311,	15.200	0.407,

4	A	8.282	0.427,	8.736	0.340,	9.501	0.232,
5	B	28.136	0.141,	25.172	0.621,	27.084	0.238,
6	B	4.232	0.415,	4.220	0.417,	6.044	0.168,
7	C	21.728	0.085,	20.005	0.202,	17.478	0.713,
8	C	12.827	0.311,	12.729	0.326,	12.516	0.363,
9	A	5.739	0.470,	6.242	0.366,	7.853	0.164,
10	A	14.089	0.613,	15.995	0.237,	16.904	0.150,
11	C	15.094	0.382,	16.452	0.194,	14.880	0.425,
12	C	16.052	0.316,	17.056	0.191,	15.165	0.493,
13	C	10.245	0.192,	9.716	0.249,	8.103	0.559,
14	A	9.504	0.391,	9.650	0.364,	10.440	0.245,
15	B	12.076	0.291,	11.420	0.403,	11.974	0.306,
16	A	5.824	0.406,	5.850	0.401,	7.317	0.193,
17	A	8.667	0.421,	8.693	0.416,	10.569	0.163,
18	A	4.155	0.451,	4.460	0.387,	6.196	0.162,
19	A	4.227	0.508,	5.017	0.342,	6.669	0.150,
20	A	22.848	0.416,	24.024	0.231,	23.172	0.353,
21	C	14.125	0.300,	13.897	0.337,	13.747	0.363,
22	C	14.657	0.232,	13.888	0.341,	13.444	0.426,
23	C	7.961	0.317,	8.198	0.281,	7.486	0.402,
24	B	27.953	0.217,	26.108	0.545,	27.761	0.238,
25	C	8.593	0.265,	8.308	0.306,	7.628	0.429,
26	A	5.478	0.425,	5.558	0.408,	7.335	0.168,
27	C	14.850	0.241,	14.975	0.226,	13.266	0.532,
28	B	11.955	0.276,	11.113	0.420,	11.760	0.304,
29	B	23.419	0.283,	21.947	0.590,	25.013	0.127,
30	A	7.851	0.484,	8.845	0.294,	9.412	0.222,
31	A	4.155	0.451,	4.460	0.387,	6.196	0.162,
32	B	23.114	0.132,	20.493	0.490,	21.016	0.377,
33	B	6.032	0.397,	5.966	0.410,	7.480	0.193,
34	C	11.489	0.246,	10.925	0.326,	10.385	0.428,
35	C	10.978	0.187,	10.356	0.255,	8.789	0.558,
36	A	5.837	0.442,	6.180	0.372,	7.560	0.187,
37	A	3.902	0.525,	4.824	0.331,	6.481	0.145,
38	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
39	C	30.019	0.086,	27.368	0.323,	26.163	0.591,
40	C	12.199	0.240,	12.378	0.219,	10.570	0.541,
41	C	11.749	0.194,	10.793	0.313,	9.882	0.493,
42	C	7.045	0.303,	7.151	0.287,	6.434	0.411,
43	C	11.133	0.255,	11.499	0.213,	9.667	0.532,
44	C	16.802	0.158,	16.117	0.222,	14.059	0.621,
45	C	17.502	0.240,	16.603	0.376,	16.562	0.384,
46	B	12.249	0.353,	12.218	0.359,	12.658	0.288,
47	B	12.177	0.329,	11.868	0.384,	12.448	0.287,
48	C	9.728	0.216,	9.498	0.243,	7.894	0.541,
49	A	5.478	0.425,	5.558	0.408,	7.335	0.168,
50	B	23.114	0.132,	20.493	0.490,	21.016	0.377,
51	B	29.038	0.102,	25.403	0.627,	27.084	0.271,
52	B	23.582	0.215,	21.674	0.559,	23.491	0.225,
53	B	9.378	0.349,	9.123	0.397,	10.012	0.254,
54	C	9.102	0.240,	8.499	0.324,	7.908	0.436,
55	C	25.962	0.187,	25.837	0.200,	23.592	0.613,
56	B	7.815	0.320,	7.040	0.472,	8.679	0.208,
57	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
58	A	9.050	0.443,	9.346	0.382,	10.901	0.175,
59	A	22.845	0.422,	24.377	0.196,	23.047	0.382,
60	B	7.351	0.353,	6.892	0.443,	8.444	0.204,
61	A	14.704	0.492,	15.649	0.307,	16.498	0.201,
62	A	9.050	0.443,	9.346	0.382,	10.901	0.175,
63	A	5.499	0.480,	6.094	0.357,	7.659	0.163,

64	B	7.351	0.353,	6.892	0.443,	8.444	0.204,
65	A	14.385	0.502,	15.423	0.299,	16.225	0.200,
66	B	9.238	0.312,	8.369	0.481,	10.055	0.207,
67	C	13.361	0.182,	13.615	0.160,	10.785	0.658,
68	A	9.462	0.409,	9.794	0.346,	10.491	0.245,
69	C	9.590	0.248,	9.343	0.281,	8.307	0.471,
70	A	9.050	0.443,	9.346	0.382,	10.901	0.175,
71	B	8.383	0.407,	8.361	0.412,	10.005	0.181,
72	C	10.479	0.304,	10.707	0.272,	9.815	0.424,
73	A	6.565	0.490,	7.252	0.347,	8.770	0.163,
74	A	5.739	0.470,	6.242	0.366,	7.853	0.164,
75	B	4.232	0.415,	4.220	0.417,	6.044	0.168,
76	C	13.787	0.257,	13.336	0.322,	12.804	0.420,
77	A	5.498	0.515,	6.327	0.340,	8.031	0.145,
78	C	18.564	0.375,	19.786	0.203,	18.326	0.422,
79	A	12.046	0.384,	12.153	0.364,	12.892	0.252,
80	A	9.063	0.461,	9.592	0.354,	10.878	0.186,
81	A	7.287	0.449,	7.964	0.320,	8.618	0.231,
82	A	19.951	0.447,	21.062	0.257,	20.774	0.296,
83	C	21.687	0.289,	22.890	0.158,	20.385	0.553,
84	A	8.029	0.434,	8.202	0.398,	9.933	0.168,
85	A	15.289	0.533,	16.485	0.293,	17.519	0.175,
86	A	8.540	0.462,	9.311	0.314,	9.987	0.224,
87	A	8.540	0.462,	9.311	0.314,	9.987	0.224,
88	B	27.594	0.142,	24.761	0.584,	26.271	0.274,
89	B	28.762	0.106,	25.220	0.620,	26.854	0.274,
90	A	17.089	0.639,	19.273	0.215,	20.042	0.146,
91	B	12.808	0.308,	12.153	0.428,	13.115	0.264,
92	A	18.372	0.599,	20.585	0.198,	20.542	0.203,
93	A	12.283	0.561,	13.674	0.280,	14.796	0.160,
94	B	21.450	0.255,	19.570	0.653,	23.489	0.092,
95	C	19.072	0.224,	18.911	0.242,	17.332	0.534,
96	A	3.612	0.534,	4.626	0.322,	6.237	0.144,
97	A	10.394	0.399,	10.642	0.353,	11.351	0.248,
98	C	21.359	0.083,	19.899	0.173,	16.975	0.744,
99	C	8.705	0.338,	9.221	0.261,	8.370	0.400,
100	C	35.117	0.067,	31.469	0.414,	31.012	0.520,
101	A	8.830	0.400,	9.069	0.355,	9.813	0.245,
102	A	6.183	0.432,	6.434	0.381,	7.860	0.187,
103	A	4.155	0.451,	4.460	0.387,	6.196	0.162,
104	C	57.229	0.040,	53.789	0.225,	51.424	0.734,
105	A	8.540	0.462,	9.311	0.314,	9.987	0.224,
106	C	10.978	0.187,	10.356	0.255,	8.789	0.558,
107	C	31.867	0.133,	30.383	0.279,	28.890	0.588,
108	A	9.054	0.391,	9.209	0.362,	9.964	0.248,
109	A	4.227	0.508,	5.017	0.342,	6.669	0.150,
110	C	7.961	0.317,	8.198	0.281,	7.486	0.402,
111	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
112	B	20.333	0.305,	19.067	0.574,	22.190	0.121,
113	A	10.669	0.502,	11.849	0.278,	12.322	0.220,
114	C	16.679	0.266,	16.097	0.355,	15.968	0.379,
115	A	9.744	0.389,	10.068	0.331,	10.403	0.280,
116	C	20.332	0.256,	19.901	0.317,	19.303	0.427,
117	A	13.398	0.390,	14.329	0.245,	13.529	0.365,
118	B	27.465	0.193,	25.302	0.569,	27.043	0.238,
119	A	5.499	0.480,	6.094	0.357,	7.659	0.163,
120	B	42.161	0.066,	37.123	0.820,	41.074	0.114,
121	B	12.076	0.291,	11.420	0.403,	11.974	0.306,
122	A	13.796	0.370,	14.279	0.291,	13.970	0.339,
123	C	19.345	0.180,	17.868	0.377,	17.549	0.442,

124	B	40.119	0.105,	37.034	0.491,	37.429	0.403,
125	C	15.605	0.142,	14.591	0.236,	12.653	0.622,
126	C	7.045	0.303,	7.151	0.287,	6.434	0.411,
127	B	14.704	0.215,	13.153	0.467,	13.925	0.318,
128	C	7.579	0.289,	7.500	0.301,	6.876	0.411,
129	A	13.570	0.387,	13.724	0.358,	14.410	0.254,
130	C	16.922	0.223,	16.144	0.328,	15.520	0.449,
131	B	24.047	0.260,	22.251	0.639,	25.943	0.101,
132	A	16.041	0.508,	16.332	0.439,	20.530	0.054,
133	B	38.552	0.095,	35.251	0.495,	35.626	0.410,
134	C	15.311	0.168,	15.341	0.165,	12.552	0.667,
135	B	51.994	0.104,	48.680	0.545,	49.554	0.352,
136	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
137	C	14.556	0.140,	13.440	0.244,	11.584	0.617,
138	B	13.349	0.362,	12.995	0.432,	14.469	0.207,
139	B	7.373	0.388,	7.166	0.431,	8.903	0.181,
140	B	7.097	0.361,	6.732	0.434,	8.236	0.205,
141	B	6.032	0.397,	5.966	0.410,	7.480	0.193,
142	C	8.705	0.338,	9.221	0.261,	8.370	0.400,
143	C	9.651	0.284,	9.655	0.283,	8.804	0.433,
144	B	27.558	0.160,	25.042	0.563,	26.464	0.277,
145	B	11.631	0.341,	11.358	0.390,	12.102	0.269,
146	A	5.263	0.460,	5.661	0.377,	7.350	0.162,
147	B	24.977	0.305,	23.573	0.615,	27.636	0.081,
148	B	19.391	0.264,	17.565	0.657,	21.794	0.079,
149	A	8.362	0.436,	8.909	0.332,	9.627	0.232,
150	B	11.966	0.303,	11.004	0.490,	12.737	0.206,
151	A	12.535	0.614,	13.721	0.339,	17.701	0.046,
152	A	21.725	0.530,	22.340	0.390,	25.505	0.080,
153	A	7.286	0.461,	7.695	0.375,	9.353	0.164,
154	C	13.685	0.207,	13.426	0.236,	11.707	0.557,
155	A	10.311	0.433,	10.645	0.366,	11.844	0.201,
156	A	5.739	0.470,	6.242	0.366,	7.853	0.164,
157	C	9.218	0.252,	8.747	0.319,	8.160	0.428,
158	B	20.073	0.304,	18.658	0.617,	22.752	0.080,
159	B	20.073	0.304,	18.658	0.617,	22.752	0.080,
160	B	20.189	0.255,	18.271	0.666,	22.546	0.079,
161	C	17.568	0.228,	18.486	0.144,	15.548	0.627,
162	C	15.062	0.307,	15.143	0.295,	14.544	0.398,
163	A	10.793	0.413,	10.858	0.400,	12.377	0.187,
164	A	4.353	0.441,	4.566	0.396,	6.348	0.163,
165	B	8.383	0.407,	8.361	0.412,	10.005	0.181,
166	C	10.639	0.311,	10.961	0.265,	10.022	0.424,
167	B	11.007	0.349,	10.827	0.382,	11.524	0.269,
168	A	3.227	0.488,	3.831	0.361,	5.576	0.151,
169	B	4.293	0.405,	4.188	0.427,	6.059	0.168,
170	B	4.293	0.405,	4.188	0.427,	6.059	0.168,
171	C	9.678	0.219,	9.021	0.304,	8.119	0.477,
172	B	10.467	0.312,	10.035	0.388,	10.548	0.300,
173	B	13.520	0.279,	12.547	0.453,	13.597	0.268,
174	A	5.478	0.425,	5.558	0.408,	7.335	0.168,
175	A	4.685	0.478,	5.197	0.370,	6.988	0.151,
176	C	9.040	0.221,	8.903	0.237,	7.252	0.541,
177	B	4.232	0.415,	4.220	0.417,	6.044	0.168,
178	C	13.140	0.178,	13.301	0.164,	10.518	0.659,
179	C	16.052	0.316,	17.056	0.191,	15.165	0.493,
180	C	23.990	0.130,	23.725	0.148,	20.557	0.722,
181	A	4.685	0.478,	5.197	0.370,	6.938	0.151,
182	B	19.944	0.382,	19.238	0.543,	23.207	0.075,
183	B	28.358	0.165,	25.935	0.555,	27.310	0.279,

184	B	27.152	0.261,	25.455	0.610,	28.563	0.129,
185	A	5.499	0.480,	6.094	0.357,	7.659	0.163,
186	C	15.784	0.111,	14.957	0.167,	12.030	0.722,
187	A	10.350	0.361,	10.581	0.339,	10.963	0.280,
188	C	9.590	0.248,	9.343	0.281,	8.307	0.471,
189	B	19.155	0.346,	18.131	0.578,	22.188	0.076,
190	B	21.637	0.329,	20.596	0.553,	23.677	0.118,
191	A	6.565	0.490,	7.252	0.347,	8.770	0.163,
192	B	28.039	0.191,	26.204	0.477,	26.931	0.332,
193	C	27.770	0.111,	27.114	0.154,	23.983	0.736,
194	A	9.050	0.443,	9.346	0.382,	10.901	0.175,

GROUP C CASE		A		B		C	
1	C	13.140	0.178,	13.301	0.164,	10.518	0.659,
2	B	30.243	0.112,	26.833	0.616,	28.473	0.272,
3	C	9.040	0.221,	8.903	0.237,	7.252	0.541,
4	A	12.875	0.464,	14.252	0.233,	13.725	0.303,
5	C	23.529	0.139,	23.797	0.122,	20.195	0.739,
6	A	5.499	0.480,	6.094	0.357,	7.659	0.163,
7	C	19.801	0.118,	18.972	0.178,	16.227	0.704,
8	C	17.700	0.339,	17.940	0.300,	17.573	0.361,
9	A	16.721	0.466,	18.220	0.220,	17.517	0.313,
10	C	8.624	0.234,	7.928	0.331,	7.383	0.435,
11	C	19.086	0.248,	19.123	0.243,	17.645	0.509,
12	A	22.542	0.491,	25.303	0.124,	23.029	0.385,
13	A	9.504	0.391,	9.650	0.364,	10.440	0.245,
14	A.	5.824	0.406,	5.850	0.401,	7.317	0.193,
15	A	5.824	0.406,	5.850	0.401,	7.317	0.193,
16	A	15.605	0.412,	17.280	0.178,	15.620	0.409,
17	A	10.955	0.464,	11.848	0.297,	12.280	0.239,
18	C	13.361	0.182,	13.615	0.160,	10.785	0.658,
19	C	6.903	0.324,	7.233	0.275,	6.475	0.401,
20	C	10.978	0.187,	10.356	0.255,	8.789	0.558,
21	B	11.027	0.366,	10.958	0.379,	11.754	0.255,
22	C	11.168	0.175,	10.678	0.224,	8.708	0.600,
23	B	4.293	0.405,	4.188	0.427,	6.059	0.168,
24	C	19.820	0.289,	20.630	0.193,	18.651	0.518,
25	C	17.842	0.305,	18.398	0.231,	16.998	0.465,
26	B	14.143	0.260,	13.199	0.417,	13.712	0.323,
27	C	14.922	0.157,	13.861	0.266,	12.315	0.577,
28	B	11.580	0.350,	11.316	0.399,	12.241	0.251,
29	B	8.149	0.371,	7.876	0.425,	9.335	0.205,
30	C	13.647	0.164,	13.584	0.169,	10.842	0.667,
31	C	27.078	0.071,	26.847	0.079,	22.103	0.850,
32	C	9.398	0.242,	9.057	0.287,	8.068	0.471,
33	C	12.649	0.248,	12.261	0.301,	11.447	0.452,
34	C	33.563	0.186,	32.258	0.357,	31.765	0.457,
35	C	40.368	0.272,	40.467	0.259,	39.271	0.470,
36	C	7.151	0.331,	7.574	0.268,	6.770	0.401,
37	B	7.351	0.353,	6.892	0.443,	8.444	0.204,
38	A	13.964	0.382,	14.802	0.251,	14.049	0.366,
39	A	13.964	0.382,	14.802	0.251,	14.049	0.366,
40	C	18.672	0.350,	20.479	0.142,	17.928	0.508,
41	C	10.899	0.258,	11.303	0.211,	9.453	0.531,
42	C	14.185	0.239,	14.487	0.206,	12.503	0.555,
43	C	19.491	0.329,	21.073	0.149,	18.563	0.522,
44	A	9.050	0.443,	9.346	0.382,	10.901	0.175,
45	C	26.321	0.117,	26.215	0.123,	22.570	0.761,

46	B	8.840	0.380,	8.671	0.413,	10.051	0.207,
47	C	17.490	0.382,	18.805	0.198,	17.299	0.420,
48	A	9.744	0.389,	10.068	0.331,	10.403	0.280,
49	B	27.594	0.142,	24.761	0.584,	26.271	0.274,
50	B	28.111	0.120,	24.886	0.602,	26.432	0.278,
51	A	5.824	0.406,	5.850	0.401,	7.317	0.193,
52	B	7.373	0.388,	7.166	0.431,	8.903	0.181,
53	C	13.171	0.217,	13.155	0.219,	11.260	0.564,
54	C	12.783	0.174,	11.509	0.329,	10.686	0.497,
55	C	6.659	0.296,	6.672	0.294,	6.002	0.411,
56	C	6.659	0.296,	6.672	0.294,	6.002	0.411,
57	A	8.540	0.462,	9.311	0.314,	9.987	0.224,
58	C	13.777	0.322,	13.773	0.323,	13.583	0.355,
59	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
60	A	5.857	0.431,	5.977	0.406,	7.806	0.163,
61	A	14.542	0.386,	15.210	0.276,	14.808	0.338,
62	A	15.335	0.575,	17.323	0.213,	17.321	0.213,
63	A	4.685	0.478,	5.197	0.370,	6.988	0.151,
64	C	15.540	0.174,	14.732	0.261,	13.190	0.565,
65	B	4.293	0.405,	4.188	0.427,	6.059	0.168,
66	C	16.562	0.296,	16.560	0.297,	15.926	0.407,
67	C	15.311	0.168,	15.341	0.165,	12.552	0.667,
68	C	14.784	0.237,	14.527	0.269,	13.311	0.494,
69	C	13.140	0.178,	13.301	0.164,	10.518	0.659,
70	C	14.248	0.137,	13.653	0.184,	11.047	0.679,
71	A	12.564	0.489,	14.166	0.219,	13.597	0.292,
72	C	11.034	0.172,	10.189	0.263,	8.663	0.564,
73	A	5.739	0.470,	6.242	0.366,	7.853	0.164,
74	C	18.838	0.303,	18.928	0.290,	18.248	0.407,
75	C	13.315	0.178,	12.553	0.260,	11.015	0.562,
76	C	10.978	0.187,	10.356	0.255,	8.789	0.558,
77	B	24.638	0.220,	22.516	0.637,	25.501	0.143,
78	B	10.895	0.337,	10.679	0.375,	11.212	0.288,
79	C	9.805	0.282,	9.633	0.308,	9.056	0.410,
80	C	9.590	0.248,	9.343	0.281,	8.307	0.471,
81	C	18.929	0.111,	17.311	0.249,	15.420	0.640,
82	B	28.136	0.141,	25.172	0.621,	27.084	0.238,
83	C	18.427	0.338,	19.347	0.214,	17.864	0.448,
84	C	19.270	0.091,	17.557	0.215,	15.211	0.694,
85	C	11.133	0.255,	11.499	0.213,	9.667	0.532,
86	A	13.383	0.362,	15.773	0.298,	15.510	0.340,
87	C	18.618	0.096,	17.090	0.206,	14.651	0.698,
88	C	13.398	0.168,	12.814	0.224,	10.822	0.608,
89	C	12.611	0.154,	11.710	0.241,	9.875	0.605,
90	C	11.630	0.168,	10.691	0.269,	9.212	0.563,
91	B	14.769	0.374,	14.730	0.381,	15.613	0.245,
92	C	10.640	0.229,	10.634	0.230,	8.919	0.541,
93	C	27.039	0.099,	25.006	0.274,	23.350	0.627,
94	B	22.492	0.154,	20.281	0.464,	20.669	0.382,
95	A	12.880	0.426,	13.418	0.325,	13.955	0.249,
96	C	15.692	0.128,	14.352	0.251,	12.537	0.621,
97	C	18.331	0.253,	17.964	0.304,	17.205	0.444,
98	B	39.077	0.105,	35.759	0.550,	36.690	0.345,
99	C	22.011	0.136,	22.075	0.180,	19.558	0.634,
100	B	28.524	0.118,	25.206	0.609,	26.800	0.275,
101	A	20.476	0.527,	21.287	0.351,	23.401	0.122,
102	C	11.822	0.233,	11.817	0.234,	10.171	0.533,
103	C	9.353	0.277,	9.264	0.290,	8.460	0.433,
104	C	13.328	0.164,	12.651	0.229,	10.705	0.607,
105	A	4.155	0.451,	4.460	0.387,	6.196	0.162,

106	A	21.717	0.375,	22.165	0.300,	22.008	0.325,
107	A	16.499	0.567,	18.115	0.253,	18.787	0.181,
108	B	31.498	0.235,	30.139	0.464,	31.010	0.300,
109	A	10.445	0.398,	10.861	0.323,	11.150	0.279,
110	C	19.950	0.140,	19.506	0.175,	16.770	0.686,
111	C	20.899	0.055,	19.297	0.123,	15.504	0.821,
112	C	12.649	0.248,	12.261	0.301,	11.447	0.452,
113	B	27.166	0.168,	24.509	0.634,	26.843	0.197,
114	A	18.534	0.525,	20.092	0.241,	20.145	0.234,
115	C	27.621	0.123,	27.657	0.121,	23.984	0.757,
116	A	3.074	0.498,	3.771	0.352,	5.469	0.150,
117	C	6.903	0.324,	7.233	0.275,	6.475	0.401,
118	C	9.398	0.242,	9.057	0.287,	8.068	0.471,
119	B	13.938	0.303,	13.497	0.377,	13.829	0.320,
120	C	39.900	0.058,	36.689	0.289,	35.059	0.653,
121	C	15.389	0.164,	14.525	0.253,	12.854	0.583,

APPENDIX M

SQUARE OF THE DISTANCES FROM GROUP MEAN AND POSTERIOR PROBABILITIES FOR GROUP MEMBERSHIP BASED ON DISCRIMINANT ANALYSIS USING THAID SELECTED VARIABLES: DEPENDENT VARIABLE-- INCISION CLASSIFICATION (Thenar; Hypothenar)

Explanation:

Column one represents the case reference number.

