Research Note 83-47

INITIAL DEVELOPMENT OF THE ARMY RESEARCH INSTITUTE INTEREST SURVEY (ARIIS)

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U. S. Army

Research Institute for the Behavioral and Social Sciences

December 1983

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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Research Note 83-47	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) INITIAL DEVELOPMENT OF THE ARMY RESEARCH INSTITUTE INTEREST SURVEY (ARIIS)		5. TYPE OF REPORT & PERIOD COVERED Final 9/1/79--12/31/81 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) John G. Claudy, John S. Caylor, Richard A. Kass		8. CONTRACT OR GRANT NUMBER(s) MDA 903-79-C-0636
9. PERFORMING ORGANIZATION NAME AND ADDRESS American Institutes for Research P.O. Box 113 Palo Alto, CA 94302		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 63731A 2Q263731A792 3103-51B
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Research Institute for the Behavioral and Social Sciences 5001 Eisenhower Ave., Alexandria, VA 22333		12. REPORT DATE December 83 13. NUMBER OF PAGES 126
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

Technical review performed by Clinton B. Walker, Laurel W. Oliver, and Jack M. Hicks.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

vocational interest	measures
occupational interest	predictors
classification	non-cognitive measures
tests	Kuder

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report describes the development of a comprehensive, non-cognitive measure of vocational interests for possible use as an additional aid in making AIT and MOS classification decisions for Army enlistees. After considering several approaches to measuring interests, the forced choice, triad presentation format was selected. This is the same approach used in the Kuder Occupational Interest Survey, Form DD. Following this model, the project staff developed, tried out, and revised a total of 225 interest triads. → over

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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. The revised triads were then administered to more than 500 troops in five MOS clusters who were serving with a brigade-level-size infantry unit. Based on data from these troops, a final set of 100 triads was selected for inclusion in the ARIIS. Using this final set of 100 triads, certain analyses were undertaken to obtain preliminary validity data and to study the feasibility of administering the ARIIS via computer. Based on this research, it appears feasible to administer the ARIIS by paper-and-pencil or computer, and it appears that the ARIIS has the potential to make a significant contribution to classification and assignment decisions for Army enlistees.

INITIAL DEVELOPMENT OF THE ARMY RESEARCH INSTITUTE INTEREST SURVEY (ARIIS)

BRIEF

Requirement:

To develop a comprehensive and differentiating measure of non-cognitive vocational interests to assist in classification and assignment decisions for Army enlistees.

Procedure:

The format selected for the ARIIS was the forced choice, triad presentation mode. Two hundred twenty-five interest triads were written and edited by the project staff, administered to small groups of high school students judged to be typical of Army enlistees, and revised as necessary. The revised triads were administered to troops in five MOS clusters who were serving with a brigade-level-size infantry unit. Based on these results, a final set of 100 triads was selected for inclusion in the ARIIS. Using the final set of 100 triads, certain preliminary analyses were carried out and the feasibility of administering the ARIIS via computer was investigated.

Findings:

Based on the preliminary studies, it appears that it will be feasible to administer the ARIIS as a paper-and-pencil test or via a computer terminal, and it appears that the ARIIS has the potential to make a significant contribution to classification and assignment decisions for Army enlistees. A set of recommendations regarding the ARIIS is included.

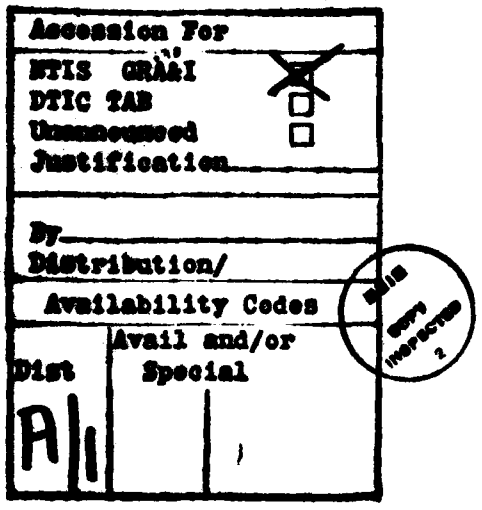
Utilization of Findings:

Upon development of operational scoring keys for Army MOS, the ARIIS could be used in conjunction with the current ASVAB as a part of the recruiting and/or counseling process that leads to the assignment of an enlistee to an AIT school and eventually to an MOS.

ABSTRACT

INITIAL DEVELOPMENT OF THE ARMY RESEARCH INSTITUTE INTEREST SURVEY (ARIIS)

This report describes the development of a comprehensive, non-cognitive measure of vocational interests for possible use as an additional aid in making AIT and MOS classification decisions for Army enlistees. After consideration of several approaches to the measurement of interests, the forced choice, triad presentation format was selected. This is the same approach used in the Kuder Occupational Interest Survey, Form DD. Following this model, the project staff developed, tried out, and revised a total of 225 interest triads. The revised triads were then administered to more than 500 troops in five MOS clusters who were serving with a brigade-level-size infantry unit. Based on results obtained with these troops, a final set of 100 triads was selected for inclusion in the ARIIS. Using this final set of 100 triads, certain analyses were undertaken to obtain preliminary validity data and to study the feasibility of administering the ARIIS via computer. Based on these preliminary studies, it appears that it will be feasible to administer the ARIIS as a paper-and-pencil test or via a computer, and that the ARIIS has the potential to make a significant contribution to classification and assignment decisions for Army enlistees. A set of recommendations regarding ARIIS is provided.



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CHAPTER 1

Introduction

Brief Background

Measures of vocational interests have for many years been recognized as important in predicting success in military training and work, and several different types of such instruments have been employed in military settings (for example, the Army Classification Inventory (ACI) and the Air Force VOICE). As tests of vocational aptitude have become increasingly refined, the potential net contribution of non-cognitive measures to efficient, effective prediction of training and job success has grown larger.

As presently constituted, the Armed Services Vocational Aptitude Battery (ASVAB), used by the Army for Military Occupational Specialty (MOS) assignment decisions, does not contain any non-cognitive vocational scales. However, until recently four such scales were included: Maintenance Scale, Electronics Scale, Attentiveness Scale, and Ground Combat Scale. The U. S. Army Research Institute for the Behavioral and Social Sciences (ARI) has supported this project to develop a more comprehensive and differentiating measure of non-cognitive vocational interests, called the Army Research Institute Interest Survey (ARIIS), to assist in classification and assignment decisions.

Requirements for a New Test

The research reported here was undertaken to permit more specific measurement of vocational interests for a greater number of job areas. The object of the research was to develop and partially validate the ARIIS to meet the following requirements:

1. All items are to be appropriate in content and language to the knowledge and experience of first-tour applicants to the Army.

2. The set of items must cover the full range of vocational interests most applicable to Army jobs - with emphasis on high density Army MOS clusters such as armor, clerical, infantry, and mechanical.

3. The interest survey must provide an independent, numeric score on vocational interest for each MOS for which a scoring key is developed.

4. The interest survey must permit the development of additional vocational area/MOS keys, as may be needed, without any change in the survey form itself and without further conceptual analysis of the new MOS.

5. The interest survey must permit the development of separate scoring keys for males and females for each MOS without any change in the survey form itself.

6. All items must be objective in format, with responses chosen from fixed alternatives on a single, machine-scoreable answer sheet.

7. The test should require no more than one hour to administer.

CHAPTER 2

Model Selection and Item Development

Model

The initial activity undertaken by the project staff was a comparison and evaluation of various approaches to measuring vocational interests. Instruments designed to measure vocational interests can be classified according to several different dimensions, each of which represents an issue related to the design and development of the instrument. Among the dimensions are:

How the items in the instrument were selected:
- A. Empirical keying
- B. Homogeneous keying
- C. Logical keying

How many scales a single item contributes to:
- A. One scale
- B. Several scales
- C. All scales

How the items are presented to the examinee:
- A. One item at a time
- B. Pairs of items
- C. Triads of items

What sort of choice the examinee is to make:
- A. Degree of liking of the item
- B. Forced choice between items

Type of scoring weights used:
- A. Zero-one weights
- B. Multiple whole number weights
- C. Fractional weights

Suitable for hand scoring:
- A. Yes
- B. No

Type of scores reported:
- A. Broad interest area profiles
- B. Scores on specific occupations

These dimensions are not mutually exclusive, and there are other dimensions along which interest measurement instruments could be classified; however, once the target population for the instrument has been defined, these are the major issues to be addressed. Within these dimensions several interrelationships exist. For example, if the instrument

is designed for easy hand scoring, then usually zero-one scoring weights are used, each item contributes to only one or at most a few scales, and scores are usually reported for broad interest areas rather than for specific occupations. On the other hand, if scores on a number of specific occupations are to be reported, then individual items usually contribute to several scales and computer scoring is used. When scores are reported on specific occupation scales, empirical keying of items is usually employed; but when scores are reported on scales for broad interest areas, homogeneous or logical keying is employed. In addition, two of the dimensions are so closely tied together as to represent, in effect, a single issue. If items are presented one at a time, then the examinee virtually always responds by indicating a degree of liking of the item. If the items are presented in pairs or triads, then the examinee responds by making some sort of forced choice between items.

Two of these issues were settled in the initial requirements for the new survey instrument: scores would be reported for specific occupations and hand scoring would not be required. This in effect also specified that empirical keying would be used and that items would contribute to several or all of the scales. This left only the issues of single vs. multiple item presentation and the types of scoring weights to be used.

The single item presentation approach is best exemplified by the Strong-Campbell Interest Inventory which presents one item at a time and asks the examinee to respond to each item by marking like, dislike or indifferent. The multiple item presentation, forced choice approach is best represented by the Kuder Occupational Interest Survey, Form DD, which presents items in triads and asks the examinee to respond by marking the most liked and the least liked of the items (options). In scoring the Strong-Campbell, each item has a scoring weight of +1, 0, or -1 for each scale. The Kuder, Form DD uses a more complex scoring procedure based on fractional weights. Either approach is equally suitable for computer scoring. Thus the selection of an approach to use for the ARIIS was essentially a choice between single item presentation and forced choice presentation.

After comparative study of the various approaches to conceptualizing and measuring vocational interests, it was decided that the requirements for the Army Research Institue Interest Survey (ARIIS) would best be met by developing the survey form in accordance with the recent work of Frederic Kuder (1977), as exemplified in the Kuder Occupational Interest Survey, Form DD (Kuder & Diamond, 1979) - that is, a forced choice, triad format.

Following this model, the basic element in the interest survey form is a brief statement of an activity such as "repair a light socket" or "take care of farm animals." Such statements are presented in sets of three, called triads. For each triad, the respondent chooses the one activity in the triad that he/she would MOST like to do and the one activity in the triad that he/she would LEAST like to do.

The data necessary to develop an empirical key for virtually any job (MOS) can be obtained by administering the interest survey to experienced, satisfied incumbents in the job. Scoring weights are established by assigning to each statement in the triad the proportion of job incumbents who most liked that statement, and similarly, the proportion of job incumbents who marked the statement least liked. An individual's scores on such an interest survey can be obtained by comparing that individual's pattern of responses on the triads with the pattern of responses of the job incumbents. The measure of similarity between the responses of job incumbents in any particular MOS and the examinee's responses is the Clemans' Lambda Coefficient (Clemans, 1958). The calculation and characteristics of the Clemans' Lambda Coefficient will be discussed in Chapter 4. At this point it is sufficient to note that Lambdas range from -1.00 to +1.00 with positive scores indicating a positive relationship, zero scores indicating an absence of similarity or a random relationship, and negative scores indicating a negative relationship between the respondent's preferences, as indicated by responses to the interest survey triads, and those of the job incumbents.

The major advantages of this model are:

1. Only limited, relative judgments are required when alternatives are presented in triads as opposed to the repetitive judgment of all alternatives on an absolute scale.

2. It is comprehensive and efficient in testing, in that all alternatives are used on all scoring keys.

3. It is easy to develop empirical keys for any other job or MOS without changing the survey form.

4. It provides a numerical index of occupational interest for each job area, which facilitates comparing different jobs for an individual as well as different individuals for a job.

Developing an Item Pool

There were two primary considerations in the initial drafting of items for the ARIIS:

1. Items should incorporate choices or preferences that, on a judgmental/conceptual basis, would most clearly differentiate among satisfied and dissatisfied individuals in the major, high density Army MOS clusters.

2. Items should be appropriate in both content and language to the Army applicant population.

Study of the occupational/vocational interest literature yielded several sets of vocational interest dimensions or factors which in part served

as an initial guide in selecting item content. Among the categorization approaches reviewed were the People-Things-Data dimensions, Holland's Occupational Types, Kuder's original broad interest areas, and Strong's specific occupation scales. The decision to present options in the triad format required that each triad be composed of alternatives which, if chosen or rejected, might indicate a different occupational preference or interest.

Based on these general considerations, the project staff developed the following rules to guide the writing of triads:

Rules for Writing Triads

1. None of the choices should be the names of occupations or professions.

2. All choices should start with an active verb if possible rather than the verb "to be."

3. All choices should be activities a 17 to 20 year old has probably done or has some realistic understanding of.

4. All options in a triad should be equally socially attractive.

5. The activities contained in the options for any given triad should require about the same amount of time to carry out when they are actually done.

6. Some triads may include the same verb with three different objects or modifiers.

7. Some triads may include the same object or modifier with three different verbs.

8. Options should not by their nature exclude females.

9. Options should be stated in straightforward words and language.

10. Options should be as short as possible.

11. Across triads, options should cover a wide range of behavior and preferences.

Developmental Tryout

Using these guidelines, project staff members (Dr. Claudy and Dr. Caylor) independently drafted and jointly examined an initial pool of triads. After revision, editing, and elimination of duplicate and nearly duplicate triads, the remaining 225 triads were divided into three sets of 75 triads each. Each set, along with instructions and a disclaimer stating that participation was voluntary and that results would not be reported to school officials, constituted one of the three developmental tryout forms of the interest survey.

In April of 1980 these three developmental tryout forms were administered to 16 students in vocational classes in a public high school. Six students took Tryout Form I, five took Tryout Form II, and five took Tryout Form III. Testing times ranged from 7 to 20 minutes with a median of 15 minutes. The participants reported having no trouble understanding the directions or marking the options. All triads on all forms were properly marked and none were omitted.

Based on this limited tryout with high school students, the 225 triads were reviewed and 88 (39 percent) of the triads were revised. The principal revision was to make highly "most preferred" options less attractive and highly "least preferred" options more attractive. This was done in the interest of increasing the potential discrimation power of the triad. All 225 triads were then combined into a single pool for later use.

CHAPTER 3

Data Collection and Triad Selection

Data Collection Booklet

In March of 1981, the project director spent six days at an overseas Army base where he worked with a team from ARI collecting data from troops from a brigade-level-size unit. In preparation for this field work, the project staff developed a 19-page data collection booklet entitled "U. S. Army Experimental Classification Inventory." In addition to the 225 interest triads developed as a part of this contract, the data collection booklet contained two sections of questions provided by ARI. The first of these was called the Job Performance Self-Report and contained 12 items related to the soldier's reasons for joining the Army and the soldier's perception of his/her job (MOS). These items were included because it was felt that they related to the dimension of job satisfaction and thus, during the data analysis phase of the project, a job satisfaction measure could be developed from them. The second ARI-provided set of questions was called the Job History and Status Report and contained 33 questions about the soldier's personal characteristics, job history, education, training, and physical fitness. This second set of questions was included to provide ARI with data for an in-house investigation of potential Army-wide performance measures. Therefore, it has no direct relevance to the interest survey development effort. The complete data collection booklet is included as Appendix A of this report.

Project Participants

Data were collected from a total of 527 enlisted personnel, representing 29 separate units within the brigade-level-size unit. These individuals' self-reported MOS are presented in Table 1.

Table 1

Number of Individuals by MOS

MOS	Males	Females	?	Total
11B	266	0	5	271
11C	12	0	0	12
11H	2	0	0	2
36K	1	0	0	1
63B	37	0	1	38
64C	45	0	2	47
71G	1	0	0	1
75B	0	1	0	1
91B	17	9	0	26
91C	1	1	0	2
91E	1	0	0	1
91G	0	1	0	1
94B	1	0	0	1
95B	100	17	2	119
95C	2	0	0	2
?	2	0	0	2
Total	488	29	10	527

The sex distribution of the participants is presented in Table 2.

Table 2

Sex Distribution of Participants

Sex	Number	Percent of Total
Females	29	5.50%
Males	488	92.60%
Sex not reported	10	1.90%
Total	527	100.00%

The race/ethnic background of the participants is presented in Table 3.

Table 3

Race/Ethnic Backgrounds of Participants

Race/Ethnic Background	Number	Percent of Total
American Indian or Alaskan Native	19	3.60%
Asian or Pacific Islander	2	.38%
Black, not of Hispanic Origin	169	32.07%
Hispanic	76	14.42%
White, not of Hispanic Origin	221	41.94%
Not Hispanic in Puerto Rico	11	2.09%
Other	24	4.55%
Question omitted	5	.95%
Total	527	100.00%

Finally, the current pay grade distribution of the participants is presented in Table 4.

Table 4

Current Pay Grade Distribution of Participants

Pay Grade	Number	Percent of Total
E1	14	2.66%
E2	136	25.81%
E3	106	20.11%
E4	266	50.47%
E5 or higher	4	.76%
Not given	1	.19%
Total	527	100.00%

Preparing the Data for Analysis

After they were returned from overseas, the data collection booklets were hand checked, edited, and coded by project personnel. This extensive checking and coding step was necessary to insure that the final data would be accurate and of maximum use. Activities during this step included: block printing of the participant's name and social security number on the booklet to facilitate data entry (and where necessary because of poor handwriting, looking these items up in computer lists supplied by the infantry unit); adding a numeric unit code to each booklet; adding a unique, sequential ID number to each booklet; and checking to make certain item responses were clear and unambiguous. Upon completion of the checking and coding step, the data collection booklets were sent to a data entry service for direct keytaping.

A computer program was written to check the completed data tape for out-of-range and inconsistent codes. Such problems were listed on a printout and were checked against the original data collection booklets to determine what the actual item response had been and to determine if any corrections were possible or necessary. Of the 122 problems identified by the edit program, the majority (112) were due to improper answering of the questions by the respondents. Typically this involved the respondent marking the same interest survey option as both the most and least liked option, or marking either a most or a least liked option, but not one of each. In such cases, the individual's response to that particular triad was omitted from the analyses, but his or her responses to the other triads were included. Only ten problems were encountered that could be attributed to keystroke errors on the part of the data entry service operators, and these were corrected prior to the analyses. Since each of the 527 interest inventories required 450 keystrokes, the keytape operator error rate was quite low.

In addition to the 112 improperly marked triads (out of a total of 527 X 225, or 118,575, triads), an additional 2,647 triads were not marked at all by the respondents. This represents an overall missing data rate of 2.33%, or an average of five triads omitted by each respondent. However, not all respondents omitted triads. In fact, the modal number of triads omitted by a respondent was zero. Thus the vast majority of the omits were by a small proportion of the respondents, several of whom omitted a large number of triads.

A second way to examine the missing data is to determine the omit rates for the individual triads. Across the entire set of 225 triads this ranged from a low of two respondents omitting the triad to a high of 26 respondents omitting the triad. An average of 12.26 persons (or 2.33% of the total group) omitted each triad. As would be expected, the number of respondents omitting a triad increased from the beginning to the end of the interest survey. For the first 25 triads of the survey an average of 5.72 respondents omitted each triad, but for the last 25 triads the average omit frequency was 18.72 respondents, a slightly more than threefold increase. Clearly fatigue, lack of interest, or some similar factor increased during the testing session.

After completing the error checking and correction effort, the entire tape file was converted to a SAS (Statistical Analysis System) data set to facilitate subsequent analyses. The initial analysis of the data consisted of a simple frequency count by variable to provide an overall picture of the results. The demographic characteristics of the sample reported previously were based on this analysis.

For the analyses, individuals in MOS 11C and 11H were combined with individuals in MOS 11B; individuals in MOS 91C, 91E and 91G were combined with individuals in MOS 91B; individuals in MOS 95C were combined with individuals in MOS 95B; and individuals in MOS 36K, 71G, 75B, 94B and those whose MOS was unknown were dropped. Thus, of the 527 individuals tested, data for 6 (1.14 percent) were dropped.

Developing a Job Satisfaction Index

The plan for the analyses of the interest survey data specified that the analyses would be carried out within a subset of the troops from each MOS who were satisfied with their jobs in the Army. Since there are no regularly collected satisfaction indices for Army troops, eight items thought to relate to job satisfaction and job performance had been included in the data collection booklet at the suggestion of ARI staff. These items are presented below:

1. All in all, my job performance is
   1. Excellent
   2. Above average
   3. Average
   4. Below average
   5. Poor

2. How well do you know how to do your job?
   1. Very well
   2. Fairly well
   3. Not very well
   4. Hardly at all

3. My job gives me the chance to learn skills that are useful outside the Army.
   1. Strongly agree
   2. Somewhat agree
   3. Somewhat disagree
   4. Strongly disagree

4. In my job I have more work to do than one person can handle.
   1. Strongly agree
   2. Somewhat agree
   3. Somewhat disagree
   4. Strongly disagree

5. The job I have is a respected one.
   1. Strongly agree
   2. Somewhat agree
   3. Somewhat disagree
   4. Strongly disagree

6. My job lets me do the things I am good at.
   1. Strongly agree
   2. Somewhat agree
   3. Somewhat disagree
   4. Strongly disagree

7. I enjoy doing the type of work my job requires.
   1. Strongly agree
   2. Somewhat agree
   3. Somewhat disagree
   4. Strongly disagree

8. My job is important.
   1. Strongly agree
   2. Somewhat agree
   3. Somewhat disagree
   4. Strongly disagree

In order to develop a job satisfaction index from these eight items, three iterated principal axis factor analyses (a one factor, a two factor, and a three factor solution) using squared multiple correlations as the initial communality estimates were carried out. The principal axis solutions were rotated to orthogonal simple structure matrices using the Varimax procedure and these Varimax matrices were further rotated to oblique simple structure solutions using the Promax (Procrustes) procedure. The Promax procedure was selected because it appears to be the most commonly used objective approach to defining a target matrix for oblique rotation. Of the three factor analyses, the three factor solution most clearly extracted a factor (Factor 3) that could be identified as job satisfaction. (Factor 1 appears to be a global factor related to characteristics of the job, and Factor 2 appears to be self-evaluation of job performance.) The Promax rotated simple structure matrix for the three factor solution is presented in Table 5.

Table 5

Promax Rotated Simple Structure Factor Matrix
For Three Factor Solution

	Factor 1	2	3	h^2
Item 1	.21	.63	.18	.39
Item 2	.24	.67	.18	.45
Item 3	.59	.21	.43	.38
Item 4	.02	.00	.10	.01
Item 5	.81	.28	.22	.70
Item 6	.69	.35	.54	.53
Item 7	.64	.37	.94	.93
Item 8	.50	.17	.33	.26
Unrotated Eigenvectors	2.94	1.26	1.02	

Then the simple structure matrix vector for the third factor was converted to a scoring coefficient vector, as would be used to actually produce a score on job satisfaction for an individual. The results are presented in Table 6.

Table 6

Scoring Coefficient Vector for Factor 3

	Scoring Coefficient Vector
Item 1	-.00
Item 2	-.01
Item 3	.00
Item 4	-.00
Item 5	-.15
Item 6	.02
Item 7	.99
Item 8	-.02

From this scoring coefficient vector it is clear that Item 7 is the only item making any significant contribution to the job satisfaction index as defined by factor analysis. Accordingly, it was decided to use Item 7 as the index of job satisfaction and not to include the responses to any of the other seven items. Individuals who responded either 1 or 2 to Item 7 were classified as satisfied while individuals who responded either 3 or 4 were classified as dissatisfied. The proportions of satisfied participants from each of the five retained MOS clusters are presented in Table 7.

Table 7

Satisfied Participants by MOS Cluster

	MOS Cluster					
	11	63B	64C	91	95	Total
Males						
Number	280	37	45	19	102	483
% Satisfied	49.3	86.5	86.7	73.7	68.6	60.7
Females						
Number	0	0	0	11	17	28
% Satisfied	N.A.	N.A.	N.A.	36.4	70.6	57.1
?						
Number	5	1	2	0	2	10
% Satisfied	40.0	100.0	100.0	N.A.	100.0	70.0
Total						
Number	285	38	47	30	121	521
% Satisfied	49.1	86.8	87.2	60.0	69.4	60.7

Selecting Triads to Retain

The research plan had initially called for the development of scales to measure interests in seven of the major Army high density MOS clusters:

Armor
Clerk
Cook
Electrician/Electronics
Infantry
Mechanic
Medic/Lab Technician

The troops available for testing as part of the project, however, represented only three of the seven clusters (Infantry - 11, Mechanic - 63B, and Medic - 91) and of these three, only one, Infantry - 11, had sufficient troops to permit adequate analyses. However, troops from two additional MOS were available (Drivers - 64C and Military Police - 95) and these troops were included in the analyses.

Because no troops from four of the seven target MOS clusters were available, it was not possible to employ the strongly empirical approach to identifying discriminating triads that had been planned. Instead, a modified approach, which the project staff called a "rational-empirical" approach, was adopted to identify the triads that would be retained for inclusion in the final version of the interest survey.

This so-called "rational-empirical" approach was implemented in the following way. For each of the five MOS clusters for which troops from the infantry unit were tested, and for the four additional target MOS clusters from which no troops were tested, the project staff made a rational judgment with regard to which options of which triads should discriminate which MOS clusters. In other words, based on their knowledge and experience, the two senior project staff members (Drs. Claudy and Caylor) made an "educated guess" about which options of which triads would be chosen more or less often than the average by individuals in the nine MOS clusters. That is, which triads would discriminate between which MOS clusters. Then, for the five MOS clusters for which responses to the triads were available, an empirical determination of the discriminating power of the triads was made. (The calculation of a numerical discrimination index between pairs of MOS clusters and for the triad as a whole is discussed below.) For these five MOS clusters the results from the empirical determination were compared with the rational judgments of the project staff to provide an estimate of the validity of the judgmental process used by the project staff. While no formal, numeric validity coefficient was calculated, the level of agreement between the rational and empirical estimates of the discriminating power of the triads for which empirical data were available was sufficiently high to cause the project staff to feel that their judgments for the other four MOS clusters would be useful in the final triad selection process. Overall, the empirical results indicated that about eighty percent of the triads that the project staff identified were in fact discriminating in the anticipated direction.

