ABSTRACT

LEVINE, JONATHAN D. Use of the O*NET Descriptors in Numerical Occupational Classification: An Exploratory Study (Under the direction of Dr. J.W. Cunningham)

The present study explored the usefulness of four O*NET descriptor domains, Knowledge, Skills, Abilities, and Generalized Work Activities, as tools in occupational classification and in estimating O*NET Job Zones reflecting the education, training, experience requirements (i.e., O*NET Job Zones) of occupations. First, assignment analyses were carried out to compare how accurately different association measure – variable set combinations assigned occupations to their parent Standard Occupational Classification (SOC) groups. The d^2 – O*NET domain factor combination yielded a high assignment rate and was used in all subsequent analyses.

Second, unstructured and structured numerical cluster analyses were carried out at different levels of the SOC. An unstructured, overall analysis produced some clusters that matched well with Major Groups in the SOC's hierarchical structure. Subsequent structured analyses within groups at two different levels of the SOC produced many clusters that matched well with both SOC Minor Groups and Broad Occupational Groups, oftentimes yielding 100 percent membership overlap. Although numerical occupational clustering based on the O*NET domain factors did not produce a meaningful alternative to the SOC, it did provide some empirical support for the SOC at the Major Group, Minor Group, and Broad Occupation levels. Finally, an *a priori* matrix classification approach employing SOC Major Groups and O*NET Job Zones did not yield a meaningful occupational structure.

Regression and discriminant analyses were carried out to explore whether O*NET domain factors would be useful in estimating job zone assignments for occupations. Initial regression analyses with O*NET domain factors as the independent variables and Job Zone as the dependent variable yielded an R value of .80 ($p < .001$). A discriminant analysis provided further evidence that O*NET descriptors may be useful in assigning Job Zones to new and emerging occupations.

USE OF THE O*NET DESCRIPTORS IN NUMERICAL OCCUPATIONAL CLASSIFICATION: AN EXPLORATORY STUDY

By
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Chairman of Advisory Committee

DEDICATION

I dedicate this work to my wife, Stefanie, my son, Joshua the prince, and my little princess, Samantha. They brighten each day and make life worth living. Without them, none of this would matter.

BIOGRAPHY

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Use of the O*NET Descriptors in Numerical Occupational Classification:

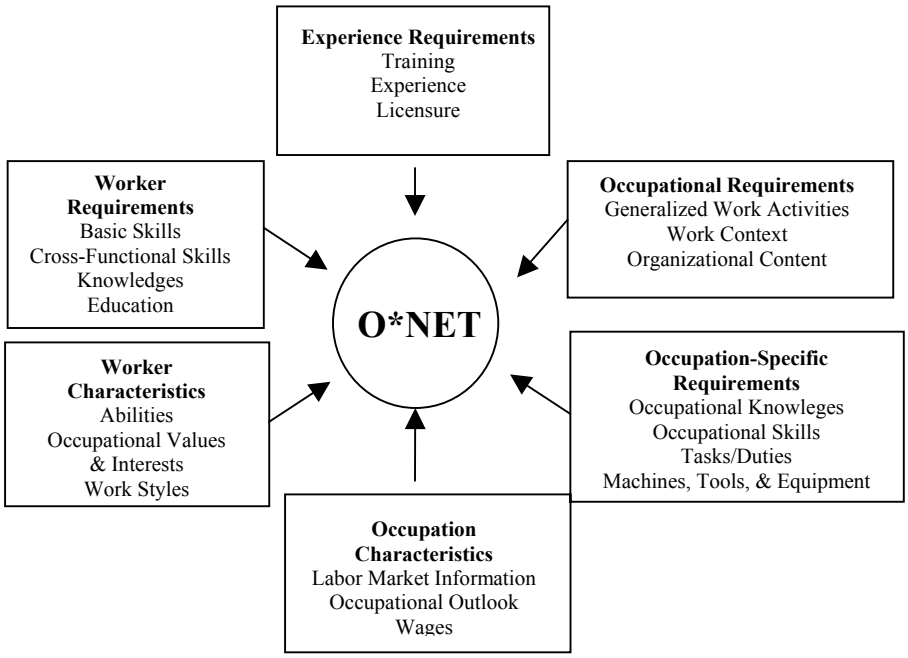
An Exploratory Study

INTRODUCTION

The Standard Occupational Classification (SOC) is a 4-tiered taxonomic system developed and updated by the Bureau of Labor Statistics (BLS; U.S. DOL/BLS, 1999). It consists of (from general to specific) 23 Major Groups, 96 Minor Groups, 449 Broad Occupations, and 821 Detailed Occupations. The Office of Management and Budget recently mandated that all federal government-reporting agencies adopt and incorporate the SOC into their job systems. The SOC will serve to replace many different job classification schemes (e.g., the Occupational Employment Statistics system, the Census classification, America's Job Bank, and the Occupational Information Network). It may also be thought of as a common occupational coding system that will allow various government agencies to more easily communicate with each other and share data. The National Center for O*NET Development (O*NET Center) was the first government agency to adopt and convert its occupational system to the SOC.

O*NET is the United States Department of Labor's (U.S. DOL) replacement for the Dictionary of Occupational Titles (DOT). O*NET reduced the DOT's over twelve thousand occupational titles to a smaller, more manageable 1,122. O*NET, unlike the SOC, is more than just an occupational grouping structure. Underlying O*NET is a conceptual framework known as the Content Model. The Content Model "…summarizes the specific types of variables that would be needed to adequately describe characteristics and requirements of both the worker and the work" (Mumford & Peterson, 1999; p. 25). Figure 1 on the following page presents a visual of the O*NET Content Model.

Figure 1. The O*NET Content Model



O*NET also offers a database containing knowledge, skill, ability, general work activity, work style, training and education, task, and work context data that all describe its occupations. All of these data together serve as a valuable vocational guidance and career exploration tool (e.g., see O*NET's Web-based application known as the Online Viewer, http://online.onetcenter.org/). O*NET data have also been used to develop online assessment systems (e.g., www.careerway.com), create job descriptions (e.g., www.hiringtools.com), and facilitate research efforts in the field of industrial-organizational psychology (e.g., Kubisiak, 2002).

The O*NET Center recently converted its system to a SOC-based system, which now contains 974 occupations. Upon conversion to the SOC, most of the original O*NET occupational units (OUs) became specific SOC occupations, while some OUs remained and became a fifth, more detailed breakout of some of the specific SOC occupations. The new SOC-based coding system that was incorporated into O*NET's taxonomy reflects the complex transition to what is now known as the O*NET-SOC system (Levine, Nottingham, Paige, and Lewis, 1999). The O*NET-SOC system will be discussed in greater detail later in the literature review.

Both the SOC and O*NET-SOC systems were developed using primarily qualitative means (i.e., judgments made by trained BLS and other government agency staff, job and occupational analysts, and industrial-organizational psychologists). The O*NET conversion to the SOC, in particular, was completed based on the judgments of a small number of government personnel. However, with the increased use of computers, quantitative classification techniques are possible. This has led to the growth of what Cunningham (1996) referred to as numerical occupational classification. Should the appropriate data be available, quantitative methods exist allowing for the empirical grouping of jobs. One such method in the broadest sense is known as cluster analysis.

Aldenderfer & Blashfield (1984), Harvey (1986), and Mirkin (1996) carried out studies that employed cluster algorithms and obtained internal validation support for their respective job groupings. Cunningham and colleagues (Ballentine, Cunningham, & Wimpee, 1992; Cunningham, Boese, Neeb, &Pass, 1983; Pass & Cunningham, 1975; Riccobono, Cunningham, & Boese, 1975; Riccobono & Cunningham, 1974) have also

applied numerical classification techniques (both cluster analysis and factor analysis) and have repeatedly obtained stable job groupings.

The present study explored the potential usefulness of the O*NET Domain descriptors as tools in job and occupational classification and in the development of a future numerical occupational classification system. More specifically, O*NET numeric data were used to determine whether the descriptors could serve (a) as occupation-assignment tools within the existing SOC framework, (b) as a means of numerically generating a modified occupational classification structure, and (c) as estimators of O*NET Job Zone requirements for occupations.

REVIEW OF THE LITERATURE

This section begins with an overview of job classification systems, old and new, and proceeds with an in depth presentation and review of the Standard Occupational Classification (SOC) system. Next is an extensive review of the Occupational Information Network (O*NET), which is now a SOC-based occupational classification scheme and vocational guidance tool, containing a host of valuable descriptive data. In addition, O*NET's conversion to the SOC will be described. Following is a discussion of qualitative and quantitative approaches to job classification and research that has been carried out within each of these categories. This section will conclude with some commonly used quantitative procedures used to develop, empirically, numerical occupational taxonomies.

The need to group jobs was evident as early as the 1930s, when the United States Census classification and shortly thereafter the DOT were developed. These occupational taxonomies met economical and practical needs at the time. For example, the DOT was developed to address the matter of recording and tabulating job placements. Since then, other job classification schemes have been put forth for various purposes and to meet the specialized needs of those developing them. Kelley (1935) and Thurstone (1937) created taxonomies based on patterns of abilities required for job performance. In 1940, Humphreys developed a job classification system concerned with general functional aspects of jobs. This system allowed for the grouping of jobs based on the function performed regardless of the industry or establishment where the job occurred. These are just some age-old examples of the types of classifications researched and applied in fields, such as vocational guidance, counseling, and training.

In recent years, more current and widely used job classification systems have been developed. Various United States government agencies led the charge in the development of such systems for statistical reporting purposes. Examples are the Occupational Employment Statistics (OES) system, the Military Occupational Classification, the several revised versions of the DOT, O*NET, and the SOC. It is important to mention that the United States is not the only country developing and using job classification systems. International examples are Canada's National Occupational Classification and the United Kingdom's International Standard Classification of Occupations (ISCO-88).

With so many classification systems in use today, it is no surprise that confusion exists; communication and data sharing between such systems is difficult and sometimes impossible. Recognizing this problem and responding to the need for a common classification structure, the United States Office of Management and Budget (OMB), some years ago, formed the SOC Revision Policy Committee and "…charged [them] with identifying the major statistical uses of occupational classifications, and creating a classification system that reflects the current occupational structure in the United States." (p. x; United States Department of Commerce, 2000). Upon completion of the newly revised SOC, the OMB mandated that all federal agencies collecting data on jobs and occupations use this system. It has also been suggested that states and local governments adopt this system, as well.

Converting to a new job classification system is a difficult, time consuming, and expensive task. States, for example, are reluctant to make the "switch" to the SOC after having used the DOT for decades. DOT codes are often embedded in computerized job

systems, which, if replaced, would, in some cases, require a complete overhaul of such systems. However, one state agency, the North Carolina Employment Security Commission/National Center for O*NET Development (hereafter referred to as the O*NET Center), has taken aggressive action and successfully converted O*NET, which was originally an OES-based occupational system, to the SOC. In addition, the O*NET Center has developed a "crosswalk," or link, between the DOT and SOC codes, as well as valuable training materials and seminars to assist states, software developers, and other government agencies in planning and executing SOC conversion projects. Finally, many private companies (e.g., Eriss, CE Technologies), quasi-governmental agencies (e.g., America's Job Bank), and web-based job boards (e.g., Monster.com) have incorporated the SOC into their job systems. Monster.com, in particular, because of its international presence and recent partnership with the U.S. Department of Labor, has the capability of developing the world's first global occupational classification system. As a first step towards that end, Monster.com is currently embedding the SOC into its database of over twenty million resumes. Once completed, the SOC will hopefully gain national and international recognition as a viable standard classification scheme for jobs.

The Standard Occupational Classification (SOC)

As described in the SOC Manual,

> The [SOC] is a system for classifying all occupations in the economy, including private, public, and military occupations. This classification system replaces all occupational classification systems previously used by Federal statistical agencies.

> It will be used by all Federal statistical agencies collecting occupational data, providing a means to compare occupational data across agencies. It is designed to cover all occupations in which work is performed for pay or profit, reflecting the current occupational structure in the United States (p. ix).

Various Federal government agencies contributed to the development of the SOC. Major players were the Bureau of Labor Statistics (BLS), Employment and Training Administration, and the Bureau of the Census.

The SOC contains 4 levels of aggregation within its hierarchy. The first and most general category is known as the Major Group level. There are 23 Major Groups in the SOC. Table 1 provides a listing of each of the Major Groups and their corresponding codes.

Table 1.

SOC Major Groups: Codes and Titles

Code	**Title**
11-0000	Management Occupations
13-0000	Business and Financial Operations Occupations
15-0000	Computer and Mathematical Occupations
17-0000	Architecture and Engineering Occupations
19-0000	Life, Physical, and Social Science Occupations
21-0000	Community and Social Services Occupations
23-0000	Legal Occupations
25-0000	Education, Training, and Library Occupations
27-0000	Arts, Design, Entertainment, Sports, & Media Occupations

Code	Title
29-0000	Healthcare Practitioner and Technical Occupations
31-0000	Healthcare Support Occupations
33-0000	Protective Service Occupations
35-0000	Food Preparation and Serving-Related Occupations
37-0000	Building and Grounds Cleaning and Maintenance Occupations
39-0000	Personal Care and Service Occupations
41-0000	Sales and Related Occupations
43-0000	Office and Administrative Support Occupations
45-0000	Farming, Fishing, and Forestry Occupations
47-0000	Construction and Extraction Occupations
49-0000	Installation, Maintenance, and Repair Occupations
51-0000	Production Occupations
53-0000	Transportation and Material Moving Occupations
55-0000	Military-Specific Occupations

As can be seen from the above Table, the Major Groups are extremely broad in scope. They had to be broad in order to capture all jobs in the economy and subsume three more levels of categorizations. Below the Major Group level are 96 Minor Groups, which are also fairly broad, but somewhat less so than the Major Groups. Three examples of Minor Groups are 11-1000 Top Executives, 19-1000 Life Scientists, and 41-2000 Retail Sales Workers. Note that the first two digits of the Minor Group code correspond to its "parent" Major Group. Hence, each of the forenamed Minor Group examples correspond to Major Groups, 11-0000 Management Occupations, 19-0000 Life, Physical, and Social Science Occupations, and 41-0000 Sales and Related Occupations, respectively.

The third level in the SOC hierarchy is known as the Broad Occupation. There are 449 Broad Occupations. In keeping with the aforementioned examples, some Broad Occupations are 11-1010 Chief Executives and 11-1020 General and Operations Managers (both grouped within Minor Group 11-1000 Top Executives); 19-1010 Agricultural and Food Scientists and 19-1020 Biological Scientists (both grouped within Minor Group 19-1000 Life Scientists); and 41-2010 Cashiers and 41-2020 Counter and Rental Clerks and Parts Salespersons (both grouped within Minor Group 41-2000 Sales and Related Occupations).

The fourth and most specific level in the SOC (yet still fairly broad) is the Detailed Occupation. Again, the code corresponding to each Detailed Occupation title is intuitive. The first two digits represent the Major Group, the third digit represents the Minor Group, the fourth and fifth digits denote the Broad occupation and the sixth digit denotes the Detailed Occupation. Completing the above three Major Group examples, corresponding Detailed Occupations are 11-1011 Chief Executives and 11-1021 General and Operations Managers; 19-1011 Animal Scientists, 19-1012 Food Scientists and Technologists, 19-1013 Soil and Plant Scientists, 19-1021 Biochemists and Biophysicists, 19-1022 Microbiologists, 19-1023 Zoologists and Wildlife Biologists, and 19-1029 Biological Scientists, All Other; 41-2011 Cashiers and 41-2012 Gaming Change Persons and Booth Cashiers, 41-2021 Counter and Rental Clerks, and 41-2022 Parts Salespersons. Table 2 on the following page provides a visual of the previous examples.

It is important to highlight the Detailed Occupation example, 19-1029 Biological Scientists, All Other. This is known as a residual category. It is a place to classify jobs that do not "fit" into any of the other related Detailed Occupation categories. Because of

the nature of these groupings (as "catch-all" categories), no data exists for these residual, Detailed Occupation, categories. Therefore the 73 All Other SOC residual categories were not used in this study. Data is also not available for occupations within the Major Group 55-0000 Military-Specific Occupations. Therefore all occupations within this Major Group were not included in this study.

Table 2.

SOC Hierarchy Examples

Example 1.
11-0000 Management Occupations
11-1000 Top Executives
11-1010 Chief Executives
11-1011 Chief Executives
11-2010 General & Operations Managers
11-2011 General & Operations Managers
Example 2.
19-0000 Life, Physical, & Social Science Occupations
19-1000 Life Scientists
19-1010 Agricultural & Food Scientists
19-1011 Animal Scientists
19-1012 Food Scientists & Technologists
19-1013 Soil & Plant Scientists
19-1020 Biological Scientists
19-1021 Biochemists & Biophysicists
19-1022 Microbiologists
19-1023 Zoologists & Wildlife Biologists
19-1029 Biological Scientists, All Other
Example 3.
41-0000 Sales & Related Occupations
41-2000 Retail Sales Workers
41-2010 Cashiers
41-2011 Cashiers
41-2012 Gaming Change Persons & Booth Cashiers
41-2020 Counter/Rental Clerks & Parts Salespersons
41-2021 Counter & Rental Clerks
41-2022 Parts Salespersons

Note.

The occupations in bold are the Detailed Occupations for which data exists. It is data for occupations at this level that were used in this study.

The SOC, as evidenced by the above hierarchical coding scheme, is a complex and comprehensive system of occupations. If government agencies are to adopt this system and private developers wish to create SOC-based job software, the SOC must be clearly understood. In addition, if the SOC is to become the one standard classification system adhered to correctly by all, a set of rules must be followed during a classification effort. Thus, all those incorporating the SOC should do so in a similar manner. The SOC Policy Committee, for this reason, had developed a set of eight classification principles. Table 3 summarizes the eight principles.

Table 3.

Eight SOC Classification Principles

1.	The SOC covers occupations for which work is performed for pay. Therefore, volunteer workers are excluded from the SOC. Each occupation is assigned to one category at the lowest (most detailed) level in the SOC.
2.	Occupations are grouped based on work performed, skills, education, and training.
3.	Supervisors that have a background similar to those they supervise are categorized with those workers. Other workers that supervise, team lead, etc. that spend at least 20% of their time performing work like that of those they supervise are classified with those workers.
4.	First-line managers of production, sales, and service workers who spend more than 80% of their time performing supervisory activities are grouped separately in the appropriate supervisor or management category.
5.	"Apprentices and trainees are classified with the occupations for which they are being trained, while helpers and aides are classified separately" (p. xii).
6.	If an occupation could not be included as a Detailed Occupation, it was therefore classified in the appropriate Residual Occupation.
7.	Should it be possible that a worker be classified in more than one SOC category, they should be placed with the Detailed Occupation requiring the higher skill level.
8.	Those using the SOC to group jobs or occupations should do so at the most detailed level possible.

Note.

All classification principles included in Table 3 have been paraphrased from those contained in the SOC Manual (p.p. xii-xiii). Principle 5 has been quoted word-for-word.

Few studies, if any, have conducted empirical testing of the judgmentally developed SOC. This may have been because there have not been any publicly available, numeric data associated with the various SOC categories. The SOC is simply a descriptive, organizational structure that can be used to group occupations, jobs, positions, and the like. It contains a system of codes and occupational titles, and at the Detailed Occupation level, brief descriptions of each occupation are provided. The present study is the first to conduct empirical classification within the hierarchical framework of the SOC. This study has been made possible due to the recent conversion of what is known as the O*NET, a system of occupations with associated descriptive data, to the SOC. O*NET's domain-specific, descriptor data now describes nearly all of the SOC's Detailed Occupations. Following is a discussion of O*NET and the specific descriptor domains relevant to this research. In a later a section, O*NET's conversion to the SOC will be described in detail.

The Occupational Information Network (O*NET)

O*NET Beginnings

O*NET is the United States Department of Labor's (U.S. DOL) replacement for the DOT. The DOT, first published in 1939, was the result of thousands of job analyses and contained occupational categories that have been used for years to classify over 15,000 jobs. There had been numerous revisions of the DOT, the last and most recent having been in 1991. In this version, information is provided for over 12,000 occupations (U.S. DOL, 1991). Over the years, some important uses of the DOT have been as a tool for person-job matching, hiring, vocational placement, and training (Dunnette, 1999). The

DOT has also been used extensively by nearly every state's employment service to assign codes to applicants and employees. As years passed and more sophisticated methods for conducting job analyses came about (Brannick & Levine, 2002; Ash, 1988; Levine, 1983), the time and expense of updating the DOT became a problem. Dunnette (1999) stated, "[r]apid changes in technology and patterns of employment have resulted in serious delays in keeping the DOT updated. Accordingly large portions of the information are out of date at any given time" (p. 4).

Because of the problems associated with maintaining and updating the DOT, the U.S. DOL formed the Advisory Panel for the DOT (APDOT). The panel was charged with defining, producing, publishing, and disseminating a new DOT and recommending continuous improvements. The APDOT soon came forth with its recommendations for a new occupational information system that would meet the needs of a 21st Century workforce. According to the APDOT, this new system should

> …promote the effective education, training, counseling, and employment of the American Work Force. The DOT should be restructured to accomplish its purpose by providing a database system that identifies, defines, classifies, and describes occupations in the economy in an accessible and flexible manner. Moreover, the DOT should serve as a national benchmark that provides a common language for all users of occupational information. (U.S. DOL, 1993, p. 6).

Hence, O*NET was born. It was in January of 1995 that the term Occupational Information Network was first used to describe the newly proposed system that would

soon be developed (Dye & Silver, 1999). Dye & Silver described O*NET as a database "…that uses a common language for collecting, describing, and presenting valid, reliable occupational information about work and the worker…O*NET is [also] an informational hub for language and data, enabling labor exchange members to communicate with each other" (p. 9). Once completed, O*NET would serve as the nation's main (automated) source of occupational information.

The O*NET Content Model

In order to fulfill one of O*NET's primary missions (i.e., to serve as a common language for work and worker characteristics), an underlying, conceptual model was developed. Initially the APDOT put forth a conceptual model that described the world of work and would serve as a precursor to the final O*NET Content Model. This initial model was simplistic in design, containing four broad domain areas: Worker Attributes, Work Context, Labor Market Context, and Work Content and Outcomes. A visual of the model is presented in Figure 2 on the following page. The final O*NET Content Model is a descriptive, exhaustive framework covering areas ranging from Worker Requirements (including skills and knowledge) to Worker Characteristics (including abilities and interests) to Occupational Requirements (including generalized work activities to work context) to Occupation Characteristics (including labor market information and wages). The final Content Model was presented previously in the Introduction in Figure 1.

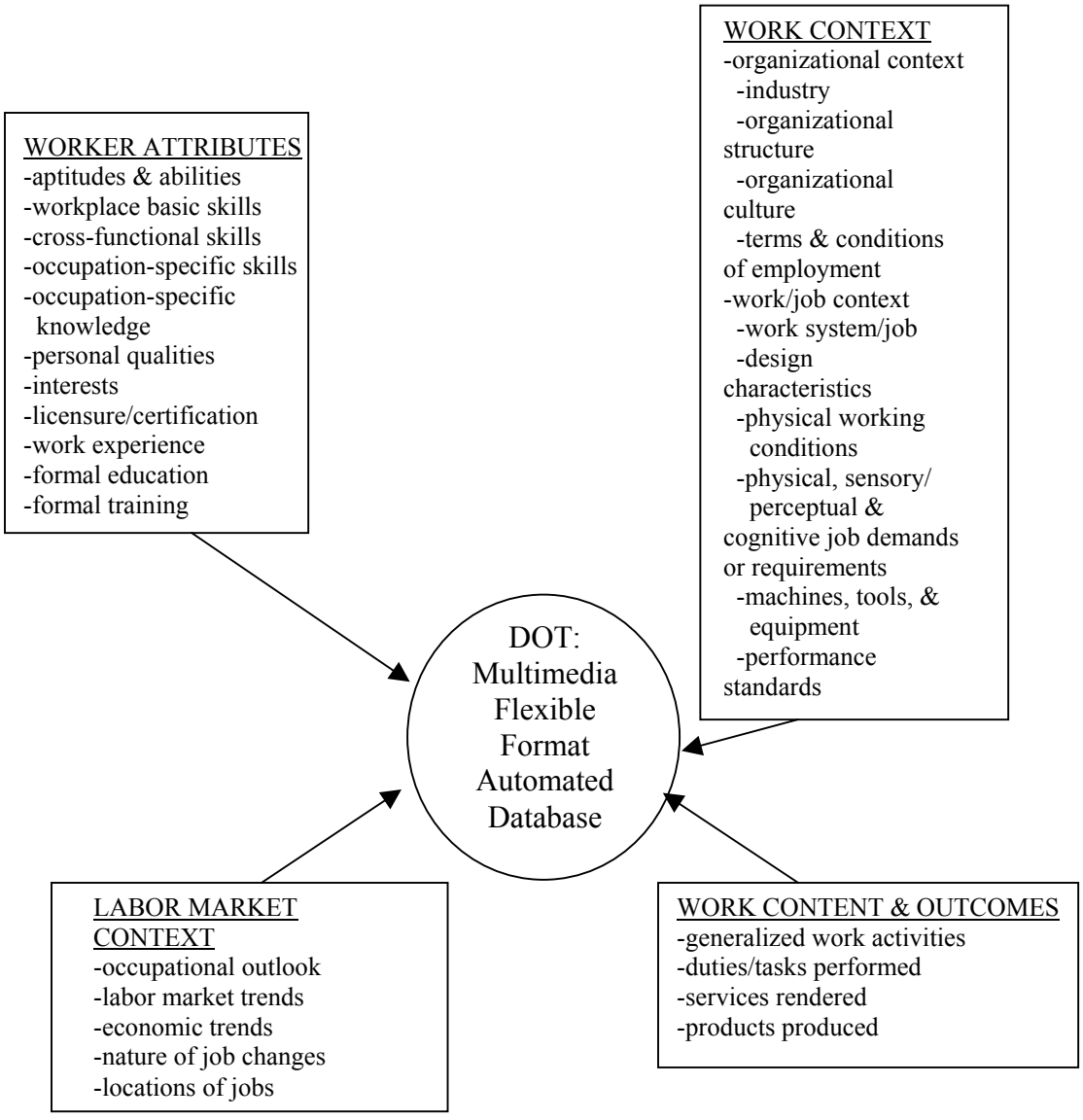
O*NET Descriptor Domains

O*NET was designed such that jobs and occupations could be described in terms of what Cunningham (1996) refers to as "nomothetic" variables (or descriptors). These

types of broad descriptors would allow for a cross-job approach and therefore cross-job comparisons (Mumford & Peterson, 1999). O*NET was also based on a "multiple windows" approach allowing occupations to "…be described and understood from a number of different perspectives" (Mumford & Peterson, 1999, p. 23). Therefore, in line

Figure 2.

The APDOT Content Model: Precursor to the O*NET Content Model



with this approach, several descriptor domains were developed that described both the occupation and the worker.

Worker-oriented domains for which data are available include Skills, Abilities, Work Styles, Work Values, and Interests. Data are also available for occupation-oriented domains such as Knowledge, Generalized Work Activities, Work Context, and Occupational Tasks. Other domains exist as part of the Content Model for which neither respective questionnaires nor data are available in O*NET. Examples are Organizational Context, Occupational Skills, and Machines, Tools, and Equipment. The Content Model presented in Figure 1 highlights all conceptual descriptor domains included in O*NET. For an exhaustive discussion of the research and development of the domains contained in O*NET, the reader is referred to *An Occupational Information Network for the 21st Century: The Development of O*NET* (Peterson, Mumford, Borman, Jeanneret, & Fleishman, 1999). The present study focused on four of the O*NET domains: Knowledge, Skills, Abilities, and Generalized Work Activities. It is data from each of these descriptor domains that were used in this study. Each is described in detail below.

Knowledge. Costanza, Fleishman, & Marshall-Mies (1999) defined job-related knowledges as "…those facts and [organized cognitive] structures that are necessary for successful job performance" (p. 71). Defining job-relevant knowledge was the first step in the development of a knowledge taxonomy that could span a wide range of occupations. Early research led Costanza, et al. to the F-JAS (Fleishman, 1992), which contained many work-related knowledge areas. As well, the authors reviewed DOT job descriptions to glean knowledge requirements for thousands of jobs. After extensive research and review, a knowledge-requirements taxonomy was developed. Seven general

knowledge categories, including Artistic/Creative, Business/Administrative, Mechanical/Skilled Trades, Outdoor Work, Professional, Scientific, and Service Sector, were initially identified. In addition, 86 individual knowledges, including examples such as Art, Chemistry, Math, and Computers, were also identified. The second revision resulted in 49 knowledge statements. Since the goal was to develop a "parsimonious set of knowledges classified into broader clusters," the list was reduced yet again. The final set of 33 knowledges includes examples such as knowledge of Computers and Electronics, Food Production, Geography, and Law.

Reliability testing was performed on the final set of knowledge-requirement statements (Costanza, Fleishman, & Marshall-Mies, 1999). A sample of 645 job incumbents rated 32 occupations using the statements. High interrater agreement was found between raters and across occupations (reliabilities for level and importance were found to be in the 80s). In addition, the underlying dimensionality of the knowledges was explored, using principal components analysis applied to level data. Seven components emerged that were clear and interpretable and accounted for 84% of the variance.

Skills. Mumford, Peterson, & Childs (1999) were charged with developing a taxonomy of skills applicable to a wide range of jobs. After much research into the domain of workplace behavior (Mumford & Peterson, 1995), two types of skills were proposed: (a) Basic Skills, which include Content Skills and Process Skills and (b) Cross-functional Skills, which include Problem Solving Skills, Social Skills, Technical Skills, Systems Skills, and Resource Management Skills. In the development of basic content skills, Mumford & Peterson (1995) argued, "…learning is intimately tied to the

acquisition and application of knowledge. Thus, basic content skills can be defined in terms of those capabilities that allow people to acquire information and convey this information to others" (Mumford, Peterson, & Childs, 1999; p. 51). Basic process skills, on the other hand, are skills that involve the worker taking a more active role in acquiring and applying knowledge. These also involve general strategies, processes, and procedures that contribute to learning (Mumford, Baughman, Supinski, Costanza, & Threlfall, 1996). Some examples of O*NET's basic skills are Reading, Writing, and Listening.

Cross-functional skills can be considered general skills applicable across a wide-range of jobs. For example, problem solving is an important, performance-relevant activity that is typically required for nearly all jobs. In support of the final proposed skills taxonomy, it was found that Fine's (1988) taxonomy of data, people, and things mapped well to O*NET's final set of cross-functional skills. Examples of cross-functional skills are Problem Identification, Solution Appraisal, Technology Design, Troubleshooting, and Visioning.

Abilities. The O*NET ability-requirements taxonomy contains 52 abilities applicable to a wide range of jobs. The Fleishman Job Analysis Scales (F-JAS; Fleishman, 1992) served as the foundation for the O*NET taxonomy. The Fleishman abilities have been researched for more than 40 years and have a long history of use in government and the military. This research has provided evidence for scale reliability (Hogan, Ogden, & Fleishman, 1978; Myers, Jennings, & Fleishman, 1981; Driskill & Dittmar, 1993), support for internal validity (Hogan, Ogden, & Fleishman, 1979; Fleishman & Mumford,

1988; Landy, 1988), and external validation support (Zedeck, 1975; Fleishman & Mumford, 1991).

The F-JAS was modified somewhat to meet the purposes of O*NET. For example, certain items were not used in O*NET, and text (showing how a certain ability was different from other abilities) that preceded each ability scale was eliminated. Also, behavioral anchors, deemed potentially insensitive (to certain cultural groups) were replaced with new ones. The new anchors were empirically scaled (Fleishman, Costanza, & Marshall-Mies, 1999). The O*NET abilities taxonomy now contains various abilities, ranging from Verbal abilities (including Oral Comprehension and Written Expression) to Reasoning abilities (including Deductive and Inductive Reasoning) to Quantitative Abilities (including Number Facility and Mathematical Reasoning) to Physical Strength abilities (including Explosive Strength and Static Strength; see Figure 3).

Generalized Work Activities (GWA). Cunningham (1974) described structured job analysis as a "nomothetic" process, which can be considered "…an approach emphasizing the common dimensions rather than the unique characteristics of tasks, jobs, and occupations" (p. 8). It is this approach that served as the foundation for the development of the GWA taxonomy. In addition, Jeanneret, Borman, Kubisiak, & Hanson (1999), the authors responsible for developing the GWA taxonomy, reviewed four nomothetic questionnaires. They were the Position Analysis Questionnaire (McCormick, Jeanneret, & Mecham, 1969), the Occupation Analysis Inventory (Cunningham, 1988), the General Work Inventory (Cunningham, Wimpee, & Ballentine, 1990), and the Job Element Inventory (Cornelius, Hakel, & Sackett, 1979). Many factor

analyses carried out over the years using these questionnaires have provided some insight into the structure underlying work.

After an extensive review of various factor structures (i.e., underlying work dimensions), Jeanneret, et al. (1999), developed 42 General Work Activity statements that subsequently became part of the O*NET GWA questionnaire. Examples are Getting Information Needed to do the Job, Processing Information, Handling and Moving Objects, and Resolving Conflicts and Negotiating with Others. The original GWA questionnaire was different than the other three domain questionnaires in that a frequency scale was included. Recently, all O*NET questionnaires have been revised, and the frequency scale was dropped.

Interrater agreement studies were carried out for the GWA scales (Jeanneret, et al., 1999), and coefficients were repeatedly found to be in the 70s and 80s. In one study, the interrater reliabilities for the level scale were found to be in the 90s. A principle components analysis was carried out, as well, using level data. A three-component solution was found that accounted for 71% of the variance. Jeanneret, et al. stated, "the communalities suggested that for the most part the GWA dimensions are well-represented with this [three-factor] solution" (p. 121). Three components were named: Working With Information, Working With and Directing the Activities of Others, and Manual and Physical Activities.

O*NET Classification Issues

The occupations contained in O*NET had to be organized (or classified) such that the various users (e.g., government agencies) could communicate and share data across their existing systems. During O*NET's development, one of the few available national

occupational classification systems used by government reporting agencies, such as the U.S. Census and the BLS, was the Occupational Employment Statistics (OES) system. The SOC was available and considered, but was still in development, was neither conceptually nor technically compatible with the OES, and therefore, at the time, was not chosen as the classification system for O*NET. Because of the lack of one, best classification and coding system, it was decided that O*NET would use the OES system. The OES system, first introduced in 1983, used a five-digit coding system and described over 700 occupations. The O*NET system contained over 1,000 occupations, and therefore the OES had to be slightly modified to incorporate the additional O*NET occupations.

Not too long after the release of the first public version of the OES-based O*NET, *O*NET 98*, the BLS had revised and completed the SOC (U.S. DOL\BLS, 1999). The OMB then mandated that all government agencies collecting data on jobs and occupations adopt the SOC. O*NET quickly adhered to this mandate, and in 1998 began its transition. In 1999, the conversion of O*NET to the SOC was completed.

O*NET's Conversion to The SOC

The O*NET Center, funded by the U.S. DOL, engaged in a lengthy effort to classify its occupations (and all associated data) into the SOC framework. Adhering to the classification principles (see Table 3) was an important objective of the conversion project. Classification principle 8 states that those using the SOC to classify occupations should do so at the most detailed level possible. O*NET adhered to this principle by aligning most of its 1,122 occupations to SOC Detailed Occupations (Levine,

Nottingham, Paige, & Lewis, 1999). Those O*NET occupations that did not align well with SOC Detailed Occupations were dropped and are not available in the new system. The new SOC-based O*NET system is now known as the O*NET-SOC system.

Overview of the O*NET-SOC System

The new coding system used the six-digit SOC codes and attached a two-digit suffix (e.g., .00, .01-.50, .51-.99) to the existing SOC codes. The new codes serve two purposes: (a) they allow the user to operate in SOC mode and (b) they allow the user to continue to attain the level of detail offered by O*NET beyond that of the SOC. A goal of the new system was to be flexible, which readily allows the addition of new information (e.g., new occupations). In addition to the institution of a new coding system, other important efforts were undertaken by the O*NET Center to support the O*NET-SOC conversion project. These efforts were as follows: (1) Where possible, O*NET titles and brief descriptions were converted entirely to SOC titles and definitions, (2) Current and future O*NET data collections will use SOC titles and definitions, when possible, and (3) A new database using the SOC-based coding and classification structure was developed. This database will serve as the foundation for all future O*NET efforts, for example, *O*NET OnLine* (Levine, Nottingham, Paige, & Lewis, 1999).

The O*NET-SOC Coding System

This section, due to the complexity and detailed nature of the coding conversion, has been excerpted from my own work, the document, *Transitioning O*NET to the Standard Occupational Classification* (Levine, Nottingham, Paige, & Lewis, 1999). Wording, in some cases, has been slightly modified to reflect the objectives of the current study.

For purposes of the upcoming discussion, it is important to note that SOC occupations will be referred to as SOCs and O*NET occupations as OUs. Following is a presentation of the overarching principles of the new classification and coding system, as well as a description of the coding system for four different occupational linkage examples. They are (1) one SOC to one OU, (2) one SOC to many OUs, (3) many SOCs to one OU, and (4) SOC does not link to an OU.

The overarching principles that guided the O*NET conversion effort are summarized as bullet points below. The principle is highlighted in bold and below each is a brief description.

- **The extension ".00" denotes a specific SOC occupation**

  A .00 was added to the six-digit SOC code for a given occupation to allow users to know which O*NET-SOC occupations are the same as SOC occupations. In most cases, data is available for these occupations.

- **The extensions ".01, .02,… .50" denote occupations derived from O*NET**

  These extensions are used (a) when the system must retain the O*NET title and definition and (b) when there is greater level of detail in O*NET than in the SOC. Sometimes the extension .01 is used when only one O*NET OU is linked to an SOC, but is more detailed than the SOC. In most cases, however, these extensions are used when there is more than one OU linked to a single SOC. Currently, data are available for occupations having these extensions.

- **The entire SOC structure has been incorporated into the O*NET database**

  The SOC structure, including Major Groups, have been included in the newly released O*NET database. This will hopefully facilitate the use of the entire SOC hierarchy.

- **"All Other" (residual) SOC categories will not be used in future data collection efforts**

  Since the goal of the O*NET-SOC is to adhere to the SOC and collect data on only SOC occupations in the future, data will not be collected on O*NET occupations matched to residual categories. Therefore, these occupations were not included in this study.

- **Special cases**

  Two O*NET occupations initially linked to "All Other" SOCs were selected to be retained in O*NET-SOC. They are Human Resources Managers and Biologists. These OUs were classified with the appropriate SOC Broad Occupation.

Using the overarching principles as guiding rules, the conversion effort was carried out. During the transition from O*NET to the SOC, several occupational linkage situations became possible. Following is a numbered description of these coding system (and linkage) situations and specific examples that correspond to those mentioned previously (one SOC to one OU, one SOC to many OUs, many SOCs to one OU, and SOC does not link to an OU).

1. **One SOC to One OU** (482 cases) – In a one-to-one relationship, there is simply one OU linked to the corresponding SOC occupation. Table 4 below provides an example.

Table 4.

Example of the One SOC to One OU Linkage Situation

SOC Occupation	**O*NET OU**	**O*NET-SOC Occupation**
13-2053 Insurance Underwriters	22102 Underwriters	13-2053.00 Insurance Underwriters

Note.
In this example, the OU title (and definition) was determined to be similar enough to the SOC title (and definition) that the SOC could replace the OU. Therefore the two-digit extension .00 was added to the SOC code, resulting in the new O*NET-SOC occupation.

2. **One SOC to Many OUs** (120 SOCs with added O*NET detail below, resulting in 343 cases) – In this situation, O*NET OUs were at a finer level of detail than the SOC occupation. Therefore the extensions, .01, .02, etc., were used to denote this greater level of detail. Two types of examples of this linkage situation are provided in Table 5 below.

Table 5.

Two Examples of the One SOC to Many OUs Linkage Situation

Example 1.		
SOC Occupation	**O*NET OU**	**O*NET-SOC Occupation**
19-1031 Conservation Scientists	24302B Soil Conservationists 24302D Range Managers 24302E Park Naturalists	19-1031.00 Conservation Scientists 19-1031.01 Soil Conservationists 19-1031.02 Range Managers 19-1031.03 Park Naturalists

Example 2.		
SOC Occupation	**O*NET OU**	**O*NET-SOC Occupation**
19-1013 Soil and Plant Scientists	24305B Plant Scientists 24305D Soil Scientists	19-1013.00 Soil and Plant Scientists 19-1013.01 Plant Scientists 19-1013.02 Soil Scientists

Notes.
In the first example, the extensions .01, .02, .03 were assigned to the more detailed OUs linked to this SOC occupation. In addition, the extension .00 was assigned to the occupation, Conservation Scientists, to show that it was retained in the O*NET-SOC system at the SOC level. Data is available for the three, more detailed occupations, Soil Conservationists, Range Managers, and Park Naturalists.

In the second example, the SOC occupation is a "roll-up" of the two more detailed OUs. Therefore a .00 was assigned to the SOC occupation to show that it is now part of the O*NET-SOC system. The extensions, .01 and .02 were assigned to show that the OUs, Plant Scientists and Soil Scientists, were a more detailed, breakout of the SOC occupation. Data are available for these more detailed occupations.

3. **Many SOCs to One OU** (30 broader OUs, leading to 75 cases) – In this situation, the SOC had a greater level of detail than the OU. Therefore the same O*NET data was used to describe each of the SOCs to which the OU had been linked. It is important to note that for the purposes of the current study, only one of the many SOC occupations linked to a single OU will be selected and included, since the data is the same. Table 6 below provides an example of this situation.

Table 6.

Example of the Many SOCs to One OU Linkage Situation

SOC Occupation	**O*NET OU**	**O*NET-SOC Occupation**
13-2071 Loan Counselors 13-2072 Loan Officers	21108 Loan Officers and Counselors	13-2071.00 Loan Counselors 13-2072.00 Loan Officers

Note.
In this example, the SOC occupations were a breakout of the broader OU. Currently, data is available for only Loan Officers and Counselors combined. In the future, data will be collected separately for the new O*NET-SOC occupations.

4. **Detailed SOC does not match to an OU** (74 cases) – Sometimes there are no OUs linked to a particular SOC. These occupations were assigned an SOC code with a .00 extension. Data is not available for these SOC occupations, and therefore they will not be included in this study. Table 7 provides an example of a SOC that does not have a corresponding OU match.

Table 7.

Example of the Detailed SOC does not match to an OU Situation

SOC Occupation	**O*NET OU**	**O*NET-SOC Occupation**
11-1031 Legislators	None	11-1031.00 Legislators

Note.
The extension .00 was added to the SOC code to show that this occupation is now included as part of the new O*NET-SOC system. Data will be collected on this occupation in the future.

5. **Temporary Codes for Occupational Code Requests (OCR)** – OCRs are instances where the public may request that a new occupation not currently part of the O*NET-SOC system be added. These new occupations are assigned a temporary code and title and may one day become a permanent occupation in the system. Extensions .51-.99 have been reserved for new occupation requests and will be assigned accordingly.

It can be seen from the above linkage examples that the conversion effort was a complex and large-scale project. Approximately 1,122 O*NET OUs were matched to 821 SOC occupations, resulting in the new O*NET-SOC system, which contains 1,094 occupations. Of the 1,094, data is available for 974. A subset of the 974 occupations was included in the present research. For example, the SOC contains various military classifications for which no data is available. Therefore military occupations were not used in the current study. In addition, some of the above coding system situations (#3

and #4) discuss when certain SOC occupations will not be included. The upcoming Research Methods section discusses which SOC occupations were and were not used in this study. A comprehensive spreadsheet containing every SOC and O*NET occupation and linkage situation is available in Levine, Nottingham, Paige, & Lewis (1999).

It is important to mention that while every care was taken to assure that classifications during the conversion effort were made correctly, all decisions were based on the judgments of a few trained O*NET Center personnel. Because of the success of the newly released O*NET-SOC system and acceptance by various government agencies, it appears that the qualitative approach taken to occupational classification has proved useful thus far.

Qualitative and Quantitative Classification

The SOC hierarchy was developed using rational means. O*NET was the result of both quantitative (cluster analyses of the DOT were carried out) and qualitative classification techniques. The aforementioned O*NET conversion project was a judgmental undertaking. Bailey (1994) mentions that such judgmental efforts tend to be more conceptual than empirical, since they are not based on numerical approaches (i.e., mathematical algorithms). Qualitative job classification methods, however, are common and have been the primary means by which nearly all government classifications in use today have been created. Pearlman (1980) supported this notion by discussing that government agencies most often use rational processes to develop job classification systems.

Henderson (1988) described a qualitative classification approach to determine pay rates for positions. In this study, participants reviewed job descriptions and narratives of pay rates. Participants then sorted jobs into the previously determined pay categories. Whether or not this rational procedure yielded valid results was impossible to assess due to the lack of empirical testing. This demonstrated that, in this case, a rational approach suffers a distinct disadvantage to that of an empirical procedure. Fleishman & Quaintance (1984) discussed a rational classification procedure in which job descriptor information was reviewed and determined to be either present or absent from each case. Cases were then judgmentally grouped based on either one or more attributes, which assisted participants in determining group membership. Sackett, Cornelius, & Carron 1981) also demonstrated that a qualitative approach to job classification using global judgments produced useful results.

Harvey (1990) did not particularly care for judgmental (or holistic) approaches to classification and believes results are unacceptable when empirical methods are not employed. Fortunately, there has been a host of research that have employed quantitative (empirical) approaches to job classification.

Probably the most comprehensive, quantitative classification study to date was the research series carried out by Cunningham and colleagues (Pass & Cunningham,1975; Riccobono, Cunningham, & Boese, 1975; Cunningham, 1974; Cunningham, Tuttle, Floyd, & Bates, 1974). The research began with the development of the Occupation Analysis Inventory (OAI). The instrument contains 622 work activity descriptors used to rate jobs or occupations (Cunningham et al., 1974). The OAI "…represented an attempt to achieve as much specificity (or content loading) in occupational descriptions as

possible, while retaining applicability to the entire occupational spectrum" (Pass & Cunningham, 1975; p. 1). It was the intent of these researchers at the time to develop a comprehensive, numerical taxonomic system for "…describing, comparing, and grouping jobs and occupations" (p. 3). Subsequently, several quantitative studies were carried out employing the OAI.

Riccobono et al., (1975) applied a cluster algorithm to 814 job based on factor score profile similarities for 22 OAI dimensions. Seventy-three clusters were identified. Pass & Cunningham (1975) followed shortly after and derived occupational clusters from 1,414 jobs rated on all 622 OAI items. Several factor analyses and hierarchical cluster analyses were carried out. Factor analyses resulted in 132 first-order work dimensions and 28 higher-order work dimensions. Hierarchical cluster analyses were then employed using factor score profiles as variables, resulting in 21 broad clusters and 88 narrower clusters, which were subsumed under the broad clusters. Statistical tests revealed that the final broad cluster solution was meaningful and stable. Pass & Cunningham (1975) suggested that the resultant cluster solution might provide a viable taxonomic schema for occupational guidance and related educational purposes.

Hamer & Cunningham (1981) used 50 jobs rated on OAI items. Factor analyses were carried out and resultant factor scores became the profile data used in subsequent hierarchical cluster procedures. In this study, the authors compared seven different profile association measures for their effectiveness in clustering data. They found that the correlation and cosine performed better than distance and overlap measures. They stated, "[t]he results demonstrate the importance of the choice of a profile association measure in cluster analysis" (p. 63). Finally, Ballentine, Wimpee, & Cunningham (1992)

conducted a numerical classification study using 180 (Air Force) job incumbents' General Work Inventory ratings on their positions. Hierarchical cluster analyses resulted in 21 stable and meaningful job clusters.

While it does appear that Cunningham and colleagues have dominated the "quantitative clustering space," others have carried out research within this realm, as well. Dowell & Wexley (1978) developed a supervisor task description questionnaire (STDQ) containing 100 work activities. A sample of 251 plant supervisors rated their jobs on STDQ items. A factor analysis of the responses yielded seven meaningful job dimensions. Cullen (1991) was concerned with the nature of "professionalism." He performed a hierarchical cluster analysis on 203 professional occupations using data from the DOT. Three occupational clusters resulted: (1) a medical cluster, (2) an accepted profession cluster, containing occupations such as accountant, computer programmer, and architect, typically employed by formal organizations, and (3) a "least-professional" cluster, containing occupations such as bank teller and secretary. Finally, Converse & Oswald (2000) compared cluster analyses for three different types of General Aptitude Test Battery data. A multi-approach to clustering the data was employed to "…avoid the potential problems associated with any one method" (p. 7), including Ward's (1963) hierarchical method, a Q-type factor analysis, and a hybrid technique. They found that each of the three types of data (actual profile data, regression-estimated profile data, and field analyst rated data) resulted in dissimilar job clusters.

Cunningham (1996) pointed out that there has been a trend toward what he referred to as "numerical taxonomy." As is evidenced from the above quantitative research, he appears to have been correct. More specifically defined, numerical (occupational)

taxonomy is a quantitative approach to job classification, whereby a mathematical algorithm is applied to numeric data in order to derive clusters of jobs. Cluster analysis is one such numerical classification method that has been frequently used to derive empirically-based job taxonomies.

Some Occupational Grouping Procedures

Cluster analysis is a quantitative technique that has been used for years to classify people or things. Early work in the natural sciences, such as anthropology and biology, employed cluster analysis to create taxonomies. Attempts by scientists, such as Thorndike (1953), were made to apply a more scientific and objective approach to numerical classification and in fields other than the natural sciences. Years ago, clustering was very difficult to do without computers (Bailey, 1994). Today cluster analysis techniques are computerized and clustering can be carried out in minutes.

"Cluster analysis techniques may themselves be 'classified' into types… These types are not necessarily mutually exclusive, and several clustering techniques could be placed in more than one category" (Everitt, 1974; p. 7-8). Everitt describes some "rough" categories, such as hierarchical techniques and overlapping or clumping techniques. Following is a discussion of two hierarchical clustering techniques commonly used within the domain of job classification. They are Ward's (1963) method and a hybrid approach that combines Q-type factor analysis and Ward's method (Colihan & Burger, 1995; Harvey, 1986).

Ward's Method. Ward (1963) suggested a procedure to form hierarchical groups of mutually exclusive subsets, whereby members within each subset are as similar as possible; Overlapping cluster membership is not permitted. This procedure is useful in

that it takes into account group member similarity "…with respect to many variables" (p. 236). Ward's intent was to form each number of groups, *n*, *n*-1, …, 1, in a way that would "minimize the loss associated with each grouping", and to quantify the loss so it may be interpreted. Therefore, Ward proposed "…(a) to reduce the number of groups from *n* to *n*-1 in a manner that would minimize loss and then, without modifying the groups formed, repeat the process until the number of groups was systematically reduced from *n* to 1, if desired, and (b) to evaluate loss in terms of whatever functional relation best expressed an investigator's criterion for grouping" (p. 236).

One assumption underlying this approach is that the greatest amount of information is available when members are ungrouped. Ward's hierarchical procedure begins with these *n* members. His hierarchical grouping procedure is described below.

> The first step in grouping is to select two of the *n* [members], which, when united, will reduce by one, the number of [members] while producing the least impairment of the optimal value of the objective function. The *n*-1 resulting [members] then are examined to determine if a third member should be united with the first pair or another pairing made in order to secure the optimal value of [an] objective function for *n*-2 [members]. This procedure can be continued until all members of the original array are in one group (p. 238).

This cluster technique has been computerized and is available in the SAS/STAT software (SAS Institute, 1990). In order to implement this procedure in SAS, the Method = Ward statement must be specified. According to the SAS Institute, the distance

between two clusters using Ward's method is the ANOVA sum of squares between the two clusters summed across all variables.

The Hybrid Approach. The hybrid approach used by Harvey (1986), Colihan & Burger (1995), and Kubisiak (2002) combines Q-type factor analysis and cluster analysis. Q-type factor analysis is an approach that differs from Ward's method, because it allows overlapping cluster members. It is considered a grouping technique, because it is different than the typical R-type factor analysis. An R-type analysis groups variables based on correlations between a set of observations. Q-type analysis differs from R-type in that the cases (not variables) are correlated and factor analyzed. For example, in a matrix whereby occupations are the rows, abilities are columns, and cell entries are mean ability ratings, the occupations can be intercorrelated and the resulting occupation-by-occupation matrix factor analyzed to produce "groupings" or dimensions of occupations. Colihan & Burger (1995) described an applied example of Q-type analysis:

> In a Q-type factor analysis applied to job classification, each job is represented by a profile of ratings across a set of job analysis items. A similarity index (e.g., correlation) between each pair of jobs is then computed, and the resulting job-by-job similarity matrix is factor analyzed to find groups of jobs with similar profiles across the job analysis items (p. 566).

Q-type factor analysis can be implemented in SAS by first correlating cases (i.e., rows) and then utilizing the Factor or Princomp procedure. SAS does not distinguish between Q-type and R-type analysis. It is up to the user to specify whether it is the rows or columns that are to be intercorrelated.

Harvey (1986) and Colihan & Burger (1995) described that once the Q-factor analysis is complete, a cluster analysis is carried out on the Q-factor results. Colihan & Burger's approach can be applied to occupations. First, an occupation-by-occupation matrix is factor analyzed. Second, the resulting factor structure would then be used to form a new occupation-by-occupation similarity matrix. Finally, this new similarity matrix is cluster analyzed using a selected clustering technique to classify occupations. This approach can be implemented in SAS by first implementing the Factor or Princomp procedure and then subsequently any chosen hierarchical method, for example, method = Ward.

Advantages and Disadvantages of the Two Clustering Methods

A disadvantage of Ward's method is that it forces an "independent cluster solution" on the data. Applied to job classification, Colihan & Burger (1995) stated that a job would be grouped into only one job cluster; therefore, overlap between job families is ignored. Harvey (1986; 1991) declared that "…[the] independent-clusters model presents an unlikely description of most 'true' job structures." (Colihan & Burger, 1995; p. 566).

According to Levine (1983), there are various levels of job analysis that can be considered rungs on a "job analysis ladder." At the lower end of this ladder, more distinct units of analysis exist, such as elements, tasks, and positions. As we climb higher up the ladder, rungs (e.g., jobs, job families, occupations, occupational families) become more ambiguous, having no clear-cut boundaries between them. Therefore, when clustering occupations or jobs, it may be more appropriate to use clustering techniques that allow overlapping clusters. A more acceptable occupational structure might contain occupations that share similar competencies (i.e., knowledge, skills, and abilities). The

hybrid approach (including Q-type factor analysis) approach thus offer this advantage over Ward's method, in that it allows for overlapping clusters.

Gandy (1979) also suggested that Q-type analysis has some advantages over common hierarchical techniques for job classification, because Q-type analysis clusters members based on error-reduced space, "making it potentially more robust to measurement error than cluster analysis" (Colihan & Burger, 1995; p. 567). They further stated that "…cluster analyses can often be unstable because the first step of each new grouping depends on only two or three profiles. Q-type factor analysis relies on the entire set of relationships within the sample in forming clusters" (p. 567). Overall, Colihan & Burger found that hybrid techniques and Q-type factor analysis were superior to more traditional, hierarchical clustering techniques. However, Ward's method did reasonably well when the "correct" number of job families was specified at the outset. When the correct number of occupational clusters is unknown (as is probably the case in reality), Q-factor analysis or the hybrid approach may be advantageous.

Riccobono, Cunningham, & Boese (1975) described some clustering methods and discussed advantages and disadvantages. In contrast to Colihan & Burger (1995), Harvey (1986), and Gandy (1979), Riccobono et al. argued that a shortcoming of the Q-type factor analysis method is that it does not identify boundaries of clusters. Therefore, a grouping problem occurs when an occupation, for example, has high loadings on more than one factor. They further purport two advantages of Ward's method over Q-factor analysis. First, this technique "…provides a complete hierarchical structuring, with the number of possible solutions ranging from two groups to the total number of objects in the sample, [therefore, making it] unnecessary to specify the number of clusters in

advance." Second, it provides an error index at each grouping stage that can assist the researcher in determining the final number of clusters to retain (p. 18). After an extensive comparison of clustering methods, the conclusion reached by Riccobono et al. was that hierarchical methods (e.g., Ward's) are superior to Q-type factor analysis.

Kubisiak (2002) also compared the hybrid approach to Ward's method. This study is particularly relevant to the present research in that the same O*NET data set is used. Kubisiak found, after an extensive comparison of cluster solutions resulting from each of the methods, that Ward's method repeatedly yielded more homogeneous and stable cluster solutions. Based on Kubisiak's results and previous comparative taxonomic research, Ward's method was employed in the present study.

PURPOSE

The proposed study involved an exploration in numerical occupational classification. The results helped determine whether four selected sets of O*NET domain descriptors (knowledge, skills, abilities, and generalized work activities) could be integrated into the existing SOC classification system. This was accomplished by testing the potential usefulness of the descriptors (a) as assignment tools within the existing SOC framework, (b) in numerically generating a modified classification structure consisting of occupational groupings that are homogeneous in their human requirements, and (c) as tools in estimating O*NET Job Zones (i.e., education/experience/training requirements) for occupations.

RESEARCH METHODS

Dataset

The O*NET dataset is a comprehensive database containing analyst ratings of over 1,000 occupational units (OUs). However, during O*NET's conversion to the SOC, several of the original 1,122 OUs were dropped, leaving 974 occupations. Some caveats relevant to the data used in the present study must be mentioned. First, only 900 of the 974 Detailed Occupations were included in the present research, because 74 do not have data. Second, the Major Group 55-0000 Military Specific Occupations was not included in the present research; data are not available for any Detailed Occupations within this grouping. Therefore only 22 of the original 23 SOC Major Groups were included.

The data include mean ratings for various domains, such as knowledge, skills, abilities, generalized work activities, work context, training and education, and work values. The O*NET is unique in that the questionnaires used are scaled similarly, allowing for cross-occupation and cross-domain comparisons.

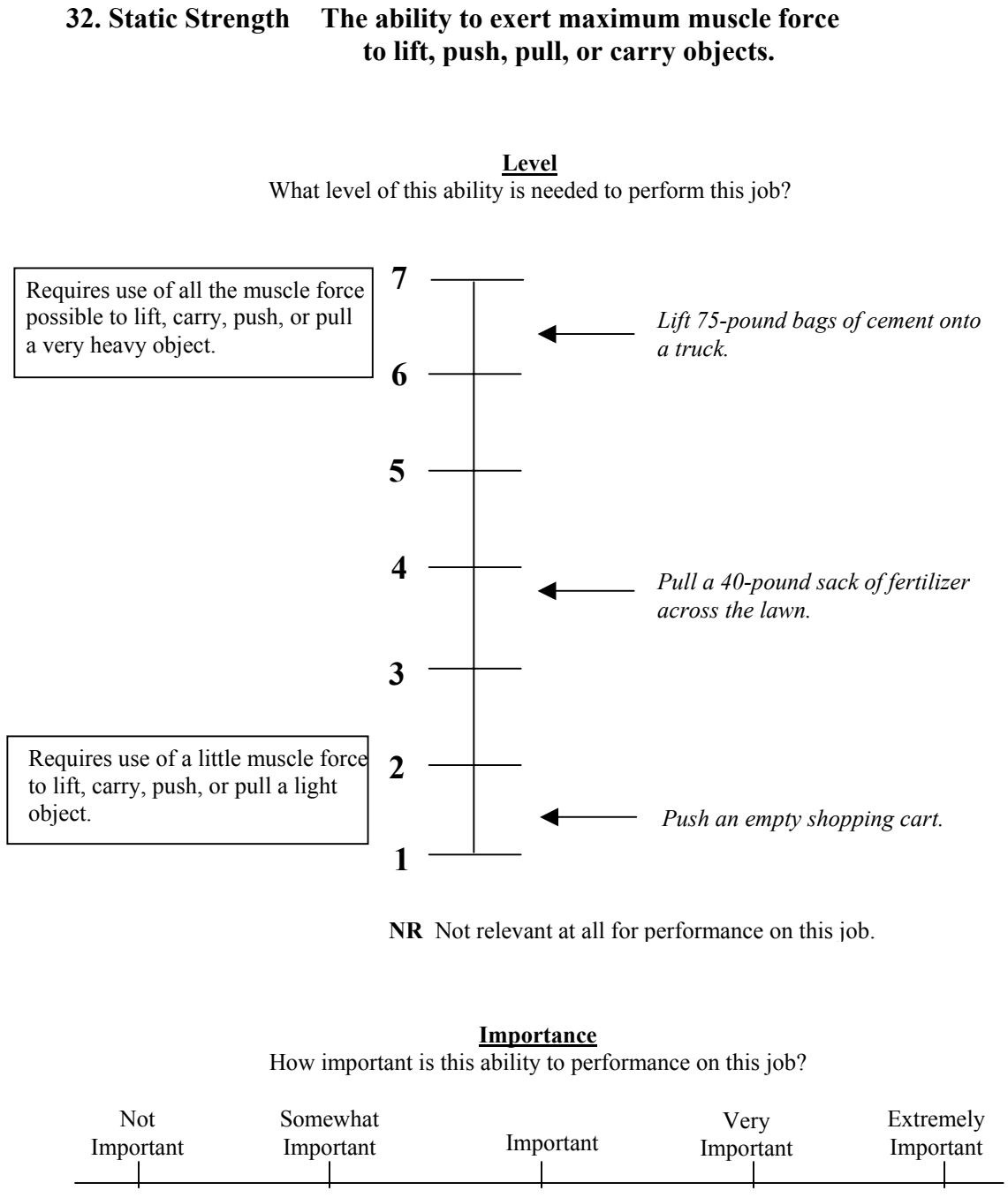
In this study, data for four of the O*NET domains were used: Knowledge, Skills, Abilities, and Generalized Work Activities (GWAs). Each of these separate, but related, sets of data was obtained via the administration of structured questionnaires containing level and importance scales. Occupational definition and detailed task information for samples of OUs were provided to raters and used as content material. Trained analysts (primarily industrial-organizational psychology graduate students) provided level and importance ratings on the above mentioned domains for 1,122 OUs (average n raters for each occupation per domain = 6, sd = 1.3).

Instruments

The O*NET domain questionnaires varied in the numbers of descriptor items they contained, but all used seven-point, behaviorally-anchored level scales (with anchors at low, middle, and high points on the scale) and 5-point Likert type importance scales, ranging from Not Important to Extremely Important. The level scale, which appeared first in each item, included a Not Relevant (NR) option was provided. If NR was selected, then the rater was to skip the importance rating and go on to the next descriptor item. For the most part, the present study used level data; but in one instance, importance data were used. Figure 3 on the following page provides an example of an ability descriptor item.

The knowledge questionnaire includes 33 descriptor items. Examples are Knowledge of Fine Arts, Knowledge of Psychology, and Knowledge of Computers/Electronics. The skills questionnaire contains 46 descriptor items, made up of 10 basic skills and 36 cross-functional skills. Examples are Writing, Instructing, and Time Management. The abilities questionnaire contains 52 cognitive, psychomotor, physical, and sensory abilities. Examples are Oral Comprehension, Number Facility, and Explosive Strength. Finally, the generalized work activities questionnaire contains 42 descriptor items. Examples are Processing Information, Performing General Physical Activities, and Communicating with Supervisors, Peers, or Subordinates.

Figure 3. Sample Ability Item: Static Strength



ANALYSES AND RESULTS

Phase 1 Analyses

Factor Analyses

Two sets of factor analyses were carried out using two different means of classifying the O*NET descriptors. In the present study, factor analyses were carried out similar to those in a study conducted by Clark, 2002; however the present study used the newer SOC-based O*NET dataset (O*NET 3.1) was used, which is a subset of that used by Clark. (Note, upon conversion to the SOC, many O*NET occupations were dropped). The two sets of analyses and their respective results are presented below. The purpose of the factor analyses was to produce factor scores that would be used in subsequent comparative assignment analyses.

1) O*NET Domain Factors. Principal components analyses (using ones as communality estimates) were first conducted in order to examine eigenvalue patterns. Based on Kaiser's (1970) criterion (eigenvalues greater than one), the retention of eight-, five-, seven-, and five-factor solutions for the knowledge, skills, ability, and GWA domains, respectively, was warranted. Next, each of the four O*NET domains were subjected to a separate principal axes factor analysis (with squared multiple correlations as communality estimates) and varimax rotation. The numbers of factors rotated and retained in each analysis were as follows: eight knowledge factors, five skill factors, ten ability factors, and six GWA factors. Each domain's factor solution (salient descriptors and loadings) was judgmentally matched with comparable factor solutions derived previously by Clark (2002) and Wilson (2003). The factors solutions in the present study were very similar to those obtained in previous

research. Tables 8, 9, 10, and 11 summarize the various solutions by presenting the salient descriptors, loadings, and percentages of variance explained by each factor. Appendix A contains both the eigenvalues that resulted from the principal components analysis and the complete rotated loading matrices for each of the four retained factor solutions.

Table 8.

Knowledge 8-Factor Solution: Factor Titles, Salient Knowledges, Loadings, and Percentages of Variance Explained

O*NET-SOC Level: Factor Titles & Knowledges	**Factor Loading**	**% Variance**
1. Management & Human Resources (12)		12.88
KN3 Economics & Accounting	.80	
KN1 Administration & Management	.79	
KN6 Personnel & Human Resources	.78	
KN4 Sales & Marketing	.57	
KN14 Mathematics	.53	
KN23 Education &Training	.48	
KN30 Legal, Government, & Jurisprudence	.47	
KN18 Psychology	.47	
KN2 Clerical	.42	
KN5 Customer & Personal Service	.42	
KN24 English Language	.41	
KN32 Communications & Media	.38	
2. Applied Physical Sciences & Technology (6)		11.52
KN10 Engineering & Technology	.88	
KN11 Design	.78	
KN15 Physics	.75	
KN13 Mechanical	.72	
KN12 Building & Construction	.65	
KN7 Production & Processing	.50	
3. Humanities & Social Sciences (9)		11.27
KN27 History & Archeology	.85	
KN19 Sociology & Anthropology	.81	
KN28 Philosophy	.75	
KN24 English Language	.52	
KN23 Education & Training	.47	
KN20 Geography	.46	
KN18 Psychology	.42	
KN32 Communications & Media	.42	
KN25 Foreign Language	.37	
4. Health Services (5)		7.79
KN22 Therapy & Counseling	.81	

O*NET-SOC Level: Factor Titles & Knowledges	Factor Loading	% Variance
KN21 Medicine & Dentistry	.71	
KN18 Psychology	.64	
KN5 Customer & Personal Service	.45	
KN23 Education & Training	.42	
5. Information Processing & Communications (6)		7.70
KN9 Computers & Electronics	.77	
KN31 Telecommunications	.60	
KN24 English Language	.53	
KN14 Mathematics	.51	
KN32 Communications & Media	.49	
KN2 Clerical	.45	
6. Biology & Chemistry (4)		6.15
KN17 Biology	.82	
KN16 Chemistry	.73	
KN8 Food Production	.52	
KN21 Medicine & Dentistry	.48	
7. Transportation & Safety (5)		6.10
KN33 Transportation	.72	
KN29 Public Safety & Security	.65	
KN20 Geography	.62	
KN30 Legal, Government, & Jurisprudence	.44	
KN31 Telecommunications	.40	
8. Fine Arts (2)		3.12
KN26 Fine Arts	.58	
KN4 Sales & Marketing	.40	

Table 9.

Skills 5-Factor Solution: Factor Titles, Salient Skills, Loadings, and Percentages of Variance Explained

O*NET-SOC Level: Factor Titles & Skills		Factor Loading	% Variance
1. Management (33)			30.00
SK46	Mgmt. Of Personnel Resources	.86	
SK43	Time Mgmt.	.81	
SK44	Mgmt. Of Financial Resources	.79	
SK45	Mgmt. Of Material Resources	.79	
SK12	Coordination	.78	
SK14	Negotiation	.77	
SK42	Systems Evaluation	.75	
SK39	Identification of Downstream Consequences	.73	
SK23	Implementation Planning	.72	
SK38	Systems Perceptions	.71	
SK37	Visioning	.71	
SK40	Identification of Key Causes	.70	
SK13	Persuasion	.69	
SK41	Judgment & Decision Making	.66	
SK10	Monitoring	.64	
SK24	Solution Appraisal	.63	
SK22	Idea Evaluation	.63	
SK11	Social Perceptiveness	.62	
SK21	Idea Generation	.61	
SK15	Instructing	.60	
SK4	Speaking	.58	
SK9	Learning Strategies	.58	
SK17	Problem Identification	.56	
SKI7	Critical Thinking	.55	
SK2	Active Listening	.52	
SK8	Active Learning	.51	
SK25	Operations Analysis	.51	
SK3	Writing	.49	
SK18	Information Gathering	.48	
SK20	Synthesis/Reorganization	.48	
SK1	Reading Comprehension	.43	
SK16	Service Orientation	.43	
SK19	Information Orientation	.42	
2. Thinking & Problem Solving (30)			29.22
SK19	Information Organization	.81	
SK18	Information Gathering	.81	
SK1	Reading Comprehension	.80	
SK8	Active Learning	.80	
SK20	Synthesis/Reorganization	.79	
SK7	Critical Thinking	.77	
SK3	Writing	.73	
SK5	Mathematics	.73	
SK22	Idea Evaluation	.70	
SK6	Science	.69	
SK24	Solution Appraisal	.69	
SK21	Idea Generation	.69	

O*NET-SOC Level: Factor Titles & Skills	Factor Loading	% Variance
SK17 Problem Identification	.67	
SK41 Judgment & Decision Making	.66	
SK10 Monitoring	.62	
SK40 Identification of Key Causes	.61	
SK37 Visioning	.61	
SK39 Identification of Downstream Consequences	.60	
SK4 Speaking	.60	
SK2 Active Listening	.59	
SK29 Programming	.58	
SK23 Implementation Planning	.58	
SK38 Systems Perceptions	.58	
SK9 Learning Strategies	.58	
SK42 Systems Evaluation	.55	
SK25 Operations Analysis	.52	
SK15 Instructing	.42	
SK13 Persuasion	.42	
SK30 Testing	.39	
SK43 Time Management	.37	
3. Equipment Maintenance & Repair (11)		14.65
SK35 Troubleshooting	.91	
SK34 Equipment Maintenance	.86	
SK31 Operations Monitoring	.84	
SK36 Repairing	.81	
SK30 Testing	.80	
SK28 Installation	.79	
SK32 Operations & Control	.74	
SK27 Equipment Selection	.63	
SK26 Technical Design	.61	
SK33 Product Inspection	.58	
SK6 Science	.44	
4. Service (5)		4.78
SK16 Service Orientation	.68	
SK11 Social Perceptiveness	.56	
SK2 Active Listening	.46	
SK15 Instructing	.44	
SK4 Speaking	.42	
5. Technical Design (2)		2.80
SK26 Technical Design	.49	
SK25 Operations Analysis	.48	

Table 10.

Abilities 10-Factor Solution: Factor Titles, Salient Abilities, Loadings, and Percentages of Variance Explained

O*NET-SOC Level: Factor Titles & Abilities	Factor Loading	% Variance
1. General Cognitive Ability (25)		24.71
AB8 Deductive Reasoning	.93	
AB9 Inductive Reasoning	.92	
AB2 Written Comprehension	.86	
AB4 Written Expression	.85	
AB15 Speed of Closure	.81	
AB1 Oral Communication	.81	
AB7 Problem Sensitivity	.81	
AB12 Mathematical Reasoning	.81	
AB5 Fluency of Ideas	.80	
AB13 Number Facility	.78	
AB3 Oral Expression	.78	
AB11 Category Flexibility	.77	
AB6 Originality	.75	
AB10 Information Ordering	.74	
AB14 Memorization	.71	
AB52 Speech Clarity	.64	
AB16 Flexibility of Closure	.64	
AB41 Near Vision	.59	
AB51 Speech Recognition	.53	
AB21 Time Sharing	.53	
AB20 Selective Attention	.51	
AB17 Perceptual Speed	.46	
AB19 Visualization	.36	
AB42 Far Vision	.35	
AB49 Auditory Attention	.33	
2. General Physical Ability (24)		20.87
AB34 Dynamic Strength	.89	
AB36 Stamina	.88	
AB33 Explosive Strength	.87	
AB35 Trunk Strength	.84	
AB38 Dynamic Flexibility	.83	
AB39 Gross Body Coordination	.83	
AB32 Static Strength	.82	
AB40 Gross Body Equilibrium	.81	
AB37 Extent Flexibility	.79	
AB31 Speed of Limb Movement	.76	
AB26 Multi-limb Coordination	.71	
AB46 Depth Perception	.54	
AB23 Manual Dexterity	.54	
AB18 Spatial Orientation	.53	
AB45 Peripheral Vision	.52	
AB28 Rate Control	.46	
AB29 Reaction Time	.45	
AB27 Response Orientation	.41	
AB22 Arm-Hand Steadiness	.38	
AB25 Control Precision	.35	

O*NET-SOC Level: Factor Titles & Abilities	Factor Loading	% Variance
AB42 Far Vision	.33	
AB50 Sound Localization	.32	
AB47 Glare Sensitivity	.32	
AB4 Written Expression	-.32	
3. Manual Ability (14)		10.52
AB24 Finger Dexterity	.88	
AB22 Arm-Hand Steadiness	.83	
AB23 Manual Dexterity	.75	
AB25 Control Precision	.65	
AB30 Wrist-Finger Dexterity	.62	
AB43 Visual Color Discrimination	.61	
AB19 Visualization	.51	
AB26 Multi-limb Coordination	.43	
AB41 Near Vision	.42	
AB17 Perceptual Speed	.41	
AB37 Extent Flexibility	.35	
AB10 Information Ordering	.35	
AB31 Speed of Limb Movement	.34	
AB29 Reaction Time	.33	
4. Equipment-related Far Visual Ability (15)		10.31
AB44 Night Vision	.79	
AB47 Glare Sensitivity	.76	
AB42 Far Vision	.74	
AB45 Peripheral Vision	.70	
AB46 Depth Perception	.64	
AB18 Spatial Orientation	.62	
AB28 Rate Control	.50	
AB27 Response Orientation	.49	
AB29 Reaction Time	.46	
AB50 Sound Localization	.43	
AB21 Time Sharing	.39	
AB49 Auditory Attention	.33	
AB20 Selective Attention	.32	
AB16 Flexibility of Closure	.32	
AB40 Gross Body Equilibrium	.32	
5. Auditory Ability (8)		5.58
AB48 Hearing Sensitivity	.76	
AB50 Sound Localization	.72	
AB49 Auditory Attention	.71	
AB27 Response Orientation	.41	
AB20 Selective Attention	.40	
AB29 Reaction Time	.35	
AB51 Speech Recognition	.31	
AB21 Time Sharing	.30	
6. Oral Communication (4)		2.65
AB51 Speech Recognition	.55	
AB52 Speech Clarity	.46	
AB3 Oral Expression	.39	
AB1 Oral Comprehension	.34	

O*NET-SOC Level: Factor Titles & Abilities	Factor Loading	% Variance
7. Equipment Control (4)		1.83
AB29 Reaction Time	.41	
AB21 Time Sharing	.40	
AB28 Rate Control	.38	
AB27 Response Orientation	.38	
8. Perceptual Speed (3)		1.79
AB17 Perceptual Speed	.46	
AB41 Near Vision	.35	
AB14 Memorization	.32	
9. Creativity (3)		1.73
AB6 Originality	.48	
AB5 Fluency of Ideas	.42	
AB19 Visualization	.40	
10. Numerical Ability (2)		1.21
AB13 Number Facility	.49	
AB12 Mathematical Reasoning	.48	

Table 11.

GWAs 6-Factor Solution: Factor Titles, Salient GWAs, Loadings, and Percentages of Variance Explained

O*NET-SOC Level: Factor Titles & GWAs		Factor Loading	% Variance
1. Analyzing & Problem Solving (28)			33.43
GWA9	Analyzing data or information	.89	
GWA8	Processing information	.88	
GWA12	Updating & using job-relevant knowledge	.87	
GWA2	Identifying objects, actions, & events	.86	
GWA1	Getting information needed to do the job	.85	
GWA10	Making decisions & solving problems	.83	
GWA7	Evaluating information for compliance to standards	.82	
GWA26	Interpreting the meaning of information for others	.81	
GWA25	Documenting/recording information	.81	
GWA6	Judging the qualities of objects, services, or persons	.77	
GWA19	Interacting with computers	.74	
GWA39	Providing consultation & advice to others	.72	
GWA22	Implementing ideas, programs, systems, or products	.72	
GWA27	Communicating with supervisors, peers, or subordinates	.70	
GWA3	Monitoring processes, materials, or surroundings	.70	
GWA5	Estimating the characteristics of materials, products, events, or information	.69	
GWA13	Developing objectives & strategies	.64	
GWA15	Organizing, planning, & prioritizing work	.63	
GWA11	Thinking creatively	.56	
GWA28	Communicating with persons outside the organization	.53	
GWA40	Performing administrative activities	.51	
GWA36	Teaching others	.47	
GWA34	Coordinating the work & activities of others	.41	
GWA14	Scheduling work & activities	.41	
GWA21	Drafting, laying out, & specifying technical devices, parts, & equipment	.40	
GWA29	Establishing & maintaining interpersonal relationships	.38	
GWA17	Handling & moving objects	-.43	
GWA16	Performing general physical activities	-.44	
2. Managing Others (18)			21.67
GWA37	Guiding, directing, & motivating subordinates	.85	
GWA35	Developing & building teams	.84	
GWA41	Staffing organizational units	.83	
GWA34	Coordinating the work & activities of others	.80	
GWA14	Scheduling work & activities	.78	
GWA42	Monitoring & controlling resources	.75	
GWA38	Coaching & developing others	.74	
GWA32	Resolving conflicts & negotiating with others	.65	
GWA40	Performing administrative activities	.64	
GWA13	Developing objectives & strategies	.57	
GWA15	Organizing, planning, & prioritizing work	.56	
GWA36	Teaching others	.55	
GWA29	Establishing & maintaining interpersonal relationships	.55	
GWA27	Communicating with supervisors, peers, or subordinates	.52	
GWA31	Selling or influencing others	.48	

O*NET-SOC Level: Factor Titles & GWAs	Factor Loading	% Variance
GWA39 Providing consultation & advice to others	.47	
GWA5 Estimating the characteristics of materials, products, events, or information	.41	
GWA10 Making decisions & solving problems	.40	
3. Interacting with Others (6)		9.31
GWA33 Performing for or working directly with public	.80	
GWA30 Assisting & caring for others	.68	
GWA29 Establishing & maintaining interpersonal relationships	.63	
GWA28 Communicating with persons outside the organization	.62	
GWA31 Selling or influencing others	.56	
GWA32 Resolving conflicts & negotiating with others	.47	
4. Repairing & Maintaining Equipment (8)		8.14
GWA23 Repairing & maintaining mechanical equipment	.76	
GWA4 Inspecting equipment, structures, or materials	.75	
GWA18 Controlling machines & processes	.66	
GWA24 Repairing & maintaining electronic equipment	.57	
GWA16 Performing general physical activities	.54	
GWA17 Handling & moving objects	.50	
GWA20 Operating vehicles, mechanized devices, or equipment	.42	
GWA3 Monitoring processes, materials, or surroundings	.41	
5. Drafting & Designing (3)		3.24
GWA21 Drafting, laying out, & specifying technical devices, parts, & equipment	.61	
GWA11 Thinking creatively	.51	
GWA22 Implementing ideas, programs, systems, or products	.37	
6. Teaching (2)		2.21
GWA36 Teaching others	.38	
GWA38 Coaching & developing others	.31	

2) Concrete and Abstract O*NET Factors. In a recent data sorting effort (Clark, 2002), all descriptor items from each of the four domains (knowledge, skills, abilities, GWAs) were re-grouped into two categories, concrete and abstract. In Clark's (2002) study, each of the resultant item categories was subjected to a factor analysis with varimax rotation, however ability descriptors were not included in those factor analyses. The present study included abilities.

First, principal components analyses were conducted and eigenvalue patterns examined. The retention of a 13-factor concrete factor solution and seven-factor

abstract solution was warranted. Next, a principal axes analysis with varimax rotation was performed on each set of abstract and concrete descriptors to generate solutions for 15 and 8 factors, respectively. Tables 12 and 13 below present the factor analysis results. Appendix A contains principal components analysis eigenvalue pattern and the complete rotated loading matrices for each of the two retained factor solutions.

Table 12.

Abstract Descriptors 8-Factor Solution: Factor Titles, Salient Descriptors, Loadings, and Percentages of Variance Explained

O*NET-SOC Level: Factor Titles & Descriptors		**Factor Loading**	**% Variance**
1. Information Management (40)			31.78
GW9	Analyzing data or information	.86	
GW12	Updating & using job-relevant knowledge	.84	
AB8	Deductive Reasoning	.81	
GW2	Identifying objects, actions, or events	.81	
AB9	Inductive Reasoning	.80	
SK5	Mathematics	.80	
GW1	Getting information needed to do the job	.79	
SK18	Information Gathering	.78	
GW10	Making decision & solving problems	.77	
GW26	Interpreting the meaning of information for others	.75	
AB12	Mathematical Reasoning	.74	
SK6	Science	.74	
AB4	Written Expression	.73	
SK8	Active Learning	.72	
SK7	Critical Thinking	.72	
SK19	Information Organization	.72	
SK17	Problem Identification	.70	
AB7	Problem Sensitivity	.69	
SK20	Synthesis/Reorganization	.68	
GW39	Providing consultation & advice to others	.67	
GW3	Monitoring processes, materials, or surroundings	.67	
SK41	Judgment & Decision-Making	.65	
AB1	Oral Comprehension	.65	
SK24	Solution Appraisal	.64	
SK22	Idea Evaluation	.64	
SK39	Identification of Downstream Consequences	.63	
SK42	Systems Evaluation	.62	
SK38	Systems Perceptions	.62	
AB15	Speed of Closure	.61	
GW13	Developing objectives & strategies	.59	
SK40	Identification of Key Causes	.59	
AB3	Oral Expression	.58	
SK37	Visioning	.57	
GW15	Organizing, planning, & prioritizing work	.57	

O*NET-SOC Level: Factor Titles & Descriptors		Factor Loading	% Variance
SK10	Monitoring	.54	
GW11	Thinking creatively	.51	
SK2	Active Listening	.51	
AB6	Originality	.47	
SK9	Learning Strategies	.45	
KN1	Administration & Management	.44	
2. Personnel & Administration (19)			16.59
GW37	Guiding, directing, & motivating subordinates	.86	
GW35	Developing & building teams	.81	
GW34	Coordinating the work & activities of others	.79	
SK46	Management of Personnel Resources	.77	
GW38	Coaching & developing others	.76	
KN1	Administration & Management	.66	
GW42	Monitoring & controlling resources	.65	
SK43	Time Management	.61	
GW36	Teaching others	.61	
SK15	Instructing	.55	
SK12	Coordination	.55	
GW13	Developing objectives & strategies	.52	
GW32	Resolving conflicts & negotiating with others	.52	
GW15	Organizing, planning, & prioritizing work	.49	
GW29	Establishing & maintaining interpersonal relationships	.48	
SK9	Learning Strategies	.43	
GW39	Providing consultation & advice to others	.43	
SK14	Negotiation	.42	
SK42	Systems Evaluation	.40	
3. Visioning (20)			11.03
SK37	Visioning	.60	
SK40	Systems Perceptions	.59	
SK39	Identification of Downstream Consequences	.59	
SK38	Identification of Key Causes	.58	
SK41	Judgment & Decision-Making	.55	
SK42	Systems Evaluation	.55	
SK24	Solution Appraisal	.55	
SK43	Time Management	.53	
SK22	Idea Evaluation	.53	
SK10	Monitoring	.52	
SK14	Negotiation	.51	
SK13	Persuasion	.49	
SK7	Critical Thinking	.48	
SK12	Coordination	.48	
SK9	Learning Strategies	.46	
SK17	Problem Identification	.45	
SK8	Active Learning	.45	
SK20	Synthesis/Reorganization	.43	
SK11	Social Perceptiveness	.41	
SK46	Management of Personnel Resources	.40	
4. Assisting/Counseling Others (10)			7.83
GW30	Assisting & caring for others	.78	
KN22	Therapy & Counseling	.78	
SK11	Social Perceptiveness	.58	

O*NET-SOC Level: Factor Titles & Descriptors	Factor Loading	% Variance
GW36 Teaching others	.53	
SK15 Instructing	.52	
GW29 Establishing & maintaining interpersonal relationships	.47	
SK9 Learning Strategies	.47	
SK2 Active Listening	.45	
GW38 Coaching & developing others	.43	
AB3 Oral Expression	.39	
5. Influencing (8)		7.19
GW31 Selling or influencing others	.69	
GW32 Resolving conflicts & negotiating with others	.67	
GW29 Establishing & maintaining interpersonal relationships	.55	
SK14 Negotiation	.52	
SK13 Persuasion	.49	
SK11 Social Perceptiveness	.46	
GW42 Monitoring & controlling resources	.44	
SK2 Active Listening	.41	
6. Response Orientation (6)		5.32
AB27 Response Orientation	.88	
AB28 Rate Control	.75	
AB18 Spatial Orientation	.74	
AB20 Selective Attention	.68	
AB15 Speed of Closure	.48	
AB19 Visualization	.43	
7. Creativity (3)		3.14
GW11 Thinking creatively	.62	
AB6 Originality	.58	
AB19 Visualization	.54	
8. Monitoring (1)		1.56
GW3 Monitoring processes, materials, or surroundings	-.33	

Note.
The eight-factor solution was retained, however factor scores for only the first seven factors of that solution were used in further analyses.

Table 13.

Concrete Descriptors 15-Factor Solution: Factor Titles, Salient Descriptors, Loadings, and Percentages of Variance Explained

O*NET-SOC Level: Factor Titles & Descriptors	Factor Loading	% Variance
1. General Physical Ability (28)		15.83
AB36 Stamina	.90	
AB34 Dynamic Strength	.90	
AB33 Explosive Strength	.87	
AB38 Dynamic Flexibility	.85	
AB35 Trunk Strength	.84	
AB39 Gross-body Coordination	.84	
AB40 Gross-body Equilibrium	.82	
AB32 Static Strength	.82	
AB31 Speed of Limb Movement	.82	
AB37 Extent Flexibility	.79	
AB26 Multi-limb Coordination	.73	
GWA16 Performing general physical abilities	.72	
AB45 Peripheral Vision	.59	
AB46 Depth Perception	.57	
AB23 Manual Dexterity	.56	
AB29 Reaction Time	.51	
GWA17 Handling & moving objects	.45	
AB22 Arm-hand Steadiness	.42	
AB47 Glare Sensitivity	.41	
AB42 Far Vision	.40	
AB50 Sound Localization	.37	
SK3 Writing	-.37	
KN12 Building & Construction	.36	
KN13 Mechanical	.35	
GWA25 Documenting/recording information	-.34	
AB25 Control Precision	.34	
SK36 Repairing	.32	
AB30 Wrist-finger Dexterity	.32	
2. Personnel & Administration (29)		15.82
GWA14 Scheduling work & activities	.90	
KN6 Personnel & Human Resources	.84	
GWA40 Performing administrative activities	.84	
GWA41 Staffing organizational units	.81	
SK44 Management of Financial Resources	.81	
GWA27 Communicating with supervisors, peers, or subordinates	.79	
SK45 Management of Material Resources	.79	
SK4 Speaking	.73	
SK3 Writing	.69	
KN3 Economics & Accounting	.68	
GWA5 Estimating characteristics of materials, products, events, or information	.67	
GWA28 Communicating with persons outside the organization	.65	
GWA25 Documenting/recording information	.65	
GWA22 Implementing ideas, programs, systems, or	.65	

O*NET-SOC Level: Factor Titles & Descriptors	Factor Loading	% Variance
products		
KN23 Education & Training	.65	
AB52 Speech Clarity	.65	
AB51 Speech Recognition	.57	
AB14 Memorization	.54	
KN14 Mathematics	.53	
KN32 Communications & Media	.52	
GWA19 Interacting with computers	.50	
GWA17 Handling & moving objects	-.46	
KN2 Clerical	.45	
KN4 Sales & Marketing	.43	
KN5 Customer & Personal Service	.40	
AB41 Near Vision	.37	
KN9 Computers & Electronics	.34	
GWA18 Controlling machines & processes	-.34	
SK29 Programming	.32	
3. Equipment Maintenance & Repair (21)		12.17
SK35 Troubleshooting	.86	
SK34 Equipment Maintenance	.85	
SK36 Repairing	.80	
SK31 Operations Monitoring	.78	
GWA23 Repairing & maintaining mechanical equipment	.77	
GWA4 Inspecting equipment, structures, or materials	.74	
SK28 Installation	.73	
KN13 Mechanical	.73	
SK30 Testing	.73	
GWA24 Repairing & maintaining electronic equipment	.70	
SK32 Operations & Control	.66	
KN10 Engineering & Technology	.60	
GWA18 Controlling machines & processes	.58	
AB25 Control Precision	.55	
SK33 Product Inspection	.51	
SK27 Equipment Selection	.50	
AB24 Finger Dexterity	.36	
AB23 Manual Dexterity	.33	
KN7 Production & Processing	.32	
GWA17 Handling & moving objects	.32	
AB37 Extent Flexibility	.31	
4. Vehicle Operation (12)		5.71
KN33 Transportation	.74	
GWA20 Operating vehicles, mechanized devices or equipment	.71	
AB44 Night Vision	.69	
AB47 Glare Sensitivity	.67	
KN20 Geography	.63	
AB42 Far Vision	.63	
AB45 Peripheral Vision	.55	
KN29 Public Safety & Security	.50	
AB46 Depth Perception	.50	
AB29 Reaction Time	.37	
AB50 Sound Localization	.33	

O*NET-SOC Level: Factor Titles & Descriptors	Factor Loading	% Variance
KN31 Telecommunications	.32	
5. Design & Drafting (11)		4.45
KN11 Design	.82	
GWA21 Drafting, laying out, & specifying technical devices, parts, & equipment	.71	
KN10 Engineering & Technology	.62	
KN12 Building & Construction	.60	
SK27 Equipment Selection	.45	
SK33 Product Inspection	.40	
KN14 Mathematics	.35	
KN7 Production & Processing	.35	
GWA22 Implementing ideas, programs, systems, or Products	.32	
GWA5 Estimating the characteristics of materials, products, events, or information	.31	
SK30 Testing	.30	
6. Manual Ability (7)		4.33
AB24 Finger Dexterity	.72	
AB22 Arm-hand Steadiness	.66	
AB41 Near Vision	.63	
AB30 Wrist-finger Dexterity	.62	
AB43 Visual-color Discrimination	.58	
AB23 Manual Dexterity	.55	
AB25 Control Precision	.39	
7. Computers & Programming (7)		3.93
SK29 Programming	.70	
KN9 Computers & Electronics	.66	
GWA19 Interacting with computers	.66	
KN31 Telecommunications	.38	
KN14 Mathematics	.37	
GWA25 Documenting/recording information	.34	
SK3 Writing	.31	
8. Auditory Ability (9)		3.76
AB49 Auditory Attention	.76	
AB48 Hearing Sensitivity	.70	
AB50 Sound Localization	.70	
AB51 Speech Recognition	.44	
AB52 Speech Clarity	.42	
AB45 Peripheral Vision	.37	
AB44 Night Vision	.33	
AB14 Memorization	.33	
AB29 Reaction Time	.33	
9. Medicine & Biology (3)		3.58
KN17 Biology	.85	
KN21 Medicine & Dentistry	.78	
KN16 Chemistry	.70	
10. Customer Service (3)		1.87
KN5 Customer & Personal Service	.59	

O*NET-SOC Level: Factor Titles & Descriptors	Factor Loading	% Variance
KN4 Sales & Marketing	.52	
AB51 Speech Recognition	.32	
11. Machine Operation (5)		1.67
KN7 Production & Processing	.47	
SK32 Operations & Control	.47	
GWA18 Controlling machines & processes	.42	
SK31 Operations Monitoring	.41	
AB25 Control Precision	.30	
12. Food Production (2)		1.24
KN7 Production & Processing	.57	
KN8 Food Production	.36	
13. Memory (1)		1.22
AB14 Memorization	.45	
14. Clerical (2)		1.20
KN2 Clerical	.43	
KN3 Economics & Accounting	.32	
15. Telecommunications (1)		.93
KN31 Telecommunications	.35	

Note.
The 15-factor solution was retained, however factor scores for only the first 14 factors of that solution were used in further analyses.

Comparative SOC Assignment Analyses

The goal of Phase 1 was to determine the best set of O*NET variables and profile association measure (r or d^2) to use when (a) numerically assigning Detailed O*NET-SOC occupations into the 22 SOC Major Groups and (b) numerically developing a new numerical occupational classification structure (Phase 2). The criterion measure that was used to determine the best variable set and association measure was the *accuracy of assignment* of a sample of Detailed O*NET-SOC Occupations back into their parent, SOC Major Group, classification. Assignment accuracy was based on the profile similarity of each individually and randomly sampled occupation with the mean profiles

for each of the Major SOC Groups. Table 8 provides a matrix overview of the Phase 1 Analyses.

Table 14.

Overview of Phase 1 Comparative Assignment Analyses: Variable Sets – Association Measure Combinations

Variable Sets

	Individual O*NET Descriptors	**O*NET Domain Factors (Factor Scores)**	**Concrete and Abstract O*NET Descriptor Factors (Factor Scores)**
R	Assignment Analysis 1	Assignment Analysis 3	Assignment Analysis 5
Σd^2	Assignment Analysis 2	Assignment Analysis 4	Assignment Analysis 6

Column headings depict the variable sets that were used to compute the assignment accuracy measures. The rows list the two profile association measures that were computed and compared for each of the assignment analyses. Cell entries show that six different assignment analyses were carried out. The assignment analysis proceeded as follows:

Step 1 – The initial intent was to sample 20 percent of the Detailed Occupations within each of the 22 Major Groups. However, because of the wide range in numbers of occupations contained in the Major Groups, it was decided that within the 20-percent sampling plan, the minimum sample size per group should be set at 2 and the maximum sample size should be limited to 10. For the purpose of comparison between variable sets and association measure combinations, the same randomly selected set of occupations was used for all assignment analysis combinations. Table 15 below contains the randomly selected occupations for each Major Group.

Table 15.

Major Groups, Number of Occupations Randomly Selected for Comparative Assignment Analyses, and Occupation Titles

Major Group Title (Major Group Number)	Number of Occupations Selected, Total for Group (N = 133, N= 900)	Randomly Selected Occupations
Management (11)	6, 34	Compensation & Benefits Mgrs.; Training & Development Mgrs.; Transportation Managers; Fish Hatchery Mgrs.; Lodging Mgrs.; Postmasters & Mail Superintendents
Business and Financial Operations (13)	6, 34	Wholesale & Retail Buyers; Environmental Compliance Inspectors; Coroners; Accountants; Personal Financial Advisors; Loan Officers
Computer and Mathematical (15)	2, 13	Computer Software Engineers, Systems Software; Computer Systems Analysts
Architecture and Engineering (17)	7, 37	Landscape Architects; Chemical Engineers; Industrial Safety & Health Engineers; Marine Architects; Petroleum Engineers; Electrical Drafters; Industrial Engineering Technicians
Life, Physical, and Social Science (19)	9, 47	Plant Scientists; Soil Scientists; Microbiologists; Zoologists & Wildlife Biologists; Market Research Analysts; I-O Psychologists; Archeologists; Political Scientists; Nuclear Equipment Operating Technicians
Community and Social Services (21)	2, 11	Substance Abuse & Behavioral Disorder Counselors; Child, Family, & School Social Workers
Legal (23)	2, 8	Judges & Magistrates; Title Searchers
Education, Training, and Library (25)	8, 43	Engineering Teachers, Postsecondary; Nursing Instructors & Teachers, Postsecondary; Preschool Teachers, Except Special Ed; Elementary School Teachers, Except Special Ed; Vocational Ed Teachers, Middleschool; Special Ed Teachers; Secondary School; Librarians; Instructional Coordinators
Arts, Design, Entertainment, Sports, & Media (27)	9, 49	Painters & Illustrators; Sketch Artists; Interior Designers; Music Directors; Composers; Radio & TV Announcers; Creative Writers; Audio & Video Equipment Technicians; Film & Video Editors
Healthcare Practitioner and Technical (29)	8, 44	Orthodontists; Anesthesiologists; Surgeons; Podiatrists; Physical Therapists; Speech-Language Pathologists; Dental Hygienists; Licensed Practical & Licensed Vocational Nurses
Healthcare Support (31)	2, 11	Dental Assistants; Medical Equipment Preparers
Protective Service (33)	5, 26	First Line Supervisors/Mgrs. of Police &

Major Group Title (Major Group Number)	Number of Occupations Selected, Total for Group (N = 133, N= 900)	Randomly Selected Occupations
		Detectives; Forest Fire Fighting & Prevention Supervisors; Fire Inspectors; Bailiffs; Highway Patrol Pilots
Food Preparation and Serving-Related (35)	3, 15	Restaurant Cooks; Nonrestaurant Food Services; Dishwashers
Building and Grounds Cleaning and Maintenance (37)	2, 10	Housekeeping Supervisors; Lawn Service Managers
Personal Care and Service (39)	5, 27	First Line Supervisors/Managers of Personal Service Workers; Gaming & Sports Book Writers & Runners; Motion Picture Projectionists; Embalmers; Make-Up Artists, Theatrical & Performance
Sales and Related (41)	4, 24	Parts Sales Persons; Financial Services Sales Agents; Demonstrators & Product Promoters; Door-to-Door Sales Workers, News & Street Vendors, or Related Workers
Office and Administrative Support (43)	10, 65	Bill & Account Collectors; Billing, Cost, & Rate Clerks; Billing, Posting, & Calculating Machine Operators; Bookkeeping, Accounting, & Auditing Clerks; Procurement Clerks; Credit Authorizers; Credit Checkers; Interviewers, Except Eligibility & Loan; Receptionists & Information Clerks; Sales Floor Stock Clerks
Farming, Fishing, and Forestry (45)	3, 19	First Line Supervisors/Managers/Supervisors of Agricultural Crop Workers; First Line Supervisors/Managers/Supervisors of Logging Workers; Hunters & Trappers
Construction and Extraction (47)	10, 64	Ship Carpenters & Joiners; Cement Masons & Concrete Finishers; Electricians; Glaziers; Pipelaying Fitters; Helpers-Brick Masons, Block Masons, Stone Masons, & Tile & Marble Setters; Helpers-Electricians; Irradiated Fuel Handlers; Rail Track Laying & Maintenance Equipment Operators; Quarry Rock Splitters
Installation, Maintenance, and Repair (49)	10, 69	Telecommunications Facility Examiners; Electric Motor & Switch Assemblers & Repairers; Transformer Repairers; Automotive Glass Installers & Repairers; Automotive Master Mechanics; Outdoor Power Equipment & Other Small Engine Mechanics; Recreational Vehicle Service Technicians; Refractory Materials Repairers, Except Brick Masons; Electrical Power Line Installers & Repairers; Fabric Menders, Except Garment
Production (51)	10, 192	Electrical & Electronic Equipment Assemblers; Metal Molding, Coremaking, & Casting Machine Set-Up Operators & Tenders; Soldering & Brazing Machine Operators & Tenders; Dot Etchers; Precision Printing Workers; Engraver Set-Up Operators; Power

Major Group Title (Major Group Number)	Number of Occupations Selected, Total for Group (N = 133, N= 900)	Randomly Selected Occupations
		Auxiliary Equipment Operators; Furnace, Kiln, Oven, Drier, & Kettle Operators & Tenders; Pewter Casters & Finishers; Hand Engravers
Transportation and Material Moving (53)	10, 58	Commercial Pilots; Transit & Inner City Bus Drivers; Heavy Truck Drivers; Railroad Conductors & Yardmasters; Ordinary Seamen & Marine Oilers; Ship Pilots; Public Transportation Inspectors; Conveyor Operators & Tenders; Grips & Set Up Workers, Motion Picture Sets, Studios, & Stages; Pump Operators, Except Wellhead Pumpers

Step 2 - The centroid (i.e., mean profile) for each of the 22 Groups was computed based on the remaining occupations in its respective Group. For cases where the variables were factors (refer to columns 2 and 3 in Table 14), means were computed using factor scores that were obtained for all occupations on each of the resultant factors.

Step 3 - For each occupation in the samples, association indices (r and d^2) were computed between that occupation's variable profile and the mean profile for each of the 22 Major Groups.

Step 4 – For each selected occupation, it was determined whether the association measure with its "parent" SOC Major Group had the highest r or smallest d^2 value among that occupation's association indices (note that r and d^2 values were compared separately). Each instance where that occurred was recorded a "hit." A comprehensive listing of all computed association indices can be found in Appendix B. Steps 3 and 4 were repeated for each of the six combinations shown in Table 8.

Step 5 – The percentage of "hits" overall (i.e., the total for all Groups) and per Group was calculated and reported for each of the six combinations. Table 16 below provides

the overall hit rate results. Appendix B contains hit rate results for each of the individual Major Groups.

Table 16.

Overall Hit Rate Results and Percentages for each of the 6 Variable Set – Association Measure Combinations

Variable Sets

	Individual O*NET Descriptor Items	**O*NET Domain Factors (Factor Scores)**	**Concrete and Abstract O*NET Descriptor Factors (Factor Scores)**
R	94 hits/133 = **71%**	95 hits/133 = **71%**	90 hits/133 = **68%**
Σd^2	83 hits/133 = **62%**	98 hits/133 = **74%**	100 hits/133 = **75%**

Step 6 – First, the percentage of hits for each combination (i.e., each cell in Table 16 above) was tested to determine if the hit rate exceeded chance (Garrett, 1962) was carried out to determine whether the hit rate percents exceeded chance. It was found that all hit rates exceeded chance ($p<.01$). Second, each pairwise combination of hit rates was tested to determine whether or not a significant difference existed between the six combinations. Only one combination, the individual O*NET descriptor – d^2, was found to be significantly different from two others, the domain factor – d^2 combination ($p<.05$) and the concrete/abstract descriptor factor – d^2 combination ($p<.05$).

Step 7 – Of the six combinations, the one with the highest percent value was found to be the O*NET Abstract/Concrete Factors with squared Euclidian distance as the association measure (75% hit rate percent; see row 2, column 3 in Table 16 above). However, this combination was determined not to be significantly different from the O*NET Domain Factors with squared Euclidian distance as the association measure

(74% hit rate percent; see row 2, column 2 in Table 16 above). Because the domain factors carry more practical utility, as well as face validity, the domain factor – squared Euclidian distance combination was used in further analyses.

Two additional comparative assignment analyses were carried out as part of the overall exploratory effort. First, O*NET *importance* data were used with the individual descriptor – correlation combination (refer to row 1, column 1 in Table 16). The hit rate was 71% ($p<.05$). Second, an assignment analysis with the Concrete factor – squared Euclidian distance combination was carried out. The hit rate was determined to be 69% ($p<.05$). Appendix C contains the assignment analysis results for these two combinations of variable sets and profile association measures.

Phase 2 Analyses

Overview

Phase 2 consisted of three parts. First, the selected descriptor-association measure combination (domain factors – d^2) was incorporated into a more rigorous assignment analysis at a more detailed level within the SOC (i.e., the 96 Minor Group level). This was expected to be a more difficult test than previous Phase 1 assignment analyses, because it required the O*NET descriptors to make a more "fine-grained" differentiation between Groups (personal communication; Cunningham, February 2002).

Second, the Phase 1 selected variable set/association measure combination was used in an unstructured, exploratory cluster analysis of all Detailed Occupations in order to derive a new numerical occupational classification structure. Twenty-two resultant clusters were judgmentally compared to the existing 22 Major SOC Groups.

Third, an *a priori*, structured approach to the development of a revised SOC was explored (see Cunningham, Drewes, & Powell, 1995). This structured approach is described below in Part 3.

Part 1. SOC Minor Group Assignment Analysis

The following assignment analysis proceeded in a similar fashion to that described in Phase 1. However, whereas the 22 Major Group level was employed in Phase 1, this analysis used 93 SOC Minor Groups at a more specific level in the SOC hierarchical classification structure. Three Minor Groups classified under 55-0000 Military-Specific Occupations were not included in this study, because no data is available for occupations in this Group. Each of the Minor Groups is subsumed under its respective Major Group heading. For example, "Management Occupations" is a Major Group title, and within Management, "Top Executives" is a Minor Group title. Based on the results of the previously described comparative assignment analysis, the domain factor – d^2 combination was the only one used in the Minor Group assignment analysis. The assignment analysis proceeded as follows:

Step 1 - Twenty percent of the Detailed Occupations were sampled randomly within each of the 93 Minor Groups, with the exception that each group was to be represented by a minimum of 1 and maximum of 10 selected occupations.

Step 2 - The centroid (i.e., mean profile) for each of the Minor Groups was computed using factor scores for the remaining occupations in each respective Group. Note that because some Minor Groups contained very small numbers of Detailed Occupations, only Groups with occupations numbering four or greater (n = 70) were included in the

assignment analysis. This was necessary in order to be able to compute the mean centroids.

Step 3 - For each randomly selected occupation, the association measure (d^2) was computed between that occupation's variable profile and the mean profile for each of the 70 Minor Groups.

Step 4 – For each randomly selected occupation, it was determined whether the association measure with its "parent" SOC Minor Group had the smallest d^2 value among that occupation's association indices.

Step 5 – The percentage of "hits" overall (i.e., the total for all Groups) and per Group were calculated. The overall hit rate results were as follows: 118 hits / 173 total occupations selected (i.e., a 68% hit rate percent). Appendix D presents hit rate results for the individual 70 Minor Groups.

A second hit rate calculation was carried out, based on the Minor Group assignment analysis results. While the aforementioned hit rate computation only allowed a "hit" if an occupation was returned to its parent Minor Group, this calculation counted a "hit" if an occupation was returned to either its parent Minor Group or to another Minor Group that was a member of the same parent Major Group. Under this second, less rigorous criterion, the hit rate increased considerably, yielding 139 hits/173 total, or 80%.

Step 6 – Statistical testing (Garrett, 1962) was carried out to determine whether the hit rates exceeded chance. All hit rate percentages exceeded chance ($p<.05$).

Part 2: Unstructured Numerical Cluster Analysis

The 900 Detailed Occupations were subjected to an exploratory cluster analysis to derive numerical clusters for comparison with the SOC Major Groups. In this analysis, the Ward-Hook (1963) hierarchical clustering procedure was applied to the previously selected domain factor – d^2 association measure combination to produce 22 clusters. The resultant occupational clusters were then judgmentally compared to the 22 Major Groups within the SOC, and indices of percent membership overlap (PMO) were computed between the clusters and their matched Major Groups.

Table 17 presents the cluster titles, matching SOC Major Group titles, and the PMO values. Four clusters that could not be interpreted are omitted from Table 17. These clusters contained a mixture of Detailed Occupations from various Major Groups. Overall, 50% of the derived clusters were deemed comparable to SOC classifications. Appendix E contains the cluster analysis results, including cluster membership with salient occupations.

Table 17.

Unstructured, Overall Cluster Analysis Results: Cluster Title, SOC Code/Title, and Percent Membership Overlap

Cluster Title	**Matched SOC Code/Title**	**PMO**
1) Managers & Supervisors	11-0000 Management	48%
2) Architects & Engineers	17-0000 Architecture & Engineering	43%
3) Life, Physical, & Social Scientists & Related Technicians	19-0000 Life, Physical, & Social Science	39%
4) Design, Entertainment, & Media	27-0000 Arts, Design, Entertainment, Sports, & Media	20%
5) Administrative	43-0000 Office & Administrative Support	23%

Cluster Title	Matched SOC Code/Title	PMO
6) Production	51-0000 Production	41%
7) Teachers, Counselors, & Therapists	No match	--
8) Office Support	43-0000 Office & Administrative Support	19%
9) Computers	15-0000 Computers & Mathematical	53%
10) Installation, Maintenance, & Repair	49-0000 Installation, Maintenance, & Repair	53%
11) Healthcare Practitioners & Technicians	29-0000 Healthcare Practitioners & Technical	51%
12) Education/Teaching	25-0000 Education, Training, & Library *25-1000 Postsecondary Teachers*	33% 64%
13) Sports, Fitness, & Dance	27-0000 Arts, Design, Entertainment, Sports, & Media *27-2000 Entertainers & Performers, Sports & Related*	6% 18%
14) Public Safety & Personal Care	No match	--
15) Music & Instrument Repair	27-0000 Arts, Design, Entertainment, Sports, & Media AND 49-0000 Installation, Maintenance, & Repair *27-2000 Entertainers & Performers, Sports & Related AND 49-9000 Other Installation, Maintenance, & Repair* **27-2040 Musicians, Singers, & Related AND 49-9060 Precision Instrument & Repair**	8% 20% 90%
16) Transportation & Material Moving	53-0000 Transportation & Material Moving	39%

Note.
SOC codes/titles marked with one asterisk denotes a better match at the Minor Group level. In one instance, the SOC code/title marked with two asterisks denotes a better match at the Broad Occupation level. For Cluster 15, Music & Instrument Repair, the PMO was computed based on its ideal match with two SOC classifications. It is in this case that the best match is clearly at the "dual" Broad Occupation level.

Part 3. Structured Derivation of an Occupational Classification Framework

Analysis 1. Cluster analyses within the 22 SOC Major Groups. Separate cluster analyses were performed within each of the 22 Major Groups were performed, applying Ward's procedure to the domain factor – d^2 association measure combination. Within

each Major Group, the numerically derived clusters were judgmentally compared to that Major Group's constituent Minor Group. Comparable O*NET-SOC Groups were matched and PMO indices were computed for each pair of matched groups. Table18 contains titles of the derived clusters matched to comparable SOC Minor Groups and, in a few instances, to Broad Occupations. The PMO indices between pairs of matched Groups are presented Table 18, as well. Appendix F contains the cluster analysis results, including cluster membership with salient occupations.