Column two represents the group into which the case was classified.

Column three represents the square of the distance from the group mean for the first group.

Column four represents the probability that a case would be included in group one.

Column five represents the square of the distance from the group mean for the second group.

Column six represents the probability that a case would be included in group two.

It should be noted that the sum of the probabilities for inclusion into each group must equal one if the basic assumptions of an additive linear model have been met.

1	TI	15.971	0.540,	16.289	0.460,
2	TI	5.485	0.503,	5.510	0.497,
3	TI	4.581	0.595,	5.349	0.405,
4	TI	484.110	0.648,	485.329	0.352,
5	TI	7.662	0.698,	9.339	0.302,
6	HI	8.940	0.414,	8.249	0.586,
7	TI	18.431	0.561,	18.920	0.439,
8	TI	10.729	0.507,	10.789	0.493,
9	HI	13.776	0.366,	12.675	0.634,
10	HI	12.554	0.348,	11.301	0.652,
11	HI	7.482	0.422,	6.850	0.578,
12	HI	7.837	0.361,	6.692	0.639,
13	TI	5.560	0.673,	7.001	0.327,
14	HI	6.598	0.464,	6.308	0.536,
15	HI	7.043	0.408,	6.299	0.592,
16	TI	3.598	0.660,	4.929	0.340,
17	TI	7.572	0.582,	8.232	0.418,
18	TI	12.192	0.663,	13.543	0.337,
19	TI	13.469	0.701,	15.169	0.299,
20	HI	14.722	0.496,	14.689	0.504,
21	TI	22.551	0.599,	23.353	0.401,
22	TI	26.341	0.769,	28.747	0.231,
23	HI	10.294	0.493,	10.242	0.507,
24	TI	9.271	0.626,	10.302	0.374,
25	HI	14.834	0.424,	14.219	0.576,
26	TI	5.560	0.673,	7.001	0.327,
27	TI	9.552	0.725,	11.495	0.275,
28	TI	12.737	0.685,	14.286	0.315,
29	HI	27.403	0.366,	26.303	0.634,
30	HI	19.579	0.424,	18.967	0.576,
31	TI	5.387	0.627,	6.429	0.373,
32	TI	15.865	0.755,	18.117	0.245,
33	TI	18.532	0.776,	21.018	0.224,
34	TI	13.076	0.776,	15.558	0.224,
35	TI	4.096	0.709,	5.881	0.291,
36	TI	6.261	0.601,	7.078	0.399,
37	TI	9.025	0.642,	10.192	0.358,
38	TI	4.803	0.621,	5.789	0.379,
39	HI	11.659	0.495,	11.622	0.505,
40	TI	5.485	0.503,	5.510	0.497,
41	HI	6.478	0.450,	6.075	0.550,
42	HI	8.744	0.270,	6.750	0.730,
43	HI	6.524	0.305,	4.875	0.695,
44	HI	8.602	0.367,	7.513	0.633,
45	TI	5.387	0.627,	6.429	0.373,
46	TI	5.046	0.686,	6.606	0.314,
47	HI	12.916	0.309,	11.309	0.691,
48	HI	12.768	0.386,	11.636	0.614,
49	TI	8.329	0.678,	9.817	0.322,
50	TI	4.269	0.648,	5.487	0.352,
51	HI	7.784	0.446,	7.352	0.554,
52	TI	8.890	0.639,	10.033	0.361,
53	TI	26.835	0.783,	29.404	0.217,
54	TI	4.269	0.648,	5.487	0.352,

55	HI	25.618	0.414,	24.920	0.586,
56	HI	7.366	0.264,	5.317	0.736,
57	TI	13.070	0.549,	13.465	0.451,
58	TI	20.378	0.778,	22.889	0.222,
59	TI	6.780	0.540,	7.099	0.460,
60	TI	6.491	0.539,	6.802	0.461,
61	TI	13.801	0.551,	14.207	0.449,
62	TI	4.803	0.621,	5.789	0.379,
63	TI	5.591	0.510,	5.672	0.490,
64	TI	5.399	0.660,	6.726	0.340,
65	TI	5.387	0.627,	6.429	0.373,
66	HI	9.028	0.476,	8.833	0.524,
67	HI	5.478	0.489,	5.390	0.511,
68	HI	27.059	0.413,	26.358	0.587,
69	HI	19.579	0.424,	18.967	0.576,
70	HI	24.297	0.495,	24.255	0.505,
71	TI	10.789	0.558,	11.257	0.442,
72	TI	5.485	0.503,	5.510	0.497,
73	HI	33.320	0.219,	30.776	0.781,
74	TI	5.591	0.510,	5.672	0.490,
75	TI	3.726	0.553,	4.152	0.447,
76	TI	3.598	0.660,	4.929	0.340,
77	TI	8.382	0.673,	9.830	0.327,
78	HI	7.278	0.253,	5.116	0.747,
79	TI	4.096	0.709,	5.881	0.291,
80	HI	12.906	0.466,	12.636	0.534,
81	TI	7.819	0.648,	9.042	0.352,
82	HI	16.136	0.411,	15.419	0.589,
83	TI	21.142	0.531,	21.389	0.469,
84	HI	16.148	0.454,	15.780	0.546,
85	TI	8.169	0.546,	8.536	0.454,
86	TI	7.586	0.661,	8.921	0.339,
87	TI	6.780	0.540,	7.099	0.460,
88	TI	3.438	0.539,	3.752	0.461,
89	HI	21.034	0.473,	20.815	0.527,
90	TI	7.213	0.636,	8.330	0.364,
91	TI	15.660	0.589,	16.377	0.411,
92	TI	5.399	0.660,	6.726	0.340,
93	TI	5.591	0.510,	5.672	0.490,
94	TI	34.409	0.607,	35.275	0.393,
95	TI	10.505	0.641,	11.667	0.359,
96	TI	8.193	0.568,	8.741	0.432,
97	TI	4.269	0.648,	5.467	0.352,
98	TI	9.554	0.600,	10.367	0.400,
99	TI	12.820	0.598,	13.613	0.402,
100	TI	5.387	0.627,	6.429	0.373,
101	HI	12.140	0.335,	10.765	0.665;
102	TI	26.280	0.633,	27.371	0.367,
103	TI	20.352	0.568,	20.896	0.432,
104	TI	10.306	0.678,	11.799	0.322,
105	TI	10.649	0.600,	11.464	0.400,
106	TI	5.310	0.614,	6.239	0.386,
107	TI	5.399	0.660,	6.726	0.340,
108	HI	8.252	0.259,	6.146	0.741,
109	TI	9.371	0.502,	9.385	0.498,
110	TI	8.193	0.568,	8.741	0.432,
111	HI	12.458	0.441,	11.984	0.559,
112	TI	5.399	0.660,	6.726	0.340,
113	TI	6.876	0.596,	7.652	0.404,
114	TI	20.066	0.776,	22.555	0.224,

115	TI	19.523	0.601,	20.345	0.399,
116	TI	18.739	0.676,	20.211	0.324,
117	HI	9.308	0.331,	7.897	0.669,
118	HI	8.445	0.490,	8.362	0.510,
119	TI	8.389	0.655,	9.668	0.345,
120	TI	5.485	0.503,	5.510	0.497,
121	TI	27.876	0.545,	30.235	0.455,
122	HI	15.683	0.383,	14.930	0.617,
123	TI	7.696	0.547,	8.071	0.453,
124	TI	8.169	0.546,	8.536	0.454,
125	TI	14.499	0.705,	16.237	0.295,
126	HI	8.939	0.369,	7.870	0.631,
127	TI	6.491	0.539,	6.802	0.461,
128	HI	22.353	0.270,	20.364	0.730,
129	HI	23.562	0.395,	22.713	0.605,
130	HI	21.576	0.464,	21.284	0.536,
131	TI	26.255	0.541,	26.586	0.459,
132	TI	14.683	0.589,	15.405	0.411,
133	TI	3.726	0.553,	4.152	0.447,
134	TI	4.057	0.698,	5.730	0.302,
135	TI	4.096	0.709,	5.881	0.291,
136	HI	8.939	0.369,	7.870	0.631,
137	HI	40.859	0.350,	39.618	0.650,
138	TI	17.007	0.712,	18.820	0.288,
139	TI	11.242	0.509,	11.317	0.491,
140	TI	12.522	0.625,	13.547	0.375,
141	TI	4.096	0.709,	5.881	0.291,
142	TI	13.076	0.776,	15.558	0.224,
143	TI	7.279	0.586,	7.976	0.414,
144	TI	9.435	0.601,	10.257	0.399,
145	HI	6.524	0.305,	4.875	0.695,
146	TI	5.387	0.627,	6.429	0.373,
147	HI	8.711	0.305,	7.060	0.695,
148	TI	4.581	0.595,	5.349	0.405,
149	HI	6.306	0.330,	4.886	0.670,
150	HI	9.304	0.383,	8.347	0.617,
151	TI	12.396	0.651,	13.646	0.349,
152	TI	4.581	0.595,	5.349	0.405,
153	TI	23.602	0.575,	24.211	0.425,
154	HI	14.747	0.454,	14.374	0.546,
155	TI	15.294	0.697,	16.960	0.303,
156	TI	30.234	0.525,	30.432	0.475,
157	TI	4.057	0.698,	5.730	0.302,
158	TI	13.932	0.662,	15.280	0.338,
159	TI	3.438	0.539,	3.752	0.461,
160	HI	8.683	0.432,	8.138	0.568,
161	HI	9.603	0.356,	8.421	0.644,
162	TI	11.171	0.703,	12.896	0.297,
163	TI	8.214	0.686,	9.778	0.314,
164	TI	8.329	0.678,	9.817	0.322,
165	TI	8.275	0.572,	8.859	0.428,
166	TI	5.591	0.510,	5.672	0.490,
167	TI	5.387	0.627,	6.429	0.373,
168	HI	16.870	0.449,	16.458	0.551,
169	HI	5.478	0.489,	5.390	0.511,
170	TI	13.774	0.520,	13.932	0.480,
171	TI	13.774	0.520,	13.932	0.480,
172	TI	6.274	0.582,	6.937	0.418,
173	TI	5.591	0.510,	5.672	0.490,
174	HI	6.155	0.293,	4.394	0.707,

175	HI	19.137	0.482,	18.989	0.518,
176	TI	3.726	0.553,	4.152	0.447,
177	TI	9.689	0.614,	10.615	0.386,
178	TI	4.581	0.595,	5.349	0.405,
179	TI	8.169	0.546,	8.536	0.454,
180	TI	12.414	0.620,	13.393	0.380,
181	TI	7.696	0.547,	8.071	0.453,
182	TI	7.696	0.547,	8.071	0.453,
183	HI	7.386	0.436,	6.871	0.564,
184	TI	4.057	0.698,	5.730	0.302,
185	TI	5.284	0.634,	6.383	0.366,
186	TI	5.284	0.634,	6.383	0.366,
187	TI	3.598	0.660,	4.929	0.340,
188	HI	9.653	0.318,	8.129	0.682,
189	HI	21.411	0.420,	20.769	0.580,
190	TI	3.438	0.539,	3.752	0.461,
191	TI	4.581	0.595,	5.349	0.405,
192	HI	6.355	0.342,	5.049	0.658,
193	TI	7.662	0.698,	9.339	0.302,
194	TI	7.557	0.733,	9.579	0.267,
195	TI	8.890	0.504,	8.920	0.496,
196	TI	5.310	0.614,	6.239	0.386,
197	HI	30.605	0.438,	30.102	0.562,
198	TI	11.659	0.711,	13.464	0.289,
199	HI	19.617	0.432,	19.067	0.568,
200	TI	10.044	0.678,	11.529	0.322,
201	TI	12.517	0.556,	12.968	0.444,
202	HI	8.174	0.408,	7.426	0.592,
203	TI	7.079	0.573,	7.664	0.427,
204	TI	5.284	0.634,	6.383	0.366,
205	TI	4.269	0.648,	5.487	0.352,
206	TI	7.355	0.666,	8.739	0.334,
207	HI	21.302	0.474,	21.095	0.526,
208	HI	7.284	0.317,	5.752	0.683,
209	TI	5.672	0.567,	6.215	0.433,
210	HI	5.180	0.496,	5.149	0.504,
211	TI	3.726	0.553,	4.152	0.447,
212	TI	4.096	0.709,	5.881	0.291,
213	TI	15.593	0.589,	16.311	0.411,
214	TI	12.653	0.542,	12.991	0.458,
215	TI	4.096	0.709,	5.881	0.291,
216	TI	4.057	0.698,	5.730	0.302,
217	TI	6.876	0.596,	7.652	0.404,
218	HI	39.633	0.313,	38.065	0.687,
219	TI	9.554	0.600,	10.367	0.400,
220	HI	22.526	0.421,	21.889	0.579,
221	TI	23.259	0.527,	23.478	0.473,
222	TI	12.481	0.700,	14.174	0.300,
223	TI	13.239	0.735,	15.282	0.265,
224	TI	13.617	0.785,	16.211	0.215,
225	HI	26.260	0.372,	25.212	0.628,
226	TI	8.081	0.519,	8.231	0.481,
227	TI	9.821	0.518,	9.963	0.482,
228	TI	4.269	0.648,	5.487	0.352,
229	TI	4.269	0.648,	5.487	0.352,
230	TI	4.612	0.581,	5.268	0.419,
231	TI	4.612	0.581,	5.268	0.419,
232	TI	17.666	0.655,	18.946	0.345,
233	HI	6.155	0.293,	4.394	0.707,
234	TI	4.096	0.709,	5.881	0.291,

235	TI	4.096	0.709,	5.881	0.291,
236	TI	3.956	0.673,	5.399	0.327,
237	TI	4.096	0.709,	5.881	0.291,
238	TI	6.583	0.553,	7.006	0.447,
239	HI	9.304	0.383,	8.347	0.617,
240	TI	4.096	0.709,	5.881	0.291,
241	TI	4.096	0.709,	5.881	0.291,
242	TI	7.355	0.666,	8.739	0.334,
243	TI	11.865	0.723,	13.783	0.277,
244	TI	3.726	0.553,	4.152	0.447,
245	TI	11.853	0.523,	12.040	0.477,
246	HI	7.914	0.460,	7.595	0.540,
247	HI	15.241	0.272,	13.268	0.728,
248	TI	15.227	0.744,	17.363	0.256,
249	TI	4.057	0.698,	5.730	0.302,
250	HI	26.948	0.239,	24.630	0.761,
251	HI	7.284	0.317,	5.752	0.683,
252	TI	29.348	0.713,	31.166	0.287,
253	TI	29.348	0.713,	31.166	0.287,
254	HI	16.041	0.370,	14.975	0.630,
255	TI	8.389	0.655,	9.668	0.345,
256	HI	18.853	0.368,	17.769	0.632,
257	TI	15.078	0.716,	16.929	0.284,
258	HI	6.524	0.305,	4.875	0.695,
259	TI	4.179	0.525,	4.380	0.475,
260	HI	8.539	0.293,	6.775	0.707,
261	TI	5.560	0.673,	7.001	0.327,
262	HI	15.271	0.389,	14.371	0.611,
263	TI	4.803	0.621,	5.789	0.379,
264	TI	3.726	0.553,	4.152	0.447,
265	TI	22.591	0.696,	24.249	0.304,
266	TI	6.265	0.647,	7.480	0.353,
267	TI	8.853	0.690,	10.454	0.310,
268	TI	12.522	0.625,	13.547	0.375,
269	TI	10.816	0.552,	11.236	0.448,
270	TI	24.422	0.811,	27.338	0.189,
271	HI	11.153	0.322,	9.661	0.678,
272	HI	6.524	0.305,	4.875	0.695,
273	TI	19.523	0.601,	20.345	0.399,
274	TI	10.372	0.690,	11.970	0.310,
275	TI	6.876	0.596,	7.652	0.404,
276	HI	9.895	0.299,	8.195	0.701,
277	HI	9.304	0.383,	8.347	0.617,
278	HI	6.155	0.293,	4.394	0.707,
279	TI	13.070	0.712,	14.880	0.288,
280	HI	8.940	0.414,	8.249	0.586,
281	TI	4.803	0.621,	5.789	0.379,
282	HI	9.101	0.401,	8.297	0.599,
283	HI	26.260	0.372,	25.212	0.628,
284	TI	7.911	0.744,	10.045	0.256,
285	TI	8.193	0.568,	8.741	0.432,
286	TI	5.485	0.503,	5.510	0.497,
287	HI	6.524	0.305,	4.875	0.695,
288	TI	6.274	0.582,	6.937	0.418,
289	HI	36.194	0.454,	35.826	0.546,
290	TI	9.347	0.714,	11.177	0.286,
291	TI	5.591	0.510,	5.672	0.490,
292	HI	12.054	0.253,	9.889	0.747,
293	TI	14.146	0.562,	14.642	0.438,
294	HI	9.653	0.318,	8.129	0.682,

295	HI	15.271	0.389,	14.371	0.611,
296	HI	13.638	0.345,	12.359	0.655,
297	TI	5.310	0.614,	6.239	0.386,
298	HI	7.278	0.253,	5.116	0.747,
299	TI	8.169	0.546,	8.536	0.454,
300	HI	23.118	0.352,	21.897	0.648,
301	TI	17.287	0.534,	17.561	0.466,
302	TI	14.119	0.687,	15.695	0.313,
303	HI	7.043	0.408,	6.299	0.592,
304	TI	5.591	0.510,	5.672	0.490,
305	TI	18.739	0.676,	20.211	0.324,
306	TI	18.002	0.722,	19.909	0.278,
307	TI	12.522	0.625,	13.547	0.375,
308	TI	19.184	0.769,	21.593	0.231,
309	TI	6.583	0.553,	7.006	0.447,
310	HI	9.164	0.380,	8.188	0.620,
311	TI	9.271	0.626,	10.302	0.374,
312	HI	14.724	0.499,	14.716	0.501,
313	HI	13.068	0.372,	12.024	0.628,
314	TI	9.025	0.642,	10.192	0.358,
315	TI	3.956	0.673,	5.399	0.327,
316	TI	7.374	0.533,	7.637	0.467,
317	HI	8.174	0.408,	7.426	0.592,
318	TI	9.552	0.725,	11.495	0.275,
319	TI	4.096	0.709,	5.881	0.291,
320	HI	26.260	0.372,	25.212	0.628,
321	TI	11.967	0.518,	12.114	0.482,
322	TI	11.480	0.748,	13.660	0.252,
323	TI	10.959	0.587,	11.664	0.413,
324	HI	11.789	0.388,	10.881	0.612,
325	TI	4.581	0.595,	5.349	0.405,
326	TI	9.689	0.614,	10.615	0.386,
327	TI	3.598	0.660,	4.929	0.340,
328	HI	5.478	0.489,	5.390	0.511,
329	HI	16.856	0.268,	14.848	0.732,
330	HI	13.606	0.297,	11.886	0.703,
331	TI	25.554	0.792,	28.231	0.208,
332	TI	17.666	0.655,	18.946	0.345,
333	TI	15.193	0.603,	16.026	0.397,
334	HI	9.026	0.299,	7.318	0.701,
335	HI	6.155	0.293,	4.394	0.707,
336	TI	5.310	0.614,	6.239	0.386,
337	HI	11.153	0.322,	9.661	0.678,
338	HI	7.996	0.374,	6.963	0.626,
339	TI	14.119	0.687,	15.695	0.313,
340	TI	5.387	0.627,	6.429	0.373,
341	TI	18.383	0.511,	18.473	0.489,
342	HI	33.064	0.157,	29.702	0.843,
343	HI	11.153	0.322,	9.661	0.678,
344	TI	11.821	0.726,	13.771	0.274,
345	HI	6.306	0.330,	4.886	0.670,
346	TI	9.550	0.588,	10.259	0.412,
347	TI	12.820	0.598,	13.613	0.402,
348	TI	3.726	0.553,	4.152	0.447,
349	TI	9.502	0.614,	10.429	0.386,
350	TI	6.583	0.553,	7.006	0.447,
351	TI	5.310	0.614,	6.239	0.386,
352	HI	12.574	0.344,	11.287	0.656,
353	HI	6.499	0.475,	6.299	0.525,
354	TI	12.192	0.663,	13.543	0.337,