The empirical approach used to estimate the discriminating power of a triad can be best explained by means of a numerical example using hypothetical, but nevertheless realistic values. Consider a single triad which has been administered to satisfied troops in the five MOS clusters. The raw data for such a triad can be summarized as in Table 8.

Table 8

Summary Response Data for Hypothetical Triad

	MOS Cluster				
	11	63B	64C	91	95
Like option A most	70	15	20	50	20
Like option B most	20	60	15	25	60
Like option C most	10	25	65	25	20
Like option A least	20	20	60	20	55
Like option B least	60	30	20	30	25
Like option C least	20	50	20	50	20

The entries in each column are the proportions of troops in the MOS cluster who most liked and least liked each of the three options. Thus, each column adds to 200. Looking at this table, it is obvious that troops in different MOS clusters responded to the triad differently. Now calculate the sums of absolute differences between all possible pairs of MOS. For example, the sum of absolute differences between the 11 and 63B clusters is |70-15| + |20-60| + |10-25| + |20-20| + |60-30| + |20-50| = 170. These sums for all possible pairs of clusters are presented in Table 9.

Table 9

Sums of Absolute Differences for Hypothetical Triad

		MOS Cluster			
		63B	64C	91	95
	11	170	190	100	170
MOS	63B		170	70	80
Cluster	64C			160	100
	91				140

In a sense, these sums of absolute differences can be viewed as the level of discrimination the triad makes between each possible pair of MOS clusters. The best discrimination in this hypothetical example is between the 11 and 64C clusters and the worst discrimination is between the 63B and 91 clusters. As a single overall numeric discrimination index for the triad, the ten sums of absolute differences can be summed to arrive at a single number. For this hypothetical triad the overall index is 1350, and in general, the higher the overall index, the better the triad. When five MOS clusters are being compared, the value of the overall triad index can theoretically range from 0 to 3200, though it would be virtually impossible to obtain these limits with real data. Such sums-of-absolute-differences matrices were calculated for all 225 triads administered to troops from the brigade-level-size infantry unit and these matrices provided the empirical data used in the rational-empirical approach described above.

Based on the sums-of-absolute-differences matrices, the 225 triads were rank ordered in terms of their overall discrimination power (for the five available MOS clusters), as well as being ranked according to their power to discriminate between each of the ten possible pairs of MOS. These eleven sets of rankings, which were based on all the available cases, served as the primary empirical basis for the selection of the final set of 100 triads to be included in the interest survey. The eleven sets of ranking for the 225 triads are included in the report as Appendix B.

The final 100 triads were selected in the following manner. Fifty-eight triads were selected because they met two empirical criteria: for the total set of 225 triads, they were in the top 100 triads on the basis of the overall discrimination index; and they were also in the top 100 triads for at least seven of the ten rankings of discrimination indices for pairs of MOS. There were no triads that were in the top 100 for at least seven of the ten rankings that were not also in the top 100 on the basis of their overall discrimination indices. The other 42 triads were included in the final set because, in the opinion of the project staff, they showed the greatest promise of discriminating individuals whose interest patterns would tend to place them in one of the target MOS clusters for which no empirical data were available. It would be possible to quibble with the selection of some of the triads that were included in the final set of 100, and in fact the project staff spent a great deal of time discussing the selections. However, the project staff feels that in the absence of adequate empirical data, this set of 100 triads is as defensible a set of 100 triads as can be selected and is more defensible than most sets. To create the ARIIS, the final 100 triads were ordered according to the length of the longest option in the triad. The final set of 100 triads is included as Appendix C of this report.

CHAPTER 4

Scoring the Interest Survey

Developing Scoring Weights

After the final set of 100 triads was selected, the 521 project participants with usable data were divided into the following three subgroups:

One half of satisfied cases,
Other half of satisfied cases, and
All dissatisfied cases.

The first of these three subgroups was used to calculate a set of scoring weights for use in certain analyses designed to provide rough estimates of the validity of the interest survey. These analyses are included as Appendix G of this report. (Note that it is not recommended that these scoring weights be used in any operational way.)

Each option of each triad provides two scoring weights for every MOS for which a key is developed. One of these scoring weights applies when the option is selected as the most liked option and the other scoring weight applies when the option is selected as the least liked option. Thus for a 100 triad interest survey, a 600 element scoring weight vector is developed for each MOS. For a given option of a triad, the scoring weights are the proportions of satisfied individuals in the MOS who most liked and least liked the option. For example, if among a group of satisfied infantrymen (11s) 47 percent of the individuals most liked option A of the first triad and 24 percent least liked option A of that triad, the scoring weights for option A would be .47 for most liked and .24 for least liked. This same procedure would be used for each of the options for each of the triads, and would be repeated for all MOS for which scoring keys are developed. An example of the scoring weight vectors for three MOS for a hypothetical three triad interest survey is presented in Table 10.

Table 10

Scoring Weight Vectors for Three Hypothetical Triads

Triad	Option	MOS 11B	MOS 63B	MOS 91B
1	Most like option A	(.47)	.33	(58)
	Most like option B	.18	.12	.16
	Most like option C	.35	(54)	.26
	Least like option A	.24	(33)	.37
	Least like option B	(.39)	.33	(42)
	Least like option C	.37	.33	.21
2	Most like option A	.27	.39	(.58)
	Most like option B	.32	(43)	.26
	Most like option C	(.41)	.18	.16
	Least like option A	(39)	.36	.16
	Least like option B	.26	.21	(47)
	Least like option C	.35	(43)	.37
3	Most like option A	(.39)	.24	(69)
	Most like option B	.30	.30	.26
	Most like option C	.31	(46)	.05
	Least like option A	.21	(.37)	.10
	Least like option B	.31	.33	.16
	Least like option C	(48)	.30	(.74)

Calculating Lambda Values

Within each triad in each column (MOS) the proportions for the modal most liked and modal least liked options have been circled. These circled proportions are summed for each MOS (column) to arrive at the highest possible proportion score (HPPS) for the MOS. For the example above the HPPS values for the three MOS are:

11B = 2.53
63C = 2.56
91B = 3.48

These HPPS values are saved and are used in the calculation of the Lambda coefficients for an individual on each of the MOS scales.

Now assume that this three triad interest survey was administered to two persons, I and J. Their responses to the triads are presented in Table 11.

Table 11

Responses of Two Hypothetical Individuals to the Three Hypothetical Triads

Triad	Selected Option	Person I	Person J
1	Most liked	A	B
	Least liked	B	A
2	Most liked	A	B
	Least liked	C	A
3	Most liked	B	B
	Least liked	C	A

Even a cursory examination of these response patterns reveals that the two individuals responded in rather different ways to the three triads. However, to make the interest survey useful, some summary index to express the degree of similarity between an individual's responses and the responses of satisfied troops in the three MOS is needed. The Clemans' Lambda Coefficient provides this index of agreement. The Clemans' Lambda Coefficient is a unique form of biserial correlation having upper and lower limits of exactly plus or minus one regardless of the shape of the underlying distribution. Conceptually, it may be thought of as the ratio of an obtained point-biserial correlation coefficient to the maximum value that the point-biserial coefficient can take given the shape of the underlying distribution. Thus, just as with a regular product moment correlation coefficient, the higher the value of Lambda, the greater the degree of similarity between the responses of an individual and those of the group of satisfied individuals on which the scoring weight vector was developed.

Given the scoring weight vectors calculated previously and the responses of the two individuals to the three-triad interest survey, the calculation of the Lambda values is fairly straightforward. However, this process is rather time consuming for a long interest survey unless computer scoring is available. For each individual who takes the interest survey the sum of the scoring weight vector elements that correspond to the most and least liked options for the individual is obtained for each of the MOS. These are termed the SumPs for the individual. It should be noted that on a computer the most straightforward way to calculate these SumPs would be to convert the individual's responses to a response vector that is the same length as the scoring weight vector (see Table 10). This response vector for an individual would contain ones (1's) in the elements corresponding to the most and least liked options and zeros (0's) in all other elements. Table 12 presents the response vectors for Persons I and J.

Table 12

Response Vectors for Persons I and J
on Three Hypothetical Triads

Person I	Person J
1	0
0	1
0	0
0	1
1	0
0	0
1	0
0	1
0	0
0	1
0	0
1	0
0	0
1	1
0	0
0	1
0	0
1	0

Each of the scoring weight vectors would in turn be premultiplied by the transpose of the individual's response vector to arrive at the SumP values. The value of Lambda for person P on MOS scale S is calculated using the following equation:

$$L_{PS} = \frac{SumP_{PS} - .667N}{HPPS_{S} - .667N},$$

where N is the number of triads included in the interest survey and HPPS and SumP are as previously defined. The constant .667 in this equation is included to account for the proportion of respondents who would be expected to select a triad option by chance alone. Since each triad is composed of three activities, the expected chance proportion for MOST and LEAST for each activity is one-third; and, since each triad has a MOST and LEAST liked response, the expected proportion for each triad is two-thirds, or .667. The Lambda values for persons I and J, whose responses to the three triad interest survey were previously given, are as follows:

	MOS Scale		
Person	11	63B	91
I	.49	.14	.64
J	-.67	-.16	-.47

Clearly, for the three MOS reported and based on the three triad interest survey, person I is most like satisfied troops in MOS 91 (Medical Specialists) and least like satisfied persons in MOS 63B (Mechanics), though this individual is also somewhat like satisfied troops in MOS 11 (Infantrymen). The Lambda values for individual J are all negative, indicating that this person is not very similar, in terms of the interest survey items, to persons in any of the three MOS. Even here the Lambda values provide useful information because this individual is most different from satisfied 11s and least different from satisfied 63Bs. The procedures used to calculate the Lambda values and the interpretation of these values is directly expandable from the three triad and three MOS example given here to virtually any number of triads and MOS.

CHAPTER 5

Administering the ARIIS Via Computer Terminal

After the final set of 100 triads was selected, an effort was made to develop and refine an interactive computer program, written in a version of the BASIC language, that would administer, score, and report results on the interest survey. This effort was undertaken because, during earlier discussions with ARI staff, it was agreed that the ideal procedure for administering an operational version of the interest survey would be to use remote terminals or microcomputers in either recruiting stations or AFEES. The program was written to provide a model example of how such a program might function, and to provide a way to study the effectiveness of the scoring procedure. It was not intended that this program be suitable for actually administering the interest survey via terminals in recruiting stations or AFEES or even that it be a prototype for such a program. Its sole purpose was to serve as a way of studying the feasibility of administering the interest survey via terminal. A complete listing of the program developed is provided in Appendix E of this report. Prior to developing a program to actually administer and score the ARIIS by computer several preliminary steps must be completed, the first and most important of which will be to select the equipment to be used (microcomputer, minicomputer or mainframe), the manufacturer, and the programming language to be used. Next, a through systems anslysis must be undertaken to define the exact information that is to be collected and saved during administration, and further to define how this information might be used by others within the Army. Only after these steps have been completed can the actual writing of the administration program begin.

In its current form the program administers only the first 15 triads of the final set of 100 triads and provides Lambda values for three MOS and two nonmilitary occupations. These restrictions were imposed to reduce computer costs and in no way influence the operation of the program. The three MOS for which Lambda values are calculated are: 11 - Infantry, 63B - Mechanic, and 91 - Medical Specialist. The scoring weights for these MOS are based on the responses of one-half of the satisfied troops in the infantry unit who took the tryout version of the interest survey. Thus, allowing for the small numbers of cases available to create the 63B and 91 scoring weight vectors, the Lambda values produced by the program provide an accurate measure of the extent to which individuals who take the 15 triads via the terminal are similar in their interests to the interests of troops in the weight calculation sample. The two nonmilitary occupations were added to determine how well the interest survey triads could differentiate between two groups of persons who do very similar work but are of opposite sexes; and the extent to which the triads could discriminate between persons who do very different types of work. The two nonmilitary groups consist of male researchers at AIR and female researchers at AIR, most of whom received their professional training in

psychology or educational research. To develop these scoring weight vectors, all AIR Palo Alto staff members having either a doctorate or a professional title of Research Scientist or above were asked to take the 100 triad version of the interest survey. Seventeen males and 18 females returned the interest survey, and the scoring weight vectors are based on their responses.

To provide a rough estimate of the feasibility of administering the interest survey via a CRT terminal, several AIR staff members who had not been involved in the development of the interest survey were asked to sit at a terminal and take the 15 triad version of the interest survey. After the project director logged the examinees onto the computer, the abridged interest survey was administered entirely via the CRT. A hard copy listing of a terminal session is provided as Appendix F of this report. During the actual administration of the interest survey to the subjects, there were no problems encountered in administering the test, and the examinees had no trouble making appropriate responses. Based on this small scale, informal tryout it appears clear that the interest survey can be administered via a CRT terminal.

In addition to having several naive subjects actually take the abridged, computer administered version of the interest survey, the responses of a number of Army troops and AIR staff members to these 15 triads were entered into the program as if they had taken the survey via computer. The results for these individuals provide useful data with regard to the degree of separation of jobs and individuals that can be achieved using the 15 triad form, and by implication, the minimum degree of separation that can be achieved using the full 100 triad version. Eight individuals were selected, six males and two females, from among the members of the infantry unit who were tested overseas. Of the eight, four had responded to the job satisfaction item that they strongly liked doing the type of work that their job requires, and four had responded that they strongly disliked doing the type of work that their job requires. Only two females were selected because, of the three MOS for which computer scoring keys were available, only MOS 91 has any significant number of females in the MOS. Other than the constraints that half the cases be satisfied and half dissatisfied, and that all three MOS be represented, the eight cases were selected at random. In addition to the results for these eight soldiers, results are also presented for four AIR staff members. The Lambda values on the five scoring keys are presented in Table 13.

Table 13

Lambda Values for Selected Individuals

Examinee	Scoring Key 11	63B	91	Male Researcher	Female Researcher
Satisfied Male 11	.08	.16	.32	-.06	.14
Dissatisfied Male 11	-.00	-.10	-.17	-.21	-.27
Satisfied Male 63B	.73	.59	-.18	.24	-.21
Dissatisfied Male 63B	-.12	-.16	.19	.13	.11
Satisfied Male 91	.48	.34	.45	.27	.24
Dissatisfied Male 91	.25	.23	-.00	.22	-.03
Satisfied Female 91	-.04	-.05	.90	.15	.72
Dissatisfied Female 91	-.30	-.26	.21	.08	.40
Male Researcher with Ph.D.	.33	.26	.47	.87	.63
Male Researcher with Ph.D.	.00	-.01	.63	.76	.81
Female Researcher with Ph.D.	.22	.14	.24	.46	.59
Female Researcher with Ed.D.	.05	-.10	.83	.41	.68

Note that the Lambda values for the MOS or occupational category the individuals were in are circled in Table 13.

The results presented in Table 13 are based on only the first fifteen triads of the ARIIS. These fifteen triads do not in any sense span the full range of activities and content areas covered by the full set of 100 triads. Thus the results in Table 13 are not intended to validate the effectiveness of the ARIIS. Rather they are included to illustrate the range of Lambda values which might be obtained across individuals. Further, they demonstrate that for as few as fifteen triads, a single individual may display a wide range of Lambda values across scales. The project staff has every reason to expect that Lambda values based on the full set of 100 triads will display an equally wide range of values. It is interesting to note, however, that, in spite of the fact that these results are based on only fifteen triads, in all cases the Lambda value on the scale for the MOS the individuals are in are higher for the satisfied than for the dissatisfied individuals. These differences are striking for the individuals in MOS 63B and 91.

CHAPTER 6

Recommendations

Developing Scoring Keys

As discussed previously, due to the unavailability of troops, scoring keys could be devloped for only three (infantry, mechanic and medic) of the seven target MOS (armor, clerk, cook, electrician/electronics, infantry, mechanic, and medic/lab technician) and only one of these keys, the key for MOS 11 (Infantry), was based on more than a small number of troops. Prior to using the ARIIS operationally, it will be necessary to develop scoring keys for all MOS for which it is desired to obtain Lambda scores for examinees. The development of these keys is a straightforward, empirical task, but will require administering the ARIIS to fairly large samples of troops from each of the MOS for which keys are to be developed. While there is no set of rules that can be used to determine the number of troops required from each MOS, it is the opinion of the project staff that a scoring key should be based on no fewer than three to four hundred satisfied troops in the MOS. While, from a psychometric point of view, larger samples would probably result in more accurate scoring weight vectors, it is unlikely that sufficient additional precision would result from using samples larger than 400 to justify the extra effort necessary to obtain them.

There are two basic approaches that could be used in the development of these scoring keys, and the approach selected will depend upon a number of factors. Both of these approaches are discussed below.

The first approach might be termed the "concurrent approach" and would require administering the ARIIS to samples of MOS incumbents whose current duty MOS corresponds to their primary MOS. These individuals would also be asked to complete a job satisfaction scale. The job satisfaction scale used might be one developed for this effort, or one in more general use in military settings. It could even be the same single item used to identify the satisfied troops in this project. However, the project staff recommends that care be exercised in the selection of the scale since the precision of the scoring keys will reflect the accuracy with which satisfied individuals are identified. As an alternative to administering a job satisfaction scale to all of the troops tested, it would be possible to develop a job satisfaction scoring key for the ARIIS. This approach would require that the ARIIS be administered to small samples of satisfied individuals from a number of diverse MOS (say 20 to 25 satisfied individuals from each of 20 MOS). These satisfied individuals would then be combined into a single sample and a scoring weight vector calculated just as if they were in a single MOS. In this case however, the resulting Lambda value would provide an indication of how similar an individual's response pattern is to the modal response pattern of satisfied individuals. The Lambda values could then be used to select the individuals to be included in the

weight calculation subgroups for the different MOS. These individuals would have taken the ARIIS, but not the job satisfaction scale.

Using the job satisfaction measure, the dissatisfied troops in each MOS would be eliminated from the sample and the scoring keys would be developed in accordance with the procedures described in this report. Based on the proportions of satisfied troops among those individuals from the infantry unit who were tested, we estimate that it would be necessary to test six to seven hundred MOS incumbents from each MOS in order to insure a subsample of satisfied MOS incumbents large enough to provide stable scoring weight vectors.

An important advantage of the concurrent approach is that the scoring keys can be developed relatively rapidly and thus the ARIIS can soon begin to be used operationally. The major disadvantage of the approach lies in the fact that large numbers of troops from active Army units must be tested. To obtain these large numbers of troops it is likely that troops from many different units located at a number of different posts will be required. The logistics of obtaining and testing such a large number of troops will be complex and time consuming. In addition, if it were later decided to add scoring keys for other MOS, the entire testing process would need to be repeated with the new samples of troops.

The alternate approach to developing the scoring keys is termed the "longitudinal approach". To implement this approach, the ARIIS would be administered to all Army enlistees being processed through one or more reception stations until perhaps 100,000 to 150,000 individuals had been tested. The responses of these individuals would be transferred to computer tape and set aside for a period of up to four years. At the end of that time, existing Army data tapes would be searched to determine which MOS the tested individuals had entered, and scoring keys could be developed. A major problem with this approach is that existing Army records do not contain information about the level of a soldier's job satisfaction. To overcome this problem, we propose that a good operational definition of a satisfied soldier is one who, at the end of his or her first term, reenlists in the same MOS in which he or she was serving during the first term or perhaps in an MOS in the same CMF. Using existing Army personnel records it should be possible to identify such individuals, and their responses to the ARIIS, obtained at the reception stations when they first joined the Army, could be used to develop the scoring keys.

The longitudinal approach has the advantage of avoiding the complex logistic problems associated with testing large numbers of troops in many active Army units, but it would result in a long delay in developing operational scoring keys. Data for a very large number of individuals would have to be collected and stored for several years before it could be used. It would be difficult to reduce the number of individuals tested and still have sufficient individuals from any given MOS reenlist at the end of their first term. However, because taking the ARIIS could be made a regular part of reception station processing for all enlistees, the extra burden on enlistees and reception station personnel would not be too great. An additional advantage of this

approach is that if it were later decided to develop scoring keys for additional MOS, it would only be necessary to identify operationally defined satisfied individuals in those MOS and then use their previously collected responses to the ARIIS to build the keys. A final strength of the longitudinal approach is that when the ARIIS is completed and in use, an examinee's responses to the interest triads would be compared with the responses of individuals who were tested when they were at about the same life stage as the examinee (just joining the Army) and who later became satisfied MOS incumbents, rather than with the responses of troops who were already satisfied MOS incumbents. Thus changes in interests due to maturation or Army experiences are controlled for.

It is the general opinion of the project staff that the longitudinal approach will result in scoring keys that are slightly superior to those that would result from application of the concurrent approach. However, the differences will probably be small and either approach should produce useful scoring keys.

Separate Scoring Keys for Males and Females

To the extent that males and females have different interest patterns, then scoring keys developed on combined samples of males and females will be less than maximally useful for identifying the full range of variability in the interest pattern of any given individual. One of the rules governing the writing of triads was that the included activities should not, by their nature, exclude females. However, this does not in any sense mean that males and females would be equally interested in any given activity. The realities of the culture in which we live virtually insure that some activities will be more attractive to one sex than the other. An attempt to develop an interest survey in which all the included activities were equally attractive to both sexes would, in all probability, result in a set of activities that were both trivial and limited in scope. Nevertheless, even though the set of activities included in the interest survey may appeal differentially to males and females, independent, effective scoring keys can be developed for both sexes.

Because of the small numbers of individuals, especially females, in each of the available MOS clusters, the project staff did not attempt to develop separate scoring keys for males and females as a part of this project. Instead, males and females were combined and treated as a single group for the analyses. However, Kuder, in the development of the Kuder Occupational Interest Survey, Form DD, did develop separate male and female keys for those occupations for which he had a sufficiently large number of individuals of each sex. In scoring his interest survey Kuder calculates Lambda values for all the available scales regardless of whether they were developed on males or females. If separate sex scales are available for a particular occupation, the examinee would receive Lambda values for both scales. While such an approach would require that persons who counsel potential enlistees be trained to avoid problems of interpretation, this approach does tend to

avoid the problem of steering individuals away from occupations which have traditionally been held by members of the opposite sex, and at the same time permits the full range of sex unique variance in interest patterns to be tapped. It is the recommendation of the project staff that, whenever possible, separate scoring keys be developed based on the responses of males and females who serve in the same MOS, and that all such scoring keys be used with all examinees.

The argument could be made that individuals from different racial or ethnic backgrounds also have different interest patterns. However, there is little strong support for this contention, and at this time the project staff does not recommend that any attempt be made to develop separate scoring keys for racial or ethnic subgroups. This is, however, an area in which additional research would be of some value.

Omitted and Incorrectly Marked Triads

As with virtually all psychological tests, the ideal situation for the ARIIS would be for the examinee to respond correctly to each of the items - that is for each examinee to mark a single most liked option and a single least liked option for each of the triads. However, as was demonstrated in the data collected from members of the infantry unit, this will not always be the case. There are several reasons why examinees will not properly mark the triads even though there are directions that explicitly tell the examinees how to respond. Carelessness is certainly an important factor resulting in omitted and incorrectly marked triads, but it is by no means the only reason. Some individuals will mark only one option to a triad and will in effect be saying: "I would most like to do the activity I have marked, but I would really like to do all of the activities," or, conversely, "I would least like to do the activity I have marked, but I really don't want to do any of the listed activities." The above situation can, but usually does not, result in the marking of two, or even all three, of the options as most or least liked.

While the vast majority of examinees will mark the triads correctly, some procedure for dealing with omitted or incorrecIty marked triads must be formulated. As was demonstrated in the section of this report on the informal trial of a computer administered interest survey, as few as 15 triads can provide apparently useful information regarding an individual's interest pattern. Thus, it appears clear that Lambda values can be calculated even though the examinee does not properly respond to all 100 triads. The determination of the maximum number of omitted or incorrectly marked triads to permit is an arbitrary decision. Theoretically (and mathematically), Lambda values could be calculated on as few as two triads, or even one. However, from a practical point of view it seems reasonable to require that an examinee properly respond to most of the triads before calculating Lambda values. This is a reasonable requirement because, given the instructions to the examinees to respond to triads, there is a very real question whether an individual who omits a large number of triads is seriously responding to the survey.

The project staff recommends that Lambda values not be calculated for any examinee who omits or incorrectly marks more than ten triads. We would further recommend that if an examinee partially or incorrectly marks a triad, the entire triad be omitted from scoring. Permitting an examinee to omit or incorrectly mark up to ten triads and still have Lambda values calculated will mean that for such individuals, the values of the HPPSs used in the calculation of the Lambdas will have to be recalculated for that individual to eliminate the modal proportion values for the omitted triads. It will be more efficient for the computer to do this by subtracting from the stored, 100 triad HPPS values than by adding proportions to arrive at the shortened survey form HPPSs. The value of N used in the .667N term will also have to be changed for the calculations.

Operational Use of the ARIIS

The ARIIS was designed to be used as part of the data collection effort that provides information used during the counseling process prior to signing the enlistment contract at the AFEES. This process is intended to help channel an enlistee into an appropriate MOS. In order for this to happen, the final output of the ARIIS scoring program must be available to the counselor on the afternoon of the day the enlistee is at the AFEES. Currently, the test scoring machines at the AFEES do not have the capability to batch score a test that is as complex to score as the ARIIS, and because of this complexity, hand scoring is not a viable option. Thus, given the current situation at the AFEES, there appear to be two ways to make certain the ARIIS results will be available when needed. This can be accomplished by either on-line scoring of a computer administered version of the ARIIS given at the AFEES, or by either on-line scoring of a computer administered version or batch scoring of a paper-and-pencil version given prior to the enlistee's day at the AFEES.