There were 47 matches made with the 93 possible Minor Groups, yielding an overall PMO of 51%. Nine of the derived clusters matched better at the Broad Occupation level, resulting in higher PMOs. These are highlighted with asterisks in Table 18. The range of PMOs was 40% to 100%. The mean PMO was 66% and the standard deviation of the PMOs was 21%.

Table 18.

Structured Cluster Analyses Within Major Groups: Major Group, Cluster Title, Matched SOC Code/Title, and Percent Measurement Overlap (PMO)

Major Group 11 - Management		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Operations Managers	11-3000 Operations Managers	58%
Miscellaneous Managers	11-9000 Management, Other	48%
Engineering & Science Managers	No match	--
Major Group 13 – Business & Financial Operations		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Business Operations	13-1000 Business Operations	40%
Financial Specialties	13-2000 Financial Specialties	54%
Major Group 15 – Computer & Mathematical		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Computer Specialists	15-1000 Computer Specialists	100%
Math Specialists	15-2000 Math Science Specialties	100%

Major Group 17 – Architecture & Engineering		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Drafters, Engineering & Mapping Technicians	17-3000 Drafters, Engineering & Mapping Technicians	80%
Engineers	17-2000 Engineers	50%
Major Group 19 – Life, Physical, & Social Science		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Psychologists	*19-3030 Psychologists*	75%
Major Group 21 – Community & Social Services		
Cluster Title	**Matched SOC Code & Title**	**PMO**
None		--
Major Group 23 – Legal		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Lawyers, Judges, & Related	23-1000 Lawyers, Judges, & Related	100%
Legal Support	23-2000 Legal Support	100%
Major Group 25 – Education, Training, & Library		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Physical Science Teachers	*25-1050* Physical Science Teachers	50%
Life Science Teachers	*25-1040* Life Science Teachers	60%
Social Science Teachers	*25-1060* Social Science Teachers	86%
Major Group 27 – Arts, Design, Entertainment, Sports, & Media		
Cluster Title	**Matched SOC Code & Title**	**PMO**
Art & Design Workers	27-1000 Art & Design Workers	92%
Dancers & Choreographers	*27-2030 Dancers & Choreographers*	67%
Musicians & Related	*27-2040 Musicians, Singers, & Related*	67%
Major Group 29 – Healthcare Practitioner & Technical		
Cluster	**Matched SOC Code & Title**	**PMO**
Diagnosing & Treating Practitioners	29-1000 Health Diagnosing & Treating Practitioners	46%
Health Technologists & Technicians	29-2000 Health Technologists & Technicians	60%
Therapists	*29-1120 Therapists*	50%
Major Group 31 – Healthcare Support		
Cluster	**Matched SOC Code & Title**	**PMO**
Occupational & Physical Therapist Assistants & Aides	31-1000 Occupational & Physical Therapists Assistants & Aides	67%
Medical, Dental, & Veterinary Assistants	31-9000 Healthcare Support, Other	60%
Medical Equipment Preparers	No Match	--
Major Group 33 – Protective Service		
Cluster	**Matched SOC Code & Title**	**PMO**
Law Enforcement Workers	33-3000 Law Enforcement Workers	42%
Police Officers	*33-3050 Police Officers*	50%

Major Group 35 – Food Preparation & Service		
Cluster	**Matched SOC Code & Title**	**PMO**
Food Prep & Serving Supervisors	35-1000 Supervisors, Food Prep & Serving Workers	100%
Cooks	35-2000 Cooks & Food Prep Workers	38%
Food & Drink Servers	35-3000 Food & Beverage Serving Workers	43%
Major Group 37 – Building & Grounds Cleaning & Maintenance		
Cluster	**Matched SOC Code & Title**	**PMO**
Building & Grounds Cleaning Supervisors	37-1000 Supervisors, Building & Grounds Cleaning & Maintenance Workers	100%
Building Cleaning & Pest Control Workers	37-2000 Building Cleaning & Pest Control Workers	100%
Grounds Maintenance Workers	37-3000 Grounds Maintenance Workers	100%
Major Group 39 – Personal Care & Service		
Cluster	**Matched SOC Code & Title**	**PMO**
Gaming Supervisors	*27-1010 First line Supervisors/ Managers of Gaming Workers*	50%
Animal Care & Service Workers	27-2000 Animal Care & Service Workers	50%
Tourism, & Lodging Attendants	27-6000 Transportation, Tourism, & Lodging Attendants	57%
Major Group 41 – Sales & Related		
Cluster	**Matched SOC Code & Title**	**PMO**
Sales Supervisors	41-1000 First line Supervisors/ Managers of Retail Sales Workers	100%
Retail & Wholesale Sales Reps	41-2000 Retail Sales Reps & 41-4000 Wholesale Sales Reps	91%
Miscellaneous Sales Workers	41-9000 Other Sales & Related Workers	50%
Service Sales Reps	41-3000 Sales Reps, Services	67%
Major Group 43 – Office & Administrative Support		
Cluster	**Matched SOC Code & Title**	**PMO**
Office & Administrative Supervisors	43-1000 First line Supervisors/ Managers of Office & Administrative Support Workers	100%
Major Group 45 – Farming, Fishing, & Forestry		
Cluster	**Matched SOC Code & Title**	**PMO**
Farming, Fishing, & Forestry Supervisors	45-1000 First line Supervisors/ Managers Farming, Fishing, & Forestry Workers	100%
Major Group 47 – Construction & Extraction		
Cluster	**Matched SOC Code & Title**	**PMO**
Construction & Extraction Supervisors	47-1000 First line Supervisors/ Managers of Construction & Extraction Workers	50%
Extraction Workers	47-5000 Extraction Workers	59%
Construction Workers	47-2000 Construction Trades Workers	47%

Major Group 49 – Installation, Maintenance, & Repair		
Cluster	**Matched SOC Code & Title**	**PMO**
None		--
Major Group 51 - Production		
Cluster	**Matched SOC Code & Title**	**PMO**
Plant & System Operators	51-8000 Plant & System Operators	57%
Major Group 53 – Transportation & Material Moving		
Cluster	**Matched SOC Code & Title**	**PMO**
Transportation & Material Moving Supervisors	53-1000 Supervisors, Transportation & Material Moving	100%
Airline Pilots	53-2000 Air Transportation Workers	40%
Vehicle Operators	53-3000 Motor Vehicle Operators	73%
Woodworkers	53-7000 Woodworkers	65%

Note.
Matched SOC codes and titles marked with asterisks are at the Broad Occupation level; one level more specific than the Minor Group. All others are Minor Groups; one level below the Major Group.

Analysis 2. Cluster analyses within *selected* SOC Minor Groups. Separate cluster analyses (using Ward's method) were carried out within selected SOC Minor Groups (n = 12), employing the previously described procedure. Minor Groups chosen met the following criteria and thus were (a) Groups with numbers of Detailed Occupations ≥30, (b) Groups that were judged promising based on previous Minor Group assignment analysis and the exploratory cluster analysis, and (c) Groups that yielded low PMOs (< 50%) in the structured cluster analyses within Major Groups. The resultant clusters were judgmentally compared to SOC Broad Occupations (one level below the Minor Group level) and PMOs were computed

Overall, the cluster matches (60%) and PMOs were better than results of pervious analyses at the Major Group level. The range of PMOs was 33% to 100%. The mean PMO was 72% and the standard deviation was 27%. Many matches between derived clusters and SOC Broad Occupations resulted in PMOs of 75% or higher. Table 19 presents the results, including Minor Groups, cluster titles, matched SOC titles, and PMO

indices. Appendix G contains the cluster analysis results, including cluster membership with salient occupations.

Table 19.

Structured Cluster Analyses Within Selected Minor Groups: Minor Group Code/Title, Cluster Title, Matched Broad Occupation Code/Title, and Percent Measurement Overlap (PMO)

Minor Group Code/Title **Cluster Title**	**Matched SOC Code & Title**	**PMO**
11-9000 Management, Other		
1) Agricultural Managers	11-9010 Agricultural Managers	50%
2) Construction Managers	11-9020 Construction Managers	100%
3) Education Administrators	11-9030 Education Administrators	100%
4) Engineering Managers	11-9040 Engineering Managers	100%
5) Food Service Managers	11-9050 Food Science Managers	100%
6) Funeral Directors	11-9060 Funeral Directors	100%
7) Lodging Managers	11-9080 Lodging Managers	100%
8) Medical & Health Services Managers	11-9110 Medical & Health Services Managers	100%
9) Natural Sciences Managers	11-9120 Natural Sciences Managers	100%
10) Postmasters & Mail Superintendents	11-9130 Postmasters & Mail Superintendents	100%
11) Social & Community Services Managers	11-9140 Social & Community Services Managers	100%
13-1000 Business Operations Specialties		
1) Purchasing Agents & Buyers	13-1020 Buyers & Purchasing Agents	50%
2) Claims Adjusters, Appraisers, Examiners, & Investigators	13-1030 Claims Adjusters, Appraisers, Examiners, & Investigators	100%
3) Compliance Officers	13-1040 Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	50%
4) Human Resources Specialists	13-1070 Human Resources, Training, and Labor Relations Specialists	67%
5) Management Analysts	13-1110 Management Analysts	100%
19-3000 Social Scientists & Related		
1) Psychologists	19-3030 Psychologists	75%
2) Urban & Regional Planners	19-3050 Urban & Regional Planners	100%
3) Anthropologists & Archeologists	19-3090 Misc. Social Scientists & Related	40%
4) Geographers	No match	--
25-1000 Postsecondary Teachers		
1) Computer Science Teachers	25-1020 Math & Computer Teachers	50%
2) Math Science Teachers	25-1020 Math & Computer Teachers	50%
3) Engineering Teachers	25-1030 Engineering Teachers	100%
4) Life Science Teachers	25-1040 Life Science Teachers	75%
5) Chemistry & Physics Teachers	25-1050 Physical Science Teachers	100%
6) Social Science Teachers	25-1060 Social Science Teachers	85%

Minor Group Code/Title **Cluster Title**	**Matched SOC Code & Title**	**PMO**
7) Nursing Instructors	25-1070 Health Teachers	50%
8) Art, Drama, & Music Teachers	25-1120 Arts, Communications, & Humanities Teachers	25%
9) Language Teachers	25-1120 Arts, Communications, & Humanities Teachers	50%
10) Graduate Teaching Assistants	25-1190 Misc. Postsecondary Teachers	50%
11) Vocational Ed. Teachers	25-1190 Misc. Postsecondary Teachers	50%
27-1000 Art & Design Workers		
1) Designers	27-1020 Designers	67%
2) Artists	27-1010 Artists & Related Workers	57%
27-2000 Entertainers, Performers, Sports & Related		
1) Producers & Directors	27-2010 Actors, Producers, & Directors	57%
2) Dancers & Choreographers	27-2030 Dancers & Choreographers	67%
3) Music Directors & Musicians	27-2040 Musicians, Singers, & Related	40%
4) Music Arrangers & Composers	27-2040 Musicians, Singers, & Related	40%
29-1000 Health Diagnosing & Treating Practitioners		
1) Dentists	29-1020 Dentists	100%
2) Optometrists	29-1040 Optometrists	100%
3) Physicians	29-1060 Physicians & Surgeons	67%
4) Surgeons	29-1060 Physicians & Surgeons	20%
5) Registered Nurses	29-1110 Registered Nurses	100%
6) Speech-Language Pathologists & Audiologists	29-1120 Therapists	40%
7) Occupational & Physical Therapists	29-1120 Therapists	40%
8) Radiation Therapists	29-1120 Therapists	20%
33-3000 Law Enforcement Workers		
1) Child Support, Missing Persons Investigators & Immigration/Customs Inspectors	33-3020 Detectives & Criminal Investigators	40%
2) Fish & Game Wardens	33-3030 Fish & Game Wardens	100%
3) Police Patrol Officers & Pilots	33-3050 Police Officers	50%
35-2000 Cooks & Food Prep Workers		
1) Cooks	35-2010 Cooks	75%
2) Food Prep Workers	35-2020 Food Prep Workers	50%
35-3000 Food & Beverage Serving Workers		
1) Bartenders	35-3010 Bartenders	100%
2) Fast Food & Counter Workers	35-3020 Fast Food & Counter Workers	100%
3) Food Servers, Nonrestaurant	35-3040 Food Servers, Nonrestaurant	100%
4) Waiters & Waitresses	35-3030 Waiters & Waitresses	100%
47-2000 Construction Trades Workers		
1) Boilermakers	47-2010 Boilermakers	100%
2) Painters & Paperhangers	47-2140 Painters & Paperhangers	67%
3) Carpenters & Boat Builders	47-2030 Carpenters	67%
4) Cement Masons & Concrete/Terrazo Finishers	47-2050 Cement Masons, Concrete Finishers, & Terrazo Workers	50%
5) Pipelayers & Pipelaying Fitters	47-2150 Pipelayers, Plumbers, Pipefitters, &	40%

Minor Group Code/Title Cluster Title	Matched SOC Code & Title	PMO
	Steamfitters	
6) Construction Laborers	47-2060 Construction Laborers	100%
7) Heavy Equipment Operators	47-2070 Construction Equipment Operators	50%
8) Electricians	47-2110 Electricians	100%
9) Insulation Workers	47-2130 Insulation Workers	100%
10) Roofers	47-2180 Roofers	100%
11) Sheet Metal Workers	47-2210 Sheet Metal Workers	100%
12) Structural Iron & Steel Workers	47-2220 Structural Iron & Steel Workers	100%
13) Tile Workers	No match	--
49-9000 Installation, Maintenance, & Repair, Other		
1) Industrial Machinery Installation, Repair, & Maintenance	49-9040 Industrial Machinery Installation, Repair, & Maintenance	100%
2) Camera, Photographic, & Medical Equipment Repair	49-9060 Precision Instrument & Equipment Repairers	33%
3) Musical Instrument Repair	49-9060 Precision Instrument & Equipment Repairers	67%
51-4000 Metal & Plastic Workers		
1) Numerical Tool & Process Control Programmers	51-4010 Computer Control Programmers & Operators	50%
2) Lathe/Turning Machine & Milling/Planing Machine Setters, Operators, & Tenders	No match	--
51-9000 Production, Other		
1) Chemical Equipment Operators	51-9010 Chemical Processing Machine Setters, Operators, & Tenders	50%
2) Photographic & Film Technicians	51-9130 Photographic Process Workers & Processing Machine Operators	38%
3) Inspectors & Testers	51-9060 Inspectors, Testers, Sorters, Samplers, & Weighers	80%
4) Medical Appliance Technicians	51-9080 Medical, Dental, & Ophthalmic Laboratory Technicians	33%

Note.
In total, fourteen Minor Groups were selected for inclusion in this set of cluster analyses.

Analysis 3. Construct an *a priori* conceptual classification framework. An O*NET Job Zone[1] (5) x SOC Major Group (22) matrix was constructed containing 110 cells. Each of the cells included its respective set of Detailed Occupations. The Detailed

[1] In previous SOC conversion work, O*NET Job Zones were assigned to each of the Detailed SOC Occupations. Job Zones represent levels of education, experience, and training required to gain employment in a certain occupation. Job Zone 5 requires the highest level of education, such as attaining an advanced degree, and extensive training and experience. Job Zone 1 requires minimal education, experience, and training. Each Detailed Occupation included in this study has been assigned one Job Zone.

Occupation memberships within the 110 cells were judgmentally compared to those Detailed Occupations contained within the 93 SOC Minor Groups, in order to determine whether or not any reasonable matches exist between the two classification structures. After an extensive review of cell membership, it was determined that there were no meaningful groupings of occupations within most cells. In addition, no reasonable matches to SOC groups could be made. The Job Zone by SOC Major Group matrix did not yield a meaningful, alternative classification structure. Appendix H presents the matrix.

Analysis 4. Estimating job zone membership from selected O*NET variables. O*NET domain (knowledge, skills, abilities, & GWAs) factors (n=29) were used to estimate Job Zone assignments. The Job Zone estimates were derived through multiple regression analysis (both traditional and stepwise) using the O*NET domain factors as *X* variables and the Job Zone assignments as the *Y* variable. The multiple R was found to be .80 ($p<.001$). Subsequently, a discriminant analysis, that treated Job Zone as a categorical variable, was carried out in order to assign Job Zones to the 900 occupations. The assignment rate was 53%. Of the remaining 47% incorrect assignments, 85% missed by only one Job Zone. The O*NET domain factors did reasonably well at assigning the appropriate Job Zones to SOC occupations. Appendix I summarizes the multiple regression and discriminant analyses results.

DISCUSSION

The O*NET descriptors were used to determine their usefulness in assigning occupations into SOC categories, generating a new, meaningful classification structure, replicating occupational groupings within the SOC hierarchy, and assigning job zones to occupations. Overall, the O*NET descriptors performed well across those project tasks, but they did not produce a cluster structure resembling the SOC Major Groups.

Initially, an analysis effort was undertaken that compared the effectiveness of six different variable set-association measure combinations in assigning occupations to their parent SOC Major Groups. These combinations and their assignment percentages (hit rates) were as follows: (a) Individual O*NET descriptors with r -- 71%; (b) Individual O*NET descriptors with d^2 -- 62%; (c) O*NET domain factors with r -- 71%; (d) O*NET domain factors with d^2 -- 74%; (e) Concrete/abstract O*NET factors with r -- 68%; and (f) Concrete/abstract O*NET factors with d^2 -- 75%.

The variables used in combinations 3 through 6 above were derived through several factor analyses. These analyses produced 29 O*NET domain factors (8 knowledge, 5 skill, 10 ability, and 6 GWA factors) and 23 concrete and abstract factors (15 concrete and 8 abstract factors). To date this is the only study that has factor analyzed the O*NET knowledge, skill, ability, and generalized work activity domains using SOC-based O*NET data. All factor analyses produced solutions nearly identical to those from similar efforts that employed the original O*NET data (Clark, 2002). These results provide some empirical support for the adequacy of the judgmental data conversion effort that transformed O*NET to a SOC-based system.

Two additional comparative assignment analyses were carried out. The first analysis was carried out to determine whether the importance data would produce a higher hit rate than would the level data. This analysis used individual O*NET descriptors with *r*, but used importance data instead of level data. The assignment percentage was found to be 71%, which was the same as that obtained with level data. This result is not surprising, because the two scales have been shown in prior studies (Peterson, Mumford, Borman, Jeanneret, and Fleishman, 1999) to be highly correlated. The second analysis was carried out to determine if the Concrete factors alone would produce as high a hit rate as the Concrete and Abstract factors combined. The second used only concrete O*NET factors with d^2, resulting in an assignment percent of 69% that was not as high as the 75% hit rate that resulted when Concrete and Abstract factors were combined.

Among all the comparative assignment analyses performed, only the hit rate for the combination of individual descriptors with d^2 (62%) was found to be significantly different from the rest. It is possible that the individual descriptors were more sensitive than the factors to elevation differences present in the data, thus producing a lower hit rate. After careful review, it was determined that the most appropriate combination for use in all subsequent analyses was the O*NET domain factor – d^2 combination. This decision was based on both practical and empirical considerations. First, even though the Concrete/Abstract factor – d^2 combination produced the highest hit rate (75%), the O*NET domain factors (with a hit rate of 74%) possess a higher element of face validity; they have all been named, are meaningful, and belong to an established conceptual framework with which potential users are familiar. It is possible that a smaller number of meaningful variables (i.e., factors) can substitute for lengthy lists of descriptors in future

surveys and taxonomy development. Second, O*NET stakeholders have both research and practical interests in domain factors derived from SOC-based O*NET data. The close similarity between the SOC- and OU-based domain factors lends empirical support to the conversion effort that collapsed the original OU data into data now describing a smaller number of SOC occupations. It may also help streamline future O*NET data collection efforts by potentially reducing questionnaires' length, thereby minimizing the burden on respondents.

Subsequent to the aforementioned analyses, the O*NET domain factor – d^2 combination was used in a more rigorous assignment analysis at the SOC Minor Group level. In the initial computation of hit rate percentage, a "hit" was counted only when an occupation was returned to its parent Minor Group. Based on this calculation, the overall hit rate percentage was 69%. A second calculation was made that counted a "hit" if an occupation was returned to either its parent Minor Group or its parent Major Group. Based on this calculation, the hit rate percentage increased to 80%. It appears that at a more detailed occupational level (i.e., the SOC Minor Group level), the O*NET domain factors do a better job of assigning occupations to Major Groups.

The O*NET domain factor – d^2 combination was next used in an exploratory cluster analysis of all 900 occupations. Some clusters were named, included meaningful listings of occupations, and produced reasonable membership overlap with SOC Major Groups. Clusters that matched reasonably well with Major Groups [i.e., with percent membership overlaps (PMOs) > 40%] were titled Managers/Supervisors, Architects & Engineers, Production Occupations, Computer Occupations, Installation, Maintenance, & Repair Occupations, and Healthcare Practitioners & Technicians. Other clusters exhibited only

slight to moderate overlap with SOC Major Groups (with PMOs ranging from 6% to 39%); some did not match with any of the 22 Major Groups, but did match well at more specific levels within the SOC hierarchy (i.e., at the Minor Group and Broad Occupation levels). Finally, seven remaining clusters contained a mixture of occupations from various SOC categories such that they were not interpretable at all. Table 17 summarizes the exploratory cluster analysis results.

It is not surprising that the resultant structure did not reproduce all 22 Major Groups contained in the SOC. During the initial development as well as in past revisions of the SOC, several factors affected the placement of occupations within categories, many of which were neither data driven nor empirical. The creation and placement of SOC categories and occupational titles was often based on (a) the judgments of occupational experts; (b) economic and labor market-driven factors; (c) work function only without the consideration of knowledge, skills, and abilities; and finally, (d) the political pull of various union groups or professional associations wanting their occupations categorized within a particular area. Moreover, the clustering of occupations in this study utilized numeric data associated with knowledge, skill, and ability domains that were not considered during the rational SOC development process. Nevertheless, the exploratory cluster analysis carried out in this study did provide some empirical support for the SOC at the Major Group level.

Following the overall cluster analysis, two structured cluster analyses were carried out within confined categories of the SOC (i.e., within all 22 Major Groups and within 14 selected Minor Groups). The resultant cluster solutions were each compared separately with their respective SOC Minor Groups and Broad Occupations. Both analyses yielded

meaningful clusters. Many were judgmentally matched to SOC groups, and the corresponding PMO values neared or equaled 100%. Clustering within levels of the SOC did a better job of producing clusters that resembled SOC categories than did the previous exploratory clustering of all 900 occupations. These results thus provide some empirical support for the judgmentally-derived SOC, specifically at the Minor Group and Broad Occupation levels.

The O*NET Job Zones indicate level of training, education, and experience required to gain employment in the various O*NET occupations and range from 1 to 5. Every occupation in the SOC has been previously assigned one Job Zone. In this study, two analyses were carried out that used the O*NET Domain Factor – d^2 data and incorporated O*NET Job Zone data for each of the 900 SOC occupations.

First, a structured, matrix approach to developing a classification structure was employed. A Major Group (n=22) by Job Zone (n=5) matrix was created, containing occupations as cell entries. Occupations within cells were judgmentally compared with occupations contained in SOC Minor Groups (n=93). No reasonable matches could be made, nor did most cells contain meaningful groupings of occupations. Because Job Zones are generic in nature and the same Job Zone can be used to describe very different occupations (e.g., both Surgeons and Electrical/Electronic Equipment Repairers have been assigned Job Zone 5, "Extensive Preparation Needed"), it is understandable that, in this case, unwieldy mixtures of occupations occurred within matrix cells. It was concluded that a Job Zone *x* SOC Major Group matrix did not offer a viable approach to the development of an occupational taxonomy.

Second, the O*NET Domain Factors were used as predictors in a multiple regression analysis in which Job Zone was the dependent variable. This analysis yielded a multiple R of .80 ($p < .0001$). To further test the hypothesis that the O*NET Domain Factors could be used to predict occupational Job Zone assignments, a discriminant analysis was carried out that treated Job Zone as a categorical variable (i.e., categories 1 – 5) and the Domain Factors as variables for assigning the 900 O*NET occupations to Job Zone categories. The results showed that Job Zones were correctly assigned to occupations 53% of the time. Of the 47% incorrectly assigned, 95% were only off by one Job Zone.

Because of the possibility of shrinkage, these results may overestimate both the multiple R and the assignment rate to some extent; however, the large sample size in this study ($n = 900$) should place some limits on inflation from capitalization on chance. In a number of cases, the discriminant function incorrectly assigned Job Zones, either one point too high or one point too low, when the predicted value fell between two Job Zones. This would explain why so many Job Zone assignments were only one away from their original assignments. For that reason, it may be worthwhile to consider using multiple regression instead of discriminant analysis to assign Job Zones to occupations. Human judgment could then be employed to break "in-the-middle" ties. Overall, these results point to the potential usefulness of the Domain factors as Job Zone estimators, particularly in assigning Job Zones to new and emerging occupations.

Similar studies have been carried out that support the use of the O*NET descriptors for predictive purposes, especially in estimating occupational aptitude requirements. Johnson, Carter, & Dorsey (2003) used O*NET descriptors to predict mean General Aptitude Test Battery (GATB) scores. They found that O*NET descriptors did well to

predict cognitive and perceptual speed aptitudes. D'Egidio (2001) used a job component approach to link O*NET descriptors to mean scores on cognitive ability tests. Cognitive aptitudes were found to be predictable from O*NET descriptors. Wilson (2003) found that factors derived from occupational ratings on the O*NET Knowledge, Skills, and GWAs were predictive of the O*NET Ability ratings. The above studies and the present research effort, taken together, demonstrate the potential usefulness of the O*NET descriptors as prediction tools within the realms of occupational aptitude and training/education/experience (i.e., Job Zone) requirements.

Future Research

The present study has many firsts. It was the first to carry out comparative assignment analyses with occupations. It was the first to employ a numerical clustering technique using the new SOC-based O*NET data. Finally, it was the first study to devise an empirical and practical method for assigning Job Zones to new occupations that may one day be added to the O*NET system. Along with these firsts come some limitations as well as some starting points for future research.

Although factor replication analyses were not carried out in the present study, Clark (2002) did find the original OU-based Domain factors to be replicable. The fact that the present study's SOC-based Domain factors closely match those derived by Clark offers some support for their stability, as well.

The cluster analyses performed (both structured and unstructured) were exploratory in nature. Results yielded some meaningful clusters that resembled SOC categories. Because data were not available for individual raters, it would have been difficult to test

clusters for replication in this study. Future studies may consider (1) developing a method for testing cluster stability and replicability without the availability of individual rating data (e.g., through centroid comparisons across comparable occupational subsamples) and (2) employing a confirmatory approach to numerical clustering. While confirmatory factor analysis has been shown to be a preferred and rigorous statistical technique, there has not been an approach devised that can be applied to cluster analysis (e.g., confirmatory cluster analysis).

Johnson, Carter, & Dorsey (2003) offer some data inclusion (or exclusion) criteria when engaging in this type of research. First, it may be possible to eliminate descriptor redundancies across domains. "For example, mathematical reasoning ability, mathematics skill, and mathematics knowledge are similar [and found to be highly correlated], so it would only be necessary to include one of these descriptors in… [future analyses involving O*NET data]" (p. 7). Second, eliminating redundancies within [O*NET] domains may be a preferable approach. "Within a domain, some descriptors are likely to be highly correlated. One descriptor [may not] contribute much beyond the other if both are included in the [analysis]. For example, deductive and inductive reasoning ability [have been found to be] highly correlated…" (p. 7), thus warranting the inclusion of only one in future analyses.

O*NET provides two types of scale data, level and importance. The present study employed level data except for one assignment analysis that used importance data for comparative purposes. For that one exception, no difference was found between assignment rates when both importance and level data were used. In addition, previous research has shown these scales to be highly correlated, so it is likely that replicating this

study using importance data would produce similar results. However, carrying out a research effort similar to the present study but using importance data may provide additional empirical support for the use of O*NET descriptors as tools in occupational analysis, and is therefore recommended.

Presently, the National O*NET Consortium is leading a Nationwide data collection initiative that will re-populate the O*NET database with data obtained from job incumbents. (The present study's data were provided by job analysts and industrial-organizational psychology graduate students; O*NET data version 3.1.) It would be worthwhile in a future effort to use job incumbent data to see whether it will outperform analyst data in both numerical occupational classification and Job Zone estimation.

Finally, the National Center for O*NET Development has recently completed an effort that developed cross-occupational descriptors known as Detailed Work Activities (personal communication; Smith, May 2003). These activity statements, originally named "skill statements," have been categorized into the 42 O*NET generalized work activity categories and assigned to each of the O*NET occupations. They are considerably more specific than the existing O*NET skills, yet are still "transportable" across occupations. A future study may test whether the Detailed Work Activities fare better than the generic O*NET descriptors, used in the present effort, as tools in occupational classification and job zone estimation.

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Appendices

Appendix A.

Principal Components and Principal Factor Analyses Results: O*NET Domains and Abstract and Concrete Descriptor Groupings

PRINCIPAL COMPONENTS ANALYSIS - ABILITIES

Eigenvalues of the Correlation Matrix: Total = 52 Average = 1

	Eigenvalue	Difference	Proportion	Cumulative
1	17.4611225	2.6973761	0.3358	0.3358
2	14.7637463	10.9049016	0.2839	0.6197
3	3.8588447	1.6913364	0.0742	0.6939
4	2.1675084	0.7298530	0.0417	0.7356
5	1.4376554	0.2515056	0.0276	0.7632
6	1.1861498	0.1613906	0.0228	0.7861
7	1.0247592	0.1690541	0.0197	0.8058
8	0.8557050	0.1360885	0.0165	0.8222
9	0.7196165	0.0868700	0.0138	0.8361
10	0.6327465	0.0668875	0.0122	0.8482
11	0.5658590	0.0686872	0.0109	0.8591
12	0.4971718	0.0642601	0.0096	0.8687
13	0.4329117	0.0422776	0.0083	0.8770
14	0.3906341	0.0323505	0.0075	0.8845
15	0.3582836	0.0118061	0.0069	0.8914
16	0.3464776	0.0262908	0.0067	0.8981
17	0.3201868	0.0231348	0.0062	0.9042
18	0.2970520	0.0308656	0.0057	0.9099
19	0.2661864	0.0120946	0.0051	0.9151
20	0.2540918	0.0038991	0.0049	0.9199
21	0.2501927	0.0113173	0.0048	0.9247
22	0.2388754	0.0089151	0.0046	0.9293
23	0.2299603	0.0085465	0.0044	0.9338
24	0.2214138	0.0110655	0.0043	0.9380
25	0.2103483	0.0144789	0.0040	0.9421
26	0.1958694	0.0084680	0.0038	0.9458
27	0.1874014	0.0141453	0.0036	0.9494
28	0.1732561	0.0009762	0.0033	0.9528
29	0.1722799	0.0123608	0.0033	0.9561
30	0.1599191	0.0061199	0.0031	0.9592
31	0.1537992	0.0056403	0.0030	0.9621
32	0.1481588	0.0069885	0.0028	0.9650
33	0.1411704	0.0041357	0.0027	0.9677
34	0.1370347	0.0114606	0.0026	0.9703
35	0.1255741	0.0006617	0.0024	0.9727
36	0.1249124	0.0074817	0.0024	0.9751
37	0.1174307	0.0048348	0.0023	0.9774
38	0.1125959	0.0092163	0.0022	0.9796
39	0.1033796	0.0029311	0.0020	0.9815
40	0.1004485	0.0061228	0.0019	0.9835
41	0.0943257	0.0024427	0.0018	0.9853
42	0.0918830	0.0041934	0.0018	0.9871
43	0.0876896	0.0030876	0.0017	0.9887
44	0.0846020	0.0035106	0.0016	0.9904
45	0.0810914	0.0053005	0.0016	0.9919
46	0.0757909	0.0017376	0.0015	0.9934
47	0.0740534	0.0093062	0.0014	0.9948
48	0.0647472	0.0063561	0.0012	0.9961
49	0.0583911	0.0032811	0.0011	0.9972
50	0.0551100	0.0046071	0.0011	0.9982
51	0.0505029	0.0094202	0.0010	0.9992
52	0.0410827		0.0008	1.0000

7 factors will be retained by the MINEIGEN criterion.

PRINCIPAL COMPONENTS ANALYSIS - SKILLS

Eigenvalues of the Correlation Matrix: Total = 46 Average = 1

	Eigenvalue	Difference	Proportion	Cumulative
1	26.5536531	19.2475221	0.5773	0.5773
2	7.3061310	5.2755298	0.1588	0.7361
3	2.0306012	0.7561664	0.0441	0.7802
4	1.2744348	0.1699457	0.0277	0.8079
5	1.1044891	0.2355997	0.0240	0.8319
6	0.8688894	0.1632468	0.0189	0.8508
7	0.7056426	0.1270445	0.0153	0.8662
8	0.5785981	0.0904465	0.0126	0.8787
9	0.4881516	0.0416295	0.0106	0.8894
10	0.4465220	0.0391029	0.0097	0.8991
11	0.4074191	0.0673957	0.0089	0.9079
12	0.3400234	0.0134893	0.0074	0.9153
13	0.3265341	0.0371803	0.0071	0.9224
14	0.2893539	0.0287511	0.0063	0.9287
15	0.2606027	0.0301287	0.0057	0.9344
16	0.2304740	0.0335653	0.0050	0.9394
17	0.1969087	0.0070009	0.0043	0.9437
18	0.1899078	0.0168510	0.0041	0.9478
19	0.1730568	0.0064086	0.0038	0.9516
20	0.1666483	0.0132560	0.0036	0.9552
21	0.1533922	0.0084015	0.0033	0.9585
22	0.1449907	0.0061131	0.0032	0.9617
23	0.1388777	0.0170823	0.0030	0.9647
24	0.1217954	0.0086029	0.0026	0.9673
25	0.1131925	0.0048934	0.0025	0.9698
26	0.1082991	0.0068608	0.0024	0.9721
27	0.1014383	0.0011609	0.0022	0.9743
28	0.1002773	0.0102900	0.0022	0.9765
29	0.0899873	0.0030134	0.0020	0.9785
30	0.0869739	0.0026241	0.0019	0.9804
31	0.0843498	0.0084384	0.0018	0.9822
32	0.0759114	0.0014549	0.0017	0.9839
33	0.0744565	0.0044423	0.0016	0.9855
34	0.0700142	0.0022654	0.0015	0.9870
35	0.0677489	0.0020486	0.0015	0.9885
36	0.0657003	0.0055188	0.0014	0.9899
37	0.0601815	0.0038398	0.0013	0.9912
38	0.0563416	0.0012261	0.0012	0.9924
39	0.0551155	0.0010306	0.0012	0.9936
40	0.0540849	0.0012775	0.0012	0.9948
41	0.0528074	0.0069925	0.0011	0.9960
42	0.0458149	0.0057258	0.0010	0.9970
43	0.0400891	0.0022573	0.0009	0.9978
44	0.0378318	0.0033987	0.0008	0.9986
45	0.0344331	0.0065802	0.0007	0.9994
46	0.0278529		0.0006	1.0000

5 factors will be retained by the MINEIGEN criterion.

PRINCIPAL COMPONENTS ANALYSIS - KNOWLEDGE

Eigenvalues of the Correlation Matrix: Total = 33 Average = 1

	Eigenvalue	Difference	Proportion	Cumulative
1	9.28547876	5.01492790	0.2814	0.2814
2	4.27055086	1.42960529	0.1294	0.4108
3	2.84094557	0.78562681	0.0861	0.4969
4	2.05531876	0.06998597	0.0623	0.5592
5	1.98533279	0.40765918	0.0602	0.6193
6	1.57767361	0.27325396	0.0478	0.6671
7	1.30441965	0.03185338	0.0395	0.7067
8	1.27256627	0.45920863	0.0386	0.7452
9	0.81335764	0.04215234	0.0246	0.7699
10	0.77120531	0.05729660	0.0234	0.7932
11	0.71390871	0.05104527	0.0216	0.8149
12	0.66286344	0.00917817	0.0201	0.8350
13	0.65368527	0.13833289	0.0198	0.8548
14	0.51535238	0.04844707	0.0156	0.8704
15	0.46690531	0.02648651	0.0141	0.8845
16	0.44041880	0.05355376	0.0133	0.8979
17	0.38686504	0.02526762	0.0117	0.9096
18	0.36159742	0.08074202	0.0110	0.9206
19	0.28085540	0.01165712	0.0085	0.9291
20	0.26919828	0.01625614	0.0082	0.9372
21	0.25294214	0.01832466	0.0077	0.9449
22	0.23461748	0.00986098	0.0071	0.9520
23	0.22475650	0.03387228	0.0068	0.9588
24	0.19088421	0.00654462	0.0058	0.9646
25	0.18433960	0.00784163	0.0056	0.9702
26	0.17649796	0.02176007	0.0053	0.9755
27	0.15473789	0.01616265	0.0047	0.9802
28	0.13857524	0.01223414	0.0042	0.9844
29	0.12634111	0.01673867	0.0038	0.9882
30	0.10960244	0.01300353	0.0033	0.9916
31	0.09659891	0.00209283	0.0029	0.9945
32	0.09450608	0.00740489	0.0029	0.9974
33	0.08710118		0.0026	1.0000

8 factors will be retained by the MINEIGEN criterion.

PRINCIPAL COMPONENTS ANALYSIS - GWAS

Eigenvalues of the Correlation Matrix: Total = 42 Average = 1

	Eigenvalue	Difference	Proportion	Cumulative
1	23.2954280	18.9744065	0.5547	0.5547
2	4.3210215	1.6088384	0.1029	0.6575
3	2.7121831	1.0540098	0.0646	0.7221
4	1.6581734	0.5534181	0.0395	0.7616
5	1.1047553	0.1145487	0.0263	0.7879
6	0.9902066	0.0729086	0.0236	0.8115
7	0.9172980	0.1896534	0.0218	0.8333
8	0.7276446	0.1727693	0.0173	0.8506
9	0.5548753	0.0218523	0.0132	0.8638
10	0.5330230	0.0486807	0.0127	0.8765
11	0.4843423	0.1026072	0.0115	0.8881
12	0.3817352	0.0641673	0.0091	0.8972
13	0.3175679	0.0224558	0.0076	0.9047
14	0.2951121	0.0093253	0.0070	0.9117
15	0.2857868	0.0141544	0.0068	0.9186
16	0.2716325	0.0334263	0.0065	0.9250
17	0.2382062	0.0080231	0.0057	0.9307
18	0.2301832	0.0084898	0.0055	0.9362
19	0.2216934	0.0120112	0.0053	0.9414
20	0.2096822	0.0136685	0.0050	0.9464
21	0.1960137	0.0114712	0.0047	0.9511
22	0.1845425	0.0142644	0.0044	0.9555
23	0.1702781	0.0121709	0.0041	0.9596
24	0.1581073	0.0159791	0.0038	0.9633
25	0.1421282	0.0116256	0.0034	0.9667
26	0.1305026	0.0048685	0.0031	0.9698
27	0.1256341	0.0110326	0.0030	0.9728
28	0.1146015	0.0052497	0.0027	0.9755
29	0.1093518	0.0081929	0.0026	0.9781
30	0.1011589	0.0040346	0.0024	0.9805
31	0.0971244	0.0076939	0.0023	0.9829
32	0.0894304	0.0015765	0.0021	0.9850
33	0.0878539	0.0058404	0.0021	0.9871
34	0.0820135	0.0108953	0.0020	0.9890
35	0.0711182	0.0014684	0.0017	0.9907
36	0.0696498	0.0061494	0.0017	0.9924
37	0.0635004	0.0052872	0.0015	0.9939
38	0.0582133	0.0014838	0.0014	0.9953
39	0.0567294	0.0025246	0.0014	0.9966
40	0.0542048	0.0059875	0.0013	0.9979
41	0.0482173	0.0091419	0.0011	0.9991
42	0.0390754		0.0009	1.0000

5 factors will be retained by the MINEIGEN criterion.

PRINCIPAL COMPONENTS ANALYSIS - ABSTRACT DESCRIPTORS

Eigenvalues of the Correlation Matrix: Total = 63 Average = 1

	Eigenvalue	Difference	Proportion	Cumulative
1	39.1327761	34.9530055	0.6212	0.6212
2	4.1797707	0.7648059	0.0663	0.6875
3	3.4149647	1.1567211	0.0542	0.7417
4	2.2582437	0.6193394	0.0358	0.7776
5	1.6389043	0.1426333	0.0260	0.8036
6	1.4962710	0.2256344	0.0238	0.8273
7	1.2706365	0.3280949	0.0202	0.8475
8	0.9425416	0.2632982	0.0150	0.8624
9	0.6792434	0.0831463	0.0108	0.8732
10	0.5960970	0.0276789	0.0095	0.8827
11	0.5684181	0.1073936	0.0090	0.8917
12	0.4610245	0.0697152	0.0073	0.8990
13	0.3913093	0.0072357	0.0062	0.9052
14	0.3840736	0.0426638	0.0061	0.9113
15	0.3414098	0.0286316	0.0054	0.9168
16	0.3127783	0.0316200	0.0050	0.9217
17	0.2811582	0.0300280	0.0045	0.9262
18	0.2511302	0.0059098	0.0040	0.9302
19	0.2452204	0.0308730	0.0039	0.9341
20	0.2143475	0.0125639	0.0034	0.9375
21	0.2017836	0.0069677	0.0032	0.9407
22	0.1948158	0.0206084	0.0031	0.9438
23	0.1742075	0.0054346	0.0028	0.9465
24	0.1687729	0.0059085	0.0027	0.9492
25	0.1628644	0.0044546	0.0026	0.9518
26	0.1584098	0.0092044	0.0025	0.9543
27	0.1492053	0.0040350	0.0024	0.9567
28	0.1451704	0.0080790	0.0023	0.9590
29	0.1370914	0.0066825	0.0022	0.9612
30	0.1304089	0.0067333	0.0021	0.9632
31	0.1236756	0.0033303	0.0020	0.9652
32	0.1203454	0.0106263	0.0019	0.9671
33	0.1097191	0.0021800	0.0017	0.9688
34	0.1075390	0.0025903	0.0017	0.9705
35	0.1049487	0.0064417	0.0017	0.9722
36	0.0985070	0.0008154	0.0016	0.9738
37	0.0976916	0.0047912	0.0016	0.9753
38	0.0929005	0.0073278	0.0015	0.9768
39	0.0855726	0.0020998	0.0014	0.9782
40	0.0834728	0.0004667	0.0013	0.9795
41	0.0830062	0.0040233	0.0013	0.9808
42	0.0789829	0.0033900	0.0013	0.9821
43	0.0755929	0.0036972	0.0012	0.9833
44	0.0718957	0.0006216	0.0011	0.9844
45	0.0712740	0.0016270	0.0011	0.9855
46	0.0696471	0.0027747	0.0011	0.9866
47	0.0668724	0.0037613	0.0011	0.9877
48	0.0631111	0.0014138	0.0010	0.9887
49	0.0616972	0.0046319	0.0010	0.9897
50	0.0570653	0.0004276	0.0009	0.9906
51	0.0566377	0.0004415	0.0009	0.9915
52	0.0561962	0.0025707	0.0009	0.9924
53	0.0536254	0.0002337	0.0009	0.9932
54	0.0533917	0.0034546	0.0008	0.9941
55	0.0499371	0.0024216	0.0008	0.9949
56	0.0475155	0.0009154	0.0008	0.9956
57	0.0466001	0.0024292	0.0007	0.9964
58	0.0441709	0.0016164	0.0007	0.9971
59	0.0425545	0.0021838	0.0007	0.9977
60	0.0403707	0.0035702	0.0006	0.9984
61	0.0368005	0.0026262	0.0006	0.9990
62	0.0341743	0.0027149	0.0005	0.9995
63	0.0314594		0.0005	1.0000

7 factors will be retained by the MINEIGEN criterion.

PRINCIPAL COMPONENTS ANALYSIS - CONCRETE DESCRIPTORS

Eigenvalues of the Correlation Matrix: Total = 83 Average = 1

	Eigenvalue	Difference	Proportion	Cumulative
1	24.7888711	11.9562704	0.2987	0.2987
2	12.8326007	4.3788762	0.1546	0.4533
3	8.4537245	5.0640216	0.1019	0.5551
4	3.3897028	0.3110973	0.0408	0.5960
5	3.0786056	0.5372917	0.0371	0.6331
6	2.5413139	0.3329455	0.0306	0.6637
7	2.2083684	0.1340163	0.0266	0.6903
8	2.0743521	0.5040416	0.0250	0.7153
9	1.5703104	0.1656620	0.0189	0.7342
10	1.4046485	0.1483498	0.0169	0.7511
11	1.2562987	0.1304834	0.0151	0.7663
12	1.1258153	0.0974224	0.0136	0.7798
13	1.0283929	0.0732203	0.0124	0.7922
14	0.9551726	0.0188877	0.0115	0.8037
15	0.9362849	0.1687725	0.0113	0.8150
16	0.7675124	0.0703182	0.0092	0.8242
17	0.6971943	0.0350590	0.0084	0.8326
18	0.6621353	0.0176018	0.0080	0.8406
19	0.6445335	0.0448776	0.0078	0.8484
20	0.5996559	0.0216683	0.0072	0.8556
21	0.5779875	0.0304861	0.0070	0.8626
22	0.5475014	0.0776752	0.0066	0.8692
23	0.4698262	0.0280196	0.0057	0.8748
24	0.4418067	0.0339586	0.0053	0.8802
25	0.4078481	0.0206280	0.0049	0.8851
26	0.3872201	0.0186298	0.0047	0.8897
27	0.3685903	0.0095656	0.0044	0.8942
28	0.3590248	0.0219050	0.0043	0.8985
29	0.3371197	0.0155189	0.0041	0.9026
30	0.3216008	0.0119152	0.0039	0.9064
31	0.3096856	0.0138428	0.0037	0.9102
32	0.2958428	0.0065209	0.0036	0.9137
33	0.2893219	0.0155099	0.0035	0.9172
34	0.2738120	0.0143172	0.0033	0.9205
35	0.2594948	0.0106725	0.0031	0.9236
36	0.2488224	0.0102568	0.0030	0.9266
37	0.2385656	0.0078988	0.0029	0.9295
38	0.2306667	0.0031016	0.0028	0.9323
39	0.2275651	0.0105010	0.0027	0.9350
40	0.2170641	0.0059867	0.0026	0.9376
41	0.2110774	0.0089289	0.0025	0.9402
42	0.2021485	0.0084721	0.0024	0.9426
43	0.1936764	0.0016618	0.0023	0.9450
44	0.1920146	0.0088341	0.0023	0.9473
45	0.1831805	0.0054675	0.0022	0.9495
46	0.1777130	0.0012791	0.0021	0.9516
47	0.1764339	0.0032250	0.0021	0.9537
48	0.1732089	0.0060911	0.0021	0.9558
49	0.1671178	0.0066788	0.0020	0.9578
50	0.1604390	0.0023705	0.0019	0.9598
51	0.1580685	0.0038043	0.0019	0.9617
52	0.1542642	0.0049501	0.0019	0.9635
53	0.1493141	0.0023151	0.0018	0.9653
54	0.1469990	0.0049241	0.0018	0.9671
55	0.1420749	0.0048567	0.0017	0.9688
56	0.1372182	0.0030980	0.0017	0.9705
57	0.1341202	0.0028777	0.0016	0.9721
58	0.1312426	0.0043584	0.0016	0.9737
59	0.1268841	0.0052893	0.0015	0.9752
60	0.1215948	0.0038408	0.0015	0.9767
61	0.1177540	0.0024500	0.0014	0.9781
62	0.1153040	0.0057821	0.0014	0.9795
63	0.1095219	0.0025465	0.0013	0.9808
64	0.1069754	0.0006578	0.0013	0.9821
65	0.1063176	0.0060179	0.0013	0.9834
66	0.1002997	0.0006027	0.0012	0.9846

67	0.0996970	0.0022573	0.0012	0.9858
68	0.0974397	0.0022080	0.0012	0.9870
69	0.0952317	0.0053223	0.0011	0.9881
70	0.0899094	0.0038457	0.0011	0.9892
71	0.0860637	0.0046878	0.0010	0.9902
72	0.0813760	0.0006249	0.0010	0.9912
73	0.0807511	0.0031594	0.0010	0.9922
74	0.0775917	0.0016111	0.0009	0.9931
75	0.0759806	0.0034309	0.0009	0.9940
76	0.0725497	0.0037706	0.0009	0.9949
77	0.0687791	0.0025607	0.0008	0.9957
78	0.0662184	0.0032823	0.0008	0.9965
79	0.0629361	0.0011602	0.0008	0.9973
80	0.0617758	0.0055804	0.0007	0.9980
81	0.0561954	0.0016277	0.0007	0.9987
82	0.0545677	0.0014547	0.0007	0.9994
83	0.0531130		0.0006	1.0000

13 factors will be retained by the MINEIGEN criterion.

FACTOR ANALYSIS OF KNOWLEDGE
VARIMAX ROTATION OF 8 FACTORS

Rotated Factor Pattern

	Factor1	Factor2	Factor3	Factor4	Factor5
KNOW3	0.79834	.	.	.	.
KNOW1	0.79084	.	.	.	.
KNOW6	0.78320	.	.	.	.
KNOW4	0.57286	.	.	.	.
KNOW14	0.53245	.	.	.	0.50956
KNOW23	0.48493	.	0.46866	0.41946	.
KNOW30	0.47635	.	0.35324	.	.
KNOW10	.	0.88341	.	.	.
KNOW11	.	0.78259	.	.	.
KNOW15	.	0.75183	.	.	.
KNOW13	.	0.72071	.	.	.
KNOW12	.	0.65256	.	.	.
KNOW7	.	0.50407	.	.	.
KNOW27	.	.	0.85237	.	.
KNOW19	.	.	0.81023	.	.
KNOW28	.	.	0.74942	.	.
KNOW25	.	.	0.37409	.	.
KNOW22	.	.	0.31664	0.80539	.
KNOW21	.	.	.	0.70631	.
KNOW18	0.47041	.	0.42340	0.64020	.
KNOW5	0.41504	.	.	0.44922	.
KNOW9	.	.	.	.	0.77353
KNOW31	.	.	.	.	0.60245
KNOW24	0.41494	.	0.52465	.	0.52664
KNOW32	0.37703	.	0.42106	.	0.48768
KNOW2	0.42023	-0.33895	.	.	0.44712
KNOW17	.	.	.	0.36479	.
KNOW16	.	.	.	.	.
KNOW8	.	.	.	.	.
KNOW33	.	.	.	.	.
KNOW29	.	0.30085	.	.	.
KNOW20	.	.	0.46258	.	.
KNOW26	.	.	.	.	.

Values less than 0.3 are not printed.

Rotated Factor Pattern

	Factor6	Factor7	Factor8
KNOW3	.	.	.
KNOW1	.	.	.
KNOW6	.	.	.
KNOW4	.	.	0.40382
KNOW14	.	.	.
KNOW23	.	.	.
KNOW30	.	0.44230	.
KNOW10	.	.	.
KNOW11	.	.	.
KNOW15	0.30570	.	.
KNOW13	.	.	.
KNOW12	.	.	.
KNOW7	.	.	.
KNOW27	.	.	.
KNOW19	.	.	.
KNOW28	.	.	.
KNOW25	.	.	.
KNOW22	.	.	.
KNOW21	0.47664	.	.
KNOW18	.	.	.
KNOW5	.	.	.
KNOW9	.	.	.
KNOW31	.	0.39576	.
KNOW24	.	.	.
KNOW32	.	.	0.33180
KNOW2	.	.	.
KNOW17	0.81596	.	.
KNOW16	0.72784	.	.
KNOW8	0.51696	.	.
KNOW33	.	0.71772	.
KNOW29	.	0.65206	.
KNOW20	.	0.62237	.
KNOW26	.	.	0.57974

Values less than 0.3 are not printed.

Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4
4.2502420	3.7976213	3.7229284	2.5701704

Factor5	Factor6	Factor7	Factor8
2.5436607	2.0251228	2.0069315	1.0340264

FACTOR ANALYSIS OF SKILLS
VARIMAX ROTATION OF 5 FACTORS

Rotated Factor Pattern

	Factor1	Factor2	Factor3	Factor4	Factor5
SKIL46	0.85668	.	.	.	.
SKIL43	0.81273	0.37248	.	.	.
SKIL44	0.79472	.	.	.	.
SKIL45	0.79117	.	.	.	.
SKIL12	0.78096	0.33894	.	.	.
SKIL14	0.76779	0.32332	.	.	.
SKIL42	0.74707	0.55283	.	.	.
SKIL39	0.73293	0.60077	.	.	.
SKIL23	0.71694	0.58111	.	.	.
SKIL38	0.71295	0.57960	.	.	.
SKIL37	0.71074	0.60887	.	.	.
SKIL40	0.70427	0.61437	.	.	.
SKIL13	0.68625	0.42421	.	0.35186	.
SKIL10	0.63860	0.62063	.	.	.
SKIL11	0.62301	0.31614	-0.31622	0.56089	.
SKIL15	0.59591	0.42496	.	0.44251	.
SKIL19	0.42484	0.80932	.	.	.
SKIL18	0.48038	0.80819	.	.	.
SKIL1	0.43103	0.79970	.	.	.
SKIL8	0.51475	0.79678	.	.	.
SKIL20	0.47799	0.79312	.	.	.
SKIL7	0.54787	0.76776	.	.	.
SKIL3	0.48564	0.73241	.	.	.
SKIL5	0.30635	0.72731	.	.	.
SKIL22	0.63167	0.70156	.	.	.
SKIL6	.	0.69415	0.43655	.	.
SKIL24	0.63218	0.69155	.	.	.
SKIL21	0.61138	0.68531	.	.	.
SKIL17	0.56722	0.67139	.	.	.
SKIL41	0.66154	0.66285	.	.	.
SKIL4	0.57704	0.59677	.	0.42312	.
SKIL2	0.51870	0.59294	.	0.45701	.
SKIL29	.	0.58192	.	.	.
SKIL9	0.57602	0.57824	.	0.32310	.
SKIL25	0.50958	0.52706	.	.	0.48374
SKIL35	.	.	0.91298	.	.
SKIL34	.	.	0.86451	.	.
SKIL31	.	.	0.84055	.	.
SKIL36	.	-0.30086	0.81168	.	.
SKIL30	.	0.39073	0.79895	.	.
SKIL28	.	.	0.78851	.	.
SKIL32	.	.	0.73874	.	.
SKIL27	.	0.33790	0.62779	.	0.36655
SKIL26	.	0.33120	0.60946	.	0.48891
SKIL33	.	.	0.58275	.	.
SKIL16	0.43032	.	.	0.67958	.

Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4	Factor5
13.803708	13.444420	6.741954	2.199900	1.294256

FACTOR ANALYSIS OF ABILITIES
VARIMAX ROTATION OF 10 FACTORS

Rotated Factor Pattern

	Factor1	Factor2	Factor3	Factor4	Factor5
ABIL8	0.92838	.	.	.	.
ABIL9	0.92188	.	.	.	.
ABIL2	0.85747	.	.	.	.
ABIL4	0.85145	-0.31744	.	.	.
ABIL15	0.81254	.	.	.	.
ABIL1	0.81094	.	.	.	.
ABIL7	0.81043	.	.	.	.
ABIL12	0.81017	.	.	.	.
ABIL5	0.80452	.	.	.	.
ABIL13	0.78284	.	.	.	.
ABIL3	0.78065	.	.	.	.
ABIL11	0.76795	.	.	.	.
ABIL6	0.75142	.	.	.	.
ABIL10	0.74131	.	0.34621	.	.
ABIL14	0.70561	.	.	.	.
ABIL52	0.64076	.	.	.	.
ABIL16	0.63856	.	.	0.32203	.
ABIL41	0.58792	.	0.42100	.	.
ABIL21	0.52532	.	.	0.38749	0.30083
ABIL20	0.51350	.	.	0.32381	0.39935
ABIL17	0.46464	.	0.40582	.	.
ABIL34	.	0.88951	.	.	.
ABIL36	.	0.88027	.	.	.
ABIL33	.	0.87331	.	.	.
ABIL35	.	0.84409	.	.	.
ABIL38	.	0.83302	.	.	.
ABIL39	.	0.83265	.	.	.
ABIL32	.	0.82051	.	.	.
ABIL40	.	0.81365	.	0.31960	.
ABIL37	.	0.79327	0.35213	.	.
ABIL31	.	0.76398	0.33609	.	.
ABIL26	.	0.70943	0.43086	.	.
ABIL24	.	.	0.88071	.	.
ABIL22	.	0.38007	0.82722	.	.
ABIL23	.	0.53584	0.75241	.	.
ABIL25	.	0.35438	0.64596	.	.
ABIL30	.	.	0.61691	.	.
ABIL43	.	.	0.60932	.	.
ABIL19	0.35846	.	0.51361	.	.
ABIL44	.	.	.	0.78973	.
ABIL47	.	0.32291	.	0.75644	.
ABIL42	0.34809	0.32905	.	0.73535	.
ABIL45	.	0.51919	.	0.70245	.
ABIL46	.	0.53758	.	0.63808	.
ABIL18	.	0.52671	.	0.62178	.
ABIL28	.	0.46343	.	0.49990	.
ABIL27	.	0.40711	.	0.48718	0.41312
ABIL29	.	0.45205	0.33435	0.46433	0.34909
ABIL48	.	.	.	.	0.76477
ABIL50	.	0.32461	.	0.42529	0.72143
ABIL49	0.33215	.	.	0.33177	0.71372
ABIL51	0.52690	.	.	.	0.30745

Values less than 0.3 are not printed.

Rotated Factor Pattern

	Factor6	Factor7	Factor8	Factor9	Factor10
ABIL8	.	.	.	.	.
ABIL9	.	.	.	.	.
ABIL2	.	.	.	.	.
ABIL4	.	.	.	.	.
ABIL15	.	.	.	.	.
ABIL1	0.33712	.	.	.	.
ABIL7	.	.	.	.	.
ABIL12	.	.	.	.	0.47732
ABIL5	.	.	.	0.41741	.
ABIL13	.	.	.	.	0.49115
ABIL3	0.38848	.	.	.	.
ABIL11	.	.	.	.	.
ABIL6	.	.	.	0.48414	.
ABIL10	.	.	.	.	.
ABIL14	.	.	0.31735	.	.
ABIL52	0.46244	.	.	.	.
ABIL16	.	.	.	.	.
ABIL41	.	.	0.34615	.	.
ABIL21	.	0.39780	.	.	.
ABIL20	.	.	.	.	.
ABIL17	.	.	0.46032	.	.
ABIL34	.	.	.	.	.
ABIL36	.	.	.	.	.
ABIL33	.	.	.	.	.
ABIL35	.	.	.	.	.
ABIL38	.	.	.	.	.
ABIL39	.	.	.	.	.
ABIL32	.	.	.	.	.
ABIL40	.	.	.	.	.
ABIL37	.	.	.	.	.
ABIL31	.	.	.	.	.
ABIL26	.	.	.	.	.
ABIL24	.	.	.	.	.
ABIL22	.	.	.	.	.
ABIL23	.	.	.	.	.
ABIL25	-0.30732	.	.	.	.
ABIL30	.	.	.	.	.
ABIL43	.	.	.	.	.
ABIL19	.	.	.	0.40029	.
ABIL44	.	.	.	.	.
ABIL47	.	.	.	.	.
ABIL42	.	.	.	.	.
ABIL45	.	.	.	.	.
ABIL46	.	.	.	.	.
ABIL18	.	.	.	.	.
ABIL28	.	0.38267	.	.	.
ABIL27	.	0.37888	.	.	.
ABIL29	.	0.41038	.	.	.
ABIL48	.	.	.	.	.
ABIL50	.	.	.	.	.
ABIL49	.	.	.	.	.
ABIL51	0.54534	.	.	.	.

Values less than 0.3 are not printed.

Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4	Factor5
12.851495	10.848550	5.465646	5.364005	2.898305

Factor6	Factor7	Factor8	Factor9	Factor10
1.384059	0.948465	0.926782	0.897087	0.629400

FACTOR ANALYSIS OF GWAS
VARIMAX ROTATION OF 6 FACTORS

Rotated Factor Pattern

	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
GWA9	0.89388	.	.	.	.	.
GWA8	0.87817	.	.	.	.	.
GWA12	0.87353	.	.	.	.	.
GWA2	0.85989	0.30566	.	.	.	.
GWA1	0.85003	0.33490	.	.	.	.
GWA10	0.82913	0.39507	.	.	.	.
GWA7	0.82488	0.30755	.	.	.	.
GWA26	0.81297	.	0.33898	.	.	.
GWA25	0.80995	.	.	.	.	.
GWA6	0.76876	0.36776	.	.	.	.
GWA19	0.74126	.	.	.	.	.
GWA39	0.72212	0.46553	0.31320	.	.	.
GWA22	0.72062	0.33873	.	.	0.36624	.
GWA27	0.70466	0.52302	.	.	.	.
GWA3	0.70331	.	.	0.41435	.	.
GWA5	0.68797	0.40888	.	.	.	.
GWA13	0.63886	0.57258	.	.	.	.
GWA15	0.63065	0.55950	.	.	.	.
GWA11	0.56465	0.35576	.	.	0.51059	.
GWA37	0.36573	0.85438	.	.	.	.
GWA35	0.35813	0.83957	.	.	.	.
GWA41	.	0.83233	.	.	.	.
GWA34	0.41127	0.79628	.	.	.	.
GWA14	0.40933	0.77563	.	.	.	.
GWA42	0.31447	0.74711	.	.	.	.
GWA38	0.36459	0.74106	.	.	.	0.31307
GWA32	.	0.65275	0.46569	.	.	.
GWA40	0.50767	0.64345	.	.	.	.
GWA36	0.47174	0.54717	0.33351	.	.	0.37502
GWA33	.	.	0.79926	.	.	.
GWA30	.	.	0.68406	.	.	.
GWA29	0.38285	0.54520	0.63385	.	.	.
GWA28	0.52934	0.35000	0.62189	.	.	.
GWA31	.	0.47619	0.56388	.	.	.
GWA23	.	.	.	0.76129	.	.
GWA4	.	.	.	0.74696	.	.
GWA18	.	.	-0.35284	0.65637	.	.
GWA24	.	.	.	0.56710	.	.
GWA16	-0.44028	.	.	0.53744	.	.
GWA17	-0.42693	.	.	0.50044	.	.
GWA20	.	.	.	0.42289	.	.
GWA21	0.40296	.	.	.	0.61467	.

Values less than 0.3 are not printed.

Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
14.035537	9.088433	3.911503	3.419200	1.360905	0.927139

FACTOR ANALYSIS OF ABSTRACT DESCRIPTORS
VARIMAX ROTATION OF 7 FACTORS

Rotated Factor Pattern

	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
GWA9	0.86393	.	.	.	.	.
GWA12	0.85143	.	.	.	.	.
GWA2	0.82192	.	.	.	.	.
AB8	0.81480	.	.	.	.	.
AB9	0.80757	.	.	.	.	.
GWA1	0.79224	0.30969	.	.	.	.
GWA10	0.78940	0.37553	.	.	.	.
SK5	0.78601	.	.	.	.	.
SK18	0.77608	.	0.37834	.	.	.
GWA26	0.75079	.	.	0.32989	.	.
SK6	0.74059	.	.	.	-0.33710	.
AB12	0.72653	.	.	.	.	.
SK8	0.72596	.	0.43722	.	.	.
SK7	0.72450	.	0.46914	.	.	.
AB4	0.71688	0.30344	.	.	0.32000	.
SK19	0.71235	.	0.35784	.	.	.
SK17	0.70945	.	0.43298	.	.	.
AB7	0.69910	.	.	.	.	0.36555
SK20	0.68801	.	0.42313	.	.	.
GWA3	0.68504	.	.	.	.	0.31670
GWA39	0.68123	0.43672	.	.	0.33380	.
SK41	0.66717	0.30621	0.53533	.	.	.
SK24	0.65586	0.31581	0.53402	.	.	.
SK22	0.65158	0.33596	0.51185	.	.	.
SK39	0.63972	0.37665	0.57362	.	.	.
SK42	0.63445	0.40806	0.53499	.	.	.
AB1	0.63259	0.31579	.	0.37712	0.37801	.
SK38	0.62729	0.35279	0.56695	.	.	.
GWA13	0.60814	0.54332	.	.	.	.
AB15	0.60729	.	.	.	.	0.47693
SK40	0.60554	0.34809	0.57898	.	.	.
GWA15	0.58252	0.50695	.	.	0.31657	.
AB3	0.56502	0.34028	.	0.43320	0.40996	.
SK10	0.54481	0.36674	0.50913	0.31221	.	.
SK2	0.49943	.	0.37700	0.47787	0.43918	.
GWA37	0.31486	0.84648	.	.	.	.
GWA35	0.31999	0.81943	.	.	.	.
GWA34	0.37298	0.78946	.	.	.	.
SK46	.	0.75441	0.40289	.	.	.
GWA38	.	0.74551	.	0.44802	.	.
GWA42	0.30366	0.67398	.	.	0.40721	.
KN1	0.43915	0.65204	0.37363	.	.	.
SK43	0.35319	0.59465	0.52830	.	.	.
GWA36	0.38224	0.58237	.	0.55121	.	.
SK12	0.34989	0.53883	0.47241	.	.	.
SK37	0.58910	0.38088	0.59282	.	.	.
KN22	.	.	.	0.77320	.	.
GWA30	.	.	.	0.76993	.	.
SK11	.	0.34592	0.40229	0.58967	0.46726	.
SK15	0.35482	0.51612	0.33161	0.55646	.	.
SK9	0.45394	0.40140	0.45990	0.49047	.	.
GWA31	.	0.39245	.	.	0.66336	.
GWA32	.	0.54076	.	.	0.64459	.
GWA29	.	0.48059	.	0.48422	0.54429	.
SK14	0.32446	0.42577	0.50243	.	0.51709	.
SK13	0.38296	0.31909	0.48470	0.36018	0.49238	.
AB27	.	.	.	.	.	0.87381
AB28	.	.	.	.	.	0.75387
AB18	.	.	.	.	.	0.73830
AB20	.	.	.	.	.	0.67606
AB6	0.48358	0.34617	.	.	.	.
GWA11	0.53149	0.37717	.	.	.	.
AB19	.	.	.	.	.	0.44017

Rotated Factor Pattern

	Factor7
GWA9	.
GWA12	.
GWA2	.
AB8	.
AB9	.
GWA1	.
GWA10	.
SK5	.
SK18	.
GWA26	.
SK6	.
AB12	.
SK8	.
SK7	.
AB4	.
SK19	.
SK17	.
AB7	.
SK20	.
GWA3	.
GWA39	.
SK41	.
SK24	.
SK22	.
SK39	.
SK42	.
AB1	.
SK38	.
GWA13	.
AB15	.
SK40	.
GWA15	.
AB3	.
SK10	.
SK2	.
GWA37	.
GWA35	.
GWA34	.
SK46	.
GWA38	.
GWA42	.
KN1	.
SK43	.
GWA36	.
SK12	.
SK37	.
KN22	.
GWA30	.
SK11	.
SK15	.
SK9	.
GWA31	.
GWA32	.
GWA29	.
SK14	.
SK13	.
AB27	.
AB28	.
AB18	.
AB20	.
AB6	0.56814
GWA11	0.54189
AB19	0.47887

Values less than 0.3 are not printed.

Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7
20.350434	10.368151	6.670289	5.248991	4.431184	3.367503	1.997003

FACTOR ANALYSIS OF ABSTRACT DESCRIPTORS
VARIMAX ROTATION OF 8 FACTORS

Rotated Factor Pattern

	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
GWA9	0.85823	.	.	.	.	.
GWA12	0.84113	.	.	.	.	.
AB8	0.81350	.	.	.	.	.
GWA2	0.81291	.	.	.	.	.
AB9	0.80357	.	.	.	.	.
SK5	0.79553	.	.	.	.	.
GWA1	0.78566	0.30727	.	.	.	.
SK18	0.77775	.	0.38428	.	.	.
GWA10	0.77342	0.35361	.	.	.	.
GWA26	0.75257	.	.	0.31501	.	.
AB12	0.74189	0.32611	.	.	.	.
SK6	0.73709	.	.	.	-0.33546	.
AB4	0.72867	0.33234	.	.	.	.
SK8	0.72005	.	0.44518	.	.	.
SK7	0.71896	.	0.47916	.	.	.
SK19	0.71656	.	0.35888	.	.	.
SK17	0.70042	.	0.44801	.	.	.
AB7	0.68781	.	.	.	.	0.35921
SK20	0.68412	.	0.42913	.	.	.
GWA39	0.67347	0.42789	.	.	0.34848	.
GWA3	0.66645	.	.	.	.	0.30302
SK41	0.65251	.	0.55282	.	.	.
AB1	0.64638	0.34630	.	0.33921	0.34743	.
SK24	0.64335	0.31603	0.54571	.	.	.
SK22	0.63630	0.33014	0.52588	.	.	.
SK39	0.62727	0.37302	0.58537	.	.	.
SK42	0.62301	0.40440	0.54590	.	.	.
SK38	0.61654	0.35315	0.57737	.	.	.
AB15	0.60953	.	.	.	.	0.48054
GWA13	0.59173	0.52101	.	.	0.30903	.
AB3	0.57961	0.37342	.	0.39277	0.37684	.
GWA15	0.56748	0.48795	.	.	0.33970	.
SK10	0.53690	0.37595	0.51548	0.30120	.	.
SK2	0.50711	.	0.37859	0.45080	0.41294	.
GWA37	0.31141	0.85531	.	.	.	.
GWA35	0.31045	0.80990	.	.	.	.
GWA34	0.36698	0.78539	.	.	.	.
SK46	.	0.76756	0.39909	.	.	.
GWA38	.	0.75756	.	0.42738	.	.
KN1	0.43595	0.65627	0.37694	.	0.30493	.
GWA42	.	0.65343	.	.	0.43604	.
SK43	0.34932	0.60930	0.52695	.	.	.
GWA36	0.38483	0.60622	.	0.52718	.	.
SK15	0.35964	0.55132	0.32447	0.52492	.	.
SK12	0.34508	0.54614	0.47547	.	.	.
SK37	0.57392	0.37723	0.60367	.	.	.
SK40	0.59059	0.34110	0.59355	.	.	.
SK13	0.37821	0.31788	0.49418	0.35032	0.48792	.
GWA30	.	.	.	0.78178	.	.
KN22	.	.	.	0.77715	.	.
SK11	.	0.35401	0.40756	0.57612	0.45961	.
SK9	0.45333	0.43068	0.45699	0.46756	.	.
GWA31	.	0.36150	.	.	0.68555	.
GWA32	.	0.51929	.	.	0.66585	.
GWA29	.	0.47923	.	0.47090	0.54847	.
SK14	0.32016	0.42250	0.50936	.	0.51547	.
AB27	.	.	.	.	.	0.87676

AB28	.	.	.	.	.	0.75057
AB18	.	.	.	.	.	0.73771
AB20	.	.	.	.	.	0.67998
GWA11	0.50981	0.34700	.	.	.	.
AB6	0.46937	0.33542	.	.	.	.
AB19	.	.	.	.	.	0.42656

Values less than 0.3 are not printed.

Rotated Factor Pattern

	Factor7	Factor8
GWA9	.	.
GWA12	.	.
AB8	.	.
GWA2	.	.
AB9	.	.
SK5	.	.
GWA1	.	.
SK18	.	.
GWA10	.	.
GWA26	.	.
AB12	.	.
SK6	.	.
AB4	.	.
SK8	.	.
SK7	.	.
SK19	.	.
SK17	.	.
AB7	.	.
SK20	.	.
GWA39	.	.
GWA3	.	-0.32770
SK41	.	.
AB1	.	.
SK24	.	.
SK22	.	.
SK39	.	.
SK42	.	.
SK38	.	.
AB15	.	.
GWA13	.	.
AB3	.	.
GWA15	.	.
SK10	.	.
SK2	.	.
GWA37	.	.
GWA35	.	.
GWA34	.	.
SK46	.	.
GWA38	.	.
KN1	.	.
GWA42	.	.
SK43	.	.
GWA36	.	.
SK15	.	.
SK12	.	.
SK37	.	.
SK40	.	.
SK13	.	.
GWA30	.	.
KN22	.	.
SK11	.	.
SK9	.	.
GWA31	.	.
GWA32	.	.
GWA29	.	.
SK14	.	.
AB27	.	.

AB28	.	.
AB18	.	.
AB20	.	.
GWA11	0.61553	.
AB6	0.57920	.
AB19	0.53880	.

Values less than 0.3 are not printed.

Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4
20.023152	10.454984	6.950832	4.926230

Factor5	Factor6	Factor7	Factor8
4.530953	3.350906	1.980380	0.980327

FACTOR ANALYSIS OF CONCRETE DESCRIPTORS
VARIMAX ROTATION OF 15 FACTORS

Rotated Factor Pattern

	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
AB36	0.89938	.	.	.	.	.
AB34	0.89731	.	.	.	.	.
AB33	0.87446	.	.	.	.	.
AB38	0.85084	.	.	.	.	.
AB35	0.84288	.	.	.	.	.
AB39	0.83997	.	.	.	.	.
AB40	0.82238	.	.	.	.	.
AB32	0.82062	.	.	.	.	.
AB31	0.81640	.	.	.	.	.
AB37	0.78549	.	0.31242	.	.	.
AB26	0.72784	.	.	.	.	.
GWA16	0.72473	.	.	.	.	.
AB45	0.59225	.	.	0.55219	.	.
AB46	0.57635	.	.	0.49685	.	.
AB23	0.56118	.	0.32676	.	.	0.55215
AB29	0.50680	.	.	0.36552	.	.
GWA14	.	0.86963	.	.	.	.
KN6	.	0.84011	.	.	.	.
GWA40	.	0.83763	.	.	.	.
GWA41	.	0.81302	.	.	.	.
SK44	.	0.81224	.	.	.	.
GWA27	.	0.79416	.	.	.	.
SK45	.	0.78536	.	.	.	.
SK4	.	0.73181	.	.	.	.
SK3	-0.36975	0.69150	.	.	.	.
KN3	.	0.67592	.	.	.	.
GWA5	.	0.67431	.	.	0.30977	.
GWA28	-0.30007	0.65337	.	.	.	.
GWA25	-0.33705	0.65309	.	.	.	.
GWA22	.	0.64836	.	.	0.31829	.
KN23	.	0.64714	.	.	.	.
AB52	.	0.64659	.	.	.	.
AB51	.	0.56502	.	.	.	.
AB14	.	0.53717	.	.	.	.
KN14	.	0.53230	.	.	0.35214	.
KN32	.	0.52215	.	.	.	.
KN2	-0.30698	0.44626	.	.	.	.
GWA17	0.45161	-0.46295	0.31570	.	.	.
SK35	.	.	0.85903	.	.	.
SK34	0.30742	.	0.85027	.	.	.
SK36	0.31734	.	0.80404	.	.	.
SK31	.	.	0.77664	.	.	.
GWA23	.	.	0.76937	.	.	.
GWA4	.	.	0.73707	.	.	.
SK28	.	.	0.73345	.	.	.
KN13	0.35475	.	0.73301	.	.	.
SK30	.	.	0.72725	.	0.30493	.
GWA24	.	.	0.69763	.	.	.
SK32	.	.	0.65512	.	.	.
GWA18	.	-0.33796	0.57747	.	.	.
AB25	0.33620	.	0.55353	.	.	0.39164
SK33	.	.	0.50786	.	0.40215	.
SK27	.	.	0.50273	.	0.45048	.
KN33	.	.	.	0.74199	.	.
GWA20	.	.	.	0.70905	.	.
AB44	0.30203	.	.	0.69088	.	.
AB47	0.40675	.	.	0.67393	.	.
KN20	.	.	.	0.63252	.	.
AB42	0.39745	.	.	0.62521	.	.
KN29	.	.	.	0.50145	.	.
KN11	.	.	.	.	0.81879	.
GWA21	.	.	.	.	0.70921	.
KN10	.	.	0.59578	.	0.62374	.
KN12	0.36026	.	.	.	0.59860	.

AB24	.	.	0.35766	.	.	0.71994
AB22	0.42327	.	.	.	.	0.66387
AB41	.	0.37428	.	.	.	0.63123
AB30	0.31563	.	.	.	.	0.62212
AB43	.	.	.	.	.	0.58464
SK29	.	0.31594	.	.	.	.
KN9	-0.30759	0.34237	.	.	.	.
GWA19	-0.35361	0.49938	.	.	.	.
KN31	.	.	.	0.32430	.	.
AB49	.	.	.	.	.	.
AB48	.	.	0.30083	.	.	.
AB50	0.37247	.	.	0.32562	.	.
KN17	.	.	.	.	.	.
KN21	.	.	.	.	.	.
KN16	.	.	.	.	.	.
KN5	.	0.39618	.	.	.	.
KN4	.	0.42849	.	.	.	.
KN7	.	.	0.32175	.	0.34827	.
KN8	.	.	.	.	.	.

Values less than 0.3 are not printed.

Rotated Factor Pattern

	Factor7	Factor8	Factor9	Factor10	Factor11	Factor12
AB36	.	.	.	.	.	.
AB34	.	.	.	.	.	.
AB33	.	.	.	.	.	.
AB38	.	.	.	.	.	.
AB35	.	.	.	.	.	.
AB39	.	.	.	.	.	.
AB40	.	.	.	.	.	.
AB32	.	.	.	.	.	.
AB31	.	.	.	.	.	.
AB37	.	.	.	.	.	.
AB26	.	.	.	.	.	.
GWA16	.	.	.	.	.	.
AB45	.	0.37018	.	.	.	.
AB46	.	.	.	.	.	.
AB23	.	.	.	.	.	.
AB29	.	0.32664	.	.	.	.
GWA14	.	.	.	.	.	.
KN6	.	.	.	.	.	.
GWA40	.	.	.	.	.	.
GWA41	.	.	.	.	.	.
SK44	.	.	.	.	.	.
GWA27	.	.	.	.	.	.
SK45	.	.	.	.	.	.
SK4	.	.	.	.	.	.
SK3	0.31163	.	.	.	.	.
KN3	.	.	.	.	.	.
GWA5	.	.	.	.	.	.
GWA28	.	.	.	.	.	.
GWA25	0.33612	.	.	.	.	.
GWA22	.	.	.	.	.	.
KN23	.	.	.	.	.	.
AB52	.	0.41555	.	.	.	.
AB51	.	0.44437	.	0.32476	.	.
AB14	.	0.32758	.	.	.	.
KN14	0.36887	.	.	.	.	.
KN32	.	.	.	.	.	.
KN2	.	.	.	.	.	.
GWA17	.	.	.	.	.	.
SK35	.	.	.	.	.	.
SK34	.	.	.	.	.	.
SK36	.	.	.	.	.	.
SK31	.	.	.	.	0.40696	.
GWA23	.	.	.	.	.	.
GWA4	.	.	.	.	.	.
SK28	.	.	.	.	.	.
KN13	.	.	.	.	.	.
SK30	.	.	.	.	.	.
GWA24	.	.	.	.	.	.
SK32	.	.	.	.	0.47019	.
GWA18	.	.	.	.	0.42241	.
AB25	.	.	.	.	0.30077	.
SK33	.	.	.	.	.	.
SK27	.	.	.	.	.	.
KN33	.	.	.	.	.	.
GWA20	.	.	.	.	.	.
AB44	.	0.32777	.	.	.	.
AB47	.	.	.	.	.	.
KN20	.	.	.	.	.	.
AB42	.	0.30303	.	.	.	.
KN29	.	.	.	.	.	.
KN11	.	.	.	.	.	.
GWA21	.	.	.	.	.	.
KN10	.	.	.	.	.	.
KN12	.	.	.	.	.	.
AB24	.	.	.	.	.	.
AB22	.	.	.	.	.	.
AB41	.	.	.	.	.	.

AB30	.	.	.	.	.	.
AB43	.	.	.	.	.	.
SK29	0.69684	.	.	.	.	.
KN9	0.65936	.	.	.	.	.
GWA19	0.65545	.	.	.	.	.
KN31	0.37737	.	.	.	.	.
AB49	.	0.76268	.	.	.	.
AB48	.	0.70389	.	.	.	.
AB50	.	0.70174	.	.	.	.
KN17	.	.	0.84576	.	.	.
KN21	.	.	0.78159	.	.	.
KN16	.	.	0.70231	.	.	.
KN5	.	.	.	0.59028	.	.
KN4	.	.	.	0.52665	.	.
KN7	.	.	.	.	0.47130	0.35895
KN8	.	.	.	.	.	0.57988

Values less than 0.3 are not printed.

Rotated Factor Pattern

	Factor13	Factor14	Factor15
AB36	.	.	.
AB34	.	.	.
AB33	.	.	.
AB38	.	.	.
AB35	.	.	.
AB39	.	.	.
AB40	.	.	.
AB32	.	.	.
AB31	.	.	.
AB37	.	.	.
AB26	.	.	.
GWA16	.	.	.
AB45	.	.	.
AB46	.	.	.
AB23	.	.	.
AB29	.	.	.
GWA14	.	.	.
KN6	.	.	.
GWA40	.	.	.
GWA41	.	.	.
SK44	.	.	.
GWA27	.	.	.
SK45	.	.	.
SK4	.	.	.
SK3	.	.	.
KN3	.	0.31595	.
GWA5	.	.	.
GWA28	.	.	.
GWA25	.	.	.
GWA22	.	.	.
KN23	.	.	.
AB52	.	.	.
AB51	.	.	.
AB14	0.45096	.	.
KN14	.	.	.
KN32	.	.	.
KN2	.	0.42793	.
GWA17	.	.	.
SK35	.	.	.
SK34	.	.	.
SK36	.	.	.
SK31	.	.	.
GWA23	.	.	.
GWA4	.	.	.
SK28	.	.	.
KN13	.	.	.
SK30	.	.	.
GWA24	.	.	.
SK32	.	.	.
GWA18	.	.	.
AB25	.	.	.
SK33	.	.	.
SK27	.	.	.
KN33	.	.	.
GWA20	.	.	.
AB44	.	.	.
AB47	.	.	.
KN20	.	.	.
AB42	.	.	.
KN29	.	.	.
KN11	.	.	.
GWA21	.	.	.
KN10	.	.	.
KN12	.	.	.
AB24	.	.	.
AB22	.	.	.
AB41	.	.	.

AB30	.	.	.
AB43	.	.	.
SK29	.	.	.
KN9	.	.	.
GWA19	.	.	.
KN31	.	.	0.34587
AB49	.	.	.
AB48	.	.	.
AB50	.	.	.
KN17	.	.	.
KN21	.	.	.
KN16	.	.	.
KN5	.	.	.
KN4	.	.	.
KN7	.	.	.
KN8	.	.	.

Values less than 0.3 are not printed.

Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4	Factor5
13.144926	13.128973	10.102682	4.738437	3.686802
Factor6	Factor7	Factor8	Factor9	Factor10
3.593404	3.261071	3.117516	2.974705	1.550973
Factor11	Factor12	Factor13	Factor14	Factor15
1.386012	1.029026	1.006873	0.997946	0.765145

Appendix B.

Comparative Assignment Analyses Results: Association Indices and Hit Rate Results for 6 Variable Set – Association Measure Combinations

MAJOR GROUP 11 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v11	v12	v15	v19	v29	v32
1	MEAN		2.801	2.501	2.336	2.188	2.752	2.321
2	STD		1.840	1.618	1.534	1.228	0.947	1.665
3	N		173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.928	0.900	0.901	0.811	0.709	0.913
5	CORR	mean13	0.828	0.822	0.825	0.735	0.583	0.804
6	CORR	mean15	0.676	0.729	0.639	0.588	0.336	0.601
7	CORR	mean17	0.546	0.623	0.608	0.554	0.291	0.486
8	CORR	mean19	0.685	0.747	0.645	0.676	0.347	0.586
9	CORR	mean21	0.754	0.759	0.715	0.589	0.563	0.794
10	CORR	mean23	0.777	0.765	0.738	0.644	0.530	0.775
11	CORR	mean25	0.754	0.816	0.676	0.607	0.461	0.743
12	CORR	mean27	0.663	0.754	0.585	0.632	0.478	0.581
13	CORR	mean29	0.611	0.670	0.553	0.602	0.445	0.577
14	CORR	mean31	0.393	0.472	0.352	0.418	0.453	0.371
15	CORR	mean33	0.459	0.544	0.422	0.484	0.511	0.393
16	CORR	mean35	0.457	0.494	0.428	0.553	0.632	0.431
17	CORR	mean37	0.445	0.491	0.471	0.551	0.585	0.441
18	CORR	mean39	0.529	0.596	0.491	0.522	0.678	0.497
19	CORR	mean41	0.669	0.678	0.707	0.550	0.614	0.670
20	CORR	mean43	0.604	0.635	0.581	0.582	0.583	0.564
21	CORR	mean45	0.284	0.382	0.233	0.548	0.328	0.160
22	CORR	mean47	-0.073	0.036	-0.035	0.130	0.128	-0.151
23	CORR	mean49	-0.012	0.098	0.057	0.142	0.133	-0.082
24	CORR	mean51	0.043	0.154	0.055	0.244	0.079	-0.064
25	CORR	mean53	0.145	0.249	0.231	0.340	0.302	0.102

MAJOR GROUP 13 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v3	v8	v13	v21	v28	v32
1	MEAN		2.404	2.505	2.417	2.609	1.807	2.190
2	STD		1.349	1.320	1.301	1.832	1.354	1.447
3	N		173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.868	0.610	0.610	0.871	0.823	0.866
5	CORR	mean13	0.835	0.778	0.726	0.907	0.905	0.912
6	CORR	mean15	0.650	0.725	0.687	0.830	0.710	0.695
7	CORR	mean17	0.530	0.734	0.701	0.717	0.565	0.550
8	CORR	mean19	0.658	0.864	0.844	0.796	0.731	0.712
9	CORR	mean21	0.745	0.599	0.574	0.728	0.853	0.766
10	CORR	mean23	0.753	0.729	0.695	0.828	0.866	0.867
11	CORR	mean25	0.743	0.659	0.663	0.773	0.815	0.766
12	CORR	mean27	0.723	0.620	0.641	0.686	0.659	0.683
13	CORR	mean29	0.566	0.763	0.817	0.662	0.732	0.657
14	CORR	mean31	0.428	0.588	0.613	0.412	0.610	0.530
15	CORR	mean33	0.503	0.618	0.597	0.473	0.580	0.555
16	CORR	mean35	0.560	0.465	0.489	0.432	0.567	0.606
17	CORR	mean37	0.423	0.479	0.515	0.446	0.434	0.453
18	CORR	mean39	0.636	0.525	0.544	0.500	0.693	0.666
19	CORR	mean41	0.819	0.645	0.550	0.710	0.861	0.843
20	CORR	mean43	0.700	0.669	0.638	0.702	0.795	0.837
21	CORR	mean45	0.288	0.474	0.502	0.312	0.235	0.274
22	CORR	mean47	-0.028	0.218	0.237	0.035	-0.032	-0.016
23	CORR	mean49	0.037	0.330	0.341	0.132	0.089	0.085
24	CORR	mean51	0.087	0.401	0.396	0.180	0.082	0.113
25	CORR	mean53	0.198	0.406	0.394	0.225	0.220	0.250

MAJOR GROUP 15 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v3	v5
1	MEAN		3.134	2.935
2	STD		1.771	1.700
3	N		173.000	173.000
4	CORR	mean11	0.648	0.605
5	CORR	mean13	0.714	0.693
6	CORR	mean15	0.936	0.928
7	CORR	mean17	0.855	0.798
8	CORR	mean19	0.770	0.771
9	CORR	mean21	0.547	0.555
10	CORR	mean23	0.605	0.619
11	CORR	mean25	0.672	0.701
12	CORR	mean27	0.605	0.663
13	CORR	mean29	0.599	0.632
14	CORR	mean31	0.409	0.476
15	CORR	mean33	0.339	0.403
16	CORR	mean35	0.325	0.368
17	CORR	mean37	0.360	0.365
18	CORR	mean39	0.381	0.442
19	CORR	mean41	0.630	0.608
20	CORR	mean43	0.606	0.652
21	CORR	mean45	0.221	0.273
22	CORR	mean47	0.102	0.133
23	CORR	mean49	0.352	0.392
24	CORR	mean51	0.303	0.361
25	CORR	mean53	0.236	0.291

MAJOR GROUP 17 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v2	v7	v12	v17	v22	v26	v35
1	MEAN		2.521	3.536	2.708	2.978	2.955	2.441	2.407
2	STD		1.468	1.798	1.440	1.674	1.514	1.333	1.404
3	N		173.000	173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.707	0.602	0.630	0.579	0.560	0.663	0.419
5	CORR	mean13	0.779	0.642	0.704	0.662	0.627	0.699	0.552
6	CORR	mean15	0.737	0.781	0.804	0.758	0.770	0.728	0.723
7	CORR	mean17	0.803	0.906	0.890	0.917	0.916	0.864	0.884
8	CORR	mean19	0.782	0.813	0.836	0.777	0.768	0.721	0.712
9	CORR	mean21	0.624	0.426	0.548	0.452	0.390	0.490	0.291
10	CORR	mean23	0.719	0.524	0.617	0.587	0.498	0.600	0.435
11	CORR	mean25	0.677	0.568	0.678	0.583	0.526	0.599	0.442
12	CORR	mean27	0.730	0.585	0.585	0.631	0.636	0.628	0.583
13	CORR	mean29	0.619	0.609	0.680	0.566	0.573	0.537	0.547
14	CORR	mean31	0.404	0.366	0.463	0.363	0.391	0.353	0.444
15	CORR	mean33	0.493	0.342	0.408	0.392	0.419	0.404	0.403
16	CORR	mean35	0.394	0.301	0.336	0.268	0.366	0.351	0.390
17	CORR	mean37	0.476	0.442	0.502	0.454	0.526	0.516	0.518
18	CORR	mean39	0.500	0.321	0.399	0.363	0.380	0.406	0.376
19	CORR	mean41	0.679	0.490	0.575	0.524	0.490	0.553	0.462
20	CORR	mean43	0.584	0.482	0.518	0.499	0.521	0.545	0.544
21	CORR	mean45	0.310	0.391	0.355	0.346	0.509	0.351	0.533
22	CORR	mean47	0.165	0.264	0.250	0.316	0.424	0.308	0.545
23	CORR	mean49	0.207	0.408	0.393	0.416	0.538	0.340	0.659
24	CORR	mean51	0.228	0.472	0.388	0.417	0.584	0.358	0.712
25	CORR	mean53	0.238	0.350	0.303	0.374	0.486	0.347	0.585

MAJOR GROUP 19 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v3	v4	v8	v9
1	MEAN		2.373	2.078	2.418	2.228
2	STD		1.685	1.574	1.651	1.540
3	N		173.000	173.000	173.000	173.000
4	CORR	mean11	0.646	0.620	0.611	0.484
5	CORR	mean13	0.760	0.752	0.706	0.630
6	CORR	mean15	0.793	0.810	0.750	0.689
7	CORR	mean17	0.746	0.782	0.723	0.661
8	CORR	mean19	0.916	0.929	0.878	0.819
9	CORR	mean21	0.611	0.579	0.507	0.435
10	CORR	mean23	0.700	0.685	0.630	0.584
11	CORR	mean25	0.747	0.708	0.640	0.561
12	CORR	mean27	0.626	0.637	0.692	0.683
13	CORR	mean29	0.724	0.747	0.743	0.709
14	CORR	mean31	0.493	0.520	0.558	0.586
15	CORR	mean33	0.440	0.449	0.546	0.640
16	CORR	mean35	0.391	0.417	0.498	0.513
17	CORR	mean37	0.408	0.475	0.514	0.513
18	CORR	mean39	0.427	0.439	0.526	0.552
19	CORR	mean41	0.618	0.610	0.564	0.502
20	CORR	mean43	0.605	0.615	0.659	0.644
21	CORR	mean45	0.400	0.449	0.562	0.646
22	CORR	mean47	0.081	0.175	0.263	0.382
23	CORR	mean49	0.230	0.334	0.382	0.470
24	CORR	mean51	0.279	0.380	0.454	0.541
25	CORR	mean53	0.239	0.305	0.420	0.528

Obs	v25	v29	v33	v36	v43
1	2.159	2.406	2.033	2.113	2.136
2	1.448	1.806	1.432	1.700	1.271
3	173.000	173.000	173.000	173.000	173.000
4	0.721	0.861	0.539	0.765	0.118
5	0.853	0.848	0.670	0.873	0.314
6	0.833	0.775	0.656	0.775	0.468
7	0.705	0.633	0.626	0.639	0.647
8	0.822	0.787	0.803	0.833	0.544
9	0.706	0.837	0.534	0.780	0.037
10	0.766	0.799	0.694	0.884	0.240
11	0.749	0.854	0.681	0.831	0.190
12	0.695	0.655	0.619	0.681	0.334
13	0.670	0.682	0.601	0.676	0.442
14	0.480	0.441	0.437	0.478	0.426
15	0.517	0.437	0.474	0.520	0.369
16	0.445	0.357	0.358	0.402	0.345
17	0.388	0.377	0.412	0.367	0.438
18	0.512	0.475	0.437	0.519	0.263
19	0.776	0.716	0.514	0.732	0.227
20	0.712	0.581	0.571	0.697	0.433
21	0.320	0.181	0.352	0.217	0.543
22	0.061	-0.113	0.186	-0.024	0.611
23	0.183	0.007	0.252	0.101	0.721
24	0.216	0.019	0.294	0.112	0.790
25	0.257	0.094	0.276	0.189	0.649

MAJOR GROUP 21 RANDOM SAMPLE CORRELATIONS

MAJOR GROUP 21 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v1	v4
1	MEAN		2.366	2.198
2	STD		1.520	1.623
3	N		173.000	173.000
4	CORR	mean11	0.816	0.769
5	CORR	mean13	0.805	0.819
6	CORR	mean15	0.625	0.638
7	CORR	mean17	0.469	0.491
8	CORR	mean19	0.658	0.692
9	CORR	mean21	0.962	0.947
10	CORR	mean23	0.786	0.851
11	CORR	mean25	0.837	0.853
12	CORR	mean27	0.653	0.627
13	CORR	mean29	0.761	0.794
14	CORR	mean31	0.605	0.678
15	CORR	mean33	0.557	0.577
16	CORR	mean35	0.470	0.499
17	CORR	mean37	0.385	0.415
18	CORR	mean39	0.630	0.668
19	CORR	mean41	0.739	0.755
20	CORR	mean43	0.622	0.670
21	CORR	mean45	0.188	0.185
22	CORR	mean47	-0.155	-0.095
23	CORR	mean49	-0.062	0.016
24	CORR	mean51	-0.059	0.007
25	CORR	mean53	0.115	0.152

MAJOR GROUP 23 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v4	v7
1	MEAN		2.545	1.637
2	STD		2.022	1.308
3	N		173.000	173.000
4	CORR	mean11	0.734	0.615
5	CORR	mean13	0.833	0.819
6	CORR	mean15	0.647	0.705
7	CORR	mean17	0.538	0.622
8	CORR	mean19	0.736	0.749
9	CORR	mean21	0.776	0.612
10	CORR	mean23	0.923	0.861
11	CORR	mean25	0.763	0.694
12	CORR	mean27	0.708	0.694
13	CORR	mean29	0.677	0.662
14	CORR	mean31	0.500	0.598
15	CORR	mean33	0.674	0.646
16	CORR	mean35	0.429	0.546
17	CORR	mean37	0.357	0.434
18	CORR	mean39	0.581	0.627
19	CORR	mean41	0.672	0.721
20	CORR	mean43	0.671	0.867
21	CORR	mean45	0.263	0.356
22	CORR	mean47	0.003	0.211
23	CORR	mean49	0.090	0.289
24	CORR	mean51	0.106	0.323
25	CORR	mean53	0.255	0.416

MAJOR GROUP 25 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v3	v16	v23	v25	v27	v32	v38	v42
1	MEAN		2.741	3.019	2.225	2.729	2.244	2.141	2.452	2.580
2	STD		1.720	1.523	1.123	1.207	1.365	1.458	1.247	1.626
3	N		173.000	173.000	173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.612	0.688	0.681	0.655	0.755	0.756	0.765	0.878
5	CORR	mean13	0.683	0.681	0.647	0.679	0.800	0.791	0.767	0.835
6	CORR	mean15	0.775	0.596	0.506	0.571	0.723	0.702	0.640	0.725
7	CORR	mean17	0.780	0.499	0.383	0.468	0.585	0.552	0.487	0.575
8	CORR	mean19	0.769	0.728	0.564	0.692	0.777	0.746	0.657	0.727
9	CORR	mean21	0.642	0.786	0.773	0.771	0.881	0.925	0.718	0.860
10	CORR	mean23	0.625	0.681	0.680	0.713	0.818	0.810	0.760	0.805
11	CORR	mean25	0.797	0.841	0.774	0.852	0.961	0.938	0.807	0.897
12	CORR	mean27	0.563	0.650	0.723	0.664	0.706	0.704	0.744	0.694
13	CORR	mean29	0.664	0.857	0.671	0.710	0.791	0.833	0.633	0.681
14	CORR	mean31	0.465	0.740	0.683	0.642	0.653	0.710	0.574	0.470
15	CORR	mean33	0.360	0.606	0.651	0.598	0.520	0.567	0.553	0.419
16	CORR	mean35	0.282	0.560	0.648	0.511	0.498	0.512	0.627	0.417
17	CORR	mean37	0.392	0.497	0.480	0.392	0.431	0.431	0.481	0.412
18	CORR	mean39	0.380	0.686	0.804	0.687	0.643	0.681	0.713	0.537
19	CORR	mean41	0.590	0.628	0.680	0.657	0.758	0.743	0.752	0.743
20	CORR	mean43	0.538	0.598	0.639	0.647	0.692	0.672	0.805	0.592
21	CORR	mean45	0.186	0.386	0.334	0.252	0.204	0.227	0.290	0.159
22	CORR	mean47	0.083	0.057	0.069	-0.011	-0.053	-0.049	0.028	-0.127
23	CORR	mean49	0.243	0.131	0.090	0.033	0.070	0.062	0.103	-0.019
24	CORR	mean51	0.228	0.185	0.109	0.080	0.082	0.077	0.139	-0.010
25	CORR	mean53	0.220	0.263	0.266	0.228	0.163	0.168	0.249	0.069

MAJOR GROUP 27 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v2	v3	v10	v25
1	MEAN		1.686	1.412	1.972	2.039
2	STD		1.141	1.042	1.328	1.336
3	N		173.000	173.000	173.000	173.000
4	CORR	mean11	0.291	0.431	0.732	0.710
5	CORR	mean13	0.358	0.556	0.732	0.635
6	CORR	mean15	0.431	0.555	0.642	0.517
7	CORR	mean17	0.552	0.559	0.655	0.436
8	CORR	mean19	0.495	0.584	0.611	0.537
9	CORR	mean21	0.244	0.451	0.669	0.634
10	CORR	mean23	0.314	0.571	0.656	0.629
11	CORR	mean25	0.360	0.528	0.637	0.677
12	CORR	mean27	0.647	0.797	0.745	0.786
13	CORR	mean29	0.410	0.587	0.560	0.520
14	CORR	mean31	0.344	0.573	0.413	0.401
15	CORR	mean33	0.267	0.522	0.389	0.471
16	CORR	mean35	0.394	0.593	0.477	0.477
17	CORR	mean37	0.436	0.475	0.426	0.417
18	CORR	mean39	0.430	0.649	0.570	0.571
19	CORR	mean41	0.416	0.578	0.762	0.565
20	CORR	mean43	0.352	0.671	0.583	0.548
21	CORR	mean45	0.351	0.405	0.216	0.294
22	CORR	mean47	0.389	0.351	0.066	0.036
23	CORR	mean49	0.441	0.427	0.127	0.064
24	CORR	mean51	0.472	0.479	0.159	0.102
25	CORR	mean53	0.241	0.412	0.155	0.223

Obs	v27	v30	v38	v42	v49
1	1.304	1.699	1.708	2.672	2.330
2	1.287	1.303	1.441	1.289	1.369
3	173.000	173.000	173.000	173.000	173.000
4	0.445	0.664	0.685	0.679	0.541
5	0.511	0.761	0.768	0.670	0.578
6	0.545	0.656	0.705	0.644	0.581
7	0.473	0.549	0.622	0.638	0.580
8	0.554	0.678	0.756	0.646	0.600
9	0.434	0.734	0.698	0.623	0.486
10	0.519	0.792	0.785	0.648	0.588
11	0.537	0.734	0.751	0.728	0.569
12	0.744	0.826	0.884	0.850	0.841
13	0.448	0.695	0.652	0.603	0.537
14	0.353	0.611	0.528	0.487	0.441
15	0.384	0.604	0.581	0.536	0.568
16	0.364	0.577	0.497	0.506	0.460
17	0.244	0.435	0.419	0.522	0.440
18	0.440	0.691	0.616	0.617	0.558
19	0.481	0.826	0.725	0.631	0.517
20	0.501	0.761	0.719	0.607	0.561
21	0.227	0.298	0.341	0.404	0.444
22	0.095	0.100	0.118	0.246	0.304
23	0.204	0.238	0.211	0.269	0.322
24	0.234	0.231	0.256	0.324	0.419
25	0.201	0.360	0.292	0.363	0.440

MAJOR GROUP 29 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v4	v9	v15	v17	v21	v25	v29	v39
1	MEAN		2.223	2.413	3.101	2.715	2.367	2.609	1.611	1.895
2	STD		1.406	1.551	1.685	1.520	1.453	1.546	1.130	1.226
3	N		173.000	173.000	173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.586	0.578	0.456	0.513	0.688	0.805	0.474	0.440
5	CORR	mean13	0.625	0.659	0.547	0.651	0.705	0.796	0.606	0.576
6	CORR	mean15	0.628	0.653	0.558	0.590	0.627	0.696	0.553	0.487
7	CORR	mean17	0.612	0.617	0.557	0.560	0.526	0.557	0.487	0.422
8	CORR	mean19	0.681	0.773	0.682	0.718	0.695	0.730	0.646	0.605
9	CORR	mean21	0.655	0.661	0.500	0.655	0.842	0.883	0.667	0.679
10	CORR	mean23	0.602	0.632	0.509	0.661	0.713	0.777	0.623	0.594
11	CORR	mean25	0.647	0.705	0.520	0.648	0.827	0.877	0.681	0.620
12	CORR	mean27	0.557	0.567	0.604	0.641	0.629	0.638	0.598	0.520
13	CORR	mean29	0.857	0.888	0.811	0.895	0.877	0.826	0.884	0.879
14	CORR	mean31	0.679	0.729	0.667	0.780	0.789	0.635	0.857	0.909
15	CORR	mean33	0.401	0.545	0.615	0.661	0.532	0.453	0.571	0.627
16	CORR	mean35	0.502	0.486	0.541	0.580	0.571	0.455	0.660	0.665
17	CORR	mean37	0.532	0.566	0.565	0.523	0.572	0.403	0.569	0.581
18	CORR	mean39	0.554	0.580	0.604	0.696	0.679	0.576	0.728	0.733
19	CORR	mean41	0.561	0.554	0.456	0.596	0.653	0.694	0.649	0.585
20	CORR	mean43	0.525	0.581	0.544	0.636	0.617	0.619	0.682	0.652
21	CORR	mean45	0.371	0.472	0.605	0.483	0.362	0.191	0.438	0.457
22	CORR	mean47	0.179	0.224	0.365	0.272	0.105	-0.128	0.254	0.243
23	CORR	mean49	0.321	0.351	0.423	0.356	0.182	0.018	0.369	0.331
24	CORR	mean51	0.361	0.397	0.489	0.391	0.206	0.018	0.403	0.363
25	CORR	mean53	0.250	0.422	0.468	0.393	0.251	0.102	0.393	0.427

MAJOR GROUP 31 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v8	v10
1	MEAN		1.584	1.487
2	STD		1.046	0.834
3	N		173.000	173.000
4	CORR	mean11	0.511	0.102
5	CORR	mean13	0.639	0.252
6	CORR	mean15	0.578	0.368
7	CORR	mean17	0.515	0.461
8	CORR	mean19	0.635	0.395
9	CORR	mean21	0.642	0.090
10	CORR	mean23	0.623	0.212
11	CORR	mean25	0.666	0.177
12	CORR	mean27	0.578	0.324
13	CORR	mean29	0.850	0.451
14	CORR	mean31	0.857	0.597
15	CORR	mean33	0.534	0.428
16	CORR	mean35	0.670	0.496
17	CORR	mean37	0.594	0.601
18	CORR	mean39	0.714	0.468
19	CORR	mean41	0.662	0.310
20	CORR	mean43	0.757	0.489
21	CORR	mean45	0.435	0.608
22	CORR	mean47	0.260	0.670
23	CORR	mean49	0.376	0.815
24	CORR	mean51	0.426	0.769
25	CORR	mean53	0.420	0.712

MAJOR GROUP 33 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v1	v3	v6	v9	v19
1	MEAN		3.332	2.609	2.245	1.404	2.968
2	STD		1.283	1.216	1.013	0.998	1.433
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.737	0.391	0.365	0.279	0.162
5	CORR	mean13	0.664	0.376	0.542	0.378	0.305
6	CORR	mean15	0.413	0.306	0.500	0.161	0.155
7	CORR	mean17	0.291	0.300	0.509	0.108	0.126
8	CORR	mean19	0.459	0.386	0.566	0.248	0.263
9	CORR	mean21	0.691	0.403	0.475	0.425	0.327
10	CORR	mean23	0.676	0.352	0.521	0.476	0.402
11	CORR	mean25	0.611	0.402	0.491	0.352	0.228
12	CORR	mean27	0.585	0.532	0.538	0.461	0.398
13	CORR	mean29	0.537	0.447	0.617	0.400	0.406
14	CORR	mean31	0.488	0.436	0.608	0.535	0.552
15	CORR	mean33	0.731	0.739	0.780	0.813	0.790
16	CORR	mean35	0.591	0.469	0.463	0.557	0.468
17	CORR	mean37	0.466	0.570	0.490	0.347	0.313
18	CORR	mean39	0.698	0.576	0.578	0.688	0.631
19	CORR	mean41	0.615	0.320	0.494	0.441	0.381
20	CORR	mean43	0.596	0.378	0.560	0.504	0.508
21	CORR	mean45	0.336	0.618	0.552	0.382	0.416
22	CORR	mean47	0.027	0.400	0.420	0.253	0.304
23	CORR	mean49	0.002	0.297	0.471	0.164	0.265
24	CORR	mean51	0.010	0.306	0.446	0.156	0.275
25	CORR	mean53	0.313	0.597	0.557	0.477	0.639

MAJOR GROUP 35 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v5	v12	v14
1	MEAN		2.170	1.038	1.082
2	STD		0.965	0.729	0.745
3	N		173.000	173.000	173.000
4	CORR	mean11	0.568	0.339	-0.093
5	CORR	mean13	0.489	0.500	-0.006
6	CORR	mean15	0.367	0.403	-0.042
7	CORR	mean17	0.344	0.356	0.034
8	CORR	mean19	0.450	0.439	0.058
9	CORR	mean21	0.408	0.405	-0.124
10	CORR	mean23	0.439	0.460	-0.016
11	CORR	mean25	0.476	0.413	-0.077
12	CORR	mean27	0.611	0.535	0.240
13	CORR	mean29	0.501	0.582	0.149
14	CORR	mean31	0.530	0.719	0.416
15	CORR	mean33	0.501	0.585	0.435
16	CORR	mean35	0.771	0.855	0.621
17	CORR	mean37	0.593	0.658	0.543
18	CORR	mean39	0.693	0.745	0.480
19	CORR	mean41	0.496	0.595	0.074
20	CORR	mean43	0.580	0.736	0.309
21	CORR	mean45	0.560	0.568	0.685
22	CORR	mean47	0.309	0.482	0.704
23	CORR	mean49	0.266	0.493	0.528
24	CORR	mean51	0.393	0.533	0.594
25	CORR	mean53	0.401	0.561	0.571

MAJOR GROUP 37 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v1	v3
1	MEAN		1.864	1.981
2	STD		1.210	1.081
3	N		173.000	173.000
4	CORR	mean11	0.867	0.869
5	CORR	mean13	0.759	0.778
6	CORR	mean15	0.580	0.621
7	CORR	mean17	0.495	0.589
8	CORR	mean19	0.588	0.647
9	CORR	mean21	0.776	0.733
10	CORR	mean23	0.709	0.686
11	CORR	mean25	0.756	0.713
12	CORR	mean27	0.599	0.626
13	CORR	mean29	0.655	0.652
14	CORR	mean31	0.534	0.490
15	CORR	mean33	0.424	0.414
16	CORR	mean35	0.593	0.589
17	CORR	mean37	0.637	0.689
18	CORR	mean39	0.627	0.600
19	CORR	mean41	0.676	0.729
20	CORR	mean43	0.620	0.614
21	CORR	mean45	0.289	0.371
22	CORR	mean47	0.005	0.088
23	CORR	mean49	0.073	0.152
24	CORR	mean51	0.082	0.165
25	CORR	mean53	0.211	0.262