355	TI	9.554	0.600,	10.367	0.400,
356	HI	7.043	0.408,	6.299	0.592,
357	TI	7.662	0.698,	9.339	0.302,
358	HI	16.588	0.312,	15.404	0.688,
359	TI	4.581	0.595,	5.349	0.405,
360	HI	13.816	0.333,	12.424	0.667,
361	TI	10.505	0.641,	11.667	0.359,
362	HI	8.174	0.408,	7.426	0.592,
363	TI	15.005	0.745,	17.145	0.255,
364	TI	14.175	0.604,	15.015	0.396,
365	TI	15.356	0.617,	16.311	0.383,
366	HI	9.936	0.330,	8.522	0.670,
367	TI	22.591	0.696,	24.249	0.304,
368	TI	5.591	0.510,	5.672	0.490,
369	TI	4.581	0.595,	5.349	0.405,
370	HI	10.917	0.254,	8.759	0.746,
371	TI	3.956	0.673,	5.399	0.327,
372	TI	10.306	0.678,	11.799	0.322,
373	TI	4.096	0.709,	5.881	0.291,
374	HI	8.940	0.414,	8.249	0.586,
375	TI	5.399	0.660,	6.726	0.340,
376	HI	7.914	0.460,	7.595	0.540,
377	TI	7.279	0.586,	7.976	0.414,
378	TI	5.485	0.503,	5.510	0.497,
379	HI	6.155	0.293,	4.394	0.707,
380	HI	6.499	0.475,	6.299	0.525,
381	TI	12.067	0.633,	13.159	0.367,
382	TI	5.672	0.567,	6.215	0.433,
383	TI	18.578	0.663,	19.935	0.337,
384	TI	7.696	0.547,	8.071	0.453,
385	TI	5.485	0.503,	5.510	0.497,
386	HI	17.562	0.486,	17.449	0.514,
387	HI	13.313	0.398,	12.488	0.602,
388	TI	3.726	0.553,	4.152	0.447,
389	TI	3.726	0.553,	4.152	0.447,
390	HI	20.472	0.259,	18.371	0.741,
391	HI	11.419	0.243,	9.149	0.757,
392	HI	15.713	0.481,	15.561	0.519,
393	TI	4.581	0.595,	5.349	0.405,
394	HI	12.781	0.385,	11.844	0.615,
395	HI	7.366	0.264,	5.317	0.736,
396	TI	8.193	0.568,	8.741	0.432,
397	TI	5.399	0.660,	6.726	0.340,
398	HI	31.217	0.147,	27.697	0.853,
399	TI	11.076	0.614,	12.006	0.386,
400	TI	4.581	0.595,	5.349	0.405,
401	HI	7.482	0.422,	6.850	0.578,
402	TI	4.057	0.698,	5.730	0.302,
403	TI	4.803	0.621,	5.789	0.379,
404	TI	19.452	0.527,	19.670	0.473,
405	TI	5.560	0.673,	7.001	0.327,
406	TI	28.912	0.820,	31.939	0.180,
407	HI	11.707	0.415,	11.024	0.585,
408	TI	5.387	0.627,	6.429	0.373,
409	HI	11.653	0.437,	11.146	0.563,
410	TI	11.480	0.748,	13.660	0.252,
411	TI	6.583	0.553,	7.006	0.447,
412	TI	5.485	0.503,	5.510	0.497,
413	TI	5.485	0.503,	5.510	0.497,
414	TI	8.382	0.673,	9.830	0.327,

24	TI	9.435	0.601,	10.257	0.399,
25	HI	8.939	0.369,	7.870	0.631,
26	HI	23.452	0.310,	21.853	0.690,
27	HI	19.137	0.482,	18.989	0.518,
28	HI	8.744	0.270,	6.750	0.730,
29	HI	8.539	0.293,	6.775	0.707,
30	HI	7.043	0.408,	6.299	0.592,
31	HI	6.524	0.305,	4.875	0.695,
32	HI	6.524	0.305,	4.875	0.695,
33	HI	26.260	0.372,	25.212	0.628,
34	HI	26.260	0.372,	25.212	0.628,
35	TI	19.573	0.615,	20.508	0.385,
36	TI	4.269	0.648,	5.487	0.352,
37	HI	7.632	0.395,	6.776	0.605,
38	HI	9.936	0.330,	8.522	0.670,
39	HI	9.961	0.322,	8.471	0.678,
40	TI	4.096	0.709,	5.881	0.291,
41	HI	12.728	0.285,	10.892	0.715,
42	HI	14.482	0.277,	12.564	0.723,
43	TI	4.096	0.709,	5.881	0.291,
44	TI	29.198	0.534,	29.469	0.466,
45	TI	15.356	0.617,	16.311	0.383,
46	HI	9.961	0.322,	8.471	0.678,
47	HI	16.096	0.447,	15.672	0.553,
48	TI	5.485	0.503,	5.510	0.497,
49	TI	12.214	0.687,	13.790	0.313,
50	HI	5.180	0.496,	5.149	0.504,
51	HI	12.791	0.357,	11.616	0.643,
52	TI	8.389	0.655,	9.668	0.345,
53	HI	16.006	0.256,	13.869	0.744,
54	HI	7.366	0.264,	5.317	0.736,
55	TI	4.581	0.595,	5.349	0.405,
56	HI	8.252	0.259,	6.146	0.741,
57	TI	10.505	0.641,	11.667	0.359,
58	TI	11.242	0.509,	11.317	0.491,
59	TI	10.505	0.641,	11.667	0.359,
60	HI	6.355	0.342,	5.049	0.658,
61	TI	7.572	0.582,	8.232	0.418,
62	TI	6.780	0.540,	7.099	0.460,
63	HI	9.895	0.299,	8.195	0.701,
64	TI	7.079	0.573,	7.664	0.427,
65	TI	9.858	0.575,	10.462	0.425,
66	TI	7.821	0.559,	8.293	0.441,
67	TI	5.485	0.503,	5.510	0.497,
68	HI	8.174	0.408,	7.426	0.592,
69	TI	8.169	0.546,	8.536	0.454,
70	TI	15.637	0.728,	17.604	0.272,
71	TI	5.399	0.660,	6.726	0.340,
72	TI	17.695	0.522,	17.872	0.478,
73	HI	8.252	0.259,	6.146	0.741,
74	HI	25.192	0.435,	24.670	0.565,
75	HI	9.895	0.299,	8.195	0.701,
76	HI	9.992	0.343,	8.693	0.657,
77	HI	21.801	0.329,	20.372	0.671,
78	HI	5.478	0.489,	5.390	0.511,
79	HI	14.485	0.280,	12.597	0.720,
80	TI	17.792	0.724,	19.719	0.276,
81	TI	9.861	0.589,	10.578	0.411,
82	HI	24.822	0.247,	22.596	0.753,
83	HI	12.768	0.386,	11.836	0.614,

84	HI	6.355	0.342,	5.049	0.658,
85	TI	7.213	0.636,	8.330	0.364,
86	HI	7.043	0.408,	6.299	0.592,
87	HI	7.278	0.253,	5.116	0.747,
88	TI	4.581	0.595,	5.349	0.405,
89	HI	12.940	0.258,	10.822	0.742,
90	TI	38.129	0.542,	38.464	0.458,
91	HI	10.169	0.294,	8.412	0.706,
92	TI	15.327	0.603,	16.165	0.397,
93	HI	28.984	0.326,	27.535	0.674,
94	HI	6.306	0.330,	4.886	0.670,
95	TI	5.310	0.614,	6.239	0.386,
96	TI	5.387	0.627,	6.429	0.373,
97	TI	11.356	0.538,	11.663	0.462,
98	HI	9.395	0.281,	7.518	0.719,
99	TI	40.976	0.541,	41.308	0.459,
100	TI	4.581	0.595,	5.349	0.405,
101	HI	19.187	0.399,	18.371	0.601,

APPENDIX N

SQUARE OF THE DISTANCES FROM GROUP MEAN AND POSTERIOR PROBABILITIES FOR GROUP MEMBERSHIP BASED ON DISCRIMINANT ANALYSIS USING FORTY-FIVE SELECTED VARIABLES: DEPENDENT VARIABLE-- TREATMENT CLASSIFICATION

(No Surgery; Surgery)

Explanation:

Column one represents the case reference number.

Column two represents the group into which the case was classified.

Column three represents the square of the distance from the group mean for the first group.

Column four represents the probability that a case would be included in group one.

Column five represents the square of the distance from the group mean for the second group.

Column six represents the probability that a case would be included in group two.

It should be noted that the sum of the probabilities for inclusion into each group must equal one if the basic assumptions of an additive linear model have been met.

1	NS	10.190	0.524,	10.379	0.476,
2	NS	23.240	0.504,	23.268	0.496,
3	NS	10.414	0.586,	11.108	0.414,
4	S	40.637	0.260,	38.545	0.740,
5	NS	34.096	0.671,	35.523	0.329,
6	S	12.886	0.465,	12.608	0.535,
7	NS	39.752	0.729,	41.736	0.271,
8	NS	17.938	0.523,	18.123	0.477,
9	NS	91.937	0.579,	92.572	0.421,
10	NS	105.525	0.689,	107.119	0.311,
11	NS	31.385	0.880,	35.364	0.120,
12	NS	92.091	0.787,	94.700	0.213,
13	NS	104.469	0.763,	106.802	0.237,
14	S	11.389	0.439,	10.902	0.561,
15	S	91.091	0.487,	90.986	0.513,
16	NS	32.149	0.612,	33.060	0.388,
17	S	22.353	0.372,	21.306	0.628,
18	S	42.302	0.499,	42.294	0.501,
19	NS	24.717	0.702,	26.427	0.298,
20	NS	391.512	0.829,	394.668	0.171,
21	NS	70.052	0.521,	70.218	0.479,
22	NS	26.556	0.563,	27.063	0.437,
23	NS	25.073	0.542,	25.413	0.458,
24	NS	26.869	0.585,	27.554	0.415,
25	S	35.385	0.441,	34.912	0.559,
26	S	37.308	0.484,	37.180	0.516,
27	S	91.454	0.490,	91.376	0.510,
28	S	59.198	0.335,	57.824	0.665,
29	NS	28.957	0.656,	30.246	0.344,
30	NS	50.265	0.618,	51.230	0.382,
31	S	58.587	0.363,	57.462	0.637,
32	S	46.831	0.268,	44.821	0.732,
33	S	21.298	0.431,	20.738	0.569,
34	S	24.854	0.265,	22.812	0.735,
35	S	33.045	0.479,	32.880	0.521,
36	NS	28.872	0.673,	30.313	0.327,
37	NS	39.898	0.754,	42.139	0.246,
38	NS	33.265	0.527,	33.483	0.473,
39	S	29.705	0.308,	28.082	0.692,
40	NS	24.253	0.586,	24.946	0.414,
41	NS	21.335	0.508,	21.399	0.492,
42	S	15.660	0.437,	15.153	0.563,
43	S	63.585	0.423,	62.968	0.577,
44	NS	40.687	0.602,	41.511	0.398,
45	NS	43.142	0.841,	46.470	0.159,
46	S	33.053	0.493,	32.996	0.507,
47	S	19.955	0.374,	18.928	0.626,
48	S	23.581	0.400,	22.772	0.600,
49	S	35.734	0.415,	35.043	0.585,
50	S	9.095	0.459,	8.766	0.541,
51	S	25.435	0.333,	24.048	0.667,
52	S	32.091	0.351,	30.859	0.649,
53	S	49.895	0.385,	48.955	0.615,
54	S	11.076	0.488,	10.977	0.512,

55	NS	40.558	0.897,	44.897	0.103,
56	S	22.040	0.353,	20.852	0.647,
57	NS	19.994	0.556,	20.448	C.444,
58	NS	53.895	0.761,	56.207	0.239,
59	S	19.434	0.425,	18.863	C.571,
60	NS	12.756	0.574,	13.353	C.426,
61	S	9.011	0.448,	8.592	0.552,
62	S	17.029	0.391,	16.139	0.609,
63	S	11.888	0.453,	11.507	C.547,
64	S	32.438	0.187,	29.497	C.813,
65	NS	33.188	0.780,	35.715	0.220,
66	NS	16.960	0.666,	18.345	0.334,
67	S	15.820	0.494,	15.775	C.506,
68	NS	14.626	0.519,	14.782	0.481,
69	NS	11.279	0.579,	11.919	0.421,
70	S	28.005	0.473,	27.793	C.527,
71	S	55.528	0.317,	53.992	0.683,
72	NS	18.252	0.631,	19.322	C.369,
73	NS	18.003	0.532,	18.258	C.468,
74	S	10.972	0.491,	10.899	C.509,
75	NS	34.174	0.628,	35.223	0.372,
76	NS	31.650	0.586,	32.349	0.414,
77	NS	8.929	0.617,	9.886	C.383,
78	S	40.150	0.473,	39.932	0.527,
79	S	124.474	0.453,	124.099	C.547,
80	S	29.073	0.372,	28.028	C.628,
81	NS	16.292	0.529,	15.528	C.471,
82	S	9.643	0.459,	9.315	0.541,
83	NS	80.935	0.684,	82.480	0.316,
84	NS	75.267	0.685,	76.817	0.315,
85	NS	37.500	0.504,	37.533	C.496,
86	S	33.017	0.449,	32.609	0.551,
87	NS	18.822	C.670,	20.240	C.330,
88	NS	20.263	0.707,	22.027	0.293,
89	NS	51.303	0.871,	55.128	0.129,
90	NS	53.231	C.889,	57.401	C.111,
91	S	9.510	0.489,	9.422	0.511,
92	NS	11.415	0.532,	11.672	C.468,
93	NS	6.301	0.556,	6.754	C.444,
94	NS	8.189	0.598,	8.987	0.402,
95	NS	18.987	0.529,	19.223	0.471,
96	NS	21.635	0.572,	22.216	0.428,
97	NS	28.184	0.514,	28.295	C.486,
98	NS	29.894	0.557,	30.351	C.443,
99	NS	101.035	0.773,	103.488	0.227,
100	NS	88.675	0.724,	90.600	0.276,
101	NS	87.231	0.768,	89.629	0.232,
102	NS	85.242	0.736,	87.294	0.264,
103	S	30.390	0.386,	29.458	C.614,
104	NS	23.146	0.504,	23.181	0.496,
105	NS	18.723	0.723,	20.644	0.277,
106	NS	20.859	0.725,	22.797	0.275,
107	NS	31.956	0.663,	33.309	0.337,
108	NS	26.578	0.761,	28.896	0.239,
109	S	10.596	0.476,	10.400	0.524,
110	NS	12.634	0.519,	12.783	C.481,
111	NS	82.292	0.546,	82.663	0.454,
112	NS	84.400	0.589,	85.116	0.411,
113	NS	14.807	0.653,	16.067	C.347,
114	NS	11.987	0.665,	13.360	0.335,

115	NS	19.830	0.560,	20.312	0.440,
116	NS	21.375	0.602,	22.203	0.398,
117	NS	34.758	0.588,	35.468	0.412,
118	NS	35.444	0.629,	36.500	0.371,
119	NS	11.505	0.649,	12.730	0.351,
120	NS	13.632	0.687,	15.203	0.313,
121	S	30.066	0.262,	27.994	0.738,
122	NS	51.519	0.563,	52.027	0.437,
123	S	10.954	0.481,	10.803	0.519,
124	NS	12.949	0.524,	13.143	0.476,
125	NS	21.589	0.525,	21.792	0.475,
126	NS	16.972	0.540,	17.291	0.460,
127	S	49.887	0.319,	48.371	0.681,
128	NS	11.039	0.636,	12.156	0.364,
129	NS	19.278	0.835,	22.518	0.165,
130	NS	20.631	0.857,	24.216	0.143,
131	NS	26.416	0.769,	28.817	0.231,
132	NS	69.142	0.825,	72.238	0.175,
133	NS	27.648	0.642,	28.814	0.358,
134	NS	22.738	0.590,	23.462	0.410,
135	NS	32.365	0.837,	35.642	0.163,
136	NS	32.212	0.854,	35.739	0.146,
137	NS	47.786	0.876,	51.690	0.124,
138	NS	49.829	0.893,	54.079	0.107,
139	S	15.794	0.499,	15.786	0.501,
140	NS	17.783	0.542,	18.120	0.458,
141	NS	439.043	0.749,	441.226	0.251,
142	S	95.079	0.202,	92.328	0.798,
143	NS	49.127	0.821,	52.169	0.179,
144	NS	80.387	0.795,	83.093	0.205,
145	NS	28.205	0.548,	28.589	0.452,
146	NS	24.342	0.625,	25.360	0.375,
147	NS	48.522	0.756,	50.782	0.244,
148	NS	46.536	0.723,	48.450	0.277,
149	NS	39.918	0.891,	44.125	0.109,
150	NS	42.598	0.907,	47.150	0.093,
151	S	73.540	0.336,	72.182	0.664,
152	NS	232.385	0.535,	232.665	0.465,
153	NS	39.617	0.562,	40.119	0.438,
154	S	15.602	0.442,	15.133	0.558,
155	NS	18.599	0.562,	19.101	0.438,
156	S	53.349	0.263,	51.285	0.737,
157	NS	49.865	0.564,	50.400	0.436,
158	NS	54.138	0.556,	54.586	0.444,
159	NS	56.195	0.601,	57.018	0.399,
160	S	40.239	0.421,	39.603	0.579,
161	S	20.729	0.441,	20.256	0.559,
162	S	14.815	0.246,	12.576	0.754,
163	NS	17.736	0.631,	18.808	0.369,
164	NS	47.644	0.836,	50.905	0.164,
165	S	24.650	0.494,	24.600	0.506,
166	NS	101.840	0.686,	103.407	0.314,
167	NS	490.459	0.908,	495.029	0.092,
168	NS	44.600	0.868,	48.371	0.132,
169	NS	55.965	0.551,	56.371	0.449,
170	NS	30.641	0.725,	32.580	0.275,
171	NS	30.710	0.569,	31.262	0.431,
172	NS	138.798	0.796,	141.517	0.204,
173	S	17.461	0.414,	16.764	0.586,
174	NS	51.930	0.655,	53.210	0.345,

175	NS	41.946 0.622,	42.942 0.378,
176	NS	22.180 0.511,	22.266 0.489,
177	S	152.193 0.372,	151.146 0.628,
178	S	33.913 0.393,	33.045 0.607,
179	S	46.892 0.133,	43.145 0.867,
180	NS	252.371 0.900,	256.774 0.100,
181	NS	49.188 0.731,	51.192 0.269,
182	NS	23.505 0.552,	23.920 0.448,
183	S	148.184 0.463,	147.889 0.537,
184	S	40.023 0.466,	39.752 0.534,
185	S	29.309 0.334,	27.926 0.666,
186	S	47.370 0.360,	46.216 0.640,
187	NS	20.335 0.556,	20.787 0.444,
188	NS	48.660 0.550,	49.064 0.450,
189	NS	24.137 0.622,	25.133 0.378,
190	S	30.088 0.397,	29.251 0.603,
191	NS	39.392 0.514,	39.501 0.486,
192	NS	37.003 0.607,	37.869 0.393,
193	NS	14.979 0.631,	16.055 0.369,
194	NS	72.084 0.609,	72.971 0.391,
195	S	25.994 0.459,	25.663 0.541,
196	S	7.894 0.490,	7.816 0.510,
197	NS	35.251 0.694,	36.891 0.306,
198	NS	29.649 0.538,	29.954 0.462,
199	NS	13.396 0.563,	13.904 0.437,
200	S	25.057 0.350,	23.823 0.650,
201	S	40.377 0.402,	39.586 0.598,
202	NS	18.517 0.598,	19.307 0.402,
203	NS	38.546 0.606,	39.410 0.394,
204	S	23.146 0.460,	22.829 0.540,
205	NS	76.758 0.574,	77.355 0.426,
206	S	41.680 0.393,	40.812 0.607,
207	NS	6.605 0.533,	6.872 0.467,
208	NS	16.938 0.590,	17.664 0.410,
209	NS	102.862 0.571,	103.436 0.429,
210	S	19.584 0.485,	19.462 0.515,
211	NS	48.739 0.722,	50.644 0.278,
212	NS	30.271 0.682,	31.800 0.318,
213	NS	36.290 0.650,	37.526 0.350,
214	S	30.911 0.345,	29.625 0.655,
215	NS	42.949 0.653,	44.217 0.347,
216	NS	19.177 0.643,	20.350 0.357,
217	S	10.304 0.426,	9.706 0.574,
218	S	55.984 0.391,	55.096 0.609,
219	NS	14.887 0.583,	15.559 0.417,
220	NS	35.562 0.527,	35.775 0.473,
221	S	10.650 0.420,	10.009 0.580,
222	S	30.056 0.498,	30.043 0.502,
223	NS	42.896 0.734,	44.929 0.266,
224	NS	25.260 0.567,	25.798 0.433,
225	NS	25.040 0.624,	26.056 0.376,
226	S	19.982 0.466,	19.712 0.534,
227	S	27.958 0.436,	27.442 0.564,
228	NS	17.426 0.521,	17.595 0.479,
229	NS	39.622 0.713,	41.443 0.287,
230	NS	55.165 0.548,	55.551 0.452,
231	S	73.569 0.438,	73.070 0.562,
232	NS	27.550 0.528,	27.773 0.472,
233	NS	35.371 0.508,	35.436 0.492,
234	S	20.184 0.487,	20.078 0.513,