It does not appear that having the recruiter give potential enlistees a copy of the ARIIS to fill in at home and bring or mail back to the recruiter is a good approach. Problems associated with this approach include inadequately identified answer sheets; folded, crumpled or torn answer sheets; and answer sheets not returned in time for processing. Thus it appears that the only viable way to administer the ARIIS prior to the arrival of the potential enlistee at the AFEES is to do so at the recruiting station. For the results to be of maximum use to the Army, they should also be available to the recruiter when he or she talks to the potential enlistee at the recruiting station. To avoid requiring the potential enlistee to visit the recruiting station twice, once to take the ARIIS and once to discuss the results with the recruiter, the ARIIS should be scored on-line while the potential recruit is at the recruiting station. This implies that the recruiting station should have terminals connected (or capable of being dial connected) to a central computer, or that a microcomputer, or microcomputers, be on-site at the recruiting station to carry out the ARIIS administration and scoring. To facilitate the collection of data on many potential enlistees and its later use in research, it would be best to use terminals connected to some sort of central computer.

It would be preferable to computer administer the ARIIS via a CRT terminal rather than a hard copy printing terminal because CRTs are quieter and faster. However, to facilitate use of the results by the recruiter, and later by the counselor at the AFEES, the Lambda values for the potential enlistee should be produced in hard copy form via a printer, probably in multiple copies. (One copy might be kept by the recruiter and the other copy sent to the AFEES for the counselor.) Therefore, at least one hard copy printing terminal should be available at the recruiting station. An alternative, assuming that the appropriate hardware were selected, would be to do away with printed copies of the results entirely and save them in computer memory. Using this approach both the recruiter at the recruiting station and the counselor at the AFEES could assess the results data base and display them on a CRT terminal when needed.

The same sort of hardware configuration described for the recruiting station could also be used if the ARIIS were to be computer administered at the AFEES. The only significant difference would be that multiple copies of the results would probably not be required.

The other approach, which is less complex and costly, would be to have the potential enlistee complete the inventory at the recruiting station using a paper-and-pencil form and then send these completed paper-and-pencil forms to some central scoring facility where all the forms would be scored and the results returned to either the recruiting station or the AFEES where the potential recruit will be examined. This approach does not require the use of any terminals or other on-line equipment, and is satisfactory from the point of view of collecting data on many individuals for future research and operational use. However, it does not make the results available to the recruiter while the potential enlistee is at the recruiting station. In addition, special care must be taken to insure that the results for the potential enlistee are returned to the recruiter and/or the AFEES in a timely manner so they will be available when the individual is counseled at the AFEES.

From the point of view of insuring that the examinee properly completes the ARIIS, the on-line computer administered version would be superior to the paper-and-pencil version in that it could insure that the examinee did not omit triads, marked one and only one most liked and least liked option, and did not mark the same option as both most and least liked. All of these problems can occur when a paper-and-pencil form is used. In addition, the computer could be programmed to signal the examiner if an examinee seemed to be having problems or continued to mark triads incorrectly.

To administer the ARIIS via an on-line terminal the following approach seems reasonable, as well as being one that will insure that the inventory is properly completed.

1. Present the three options for a triad on the CRT screen and ask the examinee to indicate the one he/she would most like to do by pressing the A, B or C key corresponding to the option. (The A, B and C keys could be specially colored for ease in finding them.)

2. If the A, B or C key is properly pressed, the screen would next show the remaining two options of the triad and ask the examinee to indicate the one he/she would least like to do by pressing the key corresponding to the option.

3. If a proper key is pressed, the program would then go on to the next triad. However, if at any time an out of range key (other than the A, B or C key) is pressed, the screen would inform the examinee that an incorrect response had been made and request that the examinee make a new response.

4. If the examinee does not respond within a certain set length of time, the screen would prompt the examinee for a response.

5. If the examinee presses the same option key twice for a triad, the computer could either not accept the second response and ask the examinee for a new least liked response, or could present the entire triad again and ask for both a new most liked and least liked option. The nature of the presentation mode precludes the examinee from responding to the triads by marking more than one most or least liked option.

6. If the examinee persists in making out of range responses, repeating responses, or not responding to triads in a timely manner, the computer would notify the examiner of the problem.

7. Finally, when the examinee completes the ARIIS, the CRT screen would present a message telling the examinee to report to the examiner, or some other appropriate message. At the same time the computer would produce either a hard copy printout of the examinee's results on the examiner's printing terminal or save the results in memory.

For administering the triads, the ideal situation would be to have a keyboard with only three keys marked A, B and C so that the examinee could not make mistakes by pressing improper keys. However this does not seem feasible because the terminals would be useful only for administering the ARIIS, and in addition, the examinee's name and social security number, as well as other possible information, could not be entered at the beginning of the ARIIS administration session. Therefore, to avoid as many problems as possible, the next best situation would be to have a custom terminal keyboard with a separate set of three keys marked A, B and C to be used to indicate the option selected. This would be directly analogous to some terminal keyboards that have a ten key number pad to the right of the regular keyboard. Probably the terminal should actually have an extra set of perhaps 5 keys marked A, B, C, D and E so that other types of multiple choice tests could also be administered via the same terminal.

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APPENDIX A

Data Collection Booklet Used With Troops from the Participating Unit

U. S. ARMY
EXPERIMENTAL CLASSIFICATION INVENTORY

Part I: Job Performance Self-Report
Part II: Job Interests
Part III: Job History and Status

The Army Research Institute is conducting a study of your experience in the Army. Your honest answers will help us to make the Army better for you and for those following you. Your answers to this questionnaire will be kept confidential. The results will not in any way become a part of your permanent file.

March, 1981

U. S. Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333
and
American Institutes for Reserach
Post Office Box 1113
Palo Alto, CA 94302

DATA REQUIRED BY THE PRIVACY ACT OF 1974
(5 U.S.C. 552a)

TITLE OF FORM	PRESCRIBING DIRECTIVE
Research for Validation of Army Enlistment Criteria	AR 70-1

1. AUTHORITY
10USC Sec 4503

2. PRINCIPAL PURPOSE(S)

The data collected with the attached form are to be used for research purposes only.

3. ROUTINE USES

You are being asked to participate in research conducted by the Army Research Institute. The research will determine the extent to which personal data and behavioral factors relate to success in the Army. The results will be used for research purposes only and will not in any way become a part of your permanent file. When identifiers (name or Social Security Number) are requested they are to be used for administrative and statistical control purposes only. Full confidentiality of the responses will be maintained in the processing of these data.

For the research to be successful it is necessary that we obtain information from you, your supervisors, your 201 file and the enlisted master file. Data collected will be handled in strict confidence and used for statistical purposes only. We cannot obtain all the information necessary unless we have your permission. If you agree to participate in the study, please complete the following pages.

THANK YOU FOR YOUR COOPERATION.

4. MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION

Your participation in this research is strictly voluntary. Individuals are encouraged to provide complete and accurate information in the interests of the research, but there will be no effect on individuals for not providing all or any part of the information. This notice may be detached from the rest of the form and retained by the individual if so desired.

FORM Privacy Act Statement - 28 Sep 75

DA Form 4368-R, 1 May 75

U. S. ARMY
EXPERIMENTAL CLASSIFICATION INVENTORY

Part I: Job Performance Self-Report
Part II: Job Interests
Part III: Job History and Status

March, 1981

U. S. Army Research Instutite
5001 Eisenhower Avenue
Alexandria, VA 22333
and
American Institutes for Research
Post Office Box 1113
Palo Alto, CA 94302

PERSONAL IDENTIFICATION

NAME _____ UNIT _____

SSAN ___ ___ ___ - ___ ___ - ___ ___ ___ ___ MOS ___ ___ ___

PART I

JOB PERFORMANCE SELF-REPORT

Below are a number of statements and questions about you and your job. Please circle the number in front of your response or answer to each statement or question.

1. All in all, my job performance is

   1. Excellent
   2. Above Average
   3. Average
   4. Below Average
   5. Poor

2. How well do you know how to do your job?

   1. Very Well
   2. Fairly Well
   3. Not Very Well
   4. Hardly At All

3. My job gives me the chance to learn skills that are useful outside the Army.

   1. Strongly Agree
   2. Somewhat Agree
   3. Somewhat Disagree
   4. Strongly Disagree

4. In my job I have more work to do than one person can handle.

   1. Strongly Agree
   2. Somewhat Agree
   3. Somewhat Disagree
   4. Strongly Disagree

5. The job I have is a respected one.

   1. Strongly Agree
   2. Somewhat Agree
   3. Somewhat Disagree
   4. Strongly Disagree

6. My job lets me do the things I am good at.

   1. Strongly Agree
   2. Somewhat Agree
   3. Somewhat Disagree
   4. Strongly Disagree

GO ON TO THE NEXT PAGE

7. I enjoy doing the type of work that my job requires.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

8. My job is important.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

9. What do you think you will do when your present enlistment is up?

1. Stay in the Army until I retire.
2. Re-up, but I am not sure about staying until retirement.
3. Not sure whether I will re-up.
4. Leave the Army.

10. Listed in the next column are seven reasons for enlisting in the Army. Please tell us how important each of these reasons was <u>to you</u> when you enlisted in the Army by drawing a circle around one of the numbers to the left of each reason.

Not Important At All		Moderately Important		Very Important		
1	2	3	4	5	A.	To obtain a steady job.
1	2	3	4	5	B.	To find out what to do with my life.
1	2	3	4	5	C.	To get away from money or financial problems.
1	2	3	4	5	D.	To travel to new places.
1	2	3	4	5	E.	To become eligible for veterans' benefits.
1	2	3	4	5	F.	To receive special training or to learn a skill.
1	2	3	4	5	G.	To serve my country.

11. What was the <u>most important</u> reason you enlisted in the Army? Please draw a circle around the letter below that corresponds to that reason.

A B C D E F G

12. What was the <u>least important</u> reason you enlisted in the Army? Please draw a circle around the letter below that corresponds to that reason.

A B C D E F G

THIS IS THE END OF THIS SECTION. PLEASE GO BACK AND CHECK YOUR ANSWERS TO QUESTIONS IN THIS SECTION.

PART II

JOB INTERESTS

Directions

In this section you will find many different kinds of activities listed in groups of three. Next to each activity are the letters M and L. From each group of three activities you are to choose the activity you would MOST like to do and draw a circle around the letter M that is next to that activity. From the other two activities in each group you are to choose the activity you would LEAST like to do and draw a circle around the letter L that is next to that activity. You should make no marks next to the third activity in the group.

Look at the following example, which has already been marked.

M (L) Buy groceries
M L Read a book
(M) L Fix up a car

From this group of three activities, the activity the person answering would MOST like to do is "Fix up a car," so a circle has been drawn around the letter M next to "Fix up a car." From the other two activities in the group, the activity the person answering would LEAST like to do is "Buy groceries," so a circle has been drawn around the letter L next to "Buy groceries."

Now look at the example below.

M L Work for a printer
(M) L Work for a baker
M (L) Work for a plumber

From this group of three activities, the activity the person answering would MOST like to do is "Work for a baker," so a circle has been drawn around the letter M next to "Work for a baker." From the other two activities in the group, the activity the person answering would LEAST like to do is "Work for a plumber," so a circle has been drawn around the letter L next to "Work for a plumber."

This is not a test. There are no right or wrong answers. Answer as though you could do all the activities listed even though some of them may require special training. We are interested in what you would like to do if you could, not in what you can do. Please draw a circle around one letter M and one letter L in each group of activities. If you change your mind please erase your old circle completely. Do not skip any groups.

Are there any questions? If not, please begin.

1.	M	L	Study science	11.	M	L	Learn about being a laboratory technician
	M	L	Study English		M	L	Learn about being a diesel mechanic
	M	L	Study mathematics		M	L	Learn about being a TV repairer
2.	M	L	Read a magazine	12.	M	L	Watch a film about building bridges
	M	L	Listen to a tape		M	L	Watch a film about heart operations
	M	L	Watch the TV news		M	L	Watch a film about living in the jungle
3.	M	L	Ride a horse	13.	M	L	Build a radio from a kit
	M	L	Ride a MoPed		M	L	Build a flying model airplane from a kit
	M	L	Ride a bicycle		M	L	Build a piece of furniture from a kit
4.	M	L	Plant a garden	14.	M	L	Select the pictures for an art show
	M	L	Build a fence		M	L	Prepare the guide book for an art show
	M	L	Paint a room		M	L	Give guided tours at an art show
5.	M	L	Play bingo	15.	M	L	Travel most of the time on the job
	M	L	Play checkers		M	L	Travel about half the time on the job
	M	L	Play cards		M	L	Travel occasionally on the job
6.	M	L	Go fishing	16.	M	L	Do volunteer work at a hospital
	M	L	Go to a movie		M	L	Do volunteer work at an animal shelter
	M	L	Go to a museum		M	L	Do volunteer work at a nursery school
7.	M	L	Have a boss	17.	M	L	Watch a TV show on underwater life
	M	L	Be a boss		M	L	Watch a TV show on an historical person
	M	L	Work independently		M	L	Watch a TV show on auto racing
8.	M	L	Shop for tools	18.	M	L	Calculate shipping charges on packages
	M	L	Shop for books		M	L	Repair furniture
	M	L	Shop for clothes		M	L	Serve meals to patients in a hospital
9.	M	L	Repair a stove	19.	M	L	Sit next to a businessperson on a plane
	M	L	Repair a roof		M	L	Sit next to a movie star on a plane
	M	L	Replace a sink		M	L	Sit next to someone like me on a plane
10.	M	L	Cook a dinner	20.	M	L	Climb mountains for a summer
	M	L	Wax a floor		M	L	Visit Europe for a summer
	M	L	Plant flowers		M	L	Work at an archaeological site for a summer

GO ON TO THE NEXT PAGE

21.	M	L	Work on a farm
	M	L	Work in an office
	M	L	Work in a factory
22.	M	L	Build bridges
	M	L	Drive a tractor
	M	L	Paint buildings
23.	M	L	Mix paint colors
	M	L	Bake cakes
	M	L	Mix cement
24.	M	L	Teach auto shop
	M	L	Teach arithmetic
	M	L	Teach first aid
25.	M	L	Be popular
	M	L	Be intelligent
	M	L	Be famous
26.	M	L	Do clerical work
	M	L	Do physical labor
	M	L	Do assembly work
27.	M	L	Go to a movie
	M	L	Go to a concert
	M	L	Go to a party
28.	M	L	Fight forest fires
	M	L	Install telephones
	M	L	Repair machines
29.	M	L	Help old people
	M	L	Help sick people
	M	L	Help children
30.	M	L	Refinish furniture
	M	L	Design furniture
	M	L	Sell furniture
31.	M	L	Watch a TV show about foreign affairs
	M	L	Watch a TV show about wine making
	M	L	Watch a TV show about a hospital
32.	M	L	Take a crippled person shopping
	M	L	Keep the financial records for a charity
	M	L	Paint an elderly person's living room
33.	M	L	Make tennis rackets
	M	L	Coach a tennis team
	M	L	Write newspaper articles about tennis
34.	M	L	Learn about being an ambulance attendant
	M	L	Learn about being a surveyor
	M	L	Learn about being a baker
35.	M	L	Read the front page of the newspaper
	M	L	Read the sports page of the newspaper
	M	L	Read the comic page of the newspaper
36.	M	L	Take customers orders over the phone
	M	L	Deliver orders to customers
	M	L	Prepare and send bills for orders
37.	M	L	Learn about being a chef
	M	L	Learn about being an auto mechanic
	M	L	Learn about being a medical technician
38.	M	L	Take photographs of people
	M	L	Take photographs of outdoor scenes
	M	L	Take photographs through a microscope
39.	M	L	See an exhibit of famous paintings
	M	L	See an exhibit of old medical instruments
	M	L	See an exhibit of old farm equipment
40.	M	L	Clean the inside of a car
	M	L	Look for errors in a newspaper article
	M	L	Wash dishes

GO ON TO THE NEXT PAGE

41. M L Help a carpenter
M L Help a teacher
M L Help a baker

42. M L Receive praise
M L Help other people
M L Serve my country

43. M L Go camping
M L Work on a car
M L Go to a party

44. M L Raise food
M L Sell food
M L Cook food

45. M L Clean a closet
M L Wax a car
M L Pull weeds

46. M L Study bookkeeping
M L Study plumbing
M L Study surveying

47. M L Paint a flag pole
M L Paint a fence
M L Paint a kitchen

48. M L Shop for food
M L Cut the grass
M L Vacuum the rug

49. M L Study chemistry
M L Study biology
M L Study literature

50. M L Repair typewriters
M L Sell cameras
M L Fight forest fires

51. M L Do one thing very well on the job
M L Change activities often on the job
M L Have pleasant coworkers on the job

52. M L Lead a marching band
M L Play in a marching band
M L Be drum major of a marching band

53. M L Learn about being a police officer
M L Learn about being a printer
M L Learn about being a bookkeeper

54. M L Go to an exhibit of handicrafts
M L Go to a play
M L Go to a classical music concert

55. M L Attend a lecture on water pollution
M L Attend a lecture on economics
M L Attend a lecture on heart disease

56. M L Write ads for houses
M L Write home-repair manuals
M L Write local news for a newspaper

57. M L Clean teeth in a dentist's office
M L Work in a hospital emergency room
M L Give shots to a herd of cows

58. M L Cut meat in a supermarket
M L Stock shelves in a supermarket
M L Check out goods in a supermarket

59. M L Work in a chemistry lab
M L Sell life insurance
M L Interview people for the census

60. M L Compete on a drill team
M L Umpire little league games
M L Serve as a volunteer firefighter

GO ON TO THE NEXT PAGE

61. M L Sell tools
M L Sell books
M L Sell groceries

62. M L Address envelopes
M L Wash cars
M L Sell shoes

63. M L Wash cars
M L Cut down trees
M L Pick fruit

64. M L Go to Disneyland
M L Go camping
M L Go on a boat trip

65. M L Chop firewood
M L Stack firewood
M L Deliver firewood

66. M L Collect autographs
M L Collect posters
M L Collect books

67. M L Jog
M L Play baseball
M L Fish

68. M L Write books
M L Print books
M L Sell books

69. M L Repair a bicycle
M L Polish a car
M L Paint a fence

70. M L Write a letter
M L Type a letter
M L Deliver a letter

71. M L Sort mail in a post office
M L Work at the counter of a post office
M L Deliver mail for the post office

72. M L Work for a good boss
M L Receive recognition for my work
M L Plan my own work

73. M L Take advertising photographs
M L Pose for advertising photographs
M L Print advertising photographs

74. M L Learn about being a firefighter
M L Learn about being a technician
M L Learn about being an accountant

75. M L Play in a rock group
M L Manage a rock group
M L Operate lights for a rock group

76. M L Replace an electric plug
M L Replace the oil filter on a car
M L Replace a typewriter ribbon

77. M L Act in an amateur play
M L Sell tickets for an amateur play
M L Build sets for an amateur play

78. M L Collect money for charity
M L Maintain personnel records
M L Investigate automobile accidents

79. M L Work in a book store
M L Work in an animal shelter (pound)
M L Work in a machine shop

80. M L Work for a painter part time
M L Work in a grocery store part time
M L Drive a school bus part time

GO ON TO THE NEXT PAGE

81. M L Guard prisoners
M L Drive a taxi
M L Repair appliances

82. M L Design a house
M L Build a house
M L Paint a house

83. M L Boss other people
M L Be my own boss
M L Have a good boss

84. M L Work with people
M L Work with ideas
M L Work with things

85. M L Study typing
M L Study carpentry
M L Study first aid

86. M L Play baseball
M L Shoot baskets
M L Play tennis

87. M L Drive a truck
M L Drive a race car
M L Drive a taxicab

88. M L Act in a play
M L Direct a play
M L Build sets for a play

89. M L Read about animals
M L Photograph animals
M L Write about animals

90. M L Go to a library
M L Go to a basketball game
M L Go to a science museum

91. M L Go to a fancy restaurant on a date
M L Go to a park on a date
M L Go to a concert on a date

92. M L Drive a bus
M L Operate a drill press
M L Keep employment records in a store

93. M L Work in a hospital operating room
M L Work in a hospital business office
M L Work in a hospital maintenance shop

94. M L Drive a truck across the country
M L Announce news on the radio
M L Interview job applicants

95. M L Compete in an art show
M L Compete in a public speaking contest
M L Compete in a science fair

96. M L Have a small number of good friends
M L Settle down in my community
M L Receive recognition for my work

97. M L Drive a taxi
M L Operate a telephone switchboard
M L Install telephone poles

98. M L Sell furniture
M L Pack items for shipping
M L Take blood samples from patients

99. M L Announce radio programs
M L Decide on bank loan applications
M L Show visitors through a factory

100. M L Fight forest fires
M L Keep records in a bank
M L Care for people in a retirement home

GO ON TO THE NEXT PAGE

101.	M	L	Fix a leaking faucet	111.	M	L	Write ads for a department store
	M	L	Cut the grass		M	L	Install electrical power lines
	M	L	Paint a room		M	L	Work on car engines
102.	M	L	Work in a grocery store	112.	M	L	Work in a hospital operating room
	M	L	Work in a pet shop		M	L	Tend bar in a tavern
	M	L	Work in a hardware store		M	L	Repair TV sets
103.	M	L	Make sculptures of metal	113.	M	L	Help a friend select a new car
	M	L	Write short stories		M	L	Help a friend select new clothes
	M	L	Paint pictures		M	L	Help a friend select new furniture
104.	M	L	Be secretary of a club	114.	M	L	Keep books for a business
	M	L	Be president of a club		M	L	Sell vacuum cleaners door-to-door
	M	L	Be treasurer of a club		M	L	Install highway signs
105.	M	L	Operate a bulldozer	115.	M	L	Go to a park and lie in the sun
	M	L	Operate a lathe		M	L	Go to a park and play frisbee
	M	L	Operate a computer		M	L	Go to a park and visit the zoo
106.	M	L	Watch a boxing match	116.	M	L	Design a census questionnaire
	M	L	Read a newspaper		M	L	Write a political pamphlet
	M	L	Play soccer		M	L	Plan a sales campaign for a new soup
107.	M	L	Help injured people	117.	M	L	Take blood samples in a hospital
	M	L	Repair guns		M	L	Mix dough in a bakery
	M	L	Check office records		M	L	File reports in an office
108.	M	L	Direct traffic	118.	M	L	Play games with a six year old child
	M	L	Give first aid at a fire		M	L	Take a six year old child to the zoo
	M	L	Drive a fire truck		M	L	Build toys for a six year old child
109.	M	L	Go to a party	119.	M	L	Write letters for sick people
	M	L	Go on an overnight hike		M	L	Balance checkbooks for sick people
	M	L	Tune up a car		M	L	Read stories to sick people
110.	M	L	Read about space travel	120.	M	L	Learn to use a rifle
	M	L	Read about first aid		M	L	Learn to use a short wave radio
	M	L	Read about fishing		M	L	Learn to use a business machine