MAJOR GROUP 39 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v2	v6	v7	v12	v16
1	MEAN		2.091	1.581	1.201	1.548	1.653
2	STD		1.197	1.042	0.862	0.926	1.019
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.828	0.326	-0.045	0.208	0.315
5	CORR	mean13	0.776	0.452	0.083	0.333	0.417
6	CORR	mean15	0.630	0.292	0.198	0.224	0.460
7	CORR	mean17	0.546	0.240	0.265	0.241	0.505
8	CORR	mean19	0.646	0.353	0.188	0.365	0.519
9	CORR	mean21	0.781	0.344	-0.078	0.323	0.327
10	CORR	mean23	0.730	0.445	0.067	0.371	0.405
11	CORR	mean25	0.760	0.355	0.008	0.326	0.405
12	CORR	mean27	0.742	0.523	0.380	0.441	0.741
13	CORR	mean29	0.707	0.431	0.241	0.594	0.526
14	CORR	mean31	0.621	0.552	0.387	0.675	0.548
15	CORR	mean33	0.639	0.629	0.368	0.563	0.529
16	CORR	mean35	0.685	0.733	0.440	0.624	0.585
17	CORR	mean37	0.648	0.367	0.386	0.564	0.506
18	CORR	mean39	0.762	0.737	0.407	0.655	0.648
19	CORR	mean41	0.732	0.589	0.164	0.382	0.470
20	CORR	mean43	0.716	0.689	0.374	0.493	0.528
21	CORR	mean45	0.462	0.408	0.558	0.513	0.528
22	CORR	mean47	0.151	0.301	0.646	0.425	0.484
23	CORR	mean49	0.220	0.311	0.743	0.380	0.480
24	CORR	mean51	0.235	0.359	0.747	0.437	0.572
25	CORR	mean53	0.388	0.489	0.685	0.456	0.445

MAJOR GROUP 41 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v5	v10	v19	v24
1	MEAN		1.908	2.158	2.078	1.475
2	STD		0.994	1.430	1.193	0.977
3	N		173.000	173.000	173.000	173.000
4	CORR	mean11	0.350	0.775	0.614	0.573
5	CORR	mean13	0.501	0.879	0.669	0.625
6	CORR	mean15	0.484	0.719	0.531	0.456
7	CORR	mean17	0.476	0.570	0.407	0.364
8	CORR	mean19	0.464	0.703	0.547	0.453
9	CORR	mean21	0.340	0.809	0.675	0.608
10	CORR	mean23	0.447	0.810	0.674	0.586
11	CORR	mean25	0.389	0.752	0.700	0.554
12	CORR	mean27	0.535	0.697	0.743	0.587
13	CORR	mean29	0.501	0.654	0.564	0.496
14	CORR	mean31	0.601	0.492	0.540	0.541
15	CORR	mean33	0.533	0.553	0.606	0.508
16	CORR	mean35	0.639	0.491	0.559	0.610
17	CORR	mean37	0.494	0.372	0.429	0.424
18	CORR	mean39	0.651	0.607	0.715	0.710
19	CORR	mean41	0.677	0.874	0.831	0.879
20	CORR	mean43	0.703	0.728	0.683	0.675
21	CORR	mean45	0.470	0.236	0.328	0.250
22	CORR	mean47	0.425	-0.034	0.097	0.086
23	CORR	mean49	0.611	0.073	0.114	0.154
24	CORR	mean51	0.539	0.080	0.142	0.116
25	CORR	mean53	0.529	0.202	0.331	0.270

MAJOR GROUP 43 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v6	v8	v9	v10	v12
1	MEAN		1.520	1.688	1.150	1.842	1.602
2	STD		1.112	1.128	0.978	1.345	1.179
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.670	0.562	0.376	0.650	0.734
5	CORR	mean13	0.790	0.743	0.557	0.813	0.861
6	CORR	mean15	0.588	0.640	0.610	0.704	0.743
7	CORR	mean17	0.473	0.534	0.571	0.590	0.658
8	CORR	mean19	0.605	0.633	0.581	0.695	0.743
9	CORR	mean21	0.715	0.500	0.272	0.558	0.680
10	CORR	mean23	0.805	0.694	0.465	0.759	0.808
11	CORR	mean25	0.672	0.570	0.410	0.631	0.707
12	CORR	mean27	0.659	0.607	0.463	0.638	0.764
13	CORR	mean29	0.618	0.580	0.501	0.613	0.697
14	CORR	mean31	0.596	0.587	0.499	0.561	0.609
15	CORR	mean33	0.634	0.561	0.383	0.564	0.626
16	CORR	mean35	0.588	0.651	0.522	0.603	0.624
17	CORR	mean37	0.428	0.422	0.467	0.420	0.561
18	CORR	mean39	0.703	0.638	0.443	0.611	0.684
19	CORR	mean41	0.839	0.709	0.483	0.704	0.793
20	CORR	mean43	0.830	0.915	0.749	0.896	0.866
21	CORR	mean45	0.293	0.394	0.481	0.387	0.464
22	CORR	mean47	0.077	0.239	0.417	0.188	0.234
23	CORR	mean49	0.153	0.333	0.532	0.273	0.298
24	CORR	mean51	0.157	0.401	0.621	0.348	0.361
25	CORR	mean53	0.347	0.465	0.529	0.407	0.447

Obs	v19	v20	v27	v33	v45
1	1.143	1.332	1.051	1.650	1.798
2	0.908	1.193	0.902	0.928	0.964
3	173.000	173.000	173.000	173.000	173.000
4	0.572	0.718	0.563	0.502	0.180
5	0.773	0.886	0.703	0.632	0.302
6	0.641	0.751	0.573	0.485	0.184
7	0.527	0.649	0.452	0.373	0.214
8	0.647	0.785	0.586	0.498	0.260
9	0.587	0.737	0.676	0.541	0.150
10	0.781	0.863	0.735	0.634	0.273
11	0.623	0.761	0.692	0.572	0.181
12	0.680	0.708	0.658	0.615	0.481
13	0.644	0.729	0.651	0.559	0.312
14	0.646	0.660	0.665	0.668	0.516
15	0.687	0.646	0.568	0.639	0.572
16	0.659	0.610	0.585	0.708	0.725
17	0.482	0.500	0.419	0.412	0.536
18	0.716	0.683	0.668	0.775	0.682
19	0.715	0.810	0.753	0.725	0.488
20	0.909	0.887	0.832	0.873	0.598
21	0.419	0.367	0.269	0.324	0.592
22	0.252	0.150	0.090	0.172	0.581
23	0.318	0.270	0.188	0.247	0.458
24	0.354	0.273	0.206	0.257	0.519
25	0.482	0.393	0.343	0.427	0.572

MAJOR GROUP 45 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v1	v5	v15
1	MEAN		2.255	2.341	1.331
2	STD		1.061	1.110	1.054
3	N		173.000	173.000	173.000
4	CORR	mean11	0.591	0.531	-0.148
5	CORR	mean13	0.530	0.508	-0.072
6	CORR	mean15	0.439	0.442	-0.048
7	CORR	mean17	0.453	0.491	0.029
8	CORR	mean19	0.522	0.481	0.031
9	CORR	mean21	0.444	0.426	-0.208
10	CORR	mean23	0.452	0.436	-0.083
11	CORR	mean25	0.473	0.450	-0.151
12	CORR	mean27	0.468	0.575	0.207
13	CORR	mean29	0.526	0.480	0.049
14	CORR	mean31	0.450	0.456	0.243
15	CORR	mean33	0.447	0.627	0.459
16	CORR	mean35	0.521	0.539	0.409
17	CORR	mean37	0.713	0.724	0.415
18	CORR	mean39	0.464	0.561	0.346
19	CORR	mean41	0.423	0.434	-0.009
20	CORR	mean43	0.472	0.487	0.139
21	CORR	mean45	0.698	0.748	0.694
22	CORR	mean47	0.370	0.527	0.697
23	CORR	mean49	0.386	0.448	0.533
24	CORR	mean51	0.402	0.497	0.571
25	CORR	mean53	0.513	0.658	0.579

MAJOR GROUP 47 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v9	v16	v26	v27	v35
1	MEAN		1.399	1.491	2.185	1.513	1.202
2	STD		0.986	0.876	1.138	0.860	0.931
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.020	-0.091	0.030	-0.139	-0.185
5	CORR	mean13	0.141	0.030	0.129	0.003	-0.071
6	CORR	mean15	0.264	0.120	0.320	0.096	-0.006
7	CORR	mean17	0.448	0.287	0.524	0.232	0.167
8	CORR	mean19	0.272	0.166	0.295	0.110	0.049
9	CORR	mean21	-0.059	-0.123	-0.056	-0.170	-0.246
10	CORR	mean23	0.073	-0.021	0.074	-0.043	-0.102
11	CORR	mean25	0.030	-0.023	0.099	-0.073	-0.187
12	CORR	mean27	0.355	0.307	0.281	0.246	0.184
13	CORR	mean29	0.240	0.207	0.231	0.113	0.089
14	CORR	mean31	0.315	0.373	0.282	0.287	0.282
15	CORR	mean33	0.306	0.378	0.248	0.376	0.371
16	CORR	mean35	0.393	0.474	0.297	0.384	0.398
17	CORR	mean37	0.590	0.640	0.421	0.502	0.553
18	CORR	mean39	0.317	0.368	0.241	0.313	0.309
19	CORR	mean41	0.134	0.079	0.132	0.050	-0.050
20	CORR	mean43	0.291	0.245	0.260	0.240	0.152
21	CORR	mean45	0.662	0.717	0.464	0.667	0.734
22	CORR	mean47	0.867	0.905	0.661	0.826	0.900
23	CORR	mean49	0.794	0.756	0.734	0.653	0.748
24	CORR	mean51	0.814	0.788	0.675	0.694	0.772
25	CORR	mean53	0.603	0.649	0.531	0.622	0.696

Obs	v41	v43	v49	v51	v61
1	1.166	1.509	1.111	1.196	1.062
2	0.866	1.007	0.842	0.961	0.927
3	173.000	173.000	173.000	173.000	173.000
4	-0.090	-0.272	-0.035	-0.244	-0.173
5	0.034	-0.114	0.102	-0.124	-0.070
6	0.063	-0.018	0.066	-0.077	-0.061
7	0.215	0.148	0.254	0.131	0.121
8	0.124	0.011	0.200	-0.017	0.036
9	-0.103	-0.291	-0.084	-0.280	-0.215
10	0.014	-0.134	0.087	-0.142	-0.082
11	-0.052	-0.230	-0.011	-0.222	-0.125
12	0.253	0.111	0.134	0.075	0.158
13	0.192	0.061	0.193	-0.012	0.048
14	0.432	0.311	0.346	0.147	0.243
15	0.404	0.339	0.340	0.266	0.375
16	0.515	0.372	0.379	0.190	0.366
17	0.664	0.458	0.488	0.387	0.512
18	0.419	0.272	0.281	0.158	0.289
19	0.111	-0.056	0.118	-0.102	-0.029
20	0.288	0.191	0.299	0.090	0.145
21	0.724	0.609	0.556	0.552	0.624
22	0.888	0.843	0.667	0.782	0.829
23	0.728	0.770	0.532	0.642	0.571
24	0.740	0.742	0.645	0.673	0.627
25	0.694	0.679	0.687	0.754	0.646

MAJOR GROUP 49 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v9	v13	v15	v27	v28
1	MEAN		1.471	1.895	1.331	1.343	2.310
2	STD		0.923	1.074	0.959	0.809	1.196
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.070	-0.111	-0.113	-0.022	0.008
5	CORR	mean13	0.218	0.050	0.008	0.119	0.117
6	CORR	mean15	0.250	0.282	0.125	0.217	0.245
7	CORR	mean17	0.330	0.418	0.281	0.343	0.375
8	CORR	mean19	0.254	0.246	0.143	0.232	0.239
9	CORR	mean21	0.065	-0.156	-0.162	-0.033	-0.060
10	CORR	mean23	0.213	-0.007	-0.010	0.083	0.075
11	CORR	mean25	0.107	-0.024	-0.081	0.049	0.001
12	CORR	mean27	0.327	0.230	0.161	0.347	0.314
13	CORR	mean29	0.263	0.228	0.166	0.289	0.268
14	CORR	mean31	0.418	0.308	0.330	0.443	0.401
15	CORR	mean33	0.473	0.263	0.278	0.404	0.376
16	CORR	mean35	0.405	0.286	0.346	0.494	0.454
17	CORR	mean37	0.475	0.443	0.558	0.645	0.528
18	CORR	mean39	0.429	0.183	0.254	0.425	0.397
19	CORR	mean41	0.285	0.044	0.030	0.188	0.215
20	CORR	mean43	0.405	0.258	0.228	0.337	0.340
21	CORR	mean45	0.470	0.577	0.616	0.689	0.615
22	CORR	mean47	0.551	0.732	0.803	0.853	0.715
23	CORR	mean49	0.564	0.891	0.867	0.842	0.878
24	CORR	mean51	0.483	0.831	0.757	0.795	0.765
25	CORR	mean53	0.520	0.616	0.663	0.656	0.692

Obs	v36	v38	v52	v53	v64
1	1.551	1.661	1.514	1.979	1.120
2	1.033	1.042	1.021	1.187	0.786
3	173.000	173.000	173.000	173.000	173.000
4	0.118	0.161	-0.258	-0.187	0.060
5	0.237	0.287	-0.130	-0.040	0.183
6	0.360	0.371	-0.007	0.150	0.271
7	0.467	0.531	0.171	0.305	0.353
8	0.353	0.380	0.044	0.140	0.298
9	0.073	0.104	-0.297	-0.210	0.017
10	0.195	0.221	-0.166	-0.078	0.132
11	0.133	0.162	-0.193	-0.127	0.121
12	0.308	0.361	0.130	0.169	0.434
13	0.374	0.392	0.056	0.143	0.364
14	0.443	0.478	0.219	0.256	0.430
15	0.318	0.357	0.261	0.318	0.364
16	0.417	0.477	0.314	0.255	0.550
17	0.659	0.714	0.530	0.466	0.527
18	0.352	0.409	0.197	0.192	0.451
19	0.245	0.288	-0.095	-0.044	0.218
20	0.365	0.406	0.102	0.153	0.417
21	0.613	0.646	0.685	0.612	0.644
22	0.710	0.804	0.902	0.814	0.694
23	0.897	0.880	0.777	0.844	0.684
24	0.775	0.779	0.804	0.770	0.805
25	0.650	0.635	0.651	0.633	0.588

MAJOR GROUP 51 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v6	v43	v55	v77	v83
1	MEAN		2.131	1.830	1.513	1.190	1.438
2	STD		1.183	1.024	0.928	0.943	0.925
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.129	-0.115	0.100	0.211	0.144
5	CORR	mean13	0.256	0.004	0.165	0.308	0.286
6	CORR	mean15	0.481	0.143	0.303	0.420	0.466
7	CORR	mean17	0.589	0.295	0.467	0.523	0.568
8	CORR	mean19	0.428	0.158	0.320	0.492	0.458
9	CORR	mean21	0.069	-0.219	0.041	0.117	0.031
10	CORR	mean23	0.182	-0.069	0.110	0.238	0.214
11	CORR	mean25	0.202	-0.092	0.184	0.243	0.172
12	CORR	mean27	0.438	0.214	0.304	0.508	0.466
13	CORR	mean29	0.399	0.159	0.351	0.414	0.403
14	CORR	mean31	0.436	0.295	0.430	0.379	0.431
15	CORR	mean33	0.349	0.307	0.272	0.352	0.320
16	CORR	mean35	0.406	0.395	0.405	0.394	0.459
17	CORR	mean37	0.463	0.521	0.587	0.411	0.480
18	CORR	mean39	0.363	0.243	0.334	0.379	0.396
19	CORR	mean41	0.288	0.007	0.187	0.284	0.310
20	CORR	mean43	0.418	0.246	0.329	0.410	0.483
21	CORR	mean45	0.561	0.696	0.601	0.497	0.560
22	CORR	mean47	0.622	0.830	0.716	0.483	0.624
23	CORR	mean49	0.804	0.798	0.761	0.558	0.751
24	CORR	mean51	0.762	0.862	0.792	0.687	0.828
25	CORR	mean53	0.593	0.715	0.653	0.487	0.605

Obs	v90	v123	v146	v156	v181
1	1.203	1.252	1.258	1.621	1.306
2	0.920	0.914	0.951	1.044	0.931
3	173.000	173.000	173.000	173.000	173.000
4	0.011	0.099	0.083	0.180	0.029
5	0.162	0.215	0.215	0.334	0.158
6	0.297	0.332	0.289	0.453	0.264
7	0.426	0.473	0.458	0.590	0.421
8	0.323	0.362	0.371	0.494	0.297
9	-0.078	0.036	0.032	0.139	-0.053
10	0.093	0.168	0.158	0.274	0.111
11	0.040	0.114	0.151	0.266	0.048
12	0.369	0.324	0.296	0.615	0.446
13	0.309	0.378	0.379	0.444	0.269
14	0.403	0.433	0.473	0.449	0.307
15	0.367	0.343	0.304	0.416	0.309
16	0.485	0.420	0.454	0.505	0.428
17	0.517	0.602	0.624	0.545	0.474
18	0.372	0.334	0.331	0.466	0.350
19	0.177	0.199	0.224	0.362	0.143
20	0.429	0.370	0.388	0.475	0.321
21	0.712	0.624	0.650	0.626	0.602
22	0.783	0.718	0.731	0.690	0.727
23	0.798	0.844	0.766	0.687	0.685
24	0.909	0.820	0.842	0.791	0.817
25	0.713	0.724	0.720	0.574	0.558

MAJOR GROUP 53 RANDOM SAMPLE CORRELATIONS

Obs	_TYPE_	_NAME_	v4	v7	v10	v19	v22
1	MEAN		2.724	1.326	1.874	2.224	1.738
2	STD		1.417	0.952	1.084	1.086	1.209
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.233	0.070	-0.158	0.642	-0.218
5	CORR	mean13	0.340	0.197	-0.026	0.621	-0.083
6	CORR	mean15	0.328	0.136	-0.087	0.544	-0.074
7	CORR	mean17	0.377	0.191	0.014	0.582	0.050
8	CORR	mean19	0.393	0.179	-0.008	0.599	-0.007
9	CORR	mean21	0.252	0.138	-0.192	0.564	-0.215
10	CORR	mean23	0.297	0.193	-0.029	0.571	-0.072
11	CORR	mean25	0.304	0.101	-0.168	0.570	-0.163
12	CORR	mean27	0.401	0.259	0.148	0.601	0.140
13	CORR	mean29	0.372	0.302	0.028	0.612	0.001
14	CORR	mean31	0.367	0.496	0.304	0.549	0.232
15	CORR	mean33	0.613	0.565	0.515	0.583	0.470
16	CORR	mean35	0.314	0.507	0.431	0.527	0.288
17	CORR	mean37	0.335	0.494	0.419	0.608	0.419
18	CORR	mean39	0.424	0.541	0.392	0.625	0.291
19	CORR	mean41	0.300	0.301	0.074	0.569	-0.043
20	CORR	mean43	0.415	0.432	0.307	0.609	0.184
21	CORR	mean45	0.482	0.523	0.624	0.491	0.614
22	CORR	mean47	0.363	0.539	0.683	0.279	0.752
23	CORR	mean49	0.370	0.549	0.558	0.364	0.626
24	CORR	mean51	0.402	0.502	0.569	0.383	0.581
25	CORR	mean53	0.729	0.794	0.805	0.618	0.794

Obs	v25	v33	v38	v48	v54
1	2.105	1.790	1.463	1.455	1.486
2	1.351	1.072	0.976	0.959	0.927
3	173.000	173.000	173.000	173.000	173.000
4	0.278	0.679	0.069	0.062	-0.106
5	0.380	0.732	0.175	0.185	0.059
6	0.337	0.632	0.261	0.301	0.160
7	0.403	0.638	0.360	0.426	0.335
8	0.441	0.670	0.297	0.286	0.248
9	0.270	0.603	-0.017	0.009	-0.183
10	0.370	0.693	0.120	0.137	0.010
11	0.294	0.600	0.068	0.094	-0.061
12	0.437	0.614	0.352	0.460	0.212
13	0.350	0.593	0.322	0.324	0.235
14	0.299	0.491	0.461	0.480	0.374
15	0.639	0.597	0.414	0.448	0.349
16	0.273	0.456	0.523	0.533	0.409
17	0.378	0.511	0.608	0.647	0.524
18	0.397	0.546	0.426	0.481	0.274
19	0.283	0.608	0.196	0.224	0.048
20	0.382	0.623	0.444	0.429	0.332
21	0.494	0.395	0.770	0.737	0.681
22	0.389	0.198	0.775	0.864	0.800
23	0.316	0.307	0.782	0.824	0.798
24	0.350	0.297	0.864	0.824	0.881
25	0.699	0.520	0.828	0.744	0.770

Squared Euclidian Distances – Major Group 11

	V11	V12	V15	V19	V29	V32
MEANS11	**99.455**	**92.490**	**98.390**	**160.772**	**168.121**	**106.183**
MEANS13	292.265	181.159	142.691	142.493	268.577	181.954
MEANS15	339.141	226.943	288.492	287.483	378.510	350.902
MEANS17	430.695	288.637	285.077	266.423	318.814	412.448
MEANS19	346.022	203.953	248.489	176.132	313.376	326.633
MEANS21	324.119	218.014	222.431	253.980	303.737	183.196
MEANS23	324.411	235.118	227.032	254.581	380.406	212.960
MEANS25	282.450	153.017	236.414	231.891	286.967	216.441
MEANS27	486.620	275.596	300.999	174.885	284.983	348.701
MEANS29	409.977	257.097	297.579	196.582	252.724	324.466
MEANS31	661.145	431.024	419.050	259.156	304.893	464.830
MEANS33	526.110	334.546	348.435	215.354	200.504	417.268
MEANS35	796.451	546.197	476.077	282.532	400.558	529.393
MEANS37	743.365	502.104	423.842	252.348	356.652	488.719
MEANS39	649.094	418.373	382.192	234.647	283.508	432.861
MEANS41	490.655	320.331	246.306	217.811	266.601	304.877
MEANS43	684.625	455.555	395.752	261.634	396.835	449.477
MEANS45	724.672	477.719	462.163	211.306	333.618	554.514
MEANS47	1056.768	744.418	672.764	426.041	535.413	794.276
MEANS49	930.399	645.829	581.870	381.597	438.724	719.328
MEANS51	992.793	688.016	632.756	385.209	543.284	753.206
MEANS53	835.762	565.984	488.984	296.634	383.834	604.472

Note.
This is a dissimilarity matrix.

Squared Euclidian Distances – Major Group 13

	V3	V8	V13	V21	V28	V32
MEANS11	100.261	254.544	258.531	147.046	251.767	137.474
MEANS13	**118.016**	**161.533**	**176.073**	**184.602**	**68.205**	**64.790**
MEANS15	245.971	189.147	214.851	181.754	290.755	243.876
MEANS17	284.259	154.891	175.127	280.767	360.855	315.928
MEANS19	201.606	82.979	89.243	231.132	208.287	190.024
MEANS21	180.566	282.694	286.150	308.574	119.466	166.320
MEANS23	204.117	232.843	243.471	230.829	116.787	107.279
MEANS25	160.309	210.957	203.349	242.217	172.321	164.640
MEANS27	196.349	252.053	221.213	415.757	179.485	208.688
MEANS29	240.867	136.834	101.062	342.993	191.226	213.397
MEANS31	328.960	277.411	243.171	588.207	198.655	283.729
MEANS33	251.047	204.427	199.555	479.705	236.467	251.080
MEANS35	384.289	439.212	393.944	717.838	241.952	338.502
MEANS37	387.245	390.937	345.625	661.755	269.689	358.444
MEANS39	281.150	335.052	299.180	590.191	175.724	256.302
MEANS41	159.666	253.353	272.349	404.859	87.449	134.242
MEANS43	309.409	347.920	325.084	547.450	143.864	218.546
MEANS45	376.497	325.950	289.637	645.665	329.338	382.920
MEANS47	599.229	532.064	486.480	912.293	462.104	577.246
MEANS49	517.177	411.044	377.344	779.062	416.668	498.302
MEANS51	553.378	460.475	425.104	834.104	420.392	524.332
MEANS53	436.431	382.332	355.460	724.390	337.872	411.681

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 15

	V3	V5
MEANS11	357.553	348.620
MEANS13	464.891	392.336
MEANS15	**137.378**	**100.115**
MEANS17	209.092	204.530
MEANS19	330.341	263.346
MEANS21	579.472	489.113
MEANS23	575.325	476.971
MEANS25	398.560	310.164
MEANS27	615.208	476.080
MEANS29	470.601	371.561
MEANS31	749.295	597.890
MEANS33	649.875	521.922
MEANS35	992.677	827.215
MEANS37	907.044	765.436
MEANS39	827.897	672.967
MEANS41	616.324	519.233
MEANS43	824.178	664.334
MEANS45	852.123	704.167
MEANS47	1105.414	938.922
MEANS49	834.359	687.089
MEANS51	998.527	824.395
MEANS53	906.121	748.403

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 17

	V2	V7	V12	V17	V22	V26	V35
MEANS11	212.974	494.117	256.865	365.879	334.800	227.782	406.546
MEANS13	184.880	706.581	262.469	421.123	394.149	198.811	295.511
MEANS15	196.735	396.949	150.384	249.368	210.159	189.569	201.105
MEANS17	**133.747**	**281.682**	**77.549**	**116.605**	**90.907**	**82.861**	**78.806**
MEANS19	151.343	443.319	131.530	262.041	228.867	163.671	179.620
MEANS21	293.742	860.316	372.198	577.856	564.990	348.867	499.448
MEANS23	255.836	835.975	366.253	512.576	540.659	317.127	447.512
MEANS25	225.345	625.985	234.773	403.306	394.461	247.835	362.825
MEANS27	246.829	839.118	351.886	499.309	432.421	239.246	272.147
MEANS29	248.261	619.040	227.374	416.810	355.730	254.507	265.571
MEANS31	407.256	995.895	422.497	660.643	568.507	361.283	341.634
MEANS33	305.890	821.313	362.273	527.653	440.586	290.742	312.629
MEANS35	523.909	1283.510	609.260	875.811	751.700	455.359	458.774
MEANS37	451.272	1135.545	501.104	739.398	631.801	363.372	377.288
MEANS39	400.476	1098.901	486.248	712.815	622.448	360.881	389.070
MEANS41	279.042	919.675	371.908	574.116	523.553	284.383	341.164
MEANS43	431.872	1159.161	524.106	751.076	665.060	377.389	389.113
MEANS45	444.299	1005.563	470.248	677.913	531.537	357.132	311.009
MEANS47	621.476	1306.912	652.553	864.345	733.092	481.304	405.917
MEANS49	526.826	1042.690	491.238	682.028	548.308	395.196	275.695
MEANS51	591.622	1191.282	591.146	808.769	657.207	458.384	334.832
MEANS53	505.542	1102.630	531.624	720.287	593.740	389.151	322.466

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 19

	V3	V4	V8	V9	V25	V29	V33
MEANS11	318.391	358.307	332.929	423.339	244.300	163.591	392.760
MEANS13	223.695	186.159	258.372	264.216	100.157	192.710	208.417
MEANS15	188.847	187.818	216.635	259.110	145.679	227.784	292.254
MEANS17	223.603	208.357	228.880	261.630	222.121	343.806	289.538
MEANS19	**93.015**	**77.538**	**114.820**	**136.627**	**123.607**	**219.320**	**143.632**
MEANS21	341.162	329.569	419.462	429.989	208.434	180.240	329.279
MEANS23	288.318	265.025	348.189	346.688	184.521	223.492	237.317
MEANS25	216.990	237.238	291.488	323.256	178.117	158.604	233.007
MEANS27	341.085	260.953	301.711	241.213	200.381	379.542	221.427
MEANS29	234.420	196.519	213.444	204.202	207.244	303.309	251.158
MEANS31	421.996	322.439	383.780	296.102	302.223	511.400	303.499
MEANS33	404.720	349.261	338.334	242.349	268.651	464.985	286.465
MEANS35	571.484	427.588	529.522	416.866	383.810	658.039	376.721
MEANS37	526.025	380.126	481.413	383.547	373.889	609.799	335.593
MEANS39	482.920	372.009	437.500	339.423	305.822	529.760	308.516
MEANS41	350.778	277.350	376.871	338.368	163.933	344.558	276.225
MEANS43	453.391	329.754	427.776	339.730	263.582	527.830	291.080
MEANS45	472.395	356.136	396.862	283.521	362.107	640.533	329.897
MEANS47	716.214	534.368	629.485	467.924	539.130	893.523	453.169
MEANS49	581.424	424.748	498.009	368.476	450.306	776.619	396.346
MEANS51	620.382	442.636	537.519	395.696	475.060	825.273	408.687
MEANS53	569.312	429.334	487.063	352.401	403.846	709.585	371.121

	V36	V43
MEANS11	266.364	595.032
MEANS13	128.770	375.441
MEANS15	231.767	377.339
MEANS17	336.550	229.959
MEANS19	**165.117**	**258.243**
MEANS21	197.019	604.142
MEANS23	109.372	531.335
MEANS25	166.909	486.593
MEANS27	285.712	299.121
MEANS29	275.011	287.774
MEANS31	398.254	263.127
MEANS33	363.385	273.367
MEANS35	500.120	342.492
MEANS37	486.683	288.009
MEANS39	400.783	319.280
MEANS41	254.707	361.565
MEANS43	345.048	315.504
MEANS45	517.076	218.622
MEANS47	699.700	262.028
MEANS49	608.445	164.528
MEANS51	634.928	194.427
MEANS53	545.940	202.240

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 21

	V1	V4
MEANS11	155.674	231.758
MEANS13	156.635	153.740
MEANS15	294.671	320.174
MEANS17	371.905	407.433
MEANS19	236.545	242.760
MEANS21	**37.792**	**49.404**
MEANS23	188.859	133.082
MEANS25	119.845	129.647
MEANS27	268.651	293.583
MEANS29	168.256	171.703
MEANS31	302.549	277.683
MEANS33	280.425	302.173
MEANS35	465.190	449.033
MEANS37	456.779	448.810
MEANS39	331.536	321.437
MEANS41	230.523	226.576
MEANS43	381.492	349.134
MEANS45	478.813	501.735
MEANS47	724.918	708.431
MEANS49	636.274	622.016
MEANS51	682.900	661.399
MEANS53	534.474	535.178

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 23

	V4	V7
MEANS11	329.493	436.342
MEANS13	289.563	132.927
MEANS15	414.194	336.035
MEANS17	505.465	368.461
MEANS19	338.213	228.022
MEANS21	309.814	297.257
MEANS23	**158.409**	**141.223**
MEANS25	305.773	280.072
MEANS27	471.525	163.534
MEANS29	400.439	253.133
MEANS31	619.998	196.659
MEANS33	441.759	224.143
MEANS35	800.226	215.473
MEANS37	786.711	242.852
MEANS39	632.439	180.841
MEANS41	494.657	149.007
MEANS43	628.205	92.050
MEANS45	763.632	273.834
MEANS47	1028.414	336.124
MEANS49	903.573	315.864
MEANS51	966.936	296.017
MEANS53	803.149	250.082

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 25

	V3	V16	V23	V25	V27	V32	V38	V42
MEANS11	339.012	249.328	223.174	206.345	195.902	224.395	154.670	106.357
MEANS13	353.487	381.483	177.639	244.456	125.297	139.369	151.855	186.633
MEANS15	215.278	356.564	319.744	284.402	207.883	245.866	238.843	231.951
MEANS17	204.999	379.557	328.919	286.904	268.699	324.811	283.366	324.382
MEANS19	236.389	271.252	217.498	187.275	135.575	174.027	187.496	225.246
MEANS21	376.438	290.962	141.443	200.486	81.674	53.966	193.134	149.875
MEANS23	426.325	413.487	228.043	279.700	143.981	150.702	200.989	214.202
MEANS25	**208.223**	**188.446**	**129.608**	**106.812**	**27.961**	**54.090**	**113.788**	**98.355**
MEANS27	474.094	452.752	125.067	265.101	183.238	197.803	174.751	326.565
MEANS29	319.532	202.042	147.306	172.632	121.320	116.323	187.391	258.621
MEANS31	544.887	438.105	145.255	290.399	214.075	202.822	251.589	454.867
MEANS33	511.017	372.802	130.408	218.224	241.103	249.325	206.349	410.364
MEANS35	776.082	722.848	238.983	482.537	358.756	361.053	349.370	608.565
MEANS37	678.578	677.476	250.782	462.529	347.124	359.944	349.303	563.046
MEANS39	631.338	540.897	134.656	325.599	248.081	246.481	240.516	468.405
MEANS41	470.930	480.399	149.900	284.036	164.532	180.945	180.756	306.013
MEANS43	638.547	667.427	227.301	416.955	270.029	279.506	262.628	507.518
MEANS45	682.390	609.741	250.336	424.128	381.805	398.830	348.506	594.380
MEANS47	879.249	924.443	416.110	658.412	565.991	583.582	550.217	851.548
MEANS49	700.092	769.524	367.826	553.507	476.739	506.003	459.229	730.455
MEANS51	804.749	863.614	401.656	623.214	513.402	531.853	508.598	796.076
MEANS53	710.810	713.108	291.177	474.417	418.241	438.151	392.717	668.362

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 27

	V2	V3	V10	V25	V27	V30	V38
MEANS11	576.048	591.131	261.938	261.370	679.880	383.018	386.268
MEANS13	340.260	277.911	154.902	210.363	368.324	156.338	170.896
MEANS15	470.625	481.832	298.113	372.399	560.182	350.013	330.749
MEANS17	363.550	444.104	263.907	380.503	576.458	390.115	372.725
MEANS19	325.761	344.744	247.989	284.651	434.469	252.959	226.909
MEANS21	474.795	400.913	222.954	243.370	485.618	208.441	247.391
MEANS23	474.858	360.851	255.535	273.657	447.100	180.628	191.850
MEANS25	427.449	404.513	251.512	219.513	475.975	240.241	245.042
MEANS27	**142.651**	**108.538**	**137.323**	**124.386**	**186.470**	**103.381**	**105.797**
MEANS29	329.984	306.162	254.456	271.056	452.932	221.850	271.687
MEANS31	240.667	168.134	273.633	284.891	326.679	186.940	261.977
MEANS33	313.537	261.985	291.603	255.828	406.509	228.701	276.681
MEANS35	209.274	121.402	287.326	303.586	255.961	209.573	283.777
MEANS37	190.804	153.752	282.469	298.442	301.474	243.243	299.998
MEANS39	190.945	120.663	219.998	229.804	257.875	158.665	227.032
MEANS41	234.112	181.727	130.445	224.709	292.342	97.853	173.158
MEANS43	237.295	107.072	243.228	271.246	225.622	135.076	188.052
MEANS45	218.254	197.367	331.491	313.265	344.350	288.741	327.253
MEANS47	223.597	195.977	440.761	468.352	363.505	378.898	433.633
MEANS49	206.403	202.595	400.016	435.586	370.169	333.544	400.352
MEANS51	197.043	160.829	406.013	443.561	317.217	332.535	379.320
MEANS53	248.274	181.851	362.498	350.631	334.593	267.057	344.339

	V42	V49
MEANS11	200.913	324.991
MEANS13	248.123	263.505
MEANS15	244.409	300.221
MEANS17	206.270	264.217
MEANS19	216.638	239.173
MEANS21	287.749	350.545
MEANS23	316.014	319.161
MEANS25	177.195	273.166
MEANS27	**191.326**	**138.026**
MEANS29	231.498	259.883
MEANS31	352.422	316.081
MEANS33	252.763	224.730
MEANS35	484.174	397.971
MEANS37	427.919	367.764
MEANS39	348.958	295.793
MEANS41	295.437	290.082
MEANS43	427.563	347.390
MEANS45	385.725	314.406
MEANS47	577.644	459.736
MEANS49	474.983	389.519
MEANS51	544.015	411.898
MEANS53	439.721	342.228

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 29

	V4	V9	V15	V17	V21	V25	V29	V39
MEANS11	317.691	331.992	483.624	358.662	236.992	150.214	500.565	445.804
MEANS13	235.424	264.309	549.053	315.460	207.747	202.982	227.731	227.835
MEANS15	282.541	276.547	445.227	324.275	280.161	241.388	421.168	399.040
MEANS17	263.077	277.831	404.959	307.663	314.648	313.317	417.976	390.850
MEANS19	200.289	167.743	363.059	221.490	198.188	206.930	267.877	243.986
MEANS21	238.623	272.258	579.770	312.686	120.267	126.578	250.477	211.486
MEANS23	306.982	324.555	626.975	346.515	239.679	233.258	296.295	291.000
MEANS25	233.829	218.681	483.965	272.269	118.030	104.307	276.351	258.029
MEANS27	257.036	328.533	566.645	353.326	259.110	334.434	164.094	201.893
MEANS29	**91.738**	**98.602**	**289.090**	**117.791**	**87.097**	**150.646**	**131.553**	**86.760**
MEANS31	211.518	264.723	562.951	309.376	200.607	353.193	67.737	55.878
MEANS33	305.637	300.134	451.575	274.028	268.837	365.199	216.654	174.847
MEANS35	366.429	488.004	845.256	562.604	404.685	570.891	131.488	187.583
MEANS37	324.029	417.781	763.937	528.048	364.750	540.589	149.573	192.577
MEANS39	287.785	373.584	676.300	411.492	290.516	429.847	106.088	133.900
MEANS41	264.333	345.193	667.845	388.911	255.911	315.546	147.205	182.974
MEANS43	343.876	425.472	799.976	503.668	361.754	476.742	121.252	178.880
MEANS45	335.628	390.738	624.909	456.580	383.373	549.515	192.802	212.856
MEANS47	490.890	596.828	915.232	681.878	584.230	817.340	256.396	324.582
MEANS49	383.331	468.116	739.492	542.132	492.417	677.812	230.176	276.302
MEANS51	417.158	517.972	847.547	625.542	540.654	751.438	210.530	282.934
MEANS53	400.301	440.752	743.604	534.265	452.009	622.169	200.817	229.390

Note.
This is a dissimilarity matrix

Squared Euclidian Distance – Major Group 31

	V8	V10
MEANS11	480.106	666.800
MEANS13	207.469	353.481
MEANS15	408.738	525.087
MEANS17	400.675	434.871
MEANS19	271.704	375.523
MEANS21	264.446	509.018
MEANS23	297.680	501.647
MEANS25	285.958	499.433
MEANS27	157.639	206.277
MEANS29	150.334	310.614
MEANS31	**60.125**	**121.039**
MEANS33	217.684	234.158
MEANS35	108.547	101.536
MEANS37	122.555	82.733
MEANS39	93.953	117.596
MEANS41	132.084	220.933
MEANS43	82.568	123.852
MEANS45	173.314	99.754
MEANS47	227.287	76.400
MEANS49	206.846	56.644
MEANS51	180.260	54.108
MEANS53	171.247	67.576

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 33

	V1	V3	V6	V9	V19
MEANS11	234.707	362.948	369.235	661.365	590.519
MEANS13	466.216	378.043	214.645	350.794	576.795
MEANS15	504.290	443.191	308.567	681.966	651.962
MEANS17	498.930	374.227	248.757	640.628	580.871
MEANS19	470.583	335.965	201.941	488.486	530.528
MEANS21	437.782	398.732	291.270	410.222	586.809
MEANS23	507.722	490.511	314.971	411.762	598.107
MEANS25	388.678	347.895	260.139	483.721	572.471
MEANS27	552.021	284.785	171.043	210.924	519.778
MEANS29	426.209	284.904	157.536	377.232	430.432
MEANS31	618.607	332.167	152.991	172.872	472.391
MEANS33	**359.692**	**146.351**	**72.074**	**165.179**	**247.437**
MEANS35	818.668	444.532	263.002	120.325	690.727
MEANS37	775.663	367.435	225.085	173.842	678.611
MEANS39	623.732	319.548	175.812	103.576	506.260
MEANS41	565.430	390.221	201.505	222.731	553.623
MEANS43	777.681	464.248	235.910	148.746	647.720
MEANS45	685.222	276.284	165.984	193.423	540.198
MEANS47	1012.516	472.932	285.608	211.582	755.098
MEANS49	872.067	418.742	215.802	274.433	645.618
MEANS51	1010.507	498.984	275.062	241.122	759.159
MEANS53	761.610	321.234	187.188	155.195	512.629

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 35

	V5	V12	V14
MEANS11	280.143	782.909	914.282
MEANS13	227.491	382.444	529.751
MEANS15	378.037	698.830	846.054
MEANS17	322.314	665.121	748.892
MEANS19	249.614	518.803	623.089
MEANS21	316.276	511.551	688.842
MEANS23	351.054	514.874	689.482
MEANS25	265.794	573.791	723.494
MEANS27	132.338	237.368	295.391
MEANS29	199.484	422.948	532.373
MEANS31	158.319	172.561	229.430
MEANS33	150.798	327.512	346.535
MEANS35	**163.711**	**50.047**	**85.242**
MEANS37	173.669	103.393	117.790
MEANS39	125.388	116.582	156.785
MEANS41	183.236	223.604	343.941
MEANS43	202.656	91.807	178.386
MEANS45	143.492	175.678	144.125
MEANS47	284.016	130.334	81.295
MEANS49	254.000	196.582	180.405
MEANS51	259.159	124.214	107.432
MEANS53	201.617	147.208	137.971

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 37

	V1	V3
MEANS11	202.531	172.893
MEANS13	131.732	108.517
MEANS15	345.780	286.241
MEANS17	355.815	262.129
MEANS19	255.257	192.743
MEANS21	155.158	166.974
MEANS23	217.109	221.882
MEANS25	185.645	182.772
MEANS27	167.948	133.702
MEANS29	197.465	166.594
MEANS31	189.155	177.212
MEANS33	251.208	210.206
MEANS35	198.006	186.045
MEANS37	**168.781**	**139.261**
MEANS39	159.275	145.059
MEANS41	141.780	104.210
MEANS43	182.207	174.348
MEANS45	258.734	200.720
MEANS47	393.156	338.173
MEANS49	365.252	299.820
MEANS51	368.057	314.548
MEANS53	288.742	241.476

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 39

	V2	V6	V7	V12	V16
MEANS11	168.539	573.723	867.596	617.625	547.444
MEANS13	115.669	291.504	491.629	327.450	292.041
MEANS15	271.051	561.510	718.635	581.916	447.043
MEANS17	279.615	527.087	633.067	511.136	378.831
MEANS19	194.871	399.326	554.655	382.008	303.491
MEANS21	138.218	417.095	667.238	413.635	407.706
MEANS23	195.135	397.196	645.711	428.142	405.011
MEANS25	150.669	436.321	675.161	437.826	389.497
MEANS27	118.193	175.588	250.285	182.696	94.537
MEANS29	146.162	323.904	479.002	252.890	264.482
MEANS31	166.695	155.552	226.279	104.154	147.267
MEANS33	150.794	186.956	337.947	196.473	200.750
MEANS35	213.368	92.871	124.988	94.064	127.560
MEANS37	196.341	177.529	150.473	104.949	139.845
MEANS39	**139.820**	**87.457**	**168.472**	**89.053**	**104.036**
MEANS41	126.973	157.750	318.293	209.603	189.393
MEANS43	185.104	102.706	170.112	138.092	149.980
MEANS45	217.009	179.835	157.646	130.149	138.674
MEANS47	383.456	214.430	93.192	151.464	161.732
MEANS49	327.212	227.071	113.304	180.826	165.860
MEANS51	354.004	198.820	71.168	149.400	136.716
MEANS53	255.388	152.256	107.152	135.896	157.376

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 41

Proximity Matrix

	V5	V10	V19	V24
MEANS11	445.311	204.206	294.339	487.852
MEANS13	227.839	82.025	169.953	228.369
MEANS15	366.507	227.583	333.200	502.879
MEANS17	318.776	303.483	354.269	496.603
MEANS19	274.746	194.365	246.557	374.495
MEANS21	363.802	133.842	200.050	302.122
MEANS23	353.058	149.567	230.907	336.755
MEANS25	339.941	173.759	184.727	365.689
MEANS27	146.595	194.595	116.305	156.893
MEANS29	226.369	212.668	214.164	315.150
MEANS31	122.780	290.425	193.630	157.927
MEANS33	159.455	246.483	162.919	238.019
MEANS35	142.084	361.662	243.439	104.340
MEANS37	157.764	372.209	254.171	147.861
MEANS39	107.672	266.170	150.716	88.652
MEANS41	**109.447**	**112.269**	**85.284**	**63.581**
MEANS43	121.364	251.660	192.935	95.212
MEANS45	148.435	385.168	255.247	212.618
MEANS47	203.994	567.452	396.548	251.088
MEANS49	126.828	490.604	362.675	264.344
MEANS51	171.155	521.390	380.588	245.484
MEANS53	141.308	416.268	269.421	196.672

Note.
This is a dissimilarity matrix.

Squared Euclidian Distances – Major Group 43

	V6	V8	V9	V10	V12	V19	V20	V27
MEANS11	428.464	424.861	735.666	352.302	365.147	644.115	489.724	698.440
MEANS13	153.049	150.489	340.673	117.901	107.072	252.928	149.869	310.524
MEANS15	429.687	347.932	561.844	285.452	315.853	550.428	409.355	626.636
MEANS17	453.203	369.887	549.354	335.093	341.756	565.230	451.403	641.624
MEANS19	310.335	255.423	435.718	221.645	226.700	407.793	287.715	471.102
MEANS21	241.702	329.179	557.527	309.503	248.400	406.680	280.254	400.864
MEANS23	203.411	242.095	485.706	190.726	184.266	329.479	205.883	383.555
MEANS25	305.337	314.708	550.403	279.075	268.879	455.015	325.221	466.855
MEANS27	149.181	154.143	259.730	185.532	113.563	187.299	176.501	218.121
MEANS29	271.078	250.414	423.309	247.693	223.779	365.952	287.042	401.070
MEANS31	160.767	154.252	228.011	215.927	163.410	177.263	181.591	194.909
MEANS33	210.783	205.606	374.372	236.475	209.111	276.418	271.746	344.264
MEANS35	140.796	139.462	135.971	232.629	152.865	94.001	155.928	118.674
MEANS37	181.249	190.900	164.422	274.058	164.615	147.206	192.801	173.752
MEANS39	112.624	129.818	193.893	201.646	129.934	119.340	153.292	147.767
MEANS41	81.641	118.894	254.372	157.193	99.515	173.510	129.537	185.551
MEANS43	**67.476**	**49.446**	**92.974**	**106.624**	**67.780**	**44.192**	**63.844**	**76.256**
MEANS45	235.866	201.553	207.623	273.960	199.688	209.417	262.650	264.661
MEANS47	300.188	266.272	175.117	381.337	278.314	201.996	306.792	251.415
MEANS49	303.456	240.384	196.410	337.987	270.066	246.077	308.028	300.468
MEANS51	277.820	216.254	122.881	321.347	237.994	180.535	269.024	227.562
MEANS53	211.572	179.702	170.887	271.923	199.530	169.770	237.680	218.319

	V33	V45
MEANS11	448.478	551.140
MEANS13	192.847	314.165
MEANS15	426.831	536.469
MEANS17	423.673	452.859
MEANS19	302.754	374.544
MEANS21	295.507	460.288
MEANS23	280.788	448.606
MEANS25	305.064	448.113
MEANS27	122.150	159.201
MEANS29	241.726	310.695
MEANS31	98.461	141.622
MEANS33	154.240	155.191
MEANS35	83.088	100.907
MEANS37	140.647	129.927
MEANS39	59.250	88.465
MEANS41	93.609	167.575
MEANS43	**40.555**	**132.645**
MEANS45	169.231	109.040
MEANS47	222.661	139.759
MEANS49	215.241	162.435
MEANS51	201.996	155.395
MEANS53	141.399	117.082

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 45

	V1	V5	V15
MEANS11	261.052	285.852	923.406
MEANS13	226.609	251.485	582.530
MEANS15	345.779	344.547	838.205
MEANS17	280.183	262.027	724.520
MEANS19	227.431	253.143	625.435
MEANS21	313.378	335.142	765.246
MEANS23	358.679	381.367	750.227
MEANS25	274.573	291.745	764.895
MEANS27	204.637	190.857	319.806
MEANS29	201.074	229.514	558.031
MEANS31	213.439	237.059	287.713
MEANS33	188.011	140.691	307.830
MEANS35	264.104	298.228	169.597
MEANS37	183.393	213.225	176.537
MEANS39	217.708	222.460	209.828
MEANS41	237.653	258.345	406.630
MEANS43	274.888	306.112	274.684
MEANS45	**138.374**	**149.442**	**133.793**
MEANS47	314.704	306.240	100.375
MEANS49	255.476	264.504	180.673
MEANS51	302.096	311.171	138.457
MEANS53	211.600	201.768	147.914

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 47

	V9	V16	V26	V27	V35	V41	V43	V49
MEANS11	783.588	756.195	586.819	761.660	952.624	906.092	884.752	905.187
MEANS13	450.265	443.859	430.081	444.785	571.549	521.301	543.205	507.561
MEANS15	628.995	638.409	434.043	637.405	829.331	795.187	737.295	813.729
MEANS17	491.551	503.999	266.983	513.935	685.523	669.455	584.667	677.489
MEANS19	476.711	465.943	353.871	476.839	625.403	593.335	561.283	582.745
MEANS21	643.710	610.274	603.634	618.982	767.326	690.930	739.286	694.103
MEANS23	624.527	617.377	596.111	618.029	748.183	682.255	718.459	660.165
MEANS25	629.985	588.047	487.689	596.147	779.361	714.573	722.561	714.671
MEANS27	242.465	218.427	281.437	228.785	320.121	294.089	307.845	334.438
MEANS29	439.318	398.794	349.046	421.654	549.038	510.026	483.814	526.163
MEANS31	236.571	184.385	280.011	201.153	268.655	223.071	228.891	253.936
MEANS33	321.747	253.673	276.223	246.148	349.923	340.947	288.647	373.601
MEANS35	154.400	113.770	322.828	128.848	148.188	113.876	165.644	141.036
MEANS37	114.529	81.131	261.485	106.163	128.581	98.905	146.397	138.118
MEANS39	191.380	146.394	287.120	153.170	205.040	172.844	199.420	206.937
MEANS41	323.441	296.927	358.717	298.329	402.841	342.709	379.581	347.956
MEANS43	207.664	192.192	345.836	189.790	243.716	196.020	241.096	194.608
MEANS45	120.482	80.702	211.301	87.790	126.966	128.661	125.146	174.490
MEANS47	**42.100**	**24.742**	**225.868**	**43.034**	**37.184**	**39.024**	**52.068**	**94.334**
MEANS49	80.956	74.062	141.856	98.556	117.256	123.888	80.624	183.969
MEANS51	56.748	53.033	217.080	74.477	71.680	76.404	79.688	102.413
MEANS53	121.328	86.054	211.764	88.688	113.652	111.476	98.228	119.868

	V51	V61
MEANS11	995.730	1021.739
MEANS13	606.152	614.550
MEANS15	877.089	921.514
MEANS17	711.525	773.346
MEANS19	664.628	688.501
MEANS21	798.959	801.131
MEANS23	782.341	782.894
MEANS25	809.813	812.047
MEANS27	362.805	363.707
MEANS29	598.792	619.402
MEANS31	316.331	312.327
MEANS33	389.903	399.115
MEANS35	201.206	168.060
MEANS37	172.854	157.003
MEANS39	249.228	235.246
MEANS41	431.396	429.517
MEANS43	270.064	261.419
MEANS45	177.217	183.960
MEANS47	**71.159**	**69.022**
MEANS49	152.476	195.576
MEANS51	101.951	123.693
MEANS53	105.098	150.404

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 49

	V9	V13	V15	V27	V28	V36	V38	V52
MEANS11	709.980	701.556	867.575	772.520	603.058	687.007	626.639	882.698
MEANS13	387.121	447.507	513.921	427.265	464.632	390.614	353.360	555.051
MEANS15	596.411	488.683	718.631	639.579	481.363	533.802	494.659	734.741
MEANS17	502.775	360.623	586.763	532.203	341.293	432.546	367.744	576.581
MEANS19	447.955	390.705	547.287	475.705	394.536	405.711	367.434	550.083
MEANS21	547.226	641.440	700.714	588.854	634.791	558.730	524.881	747.948
MEANS23	521.135	624.259	675.747	585.761	623.515	539.953	509.402	740.985
MEANS25	554.037	561.121	694.697	590.323	556.505	549.127	508.474	710.203
MEANS27	225.481	264.593	307.129	219.451	302.526	247.112	221.298	305.609
MEANS29	394.674	356.580	482.770	403.306	347.411	353.430	321.746	489.206
MEANS31	183.687	231.025	236.827	176.375	273.636	190.427	173.075	260.217
MEANS33	240.011	266.449	342.863	274.874	249.807	292.333	259.808	315.520
MEANS35	137.108	243.102	159.328	97.904	335.047	163.860	158.989	183.138
MEANS37	124.681	188.121	120.689	77.239	279.189	104.009	94.626	132.539
MEANS39	144.108	245.466	206.740	135.082	285.793	184.687	169.605	221.958
MEANS41	248.057	349.613	360.689	271.241	363.311	279.562	257.668	397.685
MEANS43	160.324	270.374	221.120	159.020	369.744	197.467	192.267	271.664
MEANS45	147.014	137.266	137.070	97.878	201.853	125.593	112.136	107.562
MEANS47	116.816	130.408	57.876	33.902	256.523	94.688	75.988	37.290
MEANS49	**133.496**	**47.238**	**65.188**	**63.956**	**122.322**	**40.764**	**42.864**	**79.490**
MEANS51	135.272	98.092	70.836	48.005	234.297	75.311	81.778	64.418
MEANS53	124.148	134.136	108.712	88.366	203.770	108.661	112.539	107.724

	V53	V64
MEANS11	773.660	847.950
MEANS13	531.309	464.389
MEANS15	579.735	714.023
MEANS17	424.625	629.669
MEANS19	465.443	534.979
MEANS21	719.126	633.914
MEANS23	710.143	625.175
MEANS25	650.119	647.003
MEANS27	324.805	244.857
MEANS29	420.490	458.208
MEANS31	286.557	222.231
MEANS33	273.729	354.862
MEANS35	303.158	98.754
MEANS37	225.501	120.501
MEANS39	289.282	160.698
MEANS41	430.051	305.759
MEANS43	355.404	155.978
MEANS45	158.585	147.050
MEANS47	139.840	82.012
MEANS49	**84.010**	**138.978**
MEANS51	150.336	60.693
MEANS53	163.512	132.122

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 51

	V6	V43	V55	V77	V83	V90	V123	V146
MEANS11	557.720	701.617	680.563	784.663	691.724	860.892	795.865	810.375
MEANS13	379.054	454.967	401.061	426.326	367.573	475.585	439.168	446.122
MEANS15	354.016	564.935	557.343	634.139	507.031	683.443	644.324	667.908
MEANS17	248.561	422.873	432.179	547.101	419.207	578.099	535.668	543.481
MEANS19	301.045	427.335	410.335	453.275	376.683	512.759	477.647	478.059
MEANS21	549.950	657.338	549.986	609.080	570.942	686.698	617.820	628.721
MEANS23	542.124	644.677	564.455	584.976	527.723	648.195	595.361	607.205
MEANS25	451.122	586.371	509.337	602.275	536.997	678.261	625.691	617.102
MEANS27	231.915	255.693	227.561	230.435	190.485	263.597	264.269	279.420
MEANS29	286.223	380.682	351.714	435.777	353.306	465.550	421.491	425.509
MEANS31	232.884	220.683	176.423	246.915	184.471	232.407	212.939	207.528
MEANS33	253.934	245.663	288.915	362.282	292.775	348.663	337.985	355.659
MEANS35	294.123	192.784	139.428	152.821	125.896	127.524	136.542	137.161
MEANS37	251.737	149.339	100.677	164.077	125.109	134.433	109.563	110.691
MEANS39	257.897	210.546	164.236	193.910	154.620	188.140	187.528	196.279
MEANS41	305.914	344.323	275.009	303.162	245.109	328.345	309.598	309.571
MEANS43	293.007	250.804	182.104	177.604	140.096	166.700	176.959	179.255
MEANS45	187.456	93.575	112.846	188.216	129.738	130.558	140.889	139.521
MEANS47	234.619	84.892	76.640	146.934	98.356	65.828	78.113	79.090
MEANS49	115.969	68.834	75.004	175.472	83.912	102.120	80.437	104.770
MEANS51	**184.489**	**73.255**	**57.163**	**96.281**	**46.576**	**35.347**	**53.864**	**51.077**
MEANS53	195.497	93.476	91.612	167.625	107.040	108.080	97.386	102.563

	V156	V181
MEANS11	632.324	805.207
MEANS13	338.601	451.285
MEANS15	463.563	655.759
MEANS17	354.051	534.531
MEANS19	326.047	486.491
MEANS21	515.022	647.066
MEANS23	486.551	612.747
MEANS25	469.129	638.017
MEANS27	141.809	220.937
MEANS29	309.398	445.570
MEANS31	185.287	241.163
MEANS33	248.687	334.639
MEANS35	149.760	136.032
MEANS37	134.989	135.649
MEANS39	156.036	180.600
MEANS41	234.665	320.689
MEANS43	169.372	190.112
MEANS45	119.870	139.394
MEANS47	105.836	75.240
MEANS49	105.784	118.708
MEANS51	**75.804**	**53.300**
MEANS53	129.320	132.100

Note.
This is a dissimilarity matrix

Squared Euclidian Distances – Major Group 53

	V4	V7	V10	V19	V22	V25	V33	V38
MEANS11	522.171	783.277	735.976	241.536	872.195	529.094	324.623	729.546
MEANS13	483.181	435.433	487.639	185.797	579.788	361.754	140.817	419.302
MEANS15	492.715	713.574	699.281	293.867	779.750	488.692	321.757	604.571
MEANS17	394.915	625.049	559.809	226.363	625.719	392.560	283.630	502.591
MEANS19	402.077	532.255	515.586	195.851	590.369	337.863	211.393	443.601
MEANS21	575.314	559.178	666.774	252.574	758.256	484.835	253.081	603.784
MEANS23	608.741	570.927	642.092	290.827	733.773	462.350	230.380	582.606
MEANS25	476.953	613.443	640.362	231.057	723.936	453.406	270.835	588.531
MEANS27	431.185	276.608	295.358	160.881	346.188	280.135	136.133	230.645
MEANS29	397.280	431.082	448.185	168.390	531.976	360.736	217.060	385.835
MEANS31	459.571	188.398	234.613	182.403	299.690	337.372	170.846	182.631
MEANS33	265.763	257.102	186.124	147.043	250.351	187.063	166.283	269.563
MEANS35	613.566	122.832	206.699	259.968	265.255	386.597	185.473	123.263
MEANS37	554.413	133.802	194.440	207.913	219.341	328.488	159.501	105.721
MEANS39	474.080	138.348	191.700	175.316	253.025	300.971	143.672	157.307
MEANS41	501.781	271.739	341.589	185.397	437.922	362.894	144.018	290.839
MEANS43	565.058	162.970	254.972	229.312	320.871	354.471	142.859	160.600
MEANS45	420.112	158.971	125.746	195.854	157.029	256.610	184.300	83.909
MEANS47	605.714	126.291	143.336	339.772	128.387	359.348	272.106	65.918
MEANS49	497.936	158.163	157.562	263.272	156.009	346.254	234.396	77.321
MEANS51	583.682	137.754	175.400	305.672	183.958	371.043	242.618	41.711
MEANS53	**374.262**	**76.271**	**82.448**	**182.240**	**102.574**	**202.661**	**153.118**	**58.575**

	V48	V54
MEANS11	730.728	783.560
MEANS13	412.577	448.385
MEANS15	584.103	634.367
MEANS17	474.903	496.011
MEANS19	447.091	446.847
MEANS21	587.830	657.526
MEANS23	570.763	619.595
MEANS25	574.433	622.457
MEANS27	195.637	257.857
MEANS29	384.126	401.630
MEANS31	174.803	194.939
MEANS33	257.915	273.183
MEANS35	117.580	137.520
MEANS37	94.085	114.617
MEANS39	141.044	179.192
MEANS41	278.269	321.789
MEANS43	161.384	181.072
MEANS45	90.781	96.414
MEANS47	40.504	54.420
MEANS49	64.084	66.484
MEANS51	50.979	33.359
MEANS53	**77.664**	**65.176**

Note.
This is a dissimilarity matrix

MAJOR GROUP 11 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v11	v12	v15	v19	v29	v32
1	MEAN		0.0368	0.1596	0.0739	-0.0233	0.5508	0.0403
2	STD		1.2989	0.9376	1.2220	1.0097	1.0558	1.1747
3	N		29.0000	29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	0.8594	0.7286	0.8611	0.7472	0.6747	0.8719
5	CORR	mean13	0.6230	0.4512	0.5344	0.4581	0.1874	0.5733
6	CORR	mean15	0.1757	0.2446	-0.0178	-0.0563	-0.4317	-0.1061
7	CORR	mean17	0.1015	0.0726	0.1556	-0.0364	-0.2434	-0.1259
8	CORR	mean19	0.0751	0.1288	-0.1323	0.1025	-0.5006	-0.2037
9	CORR	mean21	0.2711	0.2700	0.1199	-0.0763	0.1816	0.3368
10	CORR	mean23	0.3794	0.2274	0.1422	0.0782	-0.0376	0.2668
11	CORR	mean25	0.0969	0.2600	-0.2067	-0.1427	-0.2754	0.0552
12	CORR	mean27	-0.0242	0.1434	-0.0611	-0.1157	-0.0944	0.0424
13	CORR	mean29	-0.0781	-0.0939	-0.3092	-0.1982	-0.3336	-0.1559
14	CORR	mean31	-0.3009	-0.3036	-0.3555	-0.4079	-0.0311	-0.1960
15	CORR	mean33	-0.0218	-0.1315	0.0835	-0.0888	0.3075	0.0713
16	CORR	mean35	-0.0256	0.0241	0.1449	0.2063	0.3914	0.3180
17	CORR	mean37	0.1507	0.1526	0.3703	0.3058	0.6138	0.3898
18	CORR	mean39	-0.1312	-0.0997	0.0079	-0.1041	0.3946	0.1854
19	CORR	mean41	0.0251	-0.0555	0.2761	-0.0474	0.3457	0.2628
20	CORR	mean43	0.0791	0.0188	0.0041	0.0406	0.0706	0.1688
21	CORR	mean45	0.1198	0.1166	0.2213	0.5394	0.4229	0.1676
22	CORR	mean47	-0.3452	-0.2582	-0.1116	-0.1999	0.2005	-0.1919
23	CORR	mean49	-0.4222	-0.4965	-0.2524	-0.4374	0.0119	-0.4820
24	CORR	mean51	-0.3153	-0.2186	-0.3207	-0.0544	-0.2914	-0.4098
25	CORR	mean53	-0.1523	-0.3152	0.1712	0.0761	0.3508	0.1196

MAJOR GROUP 13 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v3	v8	v13	v21	v28	v32
1	MEAN		0.2607	0.1266	0.1384	-0.0586	-0.1657	-0.0716
2	STD		0.9138	0.9482	0.8384	1.2152	0.7575	0.9760
3	N		29.0000	29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	0.7316	0.0033	-0.0278	0.6445	0.3023	0.5904
5	CORR	mean13	0.5075	0.3389	0.1531	0.7514	0.7230	0.8336
6	CORR	mean15	-0.0384	0.2170	0.1588	0.5633	0.2400	0.1989
7	CORR	mean17	-0.1339	0.2213	0.1820	0.4426	-0.1807	-0.1551
8	CORR	mean19	-0.0580	0.7181	0.6885	0.4226	0.0636	0.0628
9	CORR	mean21	0.1874	-0.1339	0.0004	-0.0574	0.5421	0.2507
10	CORR	mean23	0.2736	0.4761	0.3796	0.4394	0.6571	0.6676
11	CORR	mean25	0.0746	-0.0896	0.1166	0.0925	0.4191	0.1414
12	CORR	mean27	0.4012	-0.2687	-0.2662	-0.0638	-0.0261	-0.1389
13	CORR	mean29	-0.3587	0.3346	0.5803	-0.2192	0.1395	-0.0175
14	CORR	mean31	-0.2931	-0.0106	0.1782	-0.5846	0.1836	-0.0243
15	CORR	mean33	-0.0595	0.2642	0.1131	-0.2672	0.1817	0.1164
16	CORR	mean35	0.3712	-0.4088	-0.4694	-0.2422	0.2122	0.1730
17	CORR	mean37	0.2326	-0.3001	-0.3301	-0.1781	-0.1443	-0.0529
18	CORR	mean39	0.2651	-0.3415	-0.3575	-0.4462	0.2729	0.0475
19	CORR	mean41	0.4346	-0.1109	-0.3713	-0.0901	0.5413	0.3696
20	CORR	mean43	0.3154	-0.0281	-0.1663	0.1581	0.6855	0.6694
21	CORR	mean45	0.0869	0.1362	0.0410	-0.1082	-0.3332	-0.1195
22	CORR	mean47	-0.2133	-0.4023	-0.4027	-0.3601	-0.5813	-0.5525
23	CORR	mean49	-0.3819	-0.1415	-0.1545	-0.4780	-0.5707	-0.4631
24	CORR	mean51	-0.4169	-0.2742	-0.1498	-0.2009	-0.6336	-0.5445
25	CORR	mean53	-0.2007	0.0218	-0.1127	-0.2831	-0.1778	-0.0497

MAJOR GROUP 15 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v3	v5
1	MEAN		0.6828	0.5980
2	STD		1.2130	1.0993
3	N		29.0000	29.0000
4	CORR	mean11	0.0534	-0.1309
5	CORR	mean13	0.2085	0.1116
6	CORR	mean15	0.8442	0.8533
7	CORR	mean17	0.7244	0.5370
8	CORR	mean19	0.2817	0.3553
9	CORR	mean21	-0.2100	-0.1486
10	CORR	mean23	0.0589	0.1190
11	CORR	mean25	-0.0289	0.0874
12	CORR	mean27	-0.0165	0.1310
13	CORR	mean29	-0.0664	0.0395
14	CORR	mean31	-0.1995	-0.1498
15	CORR	mean33	-0.3468	-0.3107
16	CORR	mean35	-0.4680	-0.4979
17	CORR	mean37	-0.3029	-0.5192
18	CORR	mean39	-0.4631	-0.4157
19	CORR	mean41	0.1318	0.0305
20	CORR	mean43	0.0632	0.1445
21	CORR	mean45	-0.4730	-0.5595
22	CORR	mean47	-0.2589	-0.4215
23	CORR	mean49	0.2136	0.1616
24	CORR	mean51	-0.1285	-0.0580
25	CORR	mean53	-0.3891	-0.4215

MAJOR GROUP 17 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v2	v7	v12	v17	v22	v26	v35
1	MEAN		0.3049	0.8361	0.3915	0.5942	0.5630	0.2947	0.2690
2	STD		1.0831	1.2590	0.9729	1.1701	1.0404	1.0341	0.9700
3	N		29.0000	29.0000	29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	0.2646	0.2059	0.0159	0.0637	0.1605	0.3903	-0.0494
5	CORR	mean13	0.2689	0.1809	0.0738	0.1068	0.0898	0.2082	0.0832
6	CORR	mean15	0.3605	0.5945	0.4905	0.5198	0.6078	0.4075	0.5696
7	CORR	mean17	0.6184	0.8596	0.7711	0.8820	0.8525	0.7464	0.7757
8	CORR	mean19	0.4351	0.5786	0.5277	0.5011	0.3612	0.1997	0.3226
9	CORR	mean21	-0.1356	-0.4417	-0.2774	-0.3668	-0.3742	-0.2401	-0.3995
10	CORR	mean23	0.0435	-0.0734	-0.0765	-0.0175	-0.1972	-0.1301	-0.1096
11	CORR	mean25	-0.0300	-0.1732	-0.0196	-0.1243	-0.1674	-0.0916	-0.2021
12	CORR	mean27	0.3866	-0.2485	-0.1996	-0.0279	-0.1798	0.0488	-0.3038
13	CORR	mean29	-0.3226	-0.1111	0.0501	-0.2198	-0.2041	-0.4389	-0.0521
14	CORR	mean31	-0.5636	-0.5473	-0.1842	-0.5210	-0.5498	-0.5933	-0.3716
15	CORR	mean33	-0.1600	-0.4324	-0.3020	-0.2631	-0.4355	-0.3664	-0.4268
16	CORR	mean35	-0.2436	-0.6591	-0.5392	-0.6576	-0.6416	-0.3308	-0.6125
17	CORR	mean37	-0.0099	-0.2687	-0.1018	-0.2455	-0.1687	0.0354	-0.3492
18	CORR	mean39	-0.2209	-0.8314	-0.5722	-0.6034	-0.7809	-0.4016	-0.8002
19	CORR	mean41	0.1957	-0.3763	-0.1145	-0.1689	-0.3781	-0.1195	-0.3624
20	CORR	mean43	-0.2271	-0.4303	-0.4770	-0.4323	-0.4901	-0.2891	-0.3690
21	CORR	mean45	-0.0719	-0.0236	-0.0624	-0.2255	-0.0729	-0.1345	-0.2466
22	CORR	mean47	-0.0286	-0.0981	0.0579	0.0613	0.0877	0.2211	0.0158
23	CORR	mean49	-0.2533	0.1107	0.2567	0.1215	0.1965	-0.0717	0.2524
24	CORR	mean51	-0.1822	0.2060	-0.0795	0.0561	0.2709	0.0564	0.3647
25	CORR	mean53	-0.2988	-0.1865	-0.2107	-0.1509	-0.1966	-0.2313	-0.1917

MAJOR GROUP 19 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v3	v4	v8	v9
1	MEAN		0.0649	-0.1079	0.0107	-0.0909
2	STD		1.3920	1.1619	1.1943	1.1748
3	N		29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.0499	-0.1403	0.0014	-0.1848
5	CORR	mean13	0.2628	0.2137	0.2418	0.1593
6	CORR	mean15	0.4567	0.5181	0.4546	0.3580
7	CORR	mean17	0.3815	0.3987	0.2810	0.1477
8	CORR	mean19	0.8857	0.8876	0.8039	0.7226
9	CORR	mean21	-0.2388	-0.2853	-0.2604	-0.2262
10	CORR	mean23	0.2149	0.2256	0.2732	0.3022
11	CORR	mean25	0.1746	0.1607	0.1049	0.0706
12	CORR	mean27	0.0194	-0.0131	-0.0289	-0.0130
13	CORR	mean29	0.1644	0.2318	0.3135	0.3037
14	CORR	mean31	-0.2019	-0.1530	-0.1583	-0.1138
15	CORR	mean33	-0.1584	-0.2112	-0.1504	0.0485
16	CORR	mean35	-0.3673	-0.4011	-0.4112	-0.4284
17	CORR	mean37	-0.2480	-0.3248	-0.3564	-0.5073
18	CORR	mean39	-0.4159	-0.4822	-0.4998	-0.4421
19	CORR	mean41	-0.0559	-0.1008	-0.3100	-0.3991
20	CORR	mean43	-0.1013	-0.0748	-0.0282	-0.0105
21	CORR	mean45	0.0676	-0.0088	0.0757	0.0397
22	CORR	mean47	-0.3339	-0.3787	-0.4926	-0.4547
23	CORR	mean49	-0.2803	-0.1713	-0.2622	-0.2165
24	CORR	mean51	-0.1935	-0.1366	-0.0458	0.0185
25	CORR	mean53	-0.2837	-0.3417	-0.3046	-0.1287

Obs	v25	v29	v33	v36	v43
1	0.0202	0.0808	-0.2216	-0.2602	0.2180
2	0.8600	1.0183	1.5721	1.2071	1.0200
3	29.0000	29.0000	29.0000	29.0000	29.0000
4	0.2865	0.5607	-0.1277	0.0886	-0.3750
5	0.6970	0.5976	0.0470	0.4006	-0.0553
6	0.5752	0.3654	0.1466	0.3255	0.2312
7	0.2987	0.2149	0.1736	0.1472	0.3716
8	0.4432	0.2307	0.6570	0.6428	0.3298
9	0.0871	0.5510	0.0067	0.2674	-0.4521
10	0.3893	0.4356	0.3512	0.6786	-0.0003
11	0.1482	0.4677	0.4927	0.6475	-0.3083
12	0.1932	0.1897	0.0884	0.1246	-0.6120
13	-0.1641	0.0629	-0.0569	0.0712	0.1731
14	-0.3602	-0.1727	-0.2521	-0.1253	-0.0448
15	-0.1615	-0.1515	0.0203	0.1115	-0.0789
16	-0.1179	-0.0756	-0.4208	-0.3533	-0.5585
17	-0.3162	-0.0557	-0.2859	-0.3992	-0.4472
18	-0.2604	-0.0919	-0.2710	-0.2025	-0.6270
19	0.2234	0.1168	-0.2677	0.0164	-0.4516
20	0.3286	-0.0014	-0.2186	0.0088	-0.0652
21	-0.2612	-0.2766	-0.1109	-0.3069	-0.1240
22	-0.4763	-0.3668	-0.0399	-0.3741	-0.0734
23	-0.4732	-0.5739	-0.1972	-0.3370	0.2518
24	-0.2880	-0.3616	-0.1016	-0.4857	0.3898
25	-0.3626	-0.4667	-0.2108	-0.2373	0.2276

MAJOR GROUP 21 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v1	v4
1	MEAN		0.1891	0.1331
2	STD		0.9431	1.0314
3	N		29.0000	29.0000
4	CORR	mean11	0.3995	0.0333
5	CORR	mean13	0.3122	0.2589
6	CORR	mean15	-0.2020	-0.0952
7	CORR	mean17	-0.3628	-0.3546
8	CORR	mean19	-0.2106	-0.0504
9	CORR	mean21	0.9008	0.8674
10	CORR	mean23	0.3248	0.5568
11	CORR	mean25	0.4451	0.6250
12	CORR	mean27	0.2475	-0.0816
13	CORR	mean29	0.3740	0.5439
14	CORR	mean31	0.4159	0.6118
15	CORR	mean33	0.3317	0.4021
16	CORR	mean35	0.2381	0.1355
17	CORR	mean37	0.1347	-0.0394
18	CORR	mean39	0.4792	0.4363
19	CORR	mean41	0.3363	0.3074
20	CORR	mean43	0.1556	0.1924
21	CORR	mean45	-0.1288	-0.3063
22	CORR	mean47	-0.3747	-0.3239
23	CORR	mean49	-0.4506	-0.3283
24	CORR	mean51	-0.5907	-0.5962
25	CORR	mean53	-0.0251	-0.0899

MAJOR GROUP 23 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v4	v7
1	MEAN		-0.1130	-0.3552
2	STD		1.5606	0.9625
3	N		29.0000	29.0000
4	CORR	mean11	0.1253	-0.1075
5	CORR	mean13	0.4611	0.4961
6	CORR	mean15	0.0577	0.3631
7	CORR	mean17	-0.1230	0.0206
8	CORR	mean19	0.4940	0.4508
9	CORR	mean21	0.3802	0.0806
10	CORR	mean23	0.8608	0.7978
11	CORR	mean25	0.4159	0.2907
12	CORR	mean27	-0.0231	-0.0334
13	CORR	mean29	0.2385	0.1313
14	CORR	mean31	-0.0130	0.0053
15	CORR	mean33	0.4631	0.2635
16	CORR	mean35	-0.3448	-0.2230
17	CORR	mean37	-0.4616	-0.6086
18	CORR	mean39	-0.0896	-0.0794
19	CORR	mean41	-0.1370	0.1084
20	CORR	mean43	0.1530	0.5843
21	CORR	mean45	-0.2150	-0.4939
22	CORR	mean47	-0.5118	-0.5713
23	CORR	mean49	-0.4182	-0.3733
24	CORR	mean51	-0.4279	-0.3907
25	CORR	mean53	0.0260	-0.1068

MAJOR GROUP 25 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v3	v16	v23	v25
1	MEAN		0.5618	0.6888	0.4105	0.6773
2	STD		1.1870	1.0121	0.7685	0.8789
3	N		29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.1836	-0.0196	0.1103	-0.0504
5	CORR	mean13	0.0503	-0.0409	-0.1167	-0.0062
6	CORR	mean15	0.4888	-0.2473	-0.4543	-0.2662
7	CORR	mean17	0.4633	-0.3671	-0.5905	-0.3816
8	CORR	mean19	0.2901	0.1551	-0.3427	0.2016
9	CORR	mean21	0.1429	0.5948	0.7107	0.4704
10	CORR	mean23	0.1089	0.2633	0.1228	0.3386
11	CORR	mean25	0.4586	0.5556	0.5048	0.6640
12	CORR	mean27	-0.0903	-0.2003	0.4818	0.1048
13	CORR	mean29	0.3184	0.8053	0.0594	0.0887
14	CORR	mean31	0.1220	0.6505	0.3607	0.2017
15	CORR	mean33	-0.2444	0.2103	0.3428	0.3857
16	CORR	mean35	-0.4469	-0.0180	0.4966	0.0681
17	CORR	mean37	-0.3233	0.0275	0.2920	0.0030
18	CORR	mean39	-0.3793	0.1510	0.7627	0.3479
19	CORR	mean41	-0.1408	-0.2073	0.3495	0.0314
20	CORR	mean43	-0.0862	-0.1950	0.1548	0.1254
21	CORR	mean45	-0.5361	0.0777	-0.0117	-0.0117
22	CORR	mean47	-0.2097	-0.2269	0.0014	-0.0893
23	CORR	mean49	-0.0289	-0.2135	-0.2880	-0.3817
24	CORR	mean51	-0.1346	-0.2931	-0.3792	-0.3968
25	CORR	mean53	-0.2360	-0.0340	-0.1395	0.0598

Obs	v27	v32	v38	v42
1	0.2686	0.1889	0.3348	0.2611
2	0.8583	0.9748	0.7937	0.9048
3	29.0000	29.0000	29.0000	29.0000
4	-0.1085	-0.0847	0.3384	0.5485
5	0.0755	0.0489	0.3133	0.3779
6	0.0450	-0.0058	0.0641	0.1981
7	-0.2722	-0.3408	-0.2719	0.0793
8	0.2208	0.0450	0.0702	0.1799
9	0.6463	0.8331	0.2635	0.5614
10	0.4391	0.3663	0.4388	0.3452
11	0.9161	0.7559	0.4308	0.6457
12	0.2034	0.1676	0.3706	0.3282
13	0.3498	0.5966	-0.1053	0.0600
14	0.4056	0.6128	0.0402	-0.0326
15	0.1028	0.2034	0.0436	-0.1595
16	0.0975	0.0737	0.2304	0.0472
17	-0.0908	-0.0751	0.0372	0.1522
18	0.2771	0.3610	0.2953	0.0959
19	0.1888	0.0979	0.3424	0.2571
20	0.1603	0.1354	0.5032	-0.1264
21	-0.3177	-0.3385	-0.1518	-0.1639
22	-0.3008	-0.3278	-0.3279	-0.2140
23	-0.2984	-0.3423	-0.3154	-0.3745
24	-0.5104	-0.4516	-0.5063	-0.5369
25	-0.3647	-0.3232	-0.3097	-0.4545

MAJOR GROUP 27 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v2	v3	v10	v25
1	MEAN		0.1227	-0.1391	0.1509	0.0809
2	STD		1.3546	0.8844	1.2418	1.3135
3	N		29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.1364	-0.2690	0.3416	0.3272
5	CORR	mean13	-0.3582	-0.2734	0.1150	-0.0001
6	CORR	mean15	0.0445	-0.0134	0.1194	-0.0747
7	CORR	mean17	0.2315	-0.1194	0.2707	-0.1803
8	CORR	mean19	0.0694	-0.0811	-0.1723	-0.1789
9	CORR	mean21	-0.0815	0.1274	0.1566	0.2402
10	CORR	mean23	-0.3542	-0.0473	-0.2423	-0.0236
11	CORR	mean25	0.1157	0.1923	-0.0291	0.2392
12	CORR	mean27	0.7058	0.7442	0.6279	0.5819
13	CORR	mean29	-0.1797	0.0830	-0.3231	-0.1551
14	CORR	mean31	-0.1702	0.1255	-0.2986	-0.0775
15	CORR	mean33	-0.3794	-0.1886	-0.2914	-0.0747
16	CORR	mean35	0.0665	0.1913	0.2769	0.2843
17	CORR	mean37	0.1070	-0.2301	0.2123	0.1368
18	CORR	mean39	0.1291	0.3646	0.2699	0.2322
19	CORR	mean41	0.2040	0.2877	0.5975	0.1637
20	CORR	mean43	-0.3261	0.1203	-0.1049	-0.0296
21	CORR	mean45	-0.1323	-0.4233	-0.1207	0.0235
22	CORR	mean47	0.2063	-0.1692	0.0106	-0.0578
23	CORR	mean49	0.1159	0.0002	-0.1841	-0.0511
24	CORR	mean51	0.0858	-0.0158	-0.1453	-0.2240
25	CORR	mean53	-0.4869	-0.4007	-0.3446	-0.1938

Obs	v27	v30	v38	v42	v49
1	-0.2122	-0.0557	-0.1844	0.5825	0.3249
2	1.6507	0.9997	1.0646	0.7756	0.9909
3	29.0000	29.0000	29.0000	29.0000	29.0000
4	-0.0794	-0.1295	0.0006	0.2050	0.0329
5	-0.0911	0.0948	0.1290	-0.0871	-0.0553
6	0.1525	0.0224	0.3104	0.1134	0.1351
7	0.0171	-0.2545	0.1067	0.1748	0.0937
8	0.0448	-0.0930	0.3321	-0.0407	0.0741
9	0.0410	0.3473	0.1943	0.1485	-0.0183
10	-0.0532	0.3413	0.2864	-0.1285	-0.0035
11	0.1936	0.2113	0.3579	0.2402	0.1153
12	0.6769	0.5802	0.7782	0.7666	0.7385
13	-0.1857	0.2330	-0.0506	-0.2808	-0.2274
14	-0.1923	0.3056	-0.1926	-0.3453	-0.3751
15	-0.1900	0.1742	-0.0737	-0.1696	-0.1372
16	0.1126	0.2107	-0.0482	-0.0022	-0.1429
17	-0.1724	-0.2865	-0.2846	0.0129	-0.3223
18	0.0755	0.4314	0.1086	0.1358	-0.0462
19	0.1195	0.6006	0.3104	0.1352	-0.1010
20	0.0039	0.4313	0.1698	-0.2438	-0.0409
21	-0.2200	-0.4734	-0.4048	-0.1846	-0.2943
22	-0.1060	-0.5059	-0.3823	0.0256	-0.1783
23	0.0167	-0.1396	-0.3561	-0.1484	-0.1196
24	-0.0162	-0.4424	-0.2811	-0.0861	0.0521
25	-0.3832	-0.1196	-0.5316	-0.2858	-0.1495

MAJOR GROUP 29 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v4	v9	v15	v17
1	MEAN		0.2436	0.1834	0.5622	0.3933
2	STD		1.0863	1.2152	1.3325	1.1259
3	N		29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.1777	-0.2016	-0.1322	-0.3538
5	CORR	mean13	-0.2703	0.0209	-0.0887	-0.0977
6	CORR	mean15	0.0049	-0.0256	0.0438	0.0670
7	CORR	mean17	-0.0250	-0.1727	0.0003	-0.0382
8	CORR	mean19	0.0495	0.4139	0.3331	0.3358
9	CORR	mean21	0.2725	0.1957	0.0819	0.2523
10	CORR	mean23	-0.0602	0.3087	0.1106	0.3028
11	CORR	mean25	0.1766	0.1940	0.0058	0.2341
12	CORR	mean27	0.0163	-0.3998	-0.2645	-0.1112
13	CORR	mean29	0.7073	0.7549	0.7589	0.8545
14	CORR	mean31	0.4679	0.4155	0.3520	0.5719
15	CORR	mean33	-0.1692	0.1923	0.0400	0.1832
16	CORR	mean35	-0.0059	-0.3340	-0.3371	-0.2563
17	CORR	mean37	-0.0936	-0.2625	-0.1659	-0.4088
18	CORR	mean39	0.0953	-0.2434	-0.2626	-0.0131
19	CORR	mean41	-0.0538	-0.3795	-0.4099	-0.1560
20	CORR	mean43	-0.2384	-0.1217	-0.3220	-0.1162
21	CORR	mean45	-0.1562	0.0580	0.1341	-0.1827
22	CORR	mean47	-0.2333	-0.4201	-0.2373	-0.3741
23	CORR	mean49	-0.0246	-0.0795	0.0333	0.0111
24	CORR	mean51	0.0806	-0.0490	0.0656	-0.1877
25	CORR	mean53	-0.3032	0.1225	-0.0973	-0.1531

Obs	v21	v25	v29	v39
1	0.3070	0.3106	-0.0908	0.0797
2	1.1056	0.9881	0.9385	1.0041
3	29.0000	29.0000	29.0000	29.0000
4	-0.1162	0.1918	-0.4198	-0.3756
5	-0.1519	0.2045	-0.2517	-0.1461
6	-0.1046	0.1378	-0.1877	-0.2603
7	-0.3215	-0.1240	-0.3667	-0.4671
8	-0.0643	0.0463	-0.0498	-0.0442
9	0.6163	0.6136	0.4170	0.5399
10	0.1672	0.2678	0.1848	0.2352
11	0.5323	0.4786	0.2972	0.2307
12	-0.0635	0.0863	0.0695	-0.2213
13	0.7704	0.5978	0.7869	0.8423
14	0.7544	0.5257	0.7805	0.8471
15	0.0882	0.0059	0.1343	0.4225
16	0.1012	0.0742	0.1626	0.0711
17	0.1343	-0.0209	-0.2111	-0.1101
18	0.2489	0.1130	0.3997	0.3276
19	-0.0469	0.1545	0.1929	0.0745
20	-0.0820	0.0190	0.1251	0.0695
21	-0.1447	-0.1880	-0.3024	-0.0834
22	-0.1538	-0.4228	-0.3249	-0.3280
23	-0.0937	-0.1384	-0.0050	0.0030
24	-0.2503	-0.4829	-0.1680	-0.2232
25	-0.2633	-0.2894	-0.1719	0.0989

MAJOR GROUP 31 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v8	v10
1	MEAN		-0.1481	-0.1030
2	STD		0.7341	0.4769
3	N		29.0000	29.0000
4	CORR	mean11	-0.2643	-0.4879
5	CORR	mean13	-0.0386	-0.5212
6	CORR	mean15	-0.1079	-0.1496
7	CORR	mean17	-0.3268	-0.0883
8	CORR	mean19	-0.1546	-0.2034
9	CORR	mean21	0.3548	-0.2495
10	CORR	mean23	0.1506	-0.3730
11	CORR	mean25	0.1850	-0.3670
12	CORR	mean27	-0.1158	-0.3113
13	CORR	mean29	0.7209	0.1170
14	CORR	mean31	0.7816	0.2692
15	CORR	mean33	0.0330	0.1956
16	CORR	mean35	0.2410	-0.0442
17	CORR	mean37	-0.1075	-0.0154
18	CORR	mean39	0.3648	0.0514
19	CORR	mean41	0.3546	-0.0847
20	CORR	mean43	0.3166	-0.0745
21	CORR	mean45	-0.2707	0.0960
22	CORR	mean47	-0.3802	0.1370
23	CORR	mean49	0.0311	0.4824
24	CORR	mean51	-0.2670	0.3421
25	CORR	mean53	-0.0589	0.3407

MAJOR GROUP 33 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v1	v3	v6	v9	v19
1	MEAN		0.7916	0.5833	0.1538	-0.1512	0.5703
2	STD		1.1176	0.9997	0.5942	0.9541	1.7168
3	N		29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	0.5769	0.1774	-0.1885	-0.0977	-0.2075
5	CORR	mean13	0.2522	-0.1676	0.0122	0.0286	-0.0104
6	CORR	mean15	-0.4224	-0.5475	-0.1852	-0.5537	-0.3766
7	CORR	mean17	-0.3537	-0.4298	-0.1360	-0.6649	-0.3344
8	CORR	mean19	-0.3347	-0.2740	0.0519	-0.3629	-0.1007
9	CORR	mean21	0.4225	0.1858	0.1780	0.4737	0.2416
10	CORR	mean23	0.2641	-0.1187	0.3659	0.3485	0.3125
11	CORR	mean25	-0.0221	-0.0498	-0.0565	0.1543	-0.1369
12	CORR	mean27	-0.1208	0.0511	-0.3029	0.1025	-0.2993
13	CORR	mean29	-0.0457	-0.0820	0.2039	0.0649	0.2765
14	CORR	mean31	0.0885	0.0374	0.3610	0.4119	0.4195
15	CORR	mean33	0.6174	0.5962	0.8253	0.7971	0.8302
16	CORR	mean35	0.1897	0.1542	-0.2722	0.4129	-0.1784
17	CORR	mean37	0.3552	0.4088	-0.1091	0.0229	-0.2243
18	CORR	mean39	0.3398	0.3129	0.0844	0.7291	0.2691
19	CORR	mean41	0.1232	-0.2033	-0.0627	0.3168	0.0673
20	CORR	mean43	-0.0059	-0.2349	0.0238	0.4042	0.0872
21	CORR	mean45	0.3305	0.5203	0.0573	0.0419	0.0385
22	CORR	mean47	0.0373	0.2959	0.0178	-0.0333	-0.1120
23	CORR	mean49	-0.2150	-0.1315	0.1502	-0.2381	0.1068
24	CORR	mean51	-0.4014	-0.1050	-0.3711	-0.4293	-0.3109
25	CORR	mean53	0.4532	0.6091	0.4673	0.4496	0.7207

MAJOR GROUP 35 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v5	v12	v14
1	MEAN		0.3109	-0.3156	-0.2310
2	STD		0.7240	0.6602	0.7568
3	N		29.0000	29.0000	29.0000
4	CORR	mean11	0.4796	-0.1005	-0.0803
5	CORR	mean13	-0.0376	0.0391	-0.2759
6	CORR	mean15	-0.3798	-0.1637	-0.4814
7	CORR	mean17	-0.3181	-0.4508	-0.4815
8	CORR	mean19	-0.2810	-0.4443	-0.3548
9	CORR	mean21	0.0134	0.0845	-0.1029
10	CORR	mean23	-0.2397	-0.1382	-0.3341
11	CORR	mean25	-0.0596	0.0706	-0.1238
12	CORR	mean27	0.1550	0.1916	0.1789
13	CORR	mean29	-0.1357	-0.1254	-0.3053
14	CORR	mean31	-0.0290	0.2279	0.1020
15	CORR	mean33	-0.1266	-0.1294	0.0427
16	CORR	mean35	0.5518	0.7730	0.6431
17	CORR	mean37	0.5279	0.2844	0.5846
18	CORR	mean39	0.3397	0.5071	0.5028
19	CORR	mean41	0.1288	0.4752	0.1117
20	CORR	mean43	-0.0490	0.6056	0.1762
21	CORR	mean45	0.4926	-0.0248	0.4512
22	CORR	mean47	0.1640	0.0455	0.5455
23	CORR	mean49	-0.1907	-0.2242	-0.0280
24	CORR	mean51	0.0206	-0.0421	0.1272
25	CORR	mean53	-0.0487	-0.1130	-0.0446

MAJOR GROUP 37 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v1	v3
1	MEAN		-0.0366	0.0267
2	STD		0.8666	0.8245
3	N		29.0000	29.0000
4	CORR	mean11	0.7359	0.7868
5	CORR	mean13	0.3013	0.2858
6	CORR	mean15	-0.1993	-0.1760
7	CORR	mean17	-0.2332	-0.0651
8	CORR	mean19	-0.4124	-0.2926
9	CORR	mean21	0.4632	0.2151
10	CORR	mean23	0.0069	-0.1836
11	CORR	mean25	0.1607	-0.0721
12	CORR	mean27	0.0930	0.0977
13	CORR	mean29	-0.0731	-0.2090
14	CORR	mean31	-0.0109	-0.1277
15	CORR	mean33	-0.0552	-0.1124
16	CORR	mean35	0.4565	0.4594
17	CORR	mean37	0.5736	0.6982
18	CORR	mean39	0.3058	0.2945
19	CORR	mean41	0.2676	0.4312
20	CORR	mean43	0.0654	-0.0386
21	CORR	mean45	0.1918	0.4164
22	CORR	mean47	-0.0648	0.0548
23	CORR	mean49	-0.3507	-0.2836
24	CORR	mean51	-0.2530	-0.3004
25	CORR	mean53	-0.0396	0.0495

MAJOR GROUP 39 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v2	v6	v7	v12	v16
1	MEAN		0.0889	0.1101	-0.1541	-0.1073	0.0508
2	STD		0.7632	1.0163	0.7969	0.7372	1.0078
3	N		29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	0.6239	-0.0969	-0.3549	-0.1408	-0.2384
5	CORR	mean13	0.2146	0.1974	-0.4558	-0.1728	-0.3651
6	CORR	mean15	-0.1697	-0.2690	-0.1950	-0.4790	-0.0643
7	CORR	mean17	-0.3583	-0.5263	-0.2044	-0.4015	-0.0099
8	CORR	mean19	-0.3256	-0.3690	-0.3900	-0.1208	0.0228
9	CORR	mean21	0.4927	0.1156	-0.1763	0.0799	-0.0243
10	CORR	mean23	0.1353	0.2168	-0.4114	-0.0111	-0.1743
11	CORR	mean25	0.1274	-0.0705	-0.2627	-0.0053	0.1430
12	CORR	mean27	0.1753	0.0069	0.3347	0.1920	0.6585
13	CORR	mean29	0.0151	-0.0751	-0.1376	0.2354	-0.0864
14	CORR	mean31	0.0467	0.2417	-0.0203	0.3221	-0.0787
15	CORR	mean33	0.1756	0.1805	-0.0591	0.1329	-0.2010
16	CORR	mean35	0.3247	0.5262	0.1558	0.3916	0.1440
17	CORR	mean37	0.3453	-0.1609	-0.2868	0.1644	-0.0266
18	CORR	mean39	0.3592	0.4887	0.2374	0.4405	0.2802
19	CORR	mean41	0.1854	0.3795	0.0440	0.1714	0.1541
20	CORR	mean43	0.1059	0.7809	0.1041	0.0303	-0.1534
21	CORR	mean45	0.2147	-0.1346	-0.1510	0.1867	-0.1672
22	CORR	mean47	-0.2081	-0.1875	-0.0056	0.0626	0.1370
23	CORR	mean49	-0.2613	-0.1890	0.2276	-0.0233	-0.0395
24	CORR	mean51	-0.2877	-0.1017	0.3820	-0.1250	0.1322
25	CORR	mean53	-0.0251	0.1464	0.2889	0.1098	-0.4141

MAJOR GROUP 41 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v5	v10	v19	v24
1	MEAN		0.1901	0.0495	0.2329	-0.0118
2	STD		0.7815	0.8783	0.8844	0.9573
3	N		29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.1841	0.4255	0.0407	0.0965
5	CORR	mean13	-0.0569	0.7537	0.0778	0.0394
6	CORR	mean15	-0.0041	0.1911	-0.1539	-0.1713
7	CORR	mean17	-0.1569	-0.0046	-0.3557	-0.2974
8	CORR	mean19	-0.3232	0.0677	-0.1871	-0.4073
9	CORR	mean21	-0.0621	0.3213	0.4246	0.3159
10	CORR	mean23	0.0556	0.4135	0.2161	-0.0367
11	CORR	mean25	-0.2102	0.1251	0.3016	0.0238
12	CORR	mean27	0.0408	0.2038	0.6162	0.4796
13	CORR	mean29	0.0158	-0.1494	0.0542	-0.1481
14	CORR	mean31	0.3770	-0.1422	0.2403	0.2184
15	CORR	mean33	0.0757	0.0533	0.2837	0.1850
16	CORR	mean35	0.2905	0.2403	0.4267	0.6166
17	CORR	mean37	-0.0223	-0.0742	0.0426	0.3067
18	CORR	mean39	0.3284	0.2164	0.6615	0.7361
19	CORR	mean41	0.5330	0.6806	0.7206	0.8872
20	CORR	mean43	0.4357	0.4661	0.3240	0.4096
21	CORR	mean45	-0.2030	-0.1551	-0.1735	-0.0619
22	CORR	mean47	-0.0795	-0.4131	-0.2963	-0.0811
23	CORR	mean49	0.4651	-0.5431	-0.3291	-0.1565
24	CORR	mean51	-0.2076	-0.5664	-0.5129	-0.4101
25	CORR	mean53	-0.1107	-0.0433	-0.0612	-0.1023

MAJOR GROUP 43 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v6	v8	v9	v10	v12
1	MEAN		-0.2216	-0.1369	-0.3472	-0.2151	-0.2591
2	STD		0.8261	0.9648	0.8628	1.0664	0.7419
3	N		29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	0.1131	0.0931	0.0012	0.1945	0.2788
5	CORR	mean13	0.4406	0.5766	0.3399	0.7026	0.6259
6	CORR	mean15	0.0347	0.2640	0.3311	0.4170	0.3363
7	CORR	mean17	-0.2812	-0.1043	0.0319	0.0487	-0.0029
8	CORR	mean19	-0.1861	0.0227	0.0354	0.1823	0.0420
9	CORR	mean21	0.3802	-0.1065	-0.2188	-0.0442	0.0346
10	CORR	mean23	0.4425	0.4349	0.0866	0.5369	0.4244
11	CORR	mean25	0.1654	-0.0601	-0.1292	0.0600	0.0022
12	CORR	mean27	0.1394	-0.2092	-0.1983	-0.2730	0.1628
13	CORR	mean29	0.0333	-0.1234	-0.2406	-0.0185	-0.1431
14	CORR	mean31	0.2470	-0.0247	-0.2822	-0.0897	-0.1782
15	CORR	mean33	0.3175	-0.0173	-0.2565	-0.0815	-0.0256
16	CORR	mean35	0.3914	0.1714	0.0614	-0.0257	0.2244
17	CORR	mean37	-0.1225	-0.2843	-0.2148	-0.4068	-0.1957
18	CORR	mean39	0.5300	-0.0055	-0.1845	-0.2101	0.1220
19	CORR	mean41	0.7392	0.3045	-0.0537	0.0909	0.4032
20	CORR	mean43	0.7577	0.8329	0.5972	0.7341	0.7837
21	CORR	mean45	-0.2916	-0.2717	-0.2006	-0.3350	-0.3128
22	CORR	mean47	-0.4508	-0.3905	-0.2214	-0.5008	-0.4914
23	CORR	mean49	-0.4117	-0.2229	-0.2836	-0.3647	-0.4884
24	CORR	mean51	-0.5762	-0.2281	0.2570	-0.2177	-0.3347
25	CORR	mean53	0.0638	0.0044	-0.1317	-0.0795	-0.1739

Obs	v19	v20	v27	v33	v45
1	-0.4341	-0.4521	-0.4301	0.0175	0.1492
2	0.7717	0.7470	0.8249	0.8139	0.7519
3	29.0000	29.0000	29.0000	29.0000	29.0000
4	-0.0570	0.0403	-0.1169	-0.0172	-0.0848
5	0.4651	0.6331	0.1321	0.2629	-0.0530
6	0.1708	0.3848	-0.0722	-0.1690	-0.3424
7	-0.2671	-0.1073	-0.4497	-0.4891	-0.3627
8	-0.0528	0.2588	-0.2415	-0.3058	-0.3855
9	0.1453	0.3344	0.4526	0.2261	-0.0521
10	0.4596	0.6469	0.3760	0.3419	-0.0566
11	0.1306	0.3561	0.3808	0.1173	-0.1601
12	0.1500	-0.0839	0.3412	0.1887	0.2190
13	-0.0567	0.1891	0.2325	-0.0725	-0.2192
14	0.0620	0.2022	0.4841	0.2878	0.2004
15	0.1443	0.2095	0.1858	0.2456	0.0984
16	0.2885	0.0599	0.4777	0.5119	0.5922
17	-0.3554	-0.3156	-0.1350	-0.1079	0.3353
18	0.2790	0.0942	0.6183	0.5931	0.5362
19	0.3662	0.3731	0.5461	0.5831	0.5013
20	0.9200	0.7719	0.7095	0.8434	0.3407
21	-0.4096	-0.3796	-0.4345	-0.2688	0.1344
22	-0.4733	-0.5963	-0.4018	-0.2700	0.3029
23	-0.4633	-0.5559	-0.3221	-0.2329	0.0921
24	-0.2850	-0.5360	-0.4434	-0.4103	-0.1241
25	-0.0489	-0.1606	-0.1706	0.0765	-0.1020

MAJOR GROUP 45 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v1	v5	v15
1	MEAN		0.0870	0.2674	-0.1016
2	STD		0.9847	0.8808	0.8865
3	N		29.0000	29.0000	29.0000
4	CORR	mean11	0.5837	0.4865	-0.1467
5	CORR	mean13	0.1441	0.0180	-0.3965
6	CORR	mean15	-0.3128	-0.3290	-0.3825
7	CORR	mean17	-0.1640	-0.1428	-0.2818
8	CORR	mean19	-0.1084	-0.3697	-0.2779
9	CORR	mean21	-0.0307	0.1112	-0.2070
10	CORR	mean23	-0.1058	-0.2262	-0.4430
11	CORR	mean25	-0.1765	-0.1799	-0.2413
12	CORR	mean27	-0.3892	-0.2229	0.2222
13	CORR	mean29	-0.0108	-0.2057	-0.4396
14	CORR	mean31	-0.0097	-0.1279	-0.1001
15	CORR	mean33	0.0502	0.2144	0.2157
16	CORR	mean35	0.2384	0.2093	0.3371
17	CORR	mean37	0.5607	0.5875	0.4198
18	CORR	mean39	0.0041	0.0677	0.3817
19	CORR	mean41	-0.0249	-0.0945	-0.0531
20	CORR	mean43	-0.2073	-0.3440	-0.0887
21	CORR	mean45	0.7086	0.5930	0.4828
22	CORR	mean47	0.1037	0.3275	0.5990
23	CORR	mean49	0.0203	0.0552	0.0743
24	CORR	mean51	-0.1065	0.0190	0.2064
25	CORR	mean53	0.2778	0.3380	0.1872

MAJOR GROUP 47 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v9	v16	v26	v27	v35
1	MEAN		-0.1035	-0.0056	0.4350	0.0129	-0.2728
2	STD		0.6822	0.6645	0.8349	0.6940	0.6477
3	N		29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.1347	-0.2137	-0.3193	-0.1881	-0.2063
5	CORR	mean13	-0.4136	-0.5373	-0.5072	-0.3895	-0.5802
6	CORR	mean15	-0.0142	-0.3018	-0.0536	-0.1705	-0.4860
7	CORR	mean17	0.2156	-0.0765	0.2998	0.0276	-0.1438
8	CORR	mean19	-0.2495	-0.4035	-0.1409	-0.2634	-0.2876
9	CORR	mean21	-0.3453	-0.2716	-0.3725	-0.3253	-0.2421
10	CORR	mean23	-0.6545	-0.6088	-0.4316	-0.6045	-0.5448
11	CORR	mean25	-0.2935	-0.1893	-0.2099	-0.1809	-0.2419
12	CORR	mean27	0.0992	0.1555	-0.2115	0.1200	0.0341
13	CORR	mean29	-0.4712	-0.3676	-0.0698	-0.4971	-0.3250
14	CORR	mean31	-0.4078	-0.0432	0.0124	-0.2083	-0.1009
15	CORR	mean33	-0.4595	-0.2046	-0.2395	-0.1579	0.0948
16	CORR	mean35	0.0351	0.3406	-0.3129	0.2974	0.1487
17	CORR	mean37	0.3175	0.5741	0.0581	0.4620	0.4822
18	CORR	mean39	-0.1664	0.1733	-0.2412	0.1644	0.1963
19	CORR	mean41	-0.3021	-0.0840	-0.3516	-0.0119	-0.3143
20	CORR	mean43	-0.3399	-0.2819	-0.4074	-0.1482	-0.4756
21	CORR	mean45	0.1578	0.2757	-0.0816	0.3048	0.4804
22	CORR	mean47	0.6717	0.8289	0.5166	0.7458	0.8419
23	CORR	mean49	0.2495	0.3307	0.5524	0.0596	0.1836
24	CORR	mean51	0.6888	0.4000	0.4191	0.3564	0.4417
25	CORR	mean53	-0.2521	-0.1192	0.1105	-0.0262	0.2247

Obs	v41	v43	v49	v51	v61
1	-0.2242	-0.0112	-0.3901	-0.3709	-0.2773
2	0.6520	0.6893	0.6663	0.8878	0.8002
3	29.0000	29.0000	29.0000	29.0000	29.0000
4	-0.2196	-0.4020	-0.0860	-0.1299	-0.1577
5	-0.5009	-0.5017	-0.1951	-0.2832	-0.3157
6	-0.4399	-0.4009	-0.3763	-0.4366	-0.4270
7	-0.3065	-0.1730	-0.0287	-0.0530	-0.1707
8	-0.4629	-0.3835	-0.0627	-0.2427	-0.3086
9	-0.0855	-0.3585	-0.2199	-0.1712	-0.1972
10	-0.5409	-0.3359	-0.2423	-0.3107	-0.3751
11	-0.1505	-0.3426	-0.2775	-0.2822	-0.0739
12	0.0073	-0.2039	-0.4120	-0.1389	0.0612
13	-0.2674	-0.1808	-0.1474	-0.2717	-0.4328
14	0.1377	0.1689	-0.0670	-0.1708	-0.1156
15	0.0343	0.1630	0.3012	0.2900	0.0650
16	0.4697	0.1208	0.0503	-0.1523	0.2981
17	0.6575	0.3332	0.2268	0.0396	0.4318
18	0.3325	0.1320	0.0165	-0.0169	0.1740
19	0.0136	-0.2184	-0.1831	-0.2935	-0.1936
20	-0.2026	-0.1292	-0.2274	-0.3863	-0.1779
21	0.4372	0.2054	0.4129	0.2518	0.3155
22	0.7700	0.7199	0.4032	0.4453	0.7644
23	0.2584	0.4672	0.0139	0.2347	0.0929
24	0.3011	0.3489	0.2121	0.2312	0.2209
25	0.0074	0.2545	0.5031	0.7898	0.2404

MAJOR GROUP 49 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v9	v13	v15	v27	v28
1	MEAN		-0.1114	0.1913	-0.1688	-0.1322	0.4040
2	STD		0.8689	0.7230	0.5869	0.5544	1.0467
3	N		29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.2532	-0.3252	-0.3610	-0.2920	-0.2078
5	CORR	mean13	-0.2718	-0.4846	-0.7047	-0.5978	-0.4145
6	CORR	mean15	0.0125	0.0415	-0.3905	-0.2557	-0.1637
7	CORR	mean17	0.0246	0.2097	-0.1219	-0.0479	-0.0022
8	CORR	mean19	-0.1771	-0.2131	-0.4466	-0.4413	-0.3354
9	CORR	mean21	-0.1227	-0.5025	-0.2555	-0.2132	-0.2641
10	CORR	mean23	-0.1216	-0.4419	-0.4879	-0.6224	-0.2779
11	CORR	mean25	-0.1479	-0.4333	-0.3909	-0.1496	-0.4561
12	CORR	mean27	0.2431	-0.1486	-0.2440	0.1554	-0.1351
13	CORR	mean29	-0.1451	-0.1623	-0.0210	-0.2642	0.0158
14	CORR	mean31	0.1516	-0.1424	0.2430	0.0899	0.1664
15	CORR	mean33	0.2808	-0.2921	0.1551	-0.2314	0.0400
16	CORR	mean35	0.0346	-0.2517	0.0093	0.3626	-0.0681
17	CORR	mean37	0.1705	-0.0919	0.3476	0.5106	-0.0096
18	CORR	mean39	0.2542	-0.4248	0.0916	0.2806	-0.0608
19	CORR	mean41	0.2074	-0.3856	-0.2469	0.0532	-0.0544
20	CORR	mean43	0.1198	-0.3224	-0.3187	-0.2008	-0.2734
21	CORR	mean45	-0.1006	-0.0357	0.2158	0.1619	0.0918
22	CORR	mean47	0.2702	0.3062	0.5797	0.7307	0.2280
23	CORR	mean49	0.2434	0.8099	0.6288	0.3767	0.8386
24	CORR	mean51	-0.1591	0.6260	0.4284	0.3584	0.2434
25	CORR	mean53	0.0188	0.0262	0.3113	-0.2064	0.1800

Obs	v36	v38	v52	v53	v64
1	-0.1719	-0.1196	0.0140	0.2793	-0.2532
2	0.7014	0.7105	0.6961	0.8331	0.7244
3	29.0000	29.0000	29.0000	29.0000	29.0000
4	-0.2132	-0.1350	-0.2807	-0.3455	-0.1713
5	-0.3866	-0.3908	-0.6061	-0.5359	-0.3342
6	-0.0482	-0.0947	-0.3720	-0.1390	-0.1704
7	0.1205	0.1297	-0.0749	0.1093	-0.0955
8	-0.2713	-0.2203	-0.3245	-0.1616	-0.2881
9	-0.2982	-0.2217	-0.3696	-0.3977	-0.2412
10	-0.3457	-0.3487	-0.6661	-0.4164	-0.4165
11	-0.3970	-0.2505	-0.2577	-0.4567	-0.1197
12	-0.2735	-0.3376	-0.0990	-0.2454	0.3291
13	-0.0136	0.0518	-0.4202	-0.2203	-0.2048
14	0.1251	0.2453	-0.1493	-0.1345	-0.1821
15	-0.1515	-0.1341	-0.1286	0.0586	-0.5074
16	-0.1389	-0.0954	0.1577	-0.3210	0.3311
17	0.1182	0.3748	0.5333	0.1463	0.0356
18	-0.2322	-0.1389	-0.0136	-0.2831	0.1504
19	-0.1249	-0.0724	-0.3346	-0.4787	-0.0795
20	-0.3544	-0.4028	-0.4667	-0.4146	0.0507
21	0.0720	0.1778	0.4669	0.1821	-0.0912
22	0.3087	0.4591	0.9047	0.5428	0.2534
23	0.8832	0.7384	0.4363	0.6641	-0.0049
24	0.3086	0.1821	0.5908	0.5798	0.5394
25	0.1135	-0.0073	0.0918	0.1637	-0.2591

MAJOR GROUP 51 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v6	v43	v55	v77	v83
1	MEAN		0.2397	0.1464	-0.0466	-0.3003	-0.1301
2	STD		0.8011	0.7234	0.6737	0.9873	0.6653
3	N		29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.4408	-0.1093	-0.2926	-0.1096	-0.2803
5	CORR	mean13	-0.4289	-0.3173	-0.6539	-0.2410	-0.3425
6	CORR	mean15	0.2246	-0.2357	-0.3184	0.0774	0.2403
7	CORR	mean17	0.2855	-0.1037	-0.1008	0.2151	0.3721
8	CORR	mean19	-0.1580	-0.3362	-0.3274	0.1849	0.0481
9	CORR	mean21	-0.4014	-0.4257	-0.0628	-0.1920	-0.4543
10	CORR	mean23	-0.2984	-0.4129	-0.4942	-0.2794	-0.4725
11	CORR	mean25	-0.3389	-0.4725	-0.0692	-0.1200	-0.3530
12	CORR	mean27	0.0203	-0.3338	-0.2354	0.3182	0.2905
13	CORR	mean29	0.0070	-0.3331	0.1431	-0.1760	-0.2047
14	CORR	mean31	0.0886	-0.2392	0.1408	-0.3408	-0.3689
15	CORR	mean33	-0.2334	-0.0897	-0.1124	-0.1824	-0.4252
16	CORR	mean35	-0.2638	0.0479	-0.0545	-0.1939	-0.2109
17	CORR	mean37	-0.3050	0.1981	0.1031	-0.1840	-0.2707
18	CORR	mean39	-0.1942	-0.2566	-0.0417	-0.0609	-0.2001
19	CORR	mean41	-0.0404	-0.3939	-0.4322	-0.1941	-0.0820
20	CORR	mean43	-0.1157	-0.1845	-0.4845	-0.1555	-0.1330
21	CORR	mean45	-0.2839	0.3611	0.1212	-0.0487	-0.2055
22	CORR	mean47	0.0662	0.4292	0.3710	0.0190	0.0125
23	CORR	mean49	0.7808	0.4314	0.3860	-0.1075	0.1785
24	CORR	mean51	0.3082	0.6508	0.5652	0.3414	0.5401
25	CORR	mean53	-0.0596	0.2821	0.2249	-0.1561	-0.1464

Obs	v90	v123	v146	v156	v181
1	-0.3362	-0.4052	-0.3215	0.0574	-0.2019
2	0.5122	0.5816	0.5979	0.7844	0.7650
3	29.0000	29.0000	29.0000	29.0000	29.0000
4	-0.2462	-0.1748	-0.2758	-0.3411	-0.1534
5	-0.4001	-0.3461	-0.3892	-0.4013	-0.3588
6	0.0325	-0.2164	-0.2056	0.1260	-0.0723
7	0.1126	-0.0096	-0.0453	0.2179	0.1032
8	-0.1024	-0.1547	-0.0411	-0.0504	-0.0585
9	-0.4575	-0.2362	-0.1822	-0.2104	-0.3560
10	-0.4684	-0.2147	-0.2761	-0.4413	-0.4583
11	-0.3147	-0.3461	-0.0987	-0.0017	-0.2414
12	-0.0028	-0.3111	-0.5469	0.4896	0.4007
13	-0.2077	0.1055	0.2198	-0.1517	-0.3456
14	-0.3509	0.0254	0.1640	-0.2185	-0.4107
15	-0.4182	0.0056	-0.0501	-0.5180	-0.4886
16	-0.1016	-0.2559	-0.1678	0.1032	0.0446
17	-0.1801	-0.0852	0.0829	-0.1218	0.0071
18	-0.3093	-0.3302	-0.2984	-0.0274	-0.0570
19	-0.5032	-0.4320	-0.4200	0.0156	-0.2048
20	-0.1918	-0.3610	-0.3796	-0.2675	-0.2073
21	0.0702	0.1369	0.2479	-0.1890	0.0122
22	0.2154	0.1432	0.2046	0.2015	0.3307
23	0.2702	0.5981	0.3778	0.0999	0.0434
24	0.7976	0.3986	0.4468	0.4854	0.6122
25	-0.1302	0.3632	0.2505	-0.4649	-0.2563

MAJOR GROUP 53 CORRELATIONS - DOMAIN FACTORS

Obs	_TYPE_	_NAME_	v4	v7	v10	v19	v22
1	MEAN		0.5047	-0.2496	0.1028	0.0731	-0.0179
2	STD		1.6441	0.9734	0.9483	0.9647	1.2267
3	N		29.0000	29.0000	29.0000	29.0000	29.0000
4	CORR	mean11	-0.1084	-0.1526	-0.1085	0.3048	-0.1690
5	CORR	mean13	0.0421	-0.1381	-0.1361	0.0613	-0.1729
6	CORR	mean15	-0.2239	-0.4130	-0.4722	-0.3149	-0.4506
7	CORR	mean17	-0.0966	-0.3208	-0.3124	-0.1186	-0.2579
8	CORR	mean19	-0.0185	-0.3723	-0.3490	-0.1247	-0.2543
9	CORR	mean21	-0.0011	0.1124	-0.1884	0.1765	-0.1439
10	CORR	mean23	0.0971	-0.0662	-0.1066	0.1359	-0.0694
11	CORR	mean25	-0.1466	-0.2175	-0.4686	-0.1397	-0.2372
12	CORR	mean27	-0.3599	-0.2974	-0.3563	-0.2606	-0.1897
13	CORR	mean29	0.0549	0.0296	-0.1692	0.1161	-0.2246
14	CORR	mean31	0.0374	0.2871	0.1317	0.0845	0.0401
15	CORR	mean33	0.4919	0.5924	0.6796	0.4709	0.5212
16	CORR	mean35	-0.3121	0.1359	0.1323	-0.1534	-0.0300
17	CORR	mean37	-0.2937	0.0027	0.1666	0.0854	0.0836
18	CORR	mean39	-0.0527	0.4009	0.2476	0.1265	0.1486
19	CORR	mean41	-0.2055	0.2196	0.0607	-0.0231	-0.1347
20	CORR	mean43	-0.0293	0.0801	0.0528	-0.1432	-0.1075
21	CORR	mean45	0.0467	0.1645	0.4157	0.1765	0.2823
22	CORR	mean47	-0.0606	0.0817	0.2996	-0.0890	0.3767
23	CORR	mean49	-0.0167	0.1155	0.2183	-0.0603	0.3035
24	CORR	mean51	-0.0499	-0.1446	-0.0360	-0.2123	-0.0465
25	CORR	mean53	0.8526	0.8152	0.8563	0.6429	0.8019

Obs	v25	v33	v38	v48	v54
1	0.0136	-0.2015	-0.2012	-0.1432	-0.1421
2	1.3587	0.8026	0.5757	0.4866	0.5991
3	29.0000	29.0000	29.0000	29.0000	29.0000
4	0.0151	0.3654	-0.1666	-0.3215	-0.2933
5	0.1545	0.3136	-0.2773	-0.6124	-0.2497
6	-0.2278	-0.0608	-0.3257	-0.1065	-0.2690
7	-0.0573	0.0544	-0.3340	-0.0222	-0.1387
8	0.1049	0.0625	-0.2806	-0.4355	-0.0685
9	-0.0230	0.1321	-0.3441	-0.3266	-0.3948
10	0.2248	0.3115	-0.2527	-0.6160	-0.1104
11	-0.1712	-0.1859	-0.4378	-0.1973	-0.3973
12	-0.1314	-0.1119	-0.5184	0.1215	-0.4824
13	-0.1505	-0.0268	-0.0381	-0.1845	-0.0448
14	-0.2302	-0.1206	0.0558	0.0474	-0.0454
15	0.5812	0.4968	0.0289	-0.3249	0.0949
16	-0.3150	-0.2005	0.0684	0.1086	-0.1253
17	-0.2675	-0.1280	0.0528	0.2104	-0.0069
18	-0.0543	-0.0267	-0.0963	0.0235	-0.2771
19	-0.2570	-0.0044	-0.3563	-0.1827	-0.5551
20	-0.0402	0.0054	0.0432	-0.3025	-0.0577
21	0.0963	0.0241	0.3822	0.1028	0.2516
22	-0.0217	-0.2568	0.1791	0.5797	0.2778
23	-0.1951	-0.1851	0.3418	0.6145	0.2579
24	-0.0810	-0.2823	0.5238	0.4430	0.5667
25	0.7489	0.4642	0.4466	-0.0059	0.3060

Major Group 11 Distances – Domain Factors

	V11	V12	V15	V19	V29	V32
MEANS11	**15.120**	**13.490**	**12.508**	**15.966**	**20.363**	**11.199**
MEANS13	30.628	22.961	31.000	23.517	48.162	26.768
MEANS15	57.770	34.170	63.915	53.462	76.384	65.982
MEANS17	62.213	40.581	53.529	52.290	61.615	66.057
MEANS19	57.494	34.009	62.281	38.859	72.368	62.239
MEANS21	51.075	33.214	55.450	53.346	48.596	40.362
MEANS23	47.268	41.094	58.463	48.404	73.996	47.698
MEANS25	59.083	30.220	68.724	52.493	60.238	52.936
MEANS27	58.833	30.508	54.781	43.392	50.781	47.445
MEANS29	67.289	43.387	72.925	53.329	64.348	62.015
MEANS31	75.106	48.717	71.337	57.397	52.429	60.378
MEANS33	62.569	43.191	51.797	46.838	36.516	49.543
MEANS35	56.187	33.400	45.050	30.146	39.172	35.892
MEANS37	49.224	29.644	37.313	27.021	33.708	33.623
MEANS39	58.917	34.571	48.511	38.519	34.117	39.498
MEANS41	57.492	38.128	41.161	41.879	36.399	39.020
MEANS43	54.092	36.288	52.189	36.453	54.247	42.680
MEANS45	50.030	29.645	41.585	20.299	35.641	40.285
MEANS47	66.023	39.585	52.784	40.368	45.209	51.583
MEANS49	70.092	45.730	57.936	48.379	46.520	62.002
MEANS51	60.911	35.668	55.543	34.160	55.767	53.870
MEANS53	61.719	43.465	44.467	34.425	40.574	43.029

Note.
This is a dissimilarity matrix.