235	NS	37.043	0.537,	37.339	0.463,
236	S	28.432	0.472,	28.208	0.528,
237	NS	29.374	0.746,	31.525	0.254,
238	NS	22.709	0.535,	22.990	0.465,
239	NS	35.473	0.629,	36.528	0.371,
240	NS	29.127	0.584,	29.806	0.416,
241	NS	39.630	0.554,	40.066	0.446,
242	NS	21.616	0.542,	21.951	0.458,
243	NS	25.092	0.653,	26.354	0.347,
244	NS	38.448	0.714,	40.280	0.286,
245	NS	20.681	0.526,	20.886	0.474,
246	S	16.409	0.388,	15.496	0.612,
247	NS	68.777	0.622,	69.776	0.378,
248	NS	63.721	0.587,	64.421	0.413,
249	NS	12.063	0.604,	12.906	0.396,
250	NS	57.498	0.652,	58.755	0.348,
251	NS	18.584	0.617,	19.534	0.383,
252	NS	20.544	0.625,	21.565	0.375,
253	NS	11.101	0.582,	11.762	0.418,
254	S	26.780	0.468,	26.520	0.532,
255	S	35.471	0.417,	34.804	0.583,
256	NS	32.952	0.790,	35.604	0.210,
257	S	33.955	0.244,	31.690	0.756,
258	S	13.498	0.410,	12.770	0.590,
259	NS	33.005	0.722,	34.918	0.278,
260	S	21.648	0.483,	21.510	0.517,
261	S	22.751	0.410,	22.022	0.590,
262	S	44.347	0.351,	43.118	0.649,
263	NS	12.790	0.507,	12.844	0.493,
264	NS	90.868	0.777,	93.370	0.223,
265	NS	95.954	0.632,	97.038	0.368,
266	S	50.645	0.138,	46.977	0.862,
267	NS	89.926	0.919,	94.796	0.081,
268	NS	45.142	0.500,	45.142	0.500,
269	S	65.592	0.307,	63.967	0.693,
270	NS	20.583	0.680,	22.068	0.320,
271	NS	69.782	0.517,	69.917	0.483,
272	NS	19.691	0.590,	20.418	0.410,
273	S	39.220	0.300,	37.529	0.700,
274	S	128.848	0.383,	127.892	0.617,
275	NS	31.744	0.655,	33.026	0.345,
276	NS	21.416	0.508,	21.479	0.492,
277	NS	9.288	0.636,	10.405	0.364,
278	NS	37.508	0.592,	38.253	0.408,
279	NS	38.890	0.633,	39.979	0.367,
280	NS	39.430	0.788,	42.061	0.212,
281	NS	38.182	0.782,	40.738	0.218,
282	NS	115.013	0.913,	119.726	0.087,
283	NS	118.100	0.926,	123.159	0.074,
284	S	59.353	0.467,	59.086	0.533,
285	NS	22.669	0.744,	24.800	0.256,
286	NS	9.293	0.608,	10.172	0.392,
287	NS	12.905	0.568,	13.449	0.432,
288	NS	18.898	0.595,	19.664	0.405,
289	S	33.675	0.484,	33.548	0.516,
290	NS	16.209	0.505,	16.246	0.495,
291	NS	18.876	0.548,	19.258	0.452,
292	NS	21.515	0.772,	23.951	0.228,
293	NS	23.373	0.801,	26.155	0.199,
294	NS	24.894	0.528,	25.121	0.472,

295	NS	31.701	0.546,	32.074	0.454,
296	NS	18.279	0.681,	19.795	0.319,
297	NS	27.024	0.664,	28.385	0.336,
298	S	25.108	0.406,	24.344	0.594,
299	NS	41.608	0.528,	41.829	0.472,
300	NS	7.484	0.514,	7.594	0.486,
301	NS	47.366	0.560,	47.866	0.440,
302	NS	35.389	0.745,	37.531	0.255,
303	NS	16.065	0.647,	17.273	0.353,
304	NS	142.674	0.887,	146.800	0.113,
305	NS	34.421	0.761,	36.743	0.239,
306	S	43.895	0.454,	43.528	0.546,
307	S	11.836	0.297,	10.111	0.703,
308	NS	14.765	0.551,	15.174	0.449,
309	NS	36.191	0.692,	37.814	0.308,
310	S	38.478	0.482,	38.334	0.518,
311	NS	34.881	0.600,	35.691	0.400,
312	NS	9.126	0.502,	9.143	0.498,
313	S	145.053	0.480,	144.895	0.520,
314	S	51.975	0.243,	49.701	0.757,
315	NS	17.954	0.506,	18.005	0.494,
316	NS	12.347	0.586,	13.041	0.414,
317	S	16.861	0.388,	15.951	0.612,
318	NS	22.032	0.772,	24.476	0.228,
319	S	47.378	0.497,	47.353	0.503,
320	NS	232.631	0.738,	234.704	0.262,
321	S	34.339	0.493,	34.285	0.507,
322	S	23.498	0.460,	23.177	0.540,
323	NS	29.580	0.760,	31.881	0.240,
324	NS	81.708	0.656,	82.998	0.344,
325	S	55.027	0.466,	54.754	0.534,
326	S	48.130	0.271,	46.147	0.729,
327	NS	90.731	0.555,	91.174	0.445,
328	S	27.417	0.224,	24.936	0.776,
329	S	14.533	0.429,	13.963	0.571,
330	NS	150.411	0.811,	153.330	0.189,
331	NS	98.010	0.714,	99.844	0.286,
332	NS	117.915	0.637,	119.042	0.363,
333	S	80.353	0.370,	79.292	0.630,
334	NS	41.663	0.785,	44.250	0.215,
335	S	34.331	0.394,	33.469	0.606,
336	S	39.396	0.213,	36.786	0.787,
337	NS	36.216	0.579,	36.850	0.421,
338	NS	52.618	0.554,	53.049	0.446,
339	NS	191.302	0.771,	193.733	0.229,
340	NS	17.085	0.683,	18.618	0.317,
341	NS	59.930	0.872,	63.771	0.128,
342	S	48.876	0.453,	48.495	0.547,
343	S	37.489	0.386,	36.561	0.614,
344	NS	10.348	0.512,	10.446	0.488,
345	NS	18.195	0.592,	18.939	0.408,
346	NS	36.871	0.529,	37.105	0.471,
347	S	36.700	0.436,	36.185	0.564,
348	NS	27.338	0.741,	29.445	0.259,
349	S	9.357	0.339,	8.020	0.661,
350	S	16.489	0.320,	14.980	0.680,
351	NS	15.950	0.590,	16.679	0.410,
352	S	62.809	0.385,	61.873	0.615,
353	S	9.761	0.462,	9.460	0.538,
354	NS	48.798	0.564,	49.315	0.436,

355	NS	364.026	0.641,	365.188	0.359,
356	NS	66.069	0.676,	67.538	0.324,
357	NS	18.330	0.594,	19.093	0.406,
358	NS	50.648	0.522,	50.825	0.478,
359	NS	63.528	0.818,	66.529	0.182,
360	S	47.141	0.498,	47.122	0.502,
361	NS	7.484	0.514,	7.594	0.486,
362	NS	61.291	0.584,	61.969	0.416,
363	NS	56.184	0.627,	57.224	0.373,
364	NS	21.918	0.533,	22.181	0.467,
365	S	22.561	0.295,	20.818	0.705,
366	NS	83.682	0.694,	85.319	0.306,
367	NS	127.489	0.635,	128.596	0.365,
368	S	17.537	0.305,	15.888	0.695,
369	S	45.743	0.435,	45.217	0.565,
370	NS	36.727	0.601,	37.549	0.399,
371	NS	29.233	0.612,	30.142	0.388,
372	NS	51.543	0.914,	56.276	0.086,
373	NS	69.019	0.836,	72.275	0.164,
374	NS	43.688	0.503,	43.714	0.497,
375	NS	42.381	0.581,	43.037	0.419,
376	NS	48.322	0.792,	50.991	0.208,
377	S	46.294	0.254,	44.144	0.746,
378	NS	31.339	0.724,	33.267	0.276,
379	S	100.941	0.463,	100.642	0.537,
380	NS	13.981	0.578,	14.607	0.422,
381	S	35.833	0.267,	33.818	0.733,
382	S	18.227	0.490,	18.149	0.510,
383	S	27.977	0.416,	27.297	0.584,
384	NS	21.892	0.670,	23.309	0.330,
385	NS	13.763	0.525,	13.959	0.475,
386	S	17.323	0.311,	15.728	0.689,
387	S	34.546	0.247,	32.317	0.753,
388	NS	50.944	0.635,	52.056	0.365,
389	NS	27.346	0.640,	28.499	0.360,
390	S	38.626	0.373,	37.589	0.627,
391	NS	22.381	0.662,	23.722	0.338,
392	S	12.994	0.457,	12.653	0.543,
393	S	12.188	0.352,	10.970	0.648,
394	S	28.338	0.257,	26.218	0.743,
395	NS	78.676	0.644,	79.857	0.356,
396	NS	26.886	0.845,	30.279	0.155,
397	NS	46.870	0.811,	49.778	0.189,
398	S	27.029	0.370,	25.961	0.630,
399	NS	111.913	0.879,	115.876	0.121,
400	S	68.510	0.498,	68.491	0.502,
401	NS	93.471	0.689,	95.062	0.311,
402	NS	31.782	0.673,	33.221	0.327,
403	NS	132.090	0.648,	133.308	0.352,
404	S	48.154	0.382,	47.192	0.618,
405	NS	70.755	0.901,	75.180	0.099,
406	NS	106.640	0.748,	108.820	0.252,
407	NS	45.321	0.507,	45.379	0.493,
408	S	41.944	0.455,	41.582	0.545,
409	NS	15.937	0.621,	16.929	0.379,
410	S	67.048	0.237,	64.713	0.763,
411	NS	68.234	0.547,	68.614	0.453,
412	S	50.852	0.279,	48.950	0.721,
413	S	54.883	0.439,	54.392	0.561,
414	NS	13.773	0.553,	14.202	0.447,

415	NS	16.079	0.596,	16.853	0.404,
416	S	16.948	0.294,	15.197	0.706,
417	S	16.948	0.294,	15.197	0.706,
418	NS	18.343	0.819,	21.364	0.181,
419	NS	19.986	0.843,	23.352	0.157,
420	NS	15.049	0.697,	16.715	0.303,
421	NS	17.317	0.732,	19.329	0.268,
422	NS	34.086	0.548,	34.472	0.452,
423	NS	17.626	0.697,	19.294	0.303,
424	NS	22.846	0.765,	25.204	0.235,
425	S	60.720	0.321,	59.225	0.679,
426	NS	11.886	0.554,	12.324	0.446,
427	S	193.375	0.356,	192.189	0.644,
428	NS	15.397	0.694,	17.036	0.306,
429	NS	51.585	0.556,	52.032	0.444,
430	NS	116.369	0.581,	117.020	0.419,
431	NS	27.516	0.617,	28.466	0.383,
432	NS	21.917	0.612,	22.831	0.388,
433	NS	175.899	0.542,	176.232	0.458,
434	S	41.365	0.328,	39.930	0.672,
435	S	25.068	0.318,	23.538	0.682,
436	NS	67.892	0.544,	68.247	0.456,
437	S	21.287	0.411,	20.569	0.589,
GROUP		NS		S	
S					
CASE					
1	S	195.429	0.323,	193.953	0.677,
2	S	48.102	0.443,	47.644	0.557,
3	S	134.493	0.305,	132.843	0.695,
4	NS	35.364	0.597,	36.154	0.403,
5	NS	27.028	0.767,	29.411	0.233,
6	NS	35.918	0.676,	37.393	0.324,
7	S	82.025	0.447,	81.600	0.553,
8	S	125.436	0.208,	122.762	0.792,
9	S	50.455	0.465,	50.173	0.535,
10	S	72.637	0.182,	69.634	0.818,
11	S	21.967	0.179,	18.923	0.821,
12	S	69.266	0.130,	65.459	0.870,
13	S	29.790	0.483,	29.652	0.517,
14	S	43.947	0.190,	41.045	0.810,
15	S	38.211	0.354,	37.008	0.646,
16	S	27.224	0.285,	25.384	0.715,
17	S	37.321	0.227,	34.872	0.773,
18	S	36.310	0.228,	33.872	0.772,
19	S	138.404	0.140,	134.771	0.860,
20	S	31.997	0.293,	20.236	0.707,
21	S	39.224	0.334,	37.845	0.666,
22	NS	35.509	0.671,	36.930	0.329,
23	S	68.602	0.266,	66.573	0.734,
24	S	19.901	0.448,	19.483	0.552,
25	S	34.708	0.398,	33.884	0.602,
26	S	9.487	0.336,	8.125	0.664,
27	NS	6.934	0.534,	7.203	0.466,
28	S	32.957	0.345,	31.679	0.655,
29	NS	23.598	0.502,	23.616	0.498,
30	NS	31.272	0.523,	31.455	0.477,
31	NS	22.192	0.637,	23.320	0.363,
32	S	54.199	0.109,	50.065	0.891,
33	S	32.310	0.254,	30.157	0.746,

34	S	38.287	0.234,	35.916	0.766,
35	S	22.472	0.333,	21.079	0.667,
36	S	25.363	0.407,	24.612	0.593,
37	NS	33.886	0.610,	34.781	0.390,
38	S	37.018	0.442,	36.549	0.558,
39	S	47.980	0.450,	47.582	0.550,
40	S	44.002	0.197,	41.195	0.803,
41	NS	96.733	0.674,	98.189	0.326,
42	S	37.585	0.464,	37.298	0.536,
43	NS	9.529	0.557,	9.984	0.443,
44	S	19.161	0.493,	19.105	0.507,
45	NS	15.329	0.556,	15.780	0.444,
46	S	41.230	0.416,	40.554	0.584,
47	NS	89.061	0.559,	89.537	0.441,
48	S	15.399	0.372,	14.351	0.628,
49	S	130.627	0.456,	130.272	0.544,
50	S	25.656	0.244,	23.391	0.756,
51	S	20.825	0.417,	20.155	0.583,
52	S	50.576	0.484,	50.448	0.516,
53	NS	57.442	0.515,	57.564	0.485,
54	NS	21.195	0.650,	22.435	0.350,
55	NS	32.974	0.633,	34.067	0.367,
56	S	98.448	0.461,	98.136	0.539,
57	S	53.834	0.380,	52.857	0.620,
58	S	47.181	0.454,	46.810	0.546,
59	S	18.264	0.404,	17.487	0.596,
60	S	47.084	0.345,	45.802	0.655,
61	S	109.353	0.253,	107.190	0.747,
62	NS	33.921	0.612,	34.831	0.388,
63	S	53.552	0.292,	51.779	0.708,
64	S	37.841	0.364,	36.727	0.636,
65	NS	34.512	0.670,	35.927	0.330,
66	NS	28.828	0.767,	31.209	0.233,
67	NS	37.918	0.721,	39.813	0.279,
68	S	15.464	0.487,	15.358	0.513,
69	NS	11.065	0.620,	12.044	0.380,
70	NS	10.290	0.630,	11.354	0.370,
71	S	39.645	0.134,	35.906	0.866,
72	S	98.756	0.220,	96.220	0.780,
73	S	26.096	0.386,	25.166	0.614,
74	NS	23.313	0.550,	23.718	0.450,
75	S	88.748	0.413,	88.048	0.587,
76	NS	38.995	0.787,	41.614	0.213,
77	S	19.690	0.445,	19.248	0.555,
78	S	64.202	0.302,	62.529	0.698,
79	S	20.708	0.458,	20.372	0.542,
80	S	29.628	0.437,	29.117	0.563,
81	NS	24.393	0.524,	24.586	0.476,
82	NS	38.145	0.685,	39.703	0.315,
83	S	63.595	0.489,	63.505	0.511,
84	S	33.356	0.429,	32.767	0.571,
85	S	21.501	0.422,	20.875	0.578,
86	S	12.539	0.291,	10.762	0.709,
87	NS	23.955	0.578,	24.567	0.422,
88	S	20.725	0.473,	20.511	0.527,
89	S	13.482	0.462,	13.176	0.538,
90	S	8.709	0.318,	7.185	0.682,
91	S	39.934	0.263,	37.873	0.737,
92	S	8.483	0.449,	8.070	0.551,
93	S	62.508	0.102,	58.148	0.898,

94	S	60.399	0.320,	58.893	0.680,
95	S	8.911	0.471,	8.675	0.529,
96	S	57.229	0.314,	55.666	0.686,
97	S	67.379	0.248,	65.161	0.752,
98	S	63.545	0.418,	62.887	0.582,
99	S	80.483	0.356,	79.301	0.644,
100	S	25.604	0.321,	24.106	0.679,
101	S	77.857	0.452,	77.474	0.548,
102	S	105.688	0.102,	101.339	0.898,
103	S	78.512	0.163,	75.245	0.837,
104	S	50.470	0.211,	47.828	0.789,
105	S	59.918	0.455,	59.553	0.545,
106	S	24.566	0.360,	23.412	0.640,
107	S	11.636	0.379,	10.649	0.621,
108	NS	12.997	0.566,	13.528	0.434,
109	S	55.943	0.451,	55.553	0.549,
110	S	35.633	0.131,	31.841	0.869,
111	S	36.691	0.275,	34.750	0.725,
112	S	52.437	0.251,	50.246	0.749,
113	S	52.768	0.090,	48.074	0.910,
114	S	27.414	0.485,	27.297	0.515,
115	S	23.819	0.427,	23.230	0.573,
116	S	22.680	0.367,	21.586	0.633,
117	S	17.954	0.336,	16.595	0.664,
118	S	46.393	0.252,	44.216	0.748,
119	NS	19.469	0.547,	19.847	0.453,
120	S	10.488	0.484,	10.358	0.516,
121	S	63.109	0.242,	60.831	0.758,
122	S	39.810	0.185,	36.841	0.815,
123	S	16.504	0.409,	15.771	0.591,
124	S	41.672	0.323,	40.195	0.677,
125	S	35.929	0.387,	35.007	0.613,
126	S	36.329	0.201,	33.573	0.799,
127	S	21.785	0.326,	20.336	0.674,
128	NS	81.916	0.630,	82.980	0.370,
129	S	190.563	0.247,	188.333	0.753,
130	NS	48.290	0.727,	50.252	0.273,
131	NS	28.916	0.527,	29.133	0.473,
132	S	7.091	0.416,	6.416	0.584,
133	S	17.909	0.452,	17.526	0.548,
134	S	40.508	0.433,	39.970	0.567,
135	S	42.494	0.476,	42.301	0.524,
136	S	45.970	0.460,	45.652	0.540,
137	S	44.126	0.399,	43.303	0.601,
138	S	70.594	0.448,	70.179	0.552,
139	S	46.838	0.209,	44.172	0.791,
140	S	49.410	0.303,	47.741	0.697,
141	S	78.827	0.353,	77.613	0.647,
142	S	182.176	0.302,	180.499	0.698,
143	NS	24.335	0.634,	25.430	0.366,
144	NS	22.627	0.700,	24.318	0.300,
145	S	22.363	0.469,	22.115	0.531,
146	S	20.359	0.365,	19.253	0.635,
147	NS	16.023	0.521,	16.193	0.479,
148	S	12.720	0.445,	12.278	0.555,
149	S	10.270	0.471,	10.037	0.529,
150	S	17.092	0.361,	15.952	0.639,
151	NS	32.891	0.664,	34.250	0.336,
152	NS	38.591	0.668,	39.987	0.332,
153	NS	32.660	0.832,	35.854	0.168,

154	NS	40.830	0.816,	43.809	0.184,
155	NS	18.173	0.537,	18.472	0.463,
156	NS	10.232	0.583,	10.901	0.417,
157	NS	12.389	0.535,	12.667	0.465,
158	S	19.649	0.415,	18.961	0.585,
159	S	18.717	0.484,	18.593	0.516,
160	S	46.112	0.297,	44.386	0.703,
161	S	26.379	0.468,	26.126	0.532,
162	NS	30.295	0.788,	32.922	0.212,
163	NS	31.263	0.811,	34.176	0.189,
164	S	30.126	0.315,	28.570	0.685,
165	NS	28.744	0.511,	28.834	0.489,
166	NS	30.123	0.565,	30.644	0.435,
167	NS	20.099	0.591,	20.837	0.409,
168	NS	14.230	0.605,	15.080	0.395,
169	NS	25.829	0.741,	27.926	0.259,
170	S	18.700	0.372,	17.650	0.628,
171	S	18.770	0.332,	17.376	0.668,
172	S	38.646	0.479,	38.477	0.521,
173	NS	239.325	0.592,	240.066	0.408,
174	S	27.672	0.339,	26.332	0.661,
175	S	30.277	0.431,	29.725	0.569,
176	S	31.363	0.212,	28.742	0.788,
177	S	37.815	0.257,	35.692	0.743,
178	S	50.158	0.328,	48.724	0.672,
179	NS	27.501	0.537,	27.799	0.463,
180	NS	28.213	0.523,	28.394	0.477,
181	NS	48.292	0.951,	54.223	0.049,
182	NS	34.344	0.883,	36.378	0.117,
183	S	51.220	0.339,	49.887	0.661,
184	NS	38.004	0.523,	38.191	0.477,
185	NS	19.608	0.653,	20.873	0.347,
186	NS	21.385	0.691,	22.996	0.309,
187	S	11.076	0.488,	10.977	0.512,
188	NS	45.753	0.892,	49.979	0.108,
189	S	35.448	0.253,	33.267	0.747,
190	NS	30.119	0.732,	32.129	0.268,
191	NS	47.423	0.833,	50.642	0.167,
192	S	9.312	0.456,	8.958	0.544,
193	S	11.092	0.491,	11.018	0.509,
194	S	8.918	0.409,	8.181	0.591,
195	S	28.197	0.472,	27.969	0.528,
196	S	25.544	0.292,	23.776	0.708,
197	S	29.094	0.356,	27.907	0.644,
198	NS	14.957	0.627,	15.997	0.373,
199	NS	17.894	0.537,	18.194	0.463,
200	S	39.112	0.337,	37.761	0.663,
201	S	27.310	0.273,	25.352	0.727,
202	NS	19.571	0.589,	20.291	0.411,
203	NS	13.740	0.574,	14.336	0.426,
204	S	29.066	0.373,	28.023	0.627,
205	NS	19.438	0.802,	22.235	0.198,
206	S	70.290	0.373,	69.254	0.627,
207	S	69.925	0.334,	68.543	0.666,
208	S	39.176	0.242,	36.895	0.758,
209	S	47.675	0.329,	46.254	0.671,
210	NS	13.150	0.513,	13.251	0.487,
211	S	20.564	0.401,	19.758	0.599,
212	S	63.143	0.236,	60.794	0.764,
213	S	43.825	0.301,	42.136	0.699,