121. M L Balance a checkbook
M L Type letters
M L Cook dinner

122. M L Practice music
M L Learn a foreign language
M L File papers in order

123. M L Install a bath tub
M L Weed a garden
M L Read to a blind person

124. M L Sell airline tickets
M L Sell auto parts
M L Sell stereo equipment

125. M L Interview job applicants
M L Prepare payroll checks
M L Train new employees

126. M L Deliver appliances
M L Manage a softball team
M L Wait on customers

127. M L Read about inventions
M L Read about battles
M L Read about politics

128. M L Read about medicine
M L Read about engineering
M L Read about business

129. M L Attend a rock concert
M L Attend an art exhibit
M L Attend a football game

130. M L Go to a dance
M L Go to a football game
M L Go to a night club

131. M L Figure out my income tax
M L Repair my TV set
M L Collect money for a charity

132. M L Go bicycle riding
M L Go for a hike in the woods
M L Go to a county fair

133. M L Testify in court
M L Give a political speech
M L Sell tickets for a raffle

134. M L Work at a steady job
M L Study to do my job better
M L Have a few close coworkers

135. M L Plan a political meeting
M L Run a political meeting
M L Speak at a political meeting

136. M L Plan a large party
M L Decorate for a large party
M L Entertain at a large party

137. M L Collect coins
M L Collect rocks and minerals
M L Collect autographs

138. M L Star gaze through a telescope
M L Raise tropical fish
M L Build a tool shed

139. M L Build a radio from a kit
M L Grow prize roses
M L Refinish an antique table

140. M L Keep the books in a restaurant
M L Cook the food in a restaurant
M L Serve the food in a restaurant

GO ON TO THE NEXT PAGE

141. M L Ride around in a car
M L Shop for new clothes
M L Watch TV

142. M L Play pinball machines
M L Play slot machines
M L Play cards

143. M L Visit Alaska
M L Visit China
M L Visit New York City

144. M L Watch drag races
M L Watch a tennis match
M L Watch a football game

145. M L Be the coach of a team
M L Be a player on a team
M L Be the captain of a team

146. M L Build model airplanes
M L Keep tropical fish
M L Train a hunting dog

147. M L Write business letters
M L Type business letters
M L Deliver business letters

148. M L Talk with an actor
M L Talk with an explorer
M L Talk with a race driver

149. M L Go fishing with a guide
M L Go fishing by myself
M L Go fishing with my family

150. M L Work for a scientist
M L Work for an author
M L Work for a senator

151. M L Study the causes of diseases
M L Study ancient history
M L Study how people learn

152. M L Watch a baseball game
M L Play baseball
M L Keep score at a baseball game

153. M L Check out books in a library
M L Run a lathe in a machine shop
M L Interview welfare applicants

154. M L Learn to use a microscope
M L Learn to use a map and compass
M L Learn to use a metal lathe

155. M L Campaign for a senator
M L Plan a club picnic
M L Write a job application letter

156. M L Work with an adding machine
M L Work with a power saw
M L Work with laboratory apparatus

157. M L Meet a famous athlete
M L Meet a famous singer
M L Meet a famous criminal lawyer

158. M L Train horses at a race track
M L Announce races at a race track
M L Take bets at a race track

159. M L Read a book to an invalid
M L Go shopping for an invalid
M L Cook a meal for an invalid

160. M L Tend bar in a restaurant
M L Plan the menus for a restaurant
M L Wait on tables in a restaurant

161. M L Work on a farm
M L Work in a factory
M L Work in a small office

162. M L Go to a drive-in movie
M L Go to a ball game
M L Go to a fancy restaurant

163. M L Shop for a MoPed
M L Shop for a camera
M L Shop for a tape recorder

164. M L Do a crossword puzzle
M L Play Monopoly
M L Play cards

165. M L Repair radios
M L Write radio commercials
M L Make radio announcements

166. M L Repair a broken window
M L Paint the kitchen
M L Weed the garden

167. M L Visit the mountains
M L Visit the seashore
M L Visit historical places

168. M L Read water meters
M L File office work orders
M L Check tools in and out

169. M L Mow the grass
M L Balance a checkbook
M L Plan a meal

170. M L Help old people
M L Help crippled people
M L Help blind people

171. M L Work a crossword puzzle
M L Solve a mathematical puzzle
M L Put together a picture puzzle

172. M L Distribute magazines to stores
M L Operate a bulldozer
M L Drive an ambulance

173. M L Repair a light socket
M L Mix paint to match a sample
M L Balance my checkbook

174. M L Teach survival in the desert
M L Teach consumer education
M L Teach auto body repair

175. M L Write a computer program
M L Design a racing car body
M L Plan a political campaign

176. M L Repair radio antennas
M L Direct a student orchestra
M L Teach English to foreigners

177. M L Organize a sports team
M L Collect money for a charity
M L Build a fence

178. M L Read a book in the evening
M L Watch TV in the evening
M L Go to a movie in the evening

179. M L Write a do-it-yourself book
M L Write a science book
M L Write a history book

180. M L Draw graphs and charts
M L Repair motor vehicles
M L Operate a copying machine

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181.	M	L	Play in a rock group	191.	M	L	Repair broken electric wires
	M	L	Drive a tractor		M	L	Repair a broken water pump
	M	L	Write computer programs		M	L	Repair a broken window
182.	M	L	Solve math problems	192.	M	L	Build a doghouse
	M	L	Type letters		M	L	Prepare a dinner for 20 people
	M	L	Wrap packages		M	L	Write a newspaper story
183.	M	L	Listen to folk music	193.	M	L	Play pinball with friends
	M	L	Listen to jazz		M	L	Talk with friends
	M	L	Listen to rock music		M	L	Watch TV with friends
184.	M	L	Work in a TV factory	194.	M	L	Translate a message into code
	M	L	Work in a TV store		M	L	Wax a car
	M	L	Work in a TV repair shop		M	L	Make homemade ice cream
185.	M	L	Play basketball	195.	M	L	Use electronic test equipment
	M	L	Play checkers or chess		M	L	Use hand tools
	M	L	Play horseshoes		M	L	Use heavy equipment
186.	M	L	Drive a cab	196.	M	L	Operate a crane
	M	L	Serve food in a restaurant		M	L	Operate a business machine
	M	L	Operate a cash register		M	L	Operate a lathe
187.	M	L	Paint pictures	197.	M	L	Listen to a U.S. Senator speak
	M	L	Make picture frames		M	L	Listen to an astronaut speak
	M	L	Sell pictures in a gallery		M	L	Listen to a economist speak
188.	M	L	Build a guitar	198.	M	L	Address invitations to a party
	M	L	Play the guitar		M	L	Play guitar at a party
	M	L	Compose music for the guitar		M	L	Serve food at a party
189.	M	L	Plan a menu for a party	199.	M	L	Correct arithmetic problems
	M	L	Prepare the food for a party		M	L	Give a talk on balanced diets
	M	L	Serve the food at a party		M	L	Play in an orchestra
190.	M	L	Learn about conserving energy	200.	M	L	Shop for garden tools
	M	L	Learn about buying a house		M	L	Shop for a bicycle
	M	L	Learn about life insurance		M	L	Shop for phonograph records

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201. M L Prepare food in a cafeteria
M L Repair radio receivers
M L Process insurance claims

202. M L Fill out a loan application
M L Take a driving tests
M L Interview for a job

203. M L Sell airplane tickets
M L Load baggage on airplanes
M L Clean the inside of airplanes

204. M L Take care of injured animals
M L Replace broken windows
M L Solve math problems

205. M L Be a member of a drill team
M L Be a member of a science club
M L Be a member of an auto club

206. M L Sell hot dogs at a ball game
M L Read to the blind
M L Trim trees

207. M L Operate a radio transmitter
M L Drive a dump truck
M L Give vision tests

208. M L Supervise people on the job
M L Earn a high salary
M L Work with nice people

209. M L Take care of farm animals
M L Coach a little league team
M L Work in a parking garage

210. M L Replace an electric outlet
M L Change the oil in a car
M L Shop for groceries

211. M L Meet a famous artist
M L Meet a famous medical doctor
M L Meet a famous businessperson

212. M L Plan delivery truck routes
M L Service delivery trucks
M L Drive a delivery truck

213. M L Find an error in my checkbook
M L Repair a leaky faucet
M L Change a flat tire

214. M L Work at a children's camp
M L Work for the telephone company
M L Work for a trucking company

215. M L Have many friends
M L Know a great deal
M L Be respected by coworkers

216. M L Work in an office building
M L Work in a factory
M L Work in a hospital

217. M L Work for a book publisher
M L Work for a electronics company
M L Work for a railroad

218. M L Work with delicate equipment
M L Work with rugged equipment
M L Work with ideas

219. M L Develop film in a photo lab
M L Guard a warehouse
M L Drive a farm tractor

220. M L Read science fiction novels
M L Read war novels
M L Read mystery novels

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221. M L Plan the menu for a big dinner party
M L Address the invitations to a big dinner party
M L Decorate the table for a big dinner party

222. M L Return a defective $3.00 item to the store
M L Throw a defective $3.00 item away
M L Repair a defective $3.00 item myself

223. M L Read an article about a new "miracle" drug
M L Read a review of a new movie
M L Read an article about a newly elected politician

224. M L Handle the money and pay the bills for a concert
M L Do the publicity and sell the tickets for a concert
M L Select the hall and book the musicians for a concert

225. M L Work for a very small company for above average pay
M L Work for a medium size company for average pay
M L Work for a very large company for below average pay

THIS IS THE END OF THIS SECTION. PLEASE GO BACK AND CHECK TO MAKE SURE YOU HAVE CIRCLED ONE M AND ONE L IN EACH GROUP OF THREE ACTIVITIES.

PART III

JOB HISTORY AND STATUS

This section contains questions about you, and covers topics such as your personal characteristics, your job history, your education and training, and your physical fitness. Please answer each question by drawing a circle around the number next to the correct answer or by writing the correct answer on the line next to the question. For example, if you were a 23 year old male, you would answer question one by writing 23 in the space next to question one, and you would answer question two by drawing a circle around the number 1 next to the word Male which follows question two.

1. _____ How old were you on your last birthday?
2. What is your sex?
   - 1 = Male
   - 2 = Female
3. How many dependents do you have?
   - 0 = None
   - 1 = One
   - 2 = Two
   - 3 = Three
   - 4 = Four
   - 5 = Five or more
4. What is your race/ethnic background?
   - 1 = American Indian or Alaskan Native
   - 2 = Asian or Pacific Islander
   - 3 = Black, not of Hispanic Origin
   - 4 = Hispanic
   - 5 = White, not of Hispanic Origin
   - 6 = Not Hispanic in Puerto Rico
   - 7 = Other
5. What is your marital status?
   - 1 = Single, never married
   - 2 = Separated
   - 3 = Divorced
   - 4 = Widowed
   - 5 = Married

JOB HISTORY

6. _____ How many months have you been in the Army?
7. _____ How many months have you been in your current unit? (If less than one month, write 1.)
8. What is your present grade?
   - 1 = E1
   - 2 = E2
   - 3 = E3
   - 4 = E4
   - 5 = E5 or higher
9. _____ How many months have you been in your present grade? (If less than one month, write 1.)

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10. What is your duty position grade?

1 = E1

2 = E2

3 = E3

4 = E4

5 = E5 or higher

11. What is the highest grade you have held?

1 = E1

2 = E2

3 = E3

4 = E4

5 = E5 or higher

12. _____ What is your primary MOS?

13. _____ What is your secondary MOS?

14. Do you have an additional skill indicator?

0 = No

1 = Yes

15a. Have you taken the SQT in your MOS?

0 = No

1 = Yes

15b. _____% If yes, what was your SQT score?

16. Have you ever had a security clearance denied or withdrawn for cause?

0 = No

1 = Yes

ADMINISTRATIVE ACTIONS

17. Have you received an Army Commendation Medal?

0 = No

1 = Yes

18. Have you received a Good Conduct Medal?

0 = No

1 = Yes

19. _____ How many times have have you been absent without leave (AWOL)?

20. _____ How many counseling for inefficiency letters have you received?

21. _____ How many administrative punishments (Article 15) have you received?

22. _____ How many court martial convictions have your received?

23. _____ How many bars to reenlistment do you have?

24. _____ How many letters of indebtedness do you have?

25. _____ How many letters of recognition (commendation or appreciation) do you have?

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EDUCATION/TRAINING

26. What is the highest level of civilian education you have completed?

09 = 9th grade or less

10 = 10th grade

11 = 11th grade

12 = 12th grade

13 = 1st year of college

14 = 2nd year of college

15 = 3rd year of college

16 = 4th year of college or more

27a. Are you currently enrolled in a military education program?

0 = No

1 = Yes

27b. If yes, please list the course or courses.

_____

_____

_____

28a. Are you currently enrolled in a civilian education program?

0 = No

1 = Yes

28b. If yes, please list the course or courses.

_____

_____

_____

PHYSICAL FITNESS

29. _____ What was your last physical fitness test score?

30. _____ What is your physical profile?

31. _____ How many months since your last physical fitness test?

32. Are you overweight by Army standards?

0 = No

1 = Yes

33a. Do you have any assignment limitations due to your current physical profile?

0 = No

1 = Yes

33b. If yes, please specify what these limitations are.

_____

_____

_____

THIS IS THE END. PLEASE GO BACK AND CHECK OVER YOUR ANSWERS TO THE QUESTIONS IN THIS SECTION.

APPENDIX B

Eleven Sets of Rankings of Sums of Absolute Differences Used for Empirical Selection of Triads

The triad numbers used in this appendix correspond to the numbers of the triads in Appendix A.

Rankings of Sums of Absolute Differences (SUM)
of All Possible Pairs of Triads
and for All Pairs Combined (OVERALL)

	OVERALL		11 VS 63B		11 VS 64C		11 VS 91	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
1	11	1407.6	11	148.4	174	120.2	216	219.2
2	93	1376.4	109	138.7	95	104.5	94	210.8
3	24	1352.2	81	136.9	170	99.1	24	202.9
4	174	1300.1	174	136.4	214	98.3	98	197.2
5	94	1280.4	37	134.1	207	98.2	172	195.9
6	216	1279.4	28	133.7	221	90.3	128	193.6
7	37	1273.4	43	126.5	147	88.0	12	193.5
8	112	1242.5	124	118.8	87	86.2	207	191.2
9	108	1229.5	24	116.1	121	85.0	105	185.9
10	28	1221.6	184	111.8	90	84.6	112	184.0
11	207	1207.0	93	108.9	125	81.9	76	180.5
12	128	1195.9	79	105.3	52	81.9	39	180.1
13	214	1174.9	111	104.3	17	80.2	93	178.9
14	172	1169.9	9	101.3	133	80.0	107	178.6
15	98	1144.9	112	100.3	23	79.2	100	171.3
16	105	1136.5	44	99.1	65	77.7	55	170.5
17	81	1121.8	205	97.9	4	76.8	11	168.3
18	156	1031.4	180	95.9	224	76.0	211	159.9
19	124	1026.2	138	95.2	11	75.8	37	158.5
20	180	1021.4	183	90.1	48	75.3	85	158.1
21	12	991.7	50	89.6	108	75.3	57	157.0
22	109	987.4	201	88.7	71	71.4	28	156.8
23	57	986.5	156	87.9	110	70.9	110	155.8
24	110	985.2	33	87.9	66	70.6	31	154.4
25	79	963.0	110	87.7	111	69.8	108	154.3
26	39	953.6	221	86.6	215	69.2	63	153.1
27	46	947.5	214	85.1	8	68.0	218	152.9
28	76	946.4	194	84.7	216	66.6	41	152.9
29	43	945.2	191	83.1	69	66.4	77	148.1
30	111	943.0	56	80.5	205	66.4	117	148.0
31	218	935.4	128	79.0	46	66.2	48	147.7
32	176	933.4	103	75.8	93	65.0	174	147.6
33	85	933.2	148	75.7	191	64.8	16	146.4
34	17	932.9	6	75.2	92	64.7	156	145.5
35	53	926.6	86	74.3	171	63.7	141	143.8
36	181	915.4	212	73.2	179	63.5	21	143.1
37	117	910.3	208	73.1	173	63.3	151	143.0
38	211	905.0	58	72.4	34	62.8	161	142.1
39	41	898.9	123	72.2	26	61.9	181	140.1
40	100	897.2	40	71.4	165	61.8	176	140.0
41	54	892.1	149	70.3	103	61.6	54	139.8

	OVERALL		11 VS 63B		11 VS 64C		11 VS 91	
RANK	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM
42	195	886.6	151	70.0	190	61.6	169	139.8
43	191	886.3	213	69.8	218	57.5	84	136.2
44	61	883.0	55	69.7	41	57.3	50	135.6
45	107	871.0	96	69.4	112	57.1	53	133.6
46	87	865.8	61	69.2	75	56.9	180	132.0
47	50	863.1	63	68.2	94	56.3	220	127.6
48	26	863.0	219	68.0	10	56.0	18	125.0
49	103	862.9	211	68.0	98	55.6	214	125.0
50	65	856.0	45	67.0	50	55.2	165	124.9
51	165	855.9	84	66.9	206	54.9	74	124.6
52	31	855.6	120	66.3	123	54.6	120	123.5
53	16	855.1	222	65.8	177	54.5	26	121.0
54	77	853.1	158	65.5	199	54.1	154	120.3
55	161	835.4	175	65.3	172	53.2	46	118.7
56	184	832.9	182	65.2	192	51.7	47	118.1
57	147	823.8	100	64.6	64	51.6	182	116.9
58	55	821.8	17	63.8	160	51.6	29	116.9
59	29	821.4	82	63.5	104	51.4	195	116.4
60	182	819.9	154	63.2	59	51.1	135	116.3
61	23	818.1	35	63.2	153	50.6	219	115.9
62	154	813.0	171	63.0	53	50.3	61	113.9
63	219	809.3	200	62.8	74	50.1	34	113.8
64	144	804.6	118	62.5	77	50.0	124	111.9
65	133	801.8	57	62.0	55	49.9	196	111.6
66	205	789.0	168	61.8	115	49.8	168	111.4
67	48	787.3	29	61.8	198	49.8	17	111.4
68	148	786.0	121	60.6	203	49.6	97	110.9
69	18	786.0	170	60.5	161	49.6	88	109.6
70	224	779.9	198	60.5	29	49.3	58	108.7
71	6	779.5	4	60.1	15	49.1	6	108.3
72	74	769.0	122	60.0	117	48.9	92	108.1
73	63	768.8	90	59.8	208	48.8	79	107.7
74	21	767.2	192	59.5	223	48.7	4	107.4
75	169	765.7	179	59.4	40	48.7	200	106.6
76	168	763.7	165	59.2	204	48.3	144	106.2
77	84	762.5	52	59.1	124	48.1	59	106.2
78	151	759.4	216	58.2	181	47.9	123	106.0
79	138	748.7	146	57.7	142	47.9	32	104.5
80	215	746.6	129	57.1	35	47.8	114	104.3
81	56	746.2	101	56.8	54	47.6	67	102.5
82	200	744.6	23	56.6	169	47.6	65	102.3
83	59	743.9	1	56.3	126	47.3	173	101.3
84	92	740.3	94	56.1	168	47.0	14	101.0
85	47	739.4	75	55.7	24	47.0	210	99.5
86	9	739.0	26	55.1	82	46.8	206	99.1
87	194	737.5	105	54.9	180	46.5	10	98.3
88	8	736.3	147	54.8	213	46.5	129	97.5

	OVERALL		11 VS 63B		11 VS 64C		11 VS 91	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
89	212	735.1	137	54.3	148	46.1	177	96.9
90	153	731.2	167	54.2	62	46.0	204	95.4
91	201	729.7	19	53.8	109	45.9	143	93.9
92	34	729.4	60	53.3	176	45.4	102	93.7
93	132	723.0	197	52.7	105	44.9	8	93.3
94	58	722.6	172	52.4	63	44.9	208	93.0
95	141	721.0	144	52.4	61	44.3	115	93.0
96	221	719.6	113	52.2	118	44.2	149	92.3
97	120	714.9	153	52.1	22	44.0	153	91.5
98	170	704.6	195	51.7	116	43.8	20	91.4
99	67	701.9	18	51.5	68	43.8	202	90.5
100	123	701.2	215	51.5	212	43.7	184	89.8
101	186	690.9	131	51.3	195	43.2	197	88.9
102	115	689.0	77	51.3	106	43.0	113	88.2
103	204	685.5	217	51.2	219	42.8	175	87.1
104	44	682.7	27	50.6	137	42.1	82	87.0
105	220	680.4	127	50.6	210	41.8	201	86.7
106	82	675.8	65	50.5	159	41.7	148	86.0
107	129	675.6	187	50.1	217	41.2	111	84.8
108	143	673.4	46	50.0	184	40.6	81	84.4
109	71	672.0	132	49.7	5	40.5	223	83.9
110	135	669.9	102	49.4	27	40.0	212	83.7
111	179	669.9	133	49.3	201	39.7	186	83.3
112	66	668.5	47	49.0	97	39.6	190	82.3
113	4	665.1	67	49.0	211	39.5	43	81.8
114	171	664.6	176	48.9	197	39.5	23	80.6
115	33	663.4	91	48.8	7	39.2	158	80.5
116	113	659.2	188	48.0	136	39.2	132	80.2
117	20	657.8	99	47.9	37	39.1	127	79.2
118	52	657.0	14	47.7	80	38.8	72	79.1
119	196	651.2	140	47.4	202	38.7	71	78.3
120	90	639.1	31	47.3	96	38.6	56	78.0
121	192	637.8	70	47.0	89	38.1	138	76.7
122	183	634.9	87	46.9	84	38.1	89	75.1
123	210	629.8	30	46.8	102	38.0	33	74.9
124	202	621.0	8	46.6	163	37.7	194	74.3
125	102	620.9	76	46.0	18	37.7	203	73.5
126	217	618.3	160	45.8	76	37.7	101	73.4
127	121	612.4	178	45.8	32	37.7	192	72.7
128	118	606.8	166	45.6	143	37.6	52	72.6
129	101	606.3	185	45.6	79	37.5	125	72.0
130	175	604.5	157	45.5	186	37.3	9	71.0
131	97	604.4	126	45.2	130	37.3	222	70.9
132	125	602.5	66	44.7	39	37.1	183	70.7
133	173	599.1	64	44.2	70	37.0	162	70.4
134	178	598.5	68	43.8	149	36.9	145	69.6
135	158	594.6	71	43.3	57	36.3	121	68.6

	OVERALL		11 VS 63B		11 VS 64C		11 VS 91	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
136	223	589.6	177	43.0	144	35.9	140	68.5
137	206	587.1	210	42.7	43	35.8	188	68.2
138	146	582.2	22	42.4	21	35.7	147	68.1
139	88	581.8	62	42.4	67	35.1	5	68.0
140	203	580.9	186	42.0	193	34.7	90	67.9
141	190	578.7	5	41.7	78	34.6	42	67.7
142	32	567.7	54	41.5	209	34.5	87	67.4
143	86	566.6	108	41.5	158	33.8	225	67.4
144	10	564.4	98	41.2	100	33.4	191	66.3
145	126	562.6	80	40.9	166	33.0	209	66.2
146	177	558.8	225	40.2	178	32.8	215	65.4
147	149	551.4	89	39.9	44	32.7	150	65.1
148	95	548.3	20	39.6	222	32.3	178	65.0
149	64	546.2	104	38.9	194	32.3	80	64.7
150	225	545.6	51	38.9	119	32.2	25	64.6
151	208	540.9	130	38.5	42	32.0	96	64.1
152	114	539.5	85	38.4	140	31.7	126	63.9
153	1	537.4	36	38.1	167	31.6	2	63.8
154	5	535.9	141	38.1	38	31.4	187	63.3
155	75	534.4	150	37.9	85	31.0	217	62.6
156	188	533.3	25	37.5	156	31.0	157	62.3
157	80	532.1	163	37.3	3	30.7	224	61.9
158	62	526.8	135	37.0	73	30.7	185	60.5
159	104	526.4	49	36.6	113	30.7	103	60.4
160	96	525.4	143	36.5	139	30.6	179	59.3
161	157	523.7	12	36.4	220	30.5	118	59.1
162	72	521.0	72	36.4	47	30.3	205	58.4
163	14	520.3	39	36.4	129	30.3	146	58.4
164	209	518.0	2	35.7	12	29.9	137	57.5
165	222	517.1	161	35.2	151	29.8	3	57.5
166	122	515.9	16	35.1	1	29.8	213	57.5
167	213	514.0	145	35.0	86	29.6	189	56.9
168	187	513.0	220	33.8	145	29.4	109	55.1
169	35	511.4	193	33.6	157	29.4	130	54.7
170	193	511.0	181	33.5	150	28.9	133	54.3
171	68	509.9	92	33.1	132	28.8	119	54.1
172	127	509.2	107	32.9	154	28.5	152	53.9
173	140	507.9	119	32.7	45	28.4	163	53.7
174	40	506.6	97	32.4	9	28.1	13	53.7
175	197	506.4	196	31.9	152	27.9	1	53.5
176	185	506.2	7	31.6	72	27.4	66	53.2
177	27	493.9	164	31.4	200	27.3	171	52.2
178	69	484.5	223	31.3	56	27.3	62	52.1
179	131	483.5	190	31.3	101	27.0	64	51.1
180	167	477.7	42	31.3	99	26.8	38	50.8
181	150	477.0	159	31.1	155	26.8	155	50.4
182	22	474.9	199	30.9	25	26.4	193	49.8

	OVERALL		11 VS 63B		11 VS 64C		11 VS 91	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
183	198	474.8	3	30.6	14	26.0	70	49.4
184	42	472.2	95	30.6	2	25.6	44	47.6
185	70	467.0	134	30.3	189	25.5	131	47.4
186	15	460.0	15	30.0	30	25.4	142	47.1
187	89	456.1	83	30.0	36	25.0	69	46.8
188	3	452.9	202	29.9	91	24.9	136	45.6
189	137	452.1	224	29.3	138	24.8	104	45.2
190	25	448.2	74	29.3	131	24.3	159	42.9
191	19	443.8	53	28.9	225	24.1	86	42.7
192	60	442.5	106	28.6	19	23.9	68	42.1
193	2	439.9	203	28.5	164	23.7	95	41.3
194	163	435.7	152	27.7	127	23.5	167	38.8
195	136	434.6	142	27.5	6	23.0	170	38.4
196	152	429.7	139	27.4	183	22.8	36	38.3
197	99	428.3	206	26.7	187	22.8	116	37.7
198	199	423.1	69	25.6	196	22.7	160	37.7
199	160	422.0	115	25.4	134	22.6	60	37.3
200	130	413.2	41	25.0	60	22.6	99	37.1
201	13	412.6	116	25.0	13	22.2	83	37.0
202	189	410.2	136	24.6	146	21.8	51	36.7
203	38	408.5	78	24.2	88	21.4	19	35.2
204	145	407.5	155	24.0	128	21.3	164	34.9
205	166	400.4	162	24.0	16	20.8	22	34.8
206	159	399.0	34	23.7	81	20.3	166	34.8
207	106	397.0	173	23.6	185	20.2	198	34.7
208	45	395.7	207	23.1	120	20.0	49	34.3
209	91	394.5	59	22.2	51	19.7	40	33.9
210	155	392.0	117	21.6	162	18.8	78	33.4
211	164	389.4	204	21.1	107	18.0	27	33.4
212	142	385.6	38	21.0	20	17.2	106	32.9
213	51	384.3	10	20.9	83	15.9	7	31.1
214	78	383.5	73	20.8	33	15.5	35	30.3
215	36	382.7	169	19.5	31	15.2	91	30.1
216	162	377.9	13	19.1	135	14.5	75	29.8
217	116	376.3	209	18.8	122	14.3	45	29.5
218	30	354.2	114	18.2	28	14.3	221	29.4
219	134	347.0	48	18.0	49	13.8	134	28.5
220	139	344.3	218	17.2	58	13.2	139	19.3
221	7	339.1	88	14.2	188	12.8	73	19.0
222	119	335.5	32	14.1	182	10.1	15	18.5
223	83	333.1	21	13.1	114	10.0	30	18.0
224	49	310.9	125	12.6	141	9.8	199	14.7
225	73	244.0	189	9.1	175	9.1	122	10.2