Major Group 13 Distances – Domain Factors

	V3	V8	V13	V21	V28	V32
MEANS11	12.618	49.266	45.033	27.940	33.569	24.167
MEANS13	**22.253**	**26.543**	**27.918**	**20.528**	**7.871**	**9.263**
MEANS15	45.466	36.018	33.932	31.399	32.246	40.372
MEANS17	46.991	35.217	32.130	40.217	48.037	56.679
MEANS19	40.374	12.252	10.902	35.663	30.100	39.044
MEANS21	36.578	51.972	40.379	66.081	18.994	36.399
MEANS23	40.696	28.984	30.416	38.012	13.711	17.311
MEANS25	35.733	44.595	31.475	55.423	24.215	39.961
MEANS27	21.975	44.272	37.722	55.150	29.246	42.583
MEANS29	52.070	27.386	14.886	69.351	30.714	44.622
MEANS31	47.729	38.650	27.134	81.776	25.196	41.032
MEANS33	39.517	29.129	29.724	69.277	27.593	37.587
MEANS35	24.892	45.306	40.146	57.296	18.957	29.249
MEANS37	28.544	41.154	35.634	53.731	25.465	34.585
MEANS39	24.984	41.350	35.251	63.663	18.458	32.667
MEANS41	21.698	40.437	42.358	57.098	14.364	25.724
MEANS43	29.479	37.478	35.607	44.360	8.612	15.758
MEANS45	30.687	29.311	26.587	52.043	30.635	36.975
MEANS47	39.098	43.293	36.828	59.196	33.889	47.147
MEANS49	42.348	36.609	31.069	65.247	36.509	46.963
MEANS51	40.250	36.848	28.690	50.769	30.302	42.135
MEANS53	40.724	34.094	32.208	59.685	28.193	36.138

Note.
This is a dissimilarity matrix.

Major Group 15 Distances – Domain Factors

	V3	V5
MEANS11	66.250	67.821
MEANS13	61.887	55.296
MEANS15	**18.662**	**13.374**
MEANS17	22.789	26.942
MEANS19	51.876	39.865
MEANS21	84.037	69.606
MEANS23	85.034	70.339
MEANS25	62.183	47.710
MEANS27	61.978	46.379
MEANS29	66.352	51.731
MEANS31	74.661	61.487
MEANS33	79.197	66.391
MEANS35	82.950	71.331
MEANS37	76.667	70.966
MEANS39	75.791	62.549
MEANS41	57.939	52.259
MEANS43	70.587	56.523
MEANS45	79.183	69.656
MEANS47	74.749	67.530
MEANS49	54.130	45.989
MEANS51	68.360	55.181
MEANS53	81.280	69.991

Note.
This is a dissimilarity matrix.

Major Group 17 Distances – Domain Factors

	V2	V7	V12	V17	V22	V26	V35
MEANS11	41.734	63.729	49.688	61.024	47.696	32.796	52.409
MEANS13	38.737	73.773	42.363	59.562	51.359	38.216	38.691
MEANS15	34.745	39.740	24.862	33.551	23.734	30.314	20.374
MEANS17	**20.833**	**20.433**	**10.840**	**11.640**	**9.700**	**13.400**	**10.788**
MEANS19	29.540	45.673	22.818	36.491	35.928	37.007	28.908
MEANS21	61.820	107.603	62.656	86.788	75.970	63.675	66.503
MEANS23	61.675	105.371	64.403	82.225	81.947	67.534	61.741
MEANS25	49.315	77.058	42.700	62.086	54.723	48.967	49.560
MEANS27	30.119	80.981	45.912	56.800	53.179	39.660	47.577
MEANS29	62.632	76.950	40.659	68.509	57.947	63.963	43.660
MEANS31	70.818	101.109	49.499	82.828	72.423	67.890	54.320
MEANS33	53.948	92.513	53.250	69.476	66.396	59.025	56.635
MEANS35	52.726	101.372	56.170	82.080	69.874	51.833	54.923
MEANS37	45.061	86.988	43.493	67.703	55.388	40.629	46.490
MEANS39	48.491	98.894	52.545	73.867	67.825	50.335	56.436
MEANS41	38.334	89.936	44.967	64.903	62.939	47.278	51.507
MEANS43	56.233	101.008	59.279	80.752	71.394	54.606	52.027
MEANS45	45.370	74.198	40.468	64.185	49.779	43.976	42.713
MEANS47	45.303	80.816	39.055	57.789	47.962	35.307	36.714
MEANS49	50.385	67.374	30.820	51.370	40.541	41.610	28.534
MEANS51	46.909	70.761	40.491	56.772	42.842	38.310	27.806
MEANS53	55.377	85.057	47.761	65.764	57.331	49.704	43.941

Note.
This is a dissimilarity matrix.

Major Group 19 Distances – Domain Factors

	V3	V4	V8	V9	V25	V29	V33
MEANS11	82.726	74.066	65.504	77.317	33.551	24.392	110.320
MEANS13	53.306	39.932	41.165	42.920	11.237	19.843	77.680
MEANS15	45.032	32.683	35.744	41.872	18.705	32.260	84.423
MEANS17	50.879	41.274	46.314	54.615	30.415	39.352	84.644
MEANS19	**19.417**	**12.080**	**16.090**	**19.969**	**19.780**	**33.764**	**45.101**
MEANS21	90.943	75.641	75.792	73.125	37.950	22.716	92.325
MEANS23	64.460	47.604	47.896	43.940	28.383	32.305	63.954
MEANS25	60.877	49.892	52.214	54.618	32.743	25.857	60.115
MEANS27	63.766	50.012	51.761	50.656	25.637	32.850	77.933
MEANS29	60.475	44.583	40.688	41.535	42.563	41.919	93.151
MEANS31	77.926	58.342	60.174	57.353	45.519	48.709	99.549
MEANS33	76.937	63.334	61.423	52.056	40.513	49.034	86.037
MEANS35	77.229	58.635	61.887	60.557	31.495	39.660	96.070
MEANS37	71.051	54.366	58.367	61.104	35.095	38.278	87.931
MEANS39	77.334	60.970	63.528	60.536	33.892	38.623	89.977
MEANS41	68.431	54.252	64.650	67.500	25.302	36.188	98.023
MEANS43	68.848	48.778	50.509	47.508	21.939	39.720	87.502
MEANS45	58.906	45.241	44.468	44.429	34.088	44.307	82.099
MEANS47	73.762	55.583	62.178	58.934	38.325	46.326	77.292
MEANS49	72.669	51.106	56.082	53.414	39.526	53.036	86.826
MEANS51	65.266	45.234	45.821	42.289	30.781	42.347	76.796
MEANS53	74.884	57.660	59.193	51.156	38.478	52.231	87.498

	V36	V43
MEANS11	67.261	72.495
MEANS13	35.333	45.158
MEANS15	49.310	38.242
MEANS17	61.840	30.617
MEANS19	**27.628**	**30.309**
MEANS21	49.657	72.399
MEANS23	22.174	57.769
MEANS25	32.615	57.364
MEANS27	49.912	61.192
MEANS29	58.526	36.980
MEANS31	62.482	44.567
MEANS33	54.516	46.105
MEANS35	61.200	55.976
MEANS37	60.644	51.321
MEANS39	57.145	54.807
MEANS41	54.564	57.660
MEANS43	48.533	44.713
MEANS45	59.649	41.522
MEANS47	59.377	40.775
MEANS49	61.745	30.292
MEANS51	57.670	28.515
MEANS53	58.056	33.192

Note.
This is a dissimilarity matrix.

Major Group 21 Distances – Domain Factors

	V1	V4
MEANS11	29.359	52.213
MEANS13	28.216	33.132
MEANS15	54.427	55.109
MEANS17	58.902	65.478
MEANS19	47.113	45.945
MEANS21	**4.938**	**7.448**
MEANS23	37.446	27.590
MEANS25	23.065	19.118
MEANS27	27.542	43.070
MEANS29	25.506	21.950
MEANS31	23.412	18.865
MEANS33	26.388	27.286
MEANS35	28.349	34.809
MEANS37	30.888	39.317
MEANS39	19.896	24.433
MEANS41	25.415	29.989
MEANS43	33.390	35.480
MEANS45	36.756	46.445
MEANS47	43.325	46.754
MEANS49	45.148	47.080
MEANS51	43.982	49.098
MEANS53	36.101	42.182

Note.
This is a dissimilarity matrix.

Major Group 23 Distances – Domain Factors

	V4	V7
MEANS11	86.144	66.439
MEANS13	53.976	21.717
MEANS15	87.636	39.474
MEANS17	101.105	57.719
MEANS19	52.862	28.530
MEANS21	61.608	48.834
MEANS23	**23.845**	**10.214**
MEANS25	61.376	41.718
MEANS27	81.186	43.551
MEANS29	70.843	44.806
MEANS31	82.792	43.689
MEANS33	55.838	37.600
MEANS35	91.109	41.356
MEANS37	93.963	49.549
MEANS39	79.697	39.514
MEANS41	88.155	38.740
MEANS43	69.389	17.628
MEANS45	84.768	49.235
MEANS47	95.418	48.093
MEANS49	94.446	47.293
MEANS51	86.432	39.247
MEANS53	74.972	38.823

Note.
This is a dissimilarity matrix.

Major Group 25 Distances – Domain Factors

	V3	V16	V23	V25	V27	V32	V38
MEANS11	76.604	58.226	36.297	52.156	49.017	54.676	27.528
MEANS13	61.626	59.863	38.571	51.021	33.515	38.475	25.772
MEANS15	35.344	67.180	54.558	59.040	39.206	47.298	35.918
MEANS17	33.896	66.297	54.755	57.405	49.168	60.161	45.162
MEANS19	46.283	46.895	44.001	38.641	28.078	39.195	31.211
MEANS21	58.190	30.507	13.756	32.134	15.449	8.442	29.869
MEANS23	74.296	63.083	46.701	53.853	31.828	36.598	32.375
MEANS25	**34.274**	**25.219**	**16.099**	**17.027**	**3.406**	**11.715**	**18.746**
MEANS27	59.565	55.898	17.015	38.397	25.845	31.632	19.537
MEANS29	42.787	17.173	31.038	40.112	23.517	17.794	36.702
MEANS31	54.219	28.057	22.517	38.914	21.597	17.295	31.589
MEANS33	69.117	42.010	21.679	29.660	31.214	32.584	30.851
MEANS35	75.021	54.878	20.648	45.046	29.668	34.446	25.382
MEANS37	70.069	53.831	25.430	46.908	33.765	37.958	29.553
MEANS39	66.837	43.587	11.131	31.841	22.455	24.382	20.572
MEANS41	63.962	58.847	21.792	42.897	27.434	35.036	21.432
MEANS43	68.277	66.592	32.537	49.723	31.458	35.527	22.637
MEANS45	74.574	48.653	29.531	43.608	37.926	44.294	31.969
MEANS47	66.010	60.295	31.124	48.717	38.188	44.132	36.906
MEANS49	56.439	55.372	34.684	51.263	37.064	44.247	35.028
MEANS51	61.313	59.123	35.668	52.622	38.895	43.196	36.849
MEANS53	68.688	55.954	35.423	45.769	42.016	46.514	38.577

	V42
MEANS11	21.012
MEANS13	26.029
MEANS15	34.767
MEANS17	37.844
MEANS19	31.356
MEANS21	19.919
MEANS23	37.129
MEANS25	**14.031**
MEANS27	23.894
MEANS29	35.894
MEANS31	38.188
MEANS33	42.584
MEANS35	32.982
MEANS37	30.100
MEANS39	28.860
MEANS41	27.119
MEANS43	41.085
MEANS45	36.606
MEANS47	38.610
MEANS49	41.601
MEANS51	42.023
MEANS53	47.084

Note.
This is a dissimilarity matrix.

Major Group 27 Distances – Domain Factors

	V2	V3	V10	V25	V27	V30	V38
MEANS11	85.162	62.741	45.430	50.924	113.566	61.443	61.463
MEANS13	80.671	41.042	51.105	60.232	92.495	35.562	37.832
MEANS15	69.196	46.746	56.641	73.996	90.261	49.620	41.248
MEANS17	56.832	51.680	47.261	79.002	102.364	62.209	53.085
MEANS19	61.725	40.314	65.814	71.671	90.057	46.333	33.945
MEANS21	77.371	38.776	54.567	53.804	96.496	32.632	44.763
MEANS23	101.713	46.696	85.181	75.332	103.088	34.327	38.951
MEANS25	60.893	35.431	60.373	51.798	85.652	37.932	37.777
MEANS27	**29.165**	**11.555**	**27.034**	**32.642**	**51.473**	**19.331**	**16.281**
MEANS29	76.670	37.330	74.851	72.203	108.945	35.411	53.350
MEANS31	73.242	31.774	70.514	65.162	103.485	29.689	54.230
MEANS33	85.332	44.876	71.118	66.103	106.475	36.314	52.105
MEANS35	57.695	24.472	42.577	45.961	78.686	29.396	40.808
MEANS37	55.775	33.789	44.827	51.211	90.552	42.260	46.379
MEANS39	53.638	20.771	41.132	46.791	81.590	23.162	36.896
MEANS41	52.995	25.418	28.278	52.028	82.878	18.354	33.136
MEANS43	76.035	26.915	59.089	60.119	84.108	23.870	34.367
MEANS45	64.113	39.700	55.372	54.831	94.379	48.248	51.455
MEANS47	52.040	32.030	51.285	57.769	87.290	47.641	48.728
MEANS49	54.499	29.782	57.479	57.587	84.188	39.315	50.868
MEANS51	54.999	26.225	53.559	60.052	81.025	41.631	42.166
MEANS53	80.590	40.521	65.857	64.907	103.536	39.616	56.836

	V42	V49
MEANS11	34.980	49.483
MEANS13	44.269	45.896
MEANS15	36.669	41.748
MEANS17	30.078	41.227
MEANS19	39.170	40.222
MEANS21	38.777	50.523
MEANS23	64.134	59.505
MEANS25	26.741	37.949
MEANS27	**13.585**	**14.332**
MEANS29	45.132	52.309
MEANS31	47.954	56.665
MEANS33	40.784	47.300
MEANS35	38.000	44.335
MEANS37	37.747	48.504
MEANS39	29.397	38.067
MEANS41	32.251	44.420
MEANS43	49.226	45.347
MEANS45	38.895	46.403
MEANS47	37.176	44.297
MEANS49	36.810	40.947
MEANS51	37.597	36.801
MEANS53	45.152	45.260

Note.
This is a dissimilarity matrix.

Major Group 29 Distances – Domain Factors

	V4	V9	V15	V17	V21	V25	V29
MEANS11	66.595	77.794	84.733	79.965	64.454	41.225	72.428
MEANS13	57.819	53.888	78.076	57.714	56.096	36.462	43.626
MEANS15	53.171	63.269	70.544	53.062	60.308	41.408	56.396
MEANS17	52.499	69.481	68.742	55.305	68.053	50.736	63.782
MEANS19	45.638	35.697	52.614	37.210	52.453	40.976	41.509
MEANS21	40.079	50.786	71.379	45.024	23.375	20.141	27.534
MEANS23	65.649	50.297	83.674	52.670	56.228	45.458	39.048
MEANS25	40.344	47.117	66.630	40.068	25.136	23.009	32.569
MEANS27	43.392	68.495	78.209	52.579	48.204	36.051	33.929
MEANS29	**16.597**	**18.730**	**27.018**	**12.108**	**14.624**	**18.496**	**11.853**
MEANS31	27.625	35.517	52.141	27.161	17.191	22.341	10.367
MEANS33	54.169	45.930	65.923	42.645	44.720	41.454	35.365
MEANS35	44.155	62.858	82.964	58.413	43.327	37.636	27.681
MEANS37	46.257	59.193	75.989	62.229	42.220	39.960	36.451
MEANS39	38.299	57.123	74.325	46.472	35.568	33.291	21.634
MEANS41	47.447	69.626	87.785	56.288	49.167	35.023	30.297
MEANS43	55.056	58.520	88.347	58.355	53.024	42.969	29.642
MEANS45	47.037	47.749	62.034	53.563	49.087	42.992	39.700
MEANS47	49.920	63.796	78.067	60.671	50.393	50.117	38.918
MEANS49	42.597	52.187	64.480	46.599	46.939	41.055	32.329
MEANS51	39.566	49.747	66.347	52.382	50.027	47.490	32.119
MEANS53	54.395	47.288	74.472	55.825	55.830	48.874	37.480

	V39
MEANS11	72.347
MEANS13	45.230
MEANS15	61.729
MEANS17	69.328
MEANS19	44.039
MEANS21	22.825
MEANS23	41.865
MEANS25	35.138
MEANS27	46.221
MEANS29	**8.974**
MEANS31	8.798
MEANS33	25.544
MEANS35	34.574
MEANS37	38.908
MEANS39	26.047
MEANS41	36.964
MEANS43	36.768
MEANS45	37.957
MEANS47	44.349
MEANS49	35.512
MEANS51	38.471
MEANS53	34.234

Note.
This is a dissimilarity matrix.

Major Group 31 Distances – Domain Factors

	V8	V10
MEANS11	53.894	46.110
MEANS13	26.836	25.744
MEANS15	43.342	33.325
MEANS17	51.136	32.307
MEANS19	35.280	25.342
MEANS21	24.979	33.931
MEANS23	32.200	38.234
MEANS25	30.257	33.237
MEANS27	30.225	23.070
MEANS29	11.952	21.849
MEANS31	**7.435**	**15.201**
MEANS33	30.733	18.541
MEANS35	17.457	14.387
MEANS37	23.641	13.016
MEANS39	15.576	13.205
MEANS41	18.507	20.032
MEANS43	16.289	15.841
MEANS45	28.027	12.223
MEANS47	28.633	10.856
MEANS49	22.407	7.431
MEANS51	23.277	6.980
MEANS53	24.423	9.497

Note.
This is a dissimilarity matrix.

Major Group 33 Distances – Domain Factors

	V1	V3	V6	V9	V19
MEANS11	33.111	45.188	39.679	59.186	126.936
MEANS13	60.070	58.907	22.562	35.310	107.728
MEANS15	87.124	78.169	35.676	75.264	137.189
MEANS17	75.920	66.498	32.579	79.268	127.336
MEANS19	78.121	59.941	22.823	54.952	110.106
MEANS21	46.870	46.539	25.552	26.210	89.701
MEANS23	73.826	76.257	26.017	31.473	97.387
MEANS25	58.339	47.609	26.953	40.264	109.561
MEANS27	63.671	43.282	26.487	34.433	116.743
MEANS29	62.302	50.700	20.068	41.633	82.065
MEANS31	59.724	47.486	14.934	24.761	75.621
MEANS33	**33.007**	**23.399**	**4.393**	**12.307**	**45.099**
MEANS35	59.573	44.677	23.893	21.611	111.973
MEANS37	55.408	38.218	20.396	31.343	113.527
MEANS39	47.735	34.777	15.800	14.089	84.760
MEANS41	56.748	54.420	22.840	27.445	97.187
MEANS43	72.898	61.768	21.536	22.085	104.197
MEANS45	51.420	31.486	16.960	31.762	98.281
MEANS47	64.621	41.080	18.108	32.525	107.939
MEANS49	66.696	48.437	15.164	39.949	93.595
MEANS51	73.913	49.577	21.167	38.214	112.684
MEANS53	51.100	31.477	11.502	20.707	66.712

Note.
This is a dissimilarity matrix.

Major Group 35 Distances – Domain Factors

	V5	V12	V14
MEANS11	20.458	49.391	50.235
MEANS13	31.764	23.156	34.379
MEANS15	48.388	46.307	59.921
MEANS17	42.895	56.584	60.296
MEANS19	38.202	42.658	43.721
MEANS21	36.190	35.148	43.588
MEANS23	54.742	39.273	51.064
MEANS25	31.589	36.140	42.970
MEANS27	22.477	23.394	25.069
MEANS29	34.172	38.442	46.045
MEANS31	30.277	23.508	28.500
MEANS33	32.624	36.013	33.071
MEANS35	**15.586**	**6.203**	**9.889**
MEANS37	16.499	14.589	10.887
MEANS39	16.895	13.463	14.485
MEANS41	24.492	16.602	26.962
MEANS43	31.944	8.499	20.054
MEANS45	15.151	21.957	14.595
MEANS47	23.342	18.615	11.662
MEANS49	28.439	26.749	25.574
MEANS51	24.389	17.676	18.239
MEANS53	28.726	23.716	25.498

Note.
This is a dissimilarity matrix.

Major Group 37 Distances – Domain Factors

	V1	V3
MEANS11	14.687	11.095
MEANS13	22.918	22.234
MEANS15	51.682	47.514
MEANS17	52.466	42.498
MEANS19	49.709	42.763
MEANS21	22.907	31.315
MEANS23	44.372	51.140
MEANS25	33.563	38.656
MEANS27	29.244	26.850
MEANS29	40.365	42.100
MEANS31	34.614	36.039
MEANS33	37.830	36.969
MEANS35	17.174	16.033
MEANS37	**14.372**	**10.733**
MEANS39	20.743	19.205
MEANS41	24.440	17.773
MEANS43	28.320	29.768
MEANS45	23.372	16.529
MEANS47	28.939	24.731
MEANS49	36.972	32.924
MEANS51	30.045	29.165
MEANS53	30.173	26.301

Note.
This is a dissimilarity matrix.

Major Group 39 Distances – Domain Factors

	V2	V6	V7	V12	V16
MEANS11	16.452	58.384	61.304	48.427	65.868
MEANS13	22.644	34.247	41.159	30.384	52.799
MEANS15	43.432	62.754	49.810	55.718	52.818
MEANS17	48.510	72.491	50.566	52.622	49.501
MEANS19	40.206	57.849	45.884	33.923	41.616
MEANS21	18.887	43.935	47.050	34.271	50.347
MEANS23	36.768	43.947	56.803	38.555	62.158
MEANS25	28.635	47.959	47.313	35.142	39.326
MEANS27	22.143	39.073	21.010	22.078	16.271
MEANS29	31.298	47.396	41.042	25.931	47.773
MEANS31	27.939	32.599	32.681	19.936	44.424
MEANS33	24.963	35.550	36.335	27.275	50.504
MEANS35	17.666	22.261	21.688	14.311	32.370
MEANS37	17.061	41.413	30.359	18.408	36.540
MEANS39	**15.674**	**22.158**	**20.529**	**13.725**	**27.505**
MEANS41	22.666	26.596	29.324	22.965	34.294
MEANS43	24.675	16.334	23.433	22.926	43.212
MEANS45	19.162	40.355	28.567	18.516	40.368
MEANS47	28.050	41.776	24.106	20.202	31.925
MEANS49	29.389	41.898	20.646	23.344	36.848
MEANS51	26.571	37.013	15.347	21.239	30.736
MEANS53	25.954	33.792	18.956	20.782	49.607

Note.
This is a dissimilarity matrix.

Major Group 41 Distances – Domain Factors

	V5	V10	V19	V24
MEANS11	48.316	27.480	43.707	46.924
MEANS13	32.188	10.218	33.882	35.439
MEANS15	37.671	34.877	48.783	55.537
MEANS17	41.271	42.419	54.285	60.241
MEANS19	41.456	33.334	43.101	55.470
MEANS21	40.350	28.756	25.028	32.125
MEANS23	42.823	28.329	41.370	51.381
MEANS25	39.296	33.918	26.155	42.538
MEANS27	26.619	25.971	14.182	20.781
MEANS29	31.701	42.758	35.063	47.904
MEANS31	19.335	39.324	27.641	30.804
MEANS33	28.538	33.895	25.929	33.368
MEANS35	20.492	23.618	21.745	16.315
MEANS37	26.979	30.714	31.149	24.619
MEANS39	17.541	23.238	13.619	13.033
MEANS41	**14.067**	**11.646**	**11.343**	**6.886**
MEANS43	19.806	19.465	27.296	23.191
MEANS45	30.008	32.618	35.272	34.336
MEANS47	27.872	38.258	38.778	34.289
MEANS49	14.916	42.445	38.839	37.172
MEANS51	27.812	37.276	39.682	38.531
MEANS53	30.196	31.412	34.810	36.826

Note.
This is a dissimilarity matrix.

Major Group 43 Distances – Domain Factors

	V6	V8	V9	V10	V12	V19	V20
MEANS11	45.105	50.006	55.679	51.794	36.704	57.185	53.078
MEANS13	17.523	17.518	22.903	16.853	10.607	17.819	13.150
MEANS15	43.972	38.129	37.161	36.660	30.744	43.456	35.673
MEANS17	57.141	55.563	51.950	56.948	44.461	62.007	56.162
MEANS19	42.069	40.738	39.223	40.881	31.762	40.306	30.530
MEANS21	27.628	53.275	56.341	57.619	38.546	40.158	33.050
MEANS23	23.197	27.777	39.764	25.580	22.022	22.308	15.029
MEANS25	36.277	48.927	52.430	51.810	39.300	42.966	35.883
MEANS27	28.651	45.029	42.981	55.123	25.515	31.524	37.131
MEANS29	38.249	49.370	53.186	52.768	41.011	45.261	37.274
MEANS31	26.583	41.052	47.872	50.631	36.352	34.870	30.413
MEANS33	26.910	43.117	50.893	53.194	35.130	36.478	34.294
MEANS35	17.601	28.744	28.433	40.399	18.719	20.820	25.246
MEANS37	28.493	39.856	33.607	50.119	26.218	33.135	31.378
MEANS39	15.815	34.046	36.543	46.895	22.406	24.109	27.599
MEANS41	11.077	28.155	38.835	42.058	19.176	25.211	24.831
MEANS43	**8.372**	**10.213**	**13.884**	**16.407**	**6.050**	**4.742**	**7.916**
MEANS45	33.869	40.712	35.527	49.791	30.375	37.156	35.621
MEANS47	35.351	42.176	33.445	52.307	31.695	35.186	36.573
MEANS49	37.593	40.054	38.767	51.630	35.078	39.835	40.901
MEANS51	33.420	34.769	21.359	40.947	25.099	27.813	30.907
MEANS53	25.918	33.957	33.937	42.722	27.954	28.940	30.702

	V27	V33	V45
MEANS11	62.094	44.815	43.175
MEANS13	28.793	22.421	30.065
MEANS15	54.822	46.776	48.681
MEANS17	71.568	57.590	47.154
MEANS19	48.847	42.614	41.468
MEANS21	29.844	30.547	38.456
MEANS23	26.870	29.008	44.864
MEANS25	36.391	31.939	36.506
MEANS27	28.122	23.917	20.660
MEANS29	37.803	37.047	37.785
MEANS31	23.742	22.636	23.283
MEANS33	37.072	25.083	26.674
MEANS35	18.180	14.388	12.281
MEANS37	31.071	27.966	17.760
MEANS39	18.162	12.042	11.877
MEANS41	21.474	13.056	13.962
MEANS43	**10.803**	**7.645**	**20.134**
MEANS45	40.626	31.752	20.977
MEANS47	36.599	31.139	18.259
MEANS49	39.496	31.172	21.638
MEANS51	33.219	30.422	24.329
MEANS53	34.321	25.104	27.977

Note.
This is a dissimilarity matrix.

Major Group 45 Distances – Domain Factors

	V1	V5	V15
MEANS11	22.240	23.296	56.436
MEANS13	34.219	36.284	44.950
MEANS15	62.811	55.988	61.721
MEANS17	54.374	45.446	57.190
MEANS19	45.424	49.593	46.882
MEANS21	49.271	38.510	52.651
MEANS23	57.953	61.722	64.634
MEANS25	50.654	43.391	50.439
MEANS27	50.619	39.586	26.904
MEANS29	43.060	44.408	55.780
MEANS31	40.497	40.238	39.095
MEANS33	39.128	28.355	30.314
MEANS35	28.862	27.838	20.805
MEANS37	20.134	18.859	18.470
MEANS39	34.033	28.504	20.082
MEANS41	39.435	37.280	35.890
MEANS43	44.012	45.714	32.775
MEANS45	**15.038**	**16.742**	**17.149**
MEANS47	31.997	24.866	14.232
MEANS49	33.974	29.471	27.729
MEANS51	34.948	30.304	22.196
MEANS53	28.017	24.818	25.027

Note.
This is a dissimilarity matrix.

Major Group 47 Distances – Domain Factors

	V9	V16	V26	V27	V35	V41	V43
MEANS11	45.542	45.576	57.550	45.812	50.971	50.137	53.554
MEANS13	33.570	35.878	53.906	34.124	36.198	34.286	36.392
MEANS15	37.051	43.900	43.280	40.854	54.426	51.902	48.540
MEANS17	30.521	36.357	26.343	33.965	45.358	48.569	40.475
MEANS19	34.911	37.309	41.678	34.955	36.998	40.781	38.131
MEANS21	46.206	42.025	58.440	45.224	43.945	38.263	46.206
MEANS23	58.333	56.659	73.395	58.800	51.792	51.929	48.864
MEANS25	40.946	35.248	42.448	36.048	42.591	38.811	40.830
MEANS27	22.365	19.580	39.108	21.277	25.507	25.260	28.878
MEANS29	44.033	38.746	38.612	43.799	42.005	39.408	34.834
MEANS31	37.360	26.542	36.185	32.020	30.395	23.772	21.975
MEANS33	41.165	32.288	43.208	32.200	28.654	29.173	23.544
MEANS35	19.751	13.539	42.905	15.353	17.203	10.905	18.571
MEANS37	13.667	9.008	33.922	11.908	10.382	7.083	13.983
MEANS39	23.716	16.145	36.602	17.260	17.961	14.809	17.776
MEANS41	32.617	25.904	45.368	25.260	33.733	25.414	30.252
MEANS43	28.379	27.322	50.184	26.157	29.056	23.863	25.252
MEANS45	17.154	14.260	34.819	14.629	11.682	11.965	16.357
MEANS47	**7.172**	**4.490**	**23.566**	**6.629**	**4.181**	**5.138**	**6.828**
MEANS49	15.800	13.349	18.830	19.541	17.935	15.948	11.385
MEANS51	7.125	11.301	25.838	12.974	10.178	11.947	12.735
MEANS53	26.161	23.005	33.190	22.419	16.201	20.161	16.298

	V49	V51	V61
MEANS11	51.869	63.755	56.917
MEANS13	29.791	43.351	38.149
MEANS15	55.854	71.352	62.025
MEANS17	47.432	57.493	53.648
MEANS19	34.822	50.823	45.684
MEANS21	47.055	56.423	50.275
MEANS23	43.474	58.686	55.347
MEANS25	48.682	60.272	44.908
MEANS27	39.274	43.214	30.873
MEANS29	41.693	56.564	53.901
MEANS31	32.948	46.175	37.700
MEANS33	27.256	34.060	35.318
MEANS35	21.240	35.430	19.333
MEANS37	16.759	29.230	15.711
MEANS39	24.405	34.298	23.890
MEANS41	34.204	48.296	38.269
MEANS43	25.806	40.999	30.293
MEANS45	15.396	26.092	19.570
MEANS47	**13.529**	**19.552**	**8.656**
MEANS49	24.073	27.608	25.462
MEANS51	15.213	23.229	18.718
MEANS53	12.758	11.142	21.028

Note.
This is a dissimilarity matrix.

Major Group 49 Distances – Domain Factors

	V9	V13	V15	V27	V28	V36	V38
MEANS11	60.414	50.533	49.895	45.376	65.925	50.898	47.216
MEANS13	40.080	40.356	34.805	30.849	64.445	34.000	34.509
MEANS15	44.331	33.616	45.532	39.511	60.135	40.398	41.223
MEANS17	44.467	26.529	38.793	34.656	48.686	36.039	34.521
MEANS19	42.464	35.086	36.032	33.787	61.496	37.357	35.660
MEANS21	48.207	53.032	39.591	36.496	67.351	46.618	43.751
MEANS23	49.324	58.552	46.519	48.617	79.871	48.437	49.364
MEANS25	46.287	42.956	40.390	32.378	65.810	46.619	41.512
MEANS27	25.672	28.912	27.085	17.679	48.494	32.923	34.158
MEANS29	44.251	34.567	29.213	32.944	46.293	33.296	30.696
MEANS31	29.926	32.027	18.681	20.730	40.446	24.943	21.381
MEANS33	27.534	36.678	23.061	29.949	44.419	34.987	33.970
MEANS35	27.687	29.830	17.019	10.247	47.640	24.123	23.503
MEANS37	23.603	25.849	10.642	7.438	45.655	18.028	13.419
MEANS39	22.576	30.796	16.337	12.057	43.235	26.538	24.547
MEANS41	27.006	36.455	27.813	20.081	47.429	29.934	28.362
MEANS43	26.376	34.547	23.333	20.173	58.567	29.294	31.005
MEANS45	30.760	23.837	13.622	13.369	40.560	19.909	17.806
MEANS47	21.156	17.964	6.924	4.129	38.806	14.316	11.737
MEANS49	**22.790**	**6.143**	**7.316**	**10.492**	**17.397**	**4.352**	**6.932**
MEANS51	28.133	12.311	8.351	8.417	37.999	13.227	15.430
MEANS53	28.640	24.595	12.289	20.037	40.524	19.513	22.281

	V52	V53	V64
MEANS11	49.210	57.826	52.812
MEANS13	39.471	50.298	34.347
MEANS15	47.639	45.415	47.673
MEANS17	37.213	33.397	46.525
MEANS19	36.737	39.853	40.435
MEANS21	46.817	56.990	47.342
MEANS23	61.107	67.175	52.161
MEANS25	38.328	50.224	42.025
MEANS27	26.545	37.685	20.656
MEANS29	41.708	42.259	41.871
MEANS31	30.549	38.069	35.511
MEANS33	31.486	31.631	47.939
MEANS35	18.225	38.822	15.834
MEANS37	10.641	27.459	20.867
MEANS39	20.782	34.604	21.071
MEANS41	33.363	46.405	31.092
MEANS43	32.900	45.031	21.631
MEANS45	11.535	25.039	24.932
MEANS47	3.766	18.540	16.500
MEANS49	**12.156**	**12.999**	**24.054**
MEANS51	9.584	18.397	10.768
MEANS53	20.051	27.613	28.934

Note.
This is a dissimilarity matrix.

Major Group 51 Distances – Domain Factors

	V6	V43	V55	V77	V83	V90	V123
MEANS11	59.760	42.807	49.473	66.111	50.378	48.319	51.783
MEANS13	44.398	35.426	38.895	47.231	31.047	26.545	29.548
MEANS15	29.754	43.363	45.515	52.107	28.845	36.147	47.478
MEANS17	26.011	37.173	38.380	48.277	26.127	36.653	44.533
MEANS19	37.684	38.433	36.046	38.520	26.576	28.740	34.202
MEANS21	54.688	50.200	36.016	61.684	49.111	44.751	44.093
MEANS23	59.158	56.443	52.898	63.550	50.886	41.949	38.817
MEANS25	44.351	44.467	33.091	57.492	42.368	40.569	47.004
MEANS27	28.338	33.332	29.170	31.715	17.785	23.411	33.565
MEANS29	32.885	39.747	25.619	56.822	36.269	35.178	32.696
MEANS31	29.173	34.427	22.382	56.827	35.748	31.689	28.127
MEANS33	39.201	30.946	30.726	54.398	39.769	36.790	32.537
MEANS35	34.909	22.894	21.275	41.333	23.868	17.809	23.792
MEANS37	34.929	19.459	17.478	39.434	23.656	17.474	19.419
MEANS39	30.401	27.087	20.639	39.249	23.869	22.780	27.487
MEANS41	31.404	36.419	34.874	49.420	26.851	32.626	36.270
MEANS43	34.901	30.565	31.371	40.084	23.291	18.679	24.754
MEANS45	33.519	15.286	17.428	37.693	23.488	15.978	18.229
MEANS47	26.695	14.859	12.512	33.845	18.365	11.878	15.687
MEANS49	8.911	13.531	12.637	40.365	16.827	14.141	11.836
MEANS51	**21.022**	**11.126**	**8.925**	**24.872**	**8.797**	**3.767**	**10.554**
MEANS53	30.823	18.362	16.262	41.005	23.314	18.882	13.764

	V146	V156	V181
MEANS11	52.467	55.979	52.661
MEANS13	29.999	39.811	36.842
MEANS15	45.009	33.726	44.758
MEANS17	42.523	30.085	39.846
MEANS19	29.946	32.872	34.678
MEANS21	41.024	45.883	52.761
MEANS23	40.802	59.600	56.353
MEANS25	38.504	34.013	46.203
MEANS27	36.816	14.582	19.038
MEANS29	27.615	37.820	47.059
MEANS31	23.441	36.724	43.296
MEANS33	31.809	47.248	48.703
MEANS35	21.677	23.069	23.088
MEANS37	16.168	27.244	22.814
MEANS39	25.692	24.769	26.219
MEANS41	34.723	28.190	35.452
MEANS43	25.109	33.762	29.151
MEANS45	15.250	28.625	23.937
MEANS47	14.058	20.260	16.068
MEANS49	14.028	22.291	23.991
MEANS51	**9.279**	**14.346**	**10.563**
MEANS53	14.883	36.884	30.512

Note.
This is a dissimilarity matrix.

Major Group 53 Distances – Domain Factors

	V4	V7	V10	V19	V22	V25	V33
MEANS11	109.952	65.803	54.947	35.741	78.905	76.242	33.188
MEANS13	95.368	42.424	41.849	35.838	60.542	55.674	20.240
MEANS15	115.870	72.723	67.404	61.639	90.667	88.181	46.086
MEANS17	101.252	69.109	58.192	51.402	78.264	76.494	43.063
MEANS19	95.920	58.298	52.356	44.882	68.888	60.250	32.560
MEANS21	101.238	45.443	54.442	38.549	71.683	74.068	36.203
MEANS23	106.428	52.122	56.148	44.824	70.278	60.733	27.949
MEANS25	102.042	58.897	59.644	48.128	72.032	78.649	46.381
MEANS27	110.912	50.432	47.098	45.052	60.896	68.410	34.203
MEANS29	89.760	46.330	47.158	37.025	69.952	76.213	38.713
MEANS31	92.062	31.612	33.441	35.918	53.393	76.631	36.658
MEANS33	61.034	22.655	13.755	22.224	31.770	35.121	20.043
MEANS35	108.649	30.743	30.227	38.650	50.824	71.838	30.357
MEANS37	106.770	33.302	28.949	31.478	46.179	68.474	27.368
MEANS39	91.313	25.012	25.686	29.623	44.081	60.698	27.248
MEANS41	104.752	33.171	34.564	38.252	59.634	75.643	31.627
MEANS43	100.396	32.227	34.726	40.705	55.282	62.927	25.925
MEANS45	88.967	30.391	21.689	28.625	39.444	55.093	25.304
MEANS47	96.127	31.051	25.444	35.687	36.512	59.242	29.804
MEANS49	90.755	32.538	26.763	35.053	38.794	66.462	30.810
MEANS51	93.657	33.873	31.701	35.802	47.834	58.773	26.972
MEANS53	**52.510**	**11.396**	**10.129**	**16.409**	**20.919**	**29.647**	**15.154**

	V38	V48	V54
MEANS11	44.434	43.386	47.766
MEANS13	25.751	27.728	25.996
MEANS15	43.951	33.472	42.091
MEANS17	44.847	32.294	38.913
MEANS19	32.193	30.660	27.284
MEANS21	42.075	36.630	43.767
MEANS23	38.985	44.307	36.040
MEANS25	41.853	31.216	40.452
MEANS27	32.559	16.781	32.058
MEANS29	29.967	28.854	29.661
MEANS31	22.987	19.903	25.223
MEANS33	26.271	29.339	24.305
MEANS35	15.828	12.562	19.664
MEANS37	15.038	10.316	16.592
MEANS39	19.436	14.210	22.561
MEANS41	30.069	22.466	34.577
MEANS43	16.554	19.219	19.269
MEANS45	10.925	12.573	13.165
MEANS47	12.908	5.398	11.861
MEANS49	12.222	6.045	13.566
MEANS51	6.998	6.079	6.866
MEANS53	**9.848**	**14.747**	**12.594**

Note.
This is a dissimilarity matrix.

MAJOR GROUP 11 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v11	v12	v15	v19	v29	v32
1	MEAN		0.0286	-0.0197	0.0012	0.0043	0.3709	-0.1493
2	STD		1.5823	1.2427	1.2181	1.1233	1.1252	1.3326
3	N		21.0000	21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	0.7940	0.6198	0.8298	0.7201	0.7512	0.8459
5	CORR	mean13	0.3087	0.0421	0.5213	0.1832	0.1267	0.4604
6	CORR	mean15	0.0832	0.0737	-0.1838	-0.1012	-0.2788	-0.0666
7	CORR	mean17	0.0138	0.0940	0.1449	-0.1485	-0.2854	-0.0631
8	CORR	mean19	-0.0156	0.1122	-0.1169	0.0980	-0.4621	-0.2122
9	CORR	mean21	0.0608	0.0610	0.1592	-0.0259	0.0712	0.3569
10	CORR	mean23	0.2447	0.0407	0.1597	-0.1302	-0.0441	0.1997
11	CORR	mean25	0.0420	0.3101	-0.1228	-0.0141	-0.1536	0.1301
12	CORR	mean27	0.2214	0.3845	-0.1472	0.0306	-0.0422	-0.1006
13	CORR	mean29	-0.1024	-0.0667	-0.2945	-0.1662	-0.1788	-0.0648
14	CORR	mean31	-0.2836	-0.2294	-0.4071	-0.3635	-0.0481	-0.2473
15	CORR	mean33	0.0154	-0.0270	-0.1457	-0.0349	0.1265	-0.1161
16	CORR	mean35	-0.0083	-0.0649	0.0739	0.1710	0.3716	0.1584
17	CORR	mean37	0.2421	0.1166	0.4537	0.3162	0.5665	0.6149
18	CORR	mean39	-0.0210	-0.0010	-0.0295	-0.0596	0.4018	0.0390
19	CORR	mean41	-0.0991	-0.2367	0.2940	-0.2233	0.2054	0.0846
20	CORR	mean43	-0.0651	-0.2672	-0.0287	-0.2213	0.0318	-0.0342
21	CORR	mean45	0.0931	0.0187	0.1534	0.6236	0.2759	0.1763
22	CORR	mean47	-0.2230	-0.1885	-0.0678	-0.1957	0.0782	-0.0862
23	CORR	mean49	-0.2983	-0.2685	-0.1685	-0.2830	0.1175	-0.2838
24	CORR	mean51	-0.2213	-0.1821	-0.2916	-0.0133	-0.3205	-0.3291
25	CORR	mean53	-0.1096	-0.1775	0.2162	0.1244	0.2182	0.0757

MAJOR GROUP 13 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v3	v8	v13	v21	v28	v32
1	MEAN		0.4104	0.4029	0.0916	0.1057	-0.1309	0.1116
2	STD		0.9488	0.8568	0.9195	1.2425	0.7859	1.0385
3	N		21.0000	21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	0.6336	-0.1620	0.0293	0.4494	0.2400	0.5089
5	CORR	mean13	0.4219	0.4549	0.1440	0.6890	0.7272	0.6688
6	CORR	mean15	-0.2215	0.0026	-0.0078	0.4152	-0.0623	-0.0185
7	CORR	mean17	-0.1674	0.0989	0.2203	0.2952	-0.0902	-0.1300
8	CORR	mean19	-0.2053	0.6962	0.6134	0.1577	0.1679	-0.0484
9	CORR	mean21	0.0972	0.0377	-0.0858	-0.0394	0.4880	0.0431
10	CORR	mean23	0.1381	0.4120	0.1265	0.4741	0.7764	0.5420
11	CORR	mean25	-0.2029	-0.1885	0.1013	-0.0343	0.1553	-0.1417
12	CORR	mean27	0.2496	-0.2784	-0.3198	-0.2127	-0.1647	-0.2316
13	CORR	mean29	-0.4202	0.1986	0.5618	-0.1416	0.1098	-0.1232
14	CORR	mean31	-0.3108	0.0602	0.1448	-0.4650	0.2414	-0.0372
15	CORR	mean33	-0.1954	0.1244	0.0244	-0.1362	0.0629	-0.0457
16	CORR	mean35	0.5502	-0.1642	-0.2944	-0.2976	0.1128	0.2523
17	CORR	mean37	0.1285	-0.1656	-0.0866	0.0549	-0.0567	-0.0086
18	CORR	mean39	0.3870	-0.2593	-0.2200	-0.4815	0.2400	0.0768
19	CORR	mean41	0.6529	0.1196	-0.3772	-0.1604	0.6187	0.3816
20	CORR	mean43	0.3077	0.0548	-0.2127	0.2610	0.6302	0.6841
21	CORR	mean45	0.0779	0.1518	0.0333	-0.0037	-0.3685	-0.1715
22	CORR	mean47	-0.2422	-0.3300	-0.2872	-0.1459	-0.4810	-0.3939
23	CORR	mean49	-0.1392	-0.2162	-0.0936	-0.1889	-0.1664	-0.1751
24	CORR	mean51	-0.1847	-0.0909	-0.1201	-0.1904	-0.6431	-0.3026
25	CORR	mean53	-0.1471	-0.1019	-0.1615	-0.1585	-0.1936	-0.0893

MAJOR GROUP 15 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v3	v5
1	MEAN		0.5232	0.4688
2	STD		1.4543	1.4581
3	N		21.0000	21.0000
4	CORR	mean11	0.0147	-0.1209
5	CORR	mean13	-0.0177	-0.1917
6	CORR	mean15	0.9001	0.8858
7	CORR	mean17	0.5227	0.3683
8	CORR	mean19	0.2679	0.2805
9	CORR	mean21	-0.1855	-0.1746
10	CORR	mean23	-0.1180	-0.1679
11	CORR	mean25	0.2139	0.2877
12	CORR	mean27	0.0509	0.1676
13	CORR	mean29	-0.1838	-0.0658
14	CORR	mean31	-0.2467	-0.1255
15	CORR	mean33	-0.3005	-0.2606
16	CORR	mean35	-0.3061	-0.2802
17	CORR	mean37	-0.2085	-0.3287
18	CORR	mean39	-0.3770	-0.2913
19	CORR	mean41	-0.0665	-0.1498
20	CORR	mean43	0.0064	-0.0004
21	CORR	mean45	-0.2344	-0.2639
22	CORR	mean47	-0.1527	-0.2660
23	CORR	mean49	0.1993	0.2040
24	CORR	mean51	-0.1447	-0.0758
25	CORR	mean53	-0.2634	-0.2633

MAJOR GROUP 17 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v2	v7	v12	v17	v22	v26	v35
1	MEAN		0.3162	0.8445	0.3232	0.5010	0.4104	0.1370	0.3534
2	STD		1.2205	1.1551	0.9549	1.3482	1.0914	1.1188	0.9862
3	N		21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	0.0644	0.1690	-0.0590	-0.0044	0.1573	0.2637	-0.2167
5	CORR	mean13	0.3009	0.0417	0.1188	0.1851	0.0818	0.2405	0.0231
6	CORR	mean15	0.1077	0.2733	0.1590	0.1051	0.2934	0.0826	0.2120
7	CORR	mean17	0.4869	0.7466	0.6803	0.7837	0.7281	0.7091	0.6511
8	CORR	mean19	0.2050	0.5549	0.6242	0.3657	0.1960	0.0604	0.1420
9	CORR	mean21	0.0778	-0.4414	-0.0222	-0.1944	-0.3753	-0.1550	-0.3650
10	CORR	mean23	0.2195	-0.2186	0.0968	0.1653	-0.0635	0.0314	-0.0076
11	CORR	mean25	-0.0681	-0.0478	0.3444	-0.0344	-0.0714	-0.0119	-0.1301
12	CORR	mean27	0.2470	0.0504	-0.0449	0.0963	0.1126	0.0093	-0.0708
13	CORR	mean29	-0.2111	-0.1974	0.0916	-0.2469	-0.2581	-0.2972	-0.1249
14	CORR	mean31	-0.3802	-0.6255	-0.1478	-0.4655	-0.6055	-0.5494	-0.3113
15	CORR	mean33	0.0154	-0.4026	-0.3552	-0.1280	-0.1244	-0.2023	-0.2450
16	CORR	mean35	-0.2641	-0.5354	-0.4326	-0.6465	-0.6106	-0.4282	-0.5339
17	CORR	mean37	0.0818	-0.2727	-0.0079	-0.0993	-0.2473	0.1337	-0.4066
18	CORR	mean39	-0.1041	-0.7035	-0.4357	-0.4140	-0.6715	-0.3450	-0.6602
19	CORR	mean41	0.2012	-0.3944	-0.1507	-0.1111	-0.4726	-0.1452	-0.2297
20	CORR	mean43	-0.2130	-0.5169	-0.4002	-0.3318	-0.4186	-0.2660	-0.1557
21	CORR	mean45	-0.0328	0.0133	-0.3449	-0.3346	-0.0995	-0.1883	-0.4235
22	CORR	mean47	0.2397	-0.0737	0.0355	0.2558	0.2031	0.3986	0.1759
23	CORR	mean49	-0.0533	-0.0533	-0.0446	0.1108	-0.0149	-0.0380	-0.0672
24	CORR	mean51	-0.2573	0.3126	-0.0744	-0.0825	0.2220	-0.0525	0.4163
25	CORR	mean53	-0.2294	-0.1423	-0.3901	-0.1261	-0.0909	-0.0915	-0.0664

MAJOR GROUP 19 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v3	v4	v8	v9
1	MEAN		0.2377	0.1058	0.2040	0.1761
2	STD		1.4786	1.2082	1.3365	1.2269
3	N		21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.1001	-0.1718	-0.0130	-0.2850
5	CORR	mean13	0.1705	0.1887	0.0021	-0.0896
6	CORR	mean15	0.2753	0.3500	0.3138	0.3131
7	CORR	mean17	0.2558	0.2713	0.1920	0.0784
8	CORR	mean19	0.8707	0.8934	0.7613	0.6656
9	CORR	mean21	-0.0937	-0.1018	-0.3015	-0.2125
10	CORR	mean23	-0.0175	0.1108	-0.0333	-0.0161
11	CORR	mean25	0.1493	0.1546	0.0525	0.0707
12	CORR	mean27	-0.1434	-0.1258	-0.0308	0.1067
13	CORR	mean29	0.0440	0.1300	0.1704	0.2004
14	CORR	mean31	-0.1082	-0.0362	-0.0560	-0.0323
15	CORR	mean33	-0.2919	-0.3323	-0.0601	0.1792
16	CORR	mean35	-0.0731	-0.1250	-0.2060	-0.3193
17	CORR	mean37	-0.1037	-0.1724	-0.3089	-0.4739
18	CORR	mean39	-0.2857	-0.3491	-0.2645	-0.2621
19	CORR	mean41	0.0312	0.0396	-0.2842	-0.3849
20	CORR	mean43	-0.1402	-0.0622	-0.1230	-0.1755
21	CORR	mean45	0.1877	0.0401	0.1620	0.2242
22	CORR	mean47	-0.3609	-0.4234	-0.4410	-0.3568
23	CORR	mean49	-0.0907	-0.1112	-0.1159	-0.0174
24	CORR	mean51	-0.0569	-0.0319	0.0132	0.0258
25	CORR	mean53	-0.2700	-0.3743	-0.1884	-0.0947

Obs	v25	v29	v33	v36	v43
1	0.1573	-0.1096	-0.1762	-0.1130	0.2158
2	0.9666	0.8881	0.9129	0.9590	0.9230
3	21.0000	21.0000	21.0000	21.0000	21.0000
4	-0.1002	0.5624	-0.0040	0.0666	-0.2965
5	0.4515	0.4060	0.2658	0.5874	0.0371
6	0.5291	0.3005	0.3337	0.3494	0.0086
7	0.2556	0.2489	0.4054	0.2886	0.3128
8	0.3167	0.3021	0.7857	0.5744	0.3838
9	0.0342	0.4606	-0.1013	0.2393	-0.4569
10	0.2815	0.4137	0.2927	0.7062	0.0235
11	-0.0010	0.4475	0.1645	0.2361	-0.3334
12	0.0446	0.3043	-0.0390	0.1048	-0.5419
13	-0.2143	0.0462	0.0346	0.0195	0.1822
14	-0.3297	-0.1834	-0.1426	-0.0449	0.0133
15	-0.0704	-0.1425	-0.1178	-0.0524	-0.0323
16	-0.1327	-0.2373	-0.4061	-0.2401	-0.4741
17	-0.2840	0.1542	-0.0603	-0.2592	-0.3384
18	-0.3675	-0.1059	-0.2970	-0.1931	-0.5526
19	0.1948	0.1178	-0.1044	0.3180	-0.3871
20	0.2297	-0.2344	-0.1306	0.2612	-0.0344
21	0.0143	-0.2795	-0.1227	-0.4850	-0.1585
22	-0.1946	-0.3585	-0.1812	-0.4853	-0.0544
23	-0.1644	-0.2303	-0.0399	-0.2169	0.0507
24	-0.1195	-0.4705	-0.2391	-0.4416	0.4053
25	-0.1949	-0.3812	-0.3396	-0.3797	0.1829

MAJOR GROUP 21 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v1	v4
1	MEAN		0.1217	0.0122
2	STD		0.8892	0.9799
3	N		21.0000	21.0000
4	CORR	mean11	0.2020	0.0245
5	CORR	mean13	0.1729	0.3971
6	CORR	mean15	-0.1452	-0.0851
7	CORR	mean17	-0.3837	-0.2902
8	CORR	mean19	-0.2377	0.1215
9	CORR	mean21	0.8731	0.8382
10	CORR	mean23	0.2188	0.6698
11	CORR	mean25	0.5289	0.5054
12	CORR	mean27	0.1552	-0.0820
13	CORR	mean29	0.4022	0.5118
14	CORR	mean31	0.3648	0.5804
15	CORR	mean33	0.2679	0.2242
16	CORR	mean35	0.2536	-0.0037
17	CORR	mean37	0.1466	0.0834
18	CORR	mean39	0.4745	0.3194
19	CORR	mean41	0.2589	0.3004
20	CORR	mean43	0.0583	0.2997
21	CORR	mean45	-0.0058	-0.2969
22	CORR	mean47	-0.2923	-0.4066
23	CORR	mean49	-0.2783	-0.1984
24	CORR	mean51	-0.5465	-0.6434
25	CORR	mean53	0.0142	-0.2060

MAJOR GROUP 23 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v4	v7
1	MEAN		0.1557	-0.0749
2	STD		1.3039	0.9759
3	N		21.0000	21.0000
4	CORR	mean11	0.0101	-0.2353
5	CORR	mean13	0.4989	0.5409
6	CORR	mean15	-0.1210	0.2273
7	CORR	mean17	-0.0066	0.1193
8	CORR	mean19	0.1492	0.1854
9	CORR	mean21	0.4062	-0.0346
10	CORR	mean23	0.7711	0.6872
11	CORR	mean25	-0.0290	-0.1203
12	CORR	mean27	0.2471	-0.2659
13	CORR	mean29	0.1633	0.0321
14	CORR	mean31	0.0333	0.1046
15	CORR	mean33	0.4496	0.1130
16	CORR	mean35	-0.3552	-0.2232
17	CORR	mean37	-0.2981	-0.3622
18	CORR	mean39	0.0615	-0.1585
19	CORR	mean41	0.1838	0.2250
20	CORR	mean43	0.1214	0.7547
21	CORR	mean45	-0.3321	-0.4322
22	CORR	mean47	-0.2848	-0.1955
23	CORR	mean49	-0.1124	-0.1530
24	CORR	mean51	-0.4040	-0.2270
25	CORR	mean53	-0.0905	-0.0917

MAJOR GROUP 25 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v3	v16	v23	v25
1	MEAN		0.1551	0.5744	0.1963	0.4586
2	STD		1.2591	1.2459	0.9286	0.8390
3	N		21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.1741	0.0010	0.1743	-0.0242
5	CORR	mean13	-0.0515	-0.3851	-0.2885	-0.3558
6	CORR	mean15	0.3659	-0.2477	-0.2265	-0.1109
7	CORR	mean17	0.4614	-0.3138	-0.3844	-0.2552
8	CORR	mean19	0.1679	0.1035	-0.1342	0.0696
9	CORR	mean21	0.2654	0.3193	0.4016	0.3568
10	CORR	mean23	-0.0836	-0.1861	-0.0371	-0.1457
11	CORR	mean25	0.6754	0.5868	0.4151	0.6011
12	CORR	mean27	-0.1608	0.0189	0.5352	0.2598
13	CORR	mean29	0.2902	0.7284	0.1612	0.3513
14	CORR	mean31	0.0593	0.6221	0.4063	0.5036
15	CORR	mean33	-0.2694	0.0391	0.2217	0.2074
16	CORR	mean35	-0.4196	0.1625	0.4030	0.2064
17	CORR	mean37	-0.0938	0.0971	0.1251	0.0442
18	CORR	mean39	-0.3754	0.3408	0.7510	0.5762
19	CORR	mean41	-0.3238	-0.2775	0.2933	0.0565
20	CORR	mean43	-0.2170	-0.2415	-0.0498	-0.0371
21	CORR	mean45	-0.3746	-0.0572	-0.0883	-0.1115
22	CORR	mean47	0.0342	-0.2491	-0.1760	-0.1795
23	CORR	mean49	-0.0446	-0.1538	-0.0615	-0.1778
24	CORR	mean51	-0.1240	-0.1328	-0.4331	-0.4228
25	CORR	mean53	-0.1546	-0.1571	-0.1577	0.0008

Obs	v27	v32	v38	v42
1	0.0311	-0.0306	0.2742	0.0690
2	0.8371	0.9574	0.7436	0.8860
3	21.0000	21.0000	21.0000	21.0000
4	-0.1027	-0.1809	0.4917	0.6015
5	-0.0878	-0.1142	0.0192	0.1231
6	0.1380	0.0060	0.1000	0.0931
7	-0.1268	-0.1653	-0.2857	0.0299
8	0.1945	0.1449	-0.2665	-0.0039
9	0.6566	0.7633	0.0948	0.5874
10	0.1201	0.2001	0.0194	0.0879
11	0.9217	0.8762	0.2367	0.6397
12	0.1747	0.1716	0.2083	0.3870
13	0.4468	0.6238	-0.0162	0.1211
14	0.4972	0.6298	0.1545	-0.0374
15	-0.1052	0.0734	-0.0915	-0.2489
16	0.0924	-0.0159	0.4631	0.1077
17	0.0071	-0.0223	0.1400	0.3947
18	0.2244	0.2924	0.4195	0.1614
19	0.0571	-0.0099	0.2527	0.0969
20	-0.0178	-0.0864	0.3565	-0.3575
21	-0.3124	-0.3850	-0.1150	-0.1223
22	-0.3216	-0.2795	-0.2626	-0.1956
23	-0.1460	-0.1927	-0.1726	-0.1934
24	-0.4407	-0.4315	-0.2768	-0.4009
25	-0.3772	-0.3392	-0.1846	-0.4281

MAJOR GROUP 27 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v2	v3	v10	v25
1	MEAN		0.0339	-0.1671	0.0487	-0.0246
2	STD		1.3021	0.8386	1.1708	1.3701
3	N		21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.0595	-0.2533	0.3504	0.2999
5	CORR	mean13	-0.2620	-0.2052	0.2221	-0.1368
6	CORR	mean15	-0.0597	-0.0512	-0.0344	-0.2155
7	CORR	mean17	0.2424	0.0699	0.2144	-0.1191
8	CORR	mean19	0.0583	-0.1045	-0.1640	-0.2911
9	CORR	mean21	-0.0565	0.1317	0.1823	0.2657
10	CORR	mean23	-0.1618	0.1183	0.1289	-0.0765
11	CORR	mean25	0.0078	0.1022	-0.1563	0.3704
12	CORR	mean27	0.6026	0.5768	0.5546	0.6362
13	CORR	mean29	-0.1196	0.1509	-0.3538	-0.1259
14	CORR	mean31	-0.1200	0.1466	-0.3944	-0.1595
15	CORR	mean33	-0.3151	-0.1541	-0.2050	-0.0331
16	CORR	mean35	0.1212	0.0123	0.1704	0.1967
17	CORR	mean37	-0.0653	-0.4282	0.0674	-0.0060
18	CORR	mean39	0.3058	0.3798	0.2659	0.2357
19	CORR	mean41	0.3540	0.3411	0.6143	0.0121
20	CORR	mean43	-0.2865	0.0852	-0.0587	-0.2476
21	CORR	mean45	-0.2616	-0.6355	-0.1503	-0.0744
22	CORR	mean47	0.0872	-0.1826	-0.0137	-0.0402
23	CORR	mean49	0.1549	0.0452	-0.1065	-0.1031
24	CORR	mean51	0.0364	-0.0036	-0.1603	-0.0708
25	CORR	mean53	-0.5115	-0.4117	-0.2666	-0.1442

Obs	v27	v30	v38	v42	v49
1	-0.1980	0.0075	-0.1086	0.4348	0.3209
2	1.6208	0.9535	1.0117	1.0653	1.2141
3	21.0000	21.0000	21.0000	21.0000	21.0000
4	-0.1747	-0.0723	0.0128	0.1315	-0.0433
5	-0.1598	0.0885	0.1312	-0.3740	-0.2960
6	0.0761	-0.0301	0.2587	-0.0031	0.0628
7	0.0661	-0.1745	0.1350	0.1330	0.0434
8	0.0408	-0.1178	0.2522	-0.3401	-0.2504
9	0.1105	0.4646	0.0831	0.1766	0.0936
10	0.0312	0.4018	0.3720	-0.2616	-0.0611
11	0.3098	0.1082	0.0550	0.3809	0.0972
12	0.6901	0.5201	0.7177	0.6909	0.8290
13	-0.1733	0.0774	-0.2441	-0.0610	-0.1442
14	-0.1336	0.2061	-0.1974	-0.1658	-0.2105
15	-0.1776	0.0349	-0.0335	-0.0648	0.1543
16	0.0292	0.1491	-0.0490	-0.0476	-0.0720
17	-0.3738	-0.2221	-0.3255	-0.0181	-0.3275
18	0.0696	0.3674	0.1216	0.1410	0.1841
19	0.1863	0.6073	0.3756	-0.1043	0.0220
20	-0.0826	0.2040	0.1055	-0.4281	-0.2038
21	-0.2943	-0.5408	-0.3082	-0.2417	-0.2657
22	-0.1543	-0.3914	-0.3034	0.2028	-0.0114
23	0.0072	-0.2071	-0.1647	-0.2044	-0.2877
24	0.0154	-0.1951	-0.1866	0.0651	0.1053
25	-0.3427	-0.1593	-0.4195	-0.1219	0.0089

MAJOR GROUP 29 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v4	v9	v15	v17
1	MEAN		-0.0555	0.1728	0.5417	0.5309
2	STD		1.1647	1.2445	1.4671	1.2874
3	N		21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	0.0291	-0.1582	-0.1402	-0.3805
5	CORR	mean13	-0.1018	-0.1124	-0.1936	-0.1125
6	CORR	mean15	-0.0826	-0.0829	-0.0141	-0.1956
7	CORR	mean17	-0.0520	-0.1525	-0.0982	-0.1709
8	CORR	mean19	0.0405	0.4117	0.0920	0.0177
9	CORR	mean21	0.3858	0.3274	-0.0319	0.2879
10	CORR	mean23	0.0200	0.0213	-0.0232	0.1717
11	CORR	mean25	0.3761	0.4197	0.0239	0.1576
12	CORR	mean27	-0.1718	-0.3947	-0.1355	-0.0274
13	CORR	mean29	0.7858	0.8053	0.6938	0.7589
14	CORR	mean31	0.4430	0.5442	0.3542	0.5272
15	CORR	mean33	-0.2271	0.0004	0.2815	0.2493
16	CORR	mean35	-0.0691	-0.1772	-0.1813	-0.1528
17	CORR	mean37	0.1138	0.0667	-0.1052	-0.2706
18	CORR	mean39	0.1039	-0.1333	0.0070	0.1770
19	CORR	mean41	-0.1802	-0.3885	-0.4891	-0.1614
20	CORR	mean43	-0.2121	-0.2606	-0.1897	-0.0457
21	CORR	mean45	-0.2402	-0.0186	0.0793	-0.2026
22	CORR	mean47	-0.2377	-0.3562	-0.0929	-0.1378
23	CORR	mean49	-0.0728	-0.2081	0.0124	-0.0140
24	CORR	mean51	-0.0516	-0.0078	0.0092	-0.0567
25	CORR	mean53	-0.3043	0.0143	-0.0815	-0.1914

Obs	v21	v25	v29	v39
1	0.1162	0.1432	-0.1620	0.0181
2	1.2193	1.1026	0.9592	1.0736
3	21.0000	21.0000	21.0000	21.0000
4	-0.0050	0.1717	-0.2930	-0.3634
5	-0.2211	-0.0072	-0.1472	-0.1492
6	0.0025	-0.0434	-0.2051	-0.1513
7	-0.2838	-0.2035	-0.3350	-0.4195
8	0.0040	0.0185	-0.0258	0.0558
9	0.5455	0.6165	0.4888	0.5370
10	-0.0088	0.0373	0.1379	0.1088
11	0.7014	0.7643	0.3570	0.3397
12	-0.1213	-0.0285	-0.1794	-0.3427
13	0.7289	0.5786	0.8785	0.8616
14	0.7090	0.4455	0.7556	0.8633
15	-0.0704	-0.1201	-0.0364	0.2256
16	0.1671	0.1498	0.0988	0.0905
17	0.3247	0.1396	-0.0540	0.0795
18	0.2423	0.1292	0.3103	0.2637
19	-0.1427	-0.0772	0.0133	0.0004
20	-0.1199	-0.1455	0.0772	0.0504
21	-0.1826	-0.1176	-0.3487	-0.0695
22	-0.1405	-0.3219	-0.3232	-0.2385
23	-0.2263	-0.1592	-0.1011	-0.1530
24	-0.2142	-0.3130	-0.0596	-0.1759
25	-0.2992	-0.2657	-0.2225	0.0253

MAJOR GROUP 31 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v8	v10
1	MEAN		-0.1334	-0.1253
2	STD		0.8141	0.5178
3	N		21.0000	21.0000
4	CORR	mean11	-0.1639	-0.2521
5	CORR	mean13	-0.0001	-0.2430
6	CORR	mean15	-0.1256	-0.1007
7	CORR	mean17	-0.3755	-0.1650
8	CORR	mean19	-0.0812	0.0611
9	CORR	mean21	0.4294	-0.1384
10	CORR	mean23	0.1951	-0.1380
11	CORR	mean25	0.2663	-0.1666
12	CORR	mean27	-0.3705	-0.3879
13	CORR	mean29	0.7938	0.1380
14	CORR	mean31	0.7145	0.3933
15	CORR	mean33	-0.1085	0.0305
16	CORR	mean35	0.1593	-0.0016
17	CORR	mean37	0.0393	-0.0065
18	CORR	mean39	0.2250	0.0964
19	CORR	mean41	0.0542	0.0909
20	CORR	mean43	0.2849	0.0959
21	CORR	mean45	-0.2838	0.0195
22	CORR	mean47	-0.3634	-0.0952
23	CORR	mean49	-0.1589	0.4901
24	CORR	mean51	-0.0483	-0.0132
25	CORR	mean53	-0.1412	0.2410

MAJOR GROUP 33 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v1	v3	v6	v9	v19
1	MEAN		0.7440	0.3762	0.2221	-0.0460	0.8810
2	STD		1.2766	1.2472	0.7101	0.9657	1.7414
3	N		21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	0.5546	0.0933	-0.3733	-0.2681	-0.1950
5	CORR	mean13	0.0201	-0.3430	0.0352	0.0229	-0.1049
6	CORR	mean15	-0.2660	-0.1430	-0.1827	-0.4787	-0.2367
7	CORR	mean17	-0.3370	-0.1869	-0.1767	-0.4696	-0.3215
8	CORR	mean19	-0.4554	-0.2866	-0.0708	-0.3592	-0.2026
9	CORR	mean21	0.0732	0.1015	0.2819	0.4364	0.0586
10	CORR	mean23	-0.0387	-0.3954	0.1668	0.2727	0.1587
11	CORR	mean25	-0.0785	0.1368	0.0708	-0.0530	-0.2601
12	CORR	mean27	-0.0062	0.0872	-0.2002	0.3130	-0.0159
13	CORR	mean29	0.0115	0.0429	0.2528	0.0021	0.1478
14	CORR	mean31	0.0912	0.0119	0.2784	0.3176	0.3628
15	CORR	mean33	0.4754	0.5835	0.6706	0.7355	0.7496
16	CORR	mean35	0.2364	-0.0370	-0.2935	0.2526	-0.1113
17	CORR	mean37	0.3887	0.2741	-0.0266	-0.0945	-0.2410
18	CORR	mean39	0.3857	0.2024	-0.0170	0.6269	0.3810
19	CORR	mean41	-0.0671	-0.4291	-0.3123	0.3820	0.0956
20	CORR	mean43	0.0288	-0.4057	-0.1281	0.2514	0.2640
21	CORR	mean45	0.3222	0.4892	0.2275	0.0426	-0.0507
22	CORR	mean47	0.1605	0.3894	0.3074	0.1209	-0.0532
23	CORR	mean49	-0.1144	-0.0684	0.1455	-0.1644	-0.1074
24	CORR	mean51	-0.3043	-0.1515	-0.2007	-0.3271	-0.2055
25	CORR	mean53	0.3350	0.5271	0.2524	0.3386	0.6309

MAJOR GROUP 35 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v5	v12	v14
1	MEAN		0.2847	-0.2955	-0.1714
2	STD		0.9543	0.5894	0.7283
3	N		21.0000	21.0000	21.0000
4	CORR	mean11	0.4468	-0.1999	-0.0633
5	CORR	mean13	-0.3272	0.0161	-0.2735
6	CORR	mean15	-0.3761	-0.0734	-0.2726
7	CORR	mean17	-0.3259	-0.5180	-0.4085
8	CORR	mean19	-0.2297	-0.2992	-0.1455
9	CORR	mean21	-0.1629	0.2465	-0.1841
10	CORR	mean23	-0.4426	-0.0206	-0.2380
11	CORR	mean25	0.0048	0.0733	-0.1452
12	CORR	mean27	0.2349	-0.0907	0.2022
13	CORR	mean29	-0.0102	0.0200	-0.2636
14	CORR	mean31	0.0397	0.3226	0.1751
15	CORR	mean33	-0.2116	-0.1143	0.1276
16	CORR	mean35	0.5768	0.7040	0.6549
17	CORR	mean37	0.2363	0.2465	0.3325
18	CORR	mean39	0.4379	0.3720	0.4894
19	CORR	mean41	0.0510	0.4251	0.2397
20	CORR	mean43	-0.1124	0.4652	0.1171
21	CORR	mean45	0.2424	0.1625	0.4000
22	CORR	mean47	-0.0550	0.0315	0.3344
23	CORR	mean49	-0.1604	-0.1053	-0.0238
24	CORR	mean51	0.1886	0.0045	0.0617
25	CORR	mean53	-0.0740	-0.1221	-0.1094

MAJOR GROUP 37 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v1	v3
1	MEAN		-0.3480	-0.1074
2	STD		1.0129	0.8954
3	N		21.0000	21.0000
4	CORR	mean11	0.7922	0.7623
5	CORR	mean13	0.2372	0.3025
6	CORR	mean15	-0.1837	-0.2439
7	CORR	mean17	-0.1480	-0.0616
8	CORR	mean19	-0.2480	-0.1615
9	CORR	mean21	0.4102	0.2974
10	CORR	mean23	0.0693	-0.0465
11	CORR	mean25	0.3017	0.1453
12	CORR	mean27	-0.0984	-0.1642
13	CORR	mean29	0.1215	-0.1096
14	CORR	mean31	-0.0046	-0.2042
15	CORR	mean33	-0.1722	-0.2744
16	CORR	mean35	0.2564	0.3522
17	CORR	mean37	0.6989	0.7518
18	CORR	mean39	0.1326	0.1306
19	CORR	mean41	-0.0035	0.1726
20	CORR	mean43	-0.1699	-0.1467
21	CORR	mean45	0.1352	0.3021
22	CORR	mean47	-0.0468	0.0318
23	CORR	mean49	-0.2051	-0.1818
24	CORR	mean51	-0.2834	-0.2513
25	CORR	mean53	-0.0536	0.0613

MAJOR GROUP 39 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v2	v6	v7	v12	v16
1	MEAN		-0.0664	0.1781	-0.2818	0.1008	-0.0006
2	STD		0.7330	0.9780	0.8236	0.9211	1.0207
3	N		21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	0.6659	-0.1613	-0.1660	-0.2916	-0.1337
5	CORR	mean13	0.0998	0.0515	-0.4310	-0.1127	-0.3695
6	CORR	mean15	-0.2165	-0.3378	-0.0953	-0.3521	0.0018
7	CORR	mean17	-0.2562	-0.3709	-0.2083	-0.4249	0.0450
8	CORR	mean19	-0.4345	-0.2180	-0.2451	-0.2015	-0.0242
9	CORR	mean21	0.4199	-0.0290	-0.0553	0.2391	-0.1073
10	CORR	mean23	-0.0778	0.1530	-0.3111	0.0211	-0.1722
11	CORR	mean25	0.1916	-0.2191	-0.1600	0.0273	-0.0846
12	CORR	mean27	0.1767	0.2401	0.4269	-0.0024	0.6556
13	CORR	mean29	0.0018	-0.1282	-0.0454	0.3809	-0.0163
14	CORR	mean31	-0.1265	0.1597	-0.0128	0.3829	-0.0240
15	CORR	mean33	0.0705	0.1809	0.0681	0.0487	-0.0381
16	CORR	mean35	0.2804	0.4457	0.1068	0.3570	0.0987
17	CORR	mean37	0.4200	-0.4448	-0.4535	0.1660	-0.2458
18	CORR	mean39	0.2571	0.4908	0.3445	0.3924	0.3884
19	CORR	mean41	-0.0073	0.4857	0.1275	0.1479	0.1858
20	CORR	mean43	-0.2107	0.5603	-0.0584	0.1241	-0.1773
21	CORR	mean45	0.2995	-0.1848	-0.0857	0.0902	-0.1986
22	CORR	mean47	-0.0534	-0.2595	-0.2920	0.0851	-0.0018
23	CORR	mean49	-0.0859	-0.0380	0.2516	-0.0930	0.0151
24	CORR	mean51	-0.2475	-0.0053	0.1721	0.0397	0.1111
25	CORR	mean53	0.1039	0.0471	0.2493	-0.0944	-0.3452

MAJOR GROUP 41 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v5	v10	v19	v24
1	MEAN		0.2900	0.2099	0.3166	0.0047
2	STD		0.9290	1.0459	0.7846	1.0054
3	N		21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.1230	0.0886	-0.0279	0.1264
5	CORR	mean13	0.1107	0.5749	-0.0656	0.1613
6	CORR	mean15	-0.1230	0.1113	-0.2541	-0.1999
7	CORR	mean17	-0.1861	-0.0590	-0.3997	-0.2478
8	CORR	mean19	-0.1550	-0.0790	-0.4719	-0.2039
9	CORR	mean21	-0.0790	0.3329	0.4898	0.2957
10	CORR	mean23	0.1155	0.4637	0.1763	0.2101
11	CORR	mean25	-0.2550	-0.1443	0.0789	-0.1304
12	CORR	mean27	0.0024	0.1325	0.5588	0.3091
13	CORR	mean29	-0.2007	-0.2090	-0.0402	-0.2503
14	CORR	mean31	0.1332	-0.2038	0.2464	0.1534
15	CORR	mean33	-0.1149	0.1190	0.3131	0.0263
16	CORR	mean35	0.3647	0.1257	0.3592	0.5430
17	CORR	mean37	-0.2500	-0.1281	0.0164	0.1336
18	CORR	mean39	0.3165	0.0809	0.6477	0.6260
19	CORR	mean41	0.5932	0.5419	0.5895	0.9428
20	CORR	mean43	0.4829	0.3891	0.2224	0.3740
21	CORR	mean45	-0.1618	-0.0275	-0.1932	-0.1246
22	CORR	mean47	-0.1795	-0.2104	-0.0065	-0.1292
23	CORR	mean49	0.4614	-0.1535	-0.3204	-0.0706
24	CORR	mean51	-0.0940	-0.2972	-0.2369	-0.3535
25	CORR	mean53	-0.1867	-0.0439	0.0925	-0.0645

MAJOR GROUP 43 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v6	v8	v9	v10	v12
1	MEAN		-0.0851	0.0807	-0.3578	0.0562	-0.1267
2	STD		0.9229	0.9858	0.8270	1.1576	0.8030
3	N		21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	0.0250	-0.0288	-0.0852	0.0398	0.0970
5	CORR	mean13	0.5355	0.4618	0.1719	0.5398	0.6181
6	CORR	mean15	-0.0270	0.1556	0.4573	0.2510	0.1481
7	CORR	mean17	-0.1598	-0.0998	0.0484	0.0252	-0.0428
8	CORR	mean19	-0.1645	-0.0223	0.1665	0.0726	-0.1175
9	CORR	mean21	0.3257	-0.2490	-0.3627	-0.2491	0.2121
10	CORR	mean23	0.6763	0.3736	0.0054	0.4473	0.6123
11	CORR	mean25	-0.2195	-0.3199	-0.1113	-0.2365	-0.2128
12	CORR	mean27	0.0955	-0.3749	-0.4592	-0.3563	-0.0986
13	CORR	mean29	-0.1419	-0.1476	-0.1208	-0.0841	-0.0577
14	CORR	mean31	0.1218	0.0107	-0.0763	-0.0778	-0.0794
15	CORR	mean33	0.3598	-0.0527	-0.3230	-0.0200	0.1278
16	CORR	mean35	0.1440	0.1646	-0.0064	-0.0284	-0.0173
17	CORR	mean37	-0.1692	-0.3307	-0.2685	-0.4008	-0.0766
18	CORR	mean39	0.3309	-0.0621	-0.3593	-0.2266	0.0146
19	CORR	mean41	0.7150	0.3100	-0.0555	0.0989	0.3715
20	CORR	mean43	0.7077	0.8957	0.5959	0.8007	0.6052
21	CORR	mean45	-0.2259	-0.1802	-0.0221	-0.1720	-0.1183
22	CORR	mean47	-0.2427	-0.3037	-0.2823	-0.3197	-0.1673
23	CORR	mean49	-0.1736	-0.0617	-0.0613	-0.1233	-0.2202
24	CORR	mean51	-0.4950	-0.0277	0.2023	-0.0502	-0.2836
25	CORR	mean53	0.1000	0.0515	0.0593	-0.0318	-0.0153

Obs	v19	v20	v27	v33	v45
1	-0.3176	-0.3028	-0.3582	0.0837	0.3613
2	0.7147	0.8130	0.6837	0.7593	0.9130
3	21.0000	21.0000	21.0000	21.0000	21.0000
4	-0.2025	-0.1019	-0.1973	-0.0505	-0.0739
5	0.5519	0.6607	0.2982	0.1777	0.0333
6	0.0839	0.1877	-0.0081	-0.1111	-0.2383
7	-0.1533	0.0518	-0.3610	-0.3783	-0.3030
8	-0.0624	0.3270	-0.2357	-0.3174	-0.3652
9	0.1395	0.2372	0.5154	0.0685	-0.2539
10	0.6436	0.7644	0.4154	0.2814	0.0973
11	-0.1104	-0.0232	0.2235	-0.1508	-0.4112
12	-0.1398	-0.1827	-0.0356	0.0840	0.1448
13	-0.0720	0.0041	0.1099	-0.0572	-0.2707
14	0.0878	0.1696	0.3929	0.2777	0.1348
15	0.1893	0.1795	0.0498	0.1435	0.1660
16	0.0968	-0.0642	0.3811	0.4592	0.5480
17	-0.3050	-0.2595	-0.1601	-0.3346	-0.0384
18	0.0861	-0.0227	0.3635	0.5269	0.4424
19	0.3818	0.5044	0.5735	0.6097	0.4926
20	0.8736	0.6624	0.7583	0.8161	0.5615
21	-0.2465	-0.2911	-0.2719	-0.2906	0.0116
22	-0.2166	-0.3815	-0.3147	-0.3381	0.2101
23	-0.1737	-0.0917	-0.2368	-0.0276	-0.0667
24	-0.2750	-0.5085	-0.3153	-0.2279	0.0469
25	0.0121	-0.1506	-0.0307	0.0383	-0.0930

MAJOR GROUP 45 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v1	v5	v15
1	MEAN		0.1161	0.1483	-0.1602
2	STD		1.0866	0.9879	0.9359
3	N		21.0000	21.0000	21.0000
4	CORR	mean11	0.5389	0.4061	-0.0762
5	CORR	mean13	0.1693	0.0132	-0.4150
6	CORR	mean15	-0.2599	-0.1942	-0.0599
7	CORR	mean17	-0.2918	-0.1448	-0.2074
8	CORR	mean19	-0.1090	-0.3148	-0.0375
9	CORR	mean21	0.1019	0.0637	-0.2579
10	CORR	mean23	-0.2059	-0.1790	-0.4065
11	CORR	mean25	-0.0525	-0.0303	-0.1311
12	CORR	mean27	-0.3803	-0.0910	0.3946
13	CORR	mean29	-0.0643	-0.1229	-0.3113
14	CORR	mean31	-0.1605	-0.2322	-0.1049
15	CORR	mean33	0.0136	0.3372	0.3930
16	CORR	mean35	0.2184	-0.0119	0.2237
17	CORR	mean37	0.5597	0.4972	0.1232
18	CORR	mean39	-0.0617	-0.1078	0.3220
19	CORR	mean41	-0.2076	-0.4315	-0.1390
20	CORR	mean43	-0.2194	-0.3633	-0.2705
21	CORR	mean45	0.7393	0.5954	0.5740
22	CORR	mean47	0.0330	0.3853	0.3773
23	CORR	mean49	0.0386	-0.1091	0.0743
24	CORR	mean51	-0.0369	-0.0134	0.0256
25	CORR	mean53	0.3277	0.4144	0.1087

MAJOR GROUP 47 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v9	v16	v26	v27	v35
1	MEAN		-0.2770	-0.1107	0.1145	-0.0849	-0.3142
2	STD		0.6727	0.6139	1.1263	0.7672	0.5464
3	N		21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.1383	-0.2149	-0.0548	-0.2109	-0.0731
5	CORR	mean13	-0.1409	-0.3653	-0.3968	-0.3072	-0.3152
6	CORR	mean15	0.0375	-0.0255	0.1004	0.0416	-0.2104
7	CORR	mean17	0.3270	-0.0443	0.3440	-0.0039	-0.0046
8	CORR	mean19	-0.2579	-0.3637	-0.0266	-0.2561	-0.1476
9	CORR	mean21	-0.3053	-0.2513	-0.3023	-0.2821	-0.4163
10	CORR	mean23	-0.1825	-0.4025	-0.4524	-0.4349	-0.3232
11	CORR	mean25	-0.2152	-0.1143	0.0146	-0.1924	-0.3832
12	CORR	mean27	0.0873	0.0500	-0.0497	0.0267	0.1039
13	CORR	mean29	-0.2806	-0.2043	-0.0408	-0.2991	-0.3466
14	CORR	mean31	-0.3537	-0.0699	-0.0322	-0.1627	-0.2355
15	CORR	mean33	-0.0437	0.0898	-0.1593	0.2290	0.3330
16	CORR	mean35	-0.2217	0.1864	-0.1379	0.1381	-0.0144
17	CORR	mean37	0.1482	0.4343	0.0177	0.3129	0.3472
18	CORR	mean39	-0.2844	0.0155	0.0577	0.0927	0.0184
19	CORR	mean41	-0.3348	-0.2571	-0.1868	-0.1857	-0.3675
20	CORR	mean43	-0.3488	-0.2647	-0.2973	-0.1693	-0.4284
21	CORR	mean45	0.1010	0.3947	-0.1632	0.4829	0.4961
22	CORR	mean47	0.7203	0.8320	0.2700	0.7260	0.7415
23	CORR	mean49	0.3640	0.1553	0.4862	0.1382	0.2024
24	CORR	mean51	0.2892	0.2604	0.0379	0.1195	0.2575
25	CORR	mean53	-0.2196	-0.0643	-0.0731	0.1473	0.1559

Obs	v41	v43	v49	v51	v61
1	-0.3219	-0.0410	-0.2249	-0.1955	-0.2008
2	0.5924	0.7151	0.8251	0.8654	0.8757
3	21.0000	21.0000	21.0000	21.0000	21.0000
4	-0.1650	-0.2673	-0.1091	-0.2397	-0.2901
5	-0.2130	-0.3588	-0.0853	-0.2607	-0.2399
6	-0.1868	-0.0588	-0.3652	-0.2940	-0.1961
7	-0.1617	-0.1213	-0.0411	0.0257	0.0543
8	-0.2671	-0.2866	-0.0243	-0.3498	-0.3086
9	-0.0127	-0.3990	-0.1446	-0.1169	-0.1117
10	-0.1145	-0.2375	-0.2186	-0.2542	-0.2090
11	-0.0560	-0.3581	-0.1688	-0.1855	0.0432
12	-0.0090	-0.1566	-0.3770	0.0234	0.1006
13	-0.1614	-0.1467	-0.1517	-0.2757	-0.2503
14	0.2359	0.2005	0.0567	-0.1984	-0.0274
15	0.2236	0.3083	-0.0657	0.2903	0.1383
16	0.3078	0.0675	0.1406	-0.2264	0.1232
17	0.5126	0.1507	0.2767	-0.0975	0.2367
18	0.2293	0.2093	-0.0154	-0.0741	0.0252
19	0.1333	-0.0996	0.1198	-0.1738	-0.0427
20	-0.0801	0.0677	0.0783	-0.1299	-0.0658
21	0.2555	0.1067	0.1949	0.0657	0.0864
22	0.6639	0.5446	0.2951	0.3993	0.7385
23	0.0754	0.3830	-0.2758	-0.1334	-0.2341
24	-0.0440	0.1135	0.2293	0.2830	0.1745
25	-0.0144	0.1630	0.4758	0.7662	0.1564

MAJOR GROUP 49 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v9	v13	v15	v27	v28
1	MEAN		-0.2093	0.0710	-0.3225	-0.2624	0.4536
2	STD		0.8866	0.7566	0.6551	0.5574	1.0813
3	N		21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.0855	-0.3323	-0.0956	-0.1933	-0.0924
5	CORR	mean13	-0.1244	-0.2734	-0.2169	-0.2735	-0.2597
6	CORR	mean15	0.1950	0.1651	-0.0241	-0.0457	-0.1371
7	CORR	mean17	0.0685	0.0543	-0.0026	-0.0601	-0.1196
8	CORR	mean19	0.0493	-0.2711	-0.1626	-0.2928	-0.2389
9	CORR	mean21	-0.0797	-0.3827	-0.1490	-0.0783	-0.2474
10	CORR	mean23	-0.0589	-0.3196	-0.1580	-0.2504	-0.1649
11	CORR	mean25	-0.0230	-0.2993	-0.1563	-0.1054	-0.3328
12	CORR	mean27	0.0358	-0.2971	-0.2874	0.0638	0.1341
13	CORR	mean29	-0.1695	-0.0741	-0.0597	-0.1368	-0.1557
14	CORR	mean31	0.1410	-0.0998	0.1514	0.0008	0.0439
15	CORR	mean33	0.2031	-0.0930	0.0068	0.0359	0.0124
16	CORR	mean35	0.1284	-0.2128	-0.0440	0.1363	0.0838
17	CORR	mean37	0.2846	-0.0861	0.3420	0.4019	-0.2241
18	CORR	mean39	0.2970	-0.3066	0.0989	0.2035	0.2223
19	CORR	mean41	0.2631	-0.3671	-0.0356	-0.0468	0.2007
20	CORR	mean43	0.0534	-0.1227	-0.1356	-0.2395	-0.0244
21	CORR	mean45	0.0628	0.0923	0.0469	0.2387	-0.1286
22	CORR	mean47	0.3052	0.3092	0.3468	0.6168	-0.0447
23	CORR	mean49	0.1514	0.8290	0.8157	0.5544	0.7494
24	CORR	mean51	-0.3620	0.3347	-0.1274	-0.0024	0.0673
25	CORR	mean53	-0.0071	0.0610	0.0218	-0.1986	-0.0008

Obs	v36	v38	v52	v53	v64
1	-0.1964	-0.1679	-0.1346	0.0222	-0.3016
2	0.7936	0.7179	0.6620	1.0297	0.7631
3	21.0000	21.0000	21.0000	21.0000	21.0000
4	-0.0822	-0.0148	-0.2352	-0.2516	-0.1402
5	0.0365	0.0712	-0.4009	-0.3380	-0.2640
6	-0.0647	-0.0264	-0.0031	0.1581	-0.0612
7	-0.0748	0.1415	0.0124	0.0649	-0.1147
8	-0.1073	-0.1281	-0.2323	-0.1572	-0.2251
9	0.0188	-0.1041	-0.3681	-0.2480	-0.2175
10	0.0966	0.1018	-0.4682	-0.3350	-0.2715
11	-0.0926	-0.1682	-0.2006	-0.2334	-0.1538
12	-0.2967	-0.3780	-0.0577	-0.2029	0.2116
13	-0.0114	0.0004	-0.2683	-0.0472	0.0041
14	0.0739	0.0875	-0.1713	-0.0136	-0.1560
15	-0.2325	-0.1624	0.1507	0.2176	-0.2901
16	-0.0920	-0.1251	-0.0317	-0.2535	0.1902
17	0.2094	0.3809	0.4050	0.2238	-0.1419
18	-0.1438	-0.1352	-0.1900	-0.0854	0.0974
19	0.0228	-0.0214	-0.4416	-0.3611	-0.1296
20	-0.0781	-0.1017	-0.4416	-0.3445	0.0205
21	-0.0890	-0.1113	0.5335	0.2703	0.0267
22	0.0759	0.3854	0.8392	0.5185	0.0378
23	0.7861	0.7086	0.3058	0.7031	-0.0090
24	0.0062	-0.0600	0.3300	0.0467	0.4587
25	-0.1260	-0.2705	0.1158	0.1284	-0.1490

MAJOR GROUP 51 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v6	v43	v55	v77	v83
1	MEAN		0.2589	0.1464	-0.1812	-0.3287	-0.1051
2	STD		0.8415	0.7639	0.7660	0.9324	0.7307
3	N		21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.2603	-0.1290	-0.1134	-0.0955	-0.1094
5	CORR	mean13	-0.4772	-0.3130	-0.4214	-0.3249	-0.2946
6	CORR	mean15	0.2511	-0.0904	-0.2154	0.0071	0.1658
7	CORR	mean17	0.1706	-0.1577	0.1022	0.1918	0.1617
8	CORR	mean19	0.0066	-0.3442	-0.1826	0.2869	0.1557
9	CORR	mean21	-0.3515	-0.4392	-0.0381	-0.2047	-0.4163
10	CORR	mean23	-0.3156	-0.4603	-0.4255	-0.3402	-0.2894
11	CORR	mean25	-0.0244	-0.3265	0.2846	-0.1045	-0.3567
12	CORR	mean27	0.2527	-0.3167	-0.2291	0.3854	0.2068
13	CORR	mean29	-0.0874	-0.1700	0.1978	-0.1211	-0.1692
14	CORR	mean31	-0.0148	-0.1063	0.1803	-0.2298	-0.1644
15	CORR	mean33	-0.1698	0.0363	-0.3182	-0.2431	-0.3683
16	CORR	mean35	-0.1869	0.0787	-0.0557	-0.0627	0.0513
17	CORR	mean37	-0.4687	0.2257	0.0334	-0.3226	-0.3222
18	CORR	mean39	-0.0196	-0.3301	-0.1404	0.0882	0.0293
19	CORR	mean41	-0.1670	-0.4837	-0.3452	0.0907	0.2040
20	CORR	mean43	-0.1296	-0.1801	-0.2430	-0.2670	-0.0042
21	CORR	mean45	-0.3487	0.4942	-0.1631	-0.0560	-0.2092
22	CORR	mean47	-0.0974	0.5044	0.1618	-0.2174	-0.2654
23	CORR	mean49	0.4939	0.2197	0.0515	-0.1077	0.0627
24	CORR	mean51	0.2560	0.5582	0.3469	0.2787	0.4008
25	CORR	mean53	-0.1542	0.2962	0.1220	0.0059	-0.0442

Obs	v90	v123	v146	v156	v181
1	-0.2000	-0.2970	-0.2370	0.0280	-0.1874
2	0.5576	0.5378	0.6776	0.7684	0.7886
3	21.0000	21.0000	21.0000	21.0000	21.0000
4	-0.2931	-0.0984	-0.1575	-0.3559	-0.1158
5	-0.2240	-0.1773	-0.1434	-0.3308	-0.1952
6	-0.0367	-0.1141	-0.2447	0.0106	-0.1202
7	-0.0170	-0.0850	-0.0564	0.2757	0.1492
8	-0.1598	-0.1399	0.0632	-0.1804	-0.1118
9	-0.5695	-0.1711	-0.1324	-0.2993	-0.3466
10	-0.2931	-0.1441	-0.2275	-0.2565	-0.2050
11	-0.4382	-0.1977	-0.0711	-0.1729	-0.3543
12	-0.0074	-0.2364	-0.5027	0.4671	0.3076
13	-0.1998	-0.0347	0.0219	-0.1078	-0.2139
14	-0.2911	-0.0321	0.1459	-0.2147	-0.3632
15	-0.3006	-0.2981	-0.2677	-0.1858	-0.2294
16	0.0311	-0.1126	0.0206	-0.0608	-0.0192
17	-0.4179	-0.0831	0.1859	-0.4271	-0.1455
18	-0.3446	-0.3113	-0.3127	-0.0745	-0.0547
19	-0.2649	-0.1436	-0.1120	-0.0076	-0.1296
20	0.1122	-0.1022	-0.0758	-0.1887	-0.2160
21	0.0854	-0.1064	0.1419	-0.2372	-0.0707
22	0.0632	-0.1193	0.1053	0.2688	0.2358
23	-0.0056	0.3564	-0.0126	0.0234	0.0351
24	0.8277	0.4567	0.4123	0.4755	0.5482
25	0.0439	0.2399	0.2766	-0.3017	-0.2046

MAJOR GROUP 53 CORRELATIONS - ABSTRACT/CONCRETE FACTORS

Obs	_TYPE_	_NAME_	v4	v7	v10	v19	v22
1	MEAN		0.5412	-0.1816	0.3120	0.0425	0.0981
2	STD		1.7824	0.9502	1.0020	1.0746	1.0613
3	N		21.0000	21.0000	21.0000	21.0000	21.0000
4	CORR	mean11	-0.1268	-0.1065	-0.0564	0.4550	-0.2491
5	CORR	mean13	-0.2319	-0.0611	-0.1339	-0.0058	-0.1183
6	CORR	mean15	-0.1607	-0.3329	-0.3118	-0.1978	-0.1424
7	CORR	mean17	-0.0196	-0.2927	-0.3583	-0.0340	-0.1915
8	CORR	mean19	-0.1173	-0.2245	-0.3185	-0.0163	-0.2128
9	CORR	mean21	-0.0541	0.1688	-0.3163	0.0170	-0.1181
10	CORR	mean23	-0.2234	-0.0903	-0.2051	-0.1369	-0.1116
11	CORR	mean25	-0.0778	-0.2145	-0.5019	-0.0817	-0.2107
12	CORR	mean27	-0.1319	-0.2466	-0.2631	-0.2150	-0.0840
13	CORR	mean29	0.0732	-0.0234	-0.3112	0.0016	-0.3072
14	CORR	mean31	0.0053	0.1415	0.0633	-0.0703	-0.1262
15	CORR	mean33	0.4927	0.4195	0.5646	0.1287	0.6375
16	CORR	mean35	-0.3699	-0.0323	0.1810	-0.1098	-0.2177
17	CORR	mean37	-0.2531	-0.0153	0.1015	0.2186	-0.0434
18	CORR	mean39	0.0059	0.2647	0.2592	0.0663	0.0368
19	CORR	mean41	-0.3447	0.1617	0.0714	-0.1158	-0.2410
20	CORR	mean43	-0.1141	0.1127	0.2603	-0.1592	-0.0200
21	CORR	mean45	0.0509	0.1996	0.4373	0.1244	0.3845
22	CORR	mean47	0.0321	-0.0355	0.2967	-0.1611	0.3544
23	CORR	mean49	-0.0910	0.0723	0.0934	-0.1338	0.2946
24	CORR	mean51	0.0276	-0.1341	0.0022	-0.0973	-0.1000
25	CORR	mean53	0.8115	0.8256	0.7971	0.5865	0.7378

Obs	v25	v33	v38	v48	v54
1	0.0929	-0.2178	-0.0758	-0.1572	-0.0478
2	1.4987	0.7285	0.6493	0.4796	0.6179
3	21.0000	21.0000	21.0000	21.0000	21.0000
4	-0.1038	0.3814	-0.0044	-0.3411	-0.1719
5	-0.0916	0.4458	-0.2381	-0.4047	-0.1332
6	-0.0514	-0.2364	-0.1471	0.0201	-0.1501
7	0.1093	0.0422	-0.3457	-0.0466	-0.1316
8	0.0168	0.1146	-0.0708	-0.6150	-0.0035
9	-0.0380	0.2342	-0.3778	-0.1847	-0.5804
10	-0.1265	0.3112	-0.3005	-0.2687	-0.1813
11	-0.1075	-0.1602	-0.3435	-0.2712	-0.5259
12	0.0496	-0.2652	-0.2817	0.2499	-0.4206
13	-0.1300	-0.1180	-0.1708	-0.1739	-0.1646
14	-0.2356	-0.1870	-0.0126	-0.0807	-0.0329
15	0.5110	0.2695	0.0186	0.1811	0.0512
16	-0.4089	-0.3190	0.0986	-0.0138	-0.0091
17	-0.2094	0.0940	-0.0194	-0.0533	-0.0469
18	-0.0534	-0.0742	-0.1801	0.0585	-0.3495
19	-0.2379	0.1290	-0.2803	-0.1475	-0.3404
20	-0.1930	-0.0249	0.0520	-0.1383	0.0852
21	0.1135	0.0876	0.4120	0.0214	0.2717
22	0.1022	-0.2181	-0.0759	0.5408	0.1716
23	-0.1963	-0.0409	0.0600	0.4515	0.0369
24	-0.0461	-0.3375	0.4857	0.2770	0.6038
25	0.7554	0.5798	0.4728	0.0573	0.3372

Major Group 11: Squared Euclidian Distances – Abstract/Concrete Factors

	V11	V12	V15	V19	V29	V32
MEANS11	**21.329**	**20.927**	**10.436**	**13.580**	**11.635**	**13.811**
MEANS13	45.674	37.093	21.644	27.709	32.693	28.288
MEANS15	65.219	48.014	59.193	50.334	58.308	61.339
MEANS17	61.750	40.327	37.097	42.766	45.889	52.920
MEANS19	59.603	36.394	42.448	31.363	48.658	53.348
MEANS21	59.411	40.828	35.917	38.479	38.265	33.281
MEANS23	51.606	43.750	37.685	44.875	45.607	41.123
MEANS25	58.211	30.151	43.988	35.755	42.051	41.630
MEANS27	49.251	26.922	42.354	32.479	36.730	47.843
MEANS29	67.350	46.027	53.197	43.422	44.432	52.083
MEANS31	71.729	48.224	52.701	45.854	37.911	54.971
MEANS33	59.755	42.631	45.168	36.890	31.252	52.335
MEANS35	55.315	37.227	32.802	26.401	26.495	36.163
MEANS37	48.663	33.866	24.566	24.158	24.675	24.122
MEANS39	55.214	35.393	34.844	30.990	24.299	39.421
MEANS41	63.289	47.986	29.282	41.061	29.434	42.851
MEANS43	57.463	42.527	35.566	35.352	34.670	41.285
MEANS45	52.908	36.516	31.662	15.880	26.970	37.111
MEANS47	60.471	38.926	35.272	33.188	33.424	41.102
MEANS49	66.210	43.913	39.982	37.976	32.161	49.644
MEANS51	58.236	37.009	37.770	28.385	38.105	44.592
MEANS53	59.651	41.438	29.811	28.036	28.993	39.514

Note.
This is a dissimilarity matrix.