214	S	11.122	0.386,	10.194	0.614,
215	S	18.567	0.331,	17.155	0.669,
216	S	189.653	0.445,	189.209	0.555,
217	S	190.877	0.193,	156.011	0.807,
218	NS	11.858	0.509,	11.930	0.491,
219	NS	12.634	0.519,	12.783	0.481,
220	NS	83.429	0.543,	83.773	0.457,
221	S	57.422	0.362,	56.289	0.638,
222	NS	54.312	0.552,	54.729	0.448,
223	S	59.601	0.485,	59.477	0.515,
224	NS	14.718	0.668,	16.118	0.332,
225	NS	24.598	0.644,	25.781	0.356,
226	S	18.562	0.421,	17.924	0.579,
227	NS	79.999	0.682,	81.522	0.318,
228	NS	33.505	0.656,	34.795	0.344,
229	NS	37.753	0.735,	39.799	0.265,
230	S	1005.374	0.114,	1001.272	0.886,
231	NS	33.505	0.656,	34.795	0.344,
232	S	39.673	0.268,	37.659	0.732,
233	S	93.171	0.450,	92.769	0.550,
234	S	27.562	0.275,	25.624	0.725,
235	S	29.995	0.311,	28.402	0.689,
236	NS	91.788	0.524,	91.981	0.476,
237	S	89.975	0.481,	89.824	0.519,
238	NS	14.751	0.526,	14.960	0.474,
239	S	42.445	0.171,	39.267	0.829,
240	NS	13.056	0.531,	13.303	0.469,
241	S	43.103	0.474,	42.898	0.526,
242	S	53.951	0.448,	53.529	0.552,
243	S	30.600	0.410,	29.871	0.590,
244	S	25.530	0.378,	24.532	0.622,
245	S	20.996	0.494,	20.952	0.506,
246	NS	14.141	0.531,	14.386	0.469,
247	S	31.740	0.327,	30.297	0.673,
248	NS	51.752	0.762,	54.079	0.238,
249	NS	54.117	0.701,	55.819	0.299,
250	S	25.678	0.414,	24.981	0.586,
251	S	16.019	0.448,	15.598	0.552,
252	NS	10.964	0.621,	11.954	0.379,
253	NS	25.594	0.674,	27.043	0.326,
254	NS	24.735	0.528,	24.963	0.472,
255	S	18.752	0.442,	18.288	0.558,
256	NS	38.728	0.515,	33.846	0.485,
257	S	16.923	0.499,	16.919	0.501,
258	S	36.086	0.438,	37.586	0.562,
259	S	23.074	0.456,	22.721	0.544,
260	S	46.084	0.359,	44.925	0.641,
261	S	19.600	0.351,	18.367	0.649,
262	S	53.007	0.356,	51.820	0.644,
263	NS	29.853	0.544,	30.206	0.456,
264	NS	6.950	0.576,	7.561	0.424,
265	NS	32.962	0.585,	33.651	0.415,
266	S	30.041	0.395,	29.167	0.605,
267	S	31.855	0.437,	31.347	0.563,
268	S	31.529	0.299,	29.822	0.701,
269	NS	6.301	0.556,	6.754	0.444,
270	S	35.855	0.386,	34.931	0.614,
271	S	36.579	0.262,	34.510	0.738,
272	NS	58.084	0.558,	58.551	0.442,
273	S	52.209	0.235,	49.844	0.765,

274	NS	66.556	0.766,	68.922	0.234,
275	NS	19.448	0.583,	20.117	0.417,
276	S	47.303	0.474,	47.097	0.526,
277	S	9.761	0.462,	9.460	0.538,
278	NS	31.586	0.737,	33.645	0.263,
279	S	30.491	0.441,	30.014	0.559,
280	NS	24.115	0.506,	24.163	0.494,
281	NS	19.781	0.635,	20.890	0.365,
282	S	74.123	0.132,	70.363	0.868,
283	NS	28.514	0.585,	29.203	0.415,
284	S	93.263	0.314,	51.699	0.686,
285	S	36.174	0.464,	35.885	0.536,
286	NS	24.445	0.512,	24.540	0.488,
287	S	38.745	0.241,	36.454	0.759,
288	S	69.013	0.369,	67.935	0.631,
289	S	338.971	0.422,	338.344	0.578,
290	S	28.808	0.346,	27.539	0.654,
291	S	50.741	0.386,	49.809	0.614,
292	S	45.961	0.265,	43.920	0.735,
293	NS	24.312	0.727,	26.276	0.273,
294	S	50.383	0.220,	47.850	0.780,
295	NS	118.212	0.606,	119.076	0.394,
296	NS	61.996	0.614,	62.925	0.386,
297	S	82.812	0.375,	81.794	0.625,
298	NS	51.320	0.597,	52.104	0.403,
299	NS	70.493	0.637,	71.615	0.363,
300	NS	60.120	0.592,	60.863	0.408,
301	NS	48.893	0.621,	49.879	0.379,
302	S	29.912	0.239,	27.593	0.761,
303	NS	28.079	0.544,	28.432	0.456,
304	NS	10.414	0.586,	11.108	0.414,
305	S	11.197	0.404,	10.419	0.596,
306	NS	45.288	0.730,	47.272	0.270,
307	NS	19.350	0.527,	19.563	0.473,
308	S	33.835	0.422,	33.209	0.578,
309	NS	22.167	0.565,	22.693	0.435,
310	S	34.026	0.321,	32.531	0.679,
311	S	13.335	0.449,	12.926	0.551,
312	S	31.098	0.335,	29.731	0.665,
313	S	46.622	0.092,	42.045	0.908,
314	S	63.525	0.346,	62.255	0.654,
315	NS	28.114	0.525,	28.313	0.475,
316	NS	48.668	0.649,	49.900	0.351,
317	NS	28.218	0.513,	28.325	0.487,
318	S	13.462	0.444,	13.016	0.556,
319	NS	16.701	0.638,	17.836	0.362,
320	NS	25.942	0.638,	27.075	0.362,
321	S	55.553	0.332,	54.152	0.668,
322	NS	22.175	0.620,	23.151	0.380,
323	S	53.929	0.148,	50.434	0.852,
324	S	32.671	0.137,	28.994	0.863,
325	NS	33.342	0.536,	33.634	0.464,
326	S	16.868	0.361,	15.728	0.639,
327	NS	32.354	0.714,	34.183	0.286,
328	NS	35.579	0.600,	36.390	0.400,
329	NS	77.882	0.670,	79.298	0.330,
330	S	42.969	0.493,	42.915	0.507,
331	S	16.868	0.361,	15.728	0.639,
332	S	38.834	0.286,	37.000	0.714,
333	NS	12.435	0.594,	13.194	0.406,

334	S	38.536	0.484,	38.408	0.516,
335	S	32.566	0.346,	31.291	0.654,
336	S	53.604	0.191,	50.711	C.809,
337	S	23.705	0.487,	23.602	C.513,
338	S	13.391	0.444,	12.943	0.556,
339	NS	7.365	0.514,	7.474	0.486,
340	S	27.064	0.496,	27.034	C.504,
341	S	44.650	0.338,	43.308	0.662,
342	S	49.529	0.285,	47.694	0.715,
343	S	44.949	0.210,	42.297	C.790,
344	S	14.271	0.285,	12.429	0.715,
345	S	9.199	0.347,	7.930	C.653,
346	S	84.479	0.156,	81.109	0.844,
347	S	83.027	0.325,	81.561	C.675,
348	S	19.891	0.340,	18.565	C.660,
349	S	16.965	0.391,	16.077	0.609,
350	S	73.969	0.150,	70.504	C.850,
351	NS	43.759	0.516,	43.890	0.484,
352	S	72.748	0.440,	72.267	0.560,
353	S	57.996	0.224,	55.512	0.776,
354	NS	19.775	0.597,	20.558	C.403,
355	S	49.808	0.251,	47.616	0.749,
356	NS	17.295	0.564,	17.810	0.436,
357	S	18.579	0.367,	17.489	C.633,
358	NS	46.612	0.734,	48.646	0.266,
359	S	24.336	0.435,	23.813	0.565,
360	S	21.697	0.450,	21.294	C.550,
361	S	40.951	0.274,	39.002	0.726,
362	S	38.198	0.082,	33.378	C.918,
363	S	44.606	0.192,	41.736	C.808,
364	S	74.746	0.392,	73.870	C.608,
365	S	88.396	0.290,	86.605	0.710,
366	S	54.050	0.126,	50.173	0.874,
367	NS	82.276	0.541,	82.605	0.459,
368	S	18.427	0.317,	16.895	0.683,
369	S	25.243	0.261,	23.159	0.739,
370	S	55.681	0.202,	52.933	C.798,
371	S	234.907	0.291,	233.123	0.709,
372	S	44.032	0.442,	43.567	0.558,
373	S	125.540	0.343,	124.245	0.657,
374	S	40.173	0.063,	34.777	0.937,
375	S	52.829	0.301,	51.144	0.699,
376	S	17.304	0.335,	15.935	C.665,
377	NS	37.340	0.684,	38.885	0.316,
378	S	11.423	0.391,	10.538	0.609,
379	S	31.106	0.301,	29.420	0.699,
380	S	28.276	0.300,	26.578	C.700,
381	S	70.580	0.379,	69.596	C.621,
382	S	25.116	0.265,	23.074	0.735,
383	S	14.289	0.429,	13.720	C.571,
384	S	14.520	0.301,	12.839	0.699,
385	NS	26.291	0.509,	25.365	0.491,
386	S	49.639	0.342,	48.331	0.658,
387	NS	57.267	0.714,	59.096	0.286,
388	S	29.204	0.455,	28.839	C.545,
389	NS	65.175	0.636,	66.287	C.364,
390	NS	30.657	0.612,	31.567	0.388,
391	S	37.929	0.332,	36.532	0.668,
392	NS	33.607	0.613,	34.529	0.387,
393	S	76.468	0.498,	76.452	0.502,

394	S	50.659	0.258,	48.550	0.742,
395	NS	367.558	0.609,	368.445	0.391,
396	S	72.427	0.406,	71.669	0.594,
397	S	18.517	0.304,	16.862	0.696,
398	NS	237.696	0.626,	238.729	0.374,
399	S	35.513	0.326,	34.058	0.674,
400	S	75.607	0.416,	74.926	0.584,
401	S	25.657	0.492,	25.589	0.508,
402	S	11.617	0.365,	10.511	0.635,
403	S	9.884	0.468,	9.631	0.532,
404	S	12.718	0.281,	10.835	0.719,
405	S	10.637	0.367,	9.720	0.613,
406	S	7.985	0.336,	6.621	0.664,
407	S	64.516	0.307,	62.685	0.693,
408	S	10.610	0.366,	9.515	0.634,
409	NS	23.403	0.683,	24.935	0.317,
410	S	17.636	0.481,	17.486	0.519,
411	S	38.633	0.396,	37.793	0.604,
412	S	77.233	0.475,	77.030	0.525,
413	S	27.922	0.246,	25.584	0.754,
414	S	41.070	0.173,	37.937	0.827,
415	S	15.102	0.411,	14.386	0.589,
416	NS	27.138	0.606,	28.000	0.394,
417	S	14.914	0.403,	14.129	0.597,
418	NS	30.676	0.600,	31.489	0.400,
419	S	38.137	0.285,	36.293	0.715,
420	S	30.058	0.393,	29.185	0.607,
421	S	123.996	0.198,	121.199	0.802,
422	NS	21.611	0.727,	23.574	0.273,
423	S	31.453	0.305,	29.802	0.695,
424	S	32.473	0.478,	32.296	0.522,
425	NS	36.911	0.554,	37.341	0.446,
426	NS	81.133	0.680,	82.638	0.320,
427	NS	38.665	0.536,	38.957	0.464,
428	S	24.815	0.255,	22.670	0.745,
429	S	31.705	0.328,	30.272	0.672,
430	S	28.559	0.340,	27.233	0.660,
431	S	27.204	0.445,	26.761	0.555,
432	NS	20.306	0.614,	21.230	0.386,
433	S	23.067	0.310,	21.463	0.690,
434	S	86.796	0.259,	84.696	0.741,
435	S	22.533	0.330,	21.115	0.670,
436	NS	141.040	0.502,	141.054	0.498,
437	NS	34.516	0.512,	34.609	0.488,
438	NS	70.924	0.515,	71.047	0.485,
439	S	32.532	0.369,	31.455	0.631,
440	NS	16.489	0.642,	17.659	0.358,
441	NS	30.007	0.503,	30.035	0.497,
442	S	75.583	0.396,	74.740	0.604,
443	S	39.142	0.387,	38.225	0.613,
444	S	82.817	0.384,	81.872	0.616,
445	NS	24.010	0.525,	24.213	0.475,
446	S	11.346	0.407,	10.590	0.593,
447	NS	12.435	0.594,	13.194	0.406,
448	S	38.496	0.340,	37.173	0.660,
449	S	45.061	0.423,	44.439	0.577,
450	NS	75.937	0.625,	76.963	0.375,
451	S	37.067	0.225,	34.591	0.775,
452	S	18.083	0.352,	16.865	0.648,
453	S	20.837	0.311,	19.244	0.689,

454	NS	19.087	0.536,	19.378	0.464,
455	S	16.511	0.344,	15.216	0.656,
456	NS	64.031	0.663,	65.380	0.337,
457	S	13.365	0.353,	12.153	0.647,
458	NS	10.857	0.586,	11.550	0.414,
459	NS	44.169	0.555,	44.614	0.445,
460	NS	34.970	0.613,	35.893	0.387,
461	S	13.942	0.351,	12.711	0.649,
462	S	8.156	0.490,	8.079	0.510,
463	S	33.986	0.241,	31.686	0.759,
464	S	26.752	0.265,	24.707	0.735,
465	S	7.428	0.470,	7.191	0.530,
466	NS	22.290	0.780,	24.825	0.220,
467	NS	23.735	0.808,	26.615	0.192,
468	NS	30.991	0.721,	32.891	0.279,
469	NS	61.772	0.542,	62.107	0.458,
470	NS	39.892	0.598,	40.686	0.402,
471	S	50.022	0.271,	48.040	0.729,
472	NS	42.963	0.668,	44.364	0.332,
473	S	15.806	0.422,	15.174	0.578,
474	NS	73.196	0.819,	76.212	0.181,
475	NS	16.254	0.590,	16.986	0.410,
476	S	28.804	0.291,	27.020	0.709,
477	S	31.726	0.361,	30.586	0.639,
478	NS	35.804	0.562,	36.304	0.438,
479	NS	37.256	0.604,	38.101	0.396,
480	S	7.632	0.397,	6.798	0.603,
481	S	9.546	0.439,	9.058	0.561,
482	S	16.027	0.432,	15.479	0.568,
483	S	135.633	0.308,	134.017	0.692,
484	S	77.794	0.225,	75.323	0.775,
485	S	31.250	0.360,	30.098	0.640,
486	S	13.715	0.489,	13.630	0.511,
487	S	36.131	0.360,	34.978	0.640,
488	S	89.791	0.154,	86.391	0.846,
489	S	30.354	0.401,	29.554	0.599,
490	S	161.530	0.499,	161.525	0.501,
491	NS	54.320	0.755,	56.566	0.245,
492	NS	25.725	0.565,	26.244	0.435,
493	S	13.790	0.342,	12.485	0.658,
494	NS	32.827	0.624,	33.840	0.376,
495	S	24.345	0.301,	22.657	0.699,
496	S	110.050	0.316,	108.501	0.684,
497	S	45.214	0.209,	42.549	0.791,
498	S	60.829	0.152,	57.392	0.848,
499	S	31.537	0.358,	30.367	0.642,
500	S	72.229	0.294,	70.478	0.706,
501	S	31.139	0.284,	29.293	0.716,
502	S	34.925	0.349,	33.681	0.651,
503	S	26.461	0.169,	23.274	0.831,
504	S	46.438	0.484,	46.307	0.516,
505	S	25.414	0.344,	24.121	0.656,
506	S	103.871	0.193,	101.007	0.807,
507	S	15.259	0.352,	14.034	0.648,
508	S	50.857	0.339,	49.523	0.661,
509	S	98.217	0.283,	96.359	0.717,
510	S	33.921	0.204,	31.193	0.796,
511	S	9.369	0.373,	8.326	0.627,
512	S	53.465	0.480,	53.304	0.520,
513	NS	19.163	0.502,	19.179	0.498,

514	NS	61.744	0.845,	65.141	0.155,
515	S	55.871	0.186,	52.922	0.814,
516	NS	45.949	0.829,	49.113	0.171,
517	S	130.884	0.306,	129.249	0.694,
518	NS	57.100	0.646,	58.300	0.354,
519	NS	29.495	0.500,	29.498	0.500,
520	NS	80.513	0.593,	81.267	0.407,
521	NS	42.401	0.648,	43.625	0.352,
522	S	44.468	0.451,	44.071	0.549,
523	S	100.930	0.405,	100.159	0.595,
524	S	8.333	0.451,	7.937	0.549,
525	S	23.538	0.173,	20.404	0.827,
526	S	42.265	0.317,	40.727	0.683,
527	NS	12.347	0.586,	13.041	0.414,
528	S	37.916	0.280,	36.031	0.720,
529	S	30.303	0.500,	30.299	0.500,
530	S	28.999	0.345,	27.719	0.655,
531	S	42.441	0.220,	39.905	0.780,
532	S	73.151	0.172,	70.005	0.828,
533	NS	49.635	0.553,	50.063	0.447,
534	S	32.285	0.206,	29.590	0.794,
535	S	22.119	0.447,	21.692	0.553,
536	S	25.923	0.345,	24.637	0.655,
537	S	40.405	0.247,	38.176	0.753,
538	NS	29.522	0.647,	30.729	0.353,
539	NS	27.959	0.664,	29.320	0.336,
540	S	61.861	0.409,	61.123	0.591,
541	NS	29.813	0.561,	30.304	0.439,
542	S	23.197	0.447,	22.769	0.553,
543	NS	31.684	0.618,	32.648	0.382,
544	NS	24.008	0.512,	24.107	0.488,
545	S	31.335	0.488,	31.238	0.512,
546	NS	30.700	0.518,	30.846	0.482,
547	S	65.235	0.370,	64.166	0.630,
548	S	15.787	0.385,	14.854	0.615,
549	NS	34.233	0.635,	35.338	0.365,
550	S	15.111	0.410,	14.381	0.590,
551	S	19.227	0.461,	18.917	0.539,
552	S	68.600	0.354,	67.393	0.646,
553	NS	33.763	0.517,	33.899	0.483,
554	S	60.934	0.295,	59.189	0.705,
555	S	59.192	0.079,	54.269	0.921,
556	S	1005.379	0.114,	1001.274	0.886,
557	NS	13.577	0.656,	14.872	0.344,
558	NS	49.686	0.513,	49.788	0.487,
559	NS	18.822	0.659,	20.142	0.341,
560	S	27.535	0.474,	27.327	0.526,
561	S	26.197	0.217,	23.630	0.783,
562	NS	48.669	0.615,	49.601	0.385,
563	S	34.188	0.257,	32.068	0.743,
564	S	56.406	0.427,	55.814	0.573,
565	S	25.154	0.326,	23.705	0.674,
566	S	12.442	0.456,	12.087	0.544,
567	S	18.648	0.476,	18.653	0.524,
568	S	17.088	0.453,	16.714	0.547,

APPENDIX O

SQUARE OF THE DISTANCES

FROM GROUP MEAN AND POSTERIOR PROBABILITIES

FOR GROUP MEMBERSHIP

BASED ON DISCRIMINANT ANALYSIS

USING FORTY-FIVE SELECTED VARIABLES:

DEPENDENT VARIABLE--

POSTOPERATIVE VISIT CLASSIFICATION

(1 through 6; 7 through 11; 12+)

Explanation:

Column one represents the case reference number.

Column two represents the group into which the case was classified.

Column three represents the square of the distance from the group mean for the first group.

Column four represents the probability that a case would be included in group one.

Column five represents the square of the distance from the group mean for the second group.

Column six represents the probability that a case would be included in group two.

Column seven represents the square of the distance from the group mean for the group.

Column eight represents the probability that a case would be included in group three.

It should be noted that the sum of the probabilities for inclusion into each group must equal one if the basic assumptions of an additive linear model have been met.