	11 VS 95		63B VS 64C		63B VS 91		63B VS 95	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
1	108	99.0	43	136.7	11	300.5	81	230.8
2	81	93.9	9	127.7	24	295.8	109	166.0
3	23	91.9	28	124.8	37	276.0	28	165.5
4	34	84.5	207	120.1	93	257.7	174	163.2
5	133	68.3	81	120.0	128	241.8	11	151.7
6	41	67.1	201	116.0	216	239.1	93	149.9
7	103	65.6	179	115.8	105	230.9	37	145.9
8	173	65.0	171	111.6	94	230.9	79	137.9
9	53	63.1	138	108.8	124	230.6	24	127.3
10	46	62.6	37	108.1	172	230.3	128	122.5
11	87	61.4	165	107.6	180	228.0	124	121.5
12	224	60.8	109	107.4	174	223.6	103	121.0
13	90	60.0	215	106.7	112	222.0	43	121.0
14	132	59.3	219	106.3	156	220.1	214	119.6
15	42	58.8	170	105.5	98	210.8	184	117.3
16	201	58.5	71	102.6	39	204.8	221	115.8
17	122	58.4	75	101.2	76	203.3	108	115.6
18	178	58.0	11	100.2	214	199.3	46	112.6
19	165	57.0	128	98.4	12	193.0	138	112.4
20	177	56.9	212	96.5	43	193.0	50	111.8
21	191	56.8	184	92.5	109	191.7	9	110.0
22	117	56.5	174	91.4	111	189.2	165	109.8
23	210	56.0	27	90.0	107	188.5	112	108.9
24	115	55.9	35	88.7	176	184.1	61	108.2
25	104	55.8	79	88.7	85	182.8	156	108.0
26	208	55.0	86	86.9	28	181.5	33	107.9
27	116	53.7	56	84.8	154	180.6	122	107.6
28	195	53.7	192	84.5	165	176.0	44	106.2
29	220	53.6	103	83.3	41	175.4	87	104.9
30	51	53.4	41	82.3	110	175.1	201	104.4
31	84	52.8	211	81.9	17	175.1	146	104.0
32	10	51.1	44	80.8	181	173.6	194	101.9
33	141	50.8	6	80.3	108	172.9	111	100.4
34	181	50.6	23	80.3	61	172.6	23	96.6
35	146	49.2	104	78.8	207	172.4	56	96.5
36	168	49.2	200	78.6	138	171.9	205	93.6
37	109	48.3	95	77.9	77	171.6	86	93.4
38	209	48.0	48	77.7	184	169.7	41	92.2
39	218	47.5	33	77.3	46	168.7	53	91.1
40	213	47.0	191	75.7	195	168.1	176	90.7
41	169	46.9	183	75.1	57	167.1	26	90.1
42	214	46.8	167	74.2	18	166.2	144	89.8
43	176	46.7	64	74.2	182	163.8	182	89.7
44	128	46.3	186	74.1	56	158.5	65	89.5
45	28	46.0	46	73.8	161	156.9	180	89.0
46	185	45.8	93	72.9	169	155.6	183	88.1
47	4	45.3	124	72.7	218	155.6	94	87.3

	11 VS 95		63B VS 64C		63B VS 91		63B VS 95	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
48	152	45.2	125	72.6	144	155.3	158	87.1
49	61	45.2	94	72.1	21	153.4	34	87.1
50	20	45.2	101	72.0	117	152.2	105	86.4
51	111	45.0	58	71.5	29	150.7	191	83.6
52	147	45.0	175	71.1	79	149.9	153	83.1
53	148	44.6	154	70.9	191	149.3	20	82.7
54	15	44.4	199	70.9	194	149.3	133	81.9
55	16	43.6	57	70.9	148	147.4	110	81.6
56	54	43.5	187	70.5	212	145.1	75	81.3
57	200	43.4	4	69.8	168	144.4	147	80.6
58	153	43.4	24	69.1	84	143.4	212	79.5
59	12	43.3	194	68.3	26	143.0	58	78.7
60	27	43.2	224	66.0	205	142.8	118	78.5
61	221	43.1	69	65.8	6	142.4	120	78.4
62	47	43.1	137	65.7	54	141.3	170	78.2
63	25	43.0	34	65.5	113	140.4	35	77.8
64	130	42.8	108	65.2	58	138.8	85	77.7
65	98	41.9	151	64.8	82	136.4	178	77.2
66	59	41.4	120	64.5	31	135.9	167	76.7
67	33	41.2	118	64.4	16	135.4	100	75.7
68	211	41.2	112	64.3	48	134.5	217	75.6
69	93	41.0	190	64.1	23	134.3	66	75.1
70	144	40.4	182	63.8	67	134.3	195	74.7
71	110	40.4	74	62.8	196	132.4	113	73.8
72	182	40.4	204	62.7	103	131.3	5	73.6
73	164	40.4	222	62.1	132	127.3	96	73.0
74	6	40.2	3	61.4	44	125.7	57	71.2
75	65	39.9	123	61.1	53	125.4	6	71.2
76	121	39.8	149	61.1	8	125.0	224	70.7
77	2	39.6	176	60.1	143	124.3	45	70.0
78	85	39.3	132	59.5	123	123.8	200	70.0
79	225	39.3	193	59.3	65	123.8	213	70.0
80	123	39.2	66	59.1	141	123.4	225	69.9
81	190	39.1	185	59.0	147	122.9	181	69.7
82	189	38.9	188	58.6	88	121.8	188	69.7
83	143	38.9	98	57.9	92	117.7	101	69.7
84	186	38.7	156	57.9	192	116.8	1	68.6
85	75	38.6	140	57.6	100	115.8	123	68.4
86	19	38.5	100	57.5	202	115.2	131	68.2
87	95	38.3	15	56.5	153	114.8	102	67.3
88	204	37.8	173	55.9	114	114.2	70	66.3
89	193	37.8	169	55.6	188	114.1	80	65.2
90	66	37.5	172	55.6	200	113.3	8	65.2
91	67	37.1	59	55.5	55	111.0	175	64.6
92	105	36.9	157	55.4	211	109.5	31	63.8
93	174	36.9	218	54.9	59	109.4	220	63.7
94	83	36.8	20	54.7	135	109.2	135	63.7

	11 VS 95		63B VS 64C		63B VS 91		63B VS 95	
RANK	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM
95	183	36.3	148	54.5	201	107.8	98	63.5
96	76	36.1	47	54.4	9	107.1	68	63.2
97	120	35.7	133	54.1	97	106.9	42	62.4
98	97	35.5	214	54.1	210	106.6	54	61.7
99	26	35.4	52	53.2	47	106.2	169	61.6
100	60	35.3	117	52.7	220	104.9	40	61.4
101	44	35.2	60	52.3	86	104.6	216	61.1
102	219	34.7	113	52.2	34	102.7	154	61.1
103	158	34.6	213	52.1	126	102.4	157	60.7
104	80	34.5	180	51.4	74	99.5	29	59.5
105	137	34.5	205	51.4	115	99.5	173	59.2
106	48	34.4	45	50.9	63	98.2	215	58.9
107	215	33.6	30	50.6	80	96.4	193	58.9
108	118	33.2	203	50.5	33	96.4	218	58.8
109	22	33.1	87	50.3	217	95.7	129	58.5
110	94	32.9	38	50.3	40	95.7	172	58.0
111	172	32.8	53	50.3	32	95.1	67	58.0
112	79	32.6	122	50.0	187	95.1	36	57.9
113	50	32.2	19	49.8	129	94.9	179	57.1
114	49	32.1	16	49.4	206	94.7	30	57.1
115	5	31.9	178	49.1	171	93.5	139	57.0
116	188	31.7	129	49.0	175	93.4	187	56.9
117	175	31.6	106	48.9	102	93.1	116	56.5
118	13	31.5	96	48.9	151	92.8	82	55.7
119	11	31.4	92	47.7	62	92.4	99	55.2
120	31	31.3	25	47.7	81	92.2	91	55.2
121	139	31.1	54	47.6	131	92.2	152	55.1
122	223	30.7	198	47.5	225	92.1	208	55.0
123	125	30.4	68	47.5	150	91.1	202	54.3
124	112	30.2	91	47.5	219	90.5	55	54.2
125	72	30.1	147	47.4	87	90.1	76	54.2
126	57	30.0	216	45.8	140	89.3	219	53.6
127	1	29.8	77	45.8	4	89.3	148	53.5
128	21	29.1	144	45.2	19	88.8	132	53.3
129	157	29.0	131	45.2	133	88.0	17	53.2
130	198	29.0	206	45.1	185	88.0	197	51.9
131	140	28.9	51	44.8	118	86.5	47	50.9
132	134	28.6	97	44.8	101	86.4	137	50.8
133	101	28.1	14	44.4	35	86.1	3	50.6
134	156	28.0	50	44.3	173	85.5	171	50.6
135	202	27.9	143	44.1	75	83.9	63	50.6
136	206	27.9	99	43.8	68	83.8	84	50.2
137	86	27.6	72	43.8	10	82.9	185	50.0
138	184	27.4	70	43.7	204	82.6	199	49.4
139	217	27.4	217	43.4	1	81.0	22	49.4
140	199	27.4	84	43.0	127	80.4	64	49.4
141	135	27.3	158	42.9	224	80.1	149	48.5

	11 VS 95		63B VS 64C		63B VS 91		63B VS 95	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
142	74	27.3	1	42.4	203	79.4	16	47.9
143	129	27.3	136	42.3	221	78.5	166	47.6
144	24	27.0	121	41.8	90	78.5	151	47.5
145	96	27.0	152	41.5	99	78.5	71	47.3
146	151	27.0	135	41.4	186	78.1	189	47.3
147	207	26.9	142	41.3	66	78.1	77	46.3
148	197	26.4	67	41.2	22	77.2	18	46.2
149	56	26.4	10	41.1	170	75.4	12	46.1
150	102	26.2	134	40.8	155	74.0	163	45.8
151	78	26.0	166	40.8	42	73.7	164	45.7
152	222	25.8	111	40.1	223	73.7	74	45.4
153	17	25.6	146	39.6	72	72.9	121	45.4
154	131	25.6	107	39.2	152	72.7	210	44.4
155	55	25.4	62	38.9	52	70.7	223	44.1
156	216	25.2	17	38.6	3	69.9	150	44.0
157	138	25.1	159	38.2	120	69.2	186	43.7
158	160	24.5	12	38.1	60	69.1	126	43.0
159	29	24.5	195	37.5	125	68.6	52	42.7
160	68	24.3	210	36.8	157	68.1	89	42.6
161	180	24.2	153	36.7	71	67.6	134	42.5
162	170	24.0	61	36.5	198	67.4	196	42.5
163	194	23.8	63	36.5	222	66.9	222	42.1
164	192	23.6	13	36.4	2	66.7	97	41.9
165	70	23.4	31	36.4	130	65.1	192	41.9
166	114	23.4	18	36.4	177	64.4	127	41.6
167	149	23.1	42	36.1	121	64.1	161	41.5
168	166	22.6	160	35.9	215	63.2	78	40.7
169	39	22.6	141	35.4	13	63.2	190	40.5
170	167	22.5	127	35.4	50	63.2	90	39.9
171	92	22.4	80	35.2	122	63.2	204	39.5
172	8	22.4	225	34.9	209	63.2	48	39.3
173	196	22.4	32	34.7	162	62.8	209	39.3
174	119	22.3	7	34.7	189	60.9	211	38.4
175	205	22.1	65	34.6	14	59.9	19	37.7
176	3	21.9	139	34.5	27	57.4	72	37.2
177	63	21.6	115	34.2	179	57.4	206	37.2
178	113	21.6	102	33.2	190	57.1	117	36.7
179	99	21.6	78	33.1	25	57.1	177	36.1
180	52	21.2	36	32.8	183	54.9	203	35.8
181	179	21.1	177	32.5	136	54.5	198	35.8
182	186	20.8	163	32.2	178	54.5	14	35.6
183	212	20.7	8	32.2	20	53.9	107	35.5
184	203	20.2	161	32.1	78	53.5	38	35.4
185	40	20.2	155	31.2	213	52.1	159	35.0
186	36	20.0	88	31.1	106	52.0	51	34.9
187	142	19.7	55	30.7	64	52.0	15	34.8
188	9	19.5	76	30.2	30	51.4	7	34.4

	11 VS 95		63B VS 64C		63B VS 91		63B VS 95	
RANK	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM
189	71	19.4	29	30.2	104	51.0	2	34.2
190	136	19.1	90	30.0	45	50.7	49	34.1
191	14	19.0	40	29.8	91	49.8	62	33.6
192	145	18.9	145	29.8	70	49.0	10	33.4
193	30	18.9	26	28.8	164	48.4	104	32.3
194	107	18.6	116	28.8	166	47.4	136	32.3
195	45	18.6	39	28.0	7	46.9	13	32.3
196	155	17.7	110	28.0	160	46.9	39	31.9
197	150	17.4	223	27.8	69	46.3	160	31.4
198	154	17.3	208	27.8	142	45.6	168	30.8
199	62	17.2	83	27.5	95	45.3	140	30.7
200	100	17.2	73	27.4	5	44.3	115	30.5
201	89	17.2	181	27.2	139	44.0	119	29.8
202	163	17.1	21	27.1	145	43.8	142	29.4
203	32	17.0	5	26.5	193	43.7	60	29.1
204	161	16.8	168	25.0	163	43.4	92	28.2
205	64	16.7	82	25.0	89	42.1	21	26.9
206	43	16.7	89	23.9	197	41.5	125	26.6
207	82	16.6	130	23.8	49	41.1	25	26.5
208	38	16.5	197	23.7	149	41.1	32	26.0
209	37	16.1	49	22.9	116	37.2	4	25.6
210	126	15.7	126	22.6	73	37.0	73	25.1
211	7	15.6	105	22.0	83	36.1	106	24.7
212	91	15.5	164	20.4	159	35.7	59	24.4
213	159	14.9	196	20.1	36	35.4	114	23.4
214	35	14.6	209	20.1	146	35.1	69	22.8
215	171	14.5	221	20.1	15	32.2	145	22.6
216	127	14.1	162	19.9	38	31.9	162	22.3
217	18	13.8	85	19.5	208	30.6	207	19.7
218	88	12.9	189	18.2	158	30.3	95	19.3
219	162	12.8	220	16.9	199	30.3	141	19.3
220	58	12.0	114	16.5	167	28.4	130	15.0
221	73	12.0	2	16.5	119	27.6	83	14.5
222	69	11.2	202	16.1	96	23.3	27	12.0
223	187	9.6	119	15.5	134	22.2	155	11.6
224	77	5.6	22	13.5	51	20.1	88	10.2
225	124	3.8	150	13.0	137	10.5	143	9.5

	64C VS 91		64C VS 95		91 VS 95	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
1	207	275.1	108	171.4	216	213.3
2	216	271.4	87	143.9	28	187.4
3	94	267.0	224	136.8	31	185.7
4	93	243.9	221	127.9	39	185.5
5	172	238.6	174	118.3	53	183.9
6	98	238.4	133	117.9	16	183.3
7	105	230.8	65	116.7	54	183.3
8	24	230.3	207	116.0	94	181.6
9	112	229.7	214	115.1	100	180.8
10	214	223.3	81	110.8	112	179.6
11	12	204.4	191	110.6	128	178.9
12	39	203.4	53	110.2	24	178.4
13	11	200.3	66	106.6	105	175.3
14	108	198.2	218	103.9	172	174.3
15	57	193.3	93	103.7	117	168.8
16	37	191.5	26	96.9	81	168.3
17	17	191.5	103	96.0	207	164.2
18	128	189.2	46	95.5	107	160.0
19	85	181.0	147	94.3	98	158.7
20	117	178.7	170	93.6	37	155.3
21	181	177.8	178	90.7	55	155.0
22	107	177.1	8	86.6	93	154.3
23	156	176.5	15	86.1	76	153.9
24	180	176.5	94	85.4	12	152.8
25	76	174.3	50	82.9	11	151.9
26	218	174.3	54	80.5	77	150.8
27	161	172.5	121	80.4	57	148.9
28	211	165.8	98	79.8	50	146.0
29	21	162.0	215	79.6	211	144.4
30	16	160.7	153	79.4	85	142.0
31	124	157.9	216	79.4	29	141.2
32	74	157.1	11	79.2	21	140.1
33	28	156.4	204	78.9	180	139.0
34	59	156.3	172	78.8	20	136.6
35	147	156.1	27	78.0	74	136.6
36	92	155.8	61	77.6	108	136.2
37	111	154.7	205	77.1	161	136.0
38	195	152.0	71	76.4	18	133.9
39	176	151.4	104	74.7	59	133.8
40	110	150.9	181	73.9	63	131.5
41	174	150.9	176	72.7	47	130.8
42	219	147.4	171	72.4	148	130.6
43	141	145.5	5	72.0	143	129.7
44	168	145.2	118	71.3	17	129.6
45	100	145.1	122	71.0	110	129.4
46	46	143.3	95	70.7	115	126.1
47	204	142.5	92	70.5	135	125.2

	64C VS 91		64C VS 95		91 VS 95	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
48	151	142.2	203	69.9	154	125.0
49	29	141.2	109	69.0	195	124.9
50	87	140.4	105	68.6	48	123.0
51	31	140.2	90	68.3	88	121.4
52	61	136.1	223	67.7	181	121.0
53	79	134.5	158	67.5	132	120.9
54	115	133.7	146	67.4	120	120.3
55	215	132.9	112	66.5	168	118.6
56	77	132.4	79	66.3	32	117.7
57	18	131.5	111	65.9	186	117.7
58	47	129.7	144	65.8	156	117.5
59	63	129.7	110	65.4	151	116.0
60	196	127.2	199	64.7	182	114.9
61	65	126.6	195	64.3	223	114.6
62	153	126.3	17	63.9	218	112.7
63	8	126.1	85	63.4	174	111.8
64	205	124.9	202	63.2	200	110.8
65	55	124.0	52	63.2	26	110.1
66	52	123.9	177	62.5	196	109.2
67	191	123.5	179	61.8	124	109.1
68	41	123.0	68	60.8	58	108.3
69	129	122.2	219	59.5	214	108.3
70	224	121.1	156	59.0	141	107.7
71	182	121.1	24	58.2	129	107.6
72	26	120.9	136	57.7	146	106.9
73	186	120.4	183	57.5	79	102.6
74	169	119.6	209	57.4	41	101.6
75	144	119.3	96	56.6	158	100.6
76	202	118.9	160	56.5	209	99.9
77	67	118.6	211	56.3	133	99.4
78	120	118.2	186	55.5	114	98.7
79	179	115.8	28	55.4	84	97.7
80	203	115.8	69	55.2	5	97.4
81	125	115.8	163	54.8	169	96.5
82	84	114.8	125	54.4	65	94.5
83	82	112.7	12	54.2	144	94.2
84	114	111.3	157	53.7	176	93.4
85	135	110.5	225	53.2	82	93.2
86	143	110.5	161	52.8	220	93.0
87	88	109.9	194	52.6	92	92.1
88	154	109.6	189	52.6	101	91.7
89	20	108.6	126	52.3	219	90.9
90	58	108.6	124	51.8	6	88.8
91	133	108.5	44	51.5	10	88.8
92	220	107.5	148	51.5	102	88.7
93	170	107.4	77	51.3	111	88.7
94	54	105.3	134	51.1	127	88.6

	64C VS 91		64C VS 95		91 VS 95	
RANK	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM
95	126	105.3	25	50.6	206	87.9
96	200	104.9	60	50.5	183	87.6
97	43	103.7	57	49.9	34	87.5
98	66	103.5	56	49.3	43	87.2
99	64	102.7	190	49.2	157	86.6
100	50	102.2	132	49.1	9	85.9
101	6	101.4	37	48.8	215	85.6
102	217	101.3	220	48.8	14	84.7
103	71	99.7	6	48.7	190	84.6
104	62	98.1	143	48.2	72	84.1
105	69	96.6	217	47.9	23	83.1
106	103	96.5	210	47.9	67	80.8
107	148	96.1	141	47.2	61	79.4
108	48	95.3	4	47.1	197	79.2
109	132	94.7	51	47.1	224	77.1
110	109	94.7	80	47.1	96	76.7
111	97	92.6	70	47.0	204	76.7
112	23	90.9	192	47.0	140	76.4
113	90	90.9	35	46.5	97	76.1
114	221	90.6	89	46.3	193	76.1
115	72	90.6	29	46.3	192	75.6
116	102	90.3	117	46.2	4	75.6
117	53	89.9	185	46.1	212	74.8
118	171	89.5	31	45.5	87	74.2
119	175	89.5	40	45.4	2	73.8
120	194	89.3	164	45.2	149	73.7
121	113	89.1	67	45.2	191	72.7
122	225	88.0	18	43.9	13	72.4
123	14	87.5	36	43.9	217	71.9
124	32	86.8	59	43.7	103	71.4
125	150	85.8	101	43.6	56	71.1
126	184	85.4	43	42.8	8	70.9
127	193	84.5	212	42.6	113	70.7
128	136	84.2	208	42.4	210	70.6
129	210	83.6	131	42.3	109	70.6
130	206	83.0	62	42.1	89	68.9
131	38	82.2	48	42.1	1	68.9
132	34	80.1	115	41.0	52	68.6
133	178	78.9	102	41.0	123	68.4
134	22	78.8	140	40.6	155	68.2
135	123	78.5	113	40.5	165	67.9
136	95	78.2	86	40.5	64	67.8
137	80	78.0	116	39.5	125	67.5
138	121	76.6	198	39.4	208	67.1
139	212	75.4	82	39.0	184	66.7
140	159	74.0	91	39.0	38	66.6
141	56	73.7	180	38.8	147	66.5

	64C VS 91		64C VS 95		91 VS 95	
RANK	IRIAD	SUM	IRIAD	SUM	IRIAD	SUM
142	33	72.9	33	38.3	202	66.5
143	68	72.9	1	38.2	22	65.9
144	149	72.9	222	38.1	71	65.8
145	173	72.6	142	38.0	222	65.8
146	127	71.5	83	37.6	175	65.2
147	209	70.5	145	37.5	126	64.9
148	118	69.9	197	37.3	162	64.9
149	190	69.0	21	36.7	60	64.8
150	1	68.8	30	36.6	62	64.0
151	163	68.4	64	36.5	164	62.4
152	165	68.4	154	36.4	122	62.0
153	137	68.3	74	36.3	145	61.9
154	4	68.0	22	35.9	194	61.0
155	15	67.5	100	35.8	130	60.2
156	223	67.0	42	35.4	138	59.5
157	40	65.9	150	34.4	150	59.3
158	106	65.5	63	34.4	90	59.2
159	167	65.4	32	34.2	167	58.8
160	197	65.2	159	34.1	179	58.6
161	192	64.6	119	34.1	19	58.0
162	9	64.2	182	34.0	203	57.6
163	81	64.2	173	33.8	166	56.4
164	201	64.0	152	33.6	104	56.2
165	198	63.7	193	32.7	46	56.1
166	78	63.4	16	32.4	187	55.9
167	187	63.2	139	32.2	78	54.8
168	138	63.2	2	32.0	205	54.4
169	10	63.2	213	31.8	177	54.0
170	189	62.6	49	31.7	171	53.6
171	155	62.3	184	31.7	137	53.4
172	89	61.9	149	31.6	153	53.3
173	3	61.3	55	31.6	36	52.8
174	188	61.1	196	31.2	159	51.5
175	70	59.1	45	31.1	106	51.1
176	145	59.0	129	31.1	33	51.1
177	199	58.9	206	30.5	27	51.1
178	25	58.4	168	30.3	3	50.1
179	131	58.3	166	30.2	119	50.1
180	177	57.9	76	30.2	121	50.1
181	142	57.8	106	29.5	213	48.5
182	101	57.6	88	29.3	69	47.9
183	162	57.2	123	28.9	160	47.6
184	44	57.1	7	28.7	198	47.1
185	13	55.5	10	28.7	44	46.9
186	99	55.3	130	28.6	83	46.6
187	2	52.0	20	28.0	178	46.4
188	183	51.8	175	27.7	188	46.0

	64C VS 91		64C VS 95		91 VS 95	
RANK	TRIAD	SUM	TRIAD	SUM	TRIAD	SUM
189	158	51.8	75	27.4	51	45.9
190	83	51.1	167	27.1	163	45.2
191	208	48.0	47	26.9	70	45.0
192	96	47.8	200	26.8	91	43.9
193	222	47.4	13	26.4	201	43.8
194	185	47.4	151	26.2	134	43.5
195	130	47.2	155	25.8	185	43.5
196	152	44.3	187	25.6	86	43.1
197	7	44.2	128	25.0	116	42.7
198	160	44.1	135	24.8	95	42.4
199	19	43.4	162	24.7	15	40.9
200	51	42.9	23	24.6	66	40.1
201	146	42.1	73	24.4	99	39.6
202	166	42.1	127	24.4	173	38.8
203	104	42.1	9	24.2	189	38.3
204	5	40.1	39	23.9	221	37.3
205	75	40.0	97	23.8	118	37.3
206	91	39.8	165	23.3	42	37.0
207	213	38.9	169	23.1	225	36.5
208	36	38.5	188	23.0	25	36.3
209	139	38.3	107	22.5	49	35.4
210	27	38.2	38	22.5	136	35.1
211	42	37.7	99	22.4	40	34.3
212	164	37.0	41	22.1	45	33.9
213	119	37.0	34	21.6	7	32.6
214	134	36.8	201	20.2	142	31.3
215	140	36.8	78	19.7	80	31.2
216	30	35.7	114	19.6	139	29.9
217	157	32.9	72	19.5	131	28.7
218	35	31.8	84	19.5	152	27.9
219	73	29.7	120	18.8	68	27.8
220	49	28.8	3	18.8	35	24.5
221	60	28.2	137	14.9	170	22.5
222	86	23.9	19	14.6	199	21.8
223	122	19.2	14	14.5	75	19.5
224	45	15.7	138	11.0	73	17.8
225	116	11.3	58	10.3	30	13.7

APPENDIX C

Final Directions and Final Set of 100 Triads

The 42 triads marked with an * were included in the final set because, in the opinion of the project staff, they showed the greatest promise of discriminating individuals whose interest patterns would tend to place them in one of the target MOS clusters for which no empirical data were available. The other 58 triads were included because they met the empirical criteria described in Chapter 3.

Directions

In this booklet you will find many different kinds of activities listed in groups of three. Next to each activity are circles containing the letters M and L. From each group of three activities you are to choose the activity you would MOST like to do and fill in the circle containing the letter M that is next to that activity. From the other two activities in each group you are to choose the activity you would LEAST like to do and fill in the circle containing the letter L that is next to that activity. You should not fill in a circle next to the third activity in the group.