Major Group 13: Squared Euclidian Distances – Abstract/Concrete Factors

	V3	V8	V13	V21	V28	V32
MEANS11	13.788	38.306	34.062	27.916	25.744	19.709
MEANS13	**19.763**	**16.565**	**21.466**	**17.797**	**6.067**	**12.479**
MEANS15	47.189	35.346	37.237	30.314	36.330	42.303
MEANS17	33.942	23.386	22.646	31.646	29.035	37.129
MEANS19	33.215	9.048	10.774	34.370	19.082	31.520
MEANS21	31.241	29.670	31.950	45.042	12.910	32.827
MEANS23	32.889	21.847	28.023	25.960	6.166	17.593
MEANS25	35.815	31.517	24.264	42.078	19.749	35.738
MEANS27	22.752	31.397	32.483	45.716	24.410	35.822
MEANS29	43.600	22.632	12.969	48.295	23.352	37.498
MEANS31	37.687	24.796	22.611	56.018	17.444	31.986
MEANS33	33.206	21.801	26.184	45.340	23.264	32.655
MEANS35	17.977	27.299	27.544	43.537	15.328	22.082
MEANS37	28.813	30.652	25.608	36.758	18.539	29.098
MEANS39	19.254	26.965	25.443	46.971	13.568	24.857
MEANS41	12.222	22.594	35.054	45.077	9.530	19.889
MEANS43	23.160	24.502	26.624	30.472	7.447	13.615
MEANS45	25.467	20.791	22.398	37.179	25.389	31.723
MEANS47	32.433	29.837	26.389	39.098	22.437	33.741
MEANS49	31.283	28.964	25.049	42.308	21.085	31.908
MEANS51	28.917	24.016	22.035	37.960	22.379	29.843
MEANS53	30.644	26.067	26.159	41.235	21.703	29.716

Note.
This is a dissimilarity matrix.

Major Group 15: Squared Euclidian Distances – Abstract/Concrete Factors

	V3	V5
MEANS11	61.061	68.130
MEANS13	56.839	62.071
MEANS15	**12.283**	**12.508**
MEANS17	31.925	38.268
MEANS19	43.706	42.619
MEANS21	69.189	67.767
MEANS23	70.041	71.472
MEANS25	47.756	43.946
MEANS27	53.148	48.030
MEANS29	65.308	59.463
MEANS31	65.559	60.029
MEANS33	65.522	63.584
MEANS35	63.620	61.784
MEANS37	64.949	67.126
MEANS39	63.146	59.874
MEANS41	57.284	59.882
MEANS43	55.838	54.835
MEANS45	60.976	61.110
MEANS47	59.579	61.122
MEANS49	48.978	47.770
MEANS51	56.461	53.845
MEANS53	62.477	61.551

Note.
This is a dissimilarity matrix.

Major Group 17: Squared Euclidian Distances – Abstract/Concrete Factors

	V2	V7	V12	V17	V22	V26	V35
MEANS11	44.746	45.015	38.307	55.880	35.798	31.859	45.591
MEANS13	30.806	49.048	25.564	43.650	33.196	26.521	29.465
MEANS15	44.701	42.856	32.374	52.532	31.890	41.248	31.489
MEANS17	**23.165**	**18.648**	**9.985**	**17.005**	**11.576**	**12.977**	**11.486**
MEANS19	32.458	28.789	11.881	34.705	28.311	31.869	25.308
MEANS21	41.444	70.554	33.635	62.511	52.817	43.289	45.934
MEANS23	38.300	67.339	32.846	50.103	45.542	39.267	37.984
MEANS25	43.363	50.742	20.242	51.497	38.400	35.475	34.709
MEANS27	31.666	46.463	28.938	45.358	31.465	32.990	31.200
MEANS29	50.216	55.598	28.047	61.057	45.808	47.247	36.000
MEANS31	52.979	68.032	32.669	66.559	53.508	51.241	38.744
MEANS33	38.873	56.737	37.189	52.044	37.664	40.923	35.851
MEANS35	44.255	61.884	34.574	65.345	46.749	40.094	38.530
MEANS37	38.773	61.669	29.553	54.897	42.583	29.707	39.445
MEANS39	38.922	61.913	32.939	56.903	45.906	37.284	39.045
MEANS41	32.990	58.933	31.880	52.383	48.308	38.264	35.581
MEANS43	43.892	63.118	34.876	58.301	43.741	37.219	32.172
MEANS45	38.459	46.300	33.375	57.018	35.316	36.005	36.925
MEANS47	33.249	53.058	26.239	43.352	30.567	22.950	25.711
MEANS49	39.958	50.968	28.030	45.531	34.609	32.565	30.258
MEANS51	40.851	43.248	25.883	48.492	28.655	29.836	20.651
MEANS53	43.956	51.613	34.491	51.451	35.596	33.538	29.542

Note.
This is a dissimilarity matrix.

Major Group 19: Squared Euclidian Distances – Abstract/Concrete Factors

	V3	V4	V8	V9	V25	V29	V33
MEANS11	67.069	55.113	54.159	61.115	40.213	17.134	38.039
MEANS13	46.545	31.491	44.290	41.174	16.227	14.571	18.667
MEANS15	47.383	32.338	38.847	34.640	18.169	26.896	27.225
MEANS17	43.516	31.116	39.205	38.443	22.659	23.463	21.155
MEANS19	**18.734**	**9.510**	**17.706**	**17.307**	**19.265**	**18.691**	**8.603**
MEANS21	61.746	45.690	61.708	51.383	30.596	15.439	32.432
MEANS23	61.118	39.809	53.340	46.575	25.017	17.823	22.340
MEANS25	48.040	33.920	44.078	37.855	28.840	15.219	23.700
MEANS27	57.902	41.186	45.320	35.170	25.890	17.527	26.734
MEANS29	53.785	36.328	40.663	34.446	37.016	27.926	29.948
MEANS31	57.955	39.741	47.427	40.719	36.857	30.324	30.947
MEANS33	65.058	50.052	47.411	33.590	30.144	31.212	32.638
MEANS35	52.818	37.633	47.596	43.892	27.177	24.512	28.624
MEANS37	56.230	40.687	52.878	50.209	32.265	18.363	22.954
MEANS39	57.501	41.951	47.866	41.410	30.486	22.245	26.861
MEANS41	51.702	36.808	54.905	51.662	22.591	22.919	29.858
MEANS43	55.456	36.669	46.116	41.131	20.859	24.743	23.927
MEANS45	44.578	34.331	37.653	30.558	24.799	27.763	26.137
MEANS47	59.800	43.044	52.206	43.593	27.662	24.881	23.114
MEANS49	54.272	38.469	46.319	37.532	28.900	26.041	23.545
MEANS51	50.156	33.397	40.202	34.028	24.533	24.517	22.591
MEANS53	59.488	45.055	47.973	39.191	29.181	29.049	29.679

	V36	V43
MEANS11	36.223	45.125
MEANS13	12.240	24.955
MEANS15	26.840	36.561
MEANS17	24.493	19.534
MEANS19	**13.930**	**16.459**
MEANS21	23.708	43.727
MEANS23	9.876	32.537
MEANS25	22.696	36.140
MEANS27	24.479	38.375
MEANS29	31.272	23.846
MEANS31	29.695	26.426
MEANS33	31.779	27.327
MEANS35	27.508	32.199
MEANS37	28.785	32.365
MEANS39	26.603	32.257
MEANS41	20.227	35.669
MEANS43	18.316	24.984
MEANS45	35.188	27.064
MEANS47	29.996	24.525
MEANS49	28.741	23.424
MEANS51	27.217	16.484
MEANS53	32.232	20.341

Note.
This is a dissimilarity matrix.

Major Group 21: Squared Euclidian Distances – Abstract/Concrete Factors

	V1	V4
MEANS11	27.055	37.063
MEANS13	20.021	17.207
MEANS15	40.890	43.039
MEANS17	37.397	40.119
MEANS19	29.980	25.052
MEANS21	**4.156**	**5.756**
MEANS23	24.481	11.495
MEANS25	12.555	15.267
MEANS27	20.479	29.348
MEANS29	16.721	16.079
MEANS31	16.322	13.095
MEANS33	18.991	23.664
MEANS35	17.120	24.186
MEANS37	20.656	23.749
MEANS39	12.675	17.771
MEANS41	18.564	20.457
MEANS43	20.945	18.678
MEANS45	22.187	31.721
MEANS47	25.563	30.256
MEANS49	27.639	29.306
MEANS51	26.685	31.363
MEANS53	21.747	29.372

Note.
This is a dissimilarity matrix.

Major Group 23: Squared Euclidian Distances – Abstract/Concrete Factors

	V4	V7
MEANS11	51.386	47.423
MEANS13	26.290	13.657
MEANS15	60.140	31.544
MEANS17	45.540	29.276
MEANS19	37.506	23.910
MEANS21	30.310	32.500
MEANS23	**15.303**	**10.714**
MEANS25	45.193	32.794
MEANS27	34.110	34.043
MEANS29	39.353	31.133
MEANS31	42.271	26.101
MEANS33	27.468	27.490
MEANS35	48.943	27.924
MEANS37	49.871	31.754
MEANS39	37.546	26.545
MEANS41	36.533	22.824
MEANS43	37.411	9.442
MEANS45	49.966	34.683
MEANS47	46.076	26.081
MEANS49	43.933	28.073
MEANS51	45.823	24.954
MEANS53	42.969	26.845

Note.
This is a dissimilarity matrix.

Major Group 25: Squared Euclidian Distances – Abstract/Concrete Factors

	V3	V16	V23	V25	V27	V32	V38	V42
MEANS11	57.855	51.251	28.932	33.704	35.852	44.052	15.080	13.920
MEANS13	41.499	57.941	32.363	33.880	23.377	28.495	20.138	20.721
MEANS15	33.217	66.217	45.450	39.090	29.789	38.975	28.061	32.563
MEANS17	25.822	55.263	38.894	31.950	29.448	36.047	28.265	26.836
MEANS19	34.771	40.164	29.180	23.237	18.615	23.937	25.224	24.514
MEANS21	34.150	38.190	18.803	21.724	9.126	7.714	22.932	11.831
MEANS23	50.887	62.171	34.434	38.619	25.336	26.370	27.574	27.980
MEANS25	**17.804**	**25.660**	**16.655**	**12.940**	**2.229**	**4.831**	**16.917**	**9.665**
MEANS27	45.140	44.244	13.125	20.079	18.375	22.367	16.227	15.062
MEANS29	32.348	18.605	24.584	18.819	14.721	12.546	23.652	24.475
MEANS31	39.123	24.324	16.552	14.871	12.028	11.447	18.045	25.945
MEANS33	50.631	41.581	21.074	19.800	26.770	27.339	22.421	31.804
MEANS35	47.901	41.248	16.479	21.866	17.524	23.378	11.955	19.093
MEANS37	42.079	46.730	23.537	27.920	20.281	24.599	19.059	15.409
MEANS39	45.718	34.674	9.420	14.029	14.977	17.521	11.337	17.606
MEANS41	51.499	53.604	19.013	24.197	21.769	27.906	15.474	22.336
MEANS43	43.617	52.153	25.204	26.740	19.688	25.011	14.064	27.601
MEANS45	48.523	44.886	25.710	26.053	25.874	32.635	20.266	24.207
MEANS47	36.717	51.360	26.358	28.371	23.011	26.878	22.014	23.399
MEANS49	39.685	49.409	25.652	28.728	22.623	28.128	21.964	25.540
MEANS51	38.122	45.972	27.741	28.711	22.467	27.139	19.826	24.207
MEANS53	42.322	48.407	27.155	24.614	26.666	31.130	21.597	29.824

Note.
This is a dissimilarity matrix.

Major Group 27: Squared Euclidian Distances – Abstract/Concrete Factors

	V2	V3	V10	V25	V27	V30	V38	V42
MEANS11	55.408	43.153	30.406	41.183	84.829	39.588	40.156	36.058
MEANS13	49.833	26.160	28.671	49.619	66.963	23.634	24.839	44.468
MEANS15	57.363	38.325	49.287	70.124	70.664	39.873	31.781	43.882
MEANS17	36.847	27.582	32.111	55.329	65.231	35.661	30.638	29.893
MEANS19	40.780	27.003	41.253	57.213	61.864	30.127	23.718	42.590
MEANS21	48.596	23.401	33.124	38.439	59.936	16.608	30.331	33.373
MEANS23	55.859	25.429	37.100	55.706	65.713	19.778	22.209	52.061
MEANS25	43.631	22.824	42.575	33.383	49.868	25.333	29.562	23.968
MEANS27	**22.051**	**10.854**	**18.989**	**23.591**	**33.506**	**13.692**	**10.633**	**15.142**
MEANS29	50.967	24.287	52.390	55.495	75.789	28.300	41.503	38.261
MEANS31	47.565	21.331	49.398	53.088	69.425	22.261	36.015	39.499
MEANS33	55.510	30.478	44.209	49.668	73.856	27.813	33.340	34.893
MEANS35	35.884	18.634	28.667	37.111	56.505	20.327	26.092	34.264
MEANS37	42.050	26.534	32.389	43.594	69.978	28.635	32.517	37.022
MEANS39	30.896	13.032	26.077	35.917	55.626	16.039	22.824	28.500
MEANS41	30.639	16.981	17.215	46.392	55.413	11.865	20.262	36.709
MEANS43	46.665	17.549	34.275	49.309	60.145	19.584	23.228	43.161
MEANS45	47.518	32.748	37.396	45.950	70.267	35.662	33.853	37.873
MEANS47	36.412	20.299	32.252	42.507	60.451	28.770	29.382	30.136
MEANS49	35.552	19.299	36.153	46.419	58.500	28.336	29.916	38.318
MEANS51	36.315	16.829	33.340	41.769	54.991	23.841	25.873	30.593
MEANS53	54.114	27.776	40.032	47.604	70.994	27.267	35.588	35.581

	V49
MEANS11	49.400
MEANS13	48.348
MEANS15	46.614
MEANS17	38.874
MEANS19	46.728
MEANS21	40.616
MEANS23	49.736
MEANS25	37.422
MEANS27	**13.499**
MEANS29	47.387
MEANS31	47.019
MEANS33	33.942
MEANS35	39.490
MEANS37	48.658
MEANS39	32.040
MEANS41	38.556
MEANS43	43.423
MEANS45	44.444
MEANS47	38.251
MEANS49	45.848
MEANS51	34.189
MEANS53	37.447

Note.
This is a dissimilarity matrix.

Major Group 29: Squared Euclidian Distances – Abstract/Concrete Factors

	V4	V9	V15	V17	V21	V25	V29	V39
MEANS11	45.332	56.228	70.600	71.279	48.003	35.103	49.993	56.470
MEANS13	37.533	42.748	64.345	50.784	44.266	32.627	29.711	34.510
MEANS15	52.085	54.919	66.253	65.405	49.565	46.101	48.709	49.993
MEANS17	42.304	47.782	59.593	51.828	51.499	42.304	43.053	48.806
MEANS19	35.334	26.155	51.437	44.306	38.229	32.387	29.620	30.421
MEANS21	25.377	31.249	63.363	40.109	21.537	15.827	16.453	17.299
MEANS23	40.882	45.832	66.564	47.692	45.360	38.396	28.616	33.770
MEANS25	25.075	26.409	56.658	41.810	15.589	10.590	19.856	22.788
MEANS27	40.524	51.827	61.198	46.930	41.647	33.356	31.803	40.492
MEANS29	**11.732**	**11.951**	**26.646**	**17.836**	**14.243**	**16.539**	**6.429**	**6.808**
MEANS31	22.753	21.982	42.650	28.197	15.470	20.309	9.164	7.142
MEANS33	45.639	40.502	43.119	35.618	41.852	37.596	32.132	26.839
MEANS35	33.383	41.418	61.397	49.874	31.410	26.995	21.324	26.115
MEANS37	30.102	37.548	63.256	56.955	29.111	28.990	24.649	27.581
MEANS39	29.364	39.304	53.740	39.474	28.961	26.598	17.730	22.193
MEANS41	42.212	52.823	74.912	51.232	43.260	35.487	28.542	32.120
MEANS43	36.963	44.106	62.768	48.243	38.712	33.863	21.826	27.285
MEANS45	39.553	37.990	52.021	50.221	40.885	33.525	32.662	30.793
MEANS47	35.710	44.509	59.406	49.893	37.908	35.948	27.306	31.726
MEANS49	34.763	43.491	56.041	46.655	42.131	34.764	26.518	32.524
MEANS51	30.724	35.459	54.447	45.517	37.277	33.354	21.943	28.809
MEANS53	40.597	37.148	57.977	50.562	43.767	36.967	29.241	28.295

Note.
This is a dissimilarity matrix.

Major Group 31: Squared Euclidian Distances – Abstract/Concrete Factors

	V8	V10
MEANS11	38.829	30.702
MEANS13	20.971	16.121
MEANS15	39.393	29.393
MEANS17	36.925	22.378
MEANS19	25.211	14.659
MEANS21	14.893	20.186
MEANS23	22.471	22.411
MEANS25	17.997	18.596
MEANS27	29.709	19.192
MEANS29	6.987	16.754
MEANS31	**7.657**	**10.023**
MEANS33	27.998	17.115
MEANS35	15.442	10.058
MEANS37	17.880	10.732
MEANS39	14.586	9.176
MEANS41	22.248	14.192
MEANS43	13.542	9.241
MEANS45	25.019	11.747
MEANS47	21.937	9.856
MEANS49	21.964	5.790
MEANS51	16.494	8.120
MEANS53	21.818	8.720

Note.
This is a dissimilarity matrix.

Major Group 33: Squared Euclidian Distances – Abstract/Concrete Factors

	V1	V3	V6	V9	V19
MEANS11	29.211	44.933	37.845	47.779	100.106
MEANS13	52.028	52.529	18.295	25.605	90.031
MEANS15	72.320	58.744	35.098	58.089	106.836
MEANS17	60.625	49.094	24.807	45.308	95.538
MEANS19	64.027	50.232	20.143	37.120	89.932
MEANS21	54.099	42.681	17.309	17.761	86.653
MEANS23	62.679	66.621	22.360	24.222	84.692
MEANS25	54.872	38.206	19.113	30.368	97.152
MEANS27	50.918	38.621	22.372	19.242	83.853
MEANS29	51.318	42.400	16.559	31.383	75.650
MEANS31	47.995	41.880	14.442	19.943	66.178
MEANS33	**30.797**	**20.967**	**6.448**	**10.232**	**42.963**
MEANS35	46.261	41.353	20.904	18.657	89.116
MEANS37	46.873	36.590	19.573	26.227	99.403
MEANS39	39.708	33.954	15.934	11.696	69.261
MEANS41	52.105	55.710	25.131	18.237	77.461
MEANS43	52.643	51.250	19.290	18.860	77.765
MEANS45	40.252	26.221	13.368	23.961	83.822
MEANS47	49.988	32.560	13.101	20.574	88.722
MEANS49	55.094	42.733	15.326	27.882	89.048
MEANS51	56.256	41.500	17.145	25.997	89.180
MEANS53	41.342	25.994	13.226	17.426	59.716

Note.
This is a dissimilarity matrix.

Major Group 35: Squared Euclidian Distances – Abstract/Concrete Factors

	V5	V12	V14
MEANS11	19.966	34.957	33.498
MEANS13	35.423	15.684	23.390
MEANS15	52.514	33.505	41.125
MEANS17	38.333	34.017	34.733
MEANS19	32.992	24.233	24.079
MEANS21	37.311	16.351	27.645
MEANS23	49.782	22.989	31.286
MEANS25	29.008	18.544	24.817
MEANS27	21.725	18.908	15.982
MEANS29	30.791	22.806	30.726
MEANS31	27.393	14.056	17.792
MEANS33	33.282	24.171	20.979
MEANS35	**15.296**	**4.428**	**6.176**
MEANS37	23.969	9.288	10.873
MEANS39	16.614	8.983	8.883
MEANS41	26.418	12.668	16.544
MEANS43	28.739	6.998	13.825
MEANS45	20.538	13.173	11.135
MEANS47	26.935	10.626	10.086
MEANS49	29.802	15.262	17.050
MEANS51	21.533	10.277	12.682
MEANS53	27.448	15.926	18.624

Note.
This is a dissimilarity matrix.

Major Group 37: Squared Euclidian Distances – Abstract/Concrete Factors

	V1	V3
MEANS11	15.055	10.461
MEANS13	24.253	17.019
MEANS15	53.902	46.453
MEANS17	44.339	31.852
MEANS19	40.798	29.761
MEANS21	22.115	20.173
MEANS23	34.311	32.028
MEANS25	25.574	23.013
MEANS27	34.480	28.370
MEANS29	33.997	32.460
MEANS31	33.840	31.111
MEANS33	41.919	34.717
MEANS35	21.496	14.609
MEANS37	**11.692**	**7.754**
MEANS39	24.851	18.500
MEANS41	33.976	21.826
MEANS43	29.801	23.489
MEANS45	26.619	16.561
MEANS47	25.676	19.239
MEANS49	32.554	25.396
MEANS51	28.537	21.967
MEANS53	29.792	20.825

Note.
This is a dissimilarity matrix.

Major Group 39: Squared Euclidian Distances – Abstract/Concrete Factors

	V2	V6	V7	V12	V16
MEANS11	11.959	42.899	41.992	45.210	44.864
MEANS13	16.470	26.293	31.076	27.356	37.574
MEANS15	38.304	52.121	41.250	49.889	41.376
MEANS17	29.841	41.026	36.350	40.189	32.139
MEANS19	28.636	33.359	31.274	30.484	30.531
MEANS21	13.457	33.132	28.805	22.661	36.603
MEANS23	27.233	29.844	37.806	31.448	41.471
MEANS25	17.159	35.396	29.899	26.251	33.364
MEANS27	15.817	21.566	15.042	25.143	11.962
MEANS29	23.678	34.943	30.688	18.125	33.799
MEANS31	23.070	24.399	25.948	16.677	30.982
MEANS33	20.692	23.791	27.093	25.571	32.533
MEANS35	11.456	16.958	17.252	16.097	23.748
MEANS37	10.090	36.297	26.388	21.069	32.012
MEANS39	**11.725**	**15.271**	**14.222**	**14.867**	**17.816**
MEANS41	20.453	15.440	22.938	22.225	24.942
MEANS43	18.722	15.135	19.879	20.658	29.596
MEANS45	12.192	29.655	23.281	21.324	31.423
MEANS47	15.231	29.515	21.586	20.715	25.045
MEANS49	17.907	26.920	15.946	25.157	26.382
MEANS51	16.083	23.615	14.769	20.031	22.095
MEANS53	14.956	24.739	16.417	24.934	34.236

Note.
This is a dissimilarity matrix.

Major Group 41: Squared Euclidian Distances – Abstract/Concrete Factors

	V5	V10	V19	V24
MEANS11	39.407	36.157	31.056	34.256
MEANS13	24.378	15.856	23.578	23.760
MEANS15	41.833	37.071	40.397	48.789
MEANS17	33.295	34.747	32.522	40.175
MEANS19	30.095	32.745	31.262	34.609
MEANS21	33.846	24.337	14.886	23.211
MEANS23	30.839	21.503	25.248	27.667
MEANS25	34.922	36.514	21.790	33.991
MEANS27	26.459	26.946	10.710	20.436
MEANS29	35.323	40.620	25.753	40.404
MEANS31	24.136	37.393	17.537	25.459
MEANS33	29.718	27.926	15.152	30.062
MEANS35	18.515	25.969	15.114	14.550
MEANS37	32.410	33.479	23.066	23.622
MEANS39	18.072	25.778	9.419	12.784
MEANS41	**12.105**	**15.847**	**9.731**	**4.079**
MEANS43	16.918	21.089	17.854	18.022
MEANS45	28.063	29.264	23.446	29.083
MEANS47	28.025	32.161	20.844	26.641
MEANS49	16.389	32.660	26.499	27.635
MEANS51	24.561	31.220	21.511	28.328
MEANS53	28.774	29.747	18.885	27.423

Note.
This is a dissimilarity matrix.

Major Group 43: Squared Euclidian Distances – Abstract/Concrete Factors

	V6	V8	V9	V10	V12	V19	V20	V27
MEANS11	36.017	38.740	41.363	43.463	30.399	39.739	40.073	39.469
MEANS13	12.491	16.038	19.948	19.151	8.434	9.789	9.126	14.110
MEANS15	39.477	33.419	24.815	35.450	30.133	33.126	32.127	35.772
MEANS17	35.223	34.162	32.148	37.979	28.426	32.050	30.198	36.304
MEANS19	30.727	28.704	23.957	33.364	25.516	24.461	19.037	27.474
MEANS21	20.021	39.659	37.877	48.283	20.130	21.321	21.216	13.069
MEANS23	10.296	21.885	29.831	24.007	10.741	10.374	7.719	15.969
MEANS25	33.256	38.325	30.143	44.516	28.534	25.614	26.685	18.900
MEANS27	23.258	36.911	34.924	45.347	23.647	23.689	27.704	21.568
MEANS29	34.237	35.984	34.255	41.952	27.944	28.458	29.478	24.523
MEANS31	23.877	28.486	28.777	38.613	24.877	21.166	21.873	15.384
MEANS33	19.513	30.827	37.870	37.569	22.280	22.368	24.741	25.262
MEANS35	19.134	21.623	19.879	32.588	17.846	14.569	19.783	10.418
MEANS37	25.686	32.995	23.773	42.870	19.441	20.013	22.812	17.159
MEANS39	15.852	25.254	26.322	36.346	17.440	15.512	19.845	11.662
MEANS41	9.158	20.198	28.459	32.704	15.041	15.732	14.814	12.455
MEANS43	**9.054**	**7.790**	**9.945**	**14.090**	**8.174**	**3.532**	**8.113**	**5.112**
MEANS45	28.013	29.495	23.362	37.295	21.609	22.757	26.883	22.736
MEANS47	24.602	29.402	22.082	37.735	18.836	16.981	22.538	17.441
MEANS49	26.307	26.964	22.451	35.963	22.607	20.097	21.876	20.519
MEANS51	26.360	23.260	15.176	30.889	18.873	16.629	22.668	16.427
MEANS53	20.946	24.345	20.863	33.509	19.215	17.727	23.373	18.045

	V33	V45
MEANS11	31.193	37.337
MEANS13	15.988	26.626
MEANS15	34.967	45.755
MEANS17	31.815	35.888
MEANS19	26.539	35.020
MEANS21	22.428	39.253
MEANS23	19.273	32.057
MEANS25	24.746	39.004
MEANS27	18.001	23.387
MEANS29	24.916	37.114
MEANS31	15.106	24.300
MEANS33	18.475	22.295
MEANS35	10.142	16.070
MEANS37	23.668	29.431
MEANS39	8.625	16.408
MEANS41	8.094	14.852
MEANS43	**5.102**	**16.421**
MEANS45	22.546	24.801
MEANS47	20.802	22.791
MEANS49	18.217	27.501
MEANS51	17.502	23.382
MEANS53	16.919	27.305

Note.
This is a dissimilarity matrix.

Major Group 45: Squared Euclidian Distances – Abstract/Concrete Factors

	V1	V5	V15
MEANS11	19.578	22.299	41.169
MEANS13	27.046	27.354	34.868
MEANS15	54.810	47.027	42.194
MEANS17	44.521	35.074	38.375
MEANS19	35.346	36.287	28.984
MEANS21	32.823	30.428	37.854
MEANS23	46.501	41.079	45.214
MEANS25	35.243	30.461	32.096
MEANS27	42.266	30.064	17.148
MEANS29	37.737	35.203	40.555
MEANS31	37.746	35.223	30.754
MEANS33	32.962	19.973	20.141
MEANS35	24.640	25.665	18.222
MEANS37	18.684	17.428	20.377
MEANS39	29.703	26.549	16.762
MEANS41	38.514	39.794	31.446
MEANS43	34.407	33.038	27.388
MEANS45	**12.122**	**12.909**	**12.526**
MEANS47	28.259	18.691	15.129
MEANS49	29.160	28.550	22.039
MEANS51	27.934	23.777	19.872
MEANS53	22.116	17.075	21.557

Note.
This is a dissimilarity matrix.

Major Group 47: Squared Euclidian Distances – Abstract/Concrete Factors

	V9	V16	V26	V27	V35	V41	V43
MEANS11	35.725	32.718	45.747	37.723	31.464	34.871	36.744
MEANS13	20.140	20.652	44.237	25.092	19.371	19.387	23.997
MEANS15	32.510	29.925	40.825	31.949	35.776	36.819	32.877
MEANS17	20.147	22.583	25.466	25.686	24.553	28.556	25.972
MEANS19	25.928	23.364	34.785	26.632	21.096	24.331	24.930
MEANS21	29.253	24.892	48.739	30.989	27.303	21.546	31.519
MEANS23	28.696	30.548	57.997	37.700	27.805	25.227	30.578
MEANS25	25.681	20.200	34.921	26.438	25.000	21.197	27.708
MEANS27	17.899	15.382	34.944	19.713	15.412	18.158	21.322
MEANS29	30.761	24.843	38.758	32.017	28.406	26.711	26.217
MEANS31	27.575	18.816	35.725	25.095	22.094	15.937	15.955
MEANS33	24.826	17.992	40.074	18.549	16.760	19.349	15.223
MEANS35	17.278	9.994	33.969	14.391	11.781	9.227	14.022
MEANS37	12.259	7.490	32.354	12.387	7.483	6.254	13.800
MEANS39	18.646	12.052	28.953	15.025	12.199	10.965	11.895
MEANS41	27.146	21.690	39.867	25.284	24.053	17.783	21.514
MEANS43	19.008	15.604	38.052	19.226	16.180	13.612	14.284
MEANS45	15.644	8.705	35.660	9.971	8.593	12.398	14.743
MEANS47	**4.699**	**2.522**	**25.432**	**6.038**	**3.179**	**4.479**	**7.530**
MEANS49	10.575	11.344	20.010	15.305	10.758	13.311	10.137
MEANS51	9.448	7.863	28.472	13.104	7.442	10.987	11.801
MEANS53	19.454	14.373	33.311	15.235	11.791	14.956	13.529

	V49	V51	V61
MEANS11	39.123	44.370	46.581
MEANS13	23.623	28.563	28.579
MEANS15	49.107	48.107	45.256
MEANS17	31.040	30.128	29.848
MEANS19	25.601	33.944	33.528
MEANS21	30.601	31.154	31.449
MEANS23	34.825	37.363	36.491
MEANS25	29.381	30.997	25.811
MEANS27	31.195	23.818	22.508
MEANS29	32.469	36.881	36.721
MEANS31	23.632	30.608	26.993
MEANS33	29.009	21.421	25.453
MEANS35	16.382	23.631	18.145
MEANS37	14.130	21.838	16.278
MEANS39	19.303	21.392	20.161
MEANS41	22.273	29.881	27.296
MEANS43	17.401	22.151	21.446
MEANS45	17.540	20.898	20.893
MEANS47	**13.174**	**12.742**	**7.980**
MEANS49	24.899	23.661	25.980
MEANS51	13.785	14.213	15.934
MEANS53	11.867	7.164	18.896

Note.
This is a dissimilarity matrix.

Major Group 49: Squared Euclidian Distances – Abstract/Concrete Factors

	V9	V13	V15	V27	V28	V36	V38
MEANS11	40.401	39.224	35.125	33.134	45.961	36.639	31.802
MEANS13	26.584	24.212	21.346	18.567	42.650	19.955	16.943
MEANS15	32.058	26.612	34.617	31.406	50.540	37.648	33.622
MEANS17	30.017	22.136	27.353	24.460	38.715	30.176	22.569
MEANS19	25.798	25.549	24.549	22.566	40.785	25.865	23.367
MEANS21	31.047	33.018	25.945	21.182	48.726	25.132	25.460
MEANS23	32.463	34.645	28.014	26.306	49.727	24.868	22.566
MEANS25	27.940	27.821	24.725	20.202	46.575	26.165	24.907
MEANS27	24.415	25.232	24.379	15.453	31.153	27.939	26.284
MEANS29	35.104	25.263	26.541	24.185	42.367	27.421	24.440
MEANS31	23.404	22.852	18.619	18.007	34.348	21.938	19.223
MEANS33	24.373	23.407	24.448	20.318	33.475	31.039	26.384
MEANS35	18.452	19.808	14.874	9.987	32.648	18.877	16.810
MEANS37	15.747	19.596	9.437	6.866	42.751	14.372	9.944
MEANS39	16.046	20.462	13.881	9.880	27.838	19.964	17.147
MEANS41	20.578	27.776	22.085	18.764	28.910	23.016	21.266
MEANS43	19.788	18.954	15.997	14.089	35.829	18.776	16.639
MEANS45	21.803	16.027	16.631	11.185	36.272	21.337	18.997
MEANS47	14.783	12.234	8.876	4.193	35.803	15.218	9.221
MEANS49	**19.106**	**4.093**	**4.328**	**6.226**	**17.248**	**5.352**	**5.398**
MEANS51	23.254	11.107	13.392	9.368	31.669	15.330	13.656
MEANS53	22.434	16.417	16.036	15.662	33.852	21.226	20.768

	V52	V53	V64
MEANS11	35.194	49.644	39.383
MEANS13	22.977	37.265	25.614
MEANS15	30.924	35.159	38.469
MEANS17	23.174	31.623	32.427
MEANS19	23.033	34.370	28.926
MEANS21	29.032	41.571	30.895
MEANS23	33.971	47.684	34.398
MEANS25	23.392	38.022	27.875
MEANS27	18.533	34.597	18.238
MEANS29	27.962	35.016	27.888
MEANS31	22.173	30.997	27.304
MEANS33	18.349	25.453	33.244
MEANS35	13.862	31.203	14.389
MEANS37	8.596	22.826	19.152
MEANS39	15.951	27.374	16.500
MEANS41	26.738	40.179	26.789
MEANS43	19.386	33.519	16.838
MEANS45	7.642	21.151	19.621
MEANS47	2.945	16.454	15.186
MEANS49	**10.325**	**11.547**	**18.832**
MEANS51	8.246	23.530	9.963
MEANS53	13.204	24.189	21.598

Note.
This is a dissimilarity matrix.

Major Group 51: Squared Euclidian Distances – Abstract/Concrete Factors

	V6	V43	V55	V77	V83	V90	V123
MEANS11	40.201	33.296	36.329	45.066	33.816	34.030	31.380
MEANS13	33.226	25.661	27.605	34.164	23.553	17.371	17.104
MEANS15	25.664	34.290	41.073	42.662	27.544	30.102	33.095
MEANS17	20.858	26.569	24.945	30.978	21.333	22.399	25.216
MEANS19	22.903	27.177	26.231	23.661	17.599	19.645	20.445
MEANS21	37.353	35.075	25.549	37.757	32.717	29.222	22.656
MEANS23	40.011	39.173	37.664	44.172	32.462	26.699	24.068
MEANS25	25.447	28.806	16.903	33.493	28.678	24.655	21.629
MEANS27	17.726	26.069	25.403	19.369	15.425	15.723	19.639
MEANS29	28.584	27.614	21.381	37.749	27.865	24.260	22.611
MEANS31	24.508	23.319	18.737	36.094	24.021	21.645	18.585
MEANS33	27.563	20.531	31.539	39.756	29.970	24.264	25.598
MEANS35	24.512	16.408	17.373	24.310	14.617	10.771	12.461
MEANS37	31.965	16.016	16.381	28.915	20.836	16.092	11.985
MEANS39	20.481	21.445	18.867	22.437	14.943	15.093	15.160
MEANS41	27.237	30.428	29.497	28.125	16.595	21.107	20.270
MEANS43	24.288	20.803	20.325	28.009	15.604	9.955	12.335
MEANS45	27.806	9.701	21.536	27.358	20.534	12.386	15.408
MEANS47	22.912	10.738	13.258	25.043	17.674	9.273	10.882
MEANS49	13.135	14.746	17.003	26.881	15.539	12.506	8.646
MEANS51	**16.548**	**9.501**	**10.621**	**17.250**	**9.065**	**2.314**	**5.586**
MEANS53	24.354	13.156	16.089	25.108	17.337	12.195	10.452

	V146	V156	V181
MEANS11	35.555	40.742	37.308
MEANS13	19.950	25.587	24.215
MEANS15	39.493	31.883	39.076
MEANS17	26.997	17.876	24.605
MEANS19	19.710	24.335	25.661
MEANS21	25.349	31.391	33.960
MEANS23	29.582	33.270	32.793
MEANS25	22.530	25.579	31.726
MEANS27	27.657	10.770	15.546
MEANS29	23.908	26.645	32.065
MEANS31	17.934	25.714	31.110
MEANS33	28.311	26.096	30.623
MEANS35	13.991	17.699	17.567
MEANS37	11.783	24.821	19.922
MEANS39	18.754	17.408	18.395
MEANS41	22.674	21.004	25.952
MEANS43	15.308	20.026	20.730
MEANS45	14.668	21.919	20.768
MEANS47	11.709	12.679	12.909
MEANS49	15.835	17.386	17.991
MEANS51	**8.100**	**9.545**	**8.916**
MEANS53	11.963	22.646	22.324

Note.
This is a dissimilarity matrix.

Major Group 53: Squared Euclidian Distances – Abstract/Concrete Factors

	V4	V7	V10	V19	V22	V25	V33
MEANS11	91.848	43.197	40.114	23.166	50.626	68.947	22.119
MEANS13	87.986	27.449	33.306	30.845	33.432	56.086	10.895
MEANS15	97.317	53.428	52.646	51.861	48.563	68.023	40.841
MEANS17	76.851	41.811	41.630	36.352	40.208	51.790	25.976
MEANS19	80.950	34.485	37.658	32.377	37.106	52.920	19.776
MEANS21	85.396	25.919	44.608	34.914	39.055	59.277	18.435
MEANS23	99.461	35.796	44.672	42.914	41.691	66.476	17.894
MEANS25	82.046	35.146	45.470	35.570	38.836	59.458	25.656
MEANS27	82.602	33.223	36.263	37.033	32.904	51.136	25.118
MEANS29	74.544	33.075	42.150	35.245	44.602	62.957	28.144
MEANS31	77.076	25.162	28.810	34.527	35.533	63.913	25.542
MEANS33	50.808	20.197	14.102	29.527	13.769	33.738	18.979
MEANS35	89.469	23.464	24.743	30.442	32.446	62.170	20.073
MEANS37	89.751	23.516	28.931	24.837	30.627	58.384	14.368
MEANS39	74.214	18.392	21.831	26.288	26.519	51.144	17.022
MEANS41	92.641	24.676	27.883	35.405	38.238	63.322	19.301
MEANS43	81.768	20.868	23.836	31.926	28.863	56.490	16.004
MEANS45	73.066	20.918	18.146	26.236	19.701	47.334	16.604
MEANS47	76.587	22.264	23.372	30.551	21.173	47.307	17.008
MEANS49	80.406	22.697	26.761	32.214	22.114	57.552	17.588
MEANS51	74.405	22.672	26.459	27.766	27.644	49.452	17.090
MEANS53	**44.721**	**7.528**	**10.948**	**15.393**	**11.738**	**26.589**	**8.163**

	V38	V48	V54
MEANS11	28.271	31.684	31.027
MEANS13	19.746	17.178	17.144
MEANS15	33.577	26.617	32.371
MEANS17	28.751	20.324	23.313
MEANS19	19.257	22.848	17.069
MEANS21	28.529	20.122	31.236
MEANS23	29.630	23.703	26.007
MEANS25	25.170	19.357	27.095
MEANS27	21.489	10.542	22.514
MEANS29	24.922	21.175	23.585
MEANS31	18.506	16.181	17.874
MEANS33	19.588	14.902	17.905
MEANS35	11.867	9.468	12.455
MEANS37	14.221	10.325	13.934
MEANS39	15.218	9.003	16.237
MEANS41	22.922	16.912	22.675
MEANS43	12.678	10.784	11.585
MEANS45	8.859	11.213	10.152
MEANS47	13.053	3.809	9.731
MEANS49	13.403	5.940	12.952
MEANS51	6.516	5.363	4.937
MEANS53	**7.692**	**10.222**	**8.968**

Note.
This is a dissimilarity matrix.

Appendix C.

Additional Assignment Analyses Results: Association Indices and Hit Rate Results for (1) Concrete Factors only – d^2 Combination and (2) O*NET Descriptors – Correlations Combination using Importance Data

Major Group 11: Squared Euclidian Distances – Concrete Factors Only

	V11	V12	V15	V19	V29	V32
MEANS11	**19.498**	**14.324**	**8.695**	**11.537**	**8.785**	**5.463**
MEANS13	31.362	17.767	14.858	18.611	19.695	13.505
MEANS15	46.999	33.671	43.399	38.765	37.954	33.804
MEANS17	48.121	29.235	25.294	34.964	30.562	27.749
MEANS19	40.860	21.974	27.161	20.776	29.740	26.189
MEANS21	37.060	19.545	16.338	23.437	21.461	13.204
MEANS23	31.486	16.886	24.248	27.986	26.261	19.758
MEANS25	37.271	19.108	22.994	24.763	24.236	17.850
MEANS27	35.278	15.613	26.915	23.422	24.747	21.910
MEANS29	43.171	28.084	31.713	30.410	26.147	24.223
MEANS31	44.694	28.004	27.633	30.975	20.042	22.705
MEANS33	39.982	22.559	27.870	25.592	18.898	24.441
MEANS35	40.747	24.695	22.186	21.124	18.742	18.444
MEANS37	33.472	19.989	16.302	19.355	15.524	12.621
MEANS39	39.947	22.567	21.044	23.939	15.851	17.708
MEANS41	49.915	31.373	17.703	30.857	18.906	20.475
MEANS43	40.638	25.868	24.251	27.359	23.609	20.213
MEANS45	38.939	24.067	22.855	12.264	19.497	20.196
MEANS47	41.296	23.617	22.342	26.435	21.077	20.379
MEANS49	46.457	28.129	25.729	29.931	18.031	25.411
MEANS51	38.329	22.046	23.645	21.100	24.477	21.134
MEANS53	42.226	25.978	18.107	22.370	19.696	19.039

Note.
This is a dissimilarity matrix.

Major Group 13: Squared Euclidian Distances – Concrete Factors Only

	V3	V8	V13	V21	V28	V32
MEANS11	11.432	20.207	21.658	17.865	13.067	12.469
MEANS13	**14.688**	**12.979**	**15.664**	**11.625**	**2.268**	**7.133**
MEANS15	38.748	27.554	31.370	22.219	24.672	27.596
MEANS17	27.570	14.592	17.898	23.784	16.557	25.183
MEANS19	24.473	3.229	8.186	24.232	11.118	21.080
MEANS21	21.700	17.090	14.078	25.306	5.246	16.356
MEANS23	24.851	18.833	16.040	15.579	2.491	7.460
MEANS25	25.177	13.321	11.560	22.377	8.484	18.069
MEANS27	18.871	16.460	16.099	29.504	11.748	18.342
MEANS29	33.006	14.780	4.591	28.986	16.044	23.679
MEANS31	25.820	13.243	9.500	28.626	9.935	16.608
MEANS33	25.873	15.367	14.656	26.116	12.734	19.352
MEANS35	13.530	13.848	16.846	26.264	8.835	13.408
MEANS37	23.519	15.932	14.815	24.608	9.729	18.887
MEANS39	15.127	15.227	13.204	27.642	7.132	14.203
MEANS41	9.112	15.099	22.407	29.665	5.929	11.376
MEANS43	18.033	17.925	19.673	15.593	4.315	7.324
MEANS45	21.045	10.364	15.408	24.418	15.887	23.016
MEANS47	25.738	17.438	16.969	24.872	11.639	20.809
MEANS49	24.668	20.851	18.250	29.163	12.105	19.878
MEANS51	21.630	12.884	14.465	23.446	12.146	17.387
MEANS53	24.392	16.383	18.749	25.600	11.935	20.049

This is a dissimilarity matrix

Major Group 15: Squared Euclidian Distances – Concrete Factors Only

	V3	V5
MEANS11	48.042	50.595
MEANS13	44.864	44.933
MEANS15	**9.805**	**8.694**
MEANS17	30.111	34.455
MEANS19	40.359	37.300
MEANS21	47.933	45.853
MEANS23	53.361	49.943
MEANS25	35.462	33.350
MEANS27	42.629	38.722
MEANS29	53.490	47.615
MEANS31	47.597	43.168
MEANS33	51.566	48.298
MEANS35	47.709	44.991
MEANS37	48.076	48.681
MEANS39	48.353	45.100
MEANS41	43.004	43.343
MEANS43	42.406	39.146
MEANS45	49.307	47.776
MEANS47	46.356	47.662
MEANS49	39.442	37.790
MEANS51	45.407	42.630
MEANS53	49.172	46.777

Note.
This is a dissimilarity matrix.

Major Group 17: Squared Euclidian Distances – Concrete Factors Only

	V2	V7	V12	V17	V22	V26	V35
MEANS11	25.081	28.251	28.536	42.292	24.711	24.889	29.358
MEANS13	16.396	28.862	18.863	28.781	21.553	17.616	21.150
MEANS15	32.856	35.833	30.160	47.937	26.611	35.614	29.246
MEANS17	**10.642**	**13.900**	**7.110**	**13.087**	**9.153**	**8.888**	**9.831**
MEANS19	15.159	18.935	10.265	25.380	21.742	23.977	22.970
MEANS21	19.550	37.110	19.662	37.332	27.717	25.290	26.275
MEANS23	25.024	39.999	21.283	31.392	26.792	23.465	24.947
MEANS25	17.579	28.874	14.414	33.496	19.774	23.644	20.343
MEANS27	21.745	30.145	18.189	37.040	19.123	25.065	20.751
MEANS29	26.479	33.421	19.985	40.689	30.084	32.047	26.742
MEANS31	24.648	37.532	18.911	39.436	31.276	30.816	24.399
MEANS33	21.342	35.609	21.917	33.203	25.605	25.727	27.274
MEANS35	22.936	36.619	24.416	45.923	30.461	30.272	25.809
MEANS37	18.990	36.646	20.688	36.768	26.923	23.475	26.601
MEANS39	19.799	37.545	21.643	38.375	29.683	25.390	26.744
MEANS41	19.401	34.780	20.352	36.310	31.821	25.009	23.037
MEANS43	24.745	39.602	26.232	39.734	29.391	25.958	23.214
MEANS45	20.060	28.587	24.735	42.010	26.405	29.788	29.927
MEANS47	15.758	32.925	17.161	28.399	18.807	16.569	18.143
MEANS49	24.512	34.474	20.926	32.972	25.412	25.702	26.051
MEANS51	22.743	25.267	18.232	34.393	18.206	23.130	14.887
MEANS53	23.452	31.521	23.788	33.446	25.221	24.538	22.309

Note.
This is a dissimilarity matrix.

Major Group 19: Squared Euclidian Distances – Concrete Factors Only

	V3	V4	V8	V9	V25	V29	V33
MEANS11	43.742	33.162	29.892	35.012	20.461	7.631	19.228
MEANS13	34.924	21.842	24.360	25.013	10.350	8.856	9.931
MEANS15	43.291	28.752	27.927	29.699	12.949	23.937	24.501
MEANS17	37.251	25.472	29.830	32.977	15.814	18.709	16.281
MEANS19	**16.007**	**6.812**	**9.221**	**12.293**	**12.599**	**14.316**	**6.181**
MEANS21	37.278	23.005	27.752	26.059	13.687	7.119	14.450
MEANS23	45.530	27.664	27.321	27.610	18.614	10.584	10.924
MEANS25	33.884	19.290	22.148	20.291	9.644	9.156	13.916
MEANS27	37.965	25.084	23.191	21.513	13.140	10.204	15.224
MEANS29	40.423	22.998	21.771	22.501	24.166	20.422	19.155
MEANS31	37.578	20.904	24.111	24.382	18.326	17.271	15.731
MEANS33	41.907	29.133	24.929	20.502	18.507	19.127	13.962
MEANS35	33.195	20.625	24.871	24.479	11.204	14.047	16.119
MEANS37	37.214	23.294	26.223	27.873	18.256	9.923	10.664
MEANS39	36.513	23.924	25.194	24.381	15.075	12.535	13.240
MEANS41	32.840	22.514	32.868	34.805	11.234	14.257	18.096
MEANS43	41.243	25.173	27.883	26.710	10.272	15.527	14.809
MEANS45	27.235	18.279	18.226	15.868	13.150	18.576	13.575
MEANS47	43.515	28.600	30.981	29.231	16.665	15.532	12.944
MEANS49	42.304	28.193	29.819	28.385	21.201	18.526	16.221
MEANS51	36.897	21.668	22.607	22.682	14.266	15.509	14.412
MEANS53	40.853	27.754	27.980	24.841	16.995	17.764	15.606

	V36	V43
MEANS11	21.684	22.575
MEANS13	9.504	15.128
MEANS15	20.897	26.145
MEANS17	16.976	10.170
MEANS19	**9.933**	**10.318**
MEANS21	9.650	21.378
MEANS23	6.474	16.665
MEANS25	8.448	17.013
MEANS27	9.524	17.069
MEANS29	20.682	14.085
MEANS31	14.698	13.194
MEANS33	16.563	16.820
MEANS35	15.278	18.254
MEANS37	16.429	17.646
MEANS39	13.516	17.240
MEANS41	12.695	18.686
MEANS43	11.719	16.254
MEANS45	22.739	18.544
MEANS47	17.018	14.229
MEANS49	19.055	16.287
MEANS51	15.680	8.294
MEANS53	18.682	13.170

Note.
This is a dissimilarity matrix.

Major Group 21: Squared Euclidian Distances – Concrete Factors Only

	V1	V4
MEANS11	13.880	14.863
MEANS13	9.689	3.727
MEANS15	24.425	23.532
MEANS17	19.595	16.610
MEANS19	14.861	7.989
MEANS21	**2.777**	**4.090**
MEANS23	14.317	2.730
MEANS25	4.316	5.835
MEANS27	7.525	13.213
MEANS29	11.545	9.802
MEANS31	9.459	6.866
MEANS33	12.302	11.201
MEANS35	7.097	10.284
MEANS37	11.287	7.650
MEANS39	5.606	8.116
MEANS41	8.212	10.760
MEANS43	10.479	6.598
MEANS45	12.582	13.675
MEANS47	13.162	11.160
MEANS49	15.721	12.382
MEANS51	13.150	12.070
MEANS53	12.029	11.611

Note.
This is a dissimilarity matrix.

Major Group 23: Squared Euclidian Distances – Concrete Factors Only

	V4	V7
MEANS11	22.542	30.453
MEANS13	11.388	9.949
MEANS15	42.833	24.754
MEANS17	25.462	21.455
MEANS19	17.934	19.004
MEANS21	13.784	20.225
MEANS23	**6.119**	**7.096**
MEANS25	16.332	18.868
MEANS27	15.217	24.849
MEANS29	21.436	22.716
MEANS31	19.858	17.052
MEANS33	15.142	18.236
MEANS35	21.979	20.706
MEANS37	22.227	22.298
MEANS39	16.280	19.383
MEANS41	21.478	19.398
MEANS43	16.971	6.908
MEANS45	26.695	26.335
MEANS47	21.183	18.681
MEANS49	23.992	23.329
MEANS51	21.032	18.651
MEANS53	20.167	18.577

Note.
This is a dissimilarity matrix.

Major Group 25: Squared Euclidian Distances – Concrete Factors Only

	V3	V16	V23	V25	V27	V32	V38
MEANS11	35.764	28.079	15.289	18.293	18.794	20.589	8.709
MEANS13	23.454	26.646	12.425	11.832	7.951	9.265	8.689
MEANS15	22.179	43.574	27.384	23.012	17.287	22.212	17.567
MEANS17	11.736	32.553	21.839	16.182	14.421	15.586	19.711
MEANS19	25.112	19.685	12.088	8.237	8.000	9.333	15.926
MEANS21	20.147	20.097	7.634	9.442	3.193	3.226	11.521
MEANS23	27.467	25.504	12.679	13.320	8.314	7.285	11.546
MEANS25	**13.889**	**17.942**	**8.632**	**7.743**	**1.575**	**2.576**	**10.584**
MEANS27	24.498	23.101	6.087	10.065	7.198	7.338	10.794
MEANS29	24.227	6.225	13.411	9.419	9.932	8.556	14.532
MEANS31	24.710	10.192	8.107	5.812	6.417	6.752	9.179
MEANS33	28.689	20.215	8.497	5.314	11.505	12.701	11.974
MEANS35	30.527	20.793	8.124	10.395	8.510	10.456	7.543
MEANS37	28.262	23.921	10.441	12.868	10.261	10.640	12.087
MEANS39	27.998	17.506	4.027	5.602	7.523	7.904	7.316
MEANS41	26.756	25.920	9.146	9.240	9.127	11.665	8.427
MEANS43	25.523	27.505	13.183	11.658	8.844	10.696	7.252
MEANS45	33.156	24.751	13.618	12.671	13.603	17.121	14.324
MEANS47	21.816	28.488	13.055	13.510	11.292	11.658	14.491
MEANS49	25.936	27.432	12.280	14.468	11.529	14.068	14.317
MEANS51	24.333	24.155	14.356	14.432	11.247	12.264	12.502
MEANS53	25.609	27.527	14.117	10.191	13.425	15.614	14.136

	V42
MEANS11	5.141
MEANS13	9.088
MEANS15	23.150
MEANS17	16.143
MEANS19	13.728
MEANS21	5.487
MEANS23	13.784
MEANS25	**6.492**
MEANS27	7.788
MEANS29	15.760
MEANS31	13.769
MEANS33	17.486
MEANS35	9.961
MEANS37	8.434
MEANS39	9.357
MEANS41	10.933
MEANS43	15.610
MEANS45	14.485
MEANS47	13.435
MEANS49	15.190
MEANS51	13.524
MEANS53	17.627

Note.
This is a dissimilarity matrix.

Major Group 27: Squared Euclidian Distances – Concrete Factors Only

	V2	V3	V10	V25	V27	V30	V38
MEANS11	27.263	23.014	14.316	33.296	50.404	22.765	19.151
MEANS13	23.294	12.267	14.403	29.938	33.474	15.995	7.993
MEANS15	41.036	28.532	32.299	53.685	49.767	26.828	18.845
MEANS17	19.520	16.468	15.547	41.265	42.629	21.067	17.011
MEANS19	19.998	16.104	19.927	38.818	36.277	16.632	7.617
MEANS21	20.689	10.624	13.604	22.495	27.116	10.020	9.912
MEANS23	29.904	12.109	24.741	29.880	32.671	15.331	7.850
MEANS25	22.422	12.373	16.997	24.077	26.660	10.861	9.193
MEANS27	**15.305**	**8.248**	**12.066**	**17.505**	**22.752**	**7.874**	**5.823**
MEANS29	24.188	13.191	26.854	37.869	44.159	17.922	20.479
MEANS31	22.177	12.171	23.614	35.355	39.580	13.081	15.963
MEANS33	28.809	18.543	26.220	31.898	39.407	20.048	15.269
MEANS35	16.907	11.209	13.059	28.594	33.012	12.585	11.201
MEANS37	19.687	15.885	16.094	35.451	43.130	19.034	13.618
MEANS39	13.802	7.499	12.010	27.229	33.735	10.710	10.531
MEANS41	15.466	11.232	9.232	31.999	34.436	9.415	13.124
MEANS43	26.209	10.018	18.816	34.111	34.129	13.633	9.471
MEANS45	24.426	22.054	20.069	36.299	41.235	25.331	15.456
MEANS47	18.440	13.008	16.033	32.475	37.848	19.436	13.633
MEANS49	18.521	13.088	20.177	33.736	36.459	20.147	16.166
MEANS51	18.756	9.894	15.659	30.389	32.924	13.726	10.438
MEANS53	28.754	16.490	20.359	35.015	39.326	16.746	15.527

	V42	V49
MEANS11	17.539	33.878
MEANS13	18.437	29.345
MEANS15	28.785	32.309
MEANS17	14.654	25.414
MEANS19	22.592	27.854
MEANS21	15.155	24.651
MEANS23	23.140	30.456
MEANS25	12.251	20.225
MEANS27	**8.727**	**10.311**
MEANS29	19.768	29.430
MEANS31	18.891	28.568
MEANS33	16.198	22.693
MEANS35	16.953	25.388
MEANS37	20.223	33.200
MEANS39	14.331	21.794
MEANS41	17.116	27.485
MEANS43	20.659	26.882
MEANS45	21.647	31.423
MEANS47	15.158	25.414
MEANS49	22.897	33.396
MEANS51	14.831	20.280
MEANS53	16.923	22.862

Note.
This is a dissimilarity matrix.

Major Group 29: Squared Euclidian Distances – Concrete Factors Only

	V4	V9	V15	V17	V21	V25	V29
MEANS11	28.101	33.563	51.077	38.512	22.563	19.947	25.875
MEANS13	27.852	28.895	48.386	30.321	21.424	18.624	18.324
MEANS15	43.086	41.276	53.961	51.162	28.230	32.754	34.670
MEANS17	29.883	31.646	48.916	33.826	26.500	26.992	25.579
MEANS19	27.942	16.583	39.844	29.171	20.157	22.123	18.800
MEANS21	22.035	21.804	43.167	27.797	14.457	9.546	12.189
MEANS23	30.696	28.491	46.679	30.938	21.105	21.078	17.770
MEANS25	23.141	19.439	36.301	25.571	12.335	8.835	13.763
MEANS27	28.840	28.812	42.984	31.397	20.198	16.626	17.821
MEANS29	**9.396**	**8.691**	**15.659**	**9.823**	**7.706**	**12.401**	**3.800**
MEANS31	17.696	14.003	26.361	17.173	7.557	13.076	6.845
MEANS33	34.074	27.515	36.711	26.916	21.781	22.544	22.289
MEANS35	24.212	25.816	40.908	26.886	15.328	15.775	12.911
MEANS37	21.720	23.355	41.470	31.675	13.032	18.312	15.409
MEANS39	21.674	24.880	36.986	23.490	15.207	16.350	10.969
MEANS41	31.254	32.184	55.499	33.487	21.194	19.345	17.836
MEANS43	28.420	30.530	45.690	29.207	20.415	21.576	14.902
MEANS45	29.292	25.345	39.918	30.671	22.138	21.551	22.233
MEANS47	25.970	29.818	42.477	30.125	18.796	22.253	18.218
MEANS49	26.479	31.140	43.160	31.859	23.558	21.927	18.768
MEANS51	21.398	21.954	38.889	26.902	18.463	20.225	13.189
MEANS53	29.845	25.183	46.742	32.578	24.764	24.136	19.864

	V39
MEANS11	28.313
MEANS13	21.073
MEANS15	31.703
MEANS17	27.160
MEANS19	16.384
MEANS21	12.313
MEANS23	22.191
MEANS25	11.896
MEANS27	21.493
MEANS29	**3.987**
MEANS31	4.576
MEANS33	18.997
MEANS35	13.406
MEANS37	12.937
MEANS39	12.822
MEANS41	19.050
MEANS43	17.749
MEANS45	17.510
MEANS47	17.898
MEANS49	21.228
MEANS51	15.502
MEANS53	17.181

Note.
This is a dissimilarity matrix.

Major Group 31: Squared Euclidian Distances – Concrete Factors Only

	V8	V10
MEANS11	19.385	16.249
MEANS13	12.759	8.256
MEANS15	26.439	20.190
MEANS17	21.652	14.284
MEANS19	15.646	8.351
MEANS21	10.830	7.765
MEANS23	13.831	10.917
MEANS25	11.764	8.556
MEANS27	17.729	12.055
MEANS29	4.004	10.387
MEANS31	**5.409**	**5.259**
MEANS33	19.487	10.821
MEANS35	10.242	7.315
MEANS37	11.924	4.824
MEANS39	9.999	6.197
MEANS41	14.498	8.982
MEANS43	9.530	7.584
MEANS45	17.610	8.345
MEANS47	15.465	6.703
MEANS49	16.183	3.550
MEANS51	10.087	5.792
MEANS53	15.142	5.797

Note.
This is a dissimilarity matrix.

Major Group 33: Squared Euclidian Distances – Concrete Factors Only

	V1	V3	V6	V9	V19
MEANS11	18.190	25.984	16.874	28.325	56.515
MEANS13	27.841	26.304	8.360	14.155	51.497
MEANS15	44.747	34.364	23.527	36.309	64.523
MEANS17	38.703	28.131	11.861	23.995	55.576
MEANS19	37.441	25.607	9.994	17.592	50.334
MEANS21	30.749	20.706	10.233	10.465	53.829
MEANS23	31.976	32.159	11.826	14.041	49.328
MEANS25	29.890	17.914	7.442	12.066	52.262
MEANS27	30.956	18.077	10.111	8.205	51.210
MEANS29	29.276	24.458	13.022	21.393	47.490
MEANS31	24.846	20.928	9.185	13.816	41.457
MEANS33	**17.527**	**8.166**	**3.676**	**6.555**	**27.979**
MEANS35	27.124	21.757	10.354	11.743	53.251
MEANS37	25.390	18.881	8.797	16.281	53.870
MEANS39	23.152	16.218	8.318	7.434	42.273
MEANS41	30.596	27.529	13.943	12.454	49.560
MEANS43	30.312	27.497	11.167	12.655	45.976
MEANS45	25.565	14.272	6.304	15.781	51.122
MEANS47	27.700	16.255	5.112	11.218	49.937
MEANS49	32.551	25.418	9.487	18.609	55.119
MEANS51	33.088	24.088	9.285	15.333	51.221
MEANS53	25.824	13.909	7.645	10.772	30.571

Note.
This is a dissimilarity matrix.

Major Group 35: Squared Euclidian Distances – Concrete Factors Only

	V5	V12	V14
MEANS11	8.987	19.068	19.888
MEANS13	14.260	8.452	11.628
MEANS15	36.095	19.699	26.665
MEANS17	25.453	19.928	22.313
MEANS19	17.293	12.799	11.781
MEANS21	15.997	7.330	13.445
MEANS23	20.915	12.826	14.988
MEANS25	17.974	8.137	13.503
MEANS27	12.716	9.122	9.972
MEANS29	14.113	13.956	19.278
MEANS31	11.848	6.891	10.147
MEANS33	15.971	13.668	10.642
MEANS35	**6.695**	**2.055**	**4.876**
MEANS37	12.545	7.330	6.685
MEANS39	7.604	4.743	6.334
MEANS41	11.246	5.756	10.439
MEANS43	15.198	4.238	10.466
MEANS45	10.908	8.684	7.013
MEANS47	16.190	7.922	7.130
MEANS49	17.765	11.289	12.750
MEANS51	10.993	6.806	9.472
MEANS53	15.955	11.371	14.216

Note.
This is a dissimilarity matrix.

Major Group 37: Squared Euclidian Distances – Concrete Factors Only

	V1	V3
MEANS11	8.516	5.611
MEANS13	12.976	7.045
MEANS15	32.767	27.464
MEANS17	25.416	15.422
MEANS19	22.210	12.221
MEANS21	8.720	5.329
MEANS23	15.718	14.642
MEANS25	12.757	8.932
MEANS27	16.238	12.169
MEANS29	17.151	14.108
MEANS31	15.601	10.768
MEANS33	22.212	15.094
MEANS35	13.935	7.055
MEANS37	**7.499**	**3.926**
MEANS39	13.505	6.933
MEANS41	18.561	7.552
MEANS43	18.402	12.317
MEANS45	18.051	8.581
MEANS47	14.631	9.040
MEANS49	18.167	11.930
MEANS51	15.712	9.938
MEANS53	18.880	10.085

Note.
This is a dissimilarity matrix.

Major Group 39: Squared Euclidian Distances – Concrete Factors Only

	V2	V6	V7	V12	V16
MEANS11	7.376	29.136	27.826	26.274	22.812
MEANS13	7.838	16.986	21.997	16.168	19.265
MEANS15	24.041	37.721	29.863	36.585	30.917
MEANS17	18.245	28.859	26.929	25.042	21.268
MEANS19	15.009	22.447	21.780	16.255	17.427
MEANS21	4.020	19.948	15.311	15.215	18.664
MEANS23	12.858	17.773	25.018	20.503	23.178
MEANS25	6.108	20.899	17.052	15.769	18.974
MEANS27	6.633	12.783	9.756	19.003	9.639
MEANS29	12.990	25.822	21.671	8.027	19.190
MEANS31	11.051	18.377	19.661	7.476	17.781
MEANS33	13.247	18.053	21.726	14.992	20.233
MEANS35	6.437	13.230	15.167	9.419	12.464
MEANS37	6.685	27.858	21.232	15.018	16.997
MEANS39	**6.126**	**12.062**	**11.966**	**9.117**	**9.489**
MEANS41	10.644	11.003	18.189	14.523	16.028
MEANS43	10.852	12.428	17.781	13.001	17.863
MEANS45	9.311	24.565	20.743	12.789	18.861
MEANS47	9.385	23.052	19.547	14.974	15.536
MEANS49	10.326	21.230	13.909	18.813	18.411
MEANS51	8.718	17.576	12.828	13.112	13.090
MEANS53	10.826	20.373	14.337	15.938	21.043

Note.
This is a dissimilarity matrix.

Major Group 41: Squared Euclidian Distances – Concrete Factors Only

	V5	V10	V19	V24
MEANS11	23.986	16.124	13.058	18.687
MEANS13	15.236	8.367	8.051	12.938
MEANS15	30.723	21.491	23.649	30.215
MEANS17	23.214	17.875	15.038	22.352
MEANS19	21.220	15.890	12.471	16.886
MEANS21	20.012	10.781	7.145	10.395
MEANS23	20.923	16.556	12.180	18.846
MEANS25	20.582	11.025	7.803	14.588
MEANS27	19.635	11.282	6.768	13.490
MEANS29	25.725	23.645	13.704	23.927
MEANS31	16.811	17.080	7.574	13.218
MEANS33	22.388	16.708	7.707	18.357
MEANS35	12.650	8.499	5.369	7.653
MEANS37	21.244	17.561	10.905	11.993
MEANS39	13.594	10.140	3.928	7.249
MEANS41	**8.972**	**5.676**	**3.258**	**2.434**
MEANS43	13.346	8.252	6.706	11.934
MEANS45	20.150	14.281	11.928	16.933
MEANS47	19.782	16.202	9.966	14.824
MEANS49	10.173	18.848	15.938	16.147
MEANS51	17.297	14.305	9.315	15.822
MEANS53	21.201	14.516	7.098	14.788

Note.
This is a dissimilarity matrix.

Major Group 43: Squared Euclidian Distances – Concrete Factors Only

	V6	V8	V9	V10	V12	V19	V20
MEANS11	18.195	25.976	24.151	28.838	15.602	25.303	22.870
MEANS13	3.604	11.379	10.915	13.786	4.705	6.320	5.276
MEANS15	18.258	23.415	15.813	26.188	18.729	20.821	20.105
MEANS17	15.145	26.108	24.010	30.379	16.337	19.877	18.149
MEANS19	11.365	22.392	18.337	27.925	14.243	15.011	10.614
MEANS21	5.313	22.681	18.863	28.565	10.559	10.800	7.371
MEANS23	4.212	13.061	14.687	14.453	8.310	5.478	3.832
MEANS25	6.578	21.865	18.354	26.396	11.108	11.046	8.108
MEANS27	10.447	24.500	22.351	30.099	15.333	13.413	13.884
MEANS29	16.293	25.281	23.797	30.301	16.112	18.583	18.722
MEANS31	9.080	17.696	18.150	25.445	12.805	12.649	11.486
MEANS33	9.701	21.465	23.477	26.235	14.022	13.109	14.872
MEANS35	8.380	15.904	14.237	23.461	10.362	11.186	11.704
MEANS37	10.377	24.752	16.881	31.204	11.580	15.505	11.725
MEANS39	6.818	17.838	17.768	25.657	10.408	10.585	11.396
MEANS41	6.178	14.276	17.790	24.468	12.130	12.441	10.828
MEANS43	**1.982**	**5.471**	**5.791**	**9.679**	**3.771**	**2.546**	**5.340**
MEANS45	14.353	24.033	17.311	29.325	13.260	17.229	17.297
MEANS47	9.330	22.673	17.411	28.096	10.982	12.108	12.323
MEANS49	12.506	21.757	18.413	28.884	15.821	15.455	14.117
MEANS51	10.464	17.595	11.867	22.938	10.343	11.556	13.358
MEANS53	7.716	18.992	14.582	25.626	10.552	12.271	14.300

	V27	V33	V45
MEANS11	22.441	18.865	23.675
MEANS13	6.685	8.318	15.802
MEANS15	19.092	21.566	32.123
MEANS17	18.989	20.138	24.624
MEANS19	14.354	16.285	22.592
MEANS21	6.083	11.055	23.478
MEANS23	8.078	9.534	19.742
MEANS25	7.402	11.608	21.807
MEANS27	10.718	10.481	18.382
MEANS29	16.291	16.028	23.940
MEANS31	10.381	9.208	14.463
MEANS33	15.491	12.060	15.053
MEANS35	7.570	7.389	10.872
MEANS37	12.393	16.627	18.997
MEANS39	8.250	6.146	12.415
MEANS41	8.095	5.359	11.823
MEANS43	**2.939**	**3.300**	**11.912**
MEANS45	15.701	17.457	17.698
MEANS47	11.346	14.794	15.251
MEANS49	13.958	12.792	20.836
MEANS51	9.763	11.731	16.060
MEANS53	11.434	12.150	20.230

Note.
This is a dissimilarity matrix.

Major Group 45: Squared Euclidian Distances – Concrete Factors Only

	V1	V5	V15
MEANS11	12.719	12.872	25.978
MEANS13	18.226	14.140	21.609
MEANS15	38.939	28.293	31.337
MEANS17	31.337	19.788	29.497
MEANS19	21.596	17.804	18.706
MEANS21	20.741	14.324	22.062
MEANS23	30.183	20.339	27.341
MEANS25	22.643	12.314	20.729
MEANS27	27.142	14.411	13.466
MEANS29	26.329	19.384	30.125
MEANS31	23.942	16.614	22.777
MEANS33	22.746	9.769	12.480
MEANS35	17.818	14.603	14.754
MEANS37	14.715	9.638	14.002
MEANS39	20.848	14.568	13.436
MEANS41	24.517	22.194	23.920
MEANS43	25.454	19.231	22.286
MEANS45	**8.484**	**7.276**	**8.839**
MEANS47	21.280	9.359	12.759
MEANS49	20.373	17.323	19.373
MEANS51	19.714	12.709	17.682
MEANS53	17.476	10.511	17.826

Note.
This is a dissimilarity matrix.

Major Group 47: Squared Euclidian Distances – Concrete Factors Only

	V9	V16	V26	V27	V35	V41	V43
MEANS11	20.389	18.865	30.716	23.243	18.036	21.051	21.228
MEANS13	11.465	11.798	27.641	14.871	12.020	12.772	14.772
MEANS15	24.767	20.846	28.843	21.916	25.888	24.952	22.454
MEANS17	13.109	14.168	16.021	16.976	16.265	17.471	16.997
MEANS19	17.518	14.232	25.794	16.359	12.673	15.028	17.170
MEANS21	14.101	12.740	27.783	16.720	13.434	10.771	18.722
MEANS23	15.210	17.006	32.190	22.002	14.976	15.411	17.048
MEANS25	12.915	10.293	25.154	14.468	12.966	10.339	16.983
MEANS27	11.509	9.925	20.671	13.429	8.172	10.986	14.086
MEANS29	19.785	15.477	28.121	21.409	18.932	18.058	19.689
MEANS31	15.410	9.412	23.828	14.298	13.294	9.733	11.295
MEANS33	15.860	9.520	25.896	10.499	9.206	10.815	10.065
MEANS35	11.510	6.547	25.109	9.837	9.423	8.225	11.326
MEANS37	7.959	5.083	22.248	8.965	5.200	3.651	8.417
MEANS39	11.620	7.405	18.594	9.347	7.933	8.452	9.031
MEANS41	17.331	13.148	22.143	15.046	16.423	13.549	14.831
MEANS43	13.050	10.833	27.522	13.191	13.469	12.681	11.977
MEANS45	12.352	6.262	29.095	7.653	7.293	9.144	12.369
MEANS47	**3.328**	**1.910**	**17.670**	**5.134**	**2.942**	**2.505**	**5.470**
MEANS49	8.867	9.740	12.390	13.353	9.719	10.700	8.504
MEANS51	7.778	6.675	22.007	11.577	6.952	8.801	10.255
MEANS53	15.665	11.412	26.279	12.571	10.442	11.722	11.931

	V49	V51	V61
MEANS11	25.365	30.236	32.165
MEANS13	14.330	19.141	18.089
MEANS15	37.359	36.058	33.875
MEANS17	20.617	19.659	19.311
MEANS19	16.295	22.936	22.707
MEANS21	16.707	18.358	17.577
MEANS23	19.969	22.738	20.850
MEANS25	19.717	19.132	15.885
MEANS27	23.263	17.010	16.427
MEANS29	22.528	27.115	25.109
MEANS31	15.644	22.145	16.756
MEANS33	17.646	14.254	13.172
MEANS35	14.954	21.132	15.669
MEANS37	11.782	19.534	14.266
MEANS39	15.422	17.555	15.456
MEANS41	14.568	21.432	18.599
MEANS43	14.653	18.182	16.729
MEANS45	14.419	19.325	17.206
MEANS47	**11.649**	**12.282**	**6.907**
MEANS49	22.109	21.847	23.130
MEANS51	12.208	13.034	14.252
MEANS53	8.338	5.613	14.344

Note.
This is a dissimilarity matrix.

Major Group 49: Squared Euclidian Distances – Concrete Factors Only

	V9	V13	V15	V27	V28	V36	V38
MEANS11	28.040	22.481	22.888	18.225	30.235	22.829	20.151
MEANS13	20.052	14.937	15.307	10.375	29.600	15.578	13.694
MEANS15	21.339	19.160	25.189	22.287	40.366	31.243	27.877
MEANS17	20.493	15.670	19.143	15.367	31.162	22.981	16.904
MEANS19	17.847	18.314	17.776	13.559	31.318	20.431	19.129
MEANS21	17.419	17.336	13.983	10.229	29.472	15.825	15.706
MEANS23	22.895	19.952	17.129	14.617	33.444	17.742	15.719
MEANS25	15.811	14.570	15.059	10.547	29.215	17.716	16.171
MEANS27	16.768	16.324	16.733	10.252	24.278	21.076	19.476
MEANS29	24.734	16.593	18.942	15.273	30.880	20.627	18.350
MEANS31	15.008	12.090	12.071	9.527	23.393	14.169	12.075
MEANS33	13.693	17.192	16.367	11.610	28.105	22.126	19.316
MEANS35	15.826	12.223	13.598	6.811	23.185	15.321	14.102
MEANS37	10.136	13.032	7.159	4.326	28.506	11.646	7.591
MEANS39	11.992	12.468	10.705	5.691	20.608	15.131	13.074
MEANS41	17.061	15.810	16.337	11.604	20.780	17.258	16.200
MEANS43	18.216	12.226	14.891	10.111	28.012	16.356	15.320
MEANS45	16.308	13.105	14.739	7.944	29.176	17.575	16.846
MEANS47	9.848	9.848	7.682	3.267	27.217	13.276	7.901
MEANS49	**14.495**	**2.386**	**2.767**	**4.536**	**11.053**	**3.689**	**4.534**
MEANS51	18.810	8.971	12.364	7.914	24.243	13.409	12.536
MEANS53	16.508	13.792	14.049	11.997	27.231	16.976	18.277

	V52	V53	V64
MEANS11	19.031	27.272	23.831
MEANS13	13.103	22.382	14.972
MEANS15	22.363	23.902	28.206
MEANS17	15.283	21.004	22.365
MEANS19	14.281	22.186	18.325
MEANS21	14.373	23.301	17.254
MEANS23	18.947	27.999	19.419
MEANS25	11.964	21.019	17.849
MEANS27	11.938	23.070	12.807
MEANS29	17.925	23.530	16.153
MEANS31	11.544	17.048	16.257
MEANS33	9.453	17.967	20.793
MEANS35	8.749	18.453	10.590
MEANS37	4.646	11.526	16.269
MEANS39	9.619	15.580	10.959
MEANS41	16.312	23.115	17.813
MEANS43	13.530	21.233	11.123
MEANS45	4.637	14.576	14.989
MEANS47	1.999	10.474	13.647
MEANS49	**8.816**	**6.412**	**15.867**
MEANS51	7.042	17.524	7.808
MEANS53	9.905	18.269	15.998

Note.
This is a dissimilarity matrix.

Major Group 51: Squared Euclidian Distances – Concrete Factors Only

	V6	V43	V55	V77	V83	V90	V123
MEANS11	23.502	18.821	20.871	26.553	20.596	18.902	18.780
MEANS13	19.107	14.038	12.343	20.812	16.206	9.324	11.967
MEANS15	17.678	22.028	25.235	35.666	20.694	22.871	25.078
MEANS17	13.745	17.100	10.546	24.179	15.959	16.336	18.102
MEANS19	16.476	15.864	14.444	16.266	11.911	13.266	14.704
MEANS21	22.025	17.377	10.676	19.781	16.864	13.575	10.574
MEANS23	21.682	19.936	14.908	27.305	21.082	13.586	13.954
MEANS25	17.315	13.500	9.845	22.989	16.495	12.866	11.799
MEANS27	10.837	15.025	11.492	15.429	10.580	9.725	11.532
MEANS29	21.931	16.270	12.270	26.287	17.992	14.852	15.309
MEANS31	18.027	10.852	10.874	25.398	14.957	12.414	11.257
MEANS33	19.366	13.537	16.893	27.185	21.689	16.150	17.679
MEANS35	17.197	9.413	12.563	17.840	11.207	7.140	10.349
MEANS37	20.899	10.146	10.512	20.065	15.014	11.897	9.810
MEANS39	14.641	13.242	12.002	15.850	10.613	10.027	11.017
MEANS41	17.147	16.244	14.859	19.524	11.744	13.420	13.721
MEANS43	17.078	12.791	12.739	21.294	13.224	6.714	10.895
MEANS45	21.182	7.649	15.452	19.942	16.933	10.000	13.729
MEANS47	16.340	7.877	7.111	20.792	15.221	8.647	10.023
MEANS49	8.400	11.165	9.533	23.445	13.853	11.982	7.646
MEANS51	**11.499**	**6.291**	**4.841**	**13.962**	**7.353**	**2.050**	**4.927**
MEANS53	17.892	11.304	9.681	17.020	13.430	9.715	8.658

	V146	V156	V181
MEANS11	20.951	21.018	20.368
MEANS13	12.070	13.047	14.149
MEANS15	29.777	25.984	30.338
MEANS17	18.059	12.011	16.096
MEANS19	13.049	16.470	15.923
MEANS21	12.944	13.401	19.006
MEANS23	16.274	18.322	18.429
MEANS25	14.172	11.536	19.144
MEANS27	18.297	7.135	9.203
MEANS29	17.232	14.819	20.472
MEANS31	11.982	13.113	18.667
MEANS33	19.194	16.909	20.415
MEANS35	11.709	8.360	11.298
MEANS37	8.764	14.105	15.251
MEANS39	14.562	9.230	11.017
MEANS41	14.345	11.802	15.518
MEANS43	13.010	11.650	13.840
MEANS45	12.104	14.501	16.336
MEANS47	10.110	7.925	11.046
MEANS49	13.961	14.230	15.565
MEANS51	**6.928**	**5.472**	**6.594**
MEANS53	9.511	14.922	17.329

Note.
This is a dissimilarity matrix.

Major Group 53: Squared Euclidian Distances – Concrete Factors Only

	V4	V7	V10	V19	V22	V25	V33
MEANS11	58.452	27.345	24.918	16.741	35.701	49.813	13.601
MEANS13	52.806	19.649	19.382	20.114	24.654	42.015	9.431
MEANS15	66.208	38.595	34.870	35.874	37.192	55.176	33.722
MEANS17	49.397	28.128	28.320	24.259	30.276	40.789	19.796
MEANS19	52.081	22.779	22.674	19.895	26.891	40.046	14.783
MEANS21	52.291	16.987	24.263	19.492	27.533	38.887	9.895
MEANS23	55.365	25.359	24.819	23.852	28.607	45.749	13.040
MEANS25	51.859	21.884	24.578	22.604	26.029	39.535	14.888
MEANS27	49.754	23.550	24.399	21.561	25.225	34.036	16.664
MEANS29	53.010	26.589	28.406	23.882	37.009	50.004	22.374
MEANS31	52.352	21.050	17.434	21.822	28.379	46.209	18.223
MEANS33	34.722	17.085	8.676	19.366	10.263	25.567	14.577
MEANS35	59.644	20.494	17.504	23.581	28.171	46.341	16.738
MEANS37	59.460	18.627	17.904	17.864	26.146	45.140	11.089
MEANS39	47.403	15.747	14.885	17.817	22.333	35.733	12.913
MEANS41	53.988	18.705	17.129	21.823	29.683	42.779	15.093
MEANS43	50.940	18.606	16.606	23.361	24.469	41.760	14.759
MEANS45	53.720	18.226	13.584	21.951	18.127	40.149	14.873
MEANS47	51.740	18.923	16.152	21.827	19.491	37.880	13.848
MEANS49	56.957	19.309	19.721	22.588	20.227	49.216	15.247
MEANS51	50.119	18.891	19.354	18.817	25.494	40.038	13.955
MEANS53	**27.299**	**6.110**	**7.426**	**10.384**	**10.853**	**19.861**	**6.291**

	V38	V48	V54
MEANS11	15.647	18.163	16.238
MEANS13	10.506	10.005	9.349
MEANS15	22.680	17.585	21.440
MEANS17	20.191	12.385	14.697
MEANS19	11.105	14.078	9.453
MEANS21	14.809	8.643	14.948
MEANS23	14.592	13.005	11.907
MEANS25	14.427	7.164	12.887
MEANS27	13.636	5.759	10.933
MEANS29	17.418	12.654	14.971
MEANS31	12.400	8.158	9.558
MEANS33	13.803	10.154	11.394
MEANS35	9.455	6.231	8.148
MEANS37	9.694	6.817	8.439
MEANS39	11.997	5.531	10.279
MEANS41	15.237	10.970	13.152
MEANS43	9.827	7.549	8.501
MEANS45	7.345	9.458	8.213
MEANS47	11.020	2.964	7.109
MEANS49	11.240	4.901	10.651
MEANS51	4.812	4.062	2.869
MEANS53	**6.564**	**8.555**	**7.761**

Note.
This is a dissimilarity matrix.

MAJOR GROUP 11 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v11	v12	v15	v19	v29	v32
1	MEAN		2.696	2.516	2.401	2.427	2.756	2.336
2	STD		1.273	1.165	1.055	1.027	0.896	1.070
3	N		173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.939	0.900	0.860	0.820	0.744	0.889
5	CORR	mean13	0.824	0.773	0.791	0.694	0.610	0.783
6	CORR	mean15	0.676	0.677	0.617	0.525	0.357	0.570
7	CORR	mean17	0.533	0.553	0.572	0.490	0.289	0.456
8	CORR	mean19	0.658	0.673	0.606	0.609	0.356	0.557
9	CORR	mean21	0.745	0.766	0.653	0.558	0.578	0.752
10	CORR	mean23	0.765	0.718	0.693	0.582	0.515	0.744
11	CORR	mean25	0.767	0.832	0.629	0.580	0.502	0.720
12	CORR	mean27	0.640	0.677	0.559	0.526	0.406	0.560
13	CORR	mean29	0.576	0.615	0.491	0.533	0.450	0.530
14	CORR	mean31	0.360	0.397	0.308	0.330	0.445	0.333
15	CORR	mean33	0.452	0.486	0.480	0.391	0.444	0.460
16	CORR	mean35	0.373	0.350	0.361	0.418	0.578	0.360
17	CORR	mean37	0.394	0.423	0.435	0.484	0.489	0.396
18	CORR	mean39	0.501	0.525	0.477	0.426	0.661	0.491
19	CORR	mean41	0.638	0.591	0.644	0.466	0.660	0.612
20	CORR	mean43	0.604	0.528	0.565	0.511	0.609	0.538
21	CORR	mean45	0.253	0.309	0.286	0.466	0.218	0.208
22	CORR	mean47	-0.124	-0.070	-0.014	0.007	-0.009	-0.134
23	CORR	mean49	-0.053	-0.012	0.059	0.029	0.013	-0.100
24	CORR	mean51	-0.007	0.032	0.061	0.113	-0.008	-0.073
25	CORR	mean53	0.124	0.145	0.294	0.224	0.244	0.153

MAJOR GROUP 13 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v3	v8	v13	v21	v28	v32
1	MEAN		2.582	2.518	2.432	2.501	2.182	2.300
2	STD		1.086	0.984	0.941	1.320	1.085	1.124
3	N		173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.854	0.596	0.606	0.805	0.784	0.819
5	CORR	mean13	0.811	0.784	0.711	0.883	0.875	0.879
6	CORR	mean15	0.619	0.732	0.658	0.826	0.693	0.644
7	CORR	mean17	0.509	0.727	0.660	0.715	0.542	0.506
8	CORR	mean19	0.627	0.856	0.814	0.780	0.692	0.652
9	CORR	mean21	0.701	0.608	0.567	0.674	0.794	0.704
10	CORR	mean23	0.689	0.738	0.689	0.793	0.776	0.806
11	CORR	mean25	0.708	0.654	0.623	0.712	0.759	0.704
12	CORR	mean27	0.656	0.608	0.655	0.635	0.589	0.586
13	CORR	mean29	0.531	0.731	0.810	0.631	0.672	0.602
14	CORR	mean31	0.391	0.527	0.600	0.358	0.562	0.508
15	CORR	mean33	0.494	0.673	0.660	0.464	0.569	0.527
16	CORR	mean35	0.510	0.382	0.466	0.303	0.524	0.556
17	CORR	mean37	0.396	0.430	0.513	0.379	0.340	0.367
18	CORR	mean39	0.607	0.485	0.541	0.418	0.670	0.628
19	CORR	mean41	0.769	0.576	0.494	0.612	0.818	0.797
20	CORR	mean43	0.651	0.643	0.611	0.669	0.803	0.850
21	CORR	mean45	0.320	0.476	0.564	0.310	0.234	0.250
22	CORR	mean47	-0.041	0.185	0.244	0.044	-0.046	-0.046
23	CORR	mean49	0.012	0.289	0.327	0.128	0.050	0.034
24	CORR	mean51	0.071	0.353	0.369	0.177	0.067	0.083
25	CORR	mean53	0.205	0.410	0.420	0.230	0.236	0.251

MAJOR GROUP 15 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v3	v5
1	MEAN		2.776	2.764
2	STD		1.168	1.178
3	N		173.000	173.000
4	CORR	mean11	0.648	0.607
5	CORR	mean13	0.712	0.691
6	CORR	mean15	0.917	0.907
7	CORR	mean17	0.839	0.776
8	CORR	mean19	0.753	0.748
9	CORR	mean21	0.528	0.536
10	CORR	mean23	0.597	0.605
11	CORR	mean25	0.659	0.684
12	CORR	mean27	0.609	0.683
13	CORR	mean29	0.575	0.619
14	CORR	mean31	0.368	0.453
15	CORR	mean33	0.371	0.442
16	CORR	mean35	0.277	0.351
17	CORR	mean37	0.302	0.324
18	CORR	mean39	0.382	0.458
19	CORR	mean41	0.601	0.581
20	CORR	mean43	0.603	0.649
21	CORR	mean45	0.224	0.298
22	CORR	mean47	0.076	0.121
23	CORR	mean49	0.302	0.351
24	CORR	mean51	0.263	0.335
25	CORR	mean53	0.220	0.300

MAJOR GROUP 17 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v2	v7	v12	v17	v22	v26	v35
1	MEAN		2.496	3.031	2.632	2.638	2.830	2.426	2.547
2	STD		1.139	1.146	1.044	1.143	1.094	1.016	0.995
3	N		173.000	173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.641	0.593	0.576	0.551	0.564	0.594	0.328
5	CORR	mean13	0.720	0.636	0.673	0.639	0.645	0.661	0.482
6	CORR	mean15	0.713	0.771	0.801	0.770	0.790	0.727	0.658
7	CORR	mean17	0.777	0.891	0.880	0.910	0.907	0.865	0.854
8	CORR	mean19	0.747	0.799	0.806	0.759	0.795	0.703	0.663
9	CORR	mean21	0.607	0.396	0.511	0.447	0.426	0.435	0.207
10	CORR	mean23	0.680	0.510	0.605	0.581	0.541	0.559	0.374
11	CORR	mean25	0.632	0.530	0.639	0.547	0.535	0.531	0.361
12	CORR	mean27	0.696	0.602	0.599	0.642	0.678	0.600	0.551
13	CORR	mean29	0.594	0.574	0.641	0.560	0.598	0.516	0.479
14	CORR	mean31	0.338	0.314	0.397	0.295	0.353	0.268	0.330
15	CORR	mean33	0.473	0.376	0.484	0.421	0.483	0.393	0.379
16	CORR	mean35	0.244	0.253	0.241	0.178	0.301	0.214	0.279
17	CORR	mean37	0.379	0.413	0.445	0.404	0.483	0.444	0.439
18	CORR	mean39	0.426	0.298	0.361	0.314	0.352	0.309	0.260
19	CORR	mean41	0.558	0.434	0.482	0.436	0.428	0.427	0.335
20	CORR	mean43	0.476	0.466	0.470	0.437	0.493	0.468	0.441
21	CORR	mean45	0.300	0.417	0.385	0.359	0.525	0.364	0.519
22	CORR	mean47	0.126	0.251	0.268	0.302	0.351	0.305	0.540
23	CORR	mean49	0.149	0.363	0.379	0.393	0.469	0.342	0.625
24	CORR	mean51	0.176	0.450	0.377	0.389	0.504	0.361	0.689
25	CORR	mean53	0.203	0.350	0.327	0.366	0.465	0.334	0.559

MAJOR GROUP 19 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v3	v4	v8	v9
1	MEAN		2.344	2.182	2.321	2.226
2	STD		1.104	1.046	1.073	1.036
3	N		173.000	173.000	173.000	173.000
4	CORR	mean11	0.575	0.536	0.585	0.429
5	CORR	mean13	0.708	0.690	0.673	0.591
6	CORR	mean15	0.762	0.769	0.724	0.649
7	CORR	mean17	0.731	0.751	0.711	0.654
8	CORR	mean19	0.894	0.901	0.867	0.819
9	CORR	mean21	0.535	0.509	0.476	0.378
10	CORR	mean23	0.656	0.623	0.604	0.549
11	CORR	mean25	0.664	0.621	0.595	0.494
12	CORR	mean27	0.605	0.596	0.637	0.604
13	CORR	mean29	0.677	0.696	0.735	0.682
14	CORR	mean31	0.418	0.428	0.501	0.502
15	CORR	mean33	0.474	0.467	0.484	0.552
16	CORR	mean35	0.283	0.292	0.416	0.405
17	CORR	mean37	0.381	0.418	0.513	0.491
18	CORR	mean39	0.363	0.365	0.447	0.416
19	CORR	mean41	0.503	0.489	0.465	0.372
20	CORR	mean43	0.551	0.540	0.616	0.572
21	CORR	mean45	0.464	0.480	0.565	0.638
22	CORR	mean47	0.138	0.192	0.268	0.371
23	CORR	mean49	0.275	0.333	0.371	0.444
24	CORR	mean51	0.315	0.376	0.464	0.534
25	CORR	mean53	0.284	0.314	0.407	0.483

Obs	v25	v29	v33	v36	v43
1	2.492	2.485	2.224	2.177	2.327
2	1.167	1.220	0.960	1.102	0.989
3	173.000	173.000	173.000	173.000	173.000
4	0.668	0.813	0.500	0.725	0.112
5	0.846	0.812	0.646	0.869	0.319
6	0.838	0.759	0.631	0.780	0.442
7	0.719	0.616	0.614	0.647	0.629
8	0.828	0.766	0.791	0.823	0.540
9	0.658	0.795	0.491	0.737	0.042
10	0.761	0.757	0.660	0.884	0.248
11	0.692	0.818	0.617	0.780	0.166
12	0.670	0.639	0.599	0.687	0.338
13	0.639	0.630	0.592	0.642	0.448
14	0.401	0.378	0.394	0.423	0.395
15	0.528	0.482	0.510	0.594	0.407
16	0.329	0.244	0.294	0.331	0.369
17	0.319	0.294	0.398	0.301	0.448
18	0.447	0.434	0.390	0.481	0.247
19	0.712	0.640	0.435	0.674	0.187
20	0.669	0.533	0.555	0.685	0.435
21	0.300	0.195	0.429	0.256	0.560
22	0.078	-0.115	0.209	-0.009	0.616
23	0.172	-0.008	0.250	0.103	0.697
24	0.202	-0.008	0.299	0.109	0.786
25	0.274	0.102	0.303	0.224	0.677

MAJOR GROUP 21 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v1	v4
1	MEAN		2.713	2.371
2	STD		1.207	1.164
3	N		173.000	173.000
4	CORR	mean11	0.777	0.730
5	CORR	mean13	0.790	0.779
6	CORR	mean15	0.606	0.582
7	CORR	mean17	0.459	0.439
8	CORR	mean19	0.648	0.635
9	CORR	mean21	0.959	0.947
10	CORR	mean23	0.767	0.798
11	CORR	mean25	0.817	0.820
12	CORR	mean27	0.627	0.610
13	CORR	mean29	0.733	0.758
14	CORR	mean31	0.576	0.667
15	CORR	mean33	0.577	0.641
16	CORR	mean35	0.382	0.446
17	CORR	mean37	0.320	0.344
18	CORR	mean39	0.627	0.696
19	CORR	mean41	0.701	0.722
20	CORR	mean43	0.585	0.635
21	CORR	mean45	0.183	0.212
22	CORR	mean47	-0.165	-0.101
23	CORR	mean49	-0.079	-0.017
24	CORR	mean51	-0.083	-0.028
25	CORR	mean53	0.117	0.179

MAJOR GROUP 23 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v4	v7
1	MEAN		2.375	1.967
2	STD		1.287	1.018
3	N		173.000	173.000
4	CORR	mean11	0.719	0.596
5	CORR	mean13	0.823	0.805
6	CORR	mean15	0.631	0.681
7	CORR	mean17	0.534	0.594
8	CORR	mean19	0.721	0.718
9	CORR	mean21	0.776	0.616
10	CORR	mean23	0.925	0.873
11	CORR	mean25	0.743	0.661
12	CORR	mean27	0.695	0.636
13	CORR	mean29	0.657	0.659
14	CORR	mean31	0.468	0.551
15	CORR	mean33	0.712	0.626
16	CORR	mean35	0.342	0.441
17	CORR	mean37	0.309	0.358
18	CORR	mean39	0.557	0.546
19	CORR	mean41	0.634	0.635
20	CORR	mean43	0.643	0.848
21	CORR	mean45	0.286	0.336
22	CORR	mean47	-0.019	0.150
23	CORR	mean49	0.073	0.233
24	CORR	mean51	0.071	0.275
25	CORR	mean53	0.265	0.394

MAJOR GROUP 25 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v3	v16	v23	v25	v27	v32	v38	v42
1	MEAN		2.566	2.833	2.536	2.846	2.520	2.441	2.637	2.577
2	STD		1.146	1.115	1.054	1.096	1.104	1.134	1.086	1.135
3	N		173.000	173.000	173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.592	0.670	0.655	0.682	0.760	0.739	0.701	0.840
5	CORR	mean13	0.673	0.645	0.563	0.661	0.781	0.744	0.684	0.813
6	CORR	mean15	0.749	0.555	0.430	0.531	0.717	0.666	0.589	0.740
7	CORR	mean17	0.735	0.457	0.300	0.410	0.557	0.514	0.436	0.593
8	CORR	mean19	0.747	0.688	0.466	0.617	0.735	0.698	0.588	0.718
9	CORR	mean21	0.632	0.767	0.746	0.773	0.869	0.908	0.652	0.831
10	CORR	mean23	0.622	0.643	0.572	0.667	0.769	0.742	0.666	0.784
11	CORR	mean25	0.810	0.832	0.777	0.863	0.957	0.936	0.752	0.882
12	CORR	mean27	0.580	0.591	0.637	0.577	0.687	0.687	0.687	0.709
13	CORR	mean29	0.619	0.834	0.600	0.652	0.745	0.779	0.600	0.653
14	CORR	mean31	0.426	0.732	0.636	0.599	0.616	0.678	0.571	0.442
15	CORR	mean33	0.409	0.603	0.578	0.519	0.553	0.592	0.521	0.489
16	CORR	mean35	0.222	0.498	0.571	0.441	0.429	0.446	0.610	0.313
17	CORR	mean37	0.303	0.453	0.422	0.309	0.366	0.377	0.416	0.377
18	CORR	mean39	0.387	0.668	0.781	0.648	0.655	0.703	0.722	0.521
19	CORR	mean41	0.552	0.570	0.633	0.631	0.730	0.706	0.703	0.670
20	CORR	mean43	0.521	0.567	0.551	0.606	0.667	0.622	0.772	0.551
21	CORR	mean45	0.183	0.388	0.271	0.172	0.231	0.243	0.281	0.225
22	CORR	mean47	0.040	0.012	-0.020	-0.142	-0.074	-0.066	0.023	-0.091
23	CORR	mean49	0.142	0.067	-0.034	-0.112	0.016	0.013	0.049	0.010
24	CORR	mean51	0.156	0.136	0.005	-0.045	0.042	0.032	0.118	0.010
25	CORR	mean53	0.192	0.232	0.202	0.119	0.164	0.165	0.224	0.114

MAJOR GROUP 27 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v2	v3	v10	v25
1	MEAN		2.031	1.889	2.263	2.287
2	STD		0.850	0.855	1.016	0.973
3	N		173.000	173.000	173.000	173.000
4	CORR	mean11	0.253	0.357	0.620	0.650
5	CORR	mean13	0.331	0.477	0.616	0.569
6	CORR	mean15	0.419	0.473	0.559	0.472
7	CORR	mean17	0.543	0.503	0.594	0.398
8	CORR	mean19	0.473	0.521	0.505	0.482
9	CORR	mean21	0.218	0.396	0.556	0.574
10	CORR	mean23	0.304	0.508	0.524	0.562
11	CORR	mean25	0.321	0.456	0.526	0.649
12	CORR	mean27	0.676	0.779	0.699	0.754
13	CORR	mean29	0.390	0.512	0.422	0.464
14	CORR	mean31	0.283	0.454	0.262	0.339
15	CORR	mean33	0.269	0.470	0.307	0.452
16	CORR	mean35	0.335	0.486	0.326	0.362
17	CORR	mean37	0.419	0.372	0.290	0.361
18	CORR	mean39	0.386	0.559	0.478	0.492
19	CORR	mean41	0.326	0.462	0.649	0.451
20	CORR	mean43	0.305	0.559	0.433	0.448
21	CORR	mean45	0.367	0.368	0.142	0.301
22	CORR	mean47	0.417	0.316	0.020	0.001
23	CORR	mean49	0.421	0.335	0.036	0.007
24	CORR	mean51	0.475	0.410	0.078	0.057
25	CORR	mean53	0.243	0.336	0.067	0.178

Obs	v27	v30	v38	v42	v49
1	1.835	2.075	2.107	2.642	2.411
2	0.927	0.993	1.075	1.014	1.004
3	173.000	173.000	173.000	173.000	173.000
4	0.406	0.576	0.616	0.627	0.516
5	0.474	0.650	0.705	0.598	0.559
6	0.523	0.545	0.684	0.631	0.613
7	0.462	0.451	0.599	0.631	0.615
8	0.532	0.571	0.698	0.622	0.618
9	0.397	0.634	0.619	0.596	0.481
10	0.493	0.701	0.749	0.598	0.599
11	0.504	0.644	0.681	0.719	0.564
12	0.720	0.784	0.838	0.818	0.824
13	0.408	0.587	0.580	0.586	0.562
14	0.277	0.513	0.436	0.430	0.389
15	0.344	0.579	0.508	0.469	0.493
16	0.253	0.482	0.350	0.346	0.315
17	0.193	0.321	0.299	0.451	0.419
18	0.354	0.637	0.508	0.530	0.451
19	0.396	0.747	0.620	0.514	0.412
20	0.436	0.687	0.660	0.483	0.488
21	0.222	0.267	0.273	0.351	0.436
22	0.067	0.068	0.069	0.199	0.287
23	0.163	0.160	0.165	0.211	0.302
24	0.199	0.179	0.217	0.278	0.415
25	0.160	0.347	0.232	0.300	0.389

MAJOR GROUP 29 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v4	v9	v15	v17	v21	v25	v29	v39
1	MEAN		2.343	2.443	2.979	2.644	2.475	2.595	2.053	2.241
2	STD		0.961	1.050	1.148	1.120	0.991	1.098	0.881	0.955
3	N		173.000	173.000	173.000	173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.483	0.534	0.462	0.490	0.587	0.761	0.391	0.391
5	CORR	mean13	0.526	0.611	0.551	0.640	0.600	0.771	0.520	0.537
6	CORR	mean15	0.554	0.587	0.552	0.602	0.558	0.708	0.482	0.445
7	CORR	mean17	0.582	0.561	0.570	0.584	0.477	0.565	0.429	0.404
8	CORR	mean19	0.625	0.725	0.682	0.725	0.629	0.734	0.591	0.578
9	CORR	mean21	0.570	0.570	0.514	0.676	0.757	0.868	0.594	0.621
10	CORR	mean23	0.494	0.567	0.510	0.656	0.595	0.749	0.547	0.538
11	CORR	mean25	0.544	0.612	0.514	0.631	0.743	0.863	0.610	0.559
12	CORR	mean27	0.546	0.530	0.606	0.620	0.609	0.646	0.532	0.479
13	CORR	mean29	0.833	0.841	0.812	0.903	0.860	0.818	0.868	0.869
14	CORR	mean31	0.682	0.708	0.651	0.748	0.802	0.637	0.840	0.907
15	CORR	mean33	0.463	0.590	0.635	0.651	0.575	0.525	0.566	0.623
16	CORR	mean35	0.450	0.488	0.510	0.460	0.549	0.356	0.579	0.644
17	CORR	mean37	0.512	0.534	0.610	0.487	0.553	0.344	0.504	0.547
18	CORR	mean39	0.575	0.591	0.595	0.645	0.713	0.576	0.706	0.742
19	CORR	mean41	0.443	0.479	0.399	0.523	0.569	0.641	0.532	0.523
20	CORR	mean43	0.464	0.600	0.506	0.568	0.556	0.596	0.619	0.642
21	CORR	mean45	0.461	0.541	0.657	0.487	0.449	0.242	0.462	0.492
22	CORR	mean47	0.294	0.265	0.393	0.270	0.196	-0.109	0.281	0.279
23	CORR	mean49	0.374	0.353	0.423	0.346	0.204	0.020	0.338	0.318
24	CORR	mean51	0.407	0.431	0.479	0.373	0.254	0.030	0.391	0.376
25	CORR	mean53	0.333	0.495	0.492	0.386	0.301	0.145	0.402	0.461

MAJOR GROUP 31 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v8	v10
1	MEAN		2.053	1.969
2	STD		0.834	0.733
3	N		173.000	173.000
4	CORR	mean11	0.442	0.043
5	CORR	mean13	0.555	0.200
6	CORR	mean15	0.474	0.281
7	CORR	mean17	0.425	0.377
8	CORR	mean19	0.540	0.339
9	CORR	mean21	0.541	0.021
10	CORR	mean23	0.527	0.164
11	CORR	mean25	0.580	0.082
12	CORR	mean27	0.517	0.264
13	CORR	mean29	0.796	0.399
14	CORR	mean31	0.832	0.516
15	CORR	mean33	0.515	0.400
16	CORR	mean35	0.633	0.494
17	CORR	mean37	0.530	0.585
18	CORR	mean39	0.715	0.395
19	CORR	mean41	0.568	0.188
20	CORR	mean43	0.717	0.436
21	CORR	mean45	0.439	0.626
22	CORR	mean47	0.273	0.676
23	CORR	mean49	0.306	0.802
24	CORR	mean51	0.393	0.769
25	CORR	mean53	0.428	0.735

MAJOR GROUP 33 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v1	v3	v6	v9	v19
1	MEAN		3.105	2.888	2.661	1.907	3.057
2	STD		1.002	1.064	0.903	0.817	1.148
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.745	0.464	0.328	0.372	0.171
5	CORR	mean13	0.663	0.433	0.539	0.457	0.314
6	CORR	mean15	0.400	0.385	0.510	0.223	0.127
7	CORR	mean17	0.292	0.377	0.561	0.185	0.113
8	CORR	mean19	0.452	0.439	0.575	0.302	0.254
9	CORR	mean21	0.691	0.469	0.441	0.539	0.335
10	CORR	mean23	0.663	0.409	0.520	0.546	0.406
11	CORR	mean25	0.628	0.477	0.463	0.423	0.235
12	CORR	mean27	0.541	0.529	0.456	0.427	0.359
13	CORR	mean29	0.519	0.465	0.574	0.478	0.399
14	CORR	mean31	0.464	0.365	0.481	0.530	0.503
15	CORR	mean33	0.726	0.695	0.710	0.796	0.753
16	CORR	mean35	0.507	0.359	0.312	0.503	0.442
17	CORR	mean37	0.407	0.535	0.424	0.338	0.243
18	CORR	mean39	0.658	0.484	0.435	0.670	0.560
19	CORR	mean41	0.590	0.288	0.391	0.481	0.355
20	CORR	mean43	0.557	0.316	0.456	0.458	0.494
21	CORR	mean45	0.311	0.547	0.502	0.320	0.362
22	CORR	mean47	-0.048	0.294	0.377	0.149	0.211
23	CORR	mean49	-0.093	0.222	0.472	0.111	0.178
24	CORR	mean51	-0.068	0.227	0.412	0.082	0.201
25	CORR	mean53	0.277	0.515	0.530	0.404	0.595

MAJOR GROUP 35 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v5	v12	v14
1	MEAN		2.448	1.727	1.661
2	STD		0.895	0.719	0.743
3	N		173.000	173.000	173.000
4	CORR	mean11	0.472	0.275	-0.082
5	CORR	mean13	0.365	0.423	-0.017
6	CORR	mean15	0.282	0.284	-0.079
7	CORR	mean17	0.307	0.282	0.011
8	CORR	mean19	0.360	0.360	0.043
9	CORR	mean21	0.247	0.324	-0.129
10	CORR	mean23	0.269	0.369	-0.055
11	CORR	mean25	0.345	0.342	-0.086
12	CORR	mean27	0.504	0.454	0.166
13	CORR	mean29	0.406	0.511	0.136
14	CORR	mean31	0.459	0.662	0.362
15	CORR	mean33	0.367	0.522	0.319
16	CORR	mean35	0.747	0.887	0.639
17	CORR	mean37	0.604	0.604	0.545
18	CORR	mean39	0.605	0.736	0.390
19	CORR	mean41	0.370	0.531	0.031
20	CORR	mean43	0.482	0.667	0.244
21	CORR	mean45	0.567	0.517	0.609
22	CORR	mean47	0.367	0.460	0.623
23	CORR	mean49	0.305	0.400	0.435
24	CORR	mean51	0.471	0.472	0.530
25	CORR	mean53	0.402	0.522	0.494

MAJOR GROUP 37 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v1	v3
1	MEAN		2.250	2.386
2	STD		0.969	0.962
3	N		173.000	173.000
4	CORR	mean11	0.849	0.833
5	CORR	mean13	0.713	0.711
6	CORR	mean15	0.547	0.563
7	CORR	mean17	0.475	0.533
8	CORR	mean19	0.548	0.594
9	CORR	mean21	0.688	0.666
10	CORR	mean23	0.621	0.610
11	CORR	mean25	0.700	0.666
12	CORR	mean27	0.582	0.576
13	CORR	mean29	0.574	0.603
14	CORR	mean31	0.456	0.435
15	CORR	mean33	0.442	0.411
16	CORR	mean35	0.524	0.479
17	CORR	mean37	0.621	0.653
18	CORR	mean39	0.590	0.576
19	CORR	mean41	0.570	0.623
20	CORR	mean43	0.556	0.530
21	CORR	mean45	0.365	0.401
22	CORR	mean47	0.031	0.072
23	CORR	mean49	0.063	0.105
24	CORR	mean51	0.100	0.136
25	CORR	mean53	0.253	0.253

MAJOR GROUP 39 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v2	v6	v7	v12	v16
1	MEAN		2.377	2.154	1.859	1.970	2.083
2	STD		1.014	1.079	0.841	0.801	0.892
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.796	0.323	-0.131	0.245	0.239
5	CORR	mean13	0.716	0.426	-0.024	0.369	0.326
6	CORR	mean15	0.556	0.248	0.065	0.300	0.380
7	CORR	mean17	0.476	0.204	0.173	0.345	0.452
8	CORR	mean19	0.573	0.304	0.107	0.453	0.444
9	CORR	mean21	0.743	0.339	-0.163	0.346	0.272
10	CORR	mean23	0.687	0.366	-0.025	0.402	0.320
11	CORR	mean25	0.734	0.350	-0.093	0.338	0.323
12	CORR	mean27	0.663	0.419	0.266	0.440	0.683
13	CORR	mean29	0.626	0.417	0.185	0.653	0.478
14	CORR	mean31	0.513	0.537	0.288	0.635	0.470
15	CORR	mean33	0.590	0.492	0.254	0.473	0.404
16	CORR	mean35	0.513	0.769	0.367	0.502	0.506
17	CORR	mean37	0.534	0.329	0.346	0.566	0.466
18	CORR	mean39	0.684	0.727	0.265	0.576	0.554
19	CORR	mean41	0.622	0.613	0.005	0.337	0.331
20	CORR	mean43	0.600	0.660	0.237	0.447	0.389
21	CORR	mean45	0.388	0.330	0.485	0.511	0.449
22	CORR	mean47	0.035	0.216	0.600	0.417	0.450
23	CORR	mean49	0.094	0.200	0.669	0.375	0.409
24	CORR	mean51	0.108	0.285	0.717	0.457	0.510
25	CORR	mean53	0.297	0.399	0.653	0.430	0.338