1	C	25.183	0.171,	24.610	0.228,	22.666	0.601,
2	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
3	C	29.106	0.107,	27.351	0.259,	25.557	0.634,
4	A	19.203	0.466,	20.013	0.311,	20.673	0.223,
5	A	28.984	0.420,	29.225	0.372,	30.395	0.207,
6	A	88.260	0.425,	89.650	0.212,	88.581	0.362,
7	A	10.454	0.624,	11.980	0.291,	14.439	0.085,
8	B	22.006	0.267,	20.142	0.679,	25.191	0.054,
9	B	26.304	0.340,	25.126	0.612,	30.229	0.048,
10	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
11	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
12	A	11.365	0.439,	11.547	0.401,	13.389	0.160,
13	A	12.728	0.547,	13.554	0.362,	16.323	0.091,
14	A	35.157	0.383,	35.306	0.355,	35.918	0.262,
15	A	13.333	0.606,	14.820	0.288,	16.818	0.106,
16	C	24.725	0.305,	24.574	0.329,	24.357	0.366,
17	B	30.592	0.125,	27.797	0.508,	28.445	0.367,
18	B	5.325	0.403,	5.143	0.441,	7.219	0.156,
19	A	12.013	0.450,	13.727	0.191,	12.465	0.359,
20	A	80.357	0.836,	86.031	0.049,	84.321	0.115,
21	A	15.483	0.434,	15.886	0.355,	16.929	0.211,
22	C	15.738	0.307,	17.445	0.131,	14.524	0.563,
23	A	5.471	0.423,	6.064	0.315,	6.428	0.262,
24	A	60.869	0.705,	64.298	0.127,	63.735	0.168,
25	B	15.303	0.265,	14.596	0.377,	14.694	0.359,
26	B	17.726	0.282,	16.314	0.570,	19.012	0.148,
27	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
28	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
29	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
30	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
31	A	18.254	0.577,	19.356	0.333,	21.959	0.090,
32	C	32.761	0.169,	33.033	0.147,	29.961	0.684,
33	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
34	C	37.926	0.131,	38.934	0.079,	34.342	0.789,
35	A	13.077	0.560,	13.960	0.360,	16.974	0.080,
36	B	29.875	0.308,	28.622	0.576,	31.835	0.116,
37	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
38	C	7.871	0.312,	8.165	0.269,	7.278	0.419,
39	C	19.345	0.282,	20.322	0.173,	18.023	0.545,
40	C	15.194	0.341,	16.661	0.164,	14.448	0.495,
41	C	12.651	0.396,	14.242	0.179,	12.504	0.426,
42	C	27.710	0.265,	27.435	0.304,	26.743	0.430,
43	B	55.438	0.305,	54.515	0.484,	56.172	0.211,
44	C	15.300	0.121,	14.695	0.164,	11.754	0.714,
45	A	9.096	0.403,	9.841	0.278,	9.564	0.319,
46	B	8.305	0.372,	7.999	0.433,	9.600	0.195,
47	C	12.144	0.357,	12.766	0.262,	12.013	0.381,
48	A	9.096	0.403,	9.841	0.278,	9.564	0.319,
49	A	10.570	0.662,	12.956	0.201,	13.716	0.137,
50	B	8.707	0.317,	7.757	0.510,	9.913	0.173,
51	A	13.985	0.574,	15.348	0.290,	16.870	0.136,
52	A	17.075	0.412,	18.017	0.258,	17.520	0.330,
53	A	19.558	0.466,	21.081	0.218,	20.330	0.317,
54	C	11.795	0.320,	11.773	0.323,	11.576	0.357,

55	A	10.841	0.624,	13.102	0.201,	13.388	0.175,
56	A	10.570	0.662,	12.956	0.201,	13.716	0.137,
57	C	13.371	0.267,	13.286	0.279,	12.313	0.454,
58	C	22.024	0.190,	22.877	0.124,	19.449	0.687,
59	A	13.156	0.561,	14.674	0.263,	15.474	0.176,
60	A	21.458	0.711,	24.522	0.154,	24.768	0.136,
61	C	30.825	0.340,	31.065	0.301,	30.713	0.359,
62	C	15.300	0.121,	14.695	0.164,	11.754	0.714,
63	B	26.767	0.172,	24.628	0.502,	25.496	0.325,
64	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
65	B	5.325	0.403,	5.143	0.441,	7.219	0.156,
66	B	8.305	0.372,	7.999	0.433,	9.600	0.195,
67	C	35.674	0.330,	35.907	0.294,	35.419	0.375,
68	B	5.325	0.403,	5.143	0.441,	7.219	0.156,
69	B	23.135	0.387,	22.501	0.531,	26.248	0.082,
70	C	12.399	0.185,	11.423	0.301,	10.347	0.515,
71	C	16.461	0.237,	17.401	0.148,	14.560	0.614,
72	C	23.385	0.432,	26.637	0.085,	23.163	0.483,
73	A	23.510	0.497,	26.886	0.092,	23.867	0.411,
74	A	15.069	0.610,	17.571	0.175,	17.148	0.216,
75	A	22.026	0.651,	23.537	0.306,	27.451	0.043,
76	A	12.512	0.535,	14.007	0.254,	14.372	0.211,
77	C	16.014	0.301,	16.862	0.197,	14.985	0.503,
78	C	14.269	0.246,	14.425	0.227,	12.743	0.527,
79	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
80	A	5.471	0.423,	6.064	0.315,	6.428	0.262,
81	A	74.318	0.510,	75.297	0.313,	76.436	0.177,
82	A	72.219	0.546,	73.323	0.314,	74.936	0.140,
83	C	10.007	0.363,	10.716	0.254,	9.896	0.383,
84	A	26.421	0.795,	29.857	0.143,	31.528	0.062,
85	B	8.305	0.372,	7.999	0.433,	9.600	0.195,
86	B	5.834	0.374,	5.783	0.384,	6.702	0.242,
87	A	12.512	0.535,	14.007	0.254,	14.372	0.211,
88	A	12.512	0.535,	14.007	0.254,	14.372	0.211,
89	A	16.962	0.356,	17.117	0.329,	17.210	0.315,
90	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
91	A	5.471	0.423,	6.064	0.315,	6.428	0.262,
92	C	9.096	0.217,	8.244	0.333,	7.643	0.450,
93	C	24.269	0.184,	24.285	0.182,	21.794	0.634,
94	B	24.264	0.195,	22.249	0.533,	23.592	0.272,
95	C	10.924	0.187,	10.847	0.195,	8.534	0.618,
96	B	27.509	0.368,	26.904	0.498,	29.534	0.134,
97	A	13.333	0.606,	14.820	0.288,	16.818	0.106,
98	A	39.398	0.549,	40.391	0.334,	42.505	0.116,
99	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
100	C	12.819	0.284,	12.761	0.292,	12.021	0.423,
101	A	5.471	0.423,	6.064	0.315,	6.428	0.262,
102	A	23.742	0.404,	23.747	0.403,	25.223	0.193,
103	C	12.498	0.175,	11.155	0.342,	10.468	0.483,
104	B	46.386	0.159,	43.298	0.744,	47.382	0.097,
105	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
106	A	39.104	0.724,	43.638	0.075,	41.660	0.201,
107	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
108	C	15.399	0.259,	15.036	0.311,	14.385	0.430,
109	A	61.462	0.668,	64.248	0.166,	64.240	0.166,
110	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
111	B	27.139	0.180,	24.715	0.605,	26.790	0.215,
112	A	10.951	0.406,	11.265	0.347,	11.950	0.247,
113	C	29.080	0.282,	30.501	0.138,	27.637	0.580,
114	B	19.733	0.313,	19.245	0.399,	19.893	0.289,

115	B	21.522	0.230,	19.467	0.643,	22.720	0.126,
116	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
117	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
118	C	12.708	0.147,	11.241	0.306,	10.079	0.547,
119	B	7.926	0.368,	7.225	0.522,	10.331	0.110,
120	A	10.454	0.624,	11.980	0.291,	14.439	0.085,
121	B	16.969	0.343,	16.350	0.467,	18.155	0.190,
122	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
123	C	14.816	0.166,	13.535	0.316,	12.548	0.518,
124	A	30.512	0.585,	32.706	0.195,	32.477	0.219,
125	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
126	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
127	A	9.527	0.391,	9.815	0.339,	10.267	0.270,
128	B	34.825	0.350,	34.554	0.400,	35.498	0.250,
129	A	24.033	0.599,	24.878	0.392,	32.511	0.009,
130	A	2.177	0.501,	3.018	0.329,	4.332	0.170,
131	A	2.177	0.501,	3.018	0.329,	4.332	0.170,
132	A	22.057	0.406,	23.150	0.235,	22.305	0.359,
133	A	13.467	0.542,	14.095	0.396,	17.790	0.062,
134	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
135	A	15.805	0.503,	16.111	0.432,	19.911	0.065,
136	C	27.157	0.346,	28.996	0.138,	26.358	0.516,
137	C	19.553	0.415,	21.420	0.163,	19.517	0.422,
138	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
139	A	2.177	0.501,	3.018	0.329,	4.332	0.170,
140	A	7.392	0.454,	8.348	0.282,	8.479	0.264,
141	A	61.724	0.735,	64.502	0.183,	66.126	0.081,
142	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
143	B	16.129	0.470,	16.114	0.474,	20.364	0.057,
144	A	14.418	0.481,	14.469	0.469,	18.950	0.050,
145	C	30.292	0.233,	31.589	0.122,	28.250	0.646,
146	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
147	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
148	A	8.941	0.457,	10.022	0.289,	10.628	0.214,
149	C	50.304	0.105,	49.964	0.125,	46.327	0.770,
150	B	8.525	0.398,	8.495	0.404,	9.930	0.197,
151	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
152	A	16.326	0.483,	16.723	0.396,	19.105	0.120,
153	B	44.026	0.245,	43.134	0.382,	43.184	0.373,
154	A	11.346	0.650,	12.996	0.285,	15.929	0.066,
155	A	10.879	0.399,	11.105	0.356,	11.858	0.245,
156	B	11.055	0.308,	10.575	0.392,	11.107	0.300,
157	C	15.109	0.302,	15.327	0.271,	14.421	0.426,
158	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
159	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
160	A	12.481	0.598,	14.124	0.263,	15.399	0.139,
161	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
162	A	37.272	0.821,	41.902	0.081,	41.516	0.098,
163	B	7.926	0.368,	7.225	0.522,	10.331	0.110,
164	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
165	A	22.279	0.564,	23.369	0.327,	25.556	0.110,
166	B	26.794	0.317,	25.386	0.641,	30.845	0.042,
167	A	27.570	0.670,	30.531	0.152,	30.223	0.178,
168	C	24.962	0.166,	25.287	0.141,	22.107	0.693,
169	C	22.409	0.231,	22.828	0.187,	20.565	0.581,
170	B	7.926	0.368,	7.225	0.522,	10.331	0.110,
171	A	16.662	0.382,	16.835	0.350,	17.364	0.269,
172	A	61.462	0.668,	64.248	0.166,	64.240	0.166,
173	B	11.055	0.308,	10.575	0.392,	11.107	0.300,
174	A	39.167	0.444,	40.455	0.233,	39.804	0.323,

175	B	28.734	0.309,	27.548	0.559,	30.432	0.132,
176	B	24.561	0.429,	24.175	0.521,	28.872	0.050,
177	A	12.728	0.547,	13.554	0.362,	16.323	0.091,
178	A	59.651	0.743,	63.204	0.126,	63.116	0.131,
179	B	7.926	0.368,	7.225	0.522,	10.331	0.110,
180	A	9.527	0.391,	9.815	0.339,	10.267	0.270,
181	B	30.528	0.220,	29.003	0.471,	29.841	0.310,
182	A	21.081	0.658,	23.606	0.186,	23.963	0.156,
183	A	2.177	0.501,	3.018	0.329,	4.332	0.170,
184	B	36.488	0.330,	35.512	0.538,	38.325	0.132,
185	A	30.147	0.576,	32.238	0.202,	32.050	0.222,
186	A	11.896	0.597,	12.970	0.349,	16.689	0.054,
187	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
188	C	22.612	0.238,	22.071	0.312,	21.345	0.449,
189	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
190	C	30.782	0.209,	29.786	0.343,	29.252	0.448,
191	C	9.569	0.196,	8.870	0.280,	7.628	0.522,
192	A	16.326	0.483,	16.723	0.396,	19.105	0.120,
193	A	13.156	0.561,	14.674	0.263,	15.474	0.176,
194	A	15.735	0.520,	17.129	0.259,	17.454	0.220,
195	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
196	A	13.341	0.612,	15.084	0.256,	16.399	0.133,
197	C	18.394	0.089,	16.374	0.243,	14.350	0.668,
198	A	8.941	0.497,	10.022	0.289,	10.628	0.214,
199	C	10.794	0.240,	11.117	0.204,	9.114	0.556,
200	A	78.158	0.466,	78.399	0.433,	81.793	0.079,
201	C	42.387	0.160,	40.635	0.385,	40.301	0.455,
202	B	18.228	0.437,	18.205	0.442,	20.796	0.121,
203	B	16.801	0.372,	16.306	0.476,	18.586	0.152,
204	A	14.573	0.502,	14.748	0.460,	19.704	0.039,
205	A	21.081	0.658,	23.606	0.186,	23.963	0.156,
206	B	41.240	0.097,	37.119	0.765,	40.545	0.138,
207	B	26.172	0.311,	25.079	0.537,	27.593	0.153,
208	A	30.886	0.529,	32.177	0.278,	32.902	0.193,
209	A	17.929	0.373,	18.127	0.338,	18.437	0.289,
210	A	70.943	0.784,	73.831	0.185,	77.384	0.031,
211	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
212	B	29.425	0.379,	29.129	0.439,	30.887	0.182,
213	A	9.527	0.391,	9.815	0.339,	10.267	0.270,
214	C	28.828	0.223,	27.834	0.367,	27.613	0.410,
215	C	25.505	0.323,	26.658	0.181,	24.650	0.495,
216	B	26.847	0.399,	26.245	0.539,	30.563	0.062,
217	B	47.626	0.293,	46.595	0.490,	48.222	0.217,
218	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
219	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
220	C	52.624	0.217,	52.860	0.193,	50.621	0.590,
221	A	8.941	0.497,	10.022	0.289,	10.628	0.214,
222	C	15.868	0.174,	16.307	0.140,	13.120	0.687,
223	B	7.364	0.343,	6.539	0.518,	9.170	0.139,
224	A	2.177	0.501,	3.018	0.329,	4.332	0.170,
225	B	28.397	0.247,	27.093	0.475,	28.163	0.278,
226	A	11.467	0.595,	12.870	0.295,	14.853	0.110,
227	A	2.872	0.463,	3.589	0.324,	4.427	0.213,

GROUP B CASE		A		B		C	
1	B	16.074	0.246,	15.091	0.402,	15.354	0.352,
2	B	50.064	0.106,	46.817	0.535,	47.614	0.359,
3	B	33.332	0.395,	33.054	0.454,	35.254	0.151,

4	A	8.714	0.485,	9.707	0.298,	10.380	0.213,
5	B	27.139	0.180,	24.715	0.605,	26.790	0.215,
6	B	32.602	0.171,	30.585	0.470,	31.126	0.359,
7	C	29.882	0.055,	27.152	0.216,	24.720	0.729,
8	B	32.053	0.247,	30.314	0.590,	32.897	0.162,
9	B	19.119	0.255,	17.583	0.558,	19.806	0.184,
10	A	23.690	0.412,	23.700	0.410,	25.369	0.178,
11	B	36.383	0.306,	35.947	0.381,	36.340	0.313,
12	C	32.660	0.119,	31.224	0.243,	29.291	0.639,
13	C	9.569	0.198,	8.870	0.280,	7.628	0.522,
14	A	75.141	0.540,	76.004	0.351,	78.326	0.110,
15	B	11.055	0.308,	10.575	0.392,	11.107	0.300,
16	B	8.701	0.337,	8.526	0.368,	8.970	0.295,
17	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
18	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
19	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
20	C	34.169	0.227,	33.531	0.312,	32.747	0.462,
21	C	29.239	0.137,	27.055	0.407,	26.825	0.457,
22	C	15.399	0.259,	15.036	0.311,	14.385	0.430,
23	C	25.183	0.171,	24.610	0.228,	22.666	0.601,
24	B	91.766	0.309,	90.290	0.647,	95.660	0.044,
25	B	8.204	0.287,	7.599	0.388,	7.949	0.326,
26	C	28.098	0.191,	26.980	0.335,	26.284	0.474,
27	C	12.469	0.164,	12.631	0.151,	9.610	0.685,
28	A	18.849	0.436,	19.055	0.394,	20.732	0.170,
29	B	20.880	0.242,	18.789	0.689,	23.404	0.069,
30	C	35.964	0.298,	35.772	0.328,	35.511	0.374,
31	B	18.238	0.304,	16.950	0.578,	20.123	0.118,
32	C	44.658	0.041,	40.789	0.287,	39.090	0.671,
33	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
34	B	8.204	0.287,	7.599	0.388,	7.949	0.326,
35	C	9.569	0.198,	8.870	0.280,	7.628	0.522,
36	A	4.872	0.409,	4.946	0.394,	6.340	0.196,
37	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
38	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
39	C	63.455	0.087,	62.847	0.117,	59.019	0.796,
40	B	38.665	0.391,	38.412	0.444,	40.393	0.165,
41	C	10.585	0.240,	10.112	0.304,	9.305	0.456,
42	B	8.204	0.287,	7.599	0.388,	7.949	0.326,
43	C	9.627	0.233,	9.051	0.311,	8.284	0.456,
44	C	26.040	0.087,	24.728	0.168,	21.749	0.745,
45	B	24.334	0.389,	23.949	0.472,	26.384	0.140,
46	A	21.900	0.484,	22.235	0.409,	24.918	0.107,
47	A	10.385	0.360,	10.487	0.342,	10.765	0.298,
48	C	25.014	0.119,	24.469	0.157,	21.410	0.724,
49	A	2.177	0.501,	3.018	0.329,	4.332	0.170,
50	B	34.047	0.089,	30.674	0.479,	30.875	0.433,
51	B	26.944	0.131,	23.754	0.648,	25.908	0.221,
52	B	23.064	0.321,	22.074	0.526,	24.548	0.153,
53	A	18.254	0.577,	19.356	0.333,	21.959	0.090,
54	B	8.204	0.287,	7.599	0.388,	7.949	0.326,
55	C	26.191	0.231,	27.381	0.127,	24.142	0.642,
56	A	4.872	0.409,	4.946	0.394,	6.340	0.196,
57	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
58	C	24.725	0.305,	24.574	0.329,	24.357	0.366,
59	A	39.710	0.494,	40.729	0.297,	41.426	0.209,
60	B	8.701	0.337,	8.526	0.368,	8.970	0.295,
61	A	11.974	0.575,	13.593	0.256,	14.433	0.168,
62	B	54.642	0.218,	52.612	0.601,	55.017	0.181,
63	A	5.471	0.423,	6.064	0.315,	6.428	0.262,

64	B	8.701	0.337,	8.526	0.368,	8.970	0.295,
65	A	12.512	0.535,	14.007	0.254,	14.372	0.211,
66	B	8.701	0.337,	8.526	0.368,	8.970	0.295,
67	C	19.250	0.086,	19.318	0.083,	14.705	0.831,
68	A	18.332	0.420,	18.481	0.390,	19.913	0.190,
69	C	11.250	0.170,	10.530	0.244,	8.772	0.587,
70	C	29.273	0.161,	28.031	0.300,	26.859	0.539,
71	B	5.325	0.403,	5.143	0.441,	7.219	0.156,
72	C	33.399	0.267,	34.543	0.151,	31.845	0.582,
73	A	5.471	0.423,	6.064	0.315,	6.428	0.262,
74	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
75	A	14.386	0.563,	15.664	0.297,	17.172	0.140,
76	C	15.913	0.186,	15.302	0.252,	13.700	0.562,
77	B	5.325	0.403,	5.143	0.441,	7.219	0.156,
78	C	14.829	0.395,	16.544	0.168,	14.629	0.437,
79	A	18.332	0.420,	18.481	0.390,	19.913	0.190,
80	B	8.701	0.337,	8.526	0.368,	8.970	0.295,
81	C	10.007	0.363,	10.716	0.254,	9.896	0.383,
82	A	35.178	0.716,	37.584	0.215,	39.839	0.070,
83	C	19.175	0.252,	20.883	0.107,	17.308	0.641,
84	A	5.471	0.423,	6.064	0.315,	6.428	0.262,
85	C	36.502	0.302,	36.929	0.244,	35.680	0.455,
86	C	12.144	0.357,	12.766	0.262,	12.013	0.381,
87	B	27.509	0.368,	26.904	0.498,	29.534	0.134,
88	B	27.876	0.104,	24.438	0.579,	25.642	0.317,
89	B	31.199	0.090,	27.637	0.537,	28.366	0.373,
90	A	10.570	0.662,	12.956	0.201,	13.716	0.137,
91	B	24.531	0.168,	22.319	0.507,	23.205	0.325,
92	A	26.340	0.374,	26.466	0.351,	26.951	0.275,
93	A	10.841	0.624,	13.102	0.201,	13.388	0.175,
94	B	26.136	0.161,	23.001	0.771,	27.862	0.068,
95	C	20.521	0.164,	20.668	0.153,	17.673	0.683,
96	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
97	A	8.905	0.431,	9.000	0.411,	10.910	0.158,
98	C	19.273	0.086,	18.151	0.150,	14.891	0.765,
99	B	8.204	0.287,	7.599	0.388,	7.949	0.326,
100	B	61.441	0.115,	57.684	0.751,	61.133	0.134,
101	B	50.833	0.163,	47.628	0.808,	54.301	0.029,
102	A	5.815	0.442,	6.013	0.401,	7.382	0.157,
103	B	18.238	0.304,	16.950	0.578,	20.123	0.118,
104	C	37.409	0.051,	34.165	0.259,	32.204	0.690,
105	A	18.254	0.577,	19.356	0.333,	21.959	0.090,
106	C	9.627	0.233,	9.051	0.311,	8.284	0.456,
107	C	34.670	0.097,	32.077	0.356,	31.219	0.547,
108	A	8.905	0.431,	9.000	0.411,	10.910	0.158,
109	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
110	C	7.697	0.252,	6.969	0.362,	6.843	0.386,
111	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
112	B	20.880	0.242,	18.789	0.689,	23.404	0.069,
113	A	8.941	0.497,	10.022	0.289,	10.628	0.214,
114	B	24.334	0.385,	23.949	0.472,	26.384	0.140,
115	B	13.794	0.351,	13.209	0.470,	15.132	0.180,
116	B	17.286	0.312,	16.729	0.412,	17.535	0.276,
117	B	27.028	0.244,	25.847	0.441,	26.524	0.314,
118	B	30.528	0.220,	29.003	0.471,	29.841	0.310,
119	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
120	B	41.633	0.063,	36.381	0.876,	41.716	0.061,
121	B	13.035	0.262,	11.656	0.522,	13.425	0.216,
122	A	39.150	0.544,	39.748	0.403,	43.798	0.053,
123	B	27.696	0.138,	25.081	0.509,	25.813	0.353,