Look at the following example, which has already been marked.

Buy Groceries
Read a book
Fix up a car

From this group of three activities, the activity the person answering would MOST like to do is "Fix up a car," so the circle containing the letter M next to "Fix up a car" has been filled in. From the other two activities in the group, the activity the person answering would LEAST like to do is "Buy groceries," so the circle containing the letter L next to "Buy groceries" has been filled in.

Now look at the example below.

Work for a printer
Work for a baker
Work for a plumber

From this group of three activities, the activity the person answering would MOST like to do is "Work for a baker," so the circle containing the letter M next to "Work for a baker" has been filled in. From the other two activities in the group, the activity the person answering would LEAST like to do is "Work for a plumber," so the circle containing the letter L next to "Work for a plumber" has been filled in.

This is not a test. There are no right or wrong answers. Answer as though you could do all the activities listed even though some of them may require special training. We are interested in what you would like to do if you could, not in what you can do. Please fill in one circle containing the letter M and one circle containing the letter L for each group of activities. If you change your mind please erase your old mark completely. Do not skip any groups.

1.	M	L	Go fishing
	M	L	Go to a movie
	M	L	Go to a museum
*2.	M	L	Cook a dinner
	M	L	Wax a floor
	M	L	Plant flowers
*3.	M	L	Work on a farm
	M	L	Work in an office
	M	L	Work in a factory
*4.	M	L	Build bridges
	M	L	Drive a tractor
	M	L	Paint buildings
*5.	M	L	Mix paint colors
	M	L	Bake cakes
	M	L	Mix cement
6.	M	L	Teach auto shop
	M	L	Teach arithmetic
	M	L	Teach first aid
7.	M	L	Do clerical work
	M	L	Do physical labor
	M	L	Do assembly work
8.	M	L	Fight forest fires
	M	L	Install telephones
	M	L	Repair machines
9.	M	L	Help a carpenter
	M	L	Help a teacher
	M	L	Help a baker
*10.	M	L	Go camping
	M	L	Work on a car
	M	L	Go to a party
*11.	M	L	Raise food
	M	L	Sell food
	M	L	Cook food
12.	M	L	Study bookkeeping
	M	L	Study plumbing
	M	L	Study surveying
13.	M	L	Repair typewriters
	M	L	Sell cameras
	M	L	Fight forest fires
14.	M	L	Sell tools
	M	L	Sell books
	M	L	Sell groceries

15. M L Chop firewood
M L Stack firewood
M L Deliver firewood

*16. M L Guard prisoners
M L Drive a taxicab
M L Repair appliances

17. M L Study typing
M L Study carpentry
M L Study first aid

*18. M L Drive a truck
M L Drive a race car
M L Drive a taxicab

19. M L Make sculptures of metal
M L Write short stories
M L Paint pictures

20. M L Operate a bulldozer
M L Operate a lathe
M L Operate a computer

*21. M L Help injured people
M L Repair guns
M L Check office records

22. M L Direct traffic
M L Give first aid at a fire
M L Drive a fire truck

23. M L Go to a party
M L Go on an overnight hike
M L Tune up a car

24. M L Read about space travel
M L Read about first aid
M L Read about fishing

*25. M L Balance a checkbook
M L Type letters
M L Cook dinner

26. M L Install a bath tub
M L Weed a garden
M L Read to a blind person

27. M L Sell airline tickets
M L Sell auto parts
M L Sell stereo equipment

28. M L Read about medicine
M L Read about engineering
M L Read about business

29. M L Watch drag races
M L Watch a tennis match
M L Watch a football game

30. M L Write business letters
M L Type business letters
M L Deliver business letters

31. M L Talk with an actor
M L Talk with an explorer
M L Talk with a race driver

*32. M L Work on a farm
M L Work in a factory
M L Work in a small office

33. M L Repair radios
M L Write radio commercials
M L Make radio announcements

34. M L Read water meters
M L File office work orders
M L Check tools in and out

35. M L Mow the grass
M L Balance a checkbook
M L Plan a meal

36. M L Play in a rock group
M L Drive a tractor
M L Write a computer program

37. M L Solve math problems
M L Type letters
M L Wrap packages

*38. M L Work in a TV factory
M L Work in a TV store
M L Work in a TV repair shop

*39. M L Plan a menu for a party
M L Prepare the food for a party
M L Serve the food for a party

*40. M L Prepare food in a cafeteria
M L Repair radio receivers
M L Process insurance claims

41. M L Operate a radio transmitter
M L Drive a dump truck
M L Give vision tests

*42. M L Replace an electric outlet
M L Change the oil in a car
M L Shop for groceries

*43.	M	L	Develop film in a photo lab
	M	L	Guard a warehouse
	M	L	Drive a farm tractor
44.	M	L	Work with delicate equipment
	M	L	Work with rugged equipment
	M	L	Work with ideas
*45.	M	L	Work for a book publisher
	M	L	Work for an electronics company
	M	L	Work for a railroad
46.	M	L	Work in an office building
	M	L	Work in a factory
	M	L	Work in a hospital
47.	M	L	Work at a children's camp
	M	L	Work for the telephone company
	M	L	Work for a trucking company
*48.	M	L	Find an error in my checkbook
	M	L	Repair a leaky faucet
	M	L	Change a flat tire
*49.	M	L	Plan delivery truck routes
	M	L	Service delivery trucks
	M	L	Drive a delivery truck
50.	M	L	Meet a famous artist
	M	L	Meet a famous medical doctor
	M	L	Meet a famous businessperson
51.	M	L	Shop for garden tools
	M	L	Shop for a bicycle
	M	L	Shop for phonograph records
*52.	M	L	Operate a crane
	M	L	Operate a business machine
	M	L	Operate a lathe
53.	M	L	Use electronic test equipment
	M	L	Use hand tools
	M	L	Use heavy equipment
*54.	M	L	Build a doghouse
	M	L	Prepare a dinner for 20 people
	M	L	Write a newspaper story
55.	M	L	Repair broken electric wires
	M	L	Repair a broken water pump
	M	L	Repair a broken window
56.	M	L	Draw graphs and charts
	M	L	Repair motor vehicles
	M	L	Operate a copying machine

57. M L Repair radio antennas
M L Direct a student orchestra
M L Teach English to foreigners

58. M L Teach survival in the desert
M L Teach consumer education
M L Teach auto body repair

*59. M L Repair a light socket
M L Mix paint to match a sample
M L Balance my checkbook

60. M L Distribute magazines to stores
M L Operate a bulldozer
M L Drive an ambulance

*61. M L Tend bar in a restaurant
M L Plan the menus for a restaurant
M L Wait on tables in a restaurant

*62. M L Read a book to an invalid
M L Go shopping for an invalid
M L Cook a meal for an invalid

63. M L Work with an adding machine
M L Work with a power saw
M L Work with laboratory apparatus

*64. M L Learn to use a microscope
M L Learn to use a map and compass
M L Learn to use a metal lathe

65. M L Check out books in a library
M L Run a lathe in a machine shop
M L Interview welfare applicants

*66. M L Keep the books in a restaurant
M L Cook the food in a restaurant
M L Serve the food in a restaurant

*67. M L Build a radio from a kit
M L Grow prize roses
M L Refinish an antique table

68. M L Testify in court
M L Give a political speech
M L Sell tickets for a raffle

*69. M L Figure out my income tax
M L Repair my TV set
M L Collect money for a charity

70. M L Learn to use a rifle
M L Learn to use a short wave radio
M L Learn to use a business machine

71. M L Take blood samples in a hospital
M L Mix dough in a bakery
M L File reports in an office

*72. M L Keep books for a business
M L Sell vacuum cleaners door-to-door
M L Install highway signs

73. M L Work in a hospital operating room
M L Tend bar in a tavern
M L Repair TV sets

74. M L Write ads for a department store
M L Install electric power lines
M L Work on car engines

75. M L Fight forest fires
M L Keep records in a bank
M L Care for people in a retirement home

76. M L Sell furniture
M L Pack items for shipping
M L Take blood samples from patients

*77. M L Drive a taxicab
M L Operate a telephone switchboard
M L Install telephone poles

78. M L Drive a truck across the country
M L Announce news on the radio
M L Interview job applicants

79. M L Work in a hospital operating room
M L Work in a hospital business office
M L Work in a hospital maintenance shop

*80. M L Drive a bus
M L Operate a drill press
M L Keep employment records in a store

81. M L Work in a book store
M L Work in an animal shelter (pound)
M L Work in a machine shop

*82. M L Collect money for charity
M L Maintain personnel records
M L Investigate automobile accidents

*83. M L Replace an electric plug
M L Replace the oil filter on a car
M L Replace a typewriter ribbon

*84. M L Learn about being a firefighter
M L Learn about being a technician
M L Learn about being an accountant

*85.	M	L	Compete on a drill team
	M	L	Umpire little league games
	M	L	Serve as a volunteer firefighter
86.	M	L	Work in a chemistry lab
	M	L	Sell life insurance
	M	L	Interview people for the census
87.	M	L	Cut meat in a supermarket
	M	L	Stock shelves in a supermarket
	M	L	Check out goods in a supermarket
88.	M	L	Clean teeth in a dentist's office
	M	L	Work in a hospital emergency room
	M	L	Give shots to a herd of cows
89.	M	L	Go to an exhibit of handicrafts
	M	L	Go to a play
	M	L	Go to a classical music concert
90.	M	L	Learn about being a police officer
	M	L	Learn about being a printer
	M	L	Learn about being a bookkeeper
91.	M	L	Learn about being a chef
	M	L	Learn about being an auto mechanic
	M	L	Learn about being a medical technician
*92.	M	L	Take customer orders over the phone
	M	L	Deliver orders to customers
	M	L	Prepare and send bills for orders
*93.	M	L	Learn about being an ambulance attendant
	M	L	Learn about being a surveyor
	M	L	Learn about being a baker
*94.	M	L	Watch a TV show about foreign affairs
	M	L	Watch a TV show about wine making
	M	L	Watch a TV show about a hospital
*95.	M	L	Climb mountains for a summer
	M	L	Visit Europe for a summer
	M	L	Work at an archaeological site for a summer
*96.	M	L	Calculate shipping charges on packages
	M	L	Repair furniture
	M	L	Serve meals to patients in a hospital
97.	M	L	Watch a TV show on underwater life
	M	L	Watch a TV show on an historical person
	M	L	Watch a TV show an auto racing
*98.	M	L	Build a radio from a kit
	M	L	Build a flying model airplane from a kit
	M	L	Build a piece of furniture from a kit

99. M L Watch a film about building bridges
M L Watch a film about heart operations
M L Watch a film about living in the jungle

100. M L Learn about being a laboratory technician
M L Learn about being a diesel mechanic
M L Learn about being a TV repairer

APPENDIX D

Scoring Weight Vectors Based on All Satisfied Cases in Each MOS Cluster

The triad numbers used in this appendix correspond to the numbers of the triads in Appendix C.

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	1	MOST LIKE A	0.570	0.556	0.455	0.167	0.407
		MOST LIKE B	0.304	0.444	0.364	0.667	0.444
		MOST LIKE C	0.127	0.000	0.182	0.167	0.148
		LEAST LIKE A	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.494	1.000	0.500	0.250	0.556
TRIAD	2	MOST LIKE A	0.772	0.667	0.773	0.583	0.852
		MOST LIKE B	0.051	0.111	0.091	0.000	0.111
		MOST LIKE C	0.177	0.222	0.136	0.417	0.037
		LEAST LIKE A	0.139	0.111	0.045	0.167	0.074
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.354	0.111	0.318	0.000	0.296
TRIAD	3	MOST LIKE A	0.532	0.667	0.409	0.333	0.643
		MOST LIKE B	0.291	0.111	0.500	0.667	0.321
		MOST LIKE C	0.177	0.222	0.091	0.000	0.036
		LEAST LIKE A	0.291	0.000	0.409	0.333	0.250
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.354	0.333	0.318	0.667	0.536
TRIAD	4	MOST LIKE A	0.304	0.111	0.364	0.417	0.214
		MOST LIKE B	0.595	0.889	0.591	0.583	0.643
		MOST LIKE C	0.101	0.000	0.045	0.000	0.143
		LEAST LIKE A	0.241	0.111	0.182	0.333	0.429
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.633	0.889	0.682	0.500	0.393
TRIAD	5	MOST LIKE A	0.380	0.222	0.182	0.333	0.143
		MOST LIKE B	0.266	0.444	0.455	0.417	0.500
		MOST LIKE C	0.354	0.333	0.364	0.250	0.357
		LEAST LIKE A	0.266	0.556	0.545	0.250	0.500
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.367	0.222	0.318	0.583	0.357
TRIAD	6	MOST LIKE A	0.468	0.875	0.682	0.000	0.429
		MOST LIKE B	0.228	0.000	0.136	0.167	0.143
		MOST LIKE C	0.304	0.125	0.182	0.833	0.429
		LEAST LIKE A	0.228	0.000	0.136	0.750	0.393
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.291	0.000	0.364	0.083	0.321

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	7	MOST LIKE A	0.190	0.000	0.182	0.417	0.286
		MOST LIKE B	0.595	0.778	0.364	0.250	0.571
		MOST LIKE C	0.215	0.222	0.455	0.333	0.143
		LEAST LIKE A	0.557	0.667	0.545	0.167	0.464
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.316	0.222	0.273	0.583	0.464
TRIAD	8	MOST LIKE A	0.430	0.000	0.364	0.250	0.643
		MOST LIKE B	0.228	0.111	0.273	0.583	0.179
		MOST LIKE C	0.342	0.889	0.364	0.167	0.179
		LEAST LIKE A	0.443	0.667	0.455	0.500	0.214
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.228	0.000	0.273	0.417	0.357
TRIAD	9	MOST LIKE A	0.709	0.556	0.455	0.167	0.500
		MOST LIKE B	0.241	0.333	0.455	0.750	0.464
		MOST LIKE C	0.051	0.111	0.091	0.083	0.036
		LEAST LIKE A	0.089	0.111	0.227	0.333	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.696	0.778	0.545	0.500	0.607
TRIAD	10	MOST LIKE A	0.410	0.444	0.571	0.417	0.370
		MOST LIKE B	0.167	0.333	0.143	0.167	0.185
		MOST LIKE C	0.423	0.222	0.286	0.417	0.444
		LEAST LIKE A	0.231	0.444	0.286	0.250	0.296
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.295	0.222	0.238	0.000	0.333
TRIAD	11	MOST LIKE A	0.397	0.667	0.318	0.417	0.321
		MOST LIKE B	0.269	0.111	0.273	0.167	0.250
		MOST LIKE C	0.333	0.222	0.409	0.417	0.429
		LEAST LIKE A	0.295	0.222	0.545	0.333	0.250
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.346	0.444	0.182	0.333	0.357
TRIAD	12	MOST LIKE A	0.247	0.111	0.227	0.727	0.393
		MOST LIKE B	0.299	0.222	0.227	0.182	0.071
		MOST LIKE C	0.455	0.667	0.545	0.091	0.536
		LEAST LIKE A	0.468	0.667	0.455	0.273	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.143	0.222	0.364	0.273	0.036

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	13	MOST LIKE A	0.241	0.333	0.273	0.083	0.036
		MOST LIKE B	0.291	0.444	0.545	0.583	0.357
		MOST LIKE C	0.468	0.222	0.182	0.333	0.607
		LEAST LIKE A	0.430	0.000	0.273	0.250	0.679
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.380	0.667	0.545	0.667	0.250
TRIAD	14	MOST LIKE A	0.608	0.889	0.619	0.250	0.607
		MOST LIKE B	0.215	0.000	0.143	0.333	0.286
		MOST LIKE C	0.177	0.111	0.238	0.417	0.107
		LEAST LIKE A	0.127	0.000	0.190	0.333	0.250
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.481	0.444	0.381	0.417	0.464
TRIAD	15	MOST LIKE A	0.449	0.333	0.364	0.333	0.643
		MOST LIKE B	0.090	0.111	0.045	0.500	0.107
		MOST LIKE C	0.462	0.556	0.591	0.167	0.250
		LEAST LIKE A	0.346	0.556	0.409	0.500	0.286
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.359	0.111	0.182	0.417	0.393
TRIAD	16	MOST LIKE A	0.418	0.222	0.455	0.167	0.630
		MOST LIKE B	0.316	0.333	0.273	0.667	0.222
		MOST LIKE C	0.266	0.444	0.273	0.167	0.148
		LEAST LIKE A	0.367	0.778	0.455	0.583	0.111
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.430	0.111	0.318	0.417	0.519
TRIAD	17	MOST LIKE A	0.132	0.111	0.136	0.000	0.222
		MOST LIKE B	0.566	0.667	0.636	0.167	0.333
		MOST LIKE C	0.303	0.222	0.227	0.833	0.444
		LEAST LIKE A	0.632	0.667	0.545	0.417	0.556
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.158	0.222	0.227	0.000	0.185
TRIAD	18	MOST LIKE A	0.392	0.625	0.636	0.167	0.185
		MOST LIKE B	0.532	0.375	0.364	0.583	0.741
		MOST LIKE C	0.076	0.000	0.000	0.250	0.074
		LEAST LIKE A	0.177	0.000	0.000	0.167	0.333
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.684	0.875	0.727	0.583	0.593

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	19	MOST LIKE A	0.403	0.444	0.600	0.273	0.143
		MOST LIKE B	0.325	0.222	0.050	0.182	0.607
		MOST LIKE C	0.273	0.333	0.350	0.545	0.250
		LEAST LIKE A	0.299	0.111	0.250	0.455	0.429
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.312	0.111	0.300	0.000	0.321
TRIAD	20	MOST LIKE A	0.545	0.778	0.619	0.000	0.393
		MOST LIKE B	0.078	0.000	0.095	0.000	0.250
		MOST LIKE C	0.377	0.222	0.286	1.000	0.357
		LEAST LIKE A	0.169	0.222	0.143	0.667	0.214
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.299	0.444	0.286	0.000	0.464
TRIAD	21	MOST LIKE A	0.346	0.333	0.476	1.000	0.536
		MOST LIKE B	0.564	0.556	0.381	0.000	0.429
		MOST LIKE C	0.090	0.111	0.143	0.000	0.036
		LEAST LIKE A	0.128	0.111	0.286	0.000	0.107
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.731	0.667	0.476	0.333	0.607
TRIAD	22	MOST LIKE A	0.286	0.222	0.190	0.000	0.464
		MOST LIKE B	0.286	0.111	0.286	1.000	0.464
		MOST LIKE C	0.429	0.667	0.524	0.000	0.071
		LEAST LIKE A	0.519	0.333	0.667	0.583	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.156	0.333	0.095	0.417	0.393
TRIAD	23	MOST LIKE A	0.551	0.444	0.429	0.667	0.500
		MOST LIKE B	0.244	0.111	0.238	0.250	0.429
		MOST LIKE C	0.205	0.444	0.333	0.083	0.071
		LEAST LIKE A	0.231	0.222	0.381	0.000	0.286
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.410	0.111	0.190	0.667	0.500
TRIAD	24	MOST LIKE A	0.519	0.222	0.300	0.250	0.393
		MOST LIKE B	0.169	0.111	0.450	0.750	0.357
		MOST LIKE C	0.312	0.667	0.250	0.000	0.250
		LEAST LIKE A	0.273	0.667	0.400	0.250	0.429
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.403	0.111	0.250	0.750	0.464

Scoring Weight Vectors

	Option	MOS Cluster 11	63B	64C	91	95
TRIAD 25	MOST LIKE A	0.291	0.333	0.500	0.500	0.370
	MOST LIKE B	0.228	0.222	0.136	0.083	0.259
	MOST LIKE C	0.481	0.444	0.364	0.417	0.370
	LEAST LIKE A	0.329	0.111	0.227	0.333	0.296
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.278	0.444	0.227	0.417	0.444
TRIAD 26	MOST LIKE A	0.481	0.556	0.273	0.000	0.250
	MOST LIKE B	0.190	0.000	0.136	0.333	0.250
	MOST LIKE C	0.329	0.444	0.591	0.667	0.500
	LEAST LIKE A	0.190	0.000	0.273	0.500	0.286
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.228	0.000	0.091	0.167	0.286
TRIAD 27	MOST LIKE A	0.205	0.111	0.273	0.417	0.214
	MOST LIKE B	0.192	0.667	0.318	0.000	0.214
	MOST LIKE C	0.603	0.222	0.409	0.583	0.571
	LEAST LIKE A	0.551	0.333	0.364	0.250	0.464
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.128	0.444	0.318	0.000	0.179
TRIAD 28	MOST LIKE A	0.215	0.111	0.318	0.917	0.357
	MOST LIKE B	0.582	0.889	0.318	0.083	0.357
	MOST LIKE C	0.203	0.000	0.364	0.000	0.286
	LEAST LIKE A	0.278	0.222	0.227	0.000	0.286
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.570	0.667	0.455	0.583	0.464
TRIAD 29	MOST LIKE A	0.462	0.667	0.455	0.333	0.357
	MOST LIKE B	0.064	0.000	0.045	0.250	0.143
	MOST LIKE C	0.474	0.333	0.500	0.417	0.500
	LEAST LIKE A	0.205	0.000	0.273	0.500	0.393
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.154	0.000	0.182	0.250	0.036
TRIAD 30	MOST LIKE A	0.342	0.222	0.273	0.455	0.143
	MOST LIKE B	0.266	0.000	0.227	0.273	0.321
	MOST LIKE C	0.392	0.778	0.500	0.273	0.536
	LEAST LIKE A	0.405	0.667	0.455	0.182	0.357
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.354	0.111	0.182	0.636	0.321

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	31	MOST LIKE A	0.278	0.111	0.455	0.667	0.214
		MOST LIKE B	0.405	0.444	0.364	0.167	0.536
		MOST LIKE C	0.316	0.444	0.182	0.167	0.250
		LEAST LIKE A	0.405	0.667	0.455	0.250	0.536
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.329	0.222	0.318	0.417	0.286
TRIAD	32	MOST LIKE A	0.570	0.667	0.455	0.167	0.643
		MOST LIKE B	0.165	0.222	0.182	0.083	0.071
		MOST LIKE C	0.266	0.111	0.364	0.750	0.286
		LEAST LIKE A	0.228	0.222	0.409	0.167	0.143
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.430	0.556	0.455	0.167	0.357
TRIAD	33	MOST LIKE A	0.500	0.444	0.318	0.250	0.250
		MOST LIKE B	0.128	0.111	0.091	0.167	0.250
		MOST LIKE C	0.372	0.444	0.591	0.583	0.500
		LEAST LIKE A	0.282	0.444	0.500	0.750	0.571
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.192	0.000	0.091	0.083	0.214
TRIAD	34	MOST LIKE A	0.385	0.222	0.318	0.500	0.393
		MOST LIKE B	0.256	0.333	0.364	0.333	0.393
		MOST LIKE C	0.359	0.444	0.318	0.167	0.214
		LEAST LIKE A	0.282	0.444	0.364	0.167	0.393
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.321	0.333	0.409	0.583	0.393
TRIAD	35	MOST LIKE A	0.342	0.333	0.364	0.083	0.321
		MOST LIKE B	0.241	0.333	0.409	0.333	0.286
		MOST LIKE C	0.418	0.333	0.227	0.583	0.393
		LEAST LIKE A	0.443	0.333	0.455	0.750	0.429
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.228	0.111	0.182	0.083	0.429
TRIAD	36	MOST LIKE A	0.405	0.333	0.318	0.364	0.704
		MOST LIKE B	0.367	0.667	0.455	0.091	0.185
		MOST LIKE C	0.228	0.000	0.227	0.545	0.111
		LEAST LIKE A	0.342	0.333	0.409	0.273	0.074
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.481	0.556	0.500	0.182	0.593

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	37	MOST LIKE A	0.628	0.444	0.667	0.750	0.464
		MOST LIKE B	0.141	0.111	0.143	0.167	0.357
		MOST LIKE C	0.231	0.444	0.190	0.083	0.179
		LEAST LIKE A	0.205	0.222	0.190	0.083	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.372	0.222	0.381	0.750	0.500
TRIAD	38	MOST LIKE A	0.329	0.000	0.273	0.250	0.214
		MOST LIKE B	0.329	0.444	0.545	0.667	0.607
		MOST LIKE C	0.342	0.556	0.182	0.083	0.179
		LEAST LIKE A	0.329	0.444	0.500	0.417	0.500
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.304	0.222	0.273	0.583	0.286
TRIAD	39	MOST LIKE A	0.416	0.125	0.429	0.750	0.571
		MOST LIKE B	0.390	0.625	0.429	0.167	0.250
		MOST LIKE C	0.195	0.250	0.143	0.083	0.179
		LEAST LIKE A	0.299	0.375	0.429	0.083	0.143
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.506	0.375	0.476	0.667	0.607
TRIAD	40	MOST LIKE A	0.266	0.111	0.381	0.250	0.357
		MOST LIKE B	0.506	0.667	0.333	0.333	0.321
		MOST LIKE C	0.228	0.222	0.286	0.417	0.321
		LEAST LIKE A	0.392	0.444	0.333	0.333	0.500
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.519	0.444	0.476	0.333	0.250
TRIAD	41	MOST LIKE A	0.329	0.375	0.095	0.500	0.286
		MOST LIKE B	0.532	0.500	0.667	0.000	0.429
		MOST LIKE C	0.139	0.125	0.238	0.500	0.286
		LEAST LIKE A	0.215	0.125	0.619	0.083	0.179
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.582	0.625	0.333	0.250	0.429
TRIAD	42	MOST LIKE A	0.342	0.375	0.381	0.417	0.321
		MOST LIKE B	0.418	0.375	0.476	0.250	0.357
		MOST LIKE C	0.241	0.250	0.143	0.333	0.321
		LEAST LIKE A	0.228	0.375	0.333	0.417	0.429
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.519	0.375	0.381	0.167	0.393