MAJOR GROUP 41 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v5	v10	v19	v24
1	MEAN		2.262	2.567	2.265	2.052
2	STD		0.961	1.204	0.968	0.883
3	N		173.000	173.000	173.000	173.000
4	CORR	mean11	0.386	0.752	0.582	0.522
5	CORR	mean13	0.532	0.868	0.623	0.570
6	CORR	mean15	0.444	0.700	0.479	0.379
7	CORR	mean17	0.412	0.568	0.356	0.268
8	CORR	mean19	0.442	0.689	0.492	0.366
9	CORR	mean21	0.408	0.797	0.717	0.558
10	CORR	mean23	0.464	0.810	0.659	0.519
11	CORR	mean25	0.443	0.721	0.716	0.501
12	CORR	mean27	0.450	0.656	0.638	0.469
13	CORR	mean29	0.502	0.615	0.561	0.408
14	CORR	mean31	0.589	0.408	0.509	0.444
15	CORR	mean33	0.478	0.566	0.533	0.450
16	CORR	mean35	0.647	0.368	0.415	0.499
17	CORR	mean37	0.396	0.279	0.301	0.233
18	CORR	mean39	0.667	0.555	0.668	0.645
19	CORR	mean41	0.728	0.828	0.830	0.876
20	CORR	mean43	0.733	0.642	0.572	0.621
21	CORR	mean45	0.314	0.197	0.169	0.111
22	CORR	mean47	0.251	-0.057	-0.037	-0.062
23	CORR	mean49	0.403	0.032	0.005	-0.012
24	CORR	mean51	0.360	0.033	0.002	-0.026
25	CORR	mean53	0.411	0.188	0.200	0.175

MAJOR GROUP 43 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v6	v8	v9	v10
1	MEAN		1.986	2.118	1.815	2.201
2	STD		0.883	1.099	0.916	1.147
3	N		173.000	173.000	173.000	173.000
4	CORR	mean11	0.659	0.539	0.311	0.599
5	CORR	mean13	0.784	0.731	0.507	0.765
6	CORR	mean15	0.559	0.596	0.535	0.641
7	CORR	mean17	0.431	0.504	0.493	0.548
8	CORR	mean19	0.564	0.604	0.510	0.637
9	CORR	mean21	0.678	0.450	0.175	0.454
10	CORR	mean23	0.770	0.654	0.396	0.664
11	CORR	mean25	0.629	0.525	0.298	0.539
12	CORR	mean27	0.577	0.515	0.333	0.535
13	CORR	mean29	0.564	0.548	0.422	0.537
14	CORR	mean31	0.532	0.534	0.399	0.479
15	CORR	mean33	0.599	0.480	0.284	0.469
16	CORR	mean35	0.513	0.602	0.434	0.556
17	CORR	mean37	0.313	0.352	0.358	0.357
18	CORR	mean39	0.648	0.559	0.312	0.514
19	CORR	mean41	0.811	0.661	0.381	0.622
20	CORR	mean43	0.823	0.895	0.716	0.864
21	CORR	mean45	0.243	0.341	0.407	0.363
22	CORR	mean47	-0.002	0.189	0.373	0.168
23	CORR	mean49	0.067	0.256	0.460	0.234
24	CORR	mean51	0.080	0.347	0.562	0.330
25	CORR	mean53	0.308	0.406	0.478	0.368

Obs	v12	v19	v20	v27	v33	v45
1	2.057	1.858	1.884	1.850	2.155	2.279
2	1.056	0.933	0.976	0.937	0.990	0.964
3	173.000	173.000	173.000	173.000	173.000	173.000
4	0.700	0.584	0.656	0.514	0.536	0.282
5	0.846	0.800	0.854	0.657	0.624	0.390
6	0.702	0.632	0.703	0.521	0.421	0.247
7	0.629	0.542	0.593	0.401	0.315	0.246
8	0.712	0.652	0.736	0.532	0.447	0.306
9	0.640	0.594	0.672	0.634	0.581	0.249
10	0.789	0.797	0.822	0.700	0.615	0.320
11	0.654	0.602	0.683	0.653	0.582	0.273
12	0.654	0.583	0.639	0.577	0.539	0.423
13	0.648	0.627	0.664	0.601	0.544	0.376
14	0.525	0.569	0.579	0.617	0.650	0.522
15	0.543	0.606	0.652	0.551	0.559	0.462
16	0.479	0.522	0.516	0.502	0.690	0.736
17	0.440	0.364	0.374	0.292	0.332	0.463
18	0.565	0.592	0.608	0.627	0.769	0.659
19	0.721	0.678	0.742	0.717	0.745	0.575
20	0.829	0.895	0.885	0.823	0.861	0.655
21	0.383	0.327	0.341	0.194	0.220	0.436
22	0.146	0.144	0.106	0.023	0.034	0.405
23	0.213	0.235	0.223	0.108	0.083	0.308
24	0.277	0.276	0.231	0.126	0.120	0.393
25	0.389	0.411	0.391	0.306	0.340	0.443

MAJOR GROUP 45 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v1	v5	v15
1	MEAN		2.490	2.590	1.920
2	STD		0.873	0.924	0.793
3	N		173.000	173.000	173.000
4	CORR	mean11	0.646	0.581	-0.179
5	CORR	mean13	0.548	0.531	-0.108
6	CORR	mean15	0.456	0.450	-0.045
7	CORR	mean17	0.468	0.518	0.071
8	CORR	mean19	0.552	0.505	0.044
9	CORR	mean21	0.467	0.441	-0.247
10	CORR	mean23	0.471	0.459	-0.116
11	CORR	mean25	0.508	0.490	-0.171
12	CORR	mean27	0.494	0.550	0.138
13	CORR	mean29	0.536	0.500	0.065
14	CORR	mean31	0.399	0.399	0.172
15	CORR	mean33	0.461	0.595	0.325
16	CORR	mean35	0.427	0.437	0.347
17	CORR	mean37	0.670	0.719	0.455
18	CORR	mean39	0.447	0.494	0.207
19	CORR	mean41	0.365	0.367	-0.123
20	CORR	mean43	0.423	0.424	0.024
21	CORR	mean45	0.666	0.709	0.642
22	CORR	mean47	0.276	0.435	0.670
23	CORR	mean49	0.297	0.351	0.550
24	CORR	mean51	0.306	0.409	0.560
25	CORR	mean53	0.457	0.591	0.490

MAJOR GROUP 47 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v9	v16	v26	v27	v35
1	MEAN		1.936	2.116	2.386	2.103	1.810
2	STD		0.864	0.880	0.920	0.914	0.802
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	-0.019	-0.039	-0.012	-0.174	-0.210
5	CORR	mean13	0.129	0.117	0.105	0.001	-0.098
6	CORR	mean15	0.231	0.210	0.301	0.109	-0.049
7	CORR	mean17	0.445	0.400	0.504	0.289	0.129
8	CORR	mean19	0.290	0.299	0.278	0.139	0.022
9	CORR	mean21	-0.087	-0.079	-0.099	-0.229	-0.255
10	CORR	mean23	0.077	0.074	0.065	-0.053	-0.125
11	CORR	mean25	-0.003	0.024	0.071	-0.126	-0.196
12	CORR	mean27	0.326	0.353	0.237	0.169	0.153
13	CORR	mean29	0.258	0.304	0.220	0.116	0.090
14	CORR	mean31	0.262	0.333	0.212	0.198	0.234
15	CORR	mean33	0.246	0.360	0.215	0.228	0.290
16	CORR	mean35	0.368	0.430	0.258	0.300	0.376
17	CORR	mean37	0.554	0.658	0.419	0.495	0.532
18	CORR	mean39	0.238	0.300	0.154	0.157	0.214
19	CORR	mean41	0.043	0.044	0.024	-0.046	-0.133
20	CORR	mean43	0.227	0.242	0.190	0.155	0.070
21	CORR	mean45	0.620	0.714	0.459	0.599	0.671
22	CORR	mean47	0.881	0.899	0.683	0.842	0.848
23	CORR	mean49	0.750	0.745	0.750	0.679	0.683
24	CORR	mean51	0.783	0.811	0.674	0.695	0.702
25	CORR	mean53	0.544	0.646	0.511	0.582	0.610

Obs	v41	v43	v49	v51	v61
1	1.818	1.970	1.807	1.757	1.686
2	0.781	0.853	0.801	0.835	0.717
3	173.000	173.000	173.000	173.000	173.000
4	-0.187	-0.272	-0.009	-0.181	-0.086
5	-0.048	-0.114	0.129	-0.057	0.023
6	-0.036	-0.009	0.059	-0.003	0.065
7	0.151	0.164	0.225	0.203	0.256
8	0.051	0.040	0.219	0.077	0.180
9	-0.190	-0.267	-0.076	-0.217	-0.133
10	-0.073	-0.130	0.132	-0.069	0.002
11	-0.144	-0.211	-0.005	-0.176	-0.056
12	0.133	0.090	0.098	0.090	0.204
13	0.148	0.117	0.194	0.091	0.215
14	0.327	0.286	0.289	0.138	0.272
15	0.266	0.260	0.333	0.206	0.317
16	0.448	0.372	0.345	0.188	0.384
17	0.592	0.480	0.429	0.455	0.603
18	0.274	0.192	0.210	0.095	0.250
19	-0.027	-0.112	0.091	-0.106	-0.017
20	0.183	0.132	0.319	0.098	0.170
21	0.623	0.565	0.470	0.539	0.623
22	0.887	0.817	0.544	0.761	0.829
23	0.689	0.742	0.433	0.655	0.593
24	0.714	0.692	0.569	0.704	0.700
25	0.612	0.612	0.646	0.727	0.606

MAJOR GROUP 49 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v9	v13	v15	v27	v28
1	MEAN		1.980	2.376	1.911	2.048	2.526
2	STD		0.749	1.077	0.836	0.896	1.041
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.071	-0.059	-0.104	-0.075	-0.037
5	CORR	mean13	0.238	0.134	0.031	0.085	0.091
6	CORR	mean15	0.219	0.365	0.113	0.186	0.228
7	CORR	mean17	0.317	0.496	0.269	0.329	0.348
8	CORR	mean19	0.264	0.347	0.163	0.223	0.234
9	CORR	mean21	0.056	-0.112	-0.151	-0.104	-0.099
10	CORR	mean23	0.235	0.088	0.016	0.056	0.062
11	CORR	mean25	0.103	-0.005	-0.077	-0.019	-0.039
12	CORR	mean27	0.337	0.252	0.169	0.251	0.248
13	CORR	mean29	0.293	0.311	0.200	0.259	0.251
14	CORR	mean31	0.392	0.285	0.291	0.335	0.329
15	CORR	mean33	0.529	0.259	0.272	0.293	0.301
16	CORR	mean35	0.478	0.252	0.358	0.395	0.398
17	CORR	mean37	0.480	0.481	0.548	0.607	0.492
18	CORR	mean39	0.437	0.134	0.231	0.275	0.298
19	CORR	mean41	0.272	0.004	0.006	0.054	0.120
20	CORR	mean43	0.438	0.241	0.213	0.226	0.279
21	CORR	mean45	0.523	0.589	0.602	0.644	0.565
22	CORR	mean47	0.539	0.730	0.764	0.837	0.687
23	CORR	mean49	0.506	0.923	0.858	0.830	0.858
24	CORR	mean51	0.481	0.827	0.729	0.772	0.730
25	CORR	mean53	0.549	0.633	0.635	0.596	0.639

Obs	v36	v38	v52	v53	v64
1	2.009	2.118	2.076	2.383	1.890
2	0.950	0.886	0.940	1.102	0.875
3	173.000	173.000	173.000	173.000	173.000
4	0.026	0.078	-0.255	-0.202	-0.001
5	0.159	0.230	-0.103	-0.035	0.155
6	0.304	0.343	0.047	0.177	0.271
7	0.408	0.495	0.222	0.338	0.383
8	0.310	0.346	0.099	0.169	0.325
9	-0.000	0.045	-0.300	-0.223	-0.046
10	0.141	0.167	-0.135	-0.063	0.109
11	0.038	0.082	-0.206	-0.175	0.053
12	0.251	0.305	0.095	0.123	0.387
13	0.322	0.349	0.095	0.139	0.355
14	0.327	0.359	0.161	0.134	0.340
15	0.270	0.296	0.168	0.224	0.306
16	0.316	0.369	0.241	0.132	0.435
17	0.584	0.625	0.522	0.397	0.534
18	0.237	0.300	0.082	0.047	0.318
19	0.099	0.173	-0.153	-0.147	0.091
20	0.257	0.300	0.051	0.058	0.313
21	0.583	0.590	0.611	0.520	0.640
22	0.706	0.793	0.878	0.761	0.735
23	0.909	0.885	0.803	0.833	0.714
24	0.762	0.755	0.782	0.717	0.826
25	0.633	0.610	0.603	0.603	0.584

MAJOR GROUP 51 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v6	v43	v55	v77	v83
1	MEAN		2.424	2.429	1.978	1.794	1.987
2	STD		1.011	1.024	0.827	0.776	0.844
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.150	-0.013	0.050	0.141	0.060
5	CORR	mean13	0.276	0.145	0.143	0.237	0.214
6	CORR	mean15	0.497	0.273	0.263	0.366	0.372
7	CORR	mean17	0.593	0.439	0.423	0.503	0.490
8	CORR	mean19	0.444	0.332	0.325	0.446	0.399
9	CORR	mean21	0.101	-0.096	-0.001	0.059	-0.047
10	CORR	mean23	0.209	0.073	0.089	0.182	0.158
11	CORR	mean25	0.241	0.022	0.150	0.173	0.087
12	CORR	mean27	0.398	0.270	0.307	0.478	0.403
13	CORR	mean29	0.448	0.309	0.363	0.382	0.363
14	CORR	mean31	0.423	0.323	0.416	0.282	0.345
15	CORR	mean33	0.278	0.335	0.310	0.257	0.265
16	CORR	mean35	0.402	0.366	0.423	0.301	0.406
17	CORR	mean37	0.473	0.587	0.598	0.423	0.467
18	CORR	mean39	0.338	0.207	0.316	0.270	0.297
19	CORR	mean41	0.249	0.024	0.118	0.150	0.169
20	CORR	mean43	0.427	0.286	0.316	0.309	0.402
21	CORR	mean45	0.520	0.704	0.641	0.464	0.550
22	CORR	mean47	0.598	0.800	0.748	0.484	0.640
23	CORR	mean49	0.763	0.791	0.747	0.527	0.699
24	CORR	mean51	0.745	0.844	0.827	0.687	0.832
25	CORR	mean53	0.536	0.727	0.682	0.435	0.588

Obs	v90	v123	v146	v156	v181
1	1.872	1.842	1.860	2.098	1.857
2	0.827	0.756	0.804	0.861	0.826
3	173.000	173.000	173.000	173.000	173.000
4	-0.054	0.041	0.075	0.131	0.003
5	0.116	0.168	0.223	0.291	0.152
6	0.231	0.304	0.268	0.413	0.238
7	0.397	0.420	0.454	0.580	0.424
8	0.305	0.340	0.397	0.470	0.284
9	-0.159	-0.001	0.016	0.089	-0.068
10	0.048	0.152	0.186	0.246	0.099
11	-0.039	0.030	0.137	0.213	0.022
12	0.280	0.280	0.281	0.597	0.430
13	0.282	0.351	0.374	0.431	0.273
14	0.318	0.330	0.418	0.392	0.260
15	0.252	0.319	0.317	0.373	0.251
16	0.416	0.306	0.410	0.471	0.385
17	0.502	0.523	0.557	0.538	0.464
18	0.231	0.216	0.269	0.390	0.286
19	0.048	0.072	0.177	0.253	0.059
20	0.335	0.286	0.398	0.396	0.267
21	0.666	0.593	0.592	0.627	0.567
22	0.779	0.681	0.680	0.717	0.695
23	0.751	0.827	0.689	0.653	0.643
24	0.899	0.782	0.808	0.792	0.776
25	0.658	0.705	0.717	0.541	0.508

MAJOR GROUP 53 RANDOM SAMPLE CORRELATIONS

IMPORTANCE DATA

Obs	_TYPE_	_NAME_	v4	v7	v10	v19	v22
1	MEAN		2.934	1.958	2.176	2.453	2.215
2	STD		1.086	0.868	0.936	0.884	0.951
3	N		173.000	173.000	173.000	173.000	173.000
4	CORR	mean11	0.305	-0.001	-0.148	0.590	-0.147
5	CORR	mean13	0.446	0.135	-0.015	0.544	0.017
6	CORR	mean15	0.427	0.041	-0.146	0.425	0.028
7	CORR	mean17	0.482	0.104	-0.036	0.461	0.171
8	CORR	mean19	0.510	0.105	-0.033	0.491	0.119
9	CORR	mean21	0.306	0.067	-0.212	0.472	-0.152
10	CORR	mean23	0.397	0.138	-0.017	0.487	0.018
11	CORR	mean25	0.363	0.033	-0.172	0.494	-0.123
12	CORR	mean27	0.446	0.156	0.044	0.536	0.149
13	CORR	mean29	0.454	0.199	-0.011	0.528	0.134
14	CORR	mean31	0.372	0.353	0.220	0.498	0.257
15	CORR	mean33	0.658	0.497	0.402	0.619	0.427
16	CORR	mean35	0.301	0.387	0.395	0.535	0.313
17	CORR	mean37	0.430	0.372	0.345	0.551	0.511
18	CORR	mean39	0.386	0.422	0.262	0.629	0.221
19	CORR	mean41	0.280	0.196	0.037	0.496	-0.058
20	CORR	mean43	0.459	0.330	0.297	0.595	0.202
21	CORR	mean45	0.545	0.404	0.470	0.504	0.637
22	CORR	mean47	0.373	0.418	0.496	0.258	0.768
23	CORR	mean49	0.404	0.421	0.386	0.291	0.703
24	CORR	mean51	0.433	0.379	0.422	0.341	0.639
25	CORR	mean53	0.768	0.751	0.702	0.637	0.800

Obs	v25	v33	v38	v48	v54
1	2.351	2.217	2.087	1.970	1.973
2	1.016	0.901	0.959	0.801	0.833
3	173.000	173.000	173.000	173.000	173.000
4	0.314	0.617	0.041	0.013	-0.069
5	0.418	0.676	0.148	0.138	0.094
6	0.387	0.566	0.212	0.263	0.173
7	0.450	0.577	0.340	0.429	0.343
8	0.495	0.620	0.286	0.292	0.301
9	0.346	0.521	-0.050	-0.026	-0.124
10	0.422	0.634	0.099	0.118	0.052
11	0.336	0.523	0.020	0.057	-0.025
12	0.422	0.543	0.263	0.434	0.221
13	0.413	0.521	0.313	0.329	0.308
14	0.256	0.414	0.395	0.392	0.374
15	0.610	0.654	0.332	0.361	0.305
16	0.176	0.369	0.442	0.440	0.434
17	0.374	0.480	0.587	0.602	0.566
18	0.308	0.485	0.307	0.358	0.247
19	0.238	0.500	0.095	0.095	0.040
20	0.325	0.576	0.373	0.296	0.328
21	0.445	0.438	0.698	0.659	0.648
22	0.295	0.204	0.714	0.845	0.765
23	0.250	0.285	0.758	0.765	0.765
24	0.274	0.283	0.825	0.781	0.865
25	0.639	0.589	0.811	0.662	0.768

Appendix D.

Association Indices and Hit Rate Results for Minor Group Analysis

Minor Group 11_3: Squared Euclidian Distances

	V10	V13
M113	**7.57**	**14.17**
M114	19.65	9.98
M131	32.59	36.08
M132	32.60	54.02
M151	66.79	57.82
M152	64.53	83.66
M171	69.59	47.73
M172	69.61	43.33
M173	62.57	53.53
M191	71.42	56.15
M192	80.49	68.69
M193	54.33	60.09
M194	60.17	55.41
M211	49.83	60.05
M231	60.47	85.87
M232	44.42	69.53
M251	68.79	76.00
M252	67.53	66.85
M254	45.37	45.82
M255	49.84	40.93
M271	85.51	64.36
M272	52.72	51.00
M273	68.38	74.81
M274	63.29	49.54
M291	73.24	68.01
M292	64.53	63.22
M312	89.28	88.06
M313	70.54	65.87
M332	73.22	59.86
M333	64.96	67.04
M334	73.22	69.34
M352	58.19	50.27
M353	73.44	71.16
M371	29.29	25.43
M393	66.06	60.78
M395	81.50	72.55
M396	80.77	71.76
M397	53.82	49.54
M412	67.88	60.81
M413	55.17	56.31
M414	70.67	58.59
M415	69.19	58.50
M433	55.63	74.17
M434	58.30	74.38
M435	53.30	57.79

M436	50.76	64.76
M437	60.81	73.78
M451	36.63	21.19
M452	59.48	42.24
M454	66.70	60.30
M472	69.44	58.47
M473	75.50	66.72
M474	64.49	52.44
M475	73.12	55.78
M492	72.64	60.23
M493	74.75	53.70
M494	70.03	53.24
M512	70.42	54.83
M513	59.84	55.70
M514	63.60	53.83
M515	62.78	58.17
M516	63.55	58.91
M517	67.42	56.34
M518	59.57	55.03
M519	62.46	55.14
M533	80.82	68.28
M534	70.22	62.83
M535	82.65	61.32
M536	54.92	48.06
M537	63.97	59.24

Minor Group 11_4: Squared Euclidian Distances

	V18	V22	V29	V33
M113	16.43	12.73	30.75	10.02
M114	**12.69**	**7.78**	**17.03**	**7.55**
M131	30.03	28.44	40.02	20.14
M132	39.43	45.04	64.57	28.93
M151	63.42	48.01	65.93	53.44
M152	69.26	78.36	116.66	70.46
M171	52.92	41.83	55.64	47.99
M172	53.66	53.27	68.06	56.96
M173	56.22	54.78	66.67	49.35
M191	50.04	58.43	87.26	72.54
M192	66.44	69.58	98.34	76.63
M193	64.12	41.32	74.18	57.53
M194	49.57	56.76	65.69	54.22
M211	65.26	33.78	47.61	39.24
M231	84.06	66.47	88.06	71.39
M232	54.02	52.23	70.29	40.41
M251	82.68	43.76	78.97	66.62
M252	74.50	35.36	53.84	55.99
M254	45.74	24.71	45.01	38.31
M255	45.84	22.12	41.58	33.91
M271	70.43	50.81	67.36	59.12
M272	54.44	33.67	47.16	41.66
M273	70.55	51.21	72.01	55.56
M274	57.83	42.33	49.13	43.42
M291	76.48	55.64	73.59	73.61
M292	59.65	51.83	57.14	51.72
M312	92.04	65.88	66.93	73.94
M313	59.69	58.16	54.50	53.39
M332	68.44	51.70	38.92	55.05
M333	65.10	54.81	44.79	50.58
M334	69.26	55.66	44.33	50.26
M352	40.59	43.00	42.58	35.09
M353	58.51	55.80	47.53	42.59
M371	23.52	20.60	23.78	13.75
M393	55.32	48.38	40.51	37.93
M395	66.25	56.63	59.50	58.32
M396	65.72	51.66	38.96	45.23
M397	56.25	29.09	28.10	37.75
M412	53.16	48.26	37.39	37.77
M413	45.51	39.87	49.91	27.15
M414	46.87	46.08	43.06	36.27
M415	50.96	41.02	38.87	35.40
M433	54.89	59.77	64.35	38.75
M434	57.19	54.79	59.01	39.27
M435	45.20	47.15	43.65	33.29

M436	50.69	47.33	52.76	33.00
M437	60.26	59.69	68.24	46.24
M451	20.69	27.22	27.39	26.02
M452	36.80	48.35	43.42	44.24
M454	50.82	60.77	54.85	50.70
M472	55.81	56.01	50.39	49.27
M473	61.74	60.50	49.43	54.69
M474	49.29	57.00	44.38	41.27
M475	58.44	62.54	45.55	48.68
M492	62.08	59.90	52.37	50.58
M493	58.27	62.82	48.44	51.86
M494	55.21	56.98	45.30	47.78
M512	57.71	60.59	55.95	53.95
M513	44.52	54.86	56.93	45.45
M514	52.99	57.81	55.59	48.98
M515	53.32	57.74	62.82	49.33
M516	54.49	56.06	58.54	48.38
M517	55.01	57.49	57.32	50.38
M518	53.46	65.88	60.96	47.30
M519	51.33	56.75	57.62	47.96
M533	62.64	66.11	40.25	44.52
M534	61.92	64.43	47.45	45.09
M535	69.52	69.71	45.72	49.41
M536	46.38	50.56	43.63	36.03
M537	53.19	61.35	51.42	45.13

Minor Group 13_1: Squared Euclidian Distances

	V1	V2	V14	V18
M113	24.90	32.45	41.79	22.90
M114	19.25	21.58	44.42	14.52
M131	**18.37**	**18.46**	**22.19**	**22.22**
M132	30.85	32.29	17.32	40.55
M151	67.57	50.58	57.47	49.18
M152	70.98	58.25	22.61	72.39
M171	53.55	33.01	48.25	43.42
M172	76.13	48.56	52.32	58.65
M173	61.50	44.76	35.57	45.46
M191	73.52	31.23	53.01	64.48
M192	86.54	45.84	46.83	73.70
M193	52.21	44.92	46.62	42.56
M194	61.92	31.70	44.37	54.67
M211	31.43	49.60	56.82	20.77
M231	60.84	63.04	67.99	67.03
M232	36.92	38.07	30.63	45.30
M251	63.10	62.23	60.28	34.55
M252	49.91	52.13	70.44	28.92
M254	38.21	30.08	54.48	31.04
M255	28.61	31.72	43.46	15.06
M271	43.84	47.54	58.32	32.16
M272	31.30	39.57	57.95	24.74
M273	39.33	35.78	50.27	40.86
M274	46.85	38.78	55.06	32.54
M291	74.87	58.50	74.44	47.00
M292	50.07	38.59	53.39	38.63
M312	67.49	70.42	84.23	46.39
M313	51.61	36.55	56.63	43.30
M332	59.66	46.93	78.14	48.87
M333	46.98	41.66	67.33	49.39
M334	41.63	44.68	65.87	40.80
M352	26.22	29.26	41.46	28.60
M353	29.96	34.24	46.05	35.33
M371	19.24	29.45	44.32	15.53
M393	31.50	33.31	51.96	30.53
M395	40.25	40.66	58.73	36.01
M396	33.33	36.89	61.60	38.16
M397	32.78	45.62	71.26	20.11
M412	33.39	29.33	51.51	35.52
M413	14.40	21.97	22.56	28.09
M414	23.76	22.83	42.29	32.68
M415	19.96	25.47	46.90	28.71
M433	36.66	35.40	31.61	45.94
M434	29.17	33.61	37.07	39.29
M435	28.39	26.96	37.98	36.25

M436	30.22	32.60	37.46	33.49
M437	44.11	38.53	38.01	45.59
M451	38.06	28.50	57.81	28.67
M452	44.77	25.79	49.47	44.48
M454	46.00	37.02	47.35	49.57
M472	48.01	43.79	47.92	40.65
M473	50.41	46.00	55.63	45.84
M474	43.66	37.42	44.45	44.34
M475	55.12	47.62	59.32	49.40
M492	57.39	45.27	55.09	49.27
M493	59.53	49.10	60.46	52.37
M494	53.21	43.25	56.62	44.92
M512	62.47	46.01	50.97	48.89
M513	40.79	35.16	41.77	42.99
M514	54.15	44.56	45.89	46.79
M515	48.66	40.36	45.10	42.37
M516	44.32	41.30	44.75	39.48
M517	49.98	43.73	43.53	42.24
M518	59.47	46.83	49.35	58.78
M519	49.42	39.43	43.50	43.10
M533	44.40	43.17	63.79	51.25
M534	48.98	44.83	62.13	50.98
M535	63.17	57.12	79.97	57.12
M536	41.02	32.22	41.93	42.09
M537	45.98	41.00	48.95	46.17

Minor Group 13_2: Squared Euclidian Distances

	V23	V27	V32
M113	37.47	44.70	21.86
M114	42.62	56.65	26.27
M131	16.86	24.64	12.93
M132	**9.68**	**12.46**	**8.80**
M151	61.49	60.43	51.60
M152	21.71	22.45	46.06
M171	43.42	56.61	62.11
M172	59.04	65.36	70.63
M173	37.41	51.69	49.68
M191	42.48	50.35	57.35
M192	38.31	46.86	62.77
M193	32.67	35.42	36.85
M194	29.41	41.99	34.07
M211	47.13	59.74	33.63
M231	42.53	36.83	34.53
M232	17.11	22.38	10.45
M251	55.73	65.25	48.45
M252	60.14	69.81	44.08
M254	40.14	50.99	32.91
M255	45.63	54.34	37.29
M271	74.53	84.46	74.67
M272	56.47	63.79	43.41
M273	41.12	44.29	36.49
M274	47.54	62.77	47.83
M291	70.52	74.81	55.02
M292	43.47	58.32	34.86
M312	78.49	97.41	59.44
M313	45.41	59.70	34.32
M332	55.33	72.52	51.28
M333	37.49	55.27	34.37
M334	48.65	68.39	44.30
M352	42.34	62.06	33.61
M353	46.28	59.49	31.46
M371	41.52	66.33	28.71
M393	43.44	59.54	31.08
M395	61.23	75.84	53.12
M396	51.92	71.38	39.95
M397	62.61	83.90	44.87
M412	50.47	51.60	23.67
M413	28.44	28.85	22.11
M414	48.40	60.05	35.31
M415	50.07	61.96	39.50
M433	21.19	28.79	12.93
M434	26.48	36.99	16.03
M435	26.08	44.40	21.44

M436	33.47	37.70	13.75
M437	24.95	38.27	24.12
M451	50.37	71.91	35.86
M452	40.34	58.76	41.01
M454	31.08	64.39	48.22
M472	43.14	70.89	51.16
M473	50.18	75.30	49.79
M474	30.15	60.50	43.49
M475	42.64	71.58	51.21
M492	47.45	64.08	46.59
M493	56.51	72.02	53.25
M494	50.16	67.46	46.98
M512	44.99	64.98	51.53
M513	34.72	58.01	38.14
M514	38.82	61.47	46.37
M515	34.14	60.01	44.68
M516	39.46	60.14	42.67
M517	40.93	64.08	50.48
M518	32.57	52.34	39.60
M519	35.80	58.93	42.84
M533	48.16	75.12	45.13
M534	35.88	65.87	42.00
M535	50.97	81.92	59.87
M536	23.44	45.16	30.89
M537	31.21	62.30	40.53

Minor Group 15_1: Squared Euclidian Distances

	V3	V5
M113	68.11	68.61
M114	64.82	67.12
M131	58.54	52.25
M132	71.44	64.42
M151	**8.51**	**4.65**
M152	65.31	57.15
M171	47.22	46.54
M172	20.45	28.98
M173	30.28	30.46
M191	61.12	48.95
M192	44.10	39.02
M193	72.40	55.95
M194	55.32	43.73
M211	81.98	67.91
M231	104.62	87.02
M232	75.80	64.01
M251	69.59	55.85
M252	71.03	53.31
M254	57.73	44.28
M255	54.76	44.51
M271	73.98	64.77
M272	77.30	60.41
M273	68.75	48.16
M274	51.58	35.65
M291	71.66	56.19
M292	64.73	51.04
M312	80.76	70.00
M313	70.99	56.34
M332	73.29	62.73
M333	86.55	72.06
M334	86.18	71.41
M352	83.29	70.66
M353	90.41	78.29
M371	76.48	74.54
M393	79.88	63.89
M395	85.99	71.41
M396	83.98	72.47
M397	83.08	73.38
M412	66.52	58.03
M413	64.45	56.36
M414	56.01	53.02
M415	61.93	55.14
M433	75.58	62.85
M434	75.41	61.09
M435	70.84	58.89

M436	68.98	57.76
M437	68.35	50.43
M451	79.58	75.28
M452	80.53	69.25
M454	92.04	79.59
M472	74.93	67.75
M473	82.41	74.97
M474	74.44	68.71
M475	86.75	76.99
M492	45.87	37.22
M493	61.53	54.71
M494	58.54	49.56
M512	56.45	49.43
M513	88.12	71.58
M514	66.67	55.11
M515	72.86	56.37
M516	77.25	60.93
M517	71.88	62.34
M518	73.98	62.45
M519	69.01	55.41
M533	93.98	82.96
M534	93.88	80.02
M535	106.79	97.27
M536	63.39	53.70
M537	88.79	76.54

Minor Group 15_2: Squared Euclidian Distances

	V11
M113	38.95
M114	45.87
M131	29.41
M132	23.23
M151	45.79
M152	**14.78**
M171	43.29
M172	36.98
M173	33.37
M191	38.96
M192	33.12
M193	45.18
M194	43.29
M211	65.40
M231	71.45
M232	39.19
M251	57.34
M252	75.98
M254	55.84
M255	44.08
M271	64.67
M272	63.73
M273	55.10
M274	54.08
M291	71.17
M292	60.53
M312	94.93
M313	69.38
M332	81.81
M333	78.12
M334	77.50
M352	57.69
M353	73.42
M371	52.11
M393	72.53
M395	75.32
M396	82.15
M397	80.27
M412	74.28
M413	35.09
M414	58.62
M415	59.91
M433	49.27
M434	54.70
M435	53.42

M436	54.73
M437	50.92
M451	59.71
M452	58.71
M454	58.37
M472	61.65
M473	73.98
M474	56.44
M475	71.91
M492	61.17
M493	71.16
M494	67.33
M512	57.95
M513	55.20
M514	54.00
M515	52.21
M516	56.85
M517	54.65
M518	54.76
M519	52.52
M533	84.77
M534	74.10
M535	89.22
M536	49.24
M537	62.99

Minor Group 17_1: Squared Euclidian Distances

	V1
M113	48.03
M114	39.38
M131	53.44
M132	75.77
M151	49.26
M152	81.48
M171	**16.21**
M172	30.23
M173	41.42
M191	70.20
M192	63.73
M193	70.54
M194	75.22
M211	79.26
M231	115.25
M232	92.40
M251	87.26
M252	76.52
M254	51.28
M255	45.16
M271	38.54
M272	62.63
M273	74.54
M274	52.38
M291	96.08
M292	86.30
M312	108.07
M313	88.85
M332	73.81
M333	85.34
M334	83.33
M352	71.10
M353	83.56
M371	57.18
M393	73.54
M395	67.59
M396	79.15
M397	67.15
M412	69.46
M413	56.37
M414	57.08
M415	52.04
M433	88.56
M434	88.10
M435	73.16

M436	83.00
M437	82.43
M451	67.87
M452	68.95
M454	76.87
M472	60.96
M473	73.35
M474	65.52
M475	75.78
M492	66.01
M493	70.80
M494	65.44
M512	60.02
M513	80.30
M514	69.65
M515	69.47
M516	70.83
M517	59.76
M518	91.43
M519	68.16
M533	90.41
M534	90.44
M535	89.14
M536	65.76
M537	82.92

Minor Group 17_2: Squared Euclidian Distances

	V6	V13	V14	V20
M113	80.67	60.12	63.52	51.69
M114	66.45	48.60	57.73	46.68
M131	69.99	35.35	31.93	54.96
M132	91.08	61.97	47.68	76.14
M151	50.07	36.66	30.47	35.79
M152	72.26	62.99	36.08	67.02
M171	33.52	33.35	35.85	29.79
M172	**23.47**	**26.68**	**21.22**	**9.37**
M173	45.80	33.60	23.99	29.33
M191	30.80	30.02	14.89	44.36
M192	29.27	30.78	14.27	33.91
M193	68.44	33.70	38.29	59.50
M194	54.37	37.97	20.68	53.87
M211	103.79	45.22	56.76	80.52
M231	122.13	56.53	61.74	95.59
M232	98.79	58.46	47.48	84.25
M251	75.53	46.94	50.95	66.67
M252	79.45	35.09	51.36	71.89
M254	61.95	35.84	46.89	54.13
M255	55.44	27.28	39.27	46.61
M271	71.79	48.46	58.84	62.00
M272	85.94	43.34	54.64	72.81
M273	84.26	41.19	40.92	79.24
M274	57.65	31.28	32.36	46.68
M291	77.17	43.02	42.90	67.55
M292	79.29	37.44	33.86	69.90
M312	110.90	45.00	59.38	90.81
M313	84.87	41.92	39.57	77.01
M332	78.10	34.45	45.63	62.00
M333	95.67	37.77	48.94	78.47
M334	98.09	43.25	51.08	83.17
M352	84.74	48.31	52.54	76.17
M353	108.14	59.22	63.85	99.65
M371	85.38	51.62	60.39	62.26
M393	95.13	48.28	54.85	85.97
M395	92.52	50.38	62.38	82.70
M396	99.76	46.23	62.14	90.40
M397	95.13	44.08	66.91	71.03
M412	94.55	49.72	57.62	86.44
M413	83.91	49.45	46.02	75.28
M414	77.43	36.63	42.35	73.07
M415	79.51	41.03	50.38	73.41
M433	106.44	67.90	55.49	97.38
M434	105.20	56.02	50.92	95.56

M435	88.96	44.29	44.25	76.53
M436	103.10	62.47	54.91	89.16
M437	92.84	53.61	44.13	85.29
M451	71.67	50.37	54.66	58.84
M452	68.14	39.58	40.90	62.43
M454	81.11	41.66	43.50	70.36
M472	78.67	39.76	49.15	60.92
M473	90.49	45.53	56.84	73.86
M474	77.24	32.63	38.66	55.23
M475	85.32	38.66	49.59	62.96
M492	70.86	32.25	31.64	51.30
M493	76.97	31.87	38.26	53.39
M494	73.77	33.12	37.63	54.43
M512	64.28	35.02	35.53	46.67
M513	81.92	49.01	45.47	75.77
M514	71.82	41.87	38.24	56.61
M515	75.28	41.55	38.90	63.77
M516	82.41	45.95	45.33	68.57
M517	73.06	38.80	43.19	57.11
M518	85.93	48.11	36.86	64.12
M519	72.71	42.44	38.21	60.30
M533	107.13	57.60	62.83	90.44
M534	102.09	50.72	55.32	79.61
M535	104.88	57.65	69.94	77.05
M536	71.51	30.81	29.51	52.76
M537	93.36	45.60	48.32	73.93

Minor Group 17_3: Squared Euclidian Distances

	V28	V31	V34
M113	71.90	65.57	38.02
M114	69.63	61.53	40.75
M131	50.45	41.06	27.26
M132	56.49	50.27	31.67
M151	23.90	27.22	31.42
M152	53.48	43.57	24.09
M171	55.92	50.49	27.56
M172	25.29	25.85	14.71
M173	**18.68**	**10.66**	**12.87**
M191	49.11	48.09	29.17
M192	30.28	30.71	16.41
M193	64.23	53.85	32.33
M194	25.57	24.16	22.47
M211	79.06	61.65	59.65
M231	88.68	86.21	61.52
M232	59.69	51.60	40.40
M251	65.14	49.16	45.18
M252	71.60	57.51	53.84
M254	60.56	52.74	38.97
M255	64.21	46.25	35.61
M271	86.86	58.30	59.43
M272	82.13	64.56	53.57
M273	70.43	55.98	50.88
M274	44.61	31.96	33.13
M291	58.22	49.11	53.79
M292	45.35	35.54	45.63
M312	70.34	54.38	77.69
M313	47.60	39.95	48.87
M332	56.25	57.27	51.69
M333	66.62	63.17	55.51
M334	71.42	60.66	61.45
M352	69.17	48.60	53.86
M353	75.02	59.92	65.29
M371	69.73	52.70	49.36
M393	65.60	51.63	53.89
M395	81.41	58.83	69.02
M396	77.18	64.52	74.24
M397	82.57	66.17	67.45
M412	60.93	54.54	55.72
M413	68.07	55.13	49.01
M414	63.83	47.52	56.70
M415	73.37	54.84	60.88
M433	57.59	50.41	46.44
M434	64.33	51.72	52.30

M435	54.51	43.41	46.32
M436	59.76	53.26	48.98
M437	51.25	40.84	40.54
M451	63.46	55.09	46.11
M452	53.76	46.66	42.93
M454	60.34	44.69	48.93
M472	52.93	36.22	43.99
M473	58.61	44.59	55.29
M474	45.17	33.74	37.65
M475	50.43	40.84	43.92
M492	26.35	19.63	35.43
M493	34.63	27.60	39.90
M494	34.41	26.16	36.90
M512	28.30	19.80	28.01
M513	60.93	42.25	45.01
M514	36.10	23.07	32.10
M515	48.05	29.00	36.33
M516	52.61	33.49	41.36
M517	48.05	29.75	35.86
M518	31.93	28.39	33.02
M519	40.83	25.23	33.77
M533	66.04	58.66	68.85
M534	57.88	51.22	55.91
M535	67.57	68.10	61.76
M536	36.78	30.01	29.68
M537	52.24	39.15	45.92

Minor Group 19_1: Squared Euclidian Distances

	V2	V7	V14
M113	68.13	82.47	72.60
M114	59.32	85.13	61.71
M131	39.00	50.07	52.48
M132	51.94	51.88	72.02
M151	52.07	55.77	45.87
M152	39.04	34.64	67.50
M171	45.12	62.24	48.84
M172	39.64	51.47	41.10
M173	41.62	44.98	49.33
M191	**8.56**	**13.42**	**21.28**
M192	20.53	20.17	33.74
M193	39.59	44.93	50.85
M194	30.32	22.72	36.34
M211	73.25	85.67	62.38
M231	73.28	65.32	79.88
M232	56.04	53.27	68.47
M251	56.56	67.95	43.88
M252	62.32	75.92	51.40
M254	50.74	62.91	58.50
M255	43.52	70.50	45.99
M271	59.51	94.01	70.70
M272	59.86	80.81	74.96
M273	51.23	57.91	62.64
M274	51.28	61.59	45.65
M291	53.60	53.11	27.82
M292	46.69	48.89	41.92
M312	75.79	88.92	66.60
M313	51.13	51.50	50.10
M332	66.82	72.68	55.65
M333	68.60	69.56	65.81
M334	71.00	82.41	69.31
M352	50.79	73.23	67.95
M353	67.46	84.19	87.24
M371	62.77	89.01	72.27
M393	66.98	78.25	75.33
M395	60.63	82.38	70.66
M396	73.49	94.94	77.13
M397	78.15	101.16	67.42
M412	67.88	78.74	77.55
M413	52.53	72.21	67.04
M414	51.61	78.43	69.99
M415	61.22	90.36	72.31
M433	65.60	60.88	83.07
M434	62.73	66.25	78.90

M435	53.78	61.64	71.14
M436	65.13	67.17	74.91
M437	55.93	51.06	74.03
M451	51.97	72.31	55.73
M452	37.08	49.85	58.75
M454	45.53	58.56	70.79
M472	52.57	69.47	76.10
M473	60.34	75.59	81.67
M474	49.59	63.69	71.14
M475	60.46	72.93	77.18
M492	52.23	58.02	60.66
M493	53.14	65.02	70.27
M494	51.97	61.81	65.75
M512	47.11	52.14	60.99
M513	44.03	55.84	68.89
M514	48.19	53.90	64.86
M515	45.63	52.62	64.85
M516	50.18	58.75	68.27
M517	47.58	60.68	71.61
M518	53.48	49.79	68.90
M519	45.98	51.16	61.78
M533	81.62	92.95	83.22
M534	73.71	77.66	75.87
M535	87.93	99.23	85.17
M536	47.14	51.24	55.88
M537	55.58	64.01	78.91

Minor Group 19_2: Squared Euclidian Distances

	V16	V17	V22	V23
M113	138.05	73.43	69.31	99.15
M114	135.44	70.28	60.66	100.37
M131	94.70	55.52	50.14	60.10
M132	95.73	63.99	64.73	56.72
M151	82.82	32.55	37.18	70.84
M152	55.63	41.98	50.96	30.82
M171	64.96	48.65	31.36	50.82
M172	59.86	15.76	18.91	55.01
M173	55.20	29.18	27.23	51.37
M191	63.57	30.87	24.90	27.14
M192	**31.97**	**12.56**	**11.58**	**13.69**
M193	75.08	45.10	37.92	41.08
M194	74.07	39.64	31.70	41.95
M211	135.34	83.42	78.86	101.64
M231	121.17	86.14	78.36	71.28
M232	101.67	71.44	66.04	59.21
M251	93.53	49.41	49.49	69.55
M252	117.17	65.75	55.79	84.70
M254	98.22	59.46	38.30	64.92
M255	100.60	52.43	46.16	74.61
M271	113.11	81.50	69.77	101.40
M272	135.26	82.44	74.97	97.05
M273	101.99	71.35	62.28	64.73
M274	91.95	56.23	44.99	70.87
M291	119.18	58.78	57.76	87.10
M292	105.00	60.50	53.96	74.93
M312	140.25	81.81	83.87	117.21
M313	106.92	69.95	58.07	78.26
M332	118.52	75.67	58.65	82.56
M333	114.76	86.55	66.35	76.86
M334	128.17	92.76	79.03	94.23
M352	133.45	84.78	69.39	95.67
M353	135.47	98.83	83.12	100.68
M371	142.97	80.79	71.77	109.09
M393	123.39	91.26	72.67	95.44
M395	123.76	95.25	74.93	100.57
M396	135.78	96.65	77.75	100.85
M397	154.46	93.82	79.58	121.41
M412	124.90	83.83	72.07	95.74
M413	109.54	73.32	68.09	74.32
M414	112.82	71.14	65.15	90.97
M415	121.58	81.35	69.87	96.21
M433	108.41	84.30	75.51	72.70
M434	115.27	85.74	76.03	78.05
M435	112.72	78.08	63.21	75.13

M436	122.99	85.09	75.73	85.56
M437	97.39	74.35	63.34	64.86
M451	136.27	71.99	60.75	99.21
M452	109.78	66.52	50.00	70.45
M454	104.46	76.93	58.65	69.55
M472	101.42	70.71	55.39	80.58
M473	119.78	82.27	64.96	91.59
M474	90.92	64.46	49.18	68.16
M475	103.62	72.35	56.14	79.65
M492	91.97	52.83	43.70	72.79
M493	101.39	56.02	48.04	82.31
M494	98.00	59.26	46.99	79.44
M512	81.66	51.17	38.56	68.27
M513	117.43	78.49	60.76	77.15
M514	96.89	59.22	45.69	71.78
M515	92.62	67.35	51.85	70.08
M516	106.25	74.27	57.86	79.12
M517	93.81	62.90	49.89	73.69
M518	99.29	58.64	50.20	66.72
M519	94.93	63.99	48.13	71.04
M533	132.12	101.30	79.89	102.78
M534	114.31	89.95	70.67	85.67
M535	113.85	95.10	76.33	95.58
M536	86.20	58.17	44.53	58.88
M537	103.55	76.82	61.63	75.82

Minor Group 19_3: Squared Euclidian Distances

	V27	V30	V35
M113	72.45	69.31	70.50
M114	72.93	72.09	69.42
M131	54.38	43.28	50.14
M132	71.41	46.07	55.97
M151	75.43	67.81	89.00
M152	86.77	46.25	66.43
M171	97.74	64.63	70.52
M172	93.79	73.91	93.57
M173	85.68	61.65	76.62
M191	73.95	56.47	63.10
M192	90.68	47.36	60.74
M193	**40.98**	**9.26**	**19.98**
M194	67.13	54.96	67.15
M211	25.69	47.15	64.56
M231	43.44	31.30	50.12
M232	67.62	42.53	51.84
M251	40.54	25.85	44.67
M252	31.87	33.12	48.43
M254	62.02	34.48	32.77
M255	50.22	40.45	47.93
M271	93.56	81.03	79.70
M272	59.67	61.02	62.60
M273	62.36	47.33	49.40
M274	75.48	64.27	70.06
M291	31.53	64.43	87.97
M292	44.20	59.50	75.44
M312	37.75	72.01	96.98
M313	57.18	65.86	78.41
M332	63.14	67.76	86.63
M333	57.11	54.47	69.48
M334	61.25	67.72	83.00
M352	70.83	70.79	73.14
M353	78.58	71.72	74.73
M371	66.34	74.55	74.18
M393	72.17	68.17	69.82
M395	76.55	74.84	76.96
M396	74.27	68.43	75.50
M397	43.80	68.27	81.53
M412	77.62	70.07	75.37
M413	72.25	54.35	61.32
M414	75.15	69.22	73.02
M415	75.73	67.95	72.15
M433	81.73	62.71	69.94
M434	68.46	56.64	63.44
M435	70.17	60.04	65.42

M436	75.26	65.97	71.46
M437	73.76	58.43	64.55
M451	68.22	77.81	77.90
M452	73.86	66.65	70.11
M454	77.05	66.83	73.90
M472	78.39	66.60	75.04
M473	77.29	71.01	81.03
M474	78.80	62.39	72.82
M475	83.89	70.24	80.74
M492	77.18	68.73	84.50
M493	78.68	69.73	85.52
M494	75.56	67.10	80.18
M512	80.22	66.20	78.28
M513	76.08	66.93	68.88
M514	74.96	63.64	74.91
M515	76.01	66.93	69.35
M516	73.20	65.04	70.24
M517	77.38	64.34	72.02
M518	78.99	67.71	80.45
M519	74.90	65.23	71.44
M533	93.26	84.81	94.03
M534	85.58	76.32	83.54
M535	108.54	90.39	99.08
M536	70.93	55.89	67.01
M537	78.27	66.04	72.34

Minor Group 19_4: Squared Euclidian Distances

	V40	V44
M113	52.98	74.86
M114	50.74	69.57
M131	31.04	41.60
M132	34.34	49.06
M151	35.94	46.33
M152	35.77	52.17
M171	48.99	61.63
M172	36.74	42.17
M173	22.24	35.74
M191	18.07	26.47
M192	17.94	26.29
M193	38.00	48.40
M194	**5.45**	**10.42**
M211	60.49	63.15
M231	62.79	58.80
M232	35.39	46.21
M251	44.17	51.75
M252	52.56	57.12
M254	39.50	59.06
M255	47.11	59.97
M271	72.34	95.35
M272	58.62	76.67
M273	45.12	56.50
M274	34.81	45.50
M291	35.29	29.32
M292	26.28	27.28
M312	60.56	56.55
M313	28.05	29.59
M332	47.09	38.76
M333	50.32	43.45
M334	57.31	53.28
M352	44.09	58.47
M353	53.59	64.54
M371	49.17	69.41
M393	47.63	57.67
M395	59.50	74.74
M396	63.04	63.85
M397	66.61	70.28
M412	49.00	56.82
M413	52.20	61.94
M414	54.22	64.15
M415	62.64	71.94
M433	37.08	50.97
M434	43.31	54.43
M435	35.36	46.25

M436	40.58	55.05
M437	30.72	46.44
M451	37.13	52.41
M452	27.88	38.20
M454	36.31	46.45
M472	40.72	55.66
M473	45.01	54.82
M474	36.41	42.97
M475	41.29	45.93
M492	28.48	34.90
M493	36.45	42.78
M494	32.50	41.49
M512	24.39	35.02
M513	31.97	49.05
M514	24.62	36.90
M515	27.99	46.53
M516	32.88	50.00
M517	34.58	50.44
M518	21.22	27.19
M519	24.14	38.82
M533	56.94	55.01
M534	45.03	44.82
M535	63.27	61.07
M536	27.20	30.50
M537	34.40	45.78

Minor Group 21_1: Squared Euclidian Distances

	V2	V5
M113	64.703	34.708
M114	58.862	26.991
M131	31.777	21.581
M132	45.493	42.469
M151	57.688	54.835
M152	70.55	77.754
M171	81.368	58.157
M172	86.775	70.457
M173	63.222	56.426
M191	71.101	63.851
M192	77.812	77.315
M193	31.733	36.905
M194	52.529	49.041
M211	**9.051**	**3.884**
M231	31.021	44.516
M232	34.278	40.727
M251	20.783	31.286
M252	14.316	18.474
M254	38.507	35.638
M255	28.399	20.66
M271	64.89	49.113
M272	39.853	26.779
M273	32.306	33.954
M274	51.478	34.291
M291	28.107	29.903
M292	23.345	24.525
M312	18.388	27.02
M313	31.997	32.183
M332	47.879	34.972
M333	35.82	31.017
M334	36.573	25.813
M352	39.434	31.946
M353	35.821	34.902
M371	45.617	22.007
M393	36.172	28.353
M395	41.231	40.694
M396	33.279	29.73
M397	25.851	13.452
M412	39.106	36.408
M413	34.333	27.923
M414	37.905	32.284
M415	37.55	28.695
M433	42.382	44.852
M434	28.442	32.801

M435	35.657	32.288
M436	35.097	34.319
M437	40.72	43.239
M451	59.144	32.937
M452	57.368	44.618
M454	54.158	45.238
M472	51.499	46.493
M473	47.471	47.663
M474	52.241	42.611
M475	59.236	47.869
M492	49.242	46.74
M493	56.148	50.112
M494	50.242	44.667
M512	57.744	53.552
M513	50.033	44.195
M514	52.653	47.437
M515	50.861	44.849
M516	45.913	41.984
M517	53.196	48.38
M518	57.975	50.002
M519	50.287	44.952
M533	56.365	41.181
M534	55.473	40.376
M535	80.496	53.402
M536	46.727	35.588
M537	50.794	42.676

Minor Group 23_1: Squared Euclidian Distances

	V4
M113	81.45
M114	92.34
M131	55.16
M132	57.06
M151	107.36
M152	75.38
M171	97.32
M172	112.13
M173	100.07
M191	70.18
M192	79.64
M193	34.52
M194	66.10
M211	61.34
M231	**13.34**
M232	44.70
M251	66.20
M252	64.28
M254	60.99
M255	74.23
M271	125.91
M272	84.86
M273	59.32
M274	83.85
M291	73.91
M292	72.09
M312	101.00
M313	75.35
M332	69.16
M333	45.06
M334	71.30
M352	92.58
M353	95.35
M371	99.02
M393	82.98
M395	100.70
M396	87.16
M397	86.28
M412	90.63
M413	74.11
M414	102.44
M415	97.32
M433	74.06
M434	67.28
M435	72.38

M436	76.19
M437	74.33
M451	94.74
M452	84.26
M454	84.97
M472	103.42
M473	102.02
M474	83.47
M475	89.23
M492	94.41
M493	98.97
M494	94.55
M512	95.92
M513	85.44
M514	90.78
M515	88.37
M516	87.80
M517	98.98
M518	75.67
M519	87.47
M533	92.33
M534	72.92
M535	91.05
M536	62.26
M537	84.49

Minor Group 23_2: Squared Euclidian Distances

	V7
M113	63.84
M114	67.47
M131	24.34
M132	22.74
M151	57.04
M152	36.33
M171	59.21
M172	75.37
M173	47.34
M191	44.94
M192	45.91
M193	28.60
M194	28.09
M211	46.86
M231	21.85
M232	**8.93**
M251	47.65
M252	46.83
M254	36.48
M255	47.81
M271	74.32
M272	56.59
M273	24.23
M274	46.35
M291	55.45
M292	34.16
M312	63.99
M313	31.70
M332	51.09
M333	27.49
M334	43.89
M352	42.49
M353	39.07
M371	63.12
M393	36.99
M395	46.80
M396	43.72
M397	62.92
M412	37.38
M413	31.94
M414	45.45
M415	48.57
M433	17.86
M434	16.49
M435	23.55

M436	23.02
M437	18.90
M451	68.40
M452	47.15
M454	43.67
M472	50.99
M473	49.96
M474	40.94
M475	52.42
M492	42.22
M493	56.26
M494	47.66
M512	47.48
M513	37.74
M514	45.30
M515	38.58
M516	37.97
M517	48.10
M518	41.74
M519	38.39
M533	50.06
M534	41.25
M535	68.81
M536	27.31
M537	40.43

Minor Group 25_1: Squared Euclidian Distances

	V3	V7	V11	V21
M113	81.14	60.75	79.94	58.07
M114	72.02	55.47	76.39	53.03
M131	57.87	37.74	59.19	22.21
M132	71.76	50.16	65.75	28.50
M151	35.19	38.43	84.58	36.89
M152	65.60	44.33	73.94	39.56
M171	63.04	47.49	84.83	57.15
M172	36.44	38.39	95.14	60.47
M173	34.26	37.72	77.85	38.14
M191	60.93	18.97	82.20	43.84
M192	41.70	23.95	74.51	43.83
M193	58.96	27.90	27.93	24.78
M194	49.32	27.86	73.89	30.26
M211	57.60	43.90	47.20	20.44
M231	91.71	49.41	54.42	36.14
M232	67.23	45.35	56.55	20.25
M251	**29.24**	**18.35**	**16.27**	**12.45**
M252	45.75	30.64	31.18	18.03
M254	62.30	37.70	43.83	30.97
M255	43.66	28.73	42.61	21.20
M271	75.85	63.09	90.79	53.81
M272	73.97	53.33	72.61	35.66
M273	64.34	42.82	66.20	21.65
M274	47.01	39.63	75.75	33.97
M291	44.15	20.11	67.93	31.07
M292	46.50	29.85	65.80	19.38
M312	52.15	47.78	68.19	27.19
M313	58.61	37.29	74.29	25.74
M332	65.18	46.38	80.24	41.37
M333	77.30	49.48	68.06	33.96
M334	71.88	54.31	75.34	31.33
M352	74.06	55.37	73.57	32.61
M353	82.62	66.74	78.89	31.65
M371	69.85	59.55	73.92	42.12
M393	74.34	58.93	75.38	31.74
M395	81.31	55.63	80.50	37.59
M396	75.07	62.74	72.57	30.79
M397	66.02	51.35	60.00	34.42
M412	74.99	60.24	84.51	34.06
M413	69.42	53.40	71.31	23.92
M414	64.48	56.20	80.47	29.73
M415	67.08	57.36	75.81	29.89
M433	76.75	60.72	78.35	27.04
M434	70.78	55.27	68.34	18.69
M435	69.91	53.23	72.62	25.19

M436	70.23	54.54	75.84	24.43
M437	68.15	53.58	75.08	25.45
M451	72.80	48.41	81.31	50.66
M452	79.02	48.58	84.63	44.58
M454	79.15	55.58	80.13	40.36
M472	67.82	57.65	76.83	40.47
M473	74.42	61.31	79.17	40.35
M474	65.22	55.36	76.59	38.62
M475	71.70	61.43	83.49	47.17
M492	49.58	49.21	85.74	34.59
M493	63.60	57.41	90.13	46.47
M494	59.92	52.12	83.20	39.32
M512	55.59	48.16	82.02	42.84
M513	78.39	55.08	78.24	37.92
M514	59.61	51.00	76.94	38.83
M515	65.54	50.21	80.23	36.69
M516	69.39	53.18	76.48	35.43
M517	64.31	54.50	78.44	41.10
M518	64.30	55.52	88.57	42.64
M519	62.22	48.80	77.62	36.52
M533	85.08	74.06	91.79	47.07
M534	78.33	65.24	87.34	44.03
M535	89.96	78.24	101.00	65.37
M536	58.70	45.98	73.35	32.23
M537	74.40	60.29	78.80	38.12

Minor Group 25_2: Squared Euclidian Distances

	V27	V31
M113	56.39	59.61
M114	44.85	50.86
M131	28.03	32.49
M132	46.12	51.80
M151	41.41	48.49
M152	61.87	71.00
M171	53.75	67.57
M172	59.48	71.99
M173	46.77	55.18
M191	44.65	55.94
M192	48.46	65.86
M193	17.78	28.48
M194	37.49	44.29
M211	17.74	8.86
M231	38.41	41.24
M232	35.60	42.31
M251	7.79	16.48
M252	**2.74**	**6.65**
M254	18.40	32.81
M255	12.70	21.16
M271	48.63	57.00
M272	28.27	31.95
M273	25.97	31.79
M274	33.67	39.42
M291	28.06	20.29
M292	22.64	19.70
M312	24.30	14.60
M313	28.21	28.91
M332	36.52	39.17
M333	32.99	34.49
M334	32.99	32.91
M352	31.39	36.31
M353	32.47	39.25
M371	39.37	40.24
M393	30.41	33.99
M395	35.64	40.83
M396	27.76	34.24
M397	23.64	20.05
M412	32.61	40.98
M413	33.49	41.37
M414	29.83	37.79
M415	28.96	37.81
M433	43.52	48.43
M434	30.34	34.29
M435	31.55	36.38

M436	34.87	40.53
M437	37.05	39.66
M451	43.16	48.05
M452	40.04	48.83
M454	43.18	47.53
M472	39.47	45.24
M473	38.22	43.99
M474	40.79	47.87
M475	45.17	51.98
M492	37.82	43.77
M493	41.74	50.06
M494	36.40	44.02
M512	43.63	50.18
M513	38.66	44.17
M514	40.17	45.75
M515	41.60	43.35
M516	37.77	41.31
M517	41.01	46.23
M518	50.14	54.78
M519	40.05	43.98
M533	49.01	55.55
M534	51.19	53.37
M535	67.78	74.58
M536	37.85	42.82
M537	42.71	46.95

Minor Group 25_4: Squared Euclidian Distances

	V35
M113	45.64
M114	44.64
M131	31.17
M132	39.01
M151	53.76
M152	47.25
M171	36.65
M172	62.66
M173	44.57
M191	41.88
M192	40.23
M193	15.50
M194	43.17
M211	44.82
M231	44.79
M232	35.86
M251	33.70
M252	31.07
M254	**7.89**
M255	26.79
M271	51.22
M272	36.52
M273	28.40
M274	38.86
M291	67.64
M292	50.72
M312	76.37
M313	54.17
M332	57.32
M333	46.81
M334	57.85
M352	46.21
M353	52.17
M371	46.86
M393	43.95
M395	48.11
M396	52.27
M397	51.98
M412	54.22
M413	41.90
M414	52.19
M415	47.03
M433	45.01
M434	40.23
M435	37.29

M436	44.72
M437	34.92
M451	55.38
M452	46.25
M454	43.99
M472	44.20
M473	51.18
M474	45.98
M475	54.41
M492	51.51
M493	60.77
M494	51.37
M512	48.12
M513	40.66
M514	44.72
M515	36.32
M516	39.91
M517	42.63
M518	54.88
M519	40.65
M533	69.34
M534	58.32
M535	75.32
M536	41.93
M537	46.46

Minor Group 25_5: Squared Euclidian Distances

	V40
M113	42.33
M114	33.44
M131	35.91
M132	60.98
M151	32.14
M152	69.13
M171	28.47
M172	36.63
M173	33.83
M191	47.02
M192	51.35
M193	41.90
M194	51.04
M211	40.03
M231	76.37
M232	62.24
M251	38.57
M252	30.82
M254	24.02
M255	**10.29**
M271	20.82
M272	18.15
M273	32.66
M274	13.99
M291	48.95
M292	45.64
M312	56.70
M313	49.40
M332	40.01
M333	51.14
M334	40.49
M352	36.87
M353	50.59
M371	36.20
M393	37.15
M395	35.13
M396	43.36
M397	29.58
M412	46.67
M413	38.96
M414	38.86
M415	28.29
M433	64.88
M434	53.98
M435	42.60

M436	52.01
M437	50.43
M451	43.20
M452	42.68
M454	45.54
M472	37.26
M473	45.22
M474	42.53
M475	44.29
M492	36.60
M493	42.33
M494	36.73
M512	38.76
M513	44.02
M514	40.16
M515	34.95
M516	36.73
M517	36.03
M518	58.21
M519	38.39
M533	57.88
M534	54.18
M535	60.08
M536	40.86
M537	49.46

Minor Group 27_1: Squared Euclidian Distances

	V2	V4	V12
M113	99.41	93.46	52.45
M114	79.91	80.38	39.73
M131	68.14	61.81	46.06
M132	103.34	89.19	74.97
M151	67.07	72.57	48.16
M152	99.14	96.05	84.35
M171	44.89	53.55	24.93
M172	69.68	91.70	45.99
M173	55.79	62.13	40.64
M191	65.37	76.18	67.66
M192	73.19	87.62	69.95
M193	66.60	68.02	57.13
M194	77.31	79.26	69.05
M211	79.70	71.02	56.02
M231	114.62	101.82	101.06
M232	99.16	79.91	81.04
M251	75.01	73.40	59.90
M252	62.58	63.74	49.67
M254	50.80	46.79	35.79
M255	43.15	45.11	23.95
M271	**10.92**	**11.45**	**8.84**
M272	44.99	41.61	28.90
M273	48.33	34.22	45.75
M274	48.30	46.20	31.06
M291	84.28	87.75	74.80
M292	71.79	69.39	65.48
M312	81.32	85.96	78.45
M313	72.82	70.08	67.56
M332	83.03	89.02	61.03
M333	92.21	87.25	74.33
M334	80.14	76.45	59.69
M352	55.50	49.44	42.41
M353	64.11	55.76	53.25
M371	72.67	70.48	42.42
M393	63.43	54.32	48.25
M395	29.61	22.41	33.29
M396	70.39	64.57	54.87
M397	67.81	65.19	41.20
M412	66.52	62.45	53.61
M413	64.59	52.99	42.12
M414	51.49	52.71	43.12
M415	47.43	44.07	32.14
M433	94.51	75.76	76.72
M434	80.13	62.49	67.78
M435	68.25	58.33	54.08

M436	81.41	63.04	62.73
M437	73.82	59.08	64.34
M451	83.97	91.97	57.32
M452	60.49	68.47	50.93
M454	64.37	66.67	55.95
M472	45.79	51.98	38.79
M473	55.51	59.59	48.34
M474	63.88	70.27	51.54
M475	71.94	80.21	57.54
M492	55.87	60.80	49.12
M493	59.85	75.16	52.72
M494	52.37	61.71	45.76
M512	52.77	61.33	45.70
M513	61.15	57.25	53.41
M514	61.07	64.83	49.14
M515	48.95	44.63	46.12
M516	47.02	42.05	41.85
M517	43.66	49.12	38.12
M518	93.87	94.99	77.01
M519	54.09	52.38	46.52
M533	99.00	95.34	72.48
M534	96.14	88.58	74.12
M535	109.94	111.80	80.10
M536	74.01	73.03	57.00
M537	70.00	69.87	60.47

Minor Group 27_2: Squared Euclidian Distances

	V15	V25	V29
M113	22.98	54.81	87.98
M114	19.27	51.35	79.16
M131	31.03	52.92	76.69
M132	49.50	75.45	104.15
M151	47.67	73.24	84.24
M152	78.03	99.13	131.17
M171	43.39	83.04	100.77
M172	59.25	88.14	110.78
M173	51.96	78.16	90.19
M191	59.50	83.69	103.48
M192	71.39	97.80	119.28
M193	50.85	61.46	82.33
M194	60.85	83.00	92.20
M211	44.59	54.90	71.77
M231	76.15	86.31	107.66
M232	55.97	74.71	96.00
M251	61.68	65.89	74.06
M252	49.64	49.14	54.26
M254	22.97	53.41	60.54
M255	25.53	33.82	47.35
M271	32.50	51.75	58.04
M272	**20.74**	**22.50**	**34.29**
M273	32.68	51.05	58.67
M274	33.79	44.17	48.26
M291	71.46	78.83	77.31
M292	56.36	69.18	74.41
M312	75.95	71.96	81.81
M313	60.54	70.05	68.90
M332	62.21	72.59	80.32
M333	62.83	74.79	86.28
M334	56.82	60.47	70.46
M352	37.41	46.32	54.19
M353	48.77	57.21	58.24
M371	24.80	47.00	73.78
M393	42.78	51.74	49.67
M395	42.09	60.08	55.31
M396	48.38	64.50	68.90
M397	37.63	48.92	57.87
M412	46.34	59.07	58.11
M413	31.88	60.62	78.17
M414	35.80	58.37	74.47
M415	28.25	54.65	65.54
M433	56.58	77.15	87.43
M434	48.24	63.69	75.44
M435	39.24	57.37	69.24

M436	44.35	60.56	66.75
M437	50.54	64.46	72.28
M451	40.14	56.24	77.84
M452	45.19	57.83	68.92
M454	52.16	66.24	83.58
M472	48.90	59.00	69.73
M473	55.20	65.34	69.81
M474	54.13	63.08	83.46
M475	62.67	60.69	73.87
M492	53.44	64.27	71.79
M493	59.88	56.95	68.85
M494	53.34	56.34	62.92
M512	57.43	70.92	74.61
M513	46.63	53.43	62.88
M514	52.68	63.67	69.75
M515	44.07	58.53	65.71
M516	44.52	54.03	57.00
M517	48.26	56.89	66.14
M518	63.60	73.89	89.71
M519	48.13	63.35	66.96
M533	66.27	77.57	83.04
M534	62.61	76.81	87.55
M535	79.01	84.79	101.27
M536	51.02	64.71	82.32
M537	54.56	61.81	77.72

Minor Group 27_3: Squared Euclidian Distances

	V34	V35
M113	27.38	41.99
M114	20.31	43.72
M131	13.25	22.97
M132	30.61	30.74
M151	36.04	36.34
M152	54.82	42.87
M171	29.07	42.93
M172	47.86	55.82
M173	39.32	36.46
M191	48.88	30.66
M192	56.49	37.12
M193	29.95	28.12
M194	44.56	28.94
M211	19.29	44.08
M231	47.76	41.50
M232	34.35	25.41
M251	37.47	45.12
M252	24.53	39.85
M254	19.91	17.79
M255	9.55	30.33
M271	23.65	43.74
M272	16.90	25.33
M273	**19.83**	**11.24**
M274	23.79	27.59
M291	46.29	53.07
M292	33.35	34.29
M312	49.36	60.40
M313	35.99	35.60
M332	40.10	50.47
M333	35.91	41.23
M334	31.00	47.29
M352	24.85	35.59
M353	26.48	39.69
M371	24.21	42.41
M393	21.71	34.75
M395	27.04	36.09
M396	26.23	44.71
M397	23.97	49.83
M412	22.12	35.80
M413	8.54	30.98
M414	16.83	35.20
M415	11.52	35.73
M433	33.08	28.94
M434	25.09	24.38
M435	25.11	23.27

M436	24.74	25.81
M437	32.40	19.99
M451	36.91	50.56
M452	37.19	35.30
M454	42.92	37.82
M472	38.67	39.90
M473	42.92	44.25
M474	38.43	40.59
M475	46.15	49.71
M492	38.62	34.42
M493	43.86	46.94
M494	37.23	39.37
M512	44.34	40.21
M513	37.14	32.22
M514	41.86	38.47
M515	36.26	26.53
M516	33.76	29.84
M517	37.87	36.44
M518	51.17	41.03
M519	37.75	31.93
M533	42.45	60.51
M534	45.04	48.02
M535	56.26	72.68
M536	32.27	32.30
M537	43.03	36.95

Minor Group 27_4: Squared Euclidian Distances

	V46	V48
M113	59.36	55.22
M114	42.43	44.71
M131	40.71	33.37
M132	66.33	54.18
M151	47.99	32.76
M152	82.44	61.54
M171	27.06	28.24
M172	50.05	37.41
M173	35.49	20.39
M191	48.47	37.50
M192	54.59	38.30
M193	53.98	47.60
M194	40.44	27.78
M211	50.52	46.94
M231	90.12	80.25
M232	64.83	51.96
M251	52.65	48.27
M252	42.78	43.08
M254	31.88	29.85
M255	27.80	27.15
M271	30.87	28.69
M272	38.20	30.83
M273	41.91	27.20
M274	**14.45**	**8.12**
M291	53.38	47.31
M292	41.10	32.52
M312	63.57	53.38
M313	37.66	34.15
M332	32.03	33.81
M333	40.10	41.76
M334	32.39	33.70
M352	34.04	31.56
M353	42.93	42.67
M371	41.03	38.59
M393	28.06	29.34
M395	29.62	32.03
M396	32.64	36.24
M397	35.60	39.30
M412	42.71	43.85
M413	42.87	38.70
M414	40.33	35.71
M415	29.50	29.86
M433	57.93	48.51
M434	51.57	42.23
M435	36.15	28.31

M436	52.12	45.18
M437	47.03	32.74
M451	39.32	44.44
M452	32.80	31.02
M454	32.38	26.10
M472	31.58	25.60
M473	37.43	32.44
M474	31.56	26.48
M475	33.06	30.81
M492	33.63	20.78
M493	41.04	33.55
M494	31.77	26.44
M512	31.10	21.85
M513	37.16	29.82
M514	32.56	22.77
M515	28.70	16.93
M516	30.80	22.48
M517	33.21	23.57
M518	49.52	34.97
M519	28.50	19.11
M533	31.72	39.35
M534	31.36	30.57
M535	36.44	46.12
M536	29.60	23.00
M537	35.88	28.76

Minor Group 29_1: Squared Euclidian Distances

	V2	V3	V12	V15	V23
M113	81.70	99.49	113.96	87.87	68.49
M114	67.84	87.20	104.81	81.11	55.55
M131	46.06	58.29	85.65	71.50	41.93
M132	70.37	81.62	106.67	92.25	69.09
M151	53.71	62.71	84.82	67.44	64.72
M152	81.76	85.04	115.81	99.95	92.28
M171	76.18	87.04	125.58	91.83	68.00
M172	68.38	73.99	93.17	71.20	79.40
M173	52.89	61.83	91.72	70.83	65.06
M191	43.30	43.49	73.17	52.09	63.09
M192	61.57	60.84	89.71	71.08	77.90
M193	56.12	61.70	86.62	76.20	37.15
M194	36.87	39.23	63.73	46.67	51.22
M211	37.63	48.92	70.03	67.68	13.88
M231	65.28	67.84	89.11	87.26	47.46
M232	57.09	68.24	96.52	90.44	60.09
M251	38.93	49.47	63.97	68.14	27.48
M252	39.55	49.06	71.32	68.49	12.02
M254	56.61	68.21	105.94	83.39	39.21
M255	41.49	55.95	85.23	72.59	28.05
M271	53.80	73.55	124.03	99.35	62.28
M272	57.02	72.66	111.42	87.32	36.93
M273	43.62	53.91	100.64	85.26	44.77
M274	41.40	51.91	86.64	64.96	44.43
M291	**10.22**	**12.13**	**18.70**	**20.47**	**22.73**
M292	17.36	22.75	46.72	42.76	25.80
M312	26.64	36.62	54.53	60.20	20.07
M313	23.63	29.53	55.77	49.83	32.38
M332	50.40	57.72	77.77	58.33	29.25
M333	51.17	57.44	84.81	73.09	30.45
M334	48.50	59.91	88.06	75.81	28.83
M352	38.20	53.15	92.71	79.18	43.75
M353	50.22	66.13	105.15	95.04	45.34
M371	56.68	76.48	101.58	80.82	45.25
M393	47.74	60.84	98.88	85.21	37.57
M395	32.99	48.92	96.94	81.54	43.40
M396	47.00	62.69	99.45	91.00	36.78
M397	40.13	55.91	80.64	69.60	17.15
M412	52.30	67.15	98.35	86.24	48.06
M413	51.33	66.68	103.90	92.14	54.51
M414	46.06	62.72	102.48	93.31	49.24
M415	48.30	66.39	108.76	94.60	44.62
M433	63.86	75.11	110.65	97.88	64.64
M434	52.06	64.75	103.64	95.04	48.97
M435	46.40	58.65	98.59	81.93	44.52

M436	52.45	67.19	98.92	88.62	54.41
M437	55.24	63.43	106.20	89.28	54.89
M451	53.37	67.73	79.93	58.57	46.31
M452	45.46	53.56	85.79	61.30	47.23
M454	49.66	57.93	101.20	77.24	46.57
M472	51.98	64.59	105.87	82.29	45.85
M473	49.96	63.32	101.71	82.07	43.19
M474	53.73	63.15	99.34	79.61	47.25
M475	59.51	67.49	100.31	79.31	48.45
M492	41.10	49.16	82.73	63.96	49.43
M493	49.16	56.35	85.15	67.32	51.12
M494	44.75	53.24	85.74	66.20	44.90
M512	45.59	52.85	86.25	63.92	51.35
M513	45.19	54.88	96.83	77.10	50.76
M514	45.25	52.43	86.94	65.62	49.06
M515	42.45	50.52	96.77	72.80	49.83
M516	39.84	49.76	93.55	73.05	46.87
M517	49.31	59.18	101.16	77.76	49.84
M518	53.41	56.21	82.64	64.45	59.94
M519	39.81	47.91	87.23	66.14	48.58
M533	58.66	70.35	98.50	88.23	52.85
M534	55.69	64.27	95.67	79.80	51.59
M535	81.77	90.63	114.94	94.91	65.98
M536	46.44	53.71	84.61	67.52	45.73
M537	53.28	62.50	101.25	80.61	48.44

Minor Group 29_2: Squared Euclidian Distances

	V27	V31	V35
M113	43.76	70.91	28.06
M114	36.48	60.43	18.66
M131	28.36	41.67	15.16
M132	44.99	58.78	31.05
M151	35.83	44.57	43.26
M152	62.22	72.45	53.92
M171	51.40	78.40	40.16
M172	41.89	51.37	54.08
M173	38.23	43.80	40.29
M191	21.89	39.20	35.14
M192	34.86	43.70	52.27
M193	37.88	49.67	31.62
M194	16.80	25.09	31.00
M211	36.59	42.27	16.18
M231	49.36	59.38	49.04
M232	40.96	52.48	29.02
M251	34.79	40.17	24.17
M252	31.73	41.15	18.20
M254	33.40	58.81	22.04
M255	32.72	49.85	9.85
M271	67.14	83.20	34.68
M272	46.93	66.48	19.94
M273	41.24	56.87	27.19
M274	30.63	48.93	24.25
M291	15.02	15.19	26.69
M292	**16.71**	**16.31**	**18.54**
M312	40.73	22.19	32.59
M313	19.74	22.59	22.51
M332	32.51	43.93	32.97
M333	35.11	47.11	30.13
M334	42.96	53.33	26.41
M352	41.35	49.71	13.98
M353	50.51	56.08	25.10
M371	41.80	52.62	14.80
M393	39.42	54.14	21.63
M395	50.73	60.25	23.81
M396	48.94	54.73	26.23
M397	40.33	49.42	14.29
M412	38.84	49.33	28.61
M413	48.00	62.12	22.87
M414	45.12	49.83	25.11
M415	49.99	63.66	21.92
M433	45.97	58.10	31.68
M434	43.40	53.44	23.73
M435	37.79	46.30	20.29

M436	37.77	52.65	23.21
M437	41.51	52.08	28.91
M451	28.27	42.96	19.06
M452	32.13	39.83	25.50
M454	46.08	48.84	27.35
M472	51.66	49.79	29.75
M473	52.29	49.06	32.22
M474	44.49	42.02	30.77
M475	46.55	44.65	36.58
M492	34.44	32.25	35.70
M493	39.53	32.65	41.25
M494	35.50	35.30	32.85
M512	37.49	37.36	37.66
M513	41.16	50.13	21.82
M514	38.40	40.83	31.59
M515	39.10	46.87	26.02
M516	41.77	48.23	24.66
M517	48.41	47.96	30.97
M518	33.87	33.24	41.50
M519	36.49	42.35	27.45
M533	50.28	56.72	38.49
M534	43.85	49.41	37.48
M535	55.56	63.36	51.54
M536	30.50	36.72	27.55
M537	45.01	43.02	30.64

Minor Group 31_2: Squared Euclidian Distances

	V6
M113	74.67
M114	59.85
M131	40.86
M132	64.52
M151	56.03
M152	93.49
M171	89.14
M172	81.54
M173	59.68
M191	66.47
M192	79.30
M193	53.47
M194	43.67
M211	18.42
M231	54.69
M232	49.38
M251	29.45
M252	21.43
M254	51.09
M255	35.63
M271	67.27
M272	44.88
M273	43.79
M274	45.34
M291	15.96
M292	12.48
M312	**2.17**
M313	18.84
M332	36.35
M333	35.25
M334	31.42
M352	32.47
M353	34.28
M371	40.82
M393	34.92
M395	37.18
M396	29.15
M397	19.60
M412	37.92
M413	50.55
M414	36.90
M415	40.98
M433	52.51
M434	37.29
M435	34.33

M436	40.61
M437	46.54
M451	45.79
M452	44.31
M454	43.18
M472	41.43
M473	35.05
M474	41.34
M475	44.28
M492	34.80
M493	39.29
M494	36.12
M512	44.72
M513	43.18
M514	42.45
M515	43.98
M516	39.95
M517	45.60
M518	47.11
M519	41.57
M533	44.28
M534	44.45
M535	66.47
M536	40.49
M537	39.43

Minor Group 31_3: Squared Euclidian Distances

	V8
M113	59.75
M114	47.25
M131	21.98
M132	38.55
M151	45.59
M152	66.09
M171	66.46
M172	66.82
M173	39.42
M191	48.27
M192	57.06
M193	44.94
M194	24.96
M211	22.69
M231	47.22
M232	27.53
M251	36.55
M252	29.74
M254	38.32
M255	31.75
M271	48.67
M272	41.58
M273	27.18
M274	32.01
M291	19.62
M292	5.02
M312	16.44
M313	**5.36**
M332	38.78
M333	28.83
M334	30.44
M352	18.24
M353	16.49
M371	32.64
M393	17.57
M395	19.79
M396	20.99
M397	29.07
M412	16.71
M413	25.63
M414	18.19
M415	25.75
M433	23.55
M434	16.37
M435	16.24

M436	17.56
M437	22.69
M451	37.43
M452	28.91
M454	30.71
M472	30.82
M473	28.16
M474	27.67
M475	33.85
M492	21.40
M493	27.21
M494	22.80
M512	28.97
M513	25.06
M514	28.13
M515	23.64
M516	21.79
M517	30.47
M518	28.92
M519	22.67
M533	28.54
M534	28.92
M535	51.78
M536	23.02
M537	24.64

Minor Group 33_2: Squared Euclidian Distances

	V5
M113	68.56
M114	51.99
M131	44.22
M132	72.00
M151	60.59
M152	97.99
M171	52.06
M172	66.52
M173	54.65
M191	57.69
M192	71.79
M193	58.05
M194	41.39
M211	42.40
M231	75.20
M232	66.33
M251	53.56
M252	35.86
M254	46.26
M255	34.40
M271	57.84
M272	30.23
M273	47.11
M274	25.56
M291	46.35
M292	37.20
M312	41.13
M313	35.66
M332	**7.35**
M333	25.65
M334	12.65
M352	34.63
M353	38.39
M371	41.18
M393	32.59
M395	45.11
M396	24.85
M397	22.37
M412	44.68
M413	52.12
M414	48.53
M415	37.84
M433	64.26
M434	52.34
M435	32.41

M436	54.81
M437	53.16
M451	36.60
M452	25.01
M454	23.41
M472	28.43
M473	24.13
M474	25.46
M475	22.62
M492	31.65
M493	33.07
M494	29.60
M512	35.69
M513	37.02
M514	32.68
M515	42.08
M516	38.13
M517	36.65
M518	42.72
M519	36.82
M533	25.50
M534	28.02
M535	35.15
M536	28.87
M537	29.58

Minor Group 33_3: Squared Euclidian Distances

	V10	V11	V19
M113	65.20	52.14	137.95
M114	55.75	48.50	121.97
M131	35.25	23.27	98.48
M132	57.27	38.97	125.71
M151	74.93	58.30	129.76
M152	97.43	64.86	173.06
M171	74.73	58.46	126.25
M172	88.36	65.69	134.50
M173	70.49	54.92	130.22
M191	71.92	44.39	127.34
M192	86.85	55.75	135.87
M193	50.65	29.02	115.91
M194	45.03	33.17	95.67
M211	27.58	26.54	85.35
M231	39.08	19.47	92.27
M232	46.50	27.47	112.86
M251	60.40	42.73	121.84
M252	34.83	29.99	95.41
M254	45.55	39.86	118.35
M255	44.44	33.14	110.36
M271	83.35	72.40	159.54
M272	39.98	39.92	125.05
M273	42.81	33.97	110.66
M274	42.10	33.61	89.61
M291	47.71	35.87	86.32
M292	31.63	26.58	81.18
M312	36.23	36.40	93.15
M313	29.67	25.31	74.85
M332	13.37	15.58	47.77
M333	**8.32**	**6.15**	**44.13**
M334	9.99	14.70	54.79
M352	37.24	38.98	116.25
M353	33.37	39.64	105.59
M371	44.30	45.82	124.00
M393	26.66	31.40	84.30
M395	51.06	48.30	121.38
M396	19.24	26.90	69.32
M397	23.20	31.35	86.18
M412	37.05	34.97	88.31
M413	44.70	36.72	103.55
M414	42.57	39.88	103.93
M415	36.88	39.39	95.60
M433	48.46	41.20	115.02
M434	34.59	30.41	103.49
M435	24.83	25.87	94.35

M436	44.18	37.11	113.34
M437	45.10	39.79	119.49
M451	45.27	41.66	107.91
M452	34.05	33.58	100.64
M454	28.98	32.47	102.14
M472	41.39	44.11	122.55
M473	32.56	41.02	113.13
M474	28.19	27.03	89.50
M475	29.96	30.59	84.20
M492	39.20	35.76	94.82
M493	39.82	34.84	94.40
M494	36.90	34.24	94.69
M512	47.76	43.88	109.58
M513	40.08	40.08	123.99
M514	41.08	42.70	111.73
M515	47.52	44.76	122.29
M516	43.69	42.80	121.44
M517	48.44	47.55	128.42
M518	38.98	36.05	93.36
M519	42.84	42.45	113.90
M533	19.01	26.95	52.28
M534	21.20	23.23	55.67
M535	38.94	33.15	52.67
M536	24.46	17.17	70.08
M537	30.36	32.06	97.74

Minor Group 33_4: Squared Euclidian Distances

	V26
M113	81.95
M114	62.44
M131	47.04
M132	77.59
M151	71.40
M152	111.99
M171	70.05
M172	85.11
M173	71.24
M191	72.97
M192	90.12
M193	62.96
M194	54.00
M211	35.21
M231	67.47
M232	68.36
M251	56.51
M252	33.94
M254	56.07
M255	38.12
M271	68.63
M272	36.77
M273	50.24
M274	36.78
M291	46.66
M292	36.45
M312	32.22
M313	33.83
M332	9.95
M333	20.49
M334	**7.84**
M352	42.05
M353	36.68
M371	49.66
M393	30.32
M395	46.84
M396	20.04
M397	22.57
M412	39.11
M413	50.81
M414	42.79
M415	33.86
M433	65.95
M434	49.16
M435	37.03

M436	55.31
M437	60.33
M451	44.78
M452	37.30
M454	36.03
M472	41.31
M473	34.00
M474	33.77
M475	31.61
M492	40.63
M493	39.71
M494	36.12
M512	49.14
M513	50.47
M514	47.69
M515	54.83
M516	50.30
M517	51.45
M518	54.05
M519	50.33
M533	23.46
M534	30.24
M535	36.04
M536	34.84
M537	38.20

Minor Group 35_2: Squared Euclidian Distances

	V3
M113	57.63
M114	47.03
M131	22.75
M132	37.47
M151	60.47
M152	65.17
M171	63.13
M172	80.02
M173	44.84
M191	56.16
M192	67.90
M193	46.11
M194	32.93
M211	31.07
M231	55.11
M232	28.71
M251	49.88
M252	35.68
M254	32.50
M255	31.25
M271	40.16
M272	26.31
M273	21.97
M274	30.51
M291	47.09
M292	20.16
M312	35.74
M313	17.84
M332	43.52
M333	31.87
M334	28.07
M352	**6.51**
M353	8.04
M371	26.83
M393	11.78
M395	15.11
M396	18.25
M397	29.15
M412	21.06
M413	24.00
M414	21.19
M415	22.41
M433	20.37
M434	12.32
M435	7.91

M436	17.65
M437	14.60
M451	39.42
M452	20.67
M454	15.36
M472	17.28
M473	15.82
M474	19.10
M475	24.99
M492	24.30
M493	29.31
M494	22.41
M512	27.81
M513	8.41
M514	19.50
M515	13.11
M516	9.66
M517	17.49
M518	28.24
M519	14.30
M533	26.48
M534	26.33
M535	54.31
M536	22.39
M537	13.59

Minor Group 35_3: Squared Euclidian Distances

	V10
M113	53.79
M114	42.24
M131	20.97
M132	34.79
M151	59.48
M152	68.27
M171	64.61
M172	81.45
M173	47.00
M191	62.23
M192	73.69
M193	48.14
M194	35.27
M211	27.20
M231	56.66
M232	28.42
M251	49.08
M252	34.01
M254	32.93
M255	30.76
M271	43.29
M272	26.86
M273	25.00
M274	34.59
M291	46.84
M292	20.21
M312	32.58
M313	18.37
M332	42.06
M333	31.68
M334	26.13
M352	6.69
M353	**4.45**
M371	23.34
M393	10.67
M395	17.09
M396	13.82
M397	25.33
M412	16.53
M413	19.33
M414	16.94
M415	18.18
M433	18.45
M434	10.92
M435	7.35

M436	15.34
M437	16.75
M451	37.19
M452	22.04
M454	18.35
M472	19.04
M473	14.99
M474	21.89
M475	28.65
M492	26.86
M493	31.99
M494	25.05
M512	30.99
M513	12.00
M514	22.35
M515	19.30
M516	14.21
M517	21.21
M518	31.86
M519	18.22
M533	23.78
M534	28.47
M535	57.15
M536	25.12
M537	17.01

Minor Group 37_1: Squared Euclidian Distances

	V1
M113	16.86
M114	11.83
M131	19.69
M132	32.30
M151	54.40
M152	70.99
M171	59.43
M172	65.08
M173	46.67
M191	65.04
M192	75.68
M193	49.16
M194	45.22
M211	22.74
M231	62.88
M232	36.21
M251	43.96
M252	36.67
M254	30.38
M255	23.62
M271	48.33
M272	25.66
M273	42.36
M274	35.62
M291	49.35
M292	32.43
M312	42.25
M313	38.19
M332	46.18
M333	43.83
M334	38.61
M352	17.75
M353	29.89
M371	**4.09**
M393	29.40
M395	38.97
M396	33.09
M397	17.51
M412	36.84
M413	29.44
M414	32.51
M415	30.18
M433	37.43
M434	31.44
M435	22.80

M436	29.07
M437	37.32
M451	19.37
M452	31.71
M454	30.95
M472	30.82
M473	32.70
M474	31.06
M475	36.51
M492	38.83
M493	41.42
M494	36.91
M512	41.51
M513	26.55
M514	32.42
M515	31.30
M516	29.52
M517	33.03
M518	37.01
M519	31.49
M533	40.87
M534	37.73
M535	53.15
M536	32.22
M537	28.98

Minor Group 39_3: Squared Euclidian Distances

	V7
M113	65.68
M114	55.87
M131	35.17
M132	54.48
M151	50.60
M152	75.14
M171	58.95
M172	68.47
M173	38.03
M191	59.24
M192	64.29
M193	57.73
M194	34.95
M211	45.78
M231	76.69
M232	47.27
M251	61.12
M252	46.06
M254	39.61
M255	35.79
M271	40.16
M272	29.83
M273	26.93
M274	13.26
M291	52.45
M292	28.80
M312	51.26
M313	23.71
M332	43.00
M333	38.95
M334	30.68
M352	20.22
M353	24.94
M371	40.51
M393	**14.21**
M395	26.87
M396	29.79
M397	41.65
M412	30.29
M413	37.53
M414	33.18
M415	30.56
M433	34.43
M434	28.04
M435	19.86

M436	31.21
M437	21.26
M451	46.69
M452	28.51
M454	25.58
M472	26.36
M473	30.71
M474	23.86
M475	23.57
M492	19.96
M493	26.15
M494	20.04
M512	25.11
M513	18.41
M514	19.65
M515	12.13
M516	13.55
M517	22.13
M518	25.69
M519	14.93
M533	24.85
M534	21.37
M535	40.56
M536	20.91
M537	19.15

Minor Group 39_5: Squared Euclidian Distances

	V17
M113	69.64
M114	53.21
M131	34.22
M132	57.83
M151	69.63
M152	86.18
M171	57.24
M172	91.00
M173	56.42
M191	69.10
M192	84.18
M193	55.23
M194	53.70
M211	34.25
M231	70.87
M232	48.47
M251	56.56
M252	36.34
M254	34.82
M255	30.14
M271	26.46
M272	28.25
M273	26.62
M274	33.90
M291	54.79
M292	30.99
M312	44.79
M313	26.40
M332	52.30
M333	40.45
M334	34.79
M352	15.48
M353	13.72
M371	36.60
M393	13.63
M395	**6.90**
M396	22.20
M397	29.46
M412	23.41
M413	29.59
M414	24.06
M415	20.54
M433	34.74
M434	23.76
M435	21.34

M436	27.38
M437	27.55
M451	50.26
M452	34.46
M454	30.93
M472	26.39
M473	27.70
M474	33.14
M475	38.57
M492	38.30
M493	43.92
M494	32.67
M512	40.26
M513	23.61
M514	36.55
M515	22.47
M516	18.89
M517	27.71
M518	54.80
M519	27.01
M533	36.88
M534	39.99
M535	61.05
M536	37.67
M537	29.46

Minor Group 39_6: Squared Euclidian Distances

	V21
M113	65.55
M114	49.78
M131	28.78
M132	49.80
M151	60.92
M152	90.12
M171	67.95
M172	84.90
M173	59.23
M191	73.26
M192	84.29
M193	53.58
M194	44.45
M211	19.69
M231	52.19
M232	37.12
M251	45.98
M252	26.56
M254	41.11
M255	32.82
M271	56.30
M272	36.57
M273	30.87
M274	36.49
M291	39.05
M292	19.97
M312	22.15
M313	19.14
M332	26.74
M333	19.20
M334	15.29
M352	18.76
M353	13.44
M371	34.68
M393	15.59
M395	26.21
M396	**5.18**
M397	16.34
M412	19.38
M413	24.04
M414	20.11
M415	17.76
M433	31.86
M434	18.92
M435	15.24

M436	25.29
M437	31.68
M451	46.96
M452	34.70
M454	29.66
M472	32.73
M473	24.38
M474	28.88
M475	34.24
M492	32.28
M493	39.21
M494	33.49
M512	43.66
M513	31.32
M514	37.33
M515	38.83
M516	31.89
M517	39.09
M518	44.28
M519	34.96
M533	16.63
M534	25.72
M535	49.42
M536	27.25
M537	29.53

Minor Group 39_7: Squared Euclidian Distances

	V24
M113	51.89
M114	38.23
M131	26.40
M132	50.57
M151	57.36
M152	80.24
M171	62.77
M172	68.76
M173	55.91
M191	56.68
M192	72.23
M193	41.70
M194	43.26
M211	11.12
M231	45.27
M232	43.13
M251	33.30
M252	20.31
M254	38.36
M255	21.27
M271	47.53
M272	31.64
M273	34.37
M274	33.49
M291	23.73
M292	17.37
M312	16.92
M313	22.98
M332	27.53
M333	23.34
M334	19.30
M352	19.79
M353	28.31
M371	25.98
M393	26.89
M395	27.20
M396	16.41
M397	**9.25**
M412	34.21
M413	27.90
M414	25.04
M415	20.78
M433	48.16
M434	32.08
M435	24.95

M436	39.63
M437	44.62
M451	33.50
M452	31.79
M454	27.77
M472	33.60
M473	30.94
M474	28.48
M475	33.48
M492	34.60
M493	35.60
M494	33.22
M512	43.17
M513	31.85
M514	35.94
M515	36.64
M516	32.26
M517	37.20
M518	41.97
M519	35.08
M533	28.18
M534	30.59
M535	48.14
M536	28.11
M537	31.23

Minor Group 41_2: Squared Euclidian Distances

	V4
M113	46.65
M114	36.10
M131	18.12
M132	34.25
M151	42.07
M152	70.68
M171	55.12
M172	64.70
M173	42.46
M191	57.46
M192	65.27
M193	45.64
M194	32.59
M211	30.48
M231	50.20
M232	27.53
M251	52.41
M252	31.12
M254	29.08
M255	27.43
M271	45.51
M272	27.24
M273	23.40
M274	28.32
M291	44.64
M292	20.59
M312	33.82
M313	14.48
M332	33.39
M333	23.72
M334	24.06
M352	15.56
M353	8.15
M371	29.11
M393	8.24
M395	22.49
M396	12.39
M397	28.68
M412	**1.34**
M413	17.48
M414	8.56
M415	13.66
M433	16.78
M434	10.56
M435	9.57

M436	11.28
M437	18.15
M451	35.86
M452	24.95
M454	31.86
M472	28.63
M473	24.21
M474	25.87
M475	30.37
M492	21.83
M493	24.45
M494	20.22
M512	31.69
M513	23.95
M514	30.19
M515	28.42
M516	24.14
M517	30.21
M518	34.41
M519	26.59
M533	21.00
M534	29.35
M535	49.36
M536	21.62
M537	25.73

Minor Group 41_3: Squared Euclidian Distances

	V9
M113	24.20
M114	27.26
M131	8.84
M132	9.65
M151	43.75
M152	28.61
M171	37.62
M172	48.69
M173	38.16
M191	42.56
M192	46.73
M193	30.78
M194	33.97
M211	32.28
M231	38.83
M232	19.23
M251	50.62
M252	47.22
M254	35.30
M255	28.80
M271	52.99
M272	40.02
M273	32.13
M274	38.76
M291	53.51
M292	37.95
M312	68.31
M313	40.48
M332	50.36
M333	38.77
M334	41.98
M352	35.13
M353	37.40
M371	33.18
M393	34.39
M395	49.44
M396	43.46
M397	48.76
M412	32.84
M413	**9.54**
M414	30.59
M415	31.21
M433	22.10
M434	23.94
M435	26.85

M436	24.35
M437	29.07
M451	41.12
M452	40.28
M454	44.64
M472	49.46
M473	54.18
M474	41.00
M475	52.20
M492	46.13
M493	52.07
M494	47.15
M512	48.38
M513	38.94
M514	43.99
M515	41.36
M516	41.09
M517	45.71
M518	41.54
M519	40.42
M533	47.06
M534	45.03
M535	59.55
M536	28.79
M537	44.80

Minor Group 41_4: Squared Euclidian Distances

	V17
M113	57.32
M114	42.14
M131	22.79
M132	44.35
M151	46.87
M152	72.05
M171	53.39
M172	64.26
M173	43.52
M191	61.24
M192	66.69
M193	45.89
M194	42.96
M211	27.16
M231	60.37
M232	38.90
M251	49.24
M252	30.10
M254	32.73
M255	24.94
M271	35.13
M272	28.73
M273	24.93
M274	33.58
M291	50.72
M292	24.82
M312	29.68
M313	23.70
M332	43.98
M333	33.94
M334	28.40
M352	18.50
M353	13.70
M371	29.84
M393	15.49
M395	20.93
M396	14.94
M397	28.05
M412	13.78
M413	17.95
M414	**3.42**
M415	8.48
M433	29.82
M434	17.66
M435	16.68

M436	24.93
M437	27.33
M451	43.88
M452	32.89
M454	32.23
M472	27.78
M473	26.78
M474	27.50
M475	37.03
M492	27.98
M493	30.52
M494	26.24
M512	36.71
M513	29.56
M514	34.88
M515	30.48
M516	27.63
M517	30.09
M518	45.40
M519	30.76
M533	30.00
M534	38.92
M535	60.98
M536	29.27
M537	29.72

Minor Group 41_5: Squared Euclidian Distances

	V20
M113	86.68
M114	66.50
M131	48.29
M132	77.77
M151	87.13
M152	107.96
M171	62.53
M172	108.02
M173	77.34
M191	85.53
M192	103.54
M193	65.27
M194	76.88
M211	48.31
M231	84.77
M232	68.33
M251	71.60
M252	46.08
M254	41.54
M255	35.50
M271	24.77
M272	26.94
M273	29.65
M274	44.41
M291	81.23
M292	54.51
M312	63.15
M313	49.28
M332	59.86
M333	52.00
M334	38.99
M352	27.34
M353	22.05
M371	51.23
M393	25.50
M395	14.01
M396	24.18
M397	37.06
M412	34.17
M413	33.06
M414	27.87
M415	**17.43**
M433	56.15
M434	38.53
M435	33.75

M436	46.03
M437	48.18
M451	69.19
M452	46.11
M454	41.91
M472	38.06
M473	36.84
M474	47.47
M475	54.31
M492	55.37
M493	60.09
M494	49.13
M512	60.06
M513	39.88
M514	55.22
M515	42.60
M516	35.87
M517	42.57
M518	80.20
M519	46.72
M533	48.30
M534	57.38
M535	79.34
M536	55.53
M537	46.55

Minor Group 43_3: Squared Euclidian Distances

	V8	V9
M113	49.21	51.04
M114	49.58	53.30
M131	21.73	27.10
M132	16.27	21.69
M151	51.07	53.17
M152	44.08	38.14
M171	59.52	58.01
M172	74.12	73.50
M173	43.43	35.66
M191	60.11	55.94
M192	58.23	55.36
M193	46.69	50.45
M194	29.22	26.09
M211	49.60	53.57
M231	51.12	66.50
M232	14.78	23.38
M251	58.16	63.04
M252	51.47	57.09
M254	40.04	37.43
M255	47.52	50.39
M271	73.33	70.03
M272	53.14	49.69
M273	36.31	38.60
M274	45.79	42.07
M291	63.02	67.87
M292	34.56	36.44
M312	66.38	71.34
M313	28.10	34.42
M332	55.20	60.94
M333	38.04	47.68
M334	47.26	52.75
M352	32.35	29.36
M353	23.64	31.07
M371	46.72	41.71
M393	25.16	28.55
M395	46.95	47.87
M396	38.52	49.24
M397	59.59	61.43
M412	17.35	36.49
M413	24.88	36.85
M414	35.63	46.72
M415	41.68	50.13
M433	**4.37**	**10.64**
M434	11.84	18.14
M435	18.15	18.03

M436	10.25	20.30
M437	12.60	8.06
M451	53.01	52.16
M452	39.88	36.53
M454	44.87	31.15
M472	44.71	33.39
M473	43.48	36.45
M474	39.70	34.68
M475	46.18	42.31
M492	37.85	34.56
M493	47.94	49.27
M494	39.46	37.96
M512	42.51	33.25
M513	32.35	19.91
M514	38.93	25.12
M515	37.08	19.27
M516	34.33	22.22
M517	42.59	29.51
M518	36.87	29.41
M519	34.56	20.56
M533	39.56	48.60
M534	40.73	41.36
M535	60.83	69.85
M536	29.05	29.08
M537	35.88	27.55

Minor Group 43_4: Squared Euclidian Distances

	V14	V19	V27	V31
M113	42.59	55.52	65.97	39.65
M114	42.09	55.28	57.89	34.89
M131	17.11	19.71	25.36	15.40
M132	13.95	19.89	38.47	24.68
M151	40.87	59.37	60.77	41.26
M152	39.90	44.14	71.40	51.95
M171	58.99	61.30	74.31	46.89
M172	65.47	84.80	93.71	62.42
M173	39.75	46.03	55.46	41.83
M191	55.07	58.04	66.98	52.71
M192	54.13	62.30	77.29	58.97
M193	44.08	42.51	45.58	43.99
M194	28.36	32.18	41.96	35.22
M211	37.44	37.61	29.15	31.03
M231	49.62	43.00	42.58	51.53
M232	13.73	11.97	21.51	22.52
M251	49.51	53.01	45.65	53.81
M252	42.62	44.39	34.93	36.98
M254	33.75	35.99	35.73	27.67
M255	37.84	40.78	37.78	26.83
M271	69.48	60.42	52.29	45.84
M272	45.03	38.05	35.13	26.53
M273	30.01	20.81	17.33	19.10
M274	42.24	37.48	40.92	28.53
M291	54.19	59.62	50.39	57.07
M292	27.52	28.82	23.58	28.67
M312	52.54	56.30	35.38	50.47
M313	26.51	24.79	21.71	27.48
M332	53.32	51.35	51.08	43.19
M333	36.89	30.54	32.44	30.33
M334	42.03	34.23	32.40	28.88
M352	28.97	24.41	21.95	19.68
M353	22.89	17.45	14.51	18.12
M371	37.61	42.58	40.07	29.45
M393	23.64	17.53	17.62	16.61
M395	45.82	33.86	23.25	31.28
M396	32.25	31.31	22.46	20.90
M397	49.46	49.34	36.50	35.64
M412	17.89	23.38	21.93	16.42
M413	17.65	22.31	25.74	11.40
M414	23.08	32.12	23.42	13.15
M415	29.44	34.03	26.93	13.45
M433	5.68	4.99	18.86	14.73
M434	**8.23**	**4.34**	**8.32**	**9.06**
M435	15.07	11.11	14.34	10.99

M436	10.50	8.66	12.81	13.59
M437	12.32	5.83	16.99	15.45
M451	48.10	55.27	55.84	43.06
M452	40.75	38.07	41.82	33.52
M454	42.07	31.80	37.78	32.25
M472	44.15	36.46	37.11	36.05
M473	42.31	36.39	32.89	36.27
M474	40.08	32.56	36.53	31.43
M475	50.02	41.53	46.49	41.45
M492	35.92	36.41	36.46	30.60
M493	48.53	49.72	48.58	40.70
M494	40.63	38.63	38.63	33.46
M512	44.10	41.97	45.64	42.89
M513	31.86	22.35	28.64	25.31
M514	38.32	34.74	40.85	35.19
M515	35.28	24.39	30.36	28.77
M516	35.43	23.91	26.56	28.16
M517	42.66	34.90	38.77	35.84
M518	37.34	35.63	45.33	38.36
M519	34.25	27.06	32.06	30.61
M533	39.45	35.93	37.73	30.65
M534	42.58	32.80	36.74	35.41
M535	69.16	60.50	68.99	59.52
M536	29.68	25.31	32.51	24.56
M537	37.41	26.49	30.77	31.63

Minor Group 43_5: Squared Euclidian Distances

	V39	V45	V48
M113	43.32	52.38	48.13
M114	35.81	38.46	44.19
M131	19.50	24.27	19.69
M132	32.58	43.12	23.03
M151	46.91	49.72	58.65
M152	68.95	72.79	45.71
M171	60.93	42.86	56.38
M172	74.17	63.01	74.22
M173	47.71	40.47	37.85
M191	57.83	55.36	55.43
M192	68.10	65.10	59.08
M193	47.99	45.47	45.38
M194	35.72	35.25	30.59
M211	29.55	37.76	42.37
M231	53.55	59.76	60.64
M232	23.28	40.32	22.15
M251	51.65	51.59	55.07
M252	34.73	32.26	47.59
M254	29.47	27.12	35.75
M255	29.60	25.25	37.74
M271	52.15	32.71	48.19
M272	25.99	23.80	32.14
M273	20.64	29.46	28.34
M274	25.26	31.49	36.71
M291	50.29	48.44	63.20
M292	23.86	28.28	30.51
M312	39.80	40.46	53.73
M313	21.53	21.47	27.37
M332	37.45	29.92	53.32
M333	26.50	29.34	41.31
M334	23.84	26.18	39.00
M352	14.84	15.98	13.52
M353	14.49	9.27	12.74
M371	24.95	30.93	28.23
M393	12.64	13.08	19.26
M395	29.56	14.85	29.13
M396	14.40	16.93	31.05
M397	29.41	25.76	44.24
M412	17.50	7.42	24.71
M413	19.73	23.93	23.89
M414	17.41	17.44	28.24
M415	18.80	16.66	32.40
M433	18.13	27.84	11.67
M434	9.99	22.60	12.14
M435	**7.90**	**15.40**	**9.47**

M436	12.76	21.71	14.41
M437	15.83	27.02	9.74
M451	36.23	35.89	42.53
M452	28.98	19.23	23.62
M454	27.31	26.05	18.50
M472	31.82	18.26	19.33
M473	29.43	13.76	20.86
M474	27.09	24.38	21.15
M475	33.89	27.33	29.02
M492	27.64	24.89	29.23
M493	36.28	25.79	35.24
M494	30.21	19.30	28.18
M512	39.95	25.38	29.62
M513	20.05	23.28	10.99
M514	31.33	26.99	21.45
M515	25.86	27.70	16.76
M516	24.22	21.12	14.30
M517	33.97	22.01	18.86
M518	32.98	42.77	27.91
M519	26.75	24.43	17.48
M533	20.97	29.81	34.88
M534	24.61	37.57	33.61
M535	50.55	53.10	58.62
M536	21.38	28.45	24.25
M537	23.98	25.72	15.44

Minor Group 43_6: Squared Euclidian Distances

	V52
M113	55.09
M114	49.77
M131	21.23
M132	26.03
M151	52.91
M152	58.35
M171	69.31
M172	83.54
M173	46.22
M191	61.00
M192	66.78
M193	52.11
M194	32.37
M211	34.45
M231	50.90
M232	16.08
M251	49.21
M252	42.83
M254	37.66
M255	41.43
M271	59.73
M272	41.94
M273	24.67
M274	40.44
M291	48.77
M292	20.36
M312	43.09
M313	18.21
M332	53.31
M333	37.12
M334	39.46
M352	21.72
M353	14.19
M371	36.40
M393	18.62
M395	30.02
M396	28.29
M397	43.42
M412	18.42
M413	22.62
M414	26.33
M415	32.19
M433	7.80
M434	6.23
M435	12.18

M436	**4.44**
M437	10.86
M451	49.81
M452	38.54
M454	37.48
M472	38.26
M473	35.53
M474	36.34
M475	45.60
M492	32.72
M493	46.28
M494	36.55
M512	41.80
M513	25.77
M514	36.44
M515	28.31
M516	26.02
M517	38.26
M518	35.60
M519	29.03
M533	36.43
M534	36.49
M535	64.41
M536	29.75
M537	29.71