124	C	37.574	0.112,	35.187	0.370,	34.513	0.518,
125	C	12.708	0.147,	11.241	0.306,	10.079	0.547,
126	C	7.697	0.252,	6.969	0.362,	6.843	0.386,
127	B	13.035	0.262,	11.655	0.522,	13.425	0.216,
128	A	13.965	0.465,	14.945	0.285,	15.202	0.250,
129	A	13.712	0.631,	15.478	0.261,	17.228	0.109,
130	C	35.374	0.214,	35.604	0.191,	33.328	0.595,
131	B	35.226	0.242,	33.394	0.605,	36.150	0.153,
132	A	31.633	0.529,	31.917	0.459,	39.290	0.012,
133	B	33.986	0.080,	30.119	0.553,	30.936	0.367,
134	C	20.777	0.266,	20.879	0.253,	19.598	0.480,
135	B	63.824	0.135,	60.439	0.733,	63.863	0.132,
136	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
137	C	30.699	0.053,	29.581	0.093,	25.143	0.854,
138	A	4.872	0.409,	4.946	0.394,	6.340	0.196,
139	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
140	A	4.872	0.409,	4.946	0.394,	6.340	0.196,
141	B	7.926	0.368,	7.225	0.522,	10.331	0.110,
142	A	15.483	0.434,	15.886	0.355,	16.929	0.211,
143	C	7.871	0.312,	8.165	0.269,	7.278	0.419,
144	B	26.944	0.131,	23.754	0.648,	25.908	0.221,
145	B	11.088	0.340,	10.476	0.462,	12.165	0.198,
146	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
147	B	20.200	0.348,	19.103	0.602,	24.073	0.050,
148	B	20.200	0.348,	19.103	0.602,	24.073	0.050,
149	B	29.220	0.311,	27.840	0.619,	32.182	0.071,
150	B	7.364	0.343,	6.539	0.518,	9.170	0.139,
151	A	9.059	0.652,	10.570	0.306,	14.560	0.042,
152	A	19.872	0.571,	20.637	0.390,	25.223	0.039,
153	B	27.414	0.300,	25.883	0.646,	30.866	0.053,
154	C	14.816	0.166,	13.535	0.316,	12.548	0.518,
155	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
156	A	11.896	0.597,	12.970	0.349,	16.689	0.054,
157	A	13.965	0.465,	14.945	0.285,	15.202	0.250,
158	B	20.547	0.233,	18.304	0.715,	23.560	0.052,
159	B	23.108	0.219,	20.741	0.715,	25.522	0.066,
160	B	20.547	0.233,	18.304	0.715,	23.560	0.052,
161	B	46.781	0.132,	46.223	0.472,	46.576	0.396,
162	B	28.440	0.192,	26.530	0.499,	27.483	0.310,
163	A	5.815	0.442,	6.013	0.401,	7.882	0.157,
164	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
165	A	12.728	0.547,	13.554	0.362,	16.323	0.091,
166	A	25.025	0.457,	25.092	0.442,	28.041	0.101,
167	B	10.845	0.309,	10.109	0.447,	11.323	0.244,
168	A	14.418	0.481,	14.469	0.469,	18.950	0.050,
169	C	28.828	0.223,	27.834	0.367,	27.613	0.410,
170	A	11.896	0.597,	12.970	0.349,	16.689	0.054,
171	B	17.757	0.297,	16.947	0.446,	18.046	0.257,
172	B	33.544	0.254,	31.714	0.633,	35.154	0.113,
173	A	9.527	0.391,	9.815	0.339,	10.267	0.270,
174	A	60.339	0.775,	64.016	0.123,	64.403	0.102,
175	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
176	A	78.644	0.455,	78.892	0.402,	80.945	0.144,
177	A	5.079	0.459,	5.145	0.444,	8.171	0.098,
178	C	15.090	0.139,	15.406	0.119,	11.744	0.742,
179	C	17.234	0.336,	18.421	0.186,	16.531	0.478,
180	C	27.565	0.293,	27.754	0.267,	26.751	0.440,
181	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
182	A	40.632	0.531,	41.408	0.360,	43.805	0.109,
183	B	26.944	0.131,	23.754	0.648,	25.908	0.221,

184	B	21.058	0.317,	19.866	0.576,	23.245	0.106,
185	A	11.346	0.650,	12.996	0.285,	15.929	0.066,
186	C	17.757	0.107,	16.406	0.211,	14.061	0.682,
187	A	9.669	0.367,	9.858	0.333,	10.069	0.300,
188	A	25.780	0.471,	26.102	0.401,	28.369	0.129,
189	B	20.200	0.348,	19.103	0.602,	24.073	0.050,
190	B	21.058	0.317,	19.866	0.576,	23.245	0.106,
191	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
192	C	54.512	0.116,	52.118	0.384,	51.592	0.500,
193	C	29.518	0.210,	29.458	0.216,	27.505	0.574,
194	B	5.325	0.403,	5.143	0.441,	7.219	0.156,

GROUP C

CASE		A		B		C	
1	C	40.903	0.045,	39.122	0.109,	35.026	0.846,
2	B	26.458	0.118,	23.143	0.616,	24.823	0.266,
3	C	37.435	0.053,	35.413	0.147,	32.026	0.800,
4	B	25.565	0.318,	25.151	0.391,	25.748	0.290,
5	C	102.203	0.180,	101.442	0.263,	99.946	0.556,
6	B	4.250	0.432,	4.192	0.444,	6.743	0.124,
7	C	33.908	0.137,	34.652	0.094,	30.451	0.769,
8	A	14.399	0.357,	14.486	0.342,	14.737	0.301,
9	C	12.651	0.396,	14.242	0.179,	12.504	0.426,
10	C	8.002	0.226,	8.048	0.221,	6.211	0.553,
11	C	17.381	0.266,	18.205	0.176,	15.894	0.559,
12	C	32.160	0.300,	33.160	0.182,	31.070	0.518,
13	C	10.185	0.309,	10.224	0.303,	9.726	0.388,
14	B	5.834	0.374,	5.783	0.384,	6.702	0.242,
15	B	8.701	0.337,	8.526	0.368,	8.970	0.295,
16	C	17.942	0.255,	19.525	0.115,	16.129	0.630,
17	A	7.747	0.409,	8.580	0.270,	8.235	0.321,
18	C	15.868	0.174,	16.307	0.140,	13.120	0.687,
19	C	7.871	0.312,	8.165	0.269,	7.278	0.419,
20	C	9.569	0.198,	8.670	0.280,	7.628	0.522,
21	B	8.525	0.398,	8.495	0.404,	9.930	0.197,
22	C	44.880	0.083,	46.464	0.037,	40.150	0.880,
23	C	28.828	0.223,	27.834	0.367,	27.613	0.410,
24	C	44.130	0.078,	43.360	0.115,	39.459	0.807,
25	C	17.045	0.419,	19.000	0.158,	17.030	0.423,
26	C	75.055	0.090,	75.331	0.078,	70.606	0.832,
27	C	30.729	0.074,	30.378	0.088,	25.861	0.839,
28	A	9.527	0.391,	9.815	0.339,	10.267	0.270,
29	A	13.077	0.560,	13.960	0.360,	16.974	0.080,
30	C	15.090	0.139,	15.406	0.119,	11.744	0.742,
31	C	46.733	0.059,	49.250	0.017,	41.236	0.924,
32	C	27.909	0.082,	26.320	0.181,	23.507	0.738,
33	C	10.924	0.187,	10.847	0.195,	8.534	0.618,
34	C	29.605	0.133,	27.807	0.328,	26.809	0.539,
35	C	35.943	0.217,	35.689	0.247,	34.139	0.536,
36	C	10.924	0.187,	10.847	0.195,	8.534	0.618,
37	B	5.834	0.374,	5.783	0.384,	6.702	0.242,
38	C	17.330	0.301,	17.254	0.313,	16.834	0.386,
39	C	20.521	0.261,	20.322	0.288,	19.426	0.451,
40	C	18.920	0.304,	20.752	0.122,	17.652	0.574,
41	C	15.052	0.131,	15.091	0.129,	11.595	0.740,
42	C	11.790	0.202,	12.077	0.175,	9.531	0.624,
43	C	19.175	0.252,	20.883	0.107,	17.308	0.641,
44	C	37.345	0.237,	36.665	0.334,	36.163	0.429,
45	C	32.058	0.079,	31.451	0.107,	27.393	0.814,

46	B	5.834	0.374,	5.783	0.384,	6.702	0.242,
47	C	15.423	0.340,	17.014	0.153,	14.623	0.507,
48	C	12.819	0.284,	12.761	0.292,	12.021	0.423,
49	B	27.876	0.104,	24.438	0.579,	25.642	0.317,
50	B	31.199	0.090,	27.637	0.537,	28.366	0.373,
51	B	5.834	0.374,	5.783	0.384,	6.702	0.242,
52	C	32.352	0.134,	30.986	0.264,	29.340	0.602,
53	C	12.469	0.164,	12.631	0.151,	9.610	0.685,
54	C	14.440	0.139,	13.596	0.212,	11.363	0.648,
55	A	16.962	0.356,	17.117	0.329,	17.210	0.315,
56	C	10.924	0.187,	10.847	0.195,	8.534	0.618,
57	B	27.509	0.368,	26.904	0.498,	29.534	0.134,
58	B	37.298	0.229,	35.892	0.463,	36.710	0.308,
59	A	5.471	0.423,	6.064	0.315,	6.428	0.262,
60	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
61	A	21.598	0.551,	23.298	0.235,	23.491	0.214,
62	A	15.001	0.561,	17.379	0.171,	16.480	0.268,
63	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
64	C	18.916	0.253,	19.641	0.176,	17.289	0.571,
65	A	2.872	0.463,	3.589	0.324,	4.427	0.213,
66	B	27.028	0.244,	25.847	0.441,	26.524	0.314,
67	C	15.868	0.174,	16.307	0.140,	13.120	0.687,
68	B	11.337	0.218,	9.966	0.433,	10.395	0.349,
69	C	32.705	0.192,	31.578	0.338,	30.919	0.470,
70	C	32.243	0.046,	31.921	0.054,	26.288	0.900,
71	A	13.280	0.503,	15.118	0.200,	14.331	0.297,
72	C	9.569	0.198,	8.870	0.280,	7.628	0.522,
73	A	3.388	0.535,	4.352	0.330,	6.142	0.135,
74	A	20.992	0.572,	22.749	0.237,	23.186	0.191,
75	C	27.628	0.096,	24.993	0.358,	24.153	0.546,
76	C	39.660	0.050,	38.024	0.113,	34.011	0.838,
77	B	35.411	0.220,	33.607	0.542,	35.247	0.239,
78	A	19.715	0.532,	20.626	0.337,	22.524	0.131,
79	B	8.204	0.287,	7.599	0.388,	7.949	0.326,
80	C	25.217	0.098,	24.651	0.129,	21.076	0.773,
81	C	58.285	0.021,	53.630	0.214,	51.081	0.765,
82	B	27.139	0.180,	24.715	0.605,	26.790	0.215,
83	C	19.735	0.315,	20.897	0.176,	18.773	0.509,
84	C	35.706	0.107,	36.326	0.079,	31.650	0.814,
85	C	10.794	0.240,	11.117	0.204,	9.114	0.556,
86	C	38.914	0.157,	38.794	0.167,	35.997	0.676,
87	C	39.981	0.085,	39.643	0.101,	35.465	0.814,
88	C	16.797	0.178,	15.542	0.334,	14.788	0.487,
89	C	12.498	0.175,	11.155	0.342,	10.468	0.483,
90	C	9.569	0.198,	8.870	0.280,	7.628	0.522,
91	A	9.527	0.391,	9.815	0.339,	10.267	0.270,
92	C	13.236	0.201,	12.624	0.273,	11.315	0.526,
93	C	52.932	0.070,	52.430	0.090,	47.957	0.840,
94	B	24.731	0.112,	21.203	0.651,	23.221	0.237,
95	A	8.905	0.431,	9.000	0.411,	10.910	0.158,
96	C	23.813	0.220,	22.772	0.369,	22.558	0.411,
97	B	18.112	0.234,	16.850	0.439,	17.435	0.328,
98	C	43.236	0.082,	39.848	0.445,	39.730	0.473,
99	C	43.331	0.267,	45.847	0.076,	41.527	0.657,
100	C	37.873	0.086,	35.086	0.347,	34.102	0.567,
101	C	48.708	0.250,	49.317	0.184,	47.068	0.566,
102	C	29.080	0.282,	30.501	0.138,	27.637	0.580,
103	C	7.871	0.312,	8.165	0.269,	7.278	0.419,
104	C	15.313	0.184,	14.956	0.220,	12.965	0.596,
105	A	5.079	0.459,	5.145	0.444,	8.171	0.098,

106	A	77.460	0.624,	80.215	0.157,	79.553	0.219,
107	A	16.076	0.482,	16.672	0.358,	18.274	0.161,
108	A	48.855	0.472,	49.846	0.287,	50.196	0.241,
109	A	10.951	0.406,	11.265	0.347,	11.950	0.247,
110	C	15.036	0.146,	14.452	0.196,	12.027	0.658,
111	C	33.798	0.034,	30.541	0.172,	27.481	0.794,
112	A	13.397	0.420,	14.253	0.274,	14.035	0.306,
113	B	26.599	0.168,	23.955	0.704,	27.709	0.108,
114	A	19.497	0.601,	21.137	0.265,	22.493	0.134,
115	C	27.954	0.179,	27.603	0.213,	25.501	0.609,
116	A	29.867	0.486,	31.300	0.237,	30.990	0.277,
117	C	8.002	0.226,	8.048	0.221,	6.211	0.553,
118	A	15.984	0.376,	16.197	0.338,	16.534	0.286,
119	A	18.812	0.402,	18.894	0.386,	20.095	0.212,
120	C	41.371	0.032,	37.476	0.223,	35.062	0.745,
121	C	14.816	0.166,	13.535	0.316,	12.548	0.518,

APPENDIX P

SQUARE OF THE DISTANCES

FROM GROUP MEAN AND POSTERIOR PROBABILITIES

FOR GROUP MEMBERSHIP

BASED ON DISCRIMINANT ANALYSIS

USING THIRTY-ONE SELECTED VARIABLES:

DEPENDENT VARIABLE--

INCISION CLASSIFICATION

(Thenar; Hypothenar)

Explanation:

Column one represents the case reference number.

Column two represents the group into which the case was classified.

Column three represents the square of the distance from the group mean for the first group.

Column four represents the probability that a case would be included in group one.

Column five represents the square of the distance from the group mean for the second group.

Column six represents the probability that a case would be included in group two.

It should be noted that the sum of the probabilities for inclusion into each group must equal one if the basic assumptions of an additive linear model have been met.

1	TI	154.060	0.966,	160.737	0.034,
2	TI	5.169	0.595,	5.941	0.405,
3	TI	3.099	0.680,	4.607	0.320,
4	TI	542.210	0.824,	545.301	0.176,
5	TI	6.613	0.745,	8.758	0.255,
6	HI	8.176	0.412,	7.469	0.588,
7	TI	7.646	0.532,	7.906	0.468,
8	TI	9.838	0.541,	10.166	0.459,
9	HI	8.176	0.412,	7.469	0.588,
10	HI	12.303	0.387,	11.382	0.613,
11	TI	5.712	0.504,	5.742	0.496,
12	TI	45.971	0.550,	46.375	0.450,
13	TI	4.162	0.716,	6.008	0.284,
14	TI	5.712	0.504,	5.742	0.496,
15	TI	5.712	0.504,	5.742	0.496,
16	TI	2.825	0.765,	5.184	0.235,
17	TI	6.445	0.656,	7.740	0.344,
18	TI	10.907	0.797,	13.641	0.203,
19	TI	12.264	0.820,	15.296	0.180,
20	TI	14.472	0.587,	15.175	0.413,
21	TI	33.026	0.661,	34.359	0.339,
22	HI	50.490	0.434,	49.955	0.566,
23	TI	9.838	0.541,	10.166	0.459,
24	HI	15.870	0.374,	14.838	0.626,
25	HI	14.658	0.486,	14.550	0.514,
26	TI	4.162	0.716,	6.008	0.284,
27	TI	2.825	0.765,	5.184	0.235,
28	TI	8.085	0.723,	10.006	0.277,
29	HI	156.446	0.371,	165.388	0.629,
30	HI	31.855	0.185,	28.892	0.815,
31	TI	5.017	0.692,	6.639	0.308,
32	TI	2.825	0.765,	5.184	0.235,
33	TI	45.089	0.836,	48.347	0.164,
34	TI	2.825	0.765,	5.184	0.235,
35	TI	2.825	0.765,	5.184	0.235,
36	TI	5.017	0.692,	6.639	0.308,
37	TI	8.085	0.723,	10.006	0.277,
38	TI	4.162	0.716,	6.008	0.284,
39	TI	8.224	0.569,	8.782	0.431,
40	TI	5.169	0.595,	5.941	0.405,
41	TI	5.712	0.504,	5.742	0.496,
42	HI	7.493	0.339,	6.160	0.661,
43	HI	5.151	0.399,	4.330	0.601,
44	HI	7.334	0.440,	6.851	0.560,
45	TI	5.017	0.692,	6.639	0.308,
46	TI	2.825	0.765,	5.184	0.235,
47	HI	7.493	0.339,	6.160	0.661,
48	HI	7.334	0.440,	6.851	0.560,
49	TI	2.825	0.765,	5.184	0.235,
50	TI	2.825	0.765,	5.184	0.235,
51	TI	7.646	0.532,	7.906	0.468,
52	TI	4.162	0.716,	6.008	0.284,
53	TI	32.104	0.833,	35.324	0.167,
54	TI	2.825	0.765,	5.184	0.235,

55	TI	23.061	0.642,	24.226	0.358,
56	HI	7.494	0.315,	5.936	0.685,
57	TI	49.683	0.782,	52.241	0.218,
58	TI	34.147	0.776,	36.630	0.224,
59	TI	6.445	0.656,	7.740	0.344,
60	TI	5.154	0.622,	6.151	0.378,
61	TI	5.712	0.504,	5.742	0.496,
62	TI	4.162	0.716,	6.008	0.284,
63	TI	5.154	0.622,	6.151	0.378,
64	TI	4.162	0.716,	6.008	0.284,
65	TI	5.017	0.692,	6.639	0.308,
66	TI	8.224	0.569,	8.782	0.431,
67	TI	5.169	0.595,	5.941	0.405,
68	TI	52.509	0.856,	56.075	0.144,
69	HI	25.534	0.489,	25.450	0.511,
70	TI	24.533	0.553,	24.960	0.447,
71	TI	5.154	0.622,	6.151	0.378,
72	TI	5.169	0.595,	5.941	0.405,
73	HI	9.131	0.374,	8.097	0.626,
74	TI	5.154	0.622,	6.151	0.378,
75	HI	28.755	0.332,	27.360	0.668,
76	HI	236.147	0.316,	234.605	0.684,
77	TI	6.613	0.745,	8.758	0.255,
78	HI	45.197	0.445,	44.751	0.555,
79	TI	2.825	0.765,	5.184	0.235,
80	TI	12.770	0.550,	13.174	0.450,
81	TI	6.613	0.745,	8.758	0.255,
82	TI	24.837	0.544,	25.190	0.456,
83	TI	23.061	0.642,	24.226	0.358,
84	TI	23.643	0.581,	24.295	0.419,
85	TI	5.169	0.595,	5.941	0.405,
86	TI	6.613	0.745,	8.758	0.255,
87	TI	6.445	0.656,	7.740	0.344,
88	TI	3.099	0.680,	4.607	0.320,
89	HI	74.865	0.213,	72.247	0.787,
90	TI	5.718	0.712,	7.525	0.288,
91	TI	11.277	0.719,	13.161	0.281,
92	TI	4.162	0.716,	6.008	0.284,
93	TI	5.154	0.622,	6.151	0.378,
94	TI	75.921	0.911,	80.561	0.089,
95	TI	5.718	0.712,	7.525	0.288,
96	TI	6.445	0.656,	7.740	0.344,
97	HI	14.617	0.435,	14.097	0.565,
98	TI	3.099	0.680,	4.607	0.320,
99	TI	12.468	0.697,	14.139	0.303,
100	TI	5.017	0.692,	6.639	0.308,
101	TI	44.214	0.536,	44.505	0.464,
102	TI	30.392	0.738,	32.462	0.262,
103	HI	47.773	0.052,	41.976	0.948,
104	TI	6.613	0.745,	8.758	0.255,
105	TI	158.728	0.865,	162.436	0.135,
106	HI	32.831	0.345,	31.550	0.655,
107	TI	4.162	0.716,	6.008	0.284,
108	HI	32.096	0.107,	27.859	0.893,
109	TI	5.154	0.622,	6.151	0.378,
110	TI	6.445	0.656,	7.740	0.344,
111	TI	5.712	0.504,	5.742	0.496,
112	TI	4.162	0.716,	6.008	0.284,
113	TI	5.718	0.712,	7.525	0.288,
114	TI	6.604	0.791,	9.262	0.209,

115	TI	5.154	0.622,	6.151	0.378,
116	TI	5.718	0.712,	7.525	0.288,
117	HI	32.225	0.153,	28.800	0.847,
118	TI	8.224	0.569,	8.782	0.431,
119	TI	8.085	0.723,	10.006	0.277,
120	TI	5.169	0.595,	5.941	0.405,
121	HI	23.035	0.207,	20.347	0.793,
122	HI	5.151	0.399,	4.330	0.601,
123	TI	7.077	0.631,	8.147	0.369,
124	TI	5.169	0.595,	5.941	0.405,
125	TI	5.017	0.692,	6.639	0.308,
126	HI	8.117	0.435,	7.595	0.565,
127	TI	5.154	0.622,	6.151	0.378,
128	TI	153.672	0.872,	157.507	0.128,
129	HI	67.542	0.457,	67.194	0.543,
130	TI	30.127	0.599,	30.930	0.401,
131	TI	29.097	0.626,	30.124	0.374,
132	TI	5.169	0.595,	5.941	0.405,
133	TI	3.099	0.680,	4.607	0.320,
134	TI	2.825	0.765,	5.184	0.235,
135	TI	2.825	0.765,	5.184	0.235,
136	HI	8.117	0.435,	7.595	0.565,
137	HI	5.151	0.399,	4.330	0.601,
138	TI	5.718	0.712,	7.525	0.288,
139	TI	8.224	0.569,	8.782	0.431,
140	HI	19.331	0.414,	18.634	0.586,
141	TI	2.825	0.765,	5.184	0.235,
142	TI	2.825	0.765,	5.184	0.235,
143	HI	71.712	0.369,	70.640	0.631,
144	TI	45.629	0.779,	48.150	0.221,
145	HI	5.151	0.399,	4.330	0.601,
146	TI	5.017	0.692,	6.639	0.308,
147	HI	71.195	0.147,	67.680	0.853,
148	TI	3.099	0.680,	4.607	0.320,
149	HI	5.151	0.399,	4.330	0.601,
150	HI	8.117	0.435,	7.595	0.565,
151	TI	11.474	0.749,	13.657	0.251,
152	TI	3.099	0.680,	4.607	0.320,
153	TI	28.249	0.683,	29.788	0.317,
154	TI	22.927	0.607,	23.792	0.393,
155	TI	45.728	0.820,	48.761	0.180,
156	TI	4.162	0.716,	6.008	0.284,
157	TI	2.825	0.765,	5.184	0.235,
158	TI	12.509	0.752,	14.731	0.248,
159	TI	3.099	0.680,	4.607	0.320,
160	TI	7.646	0.532,	7.906	0.468,
161	HI	8.117	0.435,	7.595	0.565,
162	TI	6.604	0.791,	9.262	0.209,
163	TI	6.613	0.745,	8.758	0.255,
164	TI	2.825	0.765,	5.184	0.235,
165	TI	3.099	0.680,	4.607	0.320,
166	TI	5.154	0.622,	6.151	0.378,
167	TI	5.017	0.692,	6.639	0.308,
168	TI	16.497	0.579,	17.132	0.421,
169	TI	5.169	0.595,	5.941	0.405,
170	TI	13.756	0.640,	14.903	0.360,
171	TI	13.756	0.640,	14.903	0.360,
172	TI	5.718	0.712,	7.525	0.288,
173	TI	5.154	0.622,	6.151	0.378,
174	HI	5.151	0.399,	4.330	0.601,