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	43	MOST LIKE A	0.385	0.375	0.524	0.833	0.607
		MOST LIKE B	0.179	0.000	0.095	0.083	0.107
		MOST LIKE C	0.436	0.625	0.381	0.083	0.286
		LEAST LIKE A	0.282	0.375	0.333	0.083	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.141	0.125	0.286	0.417	0.357
TRIAD	44	MOST LIKE A	0.244	0.125	0.300	0.500	0.296
		MOST LIKE B	0.423	0.750	0.350	0.000	0.333
		MOST LIKE C	0.333	0.125	0.350	0.500	0.370
		LEAST LIKE A	0.449	0.500	0.450	0.083	0.407
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.295	0.375	0.300	0.167	0.222
TRIAD	45	MOST LIKE A	0.114	0.000	0.143	0.250	0.370
		MOST LIKE B	0.468	0.500	0.381	0.417	0.185
		MOST LIKE C	0.418	0.500	0.476	0.333	0.444
		LEAST LIKE A	0.506	0.750	0.667	0.500	0.333
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.291	0.125	0.238	0.500	0.370
TRIAD	46	MOST LIKE A	0.410	0.375	0.381	0.000	0.536
		MOST LIKE B	0.308	0.625	0.476	0.000	0.179
		MOST LIKE C	0.282	0.000	0.143	1.000	0.286
		LEAST LIKE A	0.372	0.000	0.429	0.167	0.179
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.282	0.625	0.381	0.000	0.321
TRIAD	47	MOST LIKE A	0.377	0.250	0.286	0.667	0.536
		MOST LIKE B	0.286	0.250	0.190	0.250	0.214
		MOST LIKE C	0.338	0.500	0.524	0.083	0.250
		LEAST LIKE A	0.299	0.500	0.429	0.083	0.250
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.390	0.125	0.143	0.833	0.464
TRIAD	48	MOST LIKE A	0.367	0.500	0.571	0.455	0.407
		MOST LIKE B	0.278	0.250	0.143	0.273	0.185
		MOST LIKE C	0.354	0.250	0.286	0.273	0.407
		LEAST LIKE A	0.405	0.250	0.333	0.455	0.407
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.354	0.500	0.286	0.364	0.185

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	49	MOST LIKE A	0.165	0.125	0.190	0.333	0.250
		MOST LIKE B	0.253	0.500	0.095	0.083	0.071
		MOST LIKE C	0.582	0.375	0.714	0.583	0.679
		LEAST LIKE A	0.430	0.750	0.476	0.167	0.536
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.177	0.125	0.048	0.083	0.107
TRIAD	50	MOST LIKE A	0.462	0.125	0.524	0.167	0.500
		MOST LIKE B	0.295	0.625	0.238	0.833	0.393
		MOST LIKE C	0.244	0.250	0.238	0.000	0.107
		LEAST LIKE A	0.333	0.375	0.333	0.167	0.179
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.423	0.500	0.524	0.833	0.643
TRIAD	51	MOST LIKE A	0.114	0.000	0.286	0.000	0.071
		MOST LIKE B	0.342	0.500	0.190	0.333	0.286
		MOST LIKE C	0.544	0.500	0.524	0.667	0.643
		LEAST LIKE A	0.671	0.375	0.619	1.000	0.607
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.190	0.250	0.238	0.000	0.179
TRIAD	52	MOST LIKE A	0.582	1.000	0.476	0.333	0.393
		MOST LIKE B	0.278	0.000	0.381	0.667	0.286
		MOST LIKE C	0.139	0.000	0.143	0.000	0.321
		LEAST LIKE A	0.177	0.000	0.286	0.333	0.214
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.392	0.333	0.333	0.583	0.321
TRIAD	53	MOST LIKE A	0.367	0.111	0.429	0.917	0.393
		MOST LIKE B	0.228	0.333	0.238	0.083	0.321
		MOST LIKE C	0.405	0.556	0.333	0.000	0.286
		LEAST LIKE A	0.304	0.778	0.286	0.000	0.429
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.354	0.111	0.333	0.667	0.357
TRIAD	54	MOST LIKE A	0.571	0.667	0.524	0.333	0.536
		MOST LIKE B	0.169	0.222	0.286	0.250	0.107
		MOST LIKE C	0.260	0.111	0.190	0.417	0.357
		LEAST LIKE A	0.195	0.000	0.333	0.417	0.250
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.325	0.667	0.190	0.167	0.321

Scoring Weight Vectors

			MOS Cluster				
		Option	11	63B	64C	91	95
TRIAD	55	MOST LIKE A	0.423	0.333	0.714	0.500	0.250
		MOST LIKE B	0.308	0.556	0.190	0.000	0.179
		MOST LIKE C	0.269	0.111	0.095	0.500	0.571
		LEAST LIKE A	0.295	0.222	0.238	0.333	0.393
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.397	0.556	0.619	0.333	0.214
TRIAD	56	MOST LIKE A	0.291	0.000	0.318	0.667	0.321
		MOST LIKE B	0.544	0.889	0.500	0.083	0.464
		MOST LIKE C	0.165	0.111	0.182	0.250	0.214
		LEAST LIKE A	0.405	0.222	0.318	0.167	0.357
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.443	0.667	0.455	0.250	0.429
TRIAD	57	MOST LIKE A	0.418	0.333	0.500	0.167	0.214
		MOST LIKE B	0.114	0.222	0.091	0.333	0.250
		MOST LIKE C	0.468	0.444	0.409	0.500	0.536
		LEAST LIKE A	0.228	0.222	0.364	0.583	0.536
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.278	0.222	0.364	0.167	0.214
TRIAD	58	MOST LIKE A	0.519	0.000	0.182	0.500	0.500
		MOST LIKE B	0.051	0.111	0.273	0.333	0.250
		MOST LIKE C	0.430	0.889	0.545	0.167	0.250
		LEAST LIKE A	0.177	0.444	0.455	0.250	0.179
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.266	0.000	0.182	0.583	0.429
TRIAD	59	MOST LIKE A	0.456	0.556	0.455	0.083	0.333
		MOST LIKE B	0.203	0.222	0.182	0.417	0.222
		MOST LIKE C	0.342	0.222	0.364	0.500	0.444
		LEAST LIKE A	0.152	0.333	0.318	0.500	0.444
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.468	0.333	0.364	0.250	0.222
TRIAD	60	MOST LIKE A	0.215	0.000	0.227	0.083	0.214
		MOST LIKE B	0.468	0.889	0.591	0.000	0.429
		MOST LIKE C	0.316	0.111	0.182	0.917	0.357
		LEAST LIKE A	0.494	0.778	0.455	0.333	0.571
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.316	0.222	0.455	0.000	0.214

Scoring Weight Vectors

			MOS Cluster				
		Option	11	63B	64C	91	95
TRIAD	61	MOST LIKE A	0.763	0.667	0.429	0.500	0.731
		MOST LIKE B	0.145	0.333	0.381	0.417	0.154
		MOST LIKE C	0.092	0.000	0.190	0.083	0.115
		LEAST LIKE A	0.105	0.000	0.286	0.167	0.115
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.671	0.889	0.524	0.667	0.385
TRIAD	62	MOST LIKE A	0.253	0.333	0.364	0.333	0.214
		MOST LIKE B	0.304	0.111	0.318	0.417	0.286
		MOST LIKE C	0.443	0.556	0.318	0.250	0.500
		LEAST LIKE A	0.430	0.444	0.455	0.250	0.571
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.316	0.333	0.364	0.417	0.214
TRIAD	63	MOST LIKE A	0.278	0.111	0.409	0.083	0.250
		MOST LIKE B	0.367	0.778	0.318	0.000	0.250
		MOST LIKE C	0.354	0.111	0.273	0.917	0.500
		LEAST LIKE A	0.392	0.333	0.364	0.333	0.464
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.329	0.667	0.318	0.000	0.179
TRIAD	64	MOST LIKE A	0.247	0.000	0.364	0.545	0.214
		MOST LIKE B	0.494	0.444	0.455	0.455	0.500
		MOST LIKE C	0.260	0.556	0.182	0.000	0.286
		LEAST LIKE A	0.455	0.556	0.455	0.091	0.429
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.325	0.222	0.409	0.818	0.429
TRIAD	65	MOST LIKE A	0.333	0.000	0.182	0.583	0.464
		MOST LIKE B	0.577	0.667	0.455	0.167	0.357
		MOST LIKE C	0.090	0.333	0.364	0.250	0.179
		LEAST LIKE A	0.192	0.222	0.364	0.083	0.071
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.705	0.556	0.409	0.583	0.643
TRIAD	66	MOST LIKE A	0.304	0.222	0.318	0.500	0.296
		MOST LIKE B	0.481	0.444	0.455	0.417	0.370
		MOST LIKE C	0.215	0.333	0.227	0.083	0.333
		LEAST LIKE A	0.456	0.333	0.409	0.333	0.407
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.278	0.333	0.364	0.583	0.296

Scoring Weight Vectors

		MOS Cluster				
	Option	11	63B	64C	91	95
TRIAD 67	MOST LIKE A	0.430	0.222	0.455	0.417	0.321
	MOST LIKE B	0.152	0.222	0.045	0.083	0.143
	MOST LIKE C	0.418	0.556	0.500	0.500	0.536
	LEAST LIKE A	0.215	0.444	0.364	0.250	0.357
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.152	0.111	0.273	0.167	0.321
TRIAD 68	MOST LIKE A	0.380	0.444	0.273	0.250	0.250
	MOST LIKE B	0.278	0.111	0.227	0.417	0.214
	MOST LIKE C	0.342	0.444	0.500	0.333	0.536
	LEAST LIKE A	0.418	0.556	0.545	0.333	0.250
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.278	0.222	0.273	0.250	0.321
TRIAD 69	MOST LIKE A	0.385	0.333	0.545	0.417	0.536
	MOST LIKE B	0.397	0.444	0.273	0.333	0.286
	MOST LIKE C	0.218	0.222	0.182	0.250	0.179
	LEAST LIKE A	0.269	0.111	0.182	0.250	0.143
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.513	0.667	0.545	0.417	0.393
TRIAD 70	MOST LIKE A	0.500	0.333	0.571	0.083	0.500
	MOST LIKE B	0.192	0.333	0.238	0.583	0.286
	MOST LIKE C	0.308	0.333	0.190	0.333	0.214
	LEAST LIKE A	0.231	0.333	0.143	0.583	0.250
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.538	0.556	0.619	0.333	0.607
TRIAD 71	MOST LIKE A	0.359	0.444	0.238	0.917	0.393
	MOST LIKE B	0.231	0.333	0.429	0.000	0.321
	MOST LIKE C	0.410	0.222	0.333	0.083	0.286
	LEAST LIKE A	0.372	0.333	0.381	0.000	0.214
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.256	0.444	0.238	0.333	0.393
TRIAD 72	MOST LIKE A	0.325	0.333	0.381	0.750	0.286
	MOST LIKE B	0.052	0.111	0.143	0.000	0.143
	MOST LIKE C	0.623	0.556	0.476	0.250	0.571
	LEAST LIKE A	0.273	0.222	0.333	0.083	0.286
	LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
	LEAST LIKE C	0.117	0.222	0.238	0.250	0.179

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	73	MOST LIKE A	0.179	0.222	0.143	0.917	0.357
		MOST LIKE B	0.551	0.333	0.333	0.083	0.571
		MOST LIKE C	0.269	0.444	0.524	0.000	0.071
		LEAST LIKE A	0.474	0.667	0.619	0.000	0.393
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.333	0.111	0.238	0.667	0.429
TRIAD	74	MOST LIKE A	0.179	0.000	0.143	0.333	0.357
		MOST LIKE B	0.269	0.111	0.190	0.250	0.036
		MOST LIKE C	0.551	0.889	0.667	0.417	0.607
		LEAST LIKE A	0.615	0.556	0.619	0.500	0.357
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.167	0.111	0.143	0.333	0.214
TRIAD	75	MOST LIKE A	0.571	0.444	0.318	0.083	0.607
		MOST LIKE B	0.286	0.444	0.182	0.500	0.179
		MOST LIKE C	0.143	0.111	0.500	0.417	0.214
		LEAST LIKE A	0.260	0.556	0.455	0.500	0.179
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.325	0.222	0.227	0.167	0.357
TRIAD	76	MOST LIKE A	0.367	0.556	0.524	0.083	0.393
		MOST LIKE B	0.354	0.222	0.238	0.000	0.179
		MOST LIKE C	0.278	0.222	0.238	0.917	0.429
		LEAST LIKE A	0.291	0.222	0.286	0.667	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.443	0.556	0.524	0.083	0.321
TRIAD	77	MOST LIKE A	0.455	0.556	0.381	0.500	0.500
		MOST LIKE B	0.247	0.333	0.429	0.417	0.321
		MOST LIKE C	0.299	0.111	0.190	0.083	0.179
		LEAST LIKE A	0.273	0.444	0.476	0.333	0.250
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.364	0.111	0.238	0.417	0.393
TRIAD	78	MOST LIKE A	0.692	0.667	0.818	0.167	0.536
		MOST LIKE B	0.192	0.222	0.136	0.417	0.393
		MOST LIKE C	0.115	0.111	0.045	0.417	0.071
		LEAST LIKE A	0.141	0.111	0.091	0.583	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.551	0.444	0.636	0.333	0.607

Scoring Weight Vectors

		Option	MOS Cluster 11	63B	64C	91	95
TRIAD	79	MOST LIKE A	0.342	0.111	0.182	0.917	0.500
		MOST LIKE B	0.291	0.111	0.500	0.083	0.357
		MOST LIKE C	0.367	0.778	0.318	0.000	0.143
		LEAST LIKE A	0.354	0.778	0.682	0.083	0.214
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.291	0.111	0.182	0.667	0.571
TRIAD	80	MOST LIKE A	0.544	0.444	0.636	0.417	0.500
		MOST LIKE B	0.304	0.222	0.227	0.083	0.250
		MOST LIKE C	0.152	0.333	0.136	0.500	0.250
		LEAST LIKE A	0.165	0.111	0.136	0.333	0.107
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.570	0.556	0.636	0.250	0.500
TRIAD	81	MOST LIKE A	0.215	0.222	0.227	0.417	0.321
		MOST LIKE B	0.241	0.000	0.136	0.333	0.500
		MOST LIKE C	0.544	0.778	0.636	0.250	0.179
		LEAST LIKE A	0.557	0.333	0.591	0.167	0.536
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.215	0.111	0.182	0.417	0.321
TRIAD	82	MOST LIKE A	0.165	0.000	0.227	0.167	0.357
		MOST LIKE B	0.190	0.222	0.091	0.417	0.036
		MOST LIKE C	0.646	0.778	0.682	0.417	0.607
		LEAST LIKE A	0.494	0.556	0.364	0.417	0.250
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.152	0.111	0.182	0.333	0.286
TRIAD	83	MOST LIKE A	0.304	0.222	0.364	0.583	0.107
		MOST LIKE B	0.595	0.778	0.636	0.083	0.643
		MOST LIKE C	0.101	0.000	0.000	0.333	0.250
		LEAST LIKE A	0.152	0.111	0.227	0.250	0.357
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.709	0.778	0.591	0.167	0.464
TRIAD	84	MOST LIKE A	0.443	0.556	0.455	0.083	0.536
		MOST LIKE B	0.354	0.222	0.318	0.750	0.214
		MOST LIKE C	0.203	0.222	0.227	0.167	0.250
		LEAST LIKE A	0.405	0.444	0.364	0.417	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.519	0.444	0.364	0.583	0.321

Scoring Weight Vectors

			MOS Cluster				
		Option	11	63B	64C	91	95
TRIAD	85	MOST LIKE A	0.329	0.111	0.545	0.333	0.250
		MOST LIKE B	0.278	0.667	0.273	0.333	0.321
		MOST LIKE C	0.392	0.222	0.182	0.333	0.429
		LEAST LIKE A	0.443	0.667	0.227	0.333	0.464
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.367	0.333	0.455	0.500	0.214
TRIAD	86	MOST LIKE A	0.538	0.444	0.238	0.750	0.429
		MOST LIKE B	0.179	0.222	0.190	0.000	0.214
		MOST LIKE C	0.282	0.333	0.571	0.250	0.357
		LEAST LIKE A	0.218	0.222	0.381	0.000	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.333	0.333	0.238	0.417	0.250
TRIAD	87	MOST LIKE A	0.436	0.333	0.318	0.167	0.429
		MOST LIKE B	0.244	0.333	0.227	0.333	0.250
		MOST LIKE C	0.321	0.333	0.455	0.500	0.321
		LEAST LIKE A	0.295	0.222	0.364	0.583	0.357
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.372	0.222	0.227	0.167	0.357
TRIAD	88	MOST LIKE A	0.253	0.333	0.400	0.083	0.179
		MOST LIKE B	0.443	0.444	0.350	0.917	0.357
		MOST LIKE C	0.304	0.222	0.250	0.000	0.464
		LEAST LIKE A	0.367	0.333	0.350	0.250	0.536
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.430	0.556	0.300	0.750	0.286
TRIAD	89	MOST LIKE A	0.449	0.556	0.455	0.167	0.407
		MOST LIKE B	0.372	0.333	0.409	0.750	0.185
		MOST LIKE C	0.179	0.111	0.136	0.083	0.407
		LEAST LIKE A	0.218	0.111	0.273	0.250	0.370
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.526	0.667	0.636	0.750	0.333
TRIAD	90	MOST LIKE A	0.667	0.444	0.682	0.417	0.929
		MOST LIKE B	0.179	0.222	0.091	0.167	0.000
		MOST LIKE C	0.154	0.333	0.227	0.417	0.071
		LEAST LIKE A	0.179	0.222	0.273	0.417	0.036
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.500	0.333	0.455	0.250	0.607

Scoring Weight Vectors

			MOS Cluster				
		Option	11	63B	64C	91	95
TRIAD	91	MOST LIKE A	0.139	0.000	0.182	0.000	0.107
		MOST LIKE B	0.481	1.000	0.591	0.000	0.571
		MOST LIKE C	0.380	0.000	0.227	1.000	0.321
		LEAST LIKE A	0.595	0.667	0.636	0.583	0.571
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.278	0.333	0.227	0.000	0.250
TRIAD	92	MOST LIKE A	0.177	0.444	0.227	0.250	0.250
		MOST LIKE B	0.468	0.556	0.500	0.583	0.500
		MOST LIKE C	0.354	0.000	0.273	0.167	0.250
		LEAST LIKE A	0.405	0.333	0.455	0.417	0.286
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.367	0.333	0.318	0.333	0.500
TRIAD	93	MOST LIKE A	0.385	0.111	0.409	0.833	0.393
		MOST LIKE B	0.500	0.667	0.409	0.083	0.429
		MOST LIKE C	0.115	0.222	0.182	0.083	0.179
		LEAST LIKE A	0.179	0.333	0.227	0.083	0.286
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.756	0.444	0.591	0.667	0.500
TRIAD	94	MOST LIKE A	0.557	0.222	0.545	0.250	0.643
		MOST LIKE B	0.241	0.222	0.318	0.083	0.250
		MOST LIKE C	0.203	0.556	0.136	0.667	0.107
		LEAST LIKE A	0.266	0.444	0.227	0.333	0.214
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.430	0.333	0.364	0.083	0.571
TRIAD	95	MOST LIKE A	0.308	0.111	0.227	0.083	0.321
		MOST LIKE B	0.564	0.778	0.682	0.750	0.464
		MOST LIKE C	0.128	0.111	0.091	0.167	0.214
		LEAST LIKE A	0.333	0.444	0.409	0.583	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.513	0.444	0.545	0.417	0.571
TRIAD	96	MOST LIKE A	0.372	0.222	0.227	0.583	0.385
		MOST LIKE B	0.487	0.667	0.455	0.167	0.423
		MOST LIKE C	0.141	0.111	0.318	0.250	0.192
		LEAST LIKE A	0.218	0.333	0.409	0.167	0.346
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.692	0.667	0.409	0.333	0.385

Scoring Weight Vectors

			MOS Cluster				
		Option	11	63B	64C	91	95
TRIAD	97	MOST LIKE A	0.405	0.222	0.273	0.750	0.464
		MOST LIKE B	0.215	0.333	0.409	0.167	0.107
		MOST LIKE C	0.380	0.444	0.318	0.083	0.429
		LEAST LIKE A	0.215	0.222	0.364	0.167	0.286
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.456	0.333	0.227	0.583	0.321
TRIAD	98	MOST LIKE A	0.241	0.000	0.318	0.083	0.143
		MOST LIKE B	0.443	0.556	0.455	0.583	0.429
		MOST LIKE C	0.316	0.444	0.227	0.333	0.429
		LEAST LIKE A	0.354	0.778	0.273	0.333	0.464
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.418	0.111	0.409	0.417	0.357
TRIAD	99	MOST LIKE A	0.316	0.222	0.318	0.083	0.143
		MOST LIKE B	0.291	0.444	0.227	0.917	0.321
		MOST LIKE C	0.392	0.333	0.455	0.000	0.536
		LEAST LIKE A	0.380	0.111	0.318	0.750	0.571
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.342	0.556	0.364	0.167	0.179
TRIAD	100	MOST LIKE A	0.405	0.000	0.273	0.750	0.393
		MOST LIKE B	0.443	1.000	0.545	0.083	0.393
		MOST LIKE C	0.152	0.000	0.182	0.167	0.214
		LEAST LIKE A	0.380	0.778	0.636	0.000	0.321
		LEAST LIKE B	0.228	0.000	0.364	0.750	0.185
		LEAST LIKE C	0.405	0.222	0.136	0.250	0.321

APPENDIX E

BASIC Computer Program for Computer Administration of First Fifteen Traids of ARIIS

```
   20.     DIM R(90),K(5,90),T$(45),M$(5),H(5)
   40.     MAT READ K
   60.     MAT READ H
   80.     FOR A = 1 TO 45
  100.     READ T$(A)
  120.     NEXT A
  140.     FOR A = 1 TO 5
  160.     READ M$(A)
  180.     NEXT A
  200.     MAT R = ZER
  220.     FOR A1 = 1 TO 5
  240.     PRINT
  260.     NEXT A1
  280.     PRINT 'WELCOME TO THE ARMY INTEREST INVENTORY PROGRAM'
  300.     PRINT
  320.     PRINT 'THE PROGRAM WILL PRESENT GROUPS OF THREE'
  340.     PRINT 'ACTIVITIES TO YOU, AND YOU ARE TO SELECT THE'
  360.     PRINT 'ACTIVITY YOU WOULD MOST LIKE TO DO AND THE'
  380.     PRINT 'ACTIVITY YOU WOULD LEAST LIKE TO DO.  YOU SHOULD'
  400.     PRINT 'INDICATE THE ACTIVITIES YOU WOULD MOST AND LEAST'
  420.     PRINT 'LIKE TO DO BY PRESSING THE 1, 2, OR 3 KEY AND'
  440.     PRINT 'THEN THE RETURN KEY.  AFTER EACH GROUP OF '
  460.     PRINT 'ACTIVITIES HAS BEEN PRESENTED THE PROGRAM WILL'
  480.     PRINT 'ASK YOU FOR YOUR RESPONSE.'
  500.     PRINT
  520.     PRINT 'IF YOU ARE READY TO BEGIN, PLEASE PRESS THE'
  540.     PRINT '1, 2, OR 3 KEY AND THEN THE RETURN KEY.'
  560.     PRINT
  580.     INPUT X
  600.     FOR A1 = 1 TO 5
  620.     PRINT
  640.     NEXT A1
  660.     FOR A1 = 1 TO 5
  670.     E1 = 0
  680.     PRINT 'FROM THE FOLLOWING THREE ACTIVITIES SELECT THE'
  700.     PRINT 'ONE ACTIVITY YOU WOULD MOST LIKE TO DO.  PRESS'
  720.     PRINT 'THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY TO'
  740.     PRINT 'INDICATE YOU CHOICE.'
  760.     PRINT
  780.     PRINT
  800.     C1=(A1-1)*3
  820.     PRINT T$(C1+1)
  840.     PRINT T$(C1+2)
  860.     PRINT T$(C1+3)
  880.     PRINT
  900.     INPUT X1
  920.     IF X1 < 1 THEN 980
  940.     IF X1 > 3 THEN 980
  960.     GO TO 1080
  980.     PRINT
  985.     E1 = E1 + 1
  990.     IF E1 = 3 THEN 3720
 1000.     PRINT 'YOU DID NOT PRESS THE 1, 2, OR 3 KEY.'
 1020.     PRINT 'PLEASE TRY AGAIN.'
```

```
1040.     PRINT
1060.     GO TO 900
1080.     R(((A1-1)*6)+X1)=1
1085.     E1 = 0
1090.     E2 = 0
1100.     PRINT
1120.     PRINT 'NOW, FROM THE OTHER TWO ACTIVITIES IN THE GROUP'
1140.     PRINT 'PLEASE SELECT THE ACTIVITY YOU WOULD LEAST LIKE'
1160.     PRINT 'TO DO.  INDICATE YOUR CHOICE BY PRESSING THE'
1180.     PRINT '1, 2, OR 3 KEY AND THEN THE RETURN KEY.'
1200.     PRINT
1220.     INPUT Y1
1240.     IF Y1 <> X1 THEN 1360
1245.     E2 = E2 + 1
1250.     IF E2 = 3 THEN 3860
1260.     PRINT
1280.     PRINT 'YOU SELECTED THE SAME ACTIVITY AGAIN'
1300.     PRINT 'PLEASE SELECT A DIFFERENT ACTIVITY.'
1320.     PRINT
1340.     GO TO 1220
1360.     IF Y1 < 1 THEN 1420
1380.     IF Y1 > 3 THEN 1420
1400.     GO TO 1520
1420.     PRINT
1425.     E1 = E1 + 1
1430.     IF E1 = 3 THEN 3720
1440.     PRINT 'YOU DID NOT PRESS THE 1, 2, OR 3 KEY.'
1460.     PRINT 'PLEASE TRY AGAIN.'
1480.     PRINT
1500.     GO TO 1220
1520.     R(((A1-1)*6)+3+Y1)=1
1540.     FOR D1 = 1 TO 5
1560.     PRINT
1580.     NEXT D1
1600.     NEXT A1
1620.     FOR A1 = 6 TO 15
1640.     PRINT 'SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.'
1660.     PRINT
1680.     C1 = (A1-1)*3
1700.     PRINT T$(C1+1)
1720.     PRINT T$(C1+2)
1740.     PRINT T$(C1+3)
1760.     PRINT
1780.     INPUT X1
1800.     IF X1 < 1 THEN 1860
1820.     IF X1 > 3 THEN 1860
1840.     GO TO 1960
1860.     PRINT
1880.     PRINT 'YOU DID NOT PRESS THE 1, 2, OR 3 KEY.'
1900.     PRINT 'PLEASE TRY AGAIN.'
1920.     PRINT
1940.     GO TO 1780
1960.     R(((A1-1)*6)+X1) = 1
1980.     PRINT
```

```
2000.     PRINT 'NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.'
2020.     PRINT
2040.     INPUT Y1
2060.     IF Y1 <> X1 THEN 2180
2080.     PRINT
2100.     PRINT 'YOU SELECTED THE SAME ACTIVITY AGAIN.'
2120.     PRINT 'PLEASE SELECT A DIFFERENT ACTIVITY.'
2140.     PRINT
2160.     GO TO 2040
2180.     IF Y1 < 1 THEN 2240
2200.     IF Y1 > 3 THEN 2240
2220.     GO TO 2340
2240.     PRINT
2260.     PRINT 'YOU DID NOT PRESS THE 1, 2, OR 3 KEY.'
2280.     PRINT 'PLEASE TRY AGAIN.'
2300.     PRINT
2320.     GO TO 2040
2340.     R(((A1-1)*6)+3+Y1) = 1
2360.     FOR D1 = 1 TO 3
2380.     PRINT
2400.     NEXT D1
2420.     NEXT A1
2440.     FOR A1 = 1 TO 5
2460.     T1 = 0
2480.     FOR B1 = 1 TO 90
2500.     T1 = T1 + K(A1,B1) *  R(B1)
2520.     NEXT B1
2540.     L1 = (T1 - 10.0)/H(A1)
2560.     PRINT
2580.     PRINT
2600.     PRINT USING 2620, M$(A1),L1
2620.     :'LAMBDA FOR aaaaaaaaaaaaaaaaaaaaaaa = ##.###'
2640.     NEXT A1
2660.     PRINT
2680.     PRINT
2700.     PRINT 'TO ADMINISTER THE INTEREST INVENTORY AGAIN'
2720.     PRINT 'PRESS THE 1 KEY AND THEN THE RETURN KEY.'
2740.     PRINT
2760.     INPUT Q1
2780.     IF Q1 = 1 THEN 200
2800.     GO TO 3980
2805.     DATA .57,.30,.13,.23,.28,.49,.77,.05,.18,.14,.51,.35
2810.     DATA .53,.29,.18,.29,.35,.36,.30,.60,.10,.24,.13,.63
2815.     DATA .38,.27,.35,.26,.37,.37,.47,.23,.30,.23,.48,.29
2820.     DATA .19,.60,.21,.56,.13,.31,.43,.23,.34,.44,.33,.23
2825.     DATA .71,.24,.05,.09,.21,.70,.41,.17,.42,.23,.47,.30
2826.     DATA .40,.27,.33,.30,.36,.35,.25,.30,.45,.47,.39,.14
2827.     DATA .24,.29,.47,.43,.19,.38,.61,.22,.18,.13,.39,.48
2828.     DATA .45,.09,.46,.35,.30,.36
2830.     DATA .56,.44,.00,.00,.00,1.0,.67,.11,.22,.11,.78,.11
2835.     DATA .68,.11,.22,.00,.67,.33,.11,.89,.00,.11,.00,.89
2840.     DATA .22,.45,.33,.56,.22,.22,.88,.00,.12,.00,1.0,.00
2845.     DATA .00,.78,.22,.67,.11,.22,.00,.11,.89,.67,.33,.00
2850.     DATA .56,.33,.11,.11,.11,.78,.45,.33,.22,.45,.33,.22
```