Minor Group 43_7: Squared Euclidian Distances

	V55	V65
M113	56.91	75.19
M114	57.71	82.94
M131	26.93	43.08
M132	26.06	29.36
M151	52.19	63.87
M152	40.23	24.87
M171	58.46	65.49
M172	76.67	80.12
M173	35.89	45.83
M191	54.78	58.49
M192	54.71	49.08
M193	46.97	52.73
M194	29.65	39.83
M211	50.53	77.90
M231	62.70	79.15
M232	22.32	34.37
M251	59.55	73.90
M252	52.77	75.32
M254	36.00	58.33
M255	46.70	68.52
M271	57.08	92.50
M272	42.39	71.69
M273	28.82	53.03
M274	37.70	62.73
M291	65.22	92.69
M292	33.08	60.84
M312	64.23	98.46
M313	30.24	60.62
M332	63.55	87.84
M333	48.19	71.63
M334	52.01	77.93
M352	26.72	61.45
M353	25.80	59.60
M371	43.22	75.51
M393	25.22	56.82
M395	36.99	80.84
M396	47.00	81.48
M397	60.39	99.75
M412	32.64	63.15
M413	35.09	54.64
M414	41.47	68.46
M415	46.70	76.94
M433	10.45	25.51
M434	14.43	36.19
M435	16.47	42.72

M436	15.66	41.97
M437	**4.60**	**21.11**
M451	56.08	84.59
M452	36.51	63.16
M454	31.24	55.64
M472	30.17	58.71
M473	35.13	66.81
M474	32.87	58.35
M475	41.24	69.82
M492	31.19	58.91
M493	44.49	75.13
M494	33.71	64.39
M512	32.26	56.57
M513	18.16	45.38
M514	26.17	50.34
M515	15.53	42.64
M516	17.46	49.07
M517	25.89	52.22
M518	31.16	53.31
M519	19.50	46.06
M533	50.02	81.85
M534	42.33	72.80
M535	70.43	99.86
M536	29.16	49.97
M537	24.86	53.43

Minor Group 45_1: Squared Euclidian Distances

	V4
M113	28.44
M114	16.85
M131	25.67
M132	40.09
M151	54.53
M152	68.42
M171	55.28
M172	54.14
M173	43.19
M191	41.00
M192	57.65
M193	49.36
M194	29.20
M211	39.53
M231	75.13
M232	46.25
M251	44.19
M252	42.83
M254	38.58
M255	28.15
M271	55.81
M272	38.30
M273	54.82
M274	33.89
M291	38.39
M292	29.01
M312	48.13
M313	30.33
M332	40.40
M333	45.40
M334	39.54
M352	20.99
M353	37.40
M371	11.98
M393	33.34
M395	43.30
M396	41.24
M397	29.55
M412	41.00
M413	41.88
M414	39.31
M415	39.85
M433	45.76
M434	43.65
M435	30.68

M436	40.37
M437	45.11
M451	**4.06**
M452	18.61
M454	27.38
M472	31.30
M473	34.91
M474	28.05
M475	29.60
M492	38.14
M493	35.19
M494	31.10
M512	33.19
M513	24.35
M514	27.11
M515	29.98
M516	30.10
M517	32.22
M518	30.54
M519	26.94
M533	36.29
M534	33.32
M535	40.46
M536	28.76
M537	26.05

Minor Group 45_2: Squared Euclidian Distances

	V7
M113	52.95
M114	44.99
M131	22.36
M132	36.74
M151	46.71
M152	46.12
M171	38.78
M172	43.75
M173	37.83
M191	11.55
M192	28.19
M193	29.91
M194	13.56
M211	48.56
M231	39.85
M232	35.20
M251	51.45
M252	44.10
M254	33.33
M255	37.11
M271	57.36
M272	45.53
M273	33.20
M274	37.13
M291	32.84
M292	24.45
M312	54.95
M313	22.63
M332	31.66
M333	28.50
M334	37.89
M352	33.18
M353	39.60
M371	47.52
M393	36.62
M395	38.63
M396	41.45
M397	49.53
M412	34.99
M413	35.11
M414	36.19
M415	40.72
M433	38.77
M434	36.30
M435	27.84

M436	38.42
M437	35.15
M451	34.46
M452	**17.47**
M454	27.82
M472	37.33
M473	36.91
M474	30.40
M475	37.72
M492	33.23
M493	35.15
M494	31.43
M512	30.53
M513	28.59
M514	31.35
M515	32.02
M516	32.37
M517	35.28
M518	32.16
M519	28.48
M533	44.22
M534	39.10
M535	56.47
M536	23.48
M537	33.78

Minor Group 45_4: Squared Euclidian Distances

	V18
M113	59.48
M114	47.20
M131	30.80
M132	47.96
M151	72.75
M152	75.08
M171	60.25
M172	72.38
M173	42.82
M191	56.98
M192	63.59
M193	50.98
M194	33.17
M211	42.35
M231	65.37
M232	45.62
M251	58.29
M252	48.65
M254	44.92
M255	40.19
M271	51.99
M272	38.13
M273	42.88
M274	30.63
M291	51.49
M292	28.39
M312	42.27
M313	24.10
M332	31.93
M333	29.02
M334	26.23
M352	19.13
M353	23.26
M371	28.33
M393	22.24
M395	29.50
M396	25.81
M397	33.09
M412	35.23
M413	42.05
M414	38.07
M415	37.74
M433	39.50
M434	34.23
M435	18.53

M436	39.87
M437	32.82
M451	30.88
M452	14.94
M454	**8.15**
M472	13.00
M473	14.69
M474	7.43
M475	7.76
M492	24.50
M493	20.40
M494	18.59
M512	20.61
M513	16.19
M514	16.89
M515	16.63
M516	16.25
M517	15.70
M518	20.30
M519	16.00
M533	18.83
M534	12.59
M535	23.53
M536	15.84
M537	4.91

Minor Group 47_2: Squared Euclidian Distances

	V3	V4	V12	V16	V20	V23	V27	V34
M113	57.81	53.52	57.88	53.43	71.42	54.12	53.33	41.52
M114	46.45	46.50	46.31	39.21	62.15	44.88	39.05	30.42
M131	39.32	33.99	32.81	29.49	39.76	29.09	28.98	29.36
M132	59.59	44.52	47.16	49.79	53.42	43.68	46.25	49.70
M151	49.52	50.03	52.93	45.93	91.01	57.59	46.29	37.00
M152	75.30	55.16	59.43	67.36	76.38	54.53	59.39	68.43
M171	50.24	45.66	35.94	38.05	64.79	35.04	29.43	39.74
M172	42.12	56.25	60.78	52.49	84.79	59.19	50.85	42.18
M173	28.39	31.02	31.26	27.74	51.85	29.64	26.10	23.65
M191	56.80	52.75	55.93	51.12	70.34	50.99	47.82	52.25
M192	54.17	55.42	58.95	55.67	71.93	53.80	50.76	57.01
M193	58.08	46.14	46.52	44.59	58.07	44.29	43.59	46.63
M194	33.22	31.01	36.49	31.17	45.09	36.86	30.36	28.22
M211	58.53	53.74	47.15	42.08	55.82	49.38	45.28	39.12
M231	79.93	78.53	80.29	74.92	72.48	74.54	80.42	76.03
M232	62.10	50.45	48.69	48.75	52.57	44.70	47.53	52.38
M251	62.35	61.38	51.27	47.33	71.67	55.13	47.83	48.22
M252	52.66	45.58	39.50	34.93	63.51	44.10	37.38	35.48
M254	45.88	34.13	29.90	28.97	59.17	30.30	28.15	29.01
M255	38.44	37.89	29.99	26.27	52.59	28.34	26.27	25.74
M271	50.25	45.19	27.38	27.02	61.93	25.80	28.67	32.40
M272	41.45	32.19	26.27	23.21	48.76	24.17	26.87	26.48
M273	56.97	46.67	37.11	35.81	51.87	33.21	36.69	43.42
M274	28.05	37.92	33.46	25.77	39.27	27.76	24.85	22.61
M291	53.85	61.01	61.56	49.21	74.15	64.05	55.26	41.47
M292	37.90	38.35	38.18	29.69	45.60	38.62	33.21	28.11
M312	54.18	53.96	50.89	38.33	65.57	57.27	47.14	39.32
M313	33.44	34.57	36.20	27.37	39.52	33.97	29.66	26.85
M332	32.85	44.28	41.43	30.03	45.01	45.07	31.91	29.73
M333	44.72	47.66	46.82	39.36	38.24	44.01	38.61	40.54
M334	41.33	44.82	38.55	30.84	36.22	39.17	29.83	32.64
M352	30.52	20.97	18.22	13.87	33.48	16.60	15.85	17.22
M353	38.66	26.09	20.30	17.29	35.90	20.58	19.13	26.76
M371	36.91	32.05	30.74	24.25	43.67	31.14	26.30	17.90
M393	33.10	28.51	25.90	21.39	32.03	21.57	20.68	22.73
M395	41.75	32.26	20.00	17.97	44.58	19.25	20.81	24.51
M396	45.87	42.42	33.23	25.78	42.89	36.09	25.96	33.58
M397	42.29	42.07	33.59	25.89	51.27	38.23	29.98	23.61
M412	37.93	31.92	31.04	25.98	49.32	31.13	28.71	29.06
M413	55.55	46.03	36.85	36.81	53.42	37.11	34.78	41.47
M414	48.65	39.43	34.00	29.35	55.99	34.85	28.72	32.49
M415	48.29	41.52	30.12	27.68	53.59	33.24	25.79	30.23
M433	53.56	34.86	35.66	38.64	45.48	32.74	35.24	42.36
M434	52.31	36.41	33.08	33.71	42.62	30.68	32.27	38.91
M435	33.63	22.04	20.65	17.71	30.27	19.23	17.52	22.49

M436	48.73	38.66	35.06	33.44	49.84	32.22	34.43	37.37
M437	43.99	24.67	26.42	28.28	38.62	21.58	25.60	32.54
M451	33.16	35.83	42.26	31.18	47.84	41.84	32.01	18.94
M452	20.63	15.43	21.02	13.12	29.03	19.86	14.89	14.90
M454	26.04	16.30	16.76	12.97	18.78	14.69	11.74	19.17
M472	**17.11**	**7.56**	**6.70**	**2.75**	**24.03**	**7.13**	**4.58**	**8.01**
M473	21.61	10.81	8.76	3.56	30.32	12.97	7.47	11.12
M474	14.37	18.45	21.03	12.80	14.25	16.02	13.38	15.35
M475	9.90	20.95	26.53	15.77	13.54	19.77	18.62	16.50
M492	15.83	22.98	25.68	15.96	37.58	26.09	21.34	14.77
M493	9.17	20.99	30.56	16.90	33.50	28.05	25.15	14.25
M494	9.40	15.98	21.57	11.73	30.00	20.30	17.27	9.27
M512	11.07	14.30	19.06	11.43	31.65	18.06	14.66	9.14
M513	27.12	13.66	16.79	13.82	26.92	12.85	14.51	17.28
M514	14.17	11.64	17.31	11.18	27.73	17.15	13.37	8.82
M515	22.74	16.03	18.00	15.27	24.41	11.12	15.43	14.56
M516	21.34	13.04	13.49	10.40	25.31	10.05	12.76	11.67
M517	15.74	7.81	9.66	6.29	24.40	7.32	8.56	8.80
M518	19.79	30.58	42.46	31.17	28.11	36.96	35.58	25.53
M519	18.74	13.58	16.54	12.10	26.16	13.74	12.93	10.32
M533	36.93	45.96	45.94	34.38	30.33	42.96	31.28	34.05
M534	30.44	45.06	46.90	34.94	18.63	38.72	33.74	32.51
M535	30.67	63.32	65.90	50.61	23.00	53.03	49.24	46.36
M536	22.04	29.54	33.11	24.38	22.20	27.05	23.84	22.70
M537	18.58	16.74	20.79	13.88	11.55	15.54	15.04	16.52

Minor Group 47_3: Squared Euclidian Distances

	V43
M113	60.22
M114	47.28
M131	30.97
M132	48.91
M151	49.60
M152	73.34
M171	47.20
M172	57.12
M173	29.90
M191	53.30
M192	56.62
M193	50.07
M194	24.56
M211	44.97
M231	64.65
M232	43.43
M251	52.43
M252	39.92
M254	33.80
M255	36.04
M271	44.97
M272	34.26
M273	38.31
M274	27.71
M291	45.56
M292	24.98
M312	35.95
M313	20.25
M332	21.25
M333	27.42
M334	25.97
M352	19.67
M353	19.24
M371	32.12
M393	20.26
M395	23.80
M396	23.36
M397	28.94
M412	22.84
M413	41.69
M414	34.02
M415	33.64
M433	34.65
M434	31.25
M435	15.66

M436	31.54
M437	27.43
M451	35.11
M452	14.73
M454	13.87
M472	8.11
M473	**4.66**
M474	11.20
M475	11.67
M492	12.35
M493	15.19
M494	10.62
M512	10.10
M513	18.49
M514	12.79
M515	17.64
M516	14.46
M517	12.19
M518	24.16
M519	13.32
M533	26.55
M534	23.61
M535	38.36
M536	18.11
M537	11.88

Minor Group 47_4: Squared Euclidian Distances

	V52
M113	46.80
M114	34.48
M131	25.95
M132	44.43
M151	50.64
M152	70.85
M171	52.66
M172	49.07
M173	34.19
M191	49.33
M192	53.70
M193	47.80
M194	28.19
M211	44.06
M231	62.86
M232	44.82
M251	58.93
M252	47.31
M254	40.55
M255	37.72
M271	53.14
M272	39.48
M273	47.14
M274	36.02
M291	48.43
M292	28.27
M312	36.24
M313	27.41
M332	27.94
M333	33.08
M334	32.68
M352	22.43
M353	27.93
M371	22.18
M393	31.31
M395	37.12
M396	28.63
M397	32.86
M412	30.44
M413	39.46
M414	29.38
M415	34.96
M433	43.09
M434	38.02
M435	20.15

M436	40.16
M437	38.64
M451	23.55
M452	13.11
M454	15.31
M472	13.46
M473	13.09
M474	**9.07**
M475	13.07
M492	16.72
M493	11.33
M494	13.59
M512	16.47
M513	22.20
M514	17.02
M515	25.30
M516	23.19
M517	17.29
M518	19.68
M519	20.48
M533	28.53
M534	25.49
M535	37.20
M536	17.04
M537	12.71

Minor Group 47_5: Squared Euclidian Distances

	V55	V63
M113	51.02	59.92
M114	43.40	46.94
M131	37.93	33.04
M132	56.09	52.43
M151	60.99	58.93
M152	73.56	75.91
M171	56.24	52.72
M172	43.73	63.72
M173	42.18	38.03
M191	53.88	57.22
M192	53.36	62.53
M193	52.66	48.46
M194	39.73	31.70
M211	52.34	45.46
M231	66.74	67.99
M232	60.42	49.61
M251	57.93	58.53
M252	53.97	38.74
M254	54.81	34.16
M255	36.39	34.91
M271	65.28	47.95
M272	47.02	28.19
M273	60.46	40.65
M274	28.11	30.03
M291	51.39	55.01
M292	43.76	30.95
M312	60.68	41.45
M313	43.13	25.99
M332	30.92	27.41
M333	38.45	30.97
M334	36.37	28.20
M352	41.55	17.13
M353	55.86	19.73
M371	41.31	29.01
M393	44.19	19.12
M395	61.07	28.51
M396	48.88	27.08
M397	43.37	30.38
M412	53.60	27.26
M413	53.35	46.43
M414	56.87	36.37
M415	52.18	36.26
M433	65.76	38.05
M434	61.16	32.86
M435	43.76	16.94

M436	62.58	36.78
M437	59.89	26.84
M451	34.21	31.59
M452	30.61	12.35
M454	33.41	10.96
M472	37.98	6.26
M473	44.02	6.18
M474	21.82	8.44
M475	**16.29**	**6.75**
M492	31.86	16.77
M493	22.60	13.72
M494	26.77	10.21
M512	31.20	13.25
M513	40.77	12.90
M514	30.17	11.23
M515	38.69	14.48
M516	39.67	12.34
M517	35.38	8.74
M518	24.36	22.21
M519	35.66	12.88
M533	34.45	28.41
M534	24.99	24.57
M535	17.87	37.81
M536	21.70	19.46
M537	28.74	7.71

Minor Group 49_2: Squared Euclidian Distances

	V3	V6	V9	V17
M113	82.02	70.85	65.96	46.59
M114	75.01	64.15	55.08	41.08
M131	52.69	39.00	33.87	24.47
M132	70.63	57.10	53.73	38.89
M151	25.46	23.78	43.39	38.93
M152	81.19	65.95	73.49	53.25
M171	64.66	53.36	45.74	46.26
M172	39.04	41.85	58.89	48.72
M173	32.62	23.95	38.01	20.11
M191	65.24	50.83	53.31	46.41
M192	52.90	45.02	56.45	48.60
M193	72.26	59.29	55.18	44.27
M194	36.37	26.71	37.13	21.86
M211	70.62	55.20	46.85	44.28
M231	82.68	73.07	64.60	65.25
M232	65.59	47.27	44.40	36.37
M251	72.99	63.66	61.29	54.42
M252	63.66	51.09	43.74	42.53
M254	62.78	44.29	34.99	29.56
M255	58.05	44.36	36.87	32.06
M271	74.22	52.62	45.38	35.43
M272	68.23	46.47	31.67	27.95
M273	57.45	34.58	27.86	31.94
M274	33.92	19.26	28.28	20.89
M291	52.80	48.29	56.66	46.05
M292	40.76	28.16	31.72	23.83
M312	58.47	45.59	40.03	44.62
M313	38.03	28.01	29.86	20.11
M332	43.94	38.29	27.40	40.41
M333	54.16	42.71	29.36	39.59
M334	54.92	41.84	27.84	38.14
M352	64.16	39.55	29.80	15.06
M353	62.83	44.47	27.70	21.40
M371	73.39	52.84	42.63	26.33
M393	50.62	34.24	28.24	17.54
M395	66.51	43.95	29.49	22.77
M396	60.03	43.57	23.30	37.79
M397	70.68	54.71	35.16	38.86
M412	40.55	36.26	28.87	24.42
M413	60.56	47.06	37.32	38.62
M414	50.63	36.98	27.76	31.41
M415	55.80	41.43	27.21	35.73
M433	58.69	41.98	38.93	25.81
M434	57.40	36.85	29.56	24.93
M435	50.50	28.16	17.83	14.61

M436	53.22	37.94	33.55	23.44
M437	52.16	27.98	28.72	14.57
M451	67.31	57.14	53.83	31.19
M452	54.91	39.21	29.65	16.38
M454	67.03	39.07	23.10	17.55
M472	56.79	33.88	21.83	9.49
M473	59.08	37.66	19.57	14.22
M474	46.32	28.50	21.62	13.70
M475	46.38	32.52	28.52	16.62
M492	**18.66**	**7.38**	**18.57**	**10.10**
M493	24.42	18.47	28.56	12.21
M494	25.51	16.47	24.22	7.25
M512	32.33	20.59	28.87	7.25
M513	64.20	35.33	30.98	8.61
M514	41.45	23.89	30.86	6.44
M515	50.31	23.02	27.85	4.12
M516	51.34	26.73	28.32	4.05
M517	51.89	29.77	27.11	5.97
M518	35.87	24.30	39.84	16.37
M519	44.86	23.35	29.17	4.28
M533	52.97	43.01	35.94	36.26
M534	50.67	36.40	34.83	30.10
M535	57.83	55.51	54.61	50.05
M536	34.78	21.39	25.31	16.84
M537	53.72	31.92	25.75	11.31

Minor Group 49_3: Squared Euclidian Distances

	V27	V33	V37
M113	52.17	59.50	59.11
M114	38.54	49.04	41.93
M131	24.71	33.81	27.15
M132	44.39	53.56	52.63
M151	42.14	43.64	46.23
M152	62.16	68.29	81.36
M171	38.06	46.82	50.65
M172	51.61	42.04	57.83
M173	24.60	24.89	36.18
M191	47.93	49.35	59.93
M192	52.46	46.66	66.81
M193	41.36	50.02	53.29
M194	26.64	26.29	35.32
M211	36.41	52.67	34.70
M231	66.97	69.22	63.95
M232	40.61	52.92	44.50
M251	44.33	59.91	51.82
M252	31.69	47.44	34.29
M254	25.83	41.60	34.84
M255	24.92	37.52	26.23
M271	25.32	49.47	29.65
M272	23.89	39.12	29.20
M273	30.10	46.99	31.55
M274	24.11	23.55	23.97
M291	44.08	50.11	42.29
M292	22.42	30.53	21.38
M312	32.36	44.94	31.17
M313	19.84	25.54	16.21
M332	30.72	26.76	30.16
M333	34.05	34.00	29.49
M334	28.36	33.32	23.72
M352	10.68	30.58	13.59
M353	13.20	34.46	13.03
M371	22.23	37.53	28.21
M393	16.22	27.29	12.36
M395	12.24	37.98	12.24
M396	22.22	39.04	16.44
M397	24.39	42.30	23.60
M412	20.24	31.24	12.21
M413	31.78	50.65	27.60
M414	21.55	39.86	14.76
M415	22.42	43.02	14.72
M433	30.56	44.80	34.50
M434	24.99	42.35	24.62
M435	12.61	26.44	16.61

M436	26.22	42.53	25.48
M437	21.36	34.18	30.74
M451	29.87	33.74	33.21
M452	13.08	18.63	21.69
M454	11.77	21.24	25.34
M472	2.47	14.83	17.36
M473	3.54	19.21	16.29
M474	10.71	9.56	16.87
M475	15.92	7.27	19.70
M492	12.57	9.71	14.61
M493	**14.81**	**5.14**	**14.24**
M494	8.78	5.40	9.83
M512	9.65	8.46	19.46
M513	11.06	25.09	22.13
M514	9.81	13.31	20.89
M515	10.71	17.76	21.09
M516	6.80	19.16	15.79
M517	5.22	14.34	18.96
M518	27.95	16.25	31.37
M519	8.57	16.02	18.49
M533	30.49	31.03	21.62
M534	31.05	23.72	26.30
M535	49.85	26.58	39.92
M536	20.04	14.76	20.57
M537	11.09	13.17	19.38

Minor Group 49_4: Squared Euclidian Distances

	V41	V47	V51	V59	V62	V68
M113	50.79	56.43	75.74	62.35	49.33	69.58
M114	39.73	45.31	58.29	56.85	38.15	61.58
M131	26.75	28.12	57.30	39.72	21.61	40.08
M132	46.82	47.53	83.63	58.88	35.62	56.73
M151	30.97	47.05	51.23	54.25	38.26	51.79
M152	64.88	70.28	105.27	74.64	58.88	76.18
M171	33.72	56.37	62.38	64.76	49.13	56.09
M172	39.92	50.93	47.99	68.89	49.34	52.97
M173	18.42	35.23	38.35	45.12	23.96	36.43
M191	42.68	52.36	78.89	60.19	48.52	53.42
M192	43.94	55.30	73.89	69.99	49.10	50.24
M193	43.06	48.20	77.64	54.88	46.49	60.73
M194	17.65	27.61	44.56	40.84	19.56	28.03
M211	42.23	41.76	66.14	55.16	39.45	60.67
M231	63.46	56.50	105.35	74.84	63.96	65.71
M232	42.21	44.70	85.94	56.06	34.04	50.67
M251	49.41	57.12	70.74	71.84	51.72	73.51
M252	37.79	40.83	56.01	48.43	39.06	60.30
M254	26.03	40.34	59.83	41.48	32.50	51.71
M255	31.56	33.24	50.15	39.66	32.09	52.81
M271	35.39	53.23	64.37	46.95	43.56	73.60
M272	32.07	36.84	56.57	26.18	34.12	57.33
M273	31.34	42.10	75.89	39.55	34.86	50.46
M274	16.39	25.34	38.71	28.04	24.00	25.42
M291	39.81	43.38	56.10	61.94	42.39	56.33
M292	22.02	24.02	45.80	40.27	17.48	35.03
M312	39.94	39.49	50.44	59.37	33.97	61.00
M313	19.29	18.84	41.29	33.70	12.46	30.25
M332	20.83	25.92	32.63	49.07	32.51	26.90
M333	29.11	26.23	53.56	48.07	30.35	29.46
M334	27.72	26.29	44.45	42.15	29.19	36.14
M352	23.08	22.95	44.56	25.94	13.52	44.47
M353	26.47	26.09	48.14	31.59	13.42	49.13
M371	29.57	33.87	48.95	43.34	24.34	54.16
M393	20.60	19.95	42.21	23.91	12.93	34.91
M395	23.85	33.94	54.69	36.13	23.10	55.76
M396	28.69	29.08	46.07	47.88	22.93	44.50
M397	31.64	35.27	43.25	48.68	33.62	56.76
M412	24.48	22.53	41.48	33.28	13.02	42.58
M413	38.18	38.79	68.74	51.42	29.63	56.26
M414	31.16	30.55	51.20	42.56	18.94	55.18
M415	29.83	32.59	50.53	44.18	25.04	55.63
M433	34.76	37.40	72.33	43.00	20.94	46.93
M434	31.57	32.15	69.13	37.97	19.79	45.53
M435	17.30	21.15	47.28	28.43	10.56	31.80

M436	30.52	34.34	66.19	38.19	20.57	46.74
M437	24.80	32.04	64.22	28.35	17.10	37.89
M451	29.92	29.57	42.93	43.65	26.35	48.56
M452	16.04	17.93	33.73	25.99	13.08	32.32
M454	18.87	22.71	42.23	31.78	15.99	31.93
M472	11.71	21.00	28.72	26.32	11.00	35.95
M473	13.41	22.66	27.09	30.99	12.06	39.84
M474	12.87	11.59	29.93	29.01	9.58	19.00
M475	15.97	9.71	24.56	27.09	12.38	16.11
M492	6.20	12.32	23.57	25.08	8.34	16.45
M493	12.53	6.15	17.62	20.76	8.08	18.96
M494	**6.81**	**6.51**	**18.57**	**17.20**	**5.14**	**18.38**
M512	6.09	15.76	20.76	25.68	9.41	22.37
M513	20.03	22.14	47.33	19.68	12.79	36.41
M514	9.41	15.76	25.95	21.60	9.29	25.16
M515	12.69	20.61	44.31	19.21	11.62	27.28
M516	12.06	19.31	39.61	17.19	10.25	31.95
M517	12.23	19.84	31.15	21.56	10.88	33.61
M518	18.74	14.72	38.58	30.98	14.49	15.42
M519	9.13	18.01	33.67	20.65	8.83	26.56
M533	28.60	21.57	38.75	44.97	19.81	29.52
M534	23.03	19.43	43.89	42.88	20.80	16.91
M535	38.19	25.42	47.65	59.27	35.98	19.21
M536	13.53	13.10	37.08	30.90	12.69	13.02
M537	14.64	14.24	36.88	25.25	8.52	22.78

Minor Group 51_2: Squared Euclidian Distances

	V5	V9
M113	48.85	55.86
M114	44.32	48.64
M131	26.01	33.57
M132	37.62	43.94
M151	44.89	45.92
M152	54.24	44.67
M171	48.68	44.67
M172	51.06	37.76
M173	23.90	16.88
M191	39.61	46.78
M192	43.37	39.05
M193	41.94	44.38
M194	13.48	26.39
M211	47.27	58.23
M231	56.70	80.58
M232	34.74	50.32
M251	55.96	53.13
M252	47.02	52.69
M254	30.42	43.49
M255	41.25	40.11
M271	55.19	44.59
M272	37.82	45.08
M273	36.44	52.68
M274	25.18	39.74
M291	43.57	55.27
M292	23.10	37.33
M312	47.59	51.32
M313	20.41	37.82
M332	29.53	52.04
M333	30.49	58.18
M334	34.26	55.22
M352	22.13	28.86
M353	29.25	37.11
M371	30.55	34.93
M393	24.09	40.88
M395	34.74	40.44
M396	38.15	53.80
M397	41.08	52.03
M412	34.33	42.87
M413	44.96	50.17
M414	42.76	42.27
M415	45.23	49.59
M433	29.36	43.34
M434	29.91	45.46
M435	14.98	30.97

M436	30.74	46.84
M437	18.70	33.55
M451	29.67	39.13
M452	12.61	21.87
M454	11.62	21.81
M472	12.59	9.82
M473	14.19	16.02
M474	11.28	17.29
M475	13.97	22.61
M492	12.13	20.91
M493	16.33	18.66
M494	11.90	17.22
M512	**7.65**	**9.48**
M513	11.14	21.10
M514	5.88	11.27
M515	7.93	18.30
M516	9.64	17.34
M517	11.10	7.36
M518	9.40	26.15
M519	5.54	14.18
M533	31.46	54.75
M534	20.75	48.45
M535	41.61	64.93
M536	12.24	28.71
M537	8.59	19.64

Minor Group 51_3: Squared Euclidian Distances

	V12	V19
M113	51.88	51.93
M114	43.13	48.00
M131	25.36	28.70
M132	38.31	38.86
M151	56.35	51.64
M152	51.25	55.62
M171	47.25	64.97
M172	63.51	61.80
M173	34.17	36.20
M191	44.55	47.45
M192	54.59	55.22
M193	45.07	48.73
M194	30.74	22.44
M211	42.05	43.82
M231	70.49	64.34
M232	38.60	36.95
M251	53.92	53.75
M252	44.23	45.07
M254	32.44	40.01
M255	29.85	36.81
M271	30.23	55.92
M272	26.90	32.73
M273	28.94	34.60
M274	28.31	23.04
M291	52.52	43.65
M292	28.96	25.33
M312	50.81	51.22
M313	28.68	24.00
M332	50.73	42.42
M333	45.37	39.44
M334	39.50	34.15
M352	8.70	16.14
M353	19.62	27.91
M371	26.50	33.64
M393	21.84	22.31
M395	18.38	38.08
M396	32.68	37.54
M397	36.70	41.75
M412	34.34	36.22
M413	28.93	38.08
M414	29.46	40.31
M415	28.80	39.30
M433	29.65	30.29
M434	25.61	27.78
M435	15.36	18.49

M436	30.45	31.13
M437	19.52	21.33
M451	37.75	34.82
M452	17.50	19.79
M454	11.73	19.14
M472	12.64	25.21
M473	16.97	27.16
M474	19.14	22.47
M475	25.55	22.95
M492	25.95	21.85
M493	30.34	24.75
M494	23.52	20.76
M512	22.25	22.84
M513	**5.88**	**9.68**
M514	14.20	11.34
M515	7.98	13.14
M516	6.97	12.17
M517	10.14	19.48
M518	29.45	14.25
M519	10.04	11.28
M533	39.25	30.14
M534	35.48	25.70
M535	60.66	50.22
M536	25.51	19.42
M537	15.49	17.03

Minor Group 51_4: Squared Euclidian Distances

	V21	V22	V32	V36	V40	V44	V50	V55	V62
M113	55.00	53.61	62.60	48.63	49.64	49.06	55.97	53.45	48.68
M114	53.27	45.87	53.48	40.13	42.21	43.48	45.65	42.74	41.47
M131	32.28	29.51	40.83	27.56	25.65	23.72	33.34	32.95	24.04
M132	39.16	43.52	53.17	44.01	37.35	34.45	49.08	52.16	33.03
M151	20.87	46.19	47.80	50.13	40.65	48.43	40.87	45.78	43.87
M152	28.34	54.67	55.07	66.53	50.26	52.09	55.18	70.77	45.35
M171	31.38	53.34	54.12	52.49	48.84	52.63	30.14	59.48	45.33
M172	23.19	46.42	43.80	56.62	46.29	61.12	32.64	50.73	48.18
M173	7.66	25.23	23.73	31.66	21.25	27.57	13.62	29.12	22.73
M191	34.86	43.30	53.55	47.85	41.85	45.76	44.65	50.66	41.54
M192	22.50	44.89	47.97	55.92	43.84	51.82	38.86	53.64	42.03
M193	39.47	47.24	56.56	46.65	43.43	40.81	45.90	47.30	43.11
M194	19.06	19.62	29.27	22.68	14.85	18.87	19.97	24.68	16.46
M211	58.83	45.97	59.09	42.81	42.66	39.69	53.19	36.02	43.55
M231	78.52	68.49	95.10	64.46	66.27	59.93	79.09	68.50	68.69
M232	43.55	44.30	58.36	44.16	37.62	31.60	52.70	47.65	35.63
M251	45.85	54.91	56.80	56.35	48.20	49.36	51.80	42.00	50.92
M252	50.81	47.46	53.32	40.00	40.93	40.90	46.26	33.64	42.78
M254	39.73	38.74	49.28	31.69	33.62	30.86	36.84	35.42	34.03
M255	36.83	38.27	41.04	31.97	33.30	34.17	36.70	30.30	34.85
M271	44.14	52.34	51.37	46.37	45.24	43.04	39.98	48.91	49.33
M272	48.56	39.00	47.02	24.65	33.06	28.07	42.94	33.77	34.85
M273	40.91	41.93	57.66	36.77	36.46	29.08	48.60	40.75	36.93
M274	22.55	26.40	33.66	19.71	21.75	22.33	25.82	20.42	24.70
M291	49.14	44.84	55.68	45.53	39.70	43.56	49.74	32.90	46.17
M292	36.00	25.08	37.79	25.01	20.30	21.37	33.60	20.18	23.07
M312	64.89	45.65	52.77	45.38	40.67	43.01	52.36	30.89	45.90
M313	37.38	26.39	39.45	19.53	18.77	18.46	33.01	21.75	21.50
M332	53.16	36.65	50.54	27.46	33.28	36.65	31.71	31.83	36.17
M333	58.69	40.06	59.38	30.13	35.70	34.00	43.56	35.98	35.95
M334	55.66	36.97	50.07	26.50	31.89	30.64	40.45	31.41	33.01
M352	40.33	20.06	27.69	14.37	13.48	12.40	28.89	17.58	14.24
M353	50.20	33.02	41.24	20.58	23.04	18.72	37.33	31.18	21.93
M371	50.28	29.62	37.11	26.46	26.33	24.79	35.42	25.79	26.79
M393	41.55	29.37	40.30	14.21	20.91	16.37	33.13	23.97	20.91
M395	49.50	38.31	46.69	28.13	28.75	23.82	36.72	32.52	32.79
M396	61.30	39.16	50.53	30.27	32.69	32.12	44.22	31.61	31.95
M397	64.16	40.64	50.67	31.67	35.25	35.55	41.91	26.79	38.54
M412	46.77	41.60	49.07	24.82	29.75	28.75	40.08	37.45	30.79
M413	43.72	43.06	52.54	41.17	37.44	36.07	48.17	47.27	34.82
M414	46.11	39.38	44.11	36.34	33.42	34.97	44.26	38.00	32.86
M415	49.43	40.56	46.77	35.20	34.46	35.44	43.71	37.50	34.77
M433	37.88	38.83	49.70	32.16	28.41	22.62	44.67	44.04	24.22
M434	42.63	36.03	49.01	29.97	27.78	21.28	46.05	37.27	25.21
M435	36.01	20.44	32.74	15.39	14.35	11.06	28.46	22.23	12.88

M436	41.56	40.79	53.36	30.53	30.63	23.88	46.75	41.10	29.32
M437	26.30	27.53	38.14	22.23	19.17	12.86	33.67	31.41	15.79
M451	51.10	31.53	40.13	24.49	27.22	28.16	36.74	27.57	29.74
M452	36.53	15.71	25.77	9.08	10.79	12.51	19.90	19.29	11.91
M454	39.04	12.16	21.96	11.62	9.83	10.04	19.03	16.74	8.41
M472	30.33	14.11	16.81	10.92	8.82	9.28	10.10	15.11	9.72
M473	41.28	17.95	22.18	12.60	11.41	12.28	14.54	17.00	13.09
M474	32.07	11.81	21.28	10.77	9.94	11.72	14.30	14.76	9.89
M475	38.90	14.98	24.55	7.41	11.97	14.52	16.36	13.45	13.66
M492	20.62	13.59	20.84	13.68	9.90	14.86	14.39	14.26	14.65
M493	30.22	14.82	20.86	10.56	11.89	18.80	17.58	15.04	17.89
M494	24.85	12.97	19.54	6.93	8.18	12.29	12.96	12.77	13.44
M512	16.93	11.25	15.75	10.02	6.85	11.08	4.94	13.14	11.28
M513	31.24	11.79	20.33	8.47	6.82	4.90	22.34	15.01	6.50
M514	**17.92**	**5.02**	**10.91**	**5.92**	**1.58**	**5.23**	**8.10**	**8.19**	**4.26**
M515	20.94	10.36	19.72	8.46	6.53	3.71	16.09	12.18	7.98
M516	23.65	11.37	19.78	7.41	5.52	3.14	15.67	12.31	8.14
M517	22.25	10.96	13.83	9.36	6.14	7.10	8.70	13.11	7.72
M518	27.81	9.68	25.42	12.32	9.70	13.11	22.86	15.50	12.07
M519	18.35	7.59	15.43	6.82	3.01	3.05	10.61	9.75	5.35
M533	56.70	32.97	46.42	23.51	27.19	28.41	41.28	28.95	26.33
M534	49.52	25.20	45.29	18.55	22.68	20.87	34.30	21.98	23.26
M535	66.34	45.57	64.26	31.48	43.16	44.21	45.95	40.20	44.14
M536	26.64	15.63	29.34	14.35	13.52	14.80	20.23	17.95	14.03
M537	35.29	11.18	23.20	7.08	7.48	5.52	18.61	13.14	7.74

Minor Group 51_5: Squared Euclidian Distances

	V67	V74	V78	V83	V88
M113	46.73	60.89	57.56	53.07	50.43
M114	41.88	55.92	54.60	45.79	39.69
M131	25.14	27.72	30.22	26.72	28.88
M132	35.93	39.64	43.71	42.00	46.91
M151	47.80	46.84	44.89	33.36	47.28
M152	53.36	48.09	43.89	48.28	70.47
M171	48.15	41.78	39.62	32.20	56.45
M172	52.95	55.78	49.89	41.64	54.07
M173	24.88	27.52	21.70	17.09	31.16
M191	41.44	37.63	42.52	35.14	48.87
M192	46.65	39.60	41.77	36.88	53.10
M193	41.67	43.08	42.73	44.92	44.95
M194	15.21	25.05	31.03	20.38	25.43
M211	47.38	50.53	50.93	47.71	38.16
M231	60.42	60.63	70.26	71.49	63.13
M232	35.98	36.55	41.65	40.64	45.71
M251	56.10	58.23	55.92	54.78	44.29
M252	47.66	49.25	51.31	46.75	37.60
M254	31.76	31.58	33.61	27.76	32.64
M255	39.88	36.13	34.40	31.54	29.23
M271	50.64	40.98	26.69	27.17	46.10
M272	34.33	34.49	32.06	32.29	32.93
M273	36.72	22.11	25.04	24.15	37.58
M274	26.31	19.66	22.09	13.87	20.98
M291	45.65	51.84	57.80	46.88	36.82
M292	25.65	28.88	35.94	25.61	22.51
M312	49.01	61.32	60.36	54.08	40.59
M313	22.87	24.70	37.37	24.37	21.79
M332	31.67	46.42	56.88	42.60	33.90
M333	34.00	38.44	52.82	41.62	37.91
M334	34.31	41.50	49.41	39.42	35.08
M352	18.30	27.90	27.40	21.12	23.87
M353	25.57	30.54	37.74	30.40	30.79
M371	27.91	47.45	41.35	35.99	27.45
M393	23.43	20.84	32.23	22.47	21.69
M395	32.68	28.80	27.63	21.32	32.42
M396	36.84	41.46	49.71	37.22	36.33
M397	39.54	53.69	52.86	44.30	34.25
M412	33.46	32.37	45.31	32.74	31.20
M413	41.67	35.92	38.36	32.37	42.43
M414	41.77	38.37	38.55	30.13	39.13
M415	43.28	39.46	38.96	29.27	38.51
M433	29.22	26.51	37.64	30.98	40.13
M434	30.45	26.12	33.87	29.13	36.29
M435	14.61	20.77	25.74	18.69	25.47

M436	31.14	28.13	38.00	31.32	35.47
M437	19.40	14.14	21.70	17.86	31.64
M451	28.55	52.40	54.76	42.45	25.83
M452	9.82	27.92	32.80	22.37	21.49
M454	9.67	25.49	25.17	19.53	26.06
M472	9.65	26.46	21.35	17.83	22.48
M473	10.73	33.29	30.59	24.98	26.05
M474	11.39	24.87	26.16	20.14	19.99
M475	13.76	27.86	34.31	26.33	16.62
M492	14.53	23.21	23.10	13.69	17.60
M493	17.39	32.34	33.09	24.28	17.70
M494	13.06	24.57	26.39	16.83	14.17
M512	7.73	21.82	21.30	13.52	15.69
M513	8.50	20.14	19.87	15.71	22.36
M514	4.57	21.87	19.78	12.75	15.20
M515	**8.25**	**9.31**	**8.90**	**5.16**	**14.44**
M516	7.87	15.06	13.08	9.07	16.68
M517	8.28	20.35	14.97	12.86	19.37
M518	11.40	26.21	32.48	23.62	16.57
M519	4.73	14.89	14.03	7.73	14.45
M533	31.47	41.80	55.70	38.22	33.91
M534	22.59	29.54	43.41	30.14	22.76
M535	44.26	47.20	68.02	51.29	31.67
M536	14.38	20.92	27.20	18.37	19.94
M537	7.98	21.73	25.33	19.34	16.82

Minor Group 51_6: Squared Euclidian Distances

	V96	V100	V106	V109
M113	49.77	54.04	54.13	47.80
M114	40.59	43.12	45.81	44.06
M131	25.03	28.70	30.86	28.05
M132	39.83	47.04	50.16	39.25
M151	45.33	40.47	37.29	55.98
M152	58.52	56.97	68.32	63.90
M171	44.09	35.09	55.74	65.94
M172	56.47	50.11	45.65	65.89
M173	26.39	22.21	25.54	37.65
M191	46.34	46.23	49.69	52.89
M192	51.80	50.31	51.07	59.60
M193	40.72	42.38	45.25	47.53
M194	19.95	28.43	20.79	24.19
M211	37.48	42.19	42.38	43.85
M231	63.28	74.50	62.37	59.24
M232	36.16	45.24	45.59	38.74
M251	46.38	47.50	47.97	61.98
M252	34.90	36.23	37.82	45.81
M254	26.30	24.77	36.01	35.78
M255	29.15	25.29	33.11	40.67
M271	34.75	16.77	44.53	59.47
M272	25.86	25.43	31.96	31.42
M273	27.68	27.21	36.85	37.40
M274	17.77	20.77	18.31	27.45
M291	40.97	45.29	34.73	48.21
M292	20.99	26.90	21.91	25.82
M312	41.88	46.37	37.35	49.59
M313	18.06	24.71	19.80	21.59
M332	31.32	45.93	28.31	39.65
M333	31.86	46.45	36.23	34.77
M334	28.31	41.29	31.86	36.37
M352	9.84	13.14	21.35	18.19
M353	16.99	20.40	28.56	24.78
M371	25.00	30.14	33.03	29.29
M393	14.02	18.51	23.31	18.54
M395	18.54	10.54	32.00	36.76
M396	26.09	33.93	34.76	38.18
M397	29.01	33.98	34.76	40.59
M412	25.04	25.52	28.02	28.81
M413	33.51	32.91	43.03	44.15
M414	32.23	27.07	37.25	41.50
M415	29.38	25.94	37.65	43.88
M433	25.98	32.58	40.31	27.75
M434	23.52	29.32	36.14	27.27
M435	11.42	19.38	22.41	16.41

M436	25.59	29.85	34.53	29.01
M437	15.64	20.28	29.87	18.71
M451	29.48	39.13	31.15	29.71
M452	11.79	20.15	17.11	15.01
M454	10.46	20.70	23.43	17.26
M472	7.76	9.81	17.41	18.88
M473	10.03	14.89	18.44	21.40
M474	12.10	21.94	16.50	16.37
M475	13.69	26.60	14.49	14.11
M492	12.77	17.59	7.35	18.77
M493	17.39	23.13	6.10	16.40
M494	10.34	14.56	5.53	13.42
M512	9.54	12.11	8.85	16.64
M513	5.41	12.17	17.94	9.71
M514	4.30	11.51	7.35	9.64
M515	4.73	6.91	15.60	9.83
M516	**2.20**	**4.52**	**11.99**	**9.97**
M517	5.91	6.47	13.94	14.36
M518	16.55	33.35	11.82	9.71
M519	2.81	7.14	10.33	9.59
M533	25.83	43.07	29.83	30.32
M534	21.12	40.58	25.51	21.65
M535	42.47	62.71	41.10	40.21
M536	14.87	26.82	16.33	16.89
M537	7.98	20.22	15.99	9.33

Minor Group 51_7: Squared Euclidian Distances

	V115	V118
M113	51.40	52.60
M114	43.21	42.93
M131	28.78	29.22
M132	42.90	44.85
M151	44.35	45.29
M152	46.41	57.96
M171	37.09	43.04
M172	40.87	47.06
M173	18.15	20.99
M191	45.17	48.57
M192	42.27	49.65
M193	40.16	48.79
M194	28.79	22.65
M211	48.89	44.59
M231	74.95	74.11
M232	46.99	45.10
M251	50.48	51.26
M252	44.77	44.70
M254	33.66	34.49
M255	31.15	32.28
M271	28.49	33.16
M272	31.96	32.58
M273	39.57	36.69
M274	31.92	19.71
M291	54.29	45.81
M292	34.24	26.25
M312	47.37	46.75
M313	34.85	25.20
M332	48.55	36.80
M333	51.89	40.85
M334	47.31	34.51
M352	20.29	14.38
M353	28.91	25.45
M371	28.61	27.22
M393	32.19	22.33
M395	26.18	23.25
M396	43.76	34.07
M397	41.22	33.72
M412	37.01	34.45
M413	40.41	37.72
M414	33.05	35.88
M415	36.72	32.65
M433	39.47	35.86
M434	37.78	33.77
M435	24.02	18.71

M436	40.65	35.98
M437	27.68	25.17
M451	38.00	33.11
M452	18.91	15.69
M454	16.33	12.32
M472	5.21	8.37
M473	11.67	12.63
M474	14.72	11.67
M475	21.21	13.74
M492	18.83	12.56
M493	18.77	16.37
M494	15.25	10.97
M512	9.93	7.65
M513	15.33	10.57
M514	10.46	4.24
M515	11.90	6.41
M516	10.64	5.16
M517	**3.33**	**5.44**
M518	28.88	16.67
M519	10.68	3.98
M533	50.27	30.85
M534	44.62	24.30
M535	63.22	42.17
M536	26.51	17.03
M537	16.42	10.55

Minor Group 51_8: Squared Euclidian Distances

	V120	V128	V132
M113	58.17	49.86	55.64
M114	53.13	46.57	54.08
M131	28.22	28.48	28.80
M132	36.15	33.22	32.92
M151	55.34	56.54	49.96
M152	59.87	55.50	48.55
M171	71.89	69.01	59.50
M172	58.93	56.38	51.01
M173	37.29	33.57	30.35
M191	48.11	50.89	43.09
M192	46.43	47.15	39.43
M193	47.66	51.20	48.43
M194	18.66	17.76	13.64
M211	42.75	50.56	53.19
M231	47.92	59.79	53.84
M232	31.21	34.69	32.39
M251	49.53	60.74	59.55
M252	51.43	57.50	55.67
M254	52.48	48.21	46.86
M255	49.15	52.86	49.28
M271	78.55	82.55	80.24
M272	54.85	55.81	52.56
M273	42.60	52.09	44.72
M274	34.00	38.92	27.97
M291	36.30	50.32	46.78
M292	20.54	27.18	26.64
M312	40.67	54.16	58.82
M313	21.67	27.71	23.65
M332	32.39	41.72	30.98
M333	30.73	39.65	29.22
M334	34.51	45.33	35.25
M352	35.25	33.63	35.01
M353	39.04	40.02	40.18
M371	39.83	33.43	45.27
M393	36.51	36.32	31.36
M395	53.79	60.30	57.54
M396	38.72	49.32	44.98
M397	48.27	54.79	55.66
M412	40.43	42.70	39.34
M413	42.77	49.06	45.79
M414	46.89	50.91	52.63
M415	50.90	57.18	54.27
M433	34.81	31.41	28.45
M434	33.19	34.64	32.32
M435	24.64	24.46	22.68

M436	36.06	36.37	34.48
M437	33.49	28.65	24.19
M451	36.96	31.12	38.95
M452	26.85	23.86	23.26
M454	26.25	24.26	22.96
M472	34.54	29.99	31.80
M473	34.75	33.18	34.56
M474	19.14	17.43	16.98
M475	20.54	18.88	16.07
M492	21.29	21.07	18.10
M493	23.32	21.47	21.29
M494	24.46	21.13	19.69
M512	26.26	21.19	19.60
M513	30.28	23.14	23.34
M514	22.59	15.52	15.21
M515	28.89	22.19	20.93
M516	29.80	25.19	24.21
M517	32.43	25.91	27.01
M518	**8.14**	**3.21**	**3.85**
M519	24.65	18.72	17.77
M533	28.11	34.80	27.52
M534	16.01	22.34	15.88
M535	30.14	36.55	27.53
M536	14.11	15.48	10.29
M537	17.10	14.28	15.58

Minor Group 51_9: Squared Euclidian Distances

	V137	V138	V149	V157	V160	V168	V170	V183	V187	V190
M113	52.74	52.40	60.84	67.70	54.99	55.00	50.41	56.07	50.76	56.12
M114	42.22	46.24	53.54	60.83	49.02	48.63	47.09	47.02	44.66	49.57
M131	25.23	28.08	38.55	44.85	27.96	30.47	22.83	31.02	28.73	28.85
M132	38.97	39.94	55.83	57.55	37.15	39.76	29.21	43.76	42.08	38.94
M151	54.11	52.36	24.14	60.61	41.75	41.57	44.09	57.02	52.29	73.63
M152	57.81	55.30	67.32	67.44	45.07	42.92	38.77	58.47	55.75	59.92
M171	51.65	54.84	49.32	53.84	42.09	35.19	40.49	54.97	47.00	62.01
M172	57.25	55.54	29.17	68.17	44.73	49.84	54.83	59.30	62.01	77.08
M173	27.30	30.04	20.13	30.97	17.46	18.53	19.77	29.68	32.02	42.88
M191	46.75	43.93	50.96	60.26	34.25	40.15	41.25	53.67	49.05	54.21
M192	49.48	49.49	44.02	64.01	34.17	40.17	41.00	55.90	57.09	62.13
M193	44.16	47.51	59.82	62.67	42.34	45.69	41.12	47.90	43.54	46.08
M194	22.19	17.75	24.04	34.61	11.21	22.96	19.89	26.12	29.01	31.15
M211	44.11	45.63	62.49	63.98	52.32	53.84	47.60	44.62	45.76	46.39
M231	66.20	65.09	78.84	91.80	66.08	82.10	66.16	75.91	69.99	62.93
M232	38.52	38.42	55.58	54.26	36.25	41.66	27.55	44.56	42.84	38.25
M251	52.13	56.59	65.88	66.26	51.67	52.66	49.93	51.24	57.11	57.76
M252	43.29	46.67	55.31	62.26	50.88	48.97	47.55	43.04	40.97	47.44
M254	33.35	36.47	44.77	46.05	35.91	32.36	32.51	38.83	30.04	40.47
M255	34.81	39.31	45.16	50.99	43.17	35.53	36.46	35.48	31.36	38.33
M271	41.66	55.60	57.65	40.19	48.22	35.82	41.13	47.15	36.83	50.96
M272	32.02	36.49	55.08	53.76	49.51	38.41	37.59	32.44	21.65	29.41
M273	36.38	37.54	50.20	50.82	38.65	36.10	30.11	40.99	33.04	36.90
M274	30.30	24.98	26.77	34.69	26.29	21.95	22.49	28.65	24.35	32.49
M291	49.49	46.45	43.93	57.57	38.86	54.33	52.54	49.13	55.55	57.46
M292	23.66	24.96	32.44	40.16	22.39	31.80	27.56	28.74	32.27	32.22
M312	39.40	49.87	56.45	70.02	53.97	62.15	58.60	43.44	53.72	53.10
M313	21.19	23.95	27.70	36.66	19.57	28.49	23.88	27.19	27.51	27.50
M332	39.06	35.46	42.36	63.95	43.33	51.07	48.57	39.22	42.16	42.96
M333	38.18	34.45	48.50	62.60	41.84	49.84	42.14	41.07	40.77	37.34
M334	36.49	32.45	50.22	61.23	46.25	46.43	41.45	33.13	35.61	34.49
M352	13.73	16.72	42.68	29.96	25.15	23.66	22.48	14.39	13.94	14.38
M353	17.94	28.48	45.30	41.36	33.07	31.47	25.78	22.08	20.64	19.60
M371	23.84	30.61	53.78	45.60	38.82	36.66	35.12	27.66	29.18	30.26
M393	20.83	23.48	33.86	35.09	27.94	24.26	20.08	22.43	17.00	20.58
M395	24.58	37.15	49.08	28.17	31.71	27.68	29.18	31.66	24.33	30.55
M396	31.70	35.77	50.37	59.60	46.04	46.67	43.10	32.27	38.05	35.60
M397	36.52	39.55	57.82	57.77	51.43	51.64	51.59	35.19	37.70	40.26
M412	26.67	38.34	28.77	48.29	35.93	37.35	31.84	35.61	29.72	34.40
M413	38.54	41.55	48.66	57.36	43.06	41.34	35.09	41.78	40.57	41.85
M414	29.98	39.94	37.26	57.43	43.53	40.61	38.34	36.34	37.60	43.87
M415	34.98	39.66	44.03	56.73	48.06	41.57	41.84	36.60	36.86	43.76
M433	28.92	31.73	44.97	43.00	28.12	27.71	17.77	34.44	29.00	29.06
M434	26.94	29.67	46.73	45.77	32.93	31.05	21.23	31.90	27.62	27.42
M435	14.01	15.86	36.69	35.34	22.13	22.75	17.13	17.32	16.76	16.28

M436	29.79	35.11	41.86	42.90	31.93	31.17	20.27	37.45	29.39	31.46
M437	20.65	21.22	38.19	31.69	19.35	15.85	9.54	24.00	16.22	20.42
M451	29.37	32.43	47.84	49.80	36.31	39.75	40.35	33.29	33.52	35.02
M452	11.21	14.94	35.76	35.76	18.79	24.71	25.79	15.23	14.90	14.40
M454	9.06	10.45	49.09	34.42	20.62	21.61	22.41	9.30	14.14	9.61
M472	5.65	16.34	38.98	25.22	18.58	16.57	19.43	8.04	9.73	12.44
M473	7.90	18.03	40.56	31.93	23.73	25.74	26.50	9.25	14.59	15.23
M474	8.36	13.93	35.55	35.14	19.13	22.72	21.15	13.21	16.91	12.80
M475	11.20	16.57	36.71	38.50	23.30	27.73	27.06	15.57	17.68	11.90
M492	14.31	17.47	15.70	31.18	17.17	22.72	22.02	21.08	21.51	27.56
M493	13.33	21.49	19.06	40.06	23.85	31.75	31.56	22.11	21.97	25.16
M494	10.19	16.99	17.92	28.83	17.38	21.38	21.84	17.82	14.60	20.64
M512	9.61	14.97	17.78	20.57	9.10	15.09	16.94	14.13	15.00	21.39
M513	8.54	7.78	41.35	22.84	15.70	14.69	13.75	8.37	6.47	6.82
M514	7.73	6.31	24.69	20.52	9.59	13.45	15.14	6.83	9.73	13.59
M515	7.81	9.21	32.13	13.99	9.08	6.27	7.43	11.25	6.52	10.76
M516	7.57	9.98	32.78	13.85	10.75	10.00	10.24	9.53	5.26	9.52
M517	5.40	13.01	32.85	19.58	13.37	12.59	15.38	7.44	7.11	10.95
M518	16.06	11.55	28.43	38.58	15.81	28.39	23.17	21.23	24.74	19.86
M519	**7.21**	**6.74**	**25.54**	**13.71**	**6.26**	**8.40**	**9.20**	**7.90**	**7.70**	**12.05**
M533	32.92	28.55	42.72	56.66	38.27	43.49	38.65	30.20	37.89	32.36
M534	26.64	21.99	43.71	46.77	28.09	36.13	30.17	28.45	33.17	24.02
M535	44.04	46.50	58.13	69.08	47.93	54.51	49.92	52.75	52.08	40.50
M536	17.69	14.82	27.24	36.24	17.27	24.07	18.89	21.63	22.98	20.94
M537	5.21	10.91	41.21	30.50	16.38	19.40	17.01	10.32	12.09	6.30

Minor Group 53_3: Squared Euclidian Distances

	V9	V11
M113	46.36	60.34
M114	32.54	45.28
M131	17.58	39.58
M132	35.27	59.36
M151	50.94	67.01
M152	72.59	97.74
M171	52.86	60.38
M172	67.19	69.37
M173	46.26	55.11
M191	58.85	65.88
M192	69.08	75.21
M193	50.33	67.10
M194	37.76	35.58
M211	31.20	50.52
M231	56.00	75.72
M232	32.03	55.55
M251	59.61	69.58
M252	41.69	51.89
M254	34.43	52.43
M255	30.94	48.22
M271	43.58	78.21
M272	33.26	51.70
M273	29.17	59.59
M274	33.90	32.78
M291	52.01	54.68
M292	24.71	36.94
M312	38.39	52.36
M313	21.34	30.60
M332	34.98	13.84
M333	26.32	20.46
M334	23.70	17.24
M352	14.60	33.13
M353	11.10	35.72
M371	22.85	38.24
M393	14.74	28.74
M395	22.25	52.97
M396	10.46	22.05
M397	27.76	32.61
M412	12.69	36.23
M413	13.05	48.20
M414	8.18	44.35
M415	10.24	38.74
M433	24.31	50.43
M434	16.11	45.30
M435	10.47	26.70

M436	19.98	48.42
M437	27.33	49.87
M451	32.45	30.43
M452	22.95	23.76
M454	24.27	24.09
M472	26.08	34.16
M473	23.31	28.68
M474	20.45	20.98
M475	29.82	19.61
M492	25.88	31.09
M493	28.30	30.72
M494	24.59	28.54
M512	34.35	35.11
M513	24.18	35.02
M514	30.60	30.75
M515	29.57	43.02
M516	25.77	39.81
M517	30.30	40.99
M518	34.46	31.21
M519	27.42	34.42
M533	**17.09**	**8.39**
M534	24.79	14.25
M535	44.26	21.60
M536	20.62	19.06
M537	22.31	24.88

Minor Group 53_4: Squared Euclidian Distances

	V19
M113	41.65
M114	31.88
M131	30.07
M132	48.86
M151	59.38
M152	88.49
M171	56.89
M172	61.53
M173	48.98
M191	57.00
M192	65.32
M193	54.84
M194	36.37
M211	36.49
M231	55.25
M232	44.75
M251	57.77
M252	50.25
M254	42.37
M255	42.99
M271	69.58
M272	53.78
M273	49.01
M274	31.69
M291	44.52
M292	30.76
M312	49.55
M313	31.60
M332	27.00
M333	24.11
M334	30.68
M352	38.06
M353	47.62
M371	29.95
M393	35.39
M395	49.09
M396	31.46
M397	30.94
M412	44.47
M413	43.32
M414	45.46
M415	41.49
M433	50.55
M434	44.35
M435	30.95

M436	45.71
M437	50.17
M451	29.96
M452	34.49
M454	33.82
M472	43.32
M473	44.13
M474	26.58
M475	29.23
M492	34.90
M493	39.12
M494	36.14
M512	39.16
M513	42.99
M514	38.07
M515	38.53
M516	40.94
M517	46.06
M518	29.58
M519	36.28
M533	23.95
M534	**13.41**
M535	19.19
M536	18.62
M537	28.90

Minor Group 53_5: Squared Euclidian Distances

	V22	M113	M114
M113	87.13	0.00	5.12
M114	72.66	5.12	0.00
M131	54.96	17.86	15.72
M132	73.29	22.43	29.36
M151	95.59	46.44	43.41
M152	107.64	52.15	62.59
M171	76.81	44.36	36.43
M172	93.05	47.26	42.95
M173	72.10	42.64	39.59
M191	85.31	53.07	47.51
M192	87.94	60.41	58.26
M193	75.98	41.34	41.39
M194	58.92	44.63	40.21
M211	68.87	38.86	31.10
M231	79.93	57.15	62.35
M232	70.98	34.48	38.78
M251	83.68	54.54	47.42
M252	69.62	50.93	39.31
M254	71.62	30.46	24.80
M255	61.37	29.71	20.23
M271	87.89	59.01	45.19
M272	62.61	36.40	29.12
M273	71.39	51.35	46.16
M274	47.75	41.53	33.16
M291	82.42	60.67	50.59
M292	57.73	49.35	38.55
M312	74.52	73.47	57.37
M313	47.67	53.56	41.90
M332	32.17	55.11	42.42
M333	35.05	51.22	42.97
M334	33.45	55.58	43.06
M352	54.18	37.21	25.39
M353	49.02	52.08	38.85
M371	61.90	14.87	6.80
M393	41.48	45.63	33.93
M395	64.64	59.89	44.54
M396	43.62	57.24	39.87
M397	57.05	38.92	24.55
M412	50.45	46.46	35.32
M413	65.56	34.54	28.40
M414	68.37	46.99	32.21
M415	61.68	46.29	31.12
M433	63.96	41.14	41.34
M434	59.75	43.25	39.31
M435	45.76	36.17	29.22

M436	62.34	35.95	33.20
M437	62.97	44.41	43.09
M451	54.17	22.08	12.30
M452	40.86	39.95	28.90
M454	39.45	48.38	37.71
M472	45.53	48.06	36.54
M473	46.29	54.87	41.54
M474	27.16	43.88	33.71
M475	19.48	51.12	39.82
M492	45.46	51.42	42.21
M493	37.76	52.92	42.23
M494	36.79	49.01	38.08
M512	47.24	49.86	41.19
M513	53.31	41.29	33.62
M514	47.99	44.88	37.44
M515	52.88	44.48	37.74
M516	52.13	44.90	37.22
M517	50.92	46.56	37.73
M518	40.62	44.72	41.64
M519	50.94	43.97	36.50
M533	27.44	58.87	44.30
M534	22.20	51.85	42.30
M535	**9.89**	**60.12**	**48.19**
M536	31.15	36.78	30.87
M537	29.83	46.18	37.25

Minor Group 53_6: Squared Euclidian Distances

	V33	V37
M113	33.91	34.58
M114	31.87	28.74
M131	16.59	11.47
M132	30.23	21.07
M151	53.55	52.05
M152	57.39	45.40
M171	47.81	35.69
M172	54.05	56.59
M173	39.81	30.51
M191	43.84	38.68
M192	52.46	46.15
M193	39.88	31.44
M194	28.71	20.17
M211	33.13	33.50
M231	39.91	44.56
M232	26.34	19.36
M251	57.72	43.87
M252	47.74	35.85
M254	39.46	25.25
M255	36.46	25.89
M271	61.74	40.86
M272	40.46	23.65
M273	34.75	24.33
M274	26.00	23.36
M291	48.44	50.67
M292	29.71	25.10
M312	52.07	49.64
M313	30.38	21.16
M332	28.40	27.68
M333	19.46	22.29
M334	24.93	22.60
M352	29.16	12.61
M353	39.35	14.69
M371	28.76	20.47
M393	28.99	14.49
M395	48.14	26.32
M396	32.89	24.77
M397	36.47	30.56
M412	40.92	21.60
M413	31.74	22.88
M414	38.06	28.89
M415	38.79	28.63
M433	34.59	15.81
M434	29.02	14.73
M435	19.98	7.92

M436	33.22	15.04
M437	30.75	13.44
M451	33.32	25.70
M452	29.14	13.07
M454	24.48	11.76
M472	36.00	14.52
M473	39.03	16.70
M474	19.23	10.84
M475	26.00	15.67
M492	30.10	23.02
M493	34.35	26.17
M494	32.23	19.22
M512	34.75	20.69
M513	27.48	10.01
M514	30.28	16.40
M515	27.88	14.63
M516	30.51	12.36
M517	35.55	15.61
M518	22.76	20.36
M519	27.84	13.80
M533	25.48	24.38
M534	15.41	18.98
M535	29.22	32.18
M536	**10.12**	**11.17**
M537	22.79	9.30

Minor Group 53_7: Squared Euclidian Distances

	V38	V46	V51	V56
M113	45.71	46.14	48.80	65.80
M114	39.04	39.03	44.67	53.99
M131	23.47	22.30	25.26	36.48
M132	33.78	33.59	32.55	54.91
M151	48.56	49.41	54.96	81.94
M152	61.89	57.59	49.78	84.74
M171	61.14	51.17	52.88	67.14
M172	60.85	62.28	68.80	89.98
M173	32.49	32.04	33.92	58.95
M191	47.24	46.79	46.20	68.58
M192	53.75	54.23	54.39	80.54
M193	45.08	41.89	40.67	57.78
M194	15.43	20.57	23.57	46.05
M211	40.23	40.59	44.93	44.37
M231	56.32	58.07	62.02	70.24
M232	32.00	32.93	32.34	50.30
M251	53.37	55.03	54.35	72.66
M252	41.63	38.79	42.63	50.66
M254	32.29	27.40	29.37	45.34
M255	38.96	34.32	36.22	45.15
M271	61.62	46.89	46.39	58.05
M272	34.43	24.91	26.13	34.69
M273	36.23	31.63	31.15	41.29
M274	25.98	28.40	31.51	38.53
M291	41.18	50.35	53.23	68.73
M292	18.77	23.50	28.09	38.17
M312	41.83	42.88	49.82	50.13
M313	14.45	19.29	24.57	34.88
M332	29.95	32.48	42.62	38.66
M333	27.56	31.03	38.99	31.81
M334	28.67	30.79	37.87	28.47
M352	16.09	13.45	13.79	19.52
M353	19.67	14.62	18.08	24.50
M371	25.06	23.79	26.86	32.29
M393	15.20	15.27	19.95	24.21
M395	34.54	26.25	26.46	34.76
M396	29.09	29.52	36.51	25.87
M397	35.52	34.09	39.87	34.49
M412	22.92	19.76	28.70	40.87
M413	38.52	35.41	38.48	44.46
M414	35.07	31.01	38.32	39.47
M415	37.79	33.83	40.31	37.31
M433	21.98	20.74	20.83	41.73
M434	22.16	20.14	21.53	32.60
M435	11.42	9.69	11.77	17.78

M436	23.12	20.98	23.43	43.07
M437	16.93	13.76	11.33	31.25
M451	22.55	27.43	32.24	42.56
M452	10.91	9.86	12.81	21.90
M454	14.06	11.30	10.84	10.25
M472	16.55	9.19	9.35	17.99
M473	15.96	9.66	11.64	18.57
M474	12.88	12.24	16.38	14.65
M475	12.50	13.81	19.33	17.54
M492	14.70	14.69	21.98	33.02
M493	15.37	15.09	25.13	32.33
M494	11.16	9.78	17.99	28.42
M512	12.93	12.49	16.64	33.84
M513	9.73	7.25	4.81	16.21
M514	7.30	8.71	10.37	24.53
M515	11.14	9.41	7.27	21.10
M516	10.58	7.62	6.37	20.44
M517	15.14	9.30	8.46	21.82
M518	6.77	15.57	21.36	31.73
M519	7.66	8.46	8.18	23.16
M533	20.63	30.69	39.33	26.29
M534	14.79	26.11	32.49	22.49
M535	33.88	44.40	56.31	41.91
M536	12.07	16.80	22.50	23.85
M537	**6.63**	**6.99**	**9.11**	**11.34**

Appendix E.

Unstructured Exploratory Cluster Analysis Results

Occ Code	Occ Title
Cluster 1 - Managers & Supervisors	
11-1011.01	Government Service Executives
11-1011.02	Private Sector Executives
11-2011.00	Advertising and Promotions Managers
11-2021.00	Marketing Managers
11-2022.00	Sales Managers
11-3011.00	Administrative Services Managers
11-3021.00	Computer and Information Systems Managers
11-3031.01	Treasurers, Controllers, and Chief Financial Officers
11-3031.02	Financial Managers, Branch or Department
11-3040.00	Human Resources Managers
11-3041.00	Compensation and Benefits Managers
11-3042.00	Training and Development Managers
11-3051.00	Industrial Production Managers
11-3061.00	Purchasing Managers
11-3071.01	Transportation Managers
11-3071.02	Storage and Distribution Managers
11-9011.01	Nursery and Greenhouse Managers
11-9011.02	Agricultural Crop Farm Managers
11-9011.03	Fish Hatchery Managers
11-9012.00	Farmers and Ranchers
11-9021.00	Construction Managers
11-9031.00	Education Administrators, Preschool and Child Care Center/Program
11-9032.00	Education Administrators, Elementary and Secondary School
11-9033.00	Education Administrators, Postsecondary
11-9051.00	Food Service Managers
11-9061.00	Funeral Directors
11-9071.00	Gaming Managers
11-9081.00	Lodging Managers
11-9111.00	Medical and Health Services Managers
11-9121.00	Natural Sciences Managers
11-9131.00	Postmasters and Mail Superintendents
11-9141.00	Property, Real Estate, and Community Association Managers
11-9151.00	Social and Community Service Managers
13-1011.00	Agents and Business Managers of Artists, Performers, and Athletes
13-1073.00	Training and Development Specialists
13-1121.00	Meeting and Convention Planners
25-4012.00	Curators
27-2012.01	Producers
27-2012.03	Program Directors
33-1012.00	First-Line Supervisors/Managers of Police and Detectives
35-1011.00	Chefs and Head Cooks
35-1012.00	First-Line Supervisors/Managers of Food Preparation and Serving Workers
35-2014.00	Cooks, Restaurant

Occ Code	Occ Title
35-9031.00	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop
37-1011.01	Housekeeping Supervisors
37-1011.02	Janitorial Supervisors
37-1012.01	Lawn Service Managers
37-1012.02	First-Line Supervisors and Manager/Supervisors - Landscaping Workers
39-1011.00	Gaming Supervisors
39-1012.00	Slot Key Persons
39-9032.00	Recreation Workers
41-1011.00	First-Line Supervisors/Managers of Retail Sales Workers
41-1012.00	First-Line Supervisors/Managers of Non-Retail Sales Workers
43-1011.01	First-Line Supervisors, Customer Service
43-1011.02	First-Line Supervisors, Administrative Support
45-1011.01	First-Line Supervisors and Manager/Supervisors - Agricultural Crop Workers
45-1011.02	First-Line Supervisors and Manager/Supervisors - Animal Husbandry Workers
45-1011.03	First-Line Supervisors and Manager/Supervisors - Animal Care Workers, Except Livestock
45-1011.04	First-Line Supervisors and Manager/Supervisors - Horticultural Workers
45-1011.06	First-Line Supervisors and Manager/Supervisors - Fishery Workers
45-2091.00	Agricultural Equipment Operators
45-2092.02	General Farmworkers
47-1011.01	First-Line Supervisors and Manager/Supervisors- Construction Trades Workers
47-1011.02	First-Line Supervisors and Manager/Supervisors- Extractive Workers
47-5013.00	Service Unit Operators, Oil, Gas, and Mining
49-1011.00	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers
51-1011.00	First-Line Supervisors/Managers of Production and Operating Workers
53-1031.00	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators
Cluster 2 - Architects & Engineers	
11-9041.00	Engineering Managers
13-1111.00	Management Analysts
17-1011.00	Architects, Except Landscape and Naval
17-2041.00	Chemical Engineers
17-2051.00	Civil Engineers
17-2071.00	Electrical Engineers
17-2072.00	Electronics Engineers, Except Computer
17-2112.00	Industrial Engineers
17-2121.01	Marine Engineers
17-2121.02	Marine Architects
17-2131.00	Materials Engineers
17-2141.00	Mechanical Engineers
17-2151.00	Mining and Geological Engineers, Including Mining Safety Engineers
17-2161.00	Nuclear Engineers
17-2171.00	Petroleum Engineers

Occ Code	Occ Title
17-3012.02	Electrical Drafters
17-3022.00	Civil Engineering Technicians
17-3026.00	Industrial Engineering Technicians
17-3027.00	Mechanical Engineering Technicians
27-3042.00	Technical Writers
Cluster 3 - Life, Physical, & Social Scientists and Related Technicians	
13-1021.00	Purchasing Agents and Buyers, Farm Products
13-1041.01	Environmental Compliance Inspectors
13-1041.06	Coroners
15-2021.00	Mathematicians
15-2041.00	Statisticians
15-3011.00	Mathematical Technicians
17-2011.00	Aerospace Engineers
17-2111.01	Industrial Safety and Health Engineers
17-2111.02	Fire-Prevention and Protection Engineers
17-2111.03	Product Safety Engineers
17-3023.01	Electronics Engineering Technicians
17-3023.02	Calibration and Instrumentation Technicians
17-3023.03	Electrical Engineering Technicians
19-1011.00	Animal Scientists
19-1012.00	Food Scientists and Technologists
19-1013.01	Plant Scientists
19-1013.02	Soil Scientists
19-1020.01	Biologists
19-1021.01	Biochemists
19-1021.02	Biophysicists
19-1022.00	Microbiologists
19-1023.00	Zoologists and Wildlife Biologists
19-2011.00	Astronomers
19-2012.00	Physicists
19-2031.00	Chemists
19-2032.00	Materials Scientists
19-2041.00	Environmental Scientists and Specialists, Including Health
19-2042.01	Geologists
19-2043.00	Hydrologists
19-3041.00	Sociologists
19-3091.01	Anthropologists
19-3091.02	Archeologists
19-3094.00	Political Scientists
19-4011.02	Food Science Technicians
19-4031.00	Chemical Technicians
19-4051.01	Nuclear Equipment Operation Technicians
19-4051.02	Nuclear Monitoring Technicians
19-4091.00	Environmental Science and Protection Technicians, Including Health
19-4092.00	Forensic Science Technicians
25-4013.00	Museum Technicians and Conservators

Occ Code	Occ Title
29-2091.00	Orthotists and Prosthetists
29-9011.00	Occupational Health and Safety Specialists
45-2011.00	Agricultural Inspectors
51-9082.00	Medical Appliance Technicians
53-6051.01	Aviation Inspectors
Cluster 4 - Design, Entertainment, & Media	
13-1022.00	Wholesale and Retail Buyers, Except Farm Products
13-1071.02	Personnel Recruiters
25-9011.00	Audio-Visual Collections Specialists
27-1011.00	Art Directors
27-1021.00	Commercial and Industrial Designers
27-1022.00	Fashion Designers
27-1025.00	Interior Designers
27-1027.01	Set Designers
27-1027.02	Exhibit Designers
27-2012.02	Directors- Stage, Motion Pictures, Television, and Radio
27-2012.05	Technical Directors/Managers
27-3031.00	Public Relations Specialists
27-4011.00	Audio and Video Equipment Technicians
27-4032.00	Film and Video Editors
41-3011.00	Advertising Sales Agents
41-4012.00	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
41-9011.00	Demonstrators and Product Promoters
41-9031.00	Sales Engineers
Cluster 5 - Administrative & Finance	
13-1023.00	Purchasing Agents, Except Wholesale, Retail, and Farm Products
13-1031.01	Claims Examiners, Property and Casualty Insurance
13-1031.02	Insurance Adjusters, Examiners, and Investigators
13-1032.00	Insurance Appraisers, Auto Damage
13-2011.01	Accountants
13-2011.02	Auditors
13-2031.00	Budget Analysts
13-2051.00	Financial Analysts
13-2053.00	Insurance Underwriters
13-2081.00	Tax Examiners, Collectors, and Revenue Agents
13-2082.00	Tax Preparers
15-2011.00	Actuaries
23-2011.00	Paralegals and Legal Assistants
23-2092.00	Law Clerks
23-2093.01	Title Searchers
29-2071.00	Medical Records and Health Information Technicians
43-3021.01	Statement Clerks
43-3021.03	Billing, Posting, and Calculating Machine Operators
43-3051.00	Payroll and Timekeeping Clerks
43-3061.00	Procurement Clerks

Occ Code	Occ Title
43-4021.00	Correspondence Clerks
43-4031.01	Court Clerks
43-4031.02	Municipal Clerks
43-4031.03	License Clerks
43-4041.01	Credit Authorizers
43-4051.01	Adjustment Clerks
43-4071.00	File Clerks
43-4141.00	New Accounts Clerks
43-5061.00	Production, Planning, and Expediting Clerks
43-5071.00	Shipping, Receiving, and Traffic Clerks
43-6012.00	Legal Secretaries
43-6013.00	Medical Secretaries
43-9021.00	Data Entry Keyers
43-9051.02	Mail Clerks, Except Mail Machine Operators and Postal Service
43-9111.00	Statistical Assistants
Cluster 6 - Public Safety, Administrative, Sales, Writers (mixture)	
13-1041.02	Licensing Examiners and Inspectors
13-1041.03	Equal Opportunity Representatives and Officers
13-1041.04	Government Property Inspectors and Investigators
19-4061.01	City Planning Aides
23-1021.00	Administrative Law Judges, Adjudicators, and Hearing Officers
23-1022.00	Arbitrators, Mediators, and Conciliators
23-1023.00	Judges, Magistrate Judges, and Magistrates
25-4021.00	Librarians
25-4031.00	Library Technicians
27-2011.00	Actors
27-2012.04	Talent Directors
27-3011.00	Radio and Television Announcers
27-3021.00	Broadcast News Analysts
27-3022.00	Reporters and Correspondents
27-3041.00	Editors
27-3043.01	Poets and Lyricists
27-3043.02	Creative Writers
27-3043.03	Caption Writers
27-3043.04	Copy Writers
33-2021.02	Fire Investigators
33-3012.00	Correctional Officers and Jailers
33-3021.01	Police Detectives
33-3021.03	Criminal Investigators and Special Agents
33-3021.04	Child Support, Missing Persons, and Unemployment Insurance Fraud Investigators
33-3021.05	Immigration and Customs Inspectors
33-3031.00	Fish and Game Wardens
33-3051.03	Sheriffs and Deputy Sheriffs
33-9021.00	Private Detectives and Investigators
41-3021.00	Insurance Sales Agents

Occ Code	Occ Title
41-3041.00	Travel Agents
41-4011.01	Sales Representatives, Agricultural
41-4011.02	Sales Representatives, Chemical and Pharmaceutical
41-4011.03	Sales Representatives, Electrical/Electronic
41-4011.04	Sales Representatives, Mechanical Equipment and Supplies
41-4011.05	Sales Representatives, Medical
41-4011.06	Sales Representatives, Instruments
41-9022.00	Real Estate Sales Agents
41-9041.00	Telemarketers
41-9091.00	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers
43-3011.00	Bill and Account Collectors
43-4041.02	Credit Checkers
43-4051.02	Customer Service Representatives, Utilities
43-4121.00	Library Assistants, Clerical
43-4151.00	Order Clerks
43-4161.00	Human Resources Assistants, Except Payroll and Timekeeping
43-4181.01	Travel Clerks
43-6011.00	Executive Secretaries and Administrative Assistants
43-9041.02	Insurance Policy Processing Clerks
53-3031.00	Driver/Sales Workers
53-6051.03	Marine Cargo Inspectors
Cluster 7 - Production	
13-1041.05	Pressure Vessel Inspectors
19-4011.01	Agricultural Technicians
19-4021.00	Biological Technicians
19-4041.01	Geological Data Technicians
19-4041.02	Geological Sample Test Technicians
31-9093.00	Medical Equipment Preparers
39-2021.00	Nonfarm Animal Caretakers
43-5111.00	Weighers, Measurers, Checkers, and Samplers, Recordkeeping
43-9051.01	Mail Machine Operators, Preparation and Handling
47-2211.00	Sheet Metal Workers
49-9043.00	Maintenance Workers, Machinery
51-2011.03	Aircraft Rigging Assemblers
51-2021.00	Coil Winders, Tapers, and Finishers
51-3091.00	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders
51-3093.00	Food Cooking Machine Operators and Tenders
51-4011.01	Numerical Control Machine Tool Operators and Tenders, Metal and Plastic
51-4021.00	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic
51-4022.00	Forging Machine Setters, Operators, and Tenders, Metal and Plastic
51-4023.00	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic
51-4031.01	Sawing Machine Tool Setters and Set-Up Operators, Metal and Plastic

Occ Code	Occ Title
51-4034.00	Lathe and Turning Machine Tool Setters, Operators, and Tenders Metal and Plastic
51-4035.00	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic
51-4051.00	Metal-Refining Furnace Operators and Tenders
51-4052.00	Pourers and Casters, Metal
51-4072.01	Plastic Molding and Casting Machine Setters and Set-Up Operators
51-4072.02	Plastic Molding and Casting Machine Operators and Tenders
51-4072.03	Metal Molding, Coremaking, and Casting Machine Setters and Set-Up Operators
51-4072.04	Metal Molding, Coremaking, and Casting Machine Operators and Tenders
51-4081.01	Combination Machine Tool Setters and Set-Up Operators, Metal and Plastic
51-4081.02	Combination Machine Tool Operators and Tenders, Metal and Plastic
51-4121.01	Welders, Production
51-4121.02	Welders and Cutters
51-4121.05	Brazers
51-4122.02	Welding Machine Operators and Tenders
51-4122.03	Soldering and Brazing Machine Setters and Set-Up Operators
51-4122.04	Soldering and Brazing Machine Operators and Tenders
51-4191.01	Heating Equipment Setters and Set-Up Operators, Metal and Plastic
51-4191.02	Heat Treating, Annealing, and Tempering Machine Operators and Tenders, Metal and Plastic
51-4191.03	Heaters, Metal and Plastic
51-4193.01	Electrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic
51-4193.02	Electrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic
51-4193.03	Nonelectrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic
51-4193.04	Nonelectrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic
51-5011.01	Bindery Machine Setters and Set-Up Operators
51-5011.02	Bindery Machine Operators and Tenders
51-5022.12	Typesetting and Composing Machine Operators and Tenders
51-5023.01	Precision Printing Workers
51-5023.02	Offset Lithographic Press Setters and Set-Up Operators
51-5023.03	Letterpress Setters and Set-Up Operators
51-5023.04	Design Printing Machine Setters and Set-Up Operators
51-5023.05	Marking and Identification Printing Machine Setters and Set-Up Operators
51-5023.06	Screen Printing Machine Setters and Set-Up Operators
51-5023.09	Printing Press Machine Operators and Tenders
51-6011.03	Laundry and Drycleaning Machine Operators and Tenders, Except Pressing
51-6031.02	Sewing Machine Operators, Non-Garment

Occ Code	Occ Title
51-6061.00	Textile Bleaching and Dyeing Machine Operators and Tenders
51-6091.01	Extruding and Forming Machine Operators and Tenders, Synthetic or Glass Fibers
51-7041.02	Sawing Machine Operators and Tenders
51-8011.00	Nuclear Power Reactor Operators
51-8013.02	Auxiliary Equipment Operators, Power
51-8021.01	Boiler Operators and Tenders, Low Pressure
51-8021.02	Stationary Engineers
51-8031.00	Water and Liquid Waste Treatment Plant and System Operators
51-8091.00	Chemical Plant and System Operators
51-8092.01	Gas Processing Plant Operators
51-8092.02	Gas Distribution Plant Operators
51-8093.01	Petroleum Pump System Operators
51-8093.02	Petroleum Refinery and Control Panel Operators
51-8093.03	Gaugers
51-9011.01	Chemical Equipment Controllers and Operators
51-9011.02	Chemical Equipment Tenders
51-9012.00	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders
51-9021.00	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders
51-9022.00	Grinding and Polishing Workers, Hand
51-9023.00	Mixing and Blending Machine Setters, Operators, and Tenders
51-9032.01	Fiber Product Cutting Machine Setters and Set-Up Operators
51-9032.02	Stone Sawyers
51-9032.03	Glass Cutting Machine Setters and Set-Up Operators
51-9032.04	Cutting and Slicing Machine Operators and Tenders
51-9041.01	Extruding, Forming, Pressing, and Compacting Machine Setters and Set-Up Operators
51-9041.02	Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders
51-9051.00	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders
51-9061.05	Production Inspectors, Testers, Graders, Sorters, Samplers, Weighers
51-9083.01	Precision Lens Grinders and Polishers
51-9083.02	Optical Instrument Assemblers
51-9111.00	Packaging and Filling Machine Operators and Tenders
51-9121.01	Coating, Painting, and Spraying Machine Setters and Set-Up Operators
51-9121.02	Coating, Painting, and Spraying Machine Operators and Tenders
51-9132.00	Photographic Processing Machine Operators
51-9141.00	Semiconductor Processors
51-9191.00	Cementing and Gluing Machine Operators and Tenders
51-9192.00	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders
51-9193.00	Cooling and Freezing Equipment Operators and Tenders
51-9194.04	Pantograph Engravers
51-9195.07	Molding and Casting Workers

Occ Code	Occ Title
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders
53-7011.00	Conveyor Operators and Tenders
53-7071.01	Gas Pumping Station Operators
53-7071.02	Gas Compressor Operators
53-7072.00	Pump Operators, Except Wellhead Pumpers
53-7073.00	Wellhead Pumpers
53-7121.00	Tank Car, Truck, and Ship Loaders
Cluster 8 - Mixture	
13-1051.00	Cost Estimators
13-1072.00	Compensation, Benefits, and Job Analysis Specialists
13-2041.00	Credit Analysts
15-2031.00	Operations Research Analysts
17-1012.00	Landscape Architects
17-1021.00	Cartographers and Photogrammetrists
17-1022.00	Surveyors
17-2021.00	Agricultural Engineers
17-3011.01	Architectural Drafters
17-3011.02	Civil Drafters
17-3012.01	Electronic Drafters
17-3013.00	Mechanical Drafters
19-1031.01	Soil Conservationists
19-1031.02	Range Managers
19-1032.00	Foresters
19-2021.00	Atmospheric and Space Scientists
19-3011.00	Economists
19-3021.00	Market Research Analysts
19-3051.00	Urban and Regional Planners
19-3092.00	Geographers
25-9021.00	Farm and Home Management Advisors
29-1031.00	Dietitians and Nutritionists
41-3031.01	Sales Agents, Securities and Commodities
41-3031.02	Sales Agents, Financial Services
47-4011.00	Construction and Building Inspectors
51-4012.00	Numerical Tool and Process Control Programmers
53-6041.00	Traffic Technicians
Cluster 9 - Counselors, Teachers, & Therapists	
13-1071.01	Employment Interviewers, Private or Public Employment Service
13-2052.00	Personal Financial Advisors
19-1031.03	Park Naturalists
19-3031.01	Educational Psychologists
19-3031.02	Clinical Psychologists
19-3031.03	Counseling Psychologists
19-3032.00	Industrial-Organizational Psychologists
21-1011.00	Substance Abuse and Behavioral Disorder Counselors
21-1012.00	Educational, Vocational, and School Counselors
21-1014.00	Mental Health Counselors

Occ Code	Occ Title
21-1021.00	Child, Family, and School Social Workers
21-1022.00	Medical and Public Health Social Workers
21-1023.00	Mental Health and Substance Abuse Social Workers
21-1091.00	Health Educators
21-1092.00	Probation Officers and Correctional Treatment Specialists
21-1093.00	Social and Human Service Assistants
21-2011.00	Clergy
21-2021.00	Directors, Religious Activities and Education
23-1011.00	Lawyers
25-1121.00	Art, Drama, and Music Teachers, Postsecondary
25-1123.00	English Language and Literature Teachers, Postsecondary
25-1124.00	Foreign Language and Literature Teachers, Postsecondary
25-1191.00	Graduate Teaching Assistants
25-1194.00	Vocational Education Teachers Postsecondary
25-2022.00	Middle School Teachers, Except Special and Vocational Education
25-2023.00	Vocational Education Teachers, Middle School
25-2031.00	Secondary School Teachers, Except Special and Vocational Education
25-2032.00	Vocational Education Teachers, Secondary School
25-2041.00	Special Education Teachers, Preschool, Kindergarten, and Elementary School
25-2042.00	Special Education Teachers, Middle School
25-2043.00	Special Education Teachers, Secondary School
25-3011.00	Adult Literacy, Remedial Education, and GED Teachers and Instructors
25-3021.00	Self-Enrichment Education Teachers
25-9031.00	Instructional Coordinators
25-9041.00	Teacher Assistants
29-1066.00	Psychiatrists
29-1121.00	Audiologists
29-1122.00	Occupational Therapists
29-1123.00	Physical Therapists
29-1127.00	Speech-Language Pathologists
29-2051.00	Dietetic Technicians
29-2053.00	Psychiatric Technicians
31-1011.00	Home Health Aides
31-2011.00	Occupational Therapist Assistants
31-2012.00	Occupational Therapist Aides
31-2021.00	Physical Therapist Assistants
31-2022.00	Physical Therapist Aides
39-6031.00	Flight Attendants
39-9011.00	Child Care Workers
39-9021.00	Personal and Home Care Aides
39-9041.00	Residential Advisors
43-4061.01	Claims Takers, Unemployment Benefits
43-4061.02	Welfare Eligibility Workers and Interviewers
Cluster 10 - Construction, Helpers, Food Service (mixture)	
13-2021.01	Assessors

Occ Code	Occ Title
13-2021.02	Appraisers, Real Estate
17-3031.01	Surveying Technicians
17-3031.02	Mapping Technicians
19-3093.00	Historians
23-2093.02	Title Examiners and Abstractors
25-4011.00	Archivists
29-2052.00	Pharmacy Technicians
29-2081.00	Opticians, Dispensing
33-3021.02	Police Identification and Records Officers
33-3041.00	Parking Enforcement Workers
35-2011.00	Cooks, Fast Food
35-2012.00	Cooks, Institution and Cafeteria
35-2015.00	Cooks, Short Order
35-3022.00	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop
35-3041.00	Food Servers, Nonrestaurant
35-9011.00	Dining Room and Cafeteria Attendants and Bartender Helpers
37-2012.00	Maids and Housekeeping Cleaners
37-2021.00	Pest Control Workers
37-3011.00	Landscaping and Groundskeeping Workers
37-3012.00	Pesticide Handlers, Sprayers, and Applicators, Vegetation
37-3013.00	Tree Trimmers and Pruners
39-3031.00	Ushers, Lobby Attendants, and Ticket Takers
39-4021.00	Funeral Attendants
39-6011.00	Baggage Porters and Bellhops
43-2021.02	Central Office Operators
43-4081.00	Hotel, Motel, and Resort Desk Clerks
43-4111.00	Interviewers, Except Eligibility and Loan
43-5011.00	Cargo and Freight Agents
43-5032.00	Dispatchers, Except Police, Fire, and Ambulance
43-5041.00	Meter Readers, Utilities
43-5051.00	Postal Service Clerks
43-5052.00	Postal Service Mail Carriers
43-5081.02	Marking Clerks
43-5081.04	Order Fillers, Wholesale and Retail Sales
45-2021.00	Animal Breeders
45-2093.00	Farmworkers, Farm and Ranch Animals
45-4011.00	Forest and Conservation Workers
45-4023.00	Log Graders and Scalers
47-2022.00	Stonemasons
47-2031.06	Brattice Builders
47-2042.00	Floor Layers, Except Carpet, Wood, and Hard Tiles
47-2044.00	Tile and Marble Setters
47-2061.00	Construction Laborers
47-2081.01	Ceiling Tile Installers
47-2081.02	Drywall Installers
47-2082.00	Tapers

Occ Code	Occ Title
47-2131.00	Insulation Workers, Floor, Ceiling, and Wall
47-2132.00	Insulation Workers, Mechanical
47-2141.00	Painters, Construction and Maintenance
47-2142.00	Paperhangers
47-2161.00	Plasterers and Stucco Masons
47-2171.00	Reinforcing Iron and Rebar Workers
47-2181.00	Roofers
47-3011.00	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters
47-3014.00	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons
47-4031.00	Fence Erectors
47-4041.01	Irradiated-Fuel Handlers
47-4071.00	Septic Tank Servicers and Sewer Pipe Cleaners
47-5051.00	Rock Splitters, Quarry
47-5061.00	Roof Bolters, Mining
49-2022.04	Telecommunications Facility Examiners
51-2041.01	Metal Fabricators, Structural Metal Products
51-2041.02	Fitters, Structural Metal- Precision
51-3021.00	Butchers and Meat Cutters
51-4192.00	Lay-Out Workers, Metal and Plastic
51-5012.00	Bookbinders
51-7011.00	Cabinetmakers and Bench Carpenters
51-7031.00	Model Makers, Wood
51-7032.00	Patternmakers, Wood
51-7041.01	Sawing Machine Setters and Set-Up Operators
51-9195.01	Precision Mold and Pattern Casters, except Nonferrous Metals
51-9195.02	Precision Pattern and Die Casters, Nonferrous Metals
51-9195.03	Stone Cutters and Carvers
51-9195.04	Glass Blowers, Molders, Benders, and Finishers
51-9197.00	Tire Builders
53-1021.00	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand
53-6021.00	Parking Lot Attendants
53-6051.02	Public Transportation Inspectors
53-7062.03	Freight, Stock, and Material Movers, Hand
53-7081.00	Refuse and Recyclable Material Collectors
Cluster 11 - Office Support (mixture)	
13-2061.00	Financial Examiners
13-2071.00	Loan Counselors
13-2072.00	Loan Officers
27-3091.00	Interpreters and Translators
35-2021.00	Food Preparation Workers
35-3011.00	Bartenders
35-3021.00	Combined Food Preparation and Serving Workers, Including Fast Food
35-3031.00	Waiters and Waitresses
39-3011.00	Gaming Dealers

Occ Code	Occ Title
39-3012.00	Gaming and Sports Book Writers and Runners
41-2011.00	Cashiers
41-2021.00	Counter and Rental Clerks
41-2022.00	Parts Salespersons
41-2031.00	Retail Salespersons
43-2011.00	Switchboard Operators, Including Answering Service
43-2021.01	Directory Assistance Operators
43-3021.02	Billing, Cost, and Rate Clerks
43-3031.00	Bookkeeping, Accounting, and Auditing Clerks
43-3071.00	Tellers
43-4011.00	Brokerage Clerks
43-4131.00	Loan Interviewers and Clerks
43-4171.00	Receptionists and Information Clerks
43-4181.02	Reservation and Transportation Ticket Agents
43-5081.01	Stock Clerks, Sales Floor
43-6014.00	Secretaries, Except Legal, Medical, and Executive
43-9022.00	Word Processors and Typists
43-9041.01	Insurance Claims Clerks
43-9061.00	Office Clerks, General
53-6031.00	Service Station Attendants
Cluster 12 - Computers	
15-1021.00	Computer Programmers
15-1031.00	Computer Software Engineers, Applications
15-1032.00	Computer Software Engineers, Systems Software
15-1041.00	Computer Support Specialists
15-1051.00	Computer Systems Analysts
15-1061.00	Database Administrators
15-1071.01	Computer Security Specialists
15-1081.00	Network Systems and Data Communications Analysts
17-2061.00	Computer Hardware Engineers
17-3021.00	Aerospace Engineering and Operations Technicians
Cluster 13 - Installation, Maintenance, & Repair	
17-3024.00	Electro-Mechanical Technicians
43-9071.01	Duplicating Machine Operators
47-2111.00	Electricians
47-4021.00	Elevator Installers and Repairers
49-2011.03	Office Machine and Cash Register Servicers
49-2021.00	Radio Mechanics
49-2022.01	Central Office and PBX Installers and Repairers
49-2022.02	Frame Wirers, Central Office
49-2022.03	Communication Equipment Mechanics, Installers, and Repairers
49-2022.05	Station Installers and Repairers, Telephone
49-2091.00	Avionics Technicians
49-2092.01	Electric Home Appliance and Power Tool Repairers
49-2092.03	Battery Repairers
49-2092.04	Transformer Repairers

Occ Code	Occ Title
49-2092.05	Electrical Parts Reconditioners
49-2093.00	Electrical and Electronics Installers and Repairers, Transportation Equipment
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment
49-2095.00	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
49-2096.00	Electronic Equipment Installers and Repairers, Motor Vehicles
49-2097.00	Electronic Home Entertainment Equipment Installers and Repairers
49-3011.01	Airframe-and-Power-Plant Mechanics
49-3011.02	Aircraft Engine Specialists
49-3031.00	Bus and Truck Mechanics and Diesel Engine Specialists
49-3041.00	Farm Equipment Mechanics
49-3042.00	Mobile Heavy Equipment Mechanics, Except Engines
49-3043.00	Rail Car Repairers
49-3051.00	Motorboat Mechanics
49-3052.00	Motorcycle Mechanics
49-3053.00	Outdoor Power Equipment and Other Small Engine Mechanics
49-3092.00	Recreational Vehicle Service Technicians
49-3093.00	Tire Repairers and Changers
49-9012.01	Electric Meter Installers and Repairers
49-9021.01	Heating and Air Conditioning Mechanics
49-9021.02	Refrigeration Mechanics
49-9031.01	Home Appliance Installers
49-9051.00	Electrical Power-Line Installers and Repairers
49-9052.00	Telecommunications Line Installers and Repairers
49-9061.00	Camera and Photographic Equipment Repairers
49-9062.00	Medical Equipment Repairers
49-9091.00	Coin, Vending, and Amusement Machine Servicers and Repairers
49-9094.00	Locksmiths and Safe Repairers
49-9095.00	Manufactured Building and Mobile Home Installers
49-9097.00	Signal and Track Switch Repairers
51-2023.00	Electromechanical Equipment Assemblers
Cluster 14 - Healthcare Practitioners & Technicians	
19-1041.00	Epidemiologists
19-1042.00	Medical Scientists, Except Epidemiologists
25-1052.00	Chemistry Teachers, Postsecondary
25-1054.00	Physics Teachers, Postsecondary
25-1072.00	Nursing Instructors and Teachers, Postsecondary
25-2011.00	Preschool Teachers, Except Special Education
25-2012.00	Kindergarten Teachers, Except Special Education
25-2021.00	Elementary School Teachers, Except Special Education
29-1011.00	Chiropractors
29-1021.00	Dentists, General
29-1022.00	Oral and Maxillofacial Surgeons
29-1023.00	Orthodontists
29-1024.00	Prosthodontists

Occ Code	Occ Title
29-1041.00	Optometrists
29-1051.00	Pharmacists
29-1061.00	Anesthesiologists
29-1062.00	Family and General Practitioners
29-1063.00	Internists, General
29-1064.00	Obstetricians and Gynecologists
29-1065.00	Pediatricians, General
29-1067.00	Surgeons
29-1071.00	Physician Assistants
29-1081.00	Podiatrists
29-1111.00	Registered Nurses
29-1126.00	Respiratory Therapists
29-1131.00	Veterinarians
29-2011.00	Medical and Clinical Laboratory Technologists
29-2012.00	Medical and Clinical Laboratory Technicians
29-2021.00	Dental Hygienists
29-2031.00	Cardiovascular Technologists and Technicians
29-2033.00	Nuclear Medicine Technologists
29-2034.01	Radiologic Technologists
29-2034.02	Radiologic Technicians
29-2041.00	Emergency Medical Technicians and Paramedics
29-2055.00	Surgical Technologists
29-2061.00	Licensed Practical and Licensed Vocational Nurses
31-1012.00	Nursing Aides, Orderlies, and Attendants
31-9091.00	Dental Assistants
31-9092.00	Medical Assistants
Cluster 15 - Education/Teaching	
25-1021.00	Computer Science Teachers, Postsecondary
25-1022.00	Mathematical Science Teachers, Postsecondary
25-1032.00	Engineering Teachers, Postsecondary
25-1041.00	Agricultural Sciences Teachers, Postsecondary
25-1042.00	Biological Science Teachers, Postsecondary
25-1043.00	Forestry and Conservation Science Teachers, Postsecondary
25-1061.00	Anthropology and Archeology Teachers, Postsecondary
25-1062.00	Area, Ethnic, and Cultural Studies Teachers, Postsecondary
25-1063.00	Economics Teachers, Postsecondary
25-1065.00	Political Science Teachers, Postsecondary
25-1066.00	Psychology Teachers, Postsecondary
25-1067.00	Sociology Teachers, Postsecondary
25-1071.00	Health Specialties Teachers, Postsecondary
25-1125.00	History Teachers, Postsecondary
Cluster 16 - Art, Service, & Production (mixture)	
27-1013.01	Painters and Illustrators
27-1013.02	Sketch Artists
27-1013.03	Cartoonists
27-1013.04	Sculptors

Occ Code	Occ Title
27-1023.00	Floral Designers
27-1024.00	Graphic Designers
27-1026.00	Merchandise Displayers and Window Trimmers
27-4021.01	Professional Photographers
27-4021.02	Photographers, Scientific
27-4031.00	Camera Operators, Television, Video, and Motion Picture
39-3092.00	Costume Attendants
39-4011.00	Embalmers
39-5011.00	Barbers
39-5012.00	Hairdressers, Hairstylists, and Cosmetologists
39-5091.00	Makeup Artists, Theatrical and Performance
39-5092.00	Manicurists and Pedicurists
41-9012.00	Models
43-9031.00	Desktop Publishers
43-9081.00	Proofreaders and Copy Markers
45-2041.00	Graders and Sorters, Agricultural Products
49-9064.00	Watch Repairers
49-9093.00	Fabric Menders, Except Garment
51-2093.00	Timing Device Assemblers, Adjusters, and Calibrators
51-3011.01	Bakers, Bread and Pastry
51-3011.02	Bakers, Manufacturing
51-3092.00	Food Batchmakers
51-4031.02	Punching Machine Setters and Set-Up Operators, Metal and Plastic
51-4031.03	Press and Press Brake Machine Setters and Set-Up Operators, Metal and Plastic
51-4031.04	Shear and Slitter Machine Setters and Set-Up Operators, Metal and Plastic
51-4032.00	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4033.01	Grinding, Honing, Lapping, and Deburring Machine Set-Up Operators
51-4033.02	Buffing and Polishing Set-Up Operators
51-4062.00	Patternmakers, Metal and Plastic
51-4071.00	Foundry Mold and Coremakers
51-4072.05	Casting Machine Set-Up Operators
51-4111.00	Tool and Die Makers
51-4121.04	Solderers
51-5021.00	Job Printers
51-5022.01	Hand Compositors and Typesetters
51-5022.02	Paste-Up Workers
51-5022.03	Photoengravers
51-5022.04	Camera Operators
51-5022.05	Scanner Operators
51-5022.06	Strippers
51-5022.07	Platemakers
51-5022.08	Dot Etchers
51-5022.09	Electronic Masking System Operators

Occ Code	Occ Title
51-5022.10	Electrotypers and Stereotypers
51-5022.11	Plate Finishers
51-5022.13	Photoengraving and Lithographing Machine Operators and Tenders
51-5023.07	Embossing Machine Set-Up Operators
51-5023.08	Engraver Set-Up Operators
51-6011.01	Spotters, Dry Cleaning
51-6011.02	Precision Dyers
51-6021.01	Pressers, Delicate Fabrics
51-6021.02	Pressing Machine Operators and Tenders- Textile, Garment, and Related Materials
51-6021.03	Pressers, Hand
51-6031.01	Sewing Machine Operators, Garment
51-6041.00	Shoe and Leather Workers and Repairers
51-6042.00	Shoe Machine Operators and Tenders
51-6051.00	Sewers, Hand
51-6052.01	Shop and Alteration Tailors
51-6052.02	Custom Tailors
51-6092.00	Fabric and Apparel Patternmakers
51-6093.00	Upholsterers
51-7021.00	Furniture Finishers
51-7042.01	Woodworking Machine Setters and Set-Up Operators, Except Sawing
51-7042.02	Woodworking Machine Operators and Tenders, Except Sawing
51-9031.00	Cutters and Trimmers, Hand
51-9071.01	Jewelers
51-9071.02	Silversmiths
51-9071.03	Model and Mold Makers, Jewelry
51-9071.04	Bench Workers, Jewelry
51-9071.05	Pewter Casters and Finishers
51-9071.06	Gem and Diamond Workers
51-9081.00	Dental Laboratory Technicians
51-9122.00	Painters, Transportation Equipment
51-9123.00	Painting, Coating, and Decorating Workers
51-9131.01	Photographic Retouchers and Restorers
51-9131.02	Photographic Reproduction Technicians
51-9131.03	Photographic Hand Developers
51-9131.04	Film Laboratory Technicians
51-9194.01	Precision Etchers and Engravers, Hand or Machine
51-9194.02	Engravers/Carvers
51-9194.03	Etchers
51-9194.05	Etchers, Hand
51-9194.06	Engravers, Hand
51-9195.05	Potters
51-9195.06	Mold Makers, Hand
53-7064.00	Packers and Packagers, Hand
Cluster 17 - Sports, Fitness, & Dance	
27-2021.00	Athletes and Sports Competitors

Occ Code	Occ Title
27-2031.00	Dancers
27-2032.00	Choreographers
39-9031.00	Fitness Trainers and Aerobics Instructors
Cluster 18 - Public Safety & Personal Care (mixture)	
27-2022.00	Coaches and Scouts
27-2023.00	Umpires, Referees, and Other Sports Officials
27-3012.00	Public Address System and Other Announcers
29-1125.00	Recreational Therapists
29-9091.00	Athletic Trainers
31-1013.00	Psychiatric Aides
31-9096.00	Veterinary Assistants and Laboratory Animal Caretakers
33-1021.01	Municipal Fire Fighting and Prevention Supervisors
33-1021.02	Forest Fire Fighting and Prevention Supervisors
33-2011.01	Municipal Fire Fighters
33-2011.02	Forest Fire Fighters
33-2021.01	Fire Inspectors
33-2022.00	Forest Fire Inspectors and Prevention Specialists
33-3011.00	Bailiffs
33-3051.01	Police Patrol Officers
33-3051.02	Highway Patrol Pilots
33-3052.00	Transit and Railroad Police
33-9011.00	Animal Control Workers
33-9032.00	Security Guards
33-9091.00	Crossing Guards
33-9092.00	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers
39-2011.00	Animal Trainers
39-3021.00	Motion Picture Projectionists
39-3091.00	Amusement and Recreation Attendants
39-3093.00	Locker Room, Coatroom, and Dressing Room Attendants
39-6021.00	Tour Guides and Escorts
39-6022.00	Travel Guides
39-6032.00	Transportation Attendants, Except Flight Attendants and Baggage Porters
43-5021.00	Couriers and Messengers
45-1011.05	First-Line Supervisors and Manager/Supervisors - Logging Workers
45-2092.01	Nursery Workers
45-3011.00	Fishers and Related Fishing Workers
45-3021.00	Hunters and Trappers
47-5021.01	Construction Drillers
47-5021.02	Well and Core Drill Operators
47-5031.00	Explosives Workers, Ordnance Handling Experts, and Blasters
53-3011.00	Ambulance Drivers and Attendants, Except Emergency Medical Technicians
53-3032.01	Truck Drivers, Heavy
53-3032.02	Tractor-Trailer Truck Drivers

Occ Code	Occ Title
53-3033.00	Truck Drivers, Light or Delivery Services
53-4021.01	Train Crew Members
Cluster 19 - Music & Instrument Repair	
27-2041.01	Music Directors
27-2041.02	Music Arrangers and Orchestrators
27-2041.03	Composers
27-2042.01	Singers
27-2042.02	Musicians, Instrumental
49-9063.01	Keyboard Instrument Repairers and Tuners
49-9063.02	Stringed Instrument Repairers and Tuners
49-9063.03	Reed or Wind Instrument Repairers and Tuners
49-9063.04	Percussion Instrument Repairers and Tuners
Cluster 20 - Transportation & Material Moving	
27-4012.00	Broadcast Technicians
45-4022.01	Logging Tractor Operators
47-2071.00	Paving, Surfacing, and Tamping Equipment Operators
47-2072.00	Pile-Driver Operators
47-2073.01	Grader, Bulldozer, and Scraper Operators
47-2073.02	Operating Engineers
47-4051.00	Highway Maintenance Workers
47-4061.00	Rail-Track Laying and Maintenance Equipment Operators
47-5011.00	Derrick Operators, Oil and Gas
47-5012.00	Rotary Drill Operators, Oil and Gas
47-5041.00	Continuous Mining Machine Operators
47-5042.00	Mine Cutting and Channeling Machine Operators
47-5081.00	Helpers--Extraction Workers
53-2011.00	Airline Pilots, Copilots, and Flight Engineers
53-2012.00	Commercial Pilots
53-3021.00	Bus Drivers, Transit and Intercity
53-3022.00	Bus Drivers, School
53-3041.00	Taxi Drivers and Chauffeurs
53-4011.00	Locomotive Engineers
53-4012.00	Locomotive Firers
53-4013.00	Rail Yard Engineers, Dinkey Operators, and Hostlers
53-4021.02	Railroad Yard Workers
53-4031.00	Railroad Conductors and Yardmasters
53-4041.00	Subway and Streetcar Operators
53-5011.01	Able Seamen
53-5011.02	Ordinary Seamen and Marine Oilers
53-5021.01	Ship and Boat Captains
53-5021.02	Mates- Ship, Boat, and Barge
53-5021.03	Pilots, Ship
53-5022.00	Motorboat Operators
53-5031.00	Ship Engineers
53-6011.00	Bridge and Lock Tenders
53-6051.04	Railroad Inspectors

Occ Code	Occ Title
53-7021.00	Crane and Tower Operators
53-7031.00	Dredge Operators
53-7032.01	Excavating and Loading Machine Operators
53-7032.02	Dragline Operators
53-7033.00	Loading Machine Operators, Underground Mining
53-7041.00	Hoist and Winch Operators
53-7051.00	Industrial Truck and Tractor Operators
53-7111.00	Shuttle Car Operators
Cluster 21 - Equipment Operation, Inspection, & Repair	
27-4013.00	Radio Operators
27-4014.00	Sound Engineering Technicians
29-1124.00	Radiation Therapists
43-5031.00	Police, Fire, and Ambulance Dispatchers
43-9011.00	Computer Operators
49-2011.02	Data Processing Equipment Repairers
49-3023.01	Automotive Master Mechanics
49-3023.02	Automotive Specialty Technicians
49-9041.00	Industrial Machinery Mechanics
49-9042.00	Maintenance and Repair Workers, General
49-9044.00	Millwrights
51-2022.00	Electrical and Electronic Equipment Assemblers
51-4041.00	Machinists
51-8012.00	Power Distributors and Dispatchers
51-8013.01	Power Generating Plant Operators, Except Auxiliary Equipment Operators
51-9061.01	Materials Inspectors
51-9061.02	Mechanical Inspectors
51-9061.03	Precision Devices Inspectors and Testers
51-9061.04	Electrical and Electronic Inspectors and Testers
53-2021.00	Air Traffic Controllers
Cluster 22 - Construction, Repair, & Machine Operation (mixture)	
35-9021.00	Dishwashers
37-2011.00	Janitors and Cleaners, Except Maids and Housekeeping Cleaners
43-5081.03	Stock Clerks- Stockroom, Warehouse, or Storage Yard
45-4021.00	Fallers
47-2011.00	Boilermakers
47-2021.00	Brickmasons and Blockmasons
47-2031.01	Construction Carpenters
47-2031.02	Rough Carpenters
47-2031.03	Carpenter Assemblers and Repairers
47-2031.04	Ship Carpenters and Joiners
47-2031.05	Boat Builders and Shipwrights
47-2041.00	Carpet Installers
47-2043.00	Floor Sanders and Finishers
47-2051.00	Cement Masons and Concrete Finishers
47-2053.00	Terrazzo Workers and Finishers

Occ Code	Occ Title
47-2121.00	Glaziers
47-2151.00	Pipelayers
47-2152.01	Pipe Fitters
47-2152.02	Plumbers
47-2152.03	Pipelaying Fitters
47-2221.00	Structural Iron and Steel Workers
47-3012.00	Helpers--Carpenters
47-3013.00	Helpers--Electricians
47-3015.00	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters
47-5071.00	Roustabouts, Oil and Gas
49-2011.01	Automatic Teller Machine Servicers
49-2092.02	Electric Motor and Switch Assemblers and Repairers
49-2092.06	Hand and Portable Power Tool Repairers
49-3011.03	Aircraft Body and Bonded Structure Repairers
49-3021.00	Automotive Body and Related Repairers
49-3022.00	Automotive Glass Installers and Repairers
49-3091.00	Bicycle Repairers
49-9011.00	Mechanical Door Repairers
49-9012.02	Valve and Regulator Repairers
49-9012.03	Meter Mechanics
49-9031.02	Gas Appliance Repairers
49-9045.00	Refractory Materials Repairers, Except Brickmasons
49-9092.00	Commercial Divers
49-9096.00	Riggers
49-9098.00	Helpers--Installation, Maintenance, and Repair Workers
51-2011.01	Aircraft Structure Assemblers, Precision
51-2011.02	Aircraft Systems Assemblers, Precision
51-2031.00	Engine and Other Machine Assemblers
51-3022.00	Meat, Poultry, and Fish Cutters and Trimmers
51-3023.00	Slaughterers and Meat Packers
51-4061.00	Model Makers, Metal and Plastic
51-4121.03	Welder-Fitters
51-4122.01	Welding Machine Setters and Set-Up Operators
51-4194.00	Tool Grinders, Filers, and Sharpeners
51-6062.00	Textile Cutting Machine Setters, Operators, and Tenders
51-6063.00	Textile Knitting and Weaving Machine Setters, Operators, and Tenders
51-6064.00	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders
51-9198.01	Production Laborers
51-9198.02	Production Helpers
53-6051.05	Motor Vehicle Inspectors
53-6051.06	Freight Inspectors
53-7061.00	Cleaners of Vehicles and Equipment
53-7062.01	Stevedores, Except Equipment Operators
53-7062.02	Grips and Set-Up Workers, Motion Picture Sets, Studios, and Stages
53-7063.00	Machine Feeders and Offbearers

Appendix F.