175	TI	22.927	0.607,	23.792	0.393,
176	TI	3.099	0.680,	4.607	0.320,
177	TI	3.099	0.680,	4.607	0.320,
178	TI	3.099	0.680,	4.607	0.320,
179	TI	5.169	0.595,	5.941	0.405,
180	TI	8.512	0.669,	9.920	0.331,
181	TI	7.077	0.631,	8.147	0.369,
182	TI	7.077	0.631,	8.147	0.369,
183	TI	5.712	0.504,	5.742	0.496,
184	TI	2.825	0.765,	5.184	0.235,
185	TI	4.162	0.716,	6.008	0.284,
186	TI	4.162	0.716,	6.008	0.284,
187	TI	2.825	0.765,	5.184	0.235,
188	TI	53.323	0.584,	54.004	0.416,
189	HI	40.676	0.172,	37.536	0.828,
190	HI	68.230	0.417,	67.556	0.583,
191	HI	78.763	0.145,	75.210	0.855,
192	HI	5.151	0.399,	4.330	0.601,
193	TI	6.613	0.745,	8.758	0.255,
194	TI	6.604	0.791,	9.262	0.209,
195	TI	8.224	0.569,	8.782	0.431,
196	TI	5.017	0.692,	6.639	0.308,
197	TI	106.410	0.797,	109.140	0.203,
198	TI	10.907	0.797,	13.641	0.203,
199	TI	25.110	0.516,	25.239	0.484,
200	TI	4.162	0.716,	6.008	0.284,
201	TI	12.468	0.697,	14.139	0.303,
202	HI	7.334	0.440,	6.851	0.560,
203	TI	6.774	0.635,	7.884	0.365,
204	TI	4.162	0.716,	6.008	0.284,
205	TI	2.825	0.765,	5.184	0.235,
206	HI	16.844	0.348,	15.587	0.652,
207	HI	32.985	0.202,	30.235	0.798,
208	TI	48.347	0.836,	51.608	0.164,
209	TI	49.033	0.942,	54.624	0.058,
210	TI	5.154	0.622,	6.151	0.378,
211	TI	3.099	0.680,	4.607	0.320,
212	TI	231.065	0.885,	235.150	0.115,
213	TI	15.529	0.678,	17.014	0.322,
214	HI	20.243	0.353,	19.034	0.647,
215	TI	2.825	0.765,	5.184	0.235,
216	TI	231.065	0.885,	235.150	0.115,
217	TI	5.718	0.712,	7.525	0.288,
218	HI	40.681	0.049,	34.751	0.951,
219	TI	3.099	0.680,	4.607	0.320,
220	TI	31.394	0.536,	31.685	0.464,
221	TI	54.792	0.878,	58.733	0.122,
222	TI	10.907	0.797,	13.641	0.203,
223	TI	50.157	0.888,	54.302	0.112,
224	TI	2.825	0.765,	5.184	0.235,
225	HI	33.667	0.167,	30.450	0.833,
226	HI	16.966	0.288,	15.158	0.712,
227	TI	5.169	0.595,	5.941	0.405,
228	TI	2.825	0.765,	5.184	0.235,
229	TI	2.825	0.765,	5.184	0.235,
230	TI	3.099	0.680,	4.607	0.320,
231	TI	3.099	0.680,	4.607	0.320,
232	TI	3.099	0.680,	4.607	0.320,
233	HI	5.151	0.399,	4.330	0.601,
234	TI	2.825	0.765,	5.184	0.235,

235	TI	2.825	0.765,	5.184	0.235,
236	TI	2.825	0.765,	5.184	0.235,
237	TI	2.825	0.765,	5.184	0.235,
238	TI	5.154	0.622,	6.151	0.378,
239	HI	8.117	0.435,	7.595	0.565,
240	TI	2.825	0.765,	5.184	0.235,
241	TI	2.825	0.765,	5.184	0.235,
242	TI	5.017	0.692,	6.639	0.308,
243	TI	10.907	0.797,	13.641	0.203,
244	TI	3.099	0.680,	4.607	0.320,
245	TI	8.224	0.569,	8.782	0.431,
246	TI	7.646	0.532,	7.906	0.468,
247	HI	14.914	0.382,	13.956	0.618,
248	HI	15.870	0.374,	14.838	0.626,
249	HI	14.617	0.435,	14.097	0.565,
250	TI	60.774	0.658,	62.086	0.342,
251	HI	5.151	0.399,	4.330	0.601,
252	TI	30.798	0.784,	33.380	0.216,
253	TI	30.798	0.784,	33.380	0.216,
254	HI	5.151	0.399,	4.330	0.601,
255	TI	8.085	0.723,	10.006	0.277,
256	HI	7.494	0.315,	5.936	0.685,
257	TI	5.017	0.692,	6.639	0.308,
258	HI	5.151	0.399,	4.330	0.601,
259	TI	3.099	0.680,	4.607	0.320,
260	HI	7.493	0.339,	6.160	0.661,
261	TI	4.162	0.716,	6.008	0.284,
262	HI	15.641	0.458,	15.308	0.542,
263	TI	4.162	0.716,	6.008	0.284,
264	TI	3.099	0.680,	4.607	0.320,
265	TI	30.392	0.738,	32.462	0.262,
266	TI	4.162	0.716,	6.008	0.284,
267	TI	2.825	0.765,	5.184	0.235,
268	HI	19.331	0.414,	18.634	0.586,
269	HI	16.966	0.288,	15.158	0.712,
270	TI	30.443	0.812,	33.363	0.188,
271	HI	5.151	0.399,	4.330	0.601,
272	HI	5.151	0.399,	4.330	0.601,
273	TI	381.986	0.920,	386.866	0.080,
274	TI	4.162	0.716,	6.008	0.284,
275	TI	5.718	0.712,	7.525	0.288,
276	HI	9.747	0.348,	8.489	0.652,
277	HI	8.117	0.435,	7.595	0.565,
278	HI	5.151	0.399,	4.330	0.601,
279	TI	12.538	0.779,	15.058	0.221,
280	HI	8.176	0.412,	7.469	0.588,
281	TI	4.162	0.716,	6.008	0.284,
282	HI	8.176	0.412,	7.469	0.588,
283	HI	33.667	0.167,	30.450	0.833,
284	TI	6.604	0.791,	9.262	0.209,
285	TI	6.445	0.656,	7.740	0.344,
286	TI	5.169	0.595,	5.941	0.405,
287	HI	5.151	0.399,	4.330	0.601,
288	TI	5.718	0.712,	7.525	0.288,
289	TI	7.077	0.631,	8.147	0.369,
290	TI	2.825	0.765,	5.184	0.235,
291	TI	5.154	0.622,	6.151	0.378,
292	HI	10.256	0.262,	8.185	0.738,
293	TI	12.468	0.697,	14.139	0.303,
294	HI	8.117	0.435,	7.595	0.565,

295	HI	15.641	0.458,	15.308	0.542,
296	HI	12.849	0.482,	12.702	0.518,
297	TI	5.017	0.692,	6.639	0.308,
298	HI	7.494	0.315,	5.936	0.685,
299	TI	5.169	0.595,	5.941	0.405,
300	HI	76.675	0.157,	73.310	0.843,
301	TI	13.756	0.640,	14.903	0.360,
302	TI	3.099	0.680,	4.607	0.320,
303	TI	5.712	0.504,	5.742	0.496,
304	TI	5.154	0.622,	6.151	0.378,
305	HI	31.142	0.366,	30.046	0.634,
306	TI	4.162	0.716,	6.008	0.284,
307	TI	11.474	0.749,	13.657	0.251,
308	TI	2.825	0.765,	5.184	0.235,
309	TI	5.154	0.622,	6.151	0.378,
310	HI	7.334	0.440,	6.851	0.560,
311	TI	4.162	0.716,	6.008	0.284,
312	TI	9.838	0.541,	10.166	0.459,
313	HI	18.806	0.157,	15.443	0.843,
314	TI	8.085	0.723,	10.006	0.277,
315	TI	2.825	0.765,	5.184	0.235,
316	HI	32.800	0.286,	30.967	0.714,
317	HI	7.334	0.440,	6.851	0.560,
318	TI	2.825	0.765,	5.184	0.235,
319	TI	2.825	0.765,	5.184	0.235,
320	HI	33.667	0.167,	30.450	0.833,
321	TI	8.224	0.569,	8.782	0.431,
322	TI	6.604	0.791,	9.262	0.209,
323	HI	16.216	0.312,	14.632	0.688,
324	HI	11.588	0.449,	11.180	0.551,
325	TI	3.099	0.680,	4.607	0.320,
326	TI	3.099	0.680,	4.607	0.320,
327	TI	2.825	0.765,	5.184	0.235,
328	TI	5.169	0.595,	5.941	0.405,
329	HI	21.295	0.078,	16.346	0.922,
330	TI	544.784	0.838,	548.072	0.162,
331	TI	52.995	0.566,	53.524	0.434,
332	TI	3.099	0.680,	4.607	0.320,
333	TI	83.825	0.980,	91.594	0.020,
334	HI	7.494	0.315,	5.936	0.685,
335	HI	5.151	0.399,	4.330	0.601,
336	TI	5.017	0.692,	6.639	0.308,
337	HI	5.151	0.399,	4.330	0.601,
338	HI	34.676	0.141,	31.065	0.859,
339	TI	3.099	0.680,	4.607	0.320,
340	TI	5.017	0.692,	6.639	0.308,
341	TI	13.756	0.640,	14.903	0.360,
342	HI	30.081	0.230,	27.667	0.770,
343	HI	5.151	0.399,	4.330	0.601,
344	HI	16.925	0.472,	16.704	0.528,
345	HI	5.151	0.399,	4.330	0.601,
346	TI	5.718	0.712,	7.525	0.288,
347	HI	42.031	0.113,	37.919	0.887,
348	TI	3.099	0.680,	4.607	0.320,
349	TI	6.774	0.635,	7.884	0.365,
350	TI	5.154	0.622,	6.151	0.378,
351	TI	5.017	0.692,	6.639	0.308,
352	HI	12.307	0.444,	11.860	0.556,
353	TI	5.169	0.595,	5.941	0.405,
354	TI	10.907	0.797,	13.641	0.203,

355	TI	3.099	0.680,	4.607	0.320,
356	TI	5.712	0.504,	5.742	0.496,
357	TI	6.613	0.745,	8.758	0.255,
358	HI	12.307	0.444,	11.860	0.556,
359	TI	3.099	0.680,	4.607	0.320,
360	HI	12.849	0.482,	12.702	0.518,
361	TI	5.718	0.712,	7.525	0.288,
362	HI	7.334	0.440,	6.851	0.560,
363	TI	2.825	0.765,	5.184	0.235,
364	TI	11.474	0.749,	13.657	0.251,
365	TI	14.844	0.709,	16.628	0.291,
366	HI	9.131	0.374,	8.097	0.626,
367	HI	38.105	0.400,	37.297	0.600,
368	TI	5.154	0.622,	6.151	0.378,
369	HI	14.422	0.335,	13.052	0.665,
370	HI	11.180	0.292,	9.409	0.708,
371	TI	2.825	0.765,	5.184	0.235,
372	TI	6.613	0.745,	8.758	0.255,
373	TI	2.825	0.765,	5.184	0.235,
374	HI	8.176	0.412,	7.469	0.588,
375	TI	4.162	0.716,	6.008	0.284,
376	TI	7.646	0.532,	7.906	0.468,
377	TI	6.774	0.635,	7.884	0.365,
378	TI	5.169	0.595,	5.941	0.405,
379	HI	5.151	0.399,	4.330	0.601,
380	TI	43.800	0.719,	45.684	0.281,
381	TI	8.512	0.669,	9.920	0.331,
382	TI	3.099	0.680,	4.607	0.320,
383	TI	6.445	0.656,	7.740	0.344,
384	TI	7.077	0.631,	8.147	0.369,
385	TI	5.169	0.595,	5.941	0.405,
386	TI	12.770	0.550,	13.174	0.450,
387	HI	12.849	0.482,	12.702	0.518,
388	TI	3.099	0.680,	4.607	0.320,
389	TI	3.099	0.680,	4.607	0.320,
390	HI	27.920	0.302,	26.243	0.698,
391	HI	11.180	0.292,	9.409	0.708,
392	TI	15.032	0.524,	15.223	0.476,
393	TI	3.099	0.680,	4.607	0.320,
394	HI	20.467	0.180,	17.441	0.820,
395	HI	7.494	0.315,	5.936	0.685,
396	TI	6.445	0.656,	7.740	0.344,
397	TI	4.162	0.716,	6.008	0.284,
398	TI	57.313	0.562,	57.813	0.438,
399	TI	6.445	0.656,	7.740	0.344,
400	TI	3.099	0.680,	4.607	0.320,
401	TI	5.712	0.504,	5.742	0.496,
402	TI	2.825	0.765,	5.184	0.235,
403	TI	4.162	0.716,	6.008	0.284,
404	HI	7.334	0.440,	6.851	0.560,
405	TI	4.162	0.716,	6.008	0.284,
406	TI	34.558	0.866,	38.289	0.134,
407	HI	11.588	0.449,	11.180	0.551,
408	TI	5.017	0.692,	6.639	0.308,
409	HI	19.920	0.218,	17.369	0.782,
410	TI	6.604	0.791,	9.262	0.209,
411	TI	5.154	0.622,	6.151	0.378,
412	TI	5.169	0.595,	5.941	0.405,
413	HI	31.127	0.256,	28.996	0.744,
414	TI	6.613	0.745,	8.758	0.255,

415	TI	58.126	0.865,	61.843	0.135,
416	HI	46.030	0.472,	45.809	0.528,
417	TI	2.825	0.765,	5.184	0.235,
418	TI	6.774	0.635,	7.884	0.365,
419	HI	17.265	0.194,	14.415	0.806,
420	TI	5.712	0.504,	5.742	0.496,
421	TI	8.224	0.569,	8.782	0.431,
422	TI	2.825	0.765,	5.184	0.235,
423	TI	2.825	0.765,	5.184	0.235,
424	HI	32.621	0.339,	31.281	0.661,
425	TI	52.509	0.856,	56.075	0.144,
426	TI	4.162	0.716,	6.008	0.284,
427	TI	6.613	0.745,	8.758	0.255,
428	TI	11.474	0.749,	13.657	0.251,
429	TI	6.774	0.635,	7.884	0.365,
430	HI	10.218	0.352,	8.998	0.648,
431	TI	381.991	0.920,	386.870	0.080,
432	TI	6.604	0.791,	9.262	0.209,
433	TI	3.099	0.680,	4.607	0.320,
434	TI	2.825	0.765,	5.184	0.235,
435	TI	6.613	0.745,	8.758	0.255,
436	TI	2.825	0.765,	5.184	0.235,
437	TI	2.825	0.765,	5.184	0.235,
438	HI	20.702	0.482,	20.557	0.518,
439	HI	7.494	0.315,	5.936	0.685,
440	TI	5.154	0.622,	6.151	0.378,
441	HI	40.490	0.409,	39.755	0.591,
442	TI	77.594	0.538,	77.895	0.462,
443	HI	33.667	0.167,	30.450	0.833,
444	HI	16.844	0.348,	15.587	0.652,
445	HI	12.849	0.482,	12.702	0.518,
446	HI	5.151	0.399,	4.330	0.601,
447	TI	30.798	0.784,	33.380	0.216,

GROUP HI CASE		TI		HI	
1	HI	5.151	0.399,	4.330	0.601,
2	HI	20.467	0.180,	17.441	0.820,
3	HI	24.133	0.183,	21.145	0.817,
4	HI	8.117	0.435,	7.595	0.565,
5	HI	11.588	0.449,	11.180	0.551,
6	HI	33.667	0.167,	30.450	0.833,
7	HI	33.667	0.167,	30.450	0.833,
8	TI	6.774	0.635,	7.884	0.365,
9	TI	23.643	0.581,	24.295	0.419,
10	HI	22.846	0.320,	21.338	0.680,
11	HI	74.350	0.154,	70.948	0.846,
12	HI	10.256	0.262,	8.185	0.738,
13	HI	33.380	0.158,	30.030	0.842,
14	HI	15.056	0.356,	13.672	0.644,
15	TI	2.825	0.765,	5.184	0.235,
16	TI	3.099	0.680,	4.607	0.320,
17	TI	5.712	0.504,	5.742	0.496,
18	TI	2.825	0.765,	5.184	0.235,
19	TI	4.162	0.716,	6.008	0.284,
20	TI	2.825	0.765,	5.184	0.235,
21	TI	22.927	0.607,	23.792	0.393,
22	HI	39.762	0.111,	35.595	0.889,
23	HI	20.606	0.378,	19.610	0.622,

24	TI	8.512	0.669,	9.920	0.331,
25	HI	8.117	0.435,	7.595	0.565,
26	HI	33.182	0.117,	29.137	0.883,
27	HI	65.737	0.389,	64.836	0.611,
28	HI	236.308	0.068,	231.074	0.932,
29	HI	7.493	0.339,	6.160	0.661,
30	TI	5.712	0.504,	5.742	0.496,
31	HI	5.151	0.399,	4.330	0.601,
32	HI	5.151	0.399,	4.330	0.601,
33	HI	33.667	0.167,	30.450	0.833,
34	HI	33.667	0.167,	30.450	0.833,
35	TI	5.154	0.622,	6.151	0.378,
36	TI	2.825	0.765,	5.184	0.235,
37	TI	5.712	0.504,	5.742	0.496,
38	HI	9.131	0.374,	8.097	0.626,
39	HI	10.218	0.352,	8.998	0.648,
40	TI	2.825	0.765,	5.184	0.235,
41	HI	7.493	0.339,	6.160	0.661,
42	HI	36.429	0.115,	32.343	0.885,
43	TI	2.825	0.765,	5.184	0.235,
44	TI	45.370	0.566,	45.898	0.434,
45	TI	14.844	0.709,	16.628	0.291,
46	HI	10.218	0.352,	8.998	0.648,
47	HI	30.937	0.227,	28.486	0.773,
48	TI	5.169	0.595,	5.941	0.405,
49	TI	10.907	0.797,	13.641	0.203,
50	TI	5.154	0.622,	6.151	0.378,
51	HI	33.380	0.158,	30.030	0.842,
52	TI	8.085	0.723,	10.006	0.277,
53	HI	16.586	0.332,	15.189	0.668,
54	HI	7.494	0.315,	5.936	0.685,
55	HI	68.230	0.417,	67.556	0.583,
56	HI	7.493	0.339,	6.160	0.661,
57	TI	5.718	0.712,	7.525	0.288,
58	HI	18.030	0.239,	15.709	0.761,
59	TI	5.718	0.712,	7.525	0.288,
60	HI	5.151	0.399,	4.330	0.601,
61	TI	6.445	0.656,	7.740	0.344,
62	HI	52.544	0.441,	52.072	0.559,
63	HI	19.398	0.112,	15.260	0.888,
64	HI	18.519	0.292,	16.750	0.708,
65	HI	16.966	0.288,	15.158	0.712,
66	TI	3.099	0.680,	4.607	0.320,
67	HI	16.529	0.259,	14.422	0.741,
68	HI	7.334	0.440,	6.851	0.560,
69	TI	5.169	0.595,	5.941	0.405,
70	TI	12.538	0.779,	15.058	0.221,
71	HI	15.870	0.374,	14.838	0.626,
72	HI	31.912	0.192,	29.038	0.808,
73	HI	42.475	0.028,	35.360	0.972,
74	HI	57.709	0.054,	51.965	0.946,
75	HI	19.398	0.112,	15.260	0.888,
76	HI	8.117	0.435,	7.595	0.565,
77	HI	10.256	0.262,	8.185	0.738,
78	TI	5.169	0.595,	5.941	0.405,
79	HI	20.749	0.089,	16.099	0.911,
80	TI	5.718	0.712,	7.525	0.288,
81	TI	7.077	0.631,	8.147	0.369,
82	HI	28.768	0.271,	26.791	0.729,
83	HI	7.334	0.440,	6.851	0.560,

84	HI	16.238	0.136,	12.537	0.864,
85	TI	5.718	0.712,	7.525	0.288,
86	TI	5.712	0.504,	5.742	0.496,
87	HI	7.494	0.315,	5.936	0.685,
88	TI	3.099	0.680,	4.607	0.320,
89	HI	7.494	0.315,	5.936	0.685,
90	HI	68.230	0.417,	67.556	0.583,
91	HI	9.131	0.374,	8.097	0.626,
92	HI	34.880	0.351,	33.647	0.649,
93	HI	36.283	0.122,	32.329	0.878,
94	HI	16.238	0.136,	12.537	0.864,
95	TI	5.017	0.692,	6.639	0.308,
96	TI	5.017	0.692,	6.639	0.308,
97	TI	7.077	0.631,	8.147	0.369,
98	HI	32.096	0.107,	27.859	0.893,
99	TI	5.154	0.622,	6.151	0.378,
100	HI	28.755	0.332,	27.360	0.668,
101	HI	35.805	0.440,	35.320	0.560,

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