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2851.     DATA .67,.11,.22,.22,.33,.44,.11,.22,.67,.67,.11,.22
2852.     DATA .33,.44,.22,.00,.33,.67,.89,.00,.11,.00,.56,.44
2853.     DATA .33,.11,.56,.56,.33,.11
2855.     DATA .17,.67,.16,.75,.00,.25,.58,.00,.42,.17,.83,.00
2860.     DATA .33,.67,.00,.33,.00,.67,.42,.58,.00,.33,.17,.50
2865.     DATA .33,.42,.25,.25,.17,.58,.00,.17,.83,.75,.17,.08
2870.     DATA .42,.25,.33,.17,.25,.58,.25,.58,.17,.50,.08,.42
2875.     DATA .17,.75,.08,.33,.17,.50,.42,.16,.42,.25,.75,.00
2876.     DATA .42,.17,.42,.33,.33,.33,.73,.18,.09,.27,.45,.27
2877.     DATA .08,.58,.33,.25,.08,.67,.25,.33,.42,.33,.25,.42
2878.     DATA .33,.50,.17,.50,.08,.42
2880.     DATA .19,.56,.25,.62,.06,.31,.50,.00,.44,.06,.94,.00
2881.     DATA .31,.69,.00,.19,.12,.69,.62,.38,.00,.06,.06,.88
2882.     DATA .19,.56,.25,.12,.31,.56,.00,.69,.31,.50,.19,.31
2883.     DATA .44,.38,.19,.25,.25,.50,.38,.25,.38,.50,.38,.12
2884.     DATA .69,.19,.12,.12,.25,.62,.62,.12,.25,.12,.62,.25
2885.     DATA .62,.06,.31,.12,.75,.12,.06,.19,.75,.69,.31,.00
2886.     DATA .31,.31,.38,.25,.25,.50,.38,.62,.00,.06,.06,.88
2887.     DATA .44,.00,.56,.38,.44,.19
2905.     DATA .13,.53,.33,.87,.00,.13,.60,.00,.40,.00,1.0,.00
2906.     DATA .13,.87,.00,.20,.00,.80,.43,.36,.21,.36,.29,.36
2907.     DATA .20,.73,.07,.00,.07,.93,.00,.67,.33,1.0,.00,.00
2908.     DATA .53,.40,.07,.00,.27,.73,.21,.57,.21,.64,.07,.29
2909.     DATA .20,.60,.20,.40,.27,.33,.67,.00,.33,.00,1.0,.00
2910.     DATA .20,.07,.73,.20,.60,.20,.27,.13,.60,.33,.60,.07
2911.     DATA .20,.67,.13,.33,.13,.53,.07,.87,.07,.73,.00,.27
2912.     DATA .20,.27,.53,.53,.27,.20
3060.     DATA 4.98,10.41,7.35,8.30,10.32
3080.     DATA '1.  GO FISHING'
3100.     DATA '2.  GO TO A MOVIE'
3120.     DATA '3.  GO TO A MUSEUM'
3140.     DATA '1.  COOK A DINNER'
3160.     DATA '2.  WAX A FLOOR'
3180.     DATA '3.  PLANT FLOWERS'
3200.     DATA '1.  WORK ON A FARM'
3220.     DATA '2.  WORK IN AN OFFICE'
3240.     DATA '3.  WORK IN A FACTORY'
3260.     DATA '1.  BUILD BRIDGES'
3280.     DATA '2.  DRIVE A TRACTOR'
3300.     DATA '3.  PAINT BUILDINGS'
3320.     DATA '1.  MIX PAINT COLORS'
3340.     DATA '2.  BAKE CAKES'
3360.     DATA '3.  MIX CEMENT'
3380.     DATA '1.  TEACH AUTO SHOP'
3400.     DATA '2.  TEACH ARITHMETIC'
3420.     DATA '3.  TEACH FIRST AID'
3440.     DATA '1.  DO CLERICAL WORK'
3460.     DATA '2.  DO PHYSICAL LABOR'
3480.     DATA '3.  DO ASSEMBLY WORK'
3500.     DATA '1.  FIGHT FOREST FIRES'
3520.     DATA '2.  INSTALL TELEPHONES'
3540.     DATA '3.  REPAIR MACHINES'
3560.     DATA '1.  HELP A CARPENTER'
3580.     DATA '2.  HELP A TEACHER'
```

```
3600.     DATA '3.  HELP A BAKER'
3620.     DATA '1.  GO CAMPING'
3640.     DATA '2.  WORK ON A CAR'
3660.     DATA '3.  GO TO A PARTY'
3661.     DATA '1.  RAISE FOOD'
3662.     DATA '2.  SELL FOOD'
3663.     DATA '3.  COOK FOOD'
3664.     DATA '1.  STUDY BOOKKEEPING'
3665.     DATA '2.  STUDY PLUMBING'
3666.     DATA '3.  STUDY SURVEYING'
3667.     DATA '1.  REPAIR TYPEWRITERS'
3668.     DATA '2.  SELL CAMERAS'
3669.     DATA '3.  FIGHT FOREST FIRES'
3670.     DATA '1.  SELL TOOLS'
3671.     DATA '2.  SELL BOOKS'
3672.     DATA '3.  SELL GROCERIES'
3673.     DATA '1.  CHOP FIREWOOD'
3674.     DATA '2.  STACK FIREWOOD'
3675.     DATA '3.  DELIVER FIREWOOD'
3680.     DATA 'INFANTRY (11B)'
3700.     DATA 'MECHANIC (63B)'
3705.     DATA 'MEDIC (91B)'
3710.     DATA 'AIR MALE RESEARCHER'
3715.     DATA 'AIR FEMALE RESEARCHER'
3720.     PRINT 'UPON A BRANCH TO THIS LOCATION, THE PROGRAM WOULD'
3740.     PRINT 'PRINT A MESSAGE ON THE EXAMINERS"S PRINTER'
3760.     PRINT 'INDICATING THAT THE EXAMINEE DOESN"T SEEM TO'
3780.     PRINT 'UNDERSTAND THE INSTRUCTIONS AND ADMINISTRATION'
3800.     PRINT 'OF THE ARIIS WOULD BE TERMINATED OR POSTPONED.'
3825.     FOR A = 1 TO 5
3830.     PRINT
3835.     NEXT A
3840.     STOP
3860.     PRINT 'UPON A BRANCH TO THIS LOCATION, THE PROGRAM WOULD'
3880.     PRINT 'PRINT A MESSAGE ON THE EXAMINER"S PRINTER'
3900.     PRINT 'INDICATING THAT THE EXAMINEE DOESN"T SEEM TO'
3920.     PRINT 'UNDERSTAND THE INSTRUCTIONS AND ADMINISTRATION'
3940.     PRINT 'OF THE ARIIS WOULD BE TERMINATED OR POSTPONED.'
3965.     FOR A = 1 TO 5
3970.     PRINT
3975.     NEXT A
3980.     STOP
```

APPENDIX F

Example of Output from BASIC Computer Program in Appendix E

Circles have been drawn around responses of the examinee. All other output is produced by the computer program.

WELCOME TO THE ARMY INTEREST INVENTORY PROGRAM

THE PROGRAM WILL PRESENT GROUPS OF THREE ACTIVITIES TO YOU, AND YOU ARE TO SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO AND THE ACTIVITY YOU WOULD LEAST LIKE TO DO. YOU SHOULD INDICATE THE ACTIVITIES YOU WOULD MOST AND LEAST LIKE TO DO BY PRESSING THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY. AFTER EACH GROUP OF ACTIVITIES HAS BEEN PRESENTED THE PROGRAM WILL ASK YOU FOR YOUR RESPONSE.

IF YOU ARE READY TO BEGIN, PLEASE PRESS THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY.

#1

FROM THE FOLLOWING THREE ACTIVITIES SELECT THE ONE ACTIVITY YOU WOULD MOST LIKE TO DO. PRESS THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY TO INDICATE YOU CHOICE.

1. GO FISHING
2. GO TO A MOVIE
3. GO TO A MUSEUM

#3

NOW, FROM THE OTHER TWO ACTIVITIES IN THE GROUP PLEASE SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO. INDICATE YOUR CHOICE BY PRESSING THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY.

#1

FROM THE FOLLOWING THREE ACTIVITIES SELECT THE ONE ACTIVITY YOU WOULD MOST LIKE TO DO. PRESS THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY TO INDICATE YOU CHOICE.

1. COOK A DINNER
2. WAX A FLOOR
3. PLANT FLOWERS

#3

NOW, FROM THE OTHER TWO ACTIVITIES IN THE GROUP PLEASE SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO. INDICATE YOUR CHOICE BY PRESSING THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY.

#2

FROM THE FOLLOWING THREE ACTIVITIES SELECT THE ONE ACTIVITY YOU WOULD MOST LIKE TO DO. PRESS THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY TO INDICATE YOU CHOICE.

1. WORK ON A FARM
2. WORK IN AN OFFICE
3. WORK IN A FACTORY

#2

NOW, FROM THE OTHER TWO ACTIVITIES IN THE GROUP PLEASE SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO. INDICATE YOUR CHOICE BY PRESSING THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY.

#3

FROM THE FOLLOWING THREE ACTIVITIES SELECT THE ONE ACTIVITY YOU WOULD MOST LIKE TO DO. PRESS THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY TO INDICATE YOU CHOICE.

1. BUILD BRIDGES
2. DRIVE A TRACTOR
3. PAINT BUILDINGS

#1

NOW, FROM THE OTHER TWO ACTIVITIES IN THE GROUP PLEASE SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO. INDICATE YOUR CHOICE BY PRESSING THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY.

#3

FROM THE FOLLOWING THREE ACTIVITIES SELECT THE ONE ACTIVITY YOU WOULD MOST LIKE TO DO. PRESS THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY TO INDICATE YOU CHOICE.

1. MIX PAINT COLORS
2. BAKE CAKES
3. MIX CEMENT

#1

NOW, FROM THE OTHER TWO ACTIVITIES IN THE GROUP PLEASE SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO. INDICATE YOUR CHOICE BY PRESSING THE 1, 2, OR 3 KEY AND THEN THE RETURN KEY.

#3

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. TEACH AUTO SHOP
2. TEACH ARITHMETIC
3. TEACH FIRST AID

#2

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#1

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. DO CLERICAL WORK
2. DO PHYSICAL LABOR
3. DO ASSEMBLY WORK

#1

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#3

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. FIGHT FOREST FIRES
2. INSTALL TELEPHONES
3. REPAIR MACHINES

#3

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#1

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. HELP A CARPENTER
2. HELP A TEACHER
3. HELP A BAKER

#1

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#3

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. GO CAMPING
2. WORK ON A CAR
3. GO TO A PARTY

#1

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#2

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. RAISE FOOD
2. SELL FOOD
3. COOK FOOD

#1

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#2

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. STUDY BOOKKEEPING
2. STUDY PLUMBING
3. STUDY SURVEYING

#3

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#1

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. REPAIR TYPEWRITERS
2. SELL CAMERAS
3. FIGHT FOREST FIRES

#2

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#3

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. SELL TOOLS
2. SELL BOOKS
3. SELL GROCERIES

#1

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#3

SELECT THE ACTIVITY YOU WOULD MOST LIKE TO DO.

1. CHOP FIREWOOD
2. STACK FIREWOOD
3. DELIVER FIREWOOD

#3

NOW SELECT THE ACTIVITY YOU WOULD LEAST LIKE TO DO.

#1

LAMBDA FOR INFANTRY (11B) = .333

LAMBDA FOR MECHANIC (63B) = .257

LAMBDA FOR MEDIC (91B) = .470

LAMBDA FOR AIR MALE RESEARCHER = .874

LAMBDA FOR AIR FEMALE RESEARCHER = .629

TO ADMINISTER THE INTEREST INVENTORY AGAIN
PRESS THE 1 KEY AND THEN THE RETURN KEY.

APPENDIX G

Preliminary Analyses

APPENDIX G

Preliminary Analyses

Analyses Based on Differences Within an MOS Cluster

As was discussed in Chapter 4, within each of the five MOS, the available sample of troops from the infantry unit was divided into three subgroups:

One half of satisfied cases (the calculation subgroup),
Other half of satisfied cases, (the satisfied cross-validation subgroup), and
All dissatisfied cases (the dissatisfied cross-validation subgroup).

Using the computational procedures described in Chapter 4, scoring weight vectors based on all 100 of the final triads were developed on one half of the satisfied individuals in each of the five MOS clusters. The number of individuals in each of the subgroups within each of the MOS clusters is presented in Table G-1.

Table G-1

Number of Individuals Per Subgroup by MOS Cluster

	MOS Cluster				
	11	63B	64C	91	95
Satisfied Calculation Subgroup	70	17	20	9	42
Satisfied Cross-Validation Subgroup	70	16	21	9	42
Dissatisfied Cross-Validation Subgroup	145	5	6	12	37

These scoring weight vectors were then used to calculate Lambda values on the five MOS scales for all the individuals in each of the three previously defined subgroups, and mean scores on each of the scales were calculated for each of the three subgroups. In calculating these Lambda values we did not require that the individual have responded to all 100 of the triads, but only that they omitted no more than five of them (that is, they responded to at least 95 of the 100 triads). For those individuals who responded to fewer than the full set of 100 triads, it was necessary to recalculate the HPPS values for each of the MOS and to change the value of N used in the Lambda calculation equation. The decision

to permit an examinee to omit up to five triads and still have Lambda values calculated is in fact somewhat conservative since in Chapter 6 of this report we recommend that ten be set as the upper limit for the number of omitted triads that is acceptable. Of the 521 respondents in appropriate MOS, a total of 41, or 7.87%, omitted more than five triads and were thus excluded from the analyses reported here.

We would expect a certain rank ordering of the mean Lambda values for the individuals in each of the three subgroups from the same MOS cluster. For example, on the 63B scale we would expect satisfied 63Bs in the calculation subgroup to have the highest mean score, satisfied 63Bs in the cross-validation subgroup to have the second highest mean score, and dissatisfied 63Bs to have the lowest mean score. This same pattern should hold for troops from all five of the MOS clusters on the scale for their MOS. The actual results are presented in Table G-2. (See Tables G-4, G-5 and G-6 for complete data for individuals in all five MOS on all five scales.)

Table G-2

Mean Lambda Values for Three Subgroups of Soldiers

	MOS Cluster				
	11	63B	64C	91	95
Satisfied Calculation Subgroup	.38	.60	.41	.64	.42
Satisfied Cross-Validation Subgroup	.27	.34	.31	.47	.27
Dissatisfied Cross-Validation Subgroup	.25	.25	.25	.37	.25

Although the mean Lambda values vary across MOS because of chance factors and the fact that the individuals in some MOS are more heterogeneous than in others, within all five of the MOS clusters the relationships between the mean Lambda values for the three subgroups of individuals from the MOS are as they were predicted to be. That the individuals in the calculation subgroup have the highest mean Lambda value is not surprising since the weights were applied to the same individuals on which they were calculated, and thus a great deal of the error variance in these relatively small subgroups was fit in the calculation of the scoring weight vectors. That the mean Lambda for the individuals in the cross-validation subgroups are lower than those in the calculation subgroups was expected because of the normal shrinkage that occurs when weights calculated in one sample are applied to a second sample. What is significant is that the individuals in the dissatisfied cross-validation subgroups have lower mean Lambda values than individuals in the satisfied cross-validation subgroups. This indicates that satisfied individuals in a given MOS responded

differently to the set of 100 triads than did dissatisfied individuals in the same MOS, and that the scoring method used is sensitive enough to detect these systematic differences. In other words, the set of 100 triads can, at least on the average, discriminate between satisfied and dissatisfied individuals in the five MOS for which data are available. Although no data are available on this point, implicit in this finding is the hypothesis that an individual will be more satisfied in an MOS for which his or her Lambda value is high.

Analyses Based on Rank Order Data Across MOS Clusters

A second aspect of the validity of the interest survey is the extent to which satisfied individuals in a given MOS score higher on the scale for that MOS than on the scales for other MOS, and the extent to which dissatisfied individuals in a given MOS score lower on the scale for that MOS than on the scales for other MOS. Empirical data on this issue are somewhat difficult to obtain because of two major limitations: scales have been developed for only five MOS, and to some degree (because of factors such as bonuses, training availability, likely station location, etc.) soldiers may not self-select into the MOS which is the closest match to their interests. Given a situation in which individuals could self-select with no limitations the MOS in which they would serve and could switch MOS if they wished, then we would expect to find very few dissatisfied individuals in an MOS, and, on the average, we would expect the individuals' Lambda values for the MOS they are in to be among their highest Lambda values, if not their highest. Such conditions do not exist in the Army.

However, to provide at least rough data on the issue, the five Lambda values based on the scoring vectors for the five MOS clusters were calculated for each individual in the satisfied cross-validation and the dissatisfied cross-validation subgroups. These five Lambda values were then rank ordered for each individual and the rank order of the Lambda value for the individual's own MOS among the five Lambda values was calculated. The results of this analysis are presented in Table G-3.

Table G-3

Percent of Individuals Having Their Highest or Second Highest Lambda Value on the Scale for Their Own MOS

MOS	Satisfied Cross-Validation Sample	Dissatisfied Cross-Validation Sample
11	67%	72%
63B	77%	40%
64C	60%	50%
91	100%	78%
95	50%	62%

Clearly, for the sample of individuals used in this project, there is a tendency for individuals to have a higher Lambda value on the scale for their own MOS than they have on the scales for other MOS. However, the strength of this tendency varies from MOS to MOS, and, what is more important, there is no tendency for satisfied individuals to more often have the Lambda value for their own MOS among their two highest Lambda values than is the case for dissatisfied individuals in the same MOS. Because of the two constraining factors mentioned earlier (having scoring weight vectors for only five MOS and the lack of self selection of MOS assignment by individuals) and the fact that these data are based on small to very small samples, the operational implications of these finding are not clear.

Analyses Based on Mean Differences Between MOS Clusters

Lambda values on all five MOS scales were calculated for all individuals in each of the three satisfaction subgroups. The means and standard deviations of the Lambda values on each of the MOS scales were then calculated for the subset of individuals in each MOS. The results of these calculations for each subgroup are presented in Tables G-4, G-5 and G-6.

Table G-4

Means and Standard Deviations of Lambda Values for Individuals in the Satisfied Calculation Subgroup

Primary MOS	Number	MOS Scale 11	63B	64C	91	95
11	65	.38 (.17)	.24 (.18)	.26 (.13)	.06 (.17)	.24 (.14)
63B	15	.39 (.12)	.60 (.11)	.38 (.09)	-.04 (.16)	.20 (.12)
64C	19	.27 (.15)	.24 (.16)	.41 (.12)	.03 (.11)	.17 (.11)
91	9	.10 (.16)	-.07 (.13)	.05 (.12)	.64 (.09)	.20 (.08)
95	41	.25 (.22)	.12 (.21)	.17 (.15)	.12 (.22)	.42 (.15)

Table G-5

Means and Standard Deviations of Lambda Values for Individuals in the Satisfied Cross-Validation Subgroup

Primary MOS	Number	MOS Scale 11	63B	64C	91	95
11	68	.27 (.19)	.13 (.20)	.20 (.15)	.13 (.21)	.22 (.13)
63B	15	.36 (.17)	.34 (.20)	.31 (.12)	.02 (.15)	.17 (.12)
64C	16	.37 (.18)	.30 (.17)	.31 (.13)	.03 (.14)	.25 (.11)
91	9	.08 (.16)	-.04 (.10)	.04 (.10)	.47 (.07)	.14 (.12)
95	41	.28 (.21)	.16 (.23)	.20 (.16)	.13 (.22)	.27 (.13)

Table G-6

Means and Standard Deviations of Lambda Values for Individuals in the Dissatisfied Cross-Validation Subgroup

Primary MOS	Number	MOS Scale 11	63B	64C	91	95
11	129	.25 (.18)	.17 (.20)	.20 (.15)	.10 (.20)	.16 (.13)
63B	5	.38 (.23)	.25 (.25)	.25 (.14)	.10 (.23)	.29 (.12)
64C	4	.28 (.21)	.17 (.19)	.25 (.13)	.16 (.20)	.20 (.15)
91	9	-.03 (.22)	-.07 (.21)	-.00 (.14)	.37 (.23)	.06 (.12)
95	34	.25 (.22)	.13 (.21)	.17 (.15)	.13 (.22)	.25 (.16)

Note that the numbers in Tables G-4, G-5 and G-6 do not agree with the numbers in Table G-1. The differences are due to the fact that some individuals omitted so many triads that their data were not used in the calculation of Lambda values.

Examination of Tables G-4, G-5 and G-6 reveals that:

A. For 10 out of the possible 15 comparisons, within an MOS cluster, the highest mean Lambda value is on the scale for the MOS cluster in individuals are in. This is the case for both the calculation subgroup and the two cross-validation subgroups when scoring weights are calculated on satisfied troops.

B. For all ten of the possible comparisons, mean Lambda values on the scales for the MOS clusters the individuals are in are lower in the two cross-validation subgroups than in the calculation subgroup.

C. For all five of the possible comparisons, mean Lambda values on the scales for the MOS clusters the individuals are in are lower in the dissatisfied cross-validation subgroup than they are in the satisfied cross-validation subgroup.

D. The medical specialists (MOS 91) are most clearly discriminated from the other MOS clusters.

E. Troops in the infantry (MOS 11) and military police (MOS 95) clusters are rather difficult to discriminate from each other.

F. Troops in the driver (MOS 64C) and mechanic (MOS 63B) clusters are rather difficult to discriminate from each other.

Based on the results of the preliminary studies presented in this appendix and those in Chapter 5, and taking into account the small numbers of individuals on which they are based, it is the opinion of the project staff that the approach used in the ARIIS may have utility in measuring the MOS-relevant interests of Army enlistees. This view is further supported by results obtained using the Kuder Occupational Interest Survery, Form DD, (Kuder, 1977; Kuder and Diamond, 1979) which used the same general approach but a different set of triads. As with any newly developed psychological instrument, further study and use will be required to determine if the ARIIS meets its potential.