Structured Cluster Analyses Within Major Groups Results

Major Group 11 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
11-1011.01	Government Service Executives	1
11-1011.02	Private Sector Executives	1
11-2011.00	Advertising and Promotions Managers	1
11-2021.00	Marketing Managers	1
11-2022.00	Sales Managers	1
11-3051.00	Industrial Production Managers	1
11-9031.00	Education Administrators, Preschool and Child Care Center/Program	1
11-9032.00	Education Administrators, Elementary and Secondary School	1
11-9033.00	Education Administrators, Postsecondary	1
11-9051.00	Food Service Managers	1
11-9081.00	Lodging Managers	1
11-3011.00	Administrative Services Managers	2
11-3021.00	Computer and Information Systems Managers	2
11-3031.01	Treasurers, Controllers, and Chief Financial Officers	2
11-3031.02	Financial Managers, Branch or Department	2
11-3040.00	Human Resources Managers	2
11-3041.00	Compensation and Benefits Managers	2
11-3042.00	Training and Development Managers	2
11-9151.00	Social and Community Service Managers	2
11-3061.00	Purchasing Managers	3
11-3071.01	Transportation Managers	3
11-3071.02	Storage and Distribution Managers	3
11-9011.01	Nursery and Greenhouse Managers	3
11-9011.02	Agricultural Crop Farm Managers	3
11-9011.03	Fish Hatchery Managers	3
11-9012.00	Farmers and Ranchers	3
11-9021.00	Construction Managers	3
11-9061.00	Funeral Directors	3
11-9071.00	Gaming Managers	3
11-9111.00	Medical and Health Services Managers	3
11-9131.00	Postmasters and Mail Superintendents	3
11-9141.00	Property, Real Estate, and Community Association Managers	3
11-9041.00	Engineering Managers	4
11-9121.00	Natural Sciences Managers	4

Major Group 13 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
13-1011.00	Agents and Business Managers of Artists, Performers, and Athletes	1
13-1021.00	Purchasing Agents and Buyers, Farm Products	1
13-1022.00	Wholesale and Retail Buyers, Except Farm Products	1
13-1071.02	Personnel Recruiters	1
13-1072.00	Compensation, Benefits, and Job Analysis Specialists	1
13-1073.00	Training and Development Specialists	1
13-1111.00	Management Analysts	1
13-1121.00	Meeting and Convention Planners	1
13-1023.00	Purchasing Agents, Except Wholesale, Retail, and Farm Products	2
13-1031.01	Claims Examiners, Property and Casualty Insurance	2
13-1031.02	Insurance Adjusters, Examiners, and Investigators	2
13-1032.00	Insurance Appraisers, Auto Damage	2
13-1041.01	Environmental Compliance Inspectors	2
13-1041.02	Licensing Examiners and Inspectors	2
13-1041.03	Equal Opportunity Representatives and Officers	2
13-1041.04	Government Property Inspectors and Investigators	2
13-1041.05	Pressure Vessel Inspectors	2
13-1041.06	Coroners	2
13-1051.00	Cost Estimators	2
13-1071.01	Employment Interviewers, Private or Public Employment Service	2
13-2011.01	Accountants	2
13-2011.02	Auditors	2
13-2021.01	Assessors	2
13-2021.02	Appraisers, Real Estate	2
13-2031.00	Budget Analysts	2
13-2041.00	Credit Analysts	2
13-2051.00	Financial Analysts	2
13-2052.00	Personal Financial Advisors	2
13-2053.00	Insurance Underwriters	2
13-2061.00	Financial Examiners	2
13-2071.00	Loan Counselors	2
13-2072.00	Loan Officers	2
13-2081.00	Tax Examiners, Collectors, and Revenue Agents	2
13-2082.00	Tax Preparers	2

Major Group 15 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
15-1021.00	Computer Programmers	1
15-1031.00	Computer Software Engineers, Applications	1
15-1032.00	Computer Software Engineers, Systems Software	1
15-1041.00	Computer Support Specialists	1
15-1051.00	Computer Systems Analysts	1
15-1061.00	Database Administrators	1
15-1071.01	Computer Security Specialists	1
15-1081.00	Network Systems and Data Communications Analysts	1
15-2011.00	Actuaries	2
15-2021.00	Mathematicians	2
15-2031.00	Operations Research Analysts	2
15-2041.00	Statisticians	2
15-3011.00	Mathematical Technicians	2

Major Group 17 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
17-1011.00	Architects, Except Landscape and Naval	1
17-1012.00	Landscape Architects	1
17-1022.00	Surveyors	1
17-2021.00	Agricultural Engineers	1
17-2111.01	Industrial Safety and Health Engineers	1
17-2111.02	Fire-Prevention and Protection Engineers	1
17-2111.03	Product Safety Engineers	1
17-2112.00	Industrial Engineers	1
17-2121.01	Marine Engineers	1
17-2121.02	Marine Architects	1
17-2131.00	Materials Engineers	1
17-2151.00	Mining and Geological Engineers, Including Mining Safety Engineers	1
17-3012.02	Electrical Drafters	1
17-3022.00	Civil Engineering Technicians	1
17-3026.00	Industrial Engineering Technicians	1
17-1021.00	Cartographers and Photogrammetrists	2
17-3011.01	Architectural Drafters	2
17-3011.02	Civil Drafters	2
17-3012.01	Electronic Drafters	2
17-3013.00	Mechanical Drafters	2
17-3021.00	Aerospace Engineering and Operations Technicians	2
17-3023.01	Electronics Engineering Technicians	2
17-3023.02	Calibration and Instrumentation Technicians	2
17-3023.03	Electrical Engineering Technicians	2
17-3024.00	Electro-Mechanical Technicians	2

Major Group 17 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
17-3027.00	Mechanical Engineering Technicians	2
17-3031.01	Surveying Technicians	2
17-3031.02	Mapping Technicians	2
17-2011.00	Aerospace Engineers	3
17-2041.00	Chemical Engineers	3
17-2051.00	Civil Engineers	3
17-2061.00	Computer Hardware Engineers	3
17-2071.00	Electrical Engineers	3
17-2072.00	Electronics Engineers, Except Computer	3
17-2141.00	Mechanical Engineers	3
17-2161.00	Nuclear Engineers	3
17-2171.00	Petroleum Engineers	3

Major Group 19 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
19-1011.00	Animal Scientists	1
19-1012.00	Food Scientists and Technologists	1
19-1013.01	Plant Scientists	1
19-1013.02	Soil Scientists	1
19-1020.01	Biologists	1
19-1021.01	Biochemists	1
19-1021.02	Biophysicists	1
19-1022.00	Microbiologists	1
19-1023.00	Zoologists and Wildlife Biologists	1
19-1041.00	Epidemiologists	1
19-1042.00	Medical Scientists, Except Epidemiologists	1
19-2011.00	Astronomers	1
19-2012.00	Physicists	1
19-2031.00	Chemists	1
19-2032.00	Materials Scientists	1
19-2041.00	Environmental Scientists and Specialists, Including Health	1
19-2042.01	Geologists	1
19-2043.00	Hydrologists	1
19-4011.01	Agricultural Technicians	1
19-4011.02	Food Science Technicians	1
19-4021.00	Biological Technicians	1
19-4031.00	Chemical Technicians	1
19-4041.01	Geological Data Technicians	1
19-4041.02	Geological Sample Test Technicians	1
19-4051.01	Nuclear Equipment Operation Technicians	1
19-4051.02	Nuclear Monitoring Technicians	1
19-4091.00	Environmental Science and Protection Technicians, Including Health	1

Major Group 19 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
19-1031.01	Soil Conservationists	2
19-1031.02	Range Managers	2
19-1031.03	Park Naturalists	2
19-1032.00	Foresters	2
19-2021.00	Atmospheric and Space Scientists	2
19-3011.00	Economists	2
19-3021.00	Market Research Analysts	2
19-3032.00	Industrial-Organizational Psychologists	2
19-3051.00	Urban and Regional Planners	2
19-3092.00	Geographers	2
19-4061.01	City Planning Aides	2
19-4092.00	Forensic Science Technicians	2
19-3031.01	Educational Psychologists	3
19-3031.02	Clinical Psychologists	3
19-3031.03	Counseling Psychologists	3
19-3041.00	Sociologists	4
19-3091.01	Anthropologists	4
19-3091.02	Archeologists	4
19-3093.00	Historians	4
19-3094.00	Political Scientists	4

Major Group 21 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
21-1011.00	Substance Abuse and Behavioral Disorder Counselors	1
21-1014.00	Mental Health Counselors	1
21-1022.00	Medical and Public Health Social Workers	1
21-1023.00	Mental Health and Substance Abuse Social Workers	1
21-2021.00	Directors, Religious Activities and Education	1
21-1012.00	Educational, Vocational, and School Counselors	2
21-1021.00	Child, Family, and School Social Workers	2
21-1091.00	Health Educators	2
21-1092.00	Probation Officers and Correctional Treatment Specialists	2
21-1093.00	Social and Human Service Assistants	2
21-2011.00	Clergy	2

Major Group 23 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
23-1011.00	Lawyers	1
23-1021.00	Administrative Law Judges, Adjudicators, and Hearing Officers	1
23-1022.00	Arbitrators, Mediators, and Conciliators	1
23-1023.00	Judges, Magistrate Judges, and Magistrates	1
23-2011.00	Paralegals and Legal Assistants	2
23-2092.00	Law Clerks	2
23-2093.01	Title Searchers	2
23-2093.02	Title Examiners and Abstractors	2

Major Group 25 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
25-1021.00	Computer Science Teachers, Postsecondary	1
25-1032.00	Engineering Teachers, Postsecondary	1
25-1052.00	Chemistry Teachers, Postsecondary	1
25-1054.00	Physics Teachers, Postsecondary	1
25-1022.00	Mathematical Science Teachers, Postsecondary	2
25-1123.00	English Language and Literature Teachers, Postsecondary	2
25-1124.00	Foreign Language and Literature Teachers, Postsecondary	2
25-1191.00	Graduate Teaching Assistants	2
25-2041.00	Special Education Teachers, Preschool, Kindergarten, and Elementary School	2
25-2042.00	Special Education Teachers, Middle School	2
25-2043.00	Special Education Teachers, Secondary School	2
25-1041.00	Agricultural Sciences Teachers, Postsecondary	3
25-1042.00	Biological Science Teachers, Postsecondary	3
25-1043.00	Forestry and Conservation Science Teachers, Postsecondary	3
25-1071.00	Health Specialties Teachers, Postsecondary	3
25-1072.00	Nursing Instructors and Teachers, Postsecondary	3
25-1061.00	Anthropology and Archeology Teachers, Postsecondary	4
25-1062.00	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	4
25-1063.00	Economics Teachers, Postsecondary	4
25-1065.00	Political Science Teachers, Postsecondary	4
25-1066.00	Psychology Teachers, Postsecondary	4
25-1067.00	Sociology Teachers, Postsecondary	4
25-1125.00	History Teachers, Postsecondary	4
25-1121.00	Art, Drama, and Music Teachers, Postsecondary	5
25-1194.00	Vocational Education Teachers Postsecondary	5
25-2011.00	Preschool Teachers, Except Special Education	5
25-2012.00	Kindergarten Teachers, Except Special Education	5
25-2021.00	Elementary School Teachers, Except Special Education	5
25-2022.00	Middle School Teachers, Except Special and Vocational Education	5
25-2023.00	Vocational Education Teachers, Middle School	5

Major Group 25 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
25-2031.00	Secondary School Teachers, Except Special and Vocational Education	5
25-2032.00	Vocational Education Teachers, Secondary School	5
25-3011.00	Adult Literacy, Remedial Education, and GED Teachers and Instructors	5
25-3021.00	Self-Enrichment Education Teachers	5
25-4011.00	Archivists	5
25-4012.00	Curators	5
25-4013.00	Museum Technicians and Conservators	5
25-4021.00	Librarians	5
25-4031.00	Library Technicians	5
25-9011.00	Audio-Visual Collections Specialists	5
25-9021.00	Farm and Home Management Advisors	5
25-9031.00	Instructional Coordinators	5
25-9041.00	Teacher Assistants	5

Major Group 27 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
27-1011.00	Art Directors	1
27-1013.01	Painters and Illustrators	1
27-1013.02	Sketch Artists	1
27-1013.03	Cartoonists	1
27-1013.04	Sculptors	1
27-1021.00	Commercial and Industrial Designers	1
27-1022.00	Fashion Designers	1
27-1024.00	Graphic Designers	1
27-1025.00	Interior Designers	1
27-1026.00	Merchandise Displayers and Window Trimmers	1
27-1027.01	Set Designers	1
27-1027.02	Exhibit Designers	1
27-1023.00	Floral Designers	2
27-2011.00	Actors	2
27-2012.01	Producers	2
27-2012.02	Directors- Stage, Motion Pictures, Television, and Radio	2
27-2012.03	Program Directors	2
27-2012.04	Talent Directors	2
27-2012.05	Technical Directors/Managers	2
27-2022.00	Coaches and Scouts	2
27-2023.00	Umpires, Referees, and Other Sports Officials	2
27-2042.01	Singers	2
27-3011.00	Radio and Television Announcers	2
27-3012.00	Public Address System and Other Announcers	2
27-3021.00	Broadcast News Analysts	2
27-3022.00	Reporters and Correspondents	2

Major Group 27 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
27-3031.00	Public Relations Specialists	2
27-3041.00	Editors	2
27-3042.00	Technical Writers	2
27-3043.01	Poets and Lyricists	2
27-3043.02	Creative Writers	2
27-3043.03	Caption Writers	2
27-3043.04	Copy Writers	2
27-3091.00	Interpreters and Translators	2
27-4011.00	Audio and Video Equipment Technicians	2
27-4012.00	Broadcast Technicians	2
27-4013.00	Radio Operators	2
27-4021.01	Professional Photographers	2
27-4021.02	Photographers, Scientific	2
27-4031.00	Camera Operators, Television, Video, and Motion Picture	2
27-4032.00	Film and Video Editors	2
27-2021.00	Athletes and Sports Competitors	3
27-2031.00	Dancers	3
27-2032.00	Choreographers	3
27-2041.01	Music Directors	4
27-2041.02	Music Arrangers and Orchestrators	4
27-2041.03	Composers	4
27-2042.02	Musicians, Instrumental	4
27-4014.00	Sound Engineering Technicians	4

Major Group 29 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
29-1011.00	Chiropractors	1
29-1021.00	Dentists, General	1
29-1022.00	Oral and Maxillofacial Surgeons	1
29-1023.00	Orthodontists	1
29-1024.00	Prosthodontists	1
29-1062.00	Family and General Practitioners	1
29-1063.00	Internists, General	1
29-1064.00	Obstetricians and Gynecologists	1
29-1065.00	Pediatricians, General	1
29-1067.00	Surgeons	1
29-1081.00	Podiatrists	1
29-1131.00	Veterinarians	1
29-1031.00	Dietitians and Nutritionists	2
29-1041.00	Optometrists	2
29-1051.00	Pharmacists	2
29-1061.00	Anesthesiologists	2
29-1071.00	Physician Assistants	2

Major Group 29 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
29-1111.00	Registered Nurses	2
29-1124.00	Radiation Therapists	2
29-1126.00	Respiratory Therapists	2
29-2011.00	Medical and Clinical Laboratory Technologists	2
29-2012.00	Medical and Clinical Laboratory Technicians	2
29-2021.00	Dental Hygienists	2
29-2031.00	Cardiovascular Technologists and Technicians	2
29-2033.00	Nuclear Medicine Technologists	2
29-2034.01	Radiologic Technologists	2
29-2034.02	Radiologic Technicians	2
29-2041.00	Emergency Medical Technicians and Paramedics	2
29-2051.00	Dietetic Technicians	2
29-2052.00	Pharmacy Technicians	2
29-2053.00	Psychiatric Technicians	2
29-2055.00	Surgical Technologists	2
29-2061.00	Licensed Practical and Licensed Vocational Nurses	2
29-2071.00	Medical Records and Health Information Technicians	2
29-2081.00	Opticians, Dispensing	2
29-9011.00	Occupational Health and Safety Specialists	2
29-1066.00	Psychiatrists	3
29-1121.00	Audiologists	3
29-1122.00	Occupational Therapists	3
29-1123.00	Physical Therapists	3
29-1125.00	Recreational Therapists	3
29-1127.00	Speech-Language Pathologists	3
29-2091.00	Orthotists and Prosthetists	3
29-9091.00	Athletic Trainers	3

Major Group 31 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
31-1011.00	Home Health Aides	1
31-1013.00	Psychiatric Aides	1
31-2011.00	Occupational Therapist Assistants	1
31-2012.00	Occupational Therapist Aides	1
31-2021.00	Physical Therapist Assistants	1
31-2022.00	Physical Therapist Aides	1
31-1012.00	Nursing Aides, Orderlies, and Attendants	2
31-9091.00	Dental Assistants	2
31-9092.00	Medical Assistants	2
31-9096.00	Veterinary Assistants and Laboratory Animal Caretakers	2
31-9093.00	Medical Equipment Preparers	3

Major Group 33 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
33-1012.00	First-Line Supervisors/Managers of Police and Detectives	1
33-1021.01	Municipal Fire Fighting and Prevention Supervisors	1
33-1021.02	Forest Fire Fighting and Prevention Supervisors	1
33-2011.01	Municipal Fire Fighters	1
33-2011.02	Forest Fire Fighters	1
33-2022.00	Forest Fire Inspectors and Prevention Specialists	1
33-3031.00	Fish and Game Wardens	1
33-9092.00	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	1
33-2021.01	Fire Inspectors	2
33-2021.02	Fire Investigators	2
33-3011.00	Bailiffs	2
33-3012.00	Correctional Officers and Jailers	2
33-3021.01	Police Detectives	2
33-3021.03	Criminal Investigators and Special Agents	2
33-3021.04	Child Support, Missing Persons, and Unemployment Insurance Fraud Investigators	2
33-3021.05	Immigration and Customs Inspectors	2
33-3051.03	Sheriffs and Deputy Sheriffs	2
33-3052.00	Transit and Railroad Police	2
33-9011.00	Animal Control Workers	2
33-9021.00	Private Detectives and Investigators	2
33-9032.00	Security Guards	2
33-9091.00	Crossing Guards	2
33-3021.02	Police Identification and Records Officers	3
33-3041.00	Parking Enforcement Workers	3
33-3051.01	Police Patrol Officers	4
33-3051.02	Highway Patrol Pilots	4

Major Group 35 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
35-1011.00	Chefs and Head Cooks	1
35-1012.00	First-Line Supervisors/Managers of Food Preparation and Serving Workers	1
35-2014.00	Cooks, Restaurant	2
35-2011.00	Cooks, Fast Food	2
35-2015.00	Cooks, Short Order	2
35-3022.00	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	2
35-3041.00	Food Servers, Nonrestaurant	2
35-9011.00	Dining Room and Cafeteria Attendants and Bartender Helpers	2
35-2012.00	Cooks, Institution and Cafeteria	3
35-9031.00	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	3
35-2021.00	Food Preparation Workers	4
35-3011.00	Bartenders	4

Major Group 35 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
35-3021.00	Combined Food Preparation and Serving Workers, Including Fast Food	4
35-3031.00	Waiters and Waitresses	4
35-9021.00	Dishwashers	4

Major Group 37 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
37-1011.01	Housekeeping Supervisors	1
37-1011.02	Janitorial Supervisors	1
37-1012.01	Lawn Service Managers	1
37-1012.02	First-Line Supervisors and Manager/Supervisors - Landscaping Workers	1
37-2011.00	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2
37-2021.00	Pest Control Workers	2
37-2012.00	Maids and Housekeeping Cleaners	2
37-3011.00	Landscaping and Groundskeeping Workers	3
37-3012.00	Pesticide Handlers, Sprayers, and Applicators, Vegetation	3
37-3013.00	Tree Trimmers and Pruners	3

Major Group 39 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
39-1011.00	Gaming Supervisors	1
39-1012.00	Slot Key Persons	1
39-9032.00	Recreation Workers	1
39-9041.00	Residential Advisors	1
39-2011.00	Animal Trainers	2
39-2021.00	Nonfarm Animal Caretakers	2
39-9011.00	Child Care Workers	2
39-9021.00	Personal and Home Care Aides	2
39-3011.00	Gaming Dealers	3
39-3012.00	Gaming and Sports Book Writers and Runners	3
39-3021.00	Motion Picture Projectionists	4
39-3092.00	Costume Attendants	4
39-4011.00	Embalmers	4
39-5011.00	Barbers	4
39-5012.00	Hairdressers, Hairstylists, and Cosmetologists	4
39-5091.00	Makeup Artists, Theatrical and Performance	4
39-5092.00	Manicurists and Pedicurists	4
39-3031.00	Ushers, Lobby Attendants, and Ticket Takers	5
39-4021.00	Funeral Attendants	5
39-6011.00	Baggage Porters and Bellhops	5

Major Group 39 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
39-3091.00	Amusement and Recreation Attendants	6
39-3093.00	Locker Room, Coatroom, and Dressing Room Attendants	6
39-6021.00	Tour Guides and Escorts	6
39-6022.00	Travel Guides	6
39-6031.00	Flight Attendants	6
39-6032.00	Transportation Attendants, Except Flight Attendants and Baggage Porters	6
39-9031.00	Fitness Trainers and Aerobics Instructors	7

Major Group 41 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
41-1011.00	First-Line Supervisors/Managers of Retail Sales Workers	1
41-1012.00	First-Line Supervisors/Managers of Non-Retail Sales Workers	1
41-2011.00	Cashiers	2
41-2021.00	Counter and Rental Clerks	2
41-2022.00	Parts Salespersons	2
41-2031.00	Retail Salespersons	2
41-4011.01	Sales Representatives, Agricultural	2
41-4011.02	Sales Representatives, Chemical and Pharmaceutical	2
41-4011.03	Sales Representatives, Electrical/Electronic	2
41-4011.04	Sales Representatives, Mechanical Equipment and Supplies	2
41-4011.05	Sales Representatives, Medical	2
41-4011.06	Sales Representatives, Instruments	2
41-3011.00	Advertising Sales Agents	3
41-4012.00	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	3
41-9011.00	Demonstrators and Product Promoters	3
41-9012.00	Models	3
41-9041.00	Telemarketers	3
41-9091.00	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	3
41-3021.00	Insurance Sales Agents	4
41-3031.01	Sales Agents, Securities and Commodities	4
41-3031.02	Sales Agents, Financial Services	4
41-3041.00	Travel Agents	4
41-9022.00	Real Estate Sales Agents	4
41-9031.00	Sales Engineers	5

Major Group 43 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
43-1011.01	First-Line Supervisors, Customer Service	1
43-1011.02	First-Line Supervisors, Administrative Support	1
43-2011.00	Switchboard Operators, Including Answering Service	2
43-2021.01	Directory Assistance Operators	2
43-3071.00	Tellers	2
43-4171.00	Receptionists and Information Clerks	2
43-4181.02	Reservation and Transportation Ticket Agents	2
43-5031.00	Police, Fire, and Ambulance Dispatchers	2
43-6014.00	Secretaries, Except Legal, Medical, and Executive	2
43-9011.00	Computer Operators	2
43-9022.00	Word Processors and Typists	2
43-9061.00	Office Clerks, General	2
43-2021.02	Central Office Operators	3
43-3021.01	Statement Clerks	3
43-4021.00	Correspondence Clerks	3
43-4031.01	Court Clerks	3
43-4031.02	Municipal Clerks	3
43-4031.03	License Clerks	3
43-4041.01	Credit Authorizers	3
43-4051.01	Adjustment Clerks	3
43-4051.02	Customer Service Representatives, Utilities	3
43-4061.01	Claims Takers, Unemployment Benefits	3
43-4061.02	Welfare Eligibility Workers and Interviewers	3
43-4111.00	Interviewers, Except Eligibility and Loan	3
43-4141.00	New Accounts Clerks	3
43-6013.00	Medical Secretaries	3
43-3011.00	Bill and Account Collectors	4
43-4081.00	Hotel, Motel, and Resort Desk Clerks	4
43-4121.00	Library Assistants, Clerical	4
43-4151.00	Order Clerks	4
43-4181.01	Travel Clerks	4
43-5011.00	Cargo and Freight Agents	4
43-5021.00	Couriers and Messengers	4
43-5032.00	Dispatchers, Except Police, Fire, and Ambulance	4
43-5041.00	Meter Readers, Utilities	4
43-5051.00	Postal Service Clerks	4
43-5052.00	Postal Service Mail Carriers	4
43-9051.01	Mail Machine Operators, Preparation and Handling	4
43-9071.01	Duplicating Machine Operators	4
43-3021.02	Billing, Cost, and Rate Clerks	5
43-3031.00	Bookkeeping, Accounting, and Auditing Clerks	5
43-3051.00	Payroll and Timekeeping Clerks	5
43-4011.00	Brokerage Clerks	5
43-4041.02	Credit Checkers	5

Major Group 43 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
43-4131.00	Loan Interviewers and Clerks	5
43-9041.01	Insurance Claims Clerks	5
43-9041.02	Insurance Policy Processing Clerks	5
43-3021.03	Billing, Posting, and Calculating Machine Operators	6
43-4071.00	File Clerks	6
43-5081.02	Marking Clerks	6
43-5081.04	Order Fillers, Wholesale and Retail Sales	6
43-9021.00	Data Entry Keyers	6
43-9031.00	Desktop Publishers	6
43-9081.00	Proofreaders and Copy Markers	6
43-9111.00	Statistical Assistants	6
43-3061.00	Procurement Clerks	7
43-4161.00	Human Resources Assistants, Except Payroll and Timekeeping	7
43-5061.00	Production, Planning, and Expediting Clerks	7
43-5071.00	Shipping, Receiving, and Traffic Clerks	7
43-5081.01	Stock Clerks, Sales Floor	7
43-5081.03	Stock Clerks- Stockroom, Warehouse, or Storage Yard	7
43-5111.00	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	7
43-6011.00	Executive Secretaries and Administrative Assistants	7
43-6012.00	Legal Secretaries	7
43-9051.02	Mail Clerks, Except Mail Machine Operators and Postal Service	7

Major Group 45 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
45-1011.01	First-Line Supervisors and Manager/Supervisors - Agricultural Crop Workers	1
45-1011.02	First-Line Supervisors and Manager/Supervisors - Animal Husbandry Workers	1
45-1011.03	First-Line Supervisors and Manager/Supervisors - Animal Care Workers, Except Livestock	1
45-1011.04	First-Line Supervisors and Manager/Supervisors - Horticultural Workers	1
45-1011.06	First-Line Supervisors and Manager/Supervisors - Fishery Workers	1
45-1011.05	First-Line Supervisors and Manager/Supervisors - Logging Workers	1
45-2091.00	Agricultural Equipment Operators	2
45-2092.02	General Farmworkers	2
45-2011.00	Agricultural Inspectors	3
45-2021.00	Animal Breeders	3
45-2093.00	Farmworkers, Farm and Ranch Animals	3
45-3011.00	Fishers and Related Fishing Workers	3
45-4011.00	Forest and Conservation Workers	3
45-4021.00	Fallers	3
45-4022.01	Logging Tractor Operators	3
45-2041.00	Graders and Sorters, Agricultural Products	4

Major Group 45 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
45-2092.01	Nursery Workers	4
45-3021.00	Hunters and Trappers	4
45-4023.00	Log Graders and Scalers	4

Major Group 47 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
47-1011.01	First-Line Supervisors and Manager/Supervisors- Construction Trades Workers	1
47-1011.02	First-Line Supervisors and Manager/Supervisors- Extractive Workers	1
47-2111.00	Electricians	1
47-4011.00	Construction and Building Inspectors	1
47-2011.00	Boilermakers	2
47-2072.00	Pile-Driver Operators	2
47-4021.00	Elevator Installers and Repairers	2
47-4061.00	Rail-Track Laying and Maintenance Equipment Operators	2
47-5011.00	Derrick Operators, Oil and Gas	2
47-5012.00	Rotary Drill Operators, Oil and Gas	2
47-5013.00	Service Unit Operators, Oil, Gas, and Mining	2
47-5021.01	Construction Drillers	2
47-5021.02	Well and Core Drill Operators	2
47-5031.00	Explosives Workers, Ordnance Handling Experts, and Blasters	2
47-5041.00	Continuous Mining Machine Operators	2
47-5042.00	Mine Cutting and Channeling Machine Operators	2
47-5071.00	Roustabouts, Oil and Gas	2
47-2021.00	Brickmasons and Blockmasons	3
47-2031.01	Construction Carpenters	3
47-2031.02	Rough Carpenters	3
47-2031.03	Carpenter Assemblers and Repairers	3
47-2031.04	Ship Carpenters and Joiners	3
47-2031.05	Boat Builders and Shipwrights	3
47-2152.01	Pipe Fitters	3
47-2152.02	Plumbers	3
47-2211.00	Sheet Metal Workers	3
47-2022.00	Stonemasons	4
47-2031.06	Brattice Builders	4
47-2041.00	Carpet Installers	4
47-2042.00	Floor Layers, Except Carpet, Wood, and Hard Tiles	4
47-2044.00	Tile and Marble Setters	4
47-2051.00	Cement Masons and Concrete Finishers	4
47-2053.00	Terrazzo Workers and Finishers	4
47-2081.01	Ceiling Tile Installers	4
47-2081.02	Drywall Installers	4
47-2082.00	Tapers	4

Major Group 47 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
47-2121.00	Glaziers	4
47-2131.00	Insulation Workers, Floor, Ceiling, and Wall	4
47-2132.00	Insulation Workers, Mechanical	4
47-2141.00	Painters, Construction and Maintenance	4
47-2142.00	Paperhangers	4
47-2161.00	Plasterers and Stucco Masons	4
47-2171.00	Reinforcing Iron and Rebar Workers	4
47-2181.00	Roofers	4
47-4031.00	Fence Erectors	4
47-5051.00	Rock Splitters, Quarry	4
47-5061.00	Roof Bolters, Mining	4
47-2043.00	Floor Sanders and Finishers	5
47-2061.00	Construction Laborers	5
47-2071.00	Paving, Surfacing, and Tamping Equipment Operators	5
47-2073.01	Grader, Bulldozer, and Scraper Operators	5
47-2073.02	Operating Engineers	5
47-2151.00	Pipelayers	5
47-2152.03	Pipelaying Fitters	5
47-2221.00	Structural Iron and Steel Workers	5
47-3011.00	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	5
47-3012.00	Helpers--Carpenters	5
47-3013.00	Helpers--Electricians	5
47-3014.00	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	5
47-3015.00	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	5
47-4041.01	Irradiated-Fuel Handlers	5
47-4051.00	Highway Maintenance Workers	5
47-4071.00	Septic Tank Servicers and Sewer Pipe Cleaners	5
47-5081.00	Helpers--Extraction Workers	5

Major Group 49 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
49-1011.00	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	1
49-2021.00	Radio Mechanics	1
49-2022.01	Central Office and PBX Installers and Repairers	1
49-2091.00	Avionics Technicians	1
49-2092.02	Electric Motor and Switch Assemblers and Repairers	1
49-2095.00	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	1
49-3011.01	Airframe-and-Power-Plant Mechanics	1
49-3011.02	Aircraft Engine Specialists	1
49-3031.00	Bus and Truck Mechanics and Diesel Engine Specialists	1
49-3041.00	Farm Equipment Mechanics	1

Major Group 49 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
49-3042.00	Mobile Heavy Equipment Mechanics, Except Engines	1
49-3043.00	Rail Car Repairers	1
49-3051.00	Motorboat Mechanics	1
49-3052.00	Motorcycle Mechanics	1
49-3053.00	Outdoor Power Equipment and Other Small Engine Mechanics	1
49-9021.02	Refrigeration Mechanics	1
49-9031.02	Gas Appliance Repairers	1
49-9043.00	Maintenance Workers, Machinery	1
49-9097.00	Signal and Track Switch Repairers	1
49-9098.00	Helpers--Installation, Maintenance, and Repair Workers	1
49-2011.01	Automatic Teller Machine Servicers	2
49-2011.03	Office Machine and Cash Register Servicers	2
49-2022.02	Frame Wirers, Central Office	2
49-2022.03	Communication Equipment Mechanics, Installers, and Repairers	2
49-2022.04	Telecommunications Facility Examiners	2
49-2022.05	Station Installers and Repairers, Telephone	2
49-2092.01	Electric Home Appliance and Power Tool Repairers	2
49-2092.03	Battery Repairers	2
49-2092.04	Transformer Repairers	2
49-2092.05	Electrical Parts Reconditioners	2
49-2092.06	Hand and Portable Power Tool Repairers	2
49-2093.00	Electrical and Electronics Installers and Repairers, Transportation Equipment	2
49-2096.00	Electronic Equipment Installers and Repairers, Motor Vehicles	2
49-2097.00	Electronic Home Entertainment Equipment Installers and Repairers	2
49-3011.03	Aircraft Body and Bonded Structure Repairers	2
49-3021.00	Automotive Body and Related Repairers	2
49-3022.00	Automotive Glass Installers and Repairers	2
49-3091.00	Bicycle Repairers	2
49-3092.00	Recreational Vehicle Service Technicians	2
49-3093.00	Tire Repairers and Changers	2
49-9011.00	Mechanical Door Repairers	2
49-9012.01	Electric Meter Installers and Repairers	2
49-9012.02	Valve and Regulator Repairers	2
49-9012.03	Meter Mechanics	2
49-9021.01	Heating and Air Conditioning Mechanics	2
49-9031.01	Home Appliance Installers	2
49-9045.00	Refractory Materials Repairers, Except Brickmasons	2
49-9051.00	Electrical Power-Line Installers and Repairers	2
49-9052.00	Telecommunications Line Installers and Repairers	2
49-9064.00	Watch Repairers	2
49-9091.00	Coin, Vending, and Amusement Machine Servicers and Repairers	2
49-9092.00	Commercial Divers	2
49-9093.00	Fabric Menders, Except Garment	2
49-9094.00	Locksmiths and Safe Repairers	2
49-9095.00	Manufactured Building and Mobile Home Installers	2

Major Group 49 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
49-9096.00	Riggers	2
49-2011.02	Data Processing Equipment Repairers	3
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	3
49-3023.01	Automotive Master Mechanics	3
49-3023.02	Automotive Specialty Technicians	3
49-9041.00	Industrial Machinery Mechanics	3
49-9042.00	Maintenance and Repair Workers, General	3
49-9044.00	Millwrights	3
49-9061.00	Camera and Photographic Equipment Repairers	3
49-9062.00	Medical Equipment Repairers	3
49-9063.01	Keyboard Instrument Repairers and Tuners	4
49-9063.02	Stringed Instrument Repairers and Tuners	4
49-9063.03	Reed or Wind Instrument Repairers and Tuners	4
49-9063.04	Percussion Instrument Repairers and Tuners	4

Major Group 51 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-1011.00	First-Line Supervisors/Managers of Production and Operating Workers	1
51-3091.00	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	1
51-4072.04	Metal Molding, Coremaking, and Casting Machine Operators and Tenders	1
51-4081.01	Combination Machine Tool Setters and Set-Up Operators, Metal and Plastic	1
51-8011.00	Nuclear Power Reactor Operators	1
51-8012.00	Power Distributors and Dispatchers	1
51-8013.01	Power Generating Plant Operators, Except Auxiliary Equipment Operators	1
51-8013.02	Auxiliary Equipment Operators, Power	1
51-8021.02	Stationary Engineers	1
51-8031.00	Water and Liquid Waste Treatment Plant and System Operators	1
51-8091.00	Chemical Plant and System Operators	1
51-8092.01	Gas Processing Plant Operators	1
51-8092.02	Gas Distribution Plant Operators	1
51-8093.01	Petroleum Pump System Operators	1
51-8093.02	Petroleum Refinery and Control Panel Operators	1
51-8093.03	Gaugers	1
51-9011.01	Chemical Equipment Controllers and Operators	1
51-9061.05	Production Inspectors, Testers, Graders, Sorters, Samplers, Weighers	1
51-9111.00	Packaging and Filling Machine Operators and Tenders	1
51-9193.00	Cooling and Freezing Equipment Operators and Tenders	1
51-2011.01	Aircraft Structure Assemblers, Precision	2

Major Group 51 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-2011.02	Aircraft Systems Assemblers, Precision	2
51-2011.03	Aircraft Rigging Assemblers	2
51-2023.00	Electromechanical Equipment Assemblers	2
51-2031.00	Engine and Other Machine Assemblers	2
51-4012.00	Numerical Tool and Process Control Programmers	2
51-4031.03	Press and Press Brake Machine Setters and Set-Up Operators, Metal and Plastic	2
51-4031.04	Shear and Slitter Machine Setters and Set-Up Operators, Metal and Plastic	2
51-4032.00	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2
51-4062.00	Patternmakers, Metal and Plastic	2
51-4121.03	Welder-Fitters	2
51-4122.01	Welding Machine Setters and Set-Up Operators	2
51-4194.00	Tool Grinders, Filers, and Sharpeners	2
51-6062.00	Textile Cutting Machine Setters, Operators, and Tenders	2
51-6063.00	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	2
51-6064.00	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	2
51-7042.02	Woodworking Machine Operators and Tenders, Except Sawing	2
51-9083.01	Precision Lens Grinders and Polishers	2
51-9083.02	Optical Instrument Assemblers	2
51-9141.00	Semiconductor Processors	2
51-2021.00	Coil Winders, Tapers, and Finishers	3
51-4031.01	Sawing Machine Tool Setters and Set-Up Operators, Metal and Plastic	3
51-4051.00	Metal-Refining Furnace Operators and Tenders	3
51-4072.02	Plastic Molding and Casting Machine Operators and Tenders	3
51-4072.03	Metal Molding, Coremaking, and Casting Machine Setters and Set-Up Operators	3
51-4081.02	Combination Machine Tool Operators and Tenders, Metal and Plastic	3
51-4121.01	Welders, Production	3
51-4121.02	Welders and Cutters	3
51-4122.02	Welding Machine Operators and Tenders	3
51-4191.01	Heating Equipment Setters and Set-Up Operators, Metal and Plastic	3
51-4191.02	Heat Treating, Annealing, and Tempering Machine Operators and Tenders, Metal and Plastic	3
51-5011.02	Bindery Machine Operators and Tenders	3
51-6011.03	Laundry and Drycleaning Machine Operators and Tenders, Except Pressing	3
51-6061.00	Textile Bleaching and Dyeing Machine Operators and Tenders	3
51-7041.02	Sawing Machine Operators and Tenders	3
51-8021.01	Boiler Operators and Tenders, Low Pressure	3
51-9032.01	Fiber Product Cutting Machine Setters and Set-Up Operators	3
51-9032.02	Stone Sawyers	3
51-9032.03	Glass Cutting Machine Setters and Set-Up Operators	3
51-9041.02	Extruding, Forming, Pressing, and Compacting Machine Operators	3

Major Group 51 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
	and Tenders	
	Coating, Painting, and Spraying Machine Setters and Set-Up	
51-9121.01	Operators	3
51-9198.01	Production Laborers	3
51-2022.00	Electrical and Electronic Equipment Assemblers	4
51-4041.00	Machinists	4
51-4061.00	Model Makers, Metal and Plastic	4
51-9061.01	Materials Inspectors	4
51-9061.02	Mechanical Inspectors	4
51-9061.03	Precision Devices Inspectors and Testers	4
51-9061.04	Electrical and Electronic Inspectors and Testers	4
51-2041.01	Metal Fabricators, Structural Metal Products	5
51-2041.02	Fitters, Structural Metal- Precision	5
51-4192.00	Lay-Out Workers, Metal and Plastic	5
51-7011.00	Cabinetmakers and Bench Carpenters	5
51-7031.00	Model Makers, Wood	5
51-7032.00	Patternmakers, Wood	5
51-2093.00	Timing Device Assemblers, Adjusters, and Calibrators	6
51-5022.04	Camera Operators	6
51-6041.00	Shoe and Leather Workers and Repairers	6
51-6042.00	Shoe Machine Operators and Tenders	6
51-6052.01	Shop and Alteration Tailors	6
51-6052.02	Custom Tailors	6
51-6092.00	Fabric and Apparel Patternmakers	6
51-6093.00	Upholsterers	6
51-7021.00	Furniture Finishers	6
51-9071.01	Jewelers	6
51-9071.02	Silversmiths	6
51-9071.03	Model and Mold Makers, Jewelry	6
51-9071.04	Bench Workers, Jewelry	6
51-9071.05	Pewter Casters and Finishers	6
51-9071.06	Gem and Diamond Workers	6
51-9081.00	Dental Laboratory Technicians	6
51-9082.00	Medical Appliance Technicians	6
51-9122.00	Painters, Transportation Equipment	6
51-9131.01	Photographic Retouchers and Restorers	6
51-9194.01	Precision Etchers and Engravers, Hand or Machine	6
51-9194.02	Engravers/Carvers	6
51-9194.03	Etchers	6
51-9194.05	Etchers, Hand	6
51-9194.06	Engravers, Hand	6
51-9195.03	Stone Cutters and Carvers	6
51-9195.05	Potters	6
51-3011.01	Bakers, Bread and Pastry	7
51-3011.02	Bakers, Manufacturing	7
51-3021.00	Butchers and Meat Cutters	7

Major Group 51 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-3022.00	Meat, Poultry, and Fish Cutters and Trimmers	7
51-3023.00	Slaughterers and Meat Packers	7
51-3092.00	Food Batchmakers	7
51-4023.00	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	7
51-4031.02	Punching Machine Setters and Set-Up Operators, Metal and Plastic	7
51-4033.02	Buffing and Polishing Set-Up Operators	7
51-4052.00	Pourers and Casters, Metal	7
51-4071.00	Foundry Mold and Coremakers	7
51-4072.05	Casting Machine Set-Up Operators	7
51-4121.04	Solderers	7
51-4121.05	Brazers	7
51-4122.03	Soldering and Brazing Machine Setters and Set-Up Operators	7
51-4122.04	Soldering and Brazing Machine Operators and Tenders	7
51-4191.03	Heaters, Metal and Plastic	7
51-4193.01	Electrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic	7
51-4193.04	Nonelectrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic	7
51-5011.01	Bindery Machine Setters and Set-Up Operators	7
51-5021.00	Job Printers	7
51-5022.07	Platemakers	7
51-5022.10	Electrotypers and Stereotypers	7
51-5022.11	Plate Finishers	7
51-5022.12	Typesetting and Composing Machine Operators and Tenders	7
51-5022.13	Photoengraving and Lithographing Machine Operators and Tenders	7
51-5023.02	Offset Lithographic Press Setters and Set-Up Operators	7
51-5023.03	Letterpress Setters and Set-Up Operators	7
51-5023.05	Marking and Identification Printing Machine Setters and Set-Up Operators	7
51-5023.06	Screen Printing Machine Setters and Set-Up Operators	7
51-5023.07	Embossing Machine Set-Up Operators	7
51-5023.08	Engraver Set-Up Operators	7
51-5023.09	Printing Press Machine Operators and Tenders	7
51-6011.01	Spotters, Dry Cleaning	7
51-6011.02	Precision Dyers	7
51-6021.01	Pressers, Delicate Fabrics	7
51-6021.02	Pressing Machine Operators and Tenders- Textile, Garment, and Related Materials	7
51-6021.03	Pressers, Hand	7
51-6031.01	Sewing Machine Operators, Garment	7
51-6031.02	Sewing Machine Operators, Non-Garment	7
51-6091.01	Extruding and Forming Machine Operators and Tenders, Synthetic or Glass Fibers	7
51-7041.01	Sawing Machine Setters and Set-Up Operators	7
51-7042.01	Woodworking Machine Setters and Set-Up Operators, Except Sawing	7
51-9012.00	Separating, Filtering, Clarifying, Precipitating, and Still Machine	7

Major Group 51 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
	Setters, Operators, and Tenders	
51-9022.00	Grinding and Polishing Workers, Hand	7
51-9031.00	Cutters and Trimmers, Hand	7
51-9132.00	Photographic Processing Machine Operators	7
51-9194.04	Pantograph Engravers	7
51-9195.01	Precision Mold and Pattern Casters, except Nonferrous Metals	7
51-9195.02	Precision Pattern and Die Casters, Nonferrous Metals	7
51-9195.04	Glass Blowers, Molders, Benders, and Finishers	7
51-9195.06	Mold Makers, Hand	7
51-9195.07	Molding and Casting Workers	7
51-9197.00	Tire Builders	7
51-9198.02	Production Helpers	7
51-3093.00	Food Cooking Machine Operators and Tenders	8
51-4011.01	Numerical Control Machine Tool Operators and Tenders, Metal and Plastic	8
51-4021.00	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	8
51-4022.00	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	8
51-4033.01	Grinding, Honing, Lapping, and Deburring Machine Set-Up Operators	8
51-4034.00	Lathe and Turning Machine Tool Setters, Operators, and Tenders Metal and Plastic	8
51-4035.00	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	8
51-4072.01	Plastic Molding and Casting Machine Setters and Set-Up Operators	8
51-4111.00	Tool and Die Makers	8
51-4193.02	Electrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic	8
51-4193.03	Nonelectrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic	8
51-5023.04	Design Printing Machine Setters and Set-Up Operators	8
51-9011.02	Chemical Equipment Tenders	8
51-9021.00	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	8
51-9023.00	Mixing and Blending Machine Setters, Operators, and Tenders	8
51-9032.04	Cutting and Slicing Machine Operators and Tenders	8
51-9041.01	Extruding, Forming, Pressing, and Compacting Machine Setters and Set-Up Operators	8
51-9051.00	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	8
51-9121.02	Coating, Painting, and Spraying Machine Operators and Tenders	8
51-9191.00	Cementing and Gluing Machine Operators and Tenders	8
51-9192.00	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	8
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	8
51-5012.00	Bookbinders	9
51-5022.01	Hand Compositors and Typesetters	9
51-5022.02	Paste-Up Workers	9
51-5022.03	Photoengravers	9
51-5022.05	Scanner Operators	9

Major Group 51 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-5022.06	Strippers	9
51-5022.08	Dot Etchers	9
51-5022.09	Electronic Masking System Operators	9
51-5023.01	Precision Printing Workers	9
51-6051.00	Sewers, Hand	9
51-9123.00	Painting, Coating, and Decorating Workers	9
51-9131.02	Photographic Reproduction Technicians	9
51-9131.03	Photographic Hand Developers	9
51-9131.04	Film Laboratory Technicians	9

Major Group 53 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
53-1021.00	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	1
53-1031.00	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	1
53-2011.00	Airline Pilots, Copilots, and Flight Engineers	2
53-2012.00	Commercial Pilots	2
53-5021.01	Ship and Boat Captains	2
53-5021.02	Mates- Ship, Boat, and Barge	2
53-2021.00	Air Traffic Controllers	3
53-6041.00	Traffic Technicians	3
53-6051.01	Aviation Inspectors	3
53-6051.03	Marine Cargo Inspectors	3
53-3011.00	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	4
53-3021.00	Bus Drivers, Transit and Intercity	4
53-3022.00	Bus Drivers, School	4
53-3031.00	Driver/Sales Workers	4
53-3032.01	Truck Drivers, Heavy	4
53-3032.02	Tractor-Trailer Truck Drivers	4
53-3033.00	Truck Drivers, Light or Delivery Services	4
53-3041.00	Taxi Drivers and Chauffeurs	4
53-4021.01	Train Crew Members	4
53-4041.00	Subway and Streetcar Operators	4
53-6031.00	Service Station Attendants	4
53-4011.00	Locomotive Engineers	5
53-4012.00	Locomotive Firers	5
53-5011.01	Able Seamen	5
53-5011.02	Ordinary Seamen and Marine Oilers	5
53-5021.03	Pilots, Ship	5
53-5022.00	Motorboat Operators	5
53-7031.00	Dredge Operators	5
53-7032.02	Dragline Operators	5

Major Group 53 Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
53-7033.00	Loading Machine Operators, Underground Mining	5
53-7111.00	Shuttle Car Operators	5
53-4013.00	Rail Yard Engineers, Dinkey Operators, and Hostlers	6
53-4031.00	Railroad Conductors and Yardmasters	6
53-5031.00	Ship Engineers	6
53-6011.00	Bridge and Lock Tenders	6
53-6051.04	Railroad Inspectors	6
53-4021.02	Railroad Yard Workers	7
53-6021.00	Parking Lot Attendants	7
53-6051.02	Public Transportation Inspectors	7
53-6051.05	Motor Vehicle Inspectors	7
53-6051.06	Freight Inspectors	7
53-7011.00	Conveyor Operators and Tenders	7
53-7021.00	Crane and Tower Operators	7
53-7032.01	Excavating and Loading Machine Operators	7
53-7041.00	Hoist and Winch Operators	7
53-7051.00	Industrial Truck and Tractor Operators	7
53-7061.00	Cleaners of Vehicles and Equipment	7
53-7062.01	Stevedores, Except Equipment Operators	7
53-7062.02	Grips and Set-Up Workers, Motion Picture Sets, Studios, and Stages	7
53-7062.03	Freight, Stock, and Material Movers, Hand	7
53-7063.00	Machine Feeders and Offbearers	7
53-7064.00	Packers and Packagers, Hand	7
53-7071.01	Gas Pumping Station Operators	7
53-7071.02	Gas Compressor Operators	7
53-7072.00	Pump Operators, Except Wellhead Pumpers	7
53-7073.00	Wellhead Pumpers	7
53-7081.00	Refuse and Recyclable Material Collectors	7
53-7121.00	Tank Car, Truck, and Ship Loaders	7

Appendix G.

Structured Cluster Analyses Within Selected Minor Groups Results

Minor Group 11-9000 Management, Other – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
11-9011.01	Nursery and Greenhouse Managers	1
11-9011.02	Agricultural Crop Farm Managers	2
11-9011.03	Fish Hatchery Managers	2
11-9012.00	Farmers and Ranchers	3
11-9021.00	Construction Managers	4
11-9031.00	Education Administrators, Preschool and Child Care Center/Program	5
11-9032.00	Education Administrators, Elementary and Secondary School	5
11-9033.00	Education Administrators, Postsecondary	5
11-9041.00	Engineering Managers	6
11-9051.00	Food Service Managers	7
11-9061.00	Funeral Directors	8
11-9071.00	Gaming Managers	9
11-9141.00	Property, Real Estate, and Community Association Managers	9
11-9081.00	Lodging Managers	10
11-9111.00	Medical and Health Services Managers	11
11-9121.00	Natural Sciences Managers	12
11-9131.00	Postmasters and Mail Superintendents	13
11-9151.00	Social and Community Service Managers	14

Minor Group 13-1000 Business Operations Specialists – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
13-1011.00	Agents and Business Managers of Artists, Performers, and Athletes	1
13-1071.02	Personnel Recruiters	1
13-1021.00	Purchasing Agents and Buyers, Farm Products	2
13-1022.00	Wholesale and Retail Buyers, Except Farm Products	3
13-1121.00	Meeting and Convention Planners	3
13-1023.00	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4
13-1051.00	Cost Estimators	4
13-1031.01	Claims Examiners, Property and Casualty Insurance	5
13-1031.02	Insurance Adjusters, Examiners, and Investigators	5
13-1032.00	Insurance Appraisers, Auto Damage	5
13-1041.01	Environmental Compliance Inspectors	6
13-1041.06	Coroners	6
13-1041.02	Licensing Examiners and Inspectors	7
13-1041.03	Equal Opportunity Representatives and Officers	7
13-1041.04	Government Property Inspectors and Investigators	7
13-1041.05	Pressure Vessel Inspectors	8
13-1071.01	Employment Interviewers, Private or Public Employment Service	9
13-1072.00	Compensation, Benefits, and Job Analysis Specialists	10
13-1073.00	Training and Development Specialists	10
13-1111.00	Management Analysts	11

Minor Group 19-3000 Social Scientists & Related – Cluster Summary		
Code	**Occupation Title**	**Cluster**
19-3011.00	Economists	1
19-3021.00	Market Research Analysts	1
19-3032.00	Industrial-Organizational Psychologists	1
19-3031.01	Educational Psychologists	2
19-3031.02	Clinical Psychologists	2
19-3031.03	Counseling Psychologists	2
19-3041.00	Sociologists	3
19-3093.00	Historians	3
19-3094.00	Political Scientists	3
19-3051.00	Urban and Regional Planners	4
19-3091.01	Anthropologists	5
19-3091.02	Archeologists	5
19-3092.00	Geographers	6

Minor Group 25-1000 Postsecondary Teachers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
25-1021.00	Computer Science Teachers, Postsecondary	1
25-1022.00	Mathematical Science Teachers, Postsecondary	2
25-1032.00	Engineering Teachers, Postsecondary	3
25-1041.00	Agricultural Sciences Teachers, Postsecondary	4
25-1042.00	Biological Science Teachers, Postsecondary	4
25-1043.00	Forestry and Conservation Science Teachers, Postsecondary	4
25-1071.00	Health Specialties Teachers, Postsecondary	4
25-1052.00	Chemistry Teachers, Postsecondary	5
25-1054.00	Physics Teachers, Postsecondary	5
25-1061.00	Anthropology and Archeology Teachers, Postsecondary	6
25-1062.00	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	6
25-1063.00	Economics Teachers, Postsecondary	6
25-1065.00	Political Science Teachers, Postsecondary	6
25-1066.00	Psychology Teachers, Postsecondary	6
25-1067.00	Sociology Teachers, Postsecondary	6
25-1125.00	History Teachers, Postsecondary	6
25-1072.00	Nursing Instructors and Teachers, Postsecondary	7
25-1121.00	Art, Drama, and Music Teachers, Postsecondary	8
25-1123.00	English Language and Literature Teachers, Postsecondary	9
25-1124.00	Foreign Language and Literature Teachers, Postsecondary	9
25-1191.00	Graduate Teaching Assistants	10
25-1194.00	Vocational Education Teachers Postsecondary	11

Minor Group 27-1000 Art & Design Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
27-1011.00	Art Directors	1
27-1021.00	Commercial and Industrial Designers	1
27-1022.00	Fashion Designers	1
27-1023.00	Floral Designers	1
27-1025.00	Interior Designers	1
27-1027.01	Set Designers	1
27-1027.02	Exhibit Designers	1
27-1013.01	Painters and Illustrators	2
27-1013.02	Sketch Artists	2
27-1013.03	Cartoonists	2
27-1013.04	Sculptors	2
27-1024.00	Graphic Designers	2
27-1026.00	Merchandise Displayers and Window Trimmers	2

Minor Group 27-2000 Entertainers, Performers, Sports & Related – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
27-2011.00	Actors	1
27-2012.04	Talent Directors	1
27-2023.00	Umpires, Referees, and Other Sports Officials	1
27-2042.01	Singers	1
27-2012.01	Producers	2
27-2012.02	Directors- Stage, Motion Pictures, Television, and Radio	2
27-2012.03	Program Directors	2
27-2012.05	Technical Directors/Managers	2
27-2022.00	Coaches and Scouts	2
27-2021.00	Athletes and Sports Competitors	3
27-2031.00	Dancers	3
27-2032.00	Choreographers	3
27-2041.01	Music Directors	4
27-2042.02	Musicians, Instrumental	4
27-2041.02	Music Arrangers and Orchestrators	5
27-2041.03	Composers	5

Minor Group 29-1000 Health Diagnosing & Treating Practitioners – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
29-1011.00	Chiropractors	1
29-1081.00	Podiatrists	1
29-1131.00	Veterinarians	1
29-1021.00	Dentists, General	2
29-1022.00	Oral and Maxillofacial Surgeons	2
29-1023.00	Orthodontists	2
29-1024.00	Prosthodontists	2

Minor Group 29-1000 Health Diagnosing & Treating Practitioners – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
29-1031.00	Dietitians and Nutritionists	3
29-1051.00	Pharmacists	3
29-1041.00	Optometrists	4
29-1061.00	Anesthesiologists	5
29-1071.00	Physician Assistants	5
29-1126.00	Respiratory Therapists	5
29-1062.00	Family and General Practitioners	6
29-1063.00	Internists, General	6
29-1064.00	Obstetricians and Gynecologists	6
29-1065.00	Pediatricians, General	6
29-1066.00	Psychiatrists	7
29-1125.00	Recreational Therapists	7
29-1067.00	Surgeons	8
29-1111.00	Registered Nurses	9
29-1121.00	Audiologists	10
29-1127.00	Speech-Language Pathologists	10
29-1122.00	Occupational Therapists	11
29-1123.00	Physical Therapists	11
29-1124.00	Radiation Therapists	12

Minor Group 33-3000 Law Enforcement Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
33-3011.00	Bailiffs	1
33-3012.00	Correctional Officers and Jailers	1
33-3021.01	Police Detectives	1
33-3021.03	Criminal Investigators and Special Agents	1
33-3051.03	Sheriffs and Deputy Sheriffs	1
33-3052.00	Transit and Railroad Police	1
33-3021.02	Police Identification and Records Officers	2
33-3041.00	Parking Enforcement Workers	2
33-3021.04	Child Support, Missing Persons, & Unemploymt Ins. Fraud Investigators	3
33-3021.05	Immigration and Customs Inspectors	3
33-3031.00	Fish and Game Wardens	4
33-3051.01	Police Patrol Officers	5
33-3051.02	Highway Patrol Pilots	5

Minor Group 35-2000 Cooks & Food Prep Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
35-2011.00	Cooks, Fast Food	1
35-2012.00	Cooks, Institution and Cafeteria	1
35-2015.00	Cooks, Short Order	1
35-2014.00	Cooks, Restaurant	2
35-2021.00	Food Preparation Workers	2

Minor Group 35-3000 Food & Beverage Serving Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
35-3011.00	Bartenders	1
35-3021.00	Combined Food Preparation and Serving Workers, Including Fast Food	2
35-3022.00	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	2
35-3041.00	Food Servers, Nonrestaurant	3
35-3031.00	Waiters and Waitresses	4

Minor Group 47-2000 Construction Trades Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
47-2011.00	Boilermakers	1
47-2021.00	Brickmasons and Blockmasons	2
47-2031.04	Ship Carpenters and Joiners	2
47-2152.01	Pipe Fitters	2
47-2022.00	Stonemasons	3
47-2141.00	Painters, Construction and Maintenance	3
47-2142.00	Paperhangers	3
47-2031.01	Construction Carpenters	4
47-2031.02	Rough Carpenters	4
47-2031.03	Carpenter Assemblers and Repairers	4
47-2031.05	Boat Builders and Shipwrights	4
47-2152.02	Plumbers	4
47-2031.06	Brattice Builders	5
47-2042.00	Floor Layers, Except Carpet, Wood, and Hard Tiles	5
47-2081.02	Drywall Installers	5
47-2041.00	Carpet Installers	6
47-2051.00	Cement Masons and Concrete Finishers	6
47-2053.00	Terrazzo Workers and Finishers	6
47-2121.00	Glaziers	6
47-2043.00	Floor Sanders and Finishers	7
47-2151.00	Pipelayers	7
47-2152.03	Pipelaying Fitters	7
47-2044.00	Tile and Marble Setters	8
47-2081.01	Ceiling Tile Installers	8
47-2061.00	Construction Laborers	9
47-2071.00	Paving, Surfacing, and Tamping Equipment Operators	10
47-2073.01	Grader, Bulldozer, and Scraper Operators	10

Minor Group 47-2000 Construction Trades Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
47-2072.00	Pile-Driver Operators	11
47-2073.02	Operating Engineers	12
47-2082.00	Tapers	13
47-2161.00	Plasterers and Stucco Masons	13
47-2171.00	Reinforcing Iron and Rebar Workers	13
47-2111.00	Electricians	14
47-2131.00	Insulation Workers, Floor, Ceiling, and Wall	15
47-2132.00	Insulation Workers, Mechanical	15
47-2181.00	Roofers	16
47-2211.00	Sheet Metal Workers	17
47-2221.00	Structural Iron and Steel Workers	18

Minor Group 49-9000 Installation, Maintenance, & Repair, Other – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
49-9011.00	Mechanical Door Repairers	1
49-9012.01	Electric Meter Installers and Repairers	1
49-9012.03	Meter Mechanics	1
49-9045.00	Refractory Materials Repairers, Except Brickmasons	1
49-9051.00	Electrical Power-Line Installers and Repairers	1
49-9092.00	Commercial Divers	1
49-9096.00	Riggers	1
49-9012.02	Valve and Regulator Repairers	2
49-9064.00	Watch Repairers	2
49-9091.00	Coin, Vending, and Amusement Machine Servicers and Repairers	2
49-9093.00	Fabric Menders, Except Garment	2
49-9094.00	Locksmiths and Safe Repairers	2
49-9021.01	Heating and Air Conditioning Mechanics	3
49-9021.02	Refrigeration Mechanics	3
49-9052.00	Telecommunications Line Installers and Repairers	3
49-9095.00	Manufactured Building and Mobile Home Installers	3
49-9031.01	Home Appliance Installers	4
49-9031.02	Gas Appliance Repairers	4
49-9043.00	Maintenance Workers, Machinery	4
49-9097.00	Signal and Track Switch Repairers	4
49-9098.00	Helpers--Installation, Maintenance, and Repair Workers	4
49-9041.00	Industrial Machinery Mechanics	5
49-9042.00	Maintenance and Repair Workers, General	5
49-9044.00	Millwrights	5
49-9061.00	Camera and Photographic Equipment Repairers	6
49-9062.00	Medical Equipment Repairers	6
49-9063.01	Keyboard Instrument Repairers and Tuners	7
49-9063.02	Stringed Instrument Repairers and Tuners	7
49-9063.03	Reed or Wind Instrument Repairers and Tuners	7
49-9063.04	Percussion Instrument Repairers and Tuners	7

Minor Group 51-4000 Metal & Plastic Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-4011.01	Numerical Control Machine Tool Operators and Tenders, Metal and Plastic	1
51-4021.00	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	1
51-4072.01	Plastic Molding and Casting Machine Setters and Set-Up Operators	1
51-4122.03	Soldering and Brazing Machine Setters and Set-Up Operators	1
51-4193.02	Electrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic	1
51-4193.03	Nonelectrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic	1
51-4012.00	Numerical Tool and Process Control Programmers	2
51-4022.00	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	3
51-4031.02	Punching Machine Setters and Set-Up Operators, Metal and Plastic	3
51-4033.02	Buffing and Polishing Set-Up Operators	3
51-4052.00	Pourers and Casters, Metal	3
51-4072.05	Casting Machine Set-Up Operators	3
51-4121.04	Solderers	3
51-4121.05	Brazers	3
51-4122.04	Soldering and Brazing Machine Operators and Tenders	3
51-4023.00	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	4
51-4072.04	Metal Molding, Coremaking, and Casting Machine Operators and Tenders	4
51-4081.01	Combination Machine Tool Setters and Set-Up Operators, Metal and Plastic	4
51-4031.01	Sawing Machine Tool Setters and Set-Up Operators, Metal and Plastic	5
51-4051.00	Metal-Refining Furnace Operators and Tenders	5
51-4072.02	Plastic Molding and Casting Machine Operators and Tenders	5
51-4072.03	Metal Molding, Coremaking, and Casting Machine Setters and Set-Up Operators	5
51-4081.02	Combination Machine Tool Operators and Tenders, Metal and Plastic	5
51-4121.01	Welders, Production	5
51-4121.02	Welders and Cutters	5
51-4122.02	Welding Machine Operators and Tenders	5
51-4191.01	Heating Equipment Setters and Set-Up Operators, Metal and Plastic	5
51-4191.02	Heat Treating, Annealing, and Tempering Machine Operators and Tenders, Metal and Plastic	5
51-4031.03	Press and Press Brake Machine Setters and Set-Up Operators, Metal and Plastic	6

Minor Group 51-4000 Metal & Plastic Workers – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-4031.04	Shear and Slitter Machine Setters and Set-Up Operators, Metal and Plastic	6
51-4032.00	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	6
51-4062.00	Patternmakers, Metal and Plastic	6
51-4071.00	Foundry Mold and Coremakers	6
51-4121.03	Welder-Fitters	6
51-4033.01	Grinding, Honing, Lapping, and Deburring Machine Set-Up Operators	7
51-4111.00	Tool and Die Makers	7
51-4192.00	Lay-Out Workers, Metal and Plastic	7
51-4034.00	Lathe and Turning Machine Tool Setters, Operators, and Tenders Metal and Plastic	8
51-4035.00	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	8
51-4041.00	Machinists	9
51-4061.00	Model Makers, Metal and Plastic	9
51-4122.01	Welding Machine Setters and Set-Up Operators	10
51-4194.00	Tool Grinders, Filers, and Sharpeners	10
51-4191.03	Heaters, Metal and Plastic	11
51-4193.01	Electrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic	11
51-4193.04	Nonelectrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic	11

Minor Group 51-9000 Production, Other – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-9011.01	Chemical Equipment Controllers and Operators	1
51-9011.02	Chemical Equipment Tenders	1
51-9111.00	Packaging and Filling Machine Operators and Tenders	1
51-9193.00	Cooling and Freezing Equipment Operators and Tenders	1
51-9012.00	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2
51-9032.01	Fiber Product Cutting Machine Setters and Set-Up Operators	2
51-9041.02	Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	2
51-9061.05	Production Inspectors, Testers, Graders, Sorters, Samplers, Weighers	2
51-9121.01	Coating, Painting, and Spraying Machine Setters and Set-Up Operators	2
51-9021.00	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	3
51-9023.00	Mixing and Blending Machine Setters, Operators, and Tenders	3
51-9032.04	Cutting and Slicing Machine Operators and Tenders	3

Minor Group 51-9000 Production, Other – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-9041.01	Extruding, Forming, Pressing, and Compacting Machine Setters and Set-Up Operators	3
51-9051.00	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	3
51-9121.02	Coating, Painting, and Spraying Machine Operators and Tenders	3
51-9191.00	Cementing and Gluing Machine Operators and Tenders	3
51-9192.00	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	3
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	3
51-9022.00	Grinding and Polishing Workers, Hand	4
51-9195.07	Molding and Casting Workers	4
51-9197.00	Tire Builders	4
51-9031.00	Cutters and Trimmers, Hand	5
51-9123.00	Painting, Coating, and Decorating Workers	5
51-9131.02	Photographic Reproduction Technicians	5
51-9131.03	Photographic Hand Developers	5
51-9131.04	Film Laboratory Technicians	5
51-9195.06	Mold Makers, Hand	5
51-9032.02	Stone Sawyers	6
51-9195.02	Precision Pattern and Die Casters, Nonferrous Metals	6
51-9198.01	Production Laborers	6
51-9198.02	Production Helpers	6
51-9032.03	Glass Cutting Machine Setters and Set-Up Operators	7
51-9083.01	Precision Lens Grinders and Polishers	7
51-9083.02	Optical Instrument Assemblers	7
51-9132.00	Photographic Processing Machine Operators	7
51-9141.00	Semiconductor Processors	7
51-9194.04	Pantograph Engravers	7
51-9061.01	Materials Inspectors	8
51-9061.02	Mechanical Inspectors	8
51-9061.03	Precision Devices Inspectors and Testers	8
51-9061.04	Electrical and Electronic Inspectors and Testers	8
51-9071.01	Jewelers	9
51-9071.04	Bench Workers, Jewelry	9
51-9071.06	Gem and Diamond Workers	9
51-9081.00	Dental Laboratory Technicians	9
51-9131.01	Photographic Retouchers and Restorers	9
51-9194.02	Engravers/Carvers	9
51-9071.02	Silversmiths	10
51-9122.00	Painters, Transportation Equipment	10
51-9194.03	Etchers	10
51-9194.05	Etchers, Hand	10
51-9194.06	Engravers, Hand	10
51-9071.03	Model and Mold Makers, Jewelry	11
51-9071.05	Pewter Casters and Finishers	11
51-9195.01	Precision Mold and Pattern Casters, except Nonferrous Metals	11

Minor Group 51-9000 Production, Other – Cluster Summary		
Code	**Detailed Occupation Title**	**Cluster**
51-9195.04	Glass Blowers, Molders, Benders, and Finishers	11
51-9195.05	Potters	11
51-9082.00	Medical Appliance Technicians	12
51-9194.01	Precision Etchers and Engravers, Hand or Machine	13
51-9195.03	Stone Cutters and Carvers	13

Appendix H.

O*NET Job Zone by SOC Major Group Matrix

Major Group 11: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
11-9012.00	3	Farmers and Ranchers
11-9071.00	3	Gaming Managers
11-9081.00	3	Lodging Managers
11-1011.01	4	Government Service Executives
11-2011.00	4	Advertising and Promotions Managers
11-2021.00	4	Marketing Managers
11-2022.00	4	Sales Managers
11-3011.00	4	Administrative Services Managers
11-3031.02	4	Financial Managers, Branch or Department
11-3040.00	4	Human Resources Managers
11-3041.00	4	Compensation and Benefits Managers
11-3042.00	4	Training and Development Managers
11-3051.00	4	Industrial Production Managers
11-3061.00	4	Purchasing Managers
11-3071.01	4	Transportation Managers
11-3071.02	4	Storage and Distribution Managers
11-9011.01	4	Nursery and Greenhouse Managers
11-9011.02	4	Agricultural Crop Farm Managers
11-9011.03	4	Fish Hatchery Managers
11-9021.00	4	Construction Managers
11-9031.00	4	Education Administrators, Preschool and Child Care Center/Program
11-9032.00	4	Education Administrators, Elementary and Secondary School
11-9051.00	4	Food Service Managers
11-9061.00	4	Funeral Directors
11-9111.00	4	Medical and Health Services Managers
11-9131.00	4	Postmasters and Mail Superintendents
11-9141.00	4	Property, Real Estate, and Community Association Managers
11-9151.00	4	Social and Community Service Managers
11-1011.02	5	Private Sector Executives
11-3021.00	5	Computer and Information Systems Managers
11-3031.01	5	Treasurers, Controllers, and Chief Financial Officers
11-9033.00	5	Education Administrators, Postsecondary
11-9041.00	5	Engineering Managers
11-9121.00	5	Natural Sciences Managers

Major Group 13: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
13-2082.00	2	Tax Preparers
13-1011.00	3	Agents and Business Managers of Artists, Performers, and Athletes
13-1022.00	3	Wholesale and Retail Buyers, Except Farm Products
13-1031.02	3	Insurance Adjusters, Examiners, and Investigators
13-1041.01	3	Environmental Compliance Inspectors
13-1041.02	3	Licensing Examiners and Inspectors
13-1041.04	3	Government Property Inspectors and Investigators
13-1071.01	3	Employment Interviewers, Private or Public Employment Service
13-1071.02	3	Personnel Recruiters
13-1072.00	3	Compensation, Benefits, and Job Analysis Specialists
13-2052.00	3	Personal Financial Advisors
13-1021.00	4	Purchasing Agents and Buyers, Farm Products
13-1023.00	4	Purchasing Agents, Except Wholesale, Retail, and Farm Products
13-1031.01	4	Claims Examiners, Property and Casualty Insurance
13-1032.00	4	Insurance Appraisers, Auto Damage
13-1041.03	4	Equal Opportunity Representatives and Officers
13-1041.05	4	Pressure Vessel Inspectors
13-1041.06	4	Coroners
13-1051.00	4	Cost Estimators
13-1073.00	4	Training and Development Specialists
13-1111.00	4	Management Analysts
13-1121.00	4	Meeting and Convention Planners
13-2011.01	4	Accountants
13-2011.02	4	Auditors
13-2021.01	4	Assessors
13-2021.02	4	Appraisers, Real Estate
13-2031.00	4	Budget Analysts
13-2041.00	4	Credit Analysts
13-2053.00	4	Insurance Underwriters
13-2061.00	4	Financial Examiners
13-2071.00	4	Loan Counselors
13-2072.00	4	Loan Officers
13-2081.00	4	Tax Examiners, Collectors, and Revenue Agents
13-2051.00	5	Financial Analysts

Major Group 15: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
15-1051.00	3	Computer Systems Analysts
15-1021.00	4	Computer Programmers
15-1031.00	4	Computer Software Engineers, Applications
15-1032.00	4	Computer Software Engineers, Systems Software
15-1041.00	4	Computer Support Specialists
15-1061.00	4	Database Administrators
15-1071.01	4	Computer Security Specialists
15-1081.00	4	Network Systems and Data Communications Analysts
15-2031.00	4	Operations Research Analysts
15-2041.00	4	Statisticians
15-3011.00	4	Mathematical Technicians
15-2011.00	5	Actuaries
15-2021.00	5	Mathematicians

Major Group 17: Occupational Code, Job Zone, and Occupational Title

occ code	jobzone	occ title
17-3011.02	3	Civil Drafters
17-3012.01	3	Electronic Drafters
17-3026.00	3	Industrial Engineering Technicians
17-3031.02	3	Mapping Technicians
17-1011.00	4	Architects, Except Landscape and Naval
17-1021.00	4	Cartographers and Photogrammetrists
17-1022.00	4	Surveyors
17-2051.00	4	Civil Engineers
17-2061.00	4	Computer Hardware Engineers
17-2111.01	4	Industrial Safety and Health Engineers
17-2111.02	4	Fire-Prevention and Protection Engineers
17-2112.00	4	Industrial Engineers
17-2141.00	4	Mechanical Engineers
17-2151.00	4	Mining and Geological Engineers, Including Mining Safety Engineers
17-3011.01	4	Architectural Drafters
17-3012.02	4	Electrical Drafters
17-3013.00	4	Mechanical Drafters
17-3021.00	4	Aerospace Engineering and Operations Technicians
17-3022.00	4	Civil Engineering Technicians
17-3023.01	4	Electronics Engineering Technicians
17-3023.02	4	Calibration and Instrumentation Technicians
17-3023.03	4	Electrical Engineering Technicians
17-3024.00	4	Electro-Mechanical Technicians
17-3027.00	4	Mechanical Engineering Technicians
17-3031.01	4	Surveying Technicians
17-1012.00	5	Landscape Architects
17-2011.00	5	Aerospace Engineers
17-2021.00	5	Agricultural Engineers
17-2041.00	5	Chemical Engineers
17-2071.00	5	Electrical Engineers
17-2072.00	5	Electronics Engineers, Except Computer
17-2111.03	5	Product Safety Engineers
17-2121.01	5	Marine Engineers
17-2121.02	5	Marine Architects
17-2131.00	5	Materials Engineers
17-2161.00	5	Nuclear Engineers
17-2171.00	5	Petroleum Engineers

Major Group 19: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
19-4011.01	2	Agricultural Technicians
19-4011.02	2	Food Science Technicians
19-4021.00	2	Biological Technicians
19-3041.00	3	Sociologists
19-4031.00	3	Chemical Technicians
19-4041.01	3	Geological Data Technicians
19-4041.02	3	Geological Sample Test Technicians
19-4051.01	3	Nuclear Equipment Operation Technicians
19-4051.02	3	Nuclear Monitoring Technicians
19-4061.01	3	City Planning Aides
19-4091.00	3	Environmental Science and Protection Technicians, Including Health
19-1012.00	4	Food Scientists and Technologists
19-1031.01	4	Soil Conservationists
19-1031.03	4	Park Naturalists
19-1032.00	4	Foresters
19-1041.00	4	Epidemiologists
19-1042.00	4	Medical Scientists, Except Epidemiologists
19-2021.00	4	Atmospheric and Space Scientists
19-2031.00	4	Chemists
19-2032.00	4	Materials Scientists
19-3021.00	4	Market Research Analysts
19-3031.01	4	Educational Psychologists
19-3031.02	4	Clinical Psychologists
19-3051.00	4	Urban and Regional Planners
19-3091.01	4	Anthropologists
19-3091.02	4	Archeologists
19-3092.00	4	Geographers
19-3093.00	4	Historians
19-4092.00	4	Forensic Science Technicians
19-1011.00	5	Animal Scientists
19-1013.01	5	Plant Scientists
19-1013.02	5	Soil Scientists
19-1020.01	5	Biologists
19-1021.01	5	Biochemists
19-1021.02	5	Biophysicists
19-1022.00	5	Microbiologists
19-1023.00	5	Zoologists and Wildlife Biologists
19-1031.02	5	Range Managers
19-2011.00	5	Astronomers
19-2012.00	5	Physicists
19-2041.00	5	Environmental Scientists and Specialists, Including Health
19-2042.01	5	Geologists
19-2043.00	5	Hydrologists
19-3011.00	5	Economists

occ code	job zone	occ title
19-3031.03	5	Counseling Psychologists
19-3032.00	5	Industrial-Organizational Psychologists
19-3094.00	5	Political Scientists

Major Group 21: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
21-1093.00	2	Social and Human Service Assistants
21-1092.00	3	Probation Officers and Correctional Treatment Specialists
21-1011.00	4	Substance Abuse and Behavioral Disorder Counselors
21-1012.00	4	Educational, Vocational, and School Counselors
21-1014.00	4	Mental Health Counselors
21-1021.00	4	Child, Family, and School Social Workers
21-1022.00	4	Medical and Public Health Social Workers
21-1023.00	4	Mental Health and Substance Abuse Social Workers
21-1091.00	5	Health Educators
21-2011.00	5	Clergy
21-2021.00	5	Directors, Religious Activities and Education

Major Group 23: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
23-2093.01	2	Title Searchers
23-2093.02	3	Title Examiners and Abstractors
23-2011.00	4	Paralegals and Legal Assistants
23-2092.00	4	Law Clerks
23-1011.00	5	Lawyers
23-1021.00	5	Administrative Law Judges, Adjudicators, and Hearing Officers
23-1022.00	5	Arbitrators, Mediators, and Conciliators
23-1023.00	5	Judges, Magistrate Judges, and Magistrates

Major Group 25: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
25-4031.00	2	Library Technicians
25-4013.00	3	Museum Technicians and Conservators
25-9041.00	3	Teacher Assistants
25-1194.00	4	Vocational Education Teachers Postsecondary
25-2011.00	4	Preschool Teachers, Except Special Education
25-2012.00	4	Kindergarten Teachers, Except Special Education
25-2021.00	4	Elementary School Teachers, Except Special Education
25-2022.00	4	Middle School Teachers, Except Special and Vocational Education
25-2023.00	4	Vocational Education Teachers, Middle School
25-2031.00	4	Secondary School Teachers, Except Special and Vocational Education
25-2032.00	4	Vocational Education Teachers, Secondary School
25-2041.00	4	Special Education Teachers, Preschool, Kindergarten, and Elementary School
25-2042.00	4	Special Education Teachers, Middle School
25-2043.00	4	Special Education Teachers, Secondary School
25-3011.00	4	Adult Literacy, Remedial Education, and GED Teachers and Instructors
25-3021.00	4	Self-Enrichment Education Teachers
25-4012.00	4	Curators
25-4021.00	4	Librarians
25-9011.00	4	Audio-Visual Collections Specialists
25-9021.00	4	Farm and Home Management Advisors
25-1021.00	5	Computer Science Teachers, Postsecondary
25-1022.00	5	Mathematical Science Teachers, Postsecondary
25-1032.00	5	Engineering Teachers, Postsecondary
25-1041.00	5	Agricultural Sciences Teachers, Postsecondary
25-1042.00	5	Biological Science Teachers, Postsecondary
25-1043.00	5	Forestry and Conservation Science Teachers, Postsecondary
25-1052.00	5	Chemistry Teachers, Postsecondary
25-1054.00	5	Physics Teachers, Postsecondary
25-1061.00	5	Anthropology and Archeology Teachers, Postsecondary
25-1062.00	5	Area, Ethnic, and Cultural Studies Teachers, Postsecondary
25-1063.00	5	Economics Teachers, Postsecondary
25-1065.00	5	Political Science Teachers, Postsecondary
25-1066.00	5	Psychology Teachers, Postsecondary
25-1067.00	5	Sociology Teachers, Postsecondary
25-1071.00	5	Health Specialties Teachers, Postsecondary
25-1072.00	5	Nursing Instructors and Teachers, Postsecondary
25-1121.00	5	Art, Drama, and Music Teachers, Postsecondary
25-1123.00	5	English Language and Literature Teachers, Postsecondary
25-1124.00	5	Foreign Language and Literature Teachers, Postsecondary
25-1125.00	5	History Teachers, Postsecondary
25-1191.00	5	Graduate Teaching Assistants
25-4011.00	5	Archivists
25-9031.00	5	Instructional Coordinators

Major Group 27: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
27-1023.00	2	Floral Designers
27-2042.01	2	Singers
27-3011.00	2	Radio and Television Announcers
27-1013.02	3	Sketch Artists
27-1022.00	3	Fashion Designers
27-1026.00	3	Merchandise Displayers and Window Trimmers
27-2011.00	3	Actors
27-2012.04	3	Talent Directors
27-2021.00	3	Athletes and Sports Competitors
27-2023.00	3	Umpires, Referees, and Other Sports Officials
27-3012.00	3	Public Address System and Other Announcers
27-3043.03	3	Caption Writers
27-3091.00	3	Interpreters and Translators
27-4013.00	3	Radio Operators
27-4014.00	3	Sound Engineering Technicians
27-4021.01	3	Professional Photographers
27-4021.02	3	Photographers, Scientific
27-1011.00	4	Art Directors
27-1013.01	4	Painters and Illustrators
27-1013.03	4	Cartoonists
27-1021.00	4	Commercial and Industrial Designers
27-1024.00	4	Graphic Designers
27-1025.00	4	Interior Designers
27-1027.02	4	Exhibit Designers
27-2012.01	4	Producers
27-2012.02	4	Directors- Stage, Motion Pictures, Television, and Radio
27-2012.05	4	Technical Directors/Managers
27-2031.00	4	Dancers
27-2041.02	4	Music Arrangers and Orchestrators
27-3021.00	4	Broadcast News Analysts
27-3022.00	4	Reporters and Correspondents
27-3031.00	4	Public Relations Specialists
27-3041.00	4	Editors
27-3043.01	4	Poets and Lyricists
27-3043.02	4	Creative Writers
27-3043.04	4	Copy Writers
27-4011.00	4	Audio and Video Equipment Technicians
27-4012.00	4	Broadcast Technicians
27-4031.00	4	Camera Operators, Television, Video, and Motion Picture
27-4032.00	4	Film and Video Editors
27-1013.04	5	Sculptors
27-1027.01	5	Set Designers
27-2012.03	5	Program Directors
27-2022.00	5	Coaches and Scouts

occ code	job zone	occ title
27-2032.00	5	Choreographers
27-2041.01	5	Music Directors
27-2041.03	5	Composers
27-2042.02	5	Musicians, Instrumental
27-3042.00	5	Technical Writers

Major Group 29: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
29-2012.00	2	Medical and Clinical Laboratory Technicians
29-2041.00	2	Emergency Medical Technicians and Paramedics
29-2052.00	2	Pharmacy Technicians
29-1126.00	3	Respiratory Therapists
29-2021.00	3	Dental Hygienists
29-2031.00	3	Cardiovascular Technologists and Technicians
29-2053.00	3	Psychiatric Technicians
29-2055.00	3	Surgical Technologists
29-2061.00	3	Licensed Practical and Licensed Vocational Nurses
29-2071.00	3	Medical Records and Health Information Technicians
29-2091.00	3	Orthotists and Prosthetists
29-1031.00	4	Dietitians and Nutritionists
29-1041.00	4	Optometrists
29-1051.00	4	Pharmacists
29-1071.00	4	Physician Assistants
29-1081.00	4	Podiatrists
29-1111.00	4	Registered Nurses
29-1121.00	4	Audiologists
29-1122.00	4	Occupational Therapists
29-1123.00	4	Physical Therapists
29-1124.00	4	Radiation Therapists
29-1125.00	4	Recreational Therapists
29-1127.00	4	Speech-Language Pathologists
29-2011.00	4	Medical and Clinical Laboratory Technologists
29-2033.00	4	Nuclear Medicine Technologists
29-2034.01	4	Radiologic Technologists
29-2034.02	4	Radiologic Technicians
29-2051.00	4	Dietetic Technicians
29-2081.00	4	Opticians, Dispensing
29-1011.00	5	Chiropractors
29-1021.00	5	Dentists, General
29-1022.00	5	Oral and Maxillofacial Surgeons
29-1023.00	5	Orthodontists
29-1024.00	5	Prosthodontists
29-1061.00	5	Anesthesiologists
29-1062.00	5	Family and General Practitioners
29-1063.00	5	Internists, General
29-1064.00	5	Obstetricians and Gynecologists
29-1065.00	5	Pediatricians, General
29-1066.00	5	Psychiatrists
29-1067.00	5	Surgeons
29-1131.00	5	Veterinarians
29-9011.00	5	Occupational Health and Safety Specialists
29-9091.00	5	Athletic Trainers

Major Group 31: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
31-1011.00	1	Home Health Aides
31-1012.00	2	Nursing Aides, Orderlies, and Attendants
31-1013.00	2	Psychiatric Aides
31-2011.00	2	Occupational Therapist Assistants
31-2012.00	2	Occupational Therapist Aides
31-2021.00	2	Physical Therapist Assistants
31-2022.00	2	Physical Therapist Aides
31-9093.00	2	Medical Equipment Preparers
31-9091.00	3	Dental Assistants
31-9092.00	3	Medical Assistants
31-9096.00	3	Veterinary Assistants and Laboratory Animal Caretakers

Major Group 33: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
33-3011.00	1	Bailiffs
33-3041.00	1	Parking Enforcement Workers
33-9032.00	1	Security Guards
33-9091.00	1	Crossing Guards
33-2011.01	2	Municipal Fire Fighters
33-2011.02	2	Forest Fire Fighters
33-2021.01	2	Fire Inspectors
33-2022.00	2	Forest Fire Inspectors and Prevention Specialists
33-3012.00	2	Correctional Officers and Jailers
33-3051.03	2	Sheriffs and Deputy Sheriffs
33-3052.00	2	Transit and Railroad Police
33-9011.00	2	Animal Control Workers
33-9021.00	2	Private Detectives and Investigators
33-9092.00	2	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers
33-3021.02	3	Police Identification and Records Officers
33-3021.05	3	Immigration and Customs Inspectors
33-3031.00	3	Fish and Game Wardens
33-3051.01	3	Police Patrol Officers
33-3051.02	3	Highway Patrol Pilots
33-1012.00	4	First-Line Supervisors/Managers of Police and Detectives
33-1021.01	4	Municipal Fire Fighting and Prevention Supervisors
33-2021.02	4	Fire Investigators
33-3021.01	4	Police Detectives
33-3021.03	4	Criminal Investigators and Special Agents
33-3021.04	4	Child Support, Missing Persons, and Unemployment Insurance Fraud Investigators
33-1021.02	5	Forest Fire Fighting and Prevention Supervisors

Major Group 35: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
35-2015.00	1	Cooks, Short Order
35-2021.00	1	Food Preparation Workers
35-3011.00	1	Bartenders
35-3021.00	1	Combined Food Preparation and Serving Workers, Including Fast Food
35-3022.00	1	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop
35-3031.00	1	Waiters and Waitresses
35-3041.00	1	Food Servers, Nonrestaurant
35-9011.00	1	Dining Room and Cafeteria Attendants and Bartender Helpers
35-9021.00	1	Dishwashers
35-2011.00	2	Cooks, Fast Food
35-2012.00	2	Cooks, Institution and Cafeteria
35-1012.00	3	First-Line Supervisors/Managers of Food Preparation and Serving Workers
35-2014.00	3	Cooks, Restaurant
35-9031.00	3	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop
35-1011.00	4	Chefs and Head Cooks

Major Group 37: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
37-2011.00	1	Janitors and Cleaners, Except Maids and Housekeeping Cleaners
37-2012.00	1	Maids and Housekeeping Cleaners
37-3011.00	1	Landscaping and Groundskeeping Workers
37-2021.00	2	Pest Control Workers
37-3012.00	2	Pesticide Handlers, Sprayers, and Applicators, Vegetation
37-3013.00	2	Tree Trimmers and Pruners
37-1011.02	3	Janitorial Supervisors
37-1012.02	3	First-Line Supervisors and Manager/Supervisors - Landscaping Workers
37-1011.01	4	Housekeeping Supervisors
37-1012.01	4	Lawn Service Managers

Major Group 39: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
39-2021.00	1	Nonfarm Animal Caretakers
39-3031.00	1	Ushers, Lobby Attendants, and Ticket Takers
39-3091.00	1	Amusement and Recreation Attendants
39-3093.00	1	Locker Room, Coatroom, and Dressing Room Attendants
39-4021.00	1	Funeral Attendants
39-5092.00	1	Manicurists and Pedicurists
39-6011.00	1	Baggage Porters and Bellhops
39-6021.00	1	Tour Guides and Escorts
39-6032.00	1	Transportation Attendants, Except Flight Attendants and Baggage Porters
39-9011.00	1	Child Care Workers
39-3011.00	2	Gaming Dealers
39-3012.00	2	Gaming and Sports Book Writers and Runners
39-3021.00	2	Motion Picture Projectionists
39-5091.00	2	Makeup Artists, Theatrical and Performance
39-6022.00	2	Travel Guides
39-6031.00	2	Flight Attendants
39-9021.00	2	Personal and Home Care Aides
39-1011.00	3	Gaming Supervisors
39-1012.00	3	Slot Key Persons
39-2011.00	3	Animal Trainers
39-5011.00	3	Barbers
39-5012.00	3	Hairdressers, Hairstylists, and Cosmetologists
39-9031.00	3	Fitness Trainers and Aerobics Instructors
39-9032.00	3	Recreation Workers
39-9041.00	3	Residential Advisors
39-3092.00	4	Costume Attendants
39-4011.00	4	Embalmers

Major Group 41: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
41-2011.00	1	Cashiers
41-2021.00	1	Counter and Rental Clerks
41-9011.00	1	Demonstrators and Product Promoters
41-9012.00	1	Models
41-9041.00	1	Telemarketers
41-9091.00	1	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers
41-2022.00	2	Parts Salespersons
41-2031.00	2	Retail Salespersons
41-3041.00	2	Travel Agents
41-4011.01	2	Sales Representatives, Agricultural
41-4011.03	2	Sales Representatives, Electrical/Electronic
41-4011.04	2	Sales Representatives, Mechanical Equipment and Supplies
41-4012.00	2	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
41-9022.00	2	Real Estate Sales Agents
41-1011.00	3	First-Line Supervisors/Managers of Retail Sales Workers
41-1012.00	3	First-Line Supervisors/Managers of Non-Retail Sales Workers
41-3011.00	3	Advertising Sales Agents
41-3021.00	3	Insurance Sales Agents
41-3031.02	3	Sales Agents, Financial Services
41-4011.02	3	Sales Representatives, Chemical and Pharmaceutical
41-4011.05	3	Sales Representatives, Medical
41-4011.06	3	Sales Representatives, Instruments
41-3031.01	4	Sales Agents, Securities and Commodities
41-9031.00	5	Sales Engineers

Major Group 43: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
43-2011.00	1	Switchboard Operators, Including Answering Service
43-2021.01	1	Directory Assistance Operators
43-2021.02	1	Central Office Operators
43-3021.03	1	Billing, Posting, and Calculating Machine Operators
43-3061.00	1	Procurement Clerks
43-4041.01	1	Credit Authorizers
43-4041.02	1	Credit Checkers
43-4071.00	1	File Clerks
43-4111.00	1	Interviewers, Except Eligibility and Loan
43-4121.00	1	Library Assistants, Clerical
43-4171.00	1	Receptionists and Information Clerks
43-5021.00	1	Couriers and Messengers
43-5041.00	1	Meter Readers, Utilities
43-5052.00	1	Postal Service Mail Carriers
43-5071.00	1	Shipping, Receiving, and Traffic Clerks
43-5081.01	1	Stock Clerks, Sales Floor
43-5081.02	1	Marking Clerks
43-5111.00	1	Weighers, Measurers, Checkers, and Samplers, Recordkeeping
43-9051.01	1	Mail Machine Operators, Preparation and Handling
43-9051.02	1	Mail Clerks, Except Mail Machine Operators and Postal Service
43-9061.00	1	Office Clerks, General
43-9071.01	1	Duplicating Machine Operators
43-3011.00	2	Bill and Account Collectors
43-3021.01	2	Statement Clerks
43-3021.02	2	Billing, Cost, and Rate Clerks
43-3031.00	2	Bookkeeping, Accounting, and Auditing Clerks
43-3051.00	2	Payroll and Timekeeping Clerks
43-3071.00	2	Tellers
43-4011.00	2	Brokerage Clerks
43-4021.00	2	Correspondence Clerks
43-4031.02	2	Municipal Clerks
43-4031.03	2	License Clerks
43-4051.01	2	Adjustment Clerks
43-4051.02	2	Customer Service Representatives, Utilities
43-4061.01	2	Claims Takers, Unemployment Benefits
43-4061.02	2	Welfare Eligibility Workers and Interviewers
43-4081.00	2	Hotel, Motel, and Resort Desk Clerks
43-4131.00	2	Loan Interviewers and Clerks
43-4141.00	2	New Accounts Clerks
43-4151.00	2	Order Clerks
43-4161.00	2	Human Resources Assistants, Except Payroll and Timekeeping
43-4181.01	2	Travel Clerks
43-4181.02	2	Reservation and Transportation Ticket Agents
43-5011.00	2	Cargo and Freight Agents

occ code	job zone	occ title
43-5031.00	2	Police, Fire, and Ambulance Dispatchers
43-5032.00	2	Dispatchers, Except Police, Fire, and Ambulance
43-5051.00	2	Postal Service Clerks
43-5061.00	2	Production, Planning, and Expediting Clerks
43-5081.03	2	Stock Clerks- Stockroom, Warehouse, or Storage Yard
43-5081.04	2	Order Fillers, Wholesale and Retail Sales
43-6014.00	2	Secretaries, Except Legal, Medical, and Executive
43-9021.00	2	Data Entry Keyers
43-9022.00	2	Word Processors and Typists
43-9041.01	2	Insurance Claims Clerks
43-9041.02	2	Insurance Policy Processing Clerks
43-9081.00	2	Proofreaders and Copy Markers
43-9111.00	2	Statistical Assistants
43-1011.01	3	First-Line Supervisors, Customer Service
43-1011.02	3	First-Line Supervisors, Administrative Support
43-4031.01	3	Court Clerks
43-6012.00	3	Legal Secretaries
43-6013.00	3	Medical Secretaries
43-9011.00	3	Computer Operators
43-6011.00	4	Executive Secretaries and Administrative Assistants
43-9031.00	4	Desktop Publishers

Major Group 45: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
45-2041.00	1	Graders and Sorters, Agricultural Products
45-2092.01	1	Nursery Workers
45-2092.02	1	General Farmworkers
45-2093.00	1	Farmworkers, Farm and Ranch Animals
45-3011.00	1	Fishers and Related Fishing Workers
45-4011.00	1	Forest and Conservation Workers
45-4021.00	1	Fallers
45-2091.00	2	Agricultural Equipment Operators
45-3021.00	2	Hunters and Trappers
45-4022.01	2	Logging Tractor Operators
45-4023.00	2	Log Graders and Scalers
45-1011.01	3	First-Line Supervisors and Manager/Supervisors - Agricultural Crop Workers
45-1011.02	3	First-Line Supervisors and Manager/Supervisors - Animal Husbandry Workers
45-1011.03	3	First-Line Supervisors and Manager/Supervisors - Animal Care Workers, Except Livestock
45-1011.04	3	First-Line Supervisors and Manager/Supervisors - Horticultural Workers
45-1011.06	3	First-Line Supervisors and Manager/Supervisors - Fishery Workers
45-2021.00	3	Animal Breeders
45-1011.05	4	First-Line Supervisors and Manager/Supervisors - Logging Workers
45-2011.00	4	Agricultural Inspectors

Major Group 47: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
47-3011.00	1	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters
47-3012.00	1	Helpers--Carpenters
47-3014.00	1	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons
47-4051.00	1	Highway Maintenance Workers
47-4061.00	1	Rail-Track Laying and Maintenance Equipment Operators
47-5081.00	1	Helpers--Extraction Workers
47-2031.03	2	Carpenter Assemblers and Repairers
47-2031.06	2	Brattice Builders
47-2043.00	2	Floor Sanders and Finishers
47-2044.00	2	Tile and Marble Setters
47-2061.00	2	Construction Laborers
47-2071.00	2	Paving, Surfacing, and Tamping Equipment Operators
47-2072.00	2	Pile-Driver Operators
47-2073.01	2	Grader, Bulldozer, and Scraper Operators
47-2081.02	2	Drywall Installers
47-2082.00	2	Tapers
47-2142.00	2	Paperhangers
47-2151.00	2	Pipelayers
47-2152.03	2	Pipelaying Fitters
47-3013.00	2	Helpers--Electricians
47-3015.00	2	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters
47-4031.00	2	Fence Erectors
47-4041.01	2	Irradiated-Fuel Handlers
47-4071.00	2	Septic Tank Servicers and Sewer Pipe Cleaners
47-5011.00	2	Derrick Operators, Oil and Gas
47-5021.01	2	Construction Drillers
47-5031.00	2	Explosives Workers, Ordnance Handling Experts, and Blasters
47-5041.00	2	Continuous Mining Machine Operators
47-5042.00	2	Mine Cutting and Channeling Machine Operators
47-5051.00	2	Rock Splitters, Quarry
47-5061.00	2	Roof Bolters, Mining
47-5071.00	2	Roustabouts, Oil and Gas
47-1011.02	3	First-Line Supervisors and Manager/Supervisors- Extractive Workers
47-2021.00	3	Brickmasons and Blockmasons
47-2031.02	3	Rough Carpenters
47-2031.04	3	Ship Carpenters and Joiners
47-2042.00	3	Floor Layers, Except Carpet, Wood, and Hard Tiles
47-2051.00	3	Cement Masons and Concrete Finishers
47-2053.00	3	Terrazzo Workers and Finishers
47-2073.02	3	Operating Engineers
47-2111.00	3	Electricians
47-2121.00	3	Glaziers
47-2131.00	3	Insulation Workers, Floor, Ceiling, and Wall

occ code	job zone	occ title
47-2132.00	3	Insulation Workers, Mechanical
47-2152.02	3	Plumbers
47-2171.00	3	Reinforcing Iron and Rebar Workers
47-2181.00	3	Roofers
47-2211.00	3	Sheet Metal Workers
47-2221.00	3	Structural Iron and Steel Workers
47-4011.00	3	Construction and Building Inspectors
47-5012.00	3	Rotary Drill Operators, Oil and Gas
47-5021.02	3	Well and Core Drill Operators
47-1011.01	4	First-Line Supervisors and Manager/Supervisors- Construction Trades Workers
47-2011.00	4	Boilermakers
47-2022.00	4	Stonemasons
47-2031.01	4	Construction Carpenters
47-2031.05	4	Boat Builders and Shipwrights
47-2041.00	4	Carpet Installers
47-2081.01	4	Ceiling Tile Installers
47-2141.00	4	Painters, Construction and Maintenance
47-2152.01	4	Pipe Fitters
47-2161.00	4	Plasterers and Stucco Masons
47-4021.00	4	Elevator Installers and Repairers
47-5013.00	4	Service Unit Operators, Oil, Gas, and Mining

Major Group 49: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
49-3093.00	1	Tire Repairers and Changers
49-9043.00	1	Maintenance Workers, Machinery
49-9045.00	1	Refractory Materials Repairers, Except Brickmasons
49-9093.00	1	Fabric Menders, Except Garment
49-9098.00	1	Helpers--Installation, Maintenance, and Repair Workers
49-2022.02	2	Frame Wirers, Central Office
49-2092.03	2	Battery Repairers
49-2092.05	2	Electrical Parts Reconditioners
49-2092.06	2	Hand and Portable Power Tool Repairers
49-3022.00	2	Automotive Glass Installers and Repairers
49-3023.02	2	Automotive Specialty Technicians
49-3052.00	2	Motorcycle Mechanics
49-3091.00	2	Bicycle Repairers
49-3092.00	2	Recreational Vehicle Service Technicians
49-9012.03	2	Meter Mechanics
49-9091.00	2	Coin, Vending, and Amusement Machine Servicers and Repairers
49-9092.00	2	Commercial Divers
49-9095.00	2	Manufactured Building and Mobile Home Installers
49-2011.01	3	Automatic Teller Machine Servicers
49-2011.03	3	Office Machine and Cash Register Servicers
49-2021.00	3	Radio Mechanics
49-2022.03	3	Communication Equipment Mechanics, Installers, and Repairers
49-2022.04	3	Telecommunications Facility Examiners
49-2092.01	3	Electric Home Appliance and Power Tool Repairers
49-2092.02	3	Electric Motor and Switch Assemblers and Repairers
49-2093.00	3	Electrical and Electronics Installers and Repairers, Transportation Equipment
49-2094.00	3	Electrical and Electronics Repairers, Commercial and Industrial Equipment
49-2096.00	3	Electronic Equipment Installers and Repairers, Motor Vehicles
49-2097.00	3	Electronic Home Entertainment Equipment Installers and Repairers
49-3011.03	3	Aircraft Body and Bonded Structure Repairers
49-3021.00	3	Automotive Body and Related Repairers
49-3023.01	3	Automotive Master Mechanics
49-3031.00	3	Bus and Truck Mechanics and Diesel Engine Specialists
49-3041.00	3	Farm Equipment Mechanics
49-3043.00	3	Rail Car Repairers
49-3051.00	3	Motorboat Mechanics
49-3053.00	3	Outdoor Power Equipment and Other Small Engine Mechanics
49-9011.00	3	Mechanical Door Repairers
49-9012.01	3	Electric Meter Installers and Repairers
49-9012.02	3	Valve and Regulator Repairers
49-9031.01	3	Home Appliance Installers
49-9041.00	3	Industrial Machinery Mechanics
49-9042.00	3	Maintenance and Repair Workers, General
49-9052.00	3	Telecommunications Line Installers and Repairers

occ code	job zone	occ title
49-9062.00	3	Medical Equipment Repairers
49-9063.01	3	Keyboard Instrument Repairers and Tuners
49-9063.02	3	Stringed Instrument Repairers and Tuners
49-9063.04	3	Percussion Instrument Repairers and Tuners
49-9064.00	3	Watch Repairers
49-9094.00	3	Locksmiths and Safe Repairers
49-9096.00	3	Riggers
49-1011.00	4	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers
49-2011.02	4	Data Processing Equipment Repairers
49-2022.01	4	Central Office and PBX Installers and Repairers
49-2022.05	4	Station Installers and Repairers, Telephone
49-2091.00	4	Avionics Technicians
49-2092.04	4	Transformer Repairers
49-3011.01	4	Airframe-and-Power-Plant Mechanics
49-3011.02	4	Aircraft Engine Specialists
49-3042.00	4	Mobile Heavy Equipment Mechanics, Except Engines
49-9021.01	4	Heating and Air Conditioning Mechanics
49-9021.02	4	Refrigeration Mechanics
49-9031.02	4	Gas Appliance Repairers
49-9044.00	4	Millwrights
49-9051.00	4	Electrical Power-Line Installers and Repairers
49-9061.00	4	Camera and Photographic Equipment Repairers
49-9063.03	4	Reed or Wind Instrument Repairers and Tuners
49-9097.00	4	Signal and Track Switch Repairers
49-2095.00	5	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay

Major Group 51: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
51-3022.00	1	Meat, Poultry, and Fish Cutters and Trimmers
51-3091.00	1	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders
51-3093.00	1	Food Cooking Machine Operators and Tenders
51-4052.00	1	Pourers and Casters, Metal
51-4072.02	1	Plastic Molding and Casting Machine Operators and Tenders
51-4072.04	1	Metal Molding, Coremaking, and Casting Machine Operators and Tenders
51-4121.01	1	Welders, Production
51-4121.04	1	Solderers
51-4122.04	1	Soldering and Brazing Machine Operators and Tenders
51-4193.04	1	Nonelectrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic
51-5011.02	1	Bindery Machine Operators and Tenders
51-5023.05	1	Marking and Identification Printing Machine Setters and Set-Up Operators
51-5023.09	1	Printing Press Machine Operators and Tenders
51-6011.01	1	Spotters, Dry Cleaning
51-6011.03	1	Laundry and Drycleaning Machine Operators and Tenders, Except Pressing
51-6021.02	1	Pressing Machine Operators and Tenders- Textile, Garment, and Related Materials
51-6021.03	1	Pressers, Hand
51-6031.01	1	Sewing Machine Operators, Garment
51-6031.02	1	Sewing Machine Operators, Non-Garment
51-6042.00	1	Shoe Machine Operators and Tenders
51-6051.00	1	Sewers, Hand
51-6061.00	1	Textile Bleaching and Dyeing Machine Operators and Tenders
51-6091.01	1	Extruding and Forming Machine Operators and Tenders, Synthetic or Glass Fibers
51-7042.02	1	Woodworking Machine Operators and Tenders, Except Sawing
51-9012.00	1	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders
51-9021.00	1	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders
51-9022.00	1	Grinding and Polishing Workers, Hand
51-9023.00	1	Mixing and Blending Machine Setters, Operators, and Tenders
51-9031.00	1	Cutters and Trimmers, Hand
51-9032.03	1	Glass Cutting Machine Setters and Set-Up Operators
51-9032.04	1	Cutting and Slicing Machine Operators and Tenders
51-9041.02	1	Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders
51-9051.00	1	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders
51-9061.05	1	Production Inspectors, Testers, Graders, Sorters, Samplers, Weighers
51-9111.00	1	Packaging and Filling Machine Operators and Tenders
51-9121.02	1	Coating, Painting, and Spraying Machine Operators and Tenders
51-9123.00	1	Painting, Coating, and Decorating Workers
51-9141.00	1	Semiconductor Processors

occ code	job zone	occ title
51-9191.00	1	Cementing and Gluing Machine Operators and Tenders
51-9192.00	1	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders
51-9193.00	1	Cooling and Freezing Equipment Operators and Tenders
51-9194.04	1	Pantograph Engravers
51-9194.05	1	Etchers, Hand
51-9197.00	1	Tire Builders
51-9198.01	1	Production Laborers
51-9198.02	1	Production Helpers
51-2021.00	2	Coil Winders, Tapers, and Finishers
51-2093.00	2	Timing Device Assemblers, Adjusters, and Calibrators
51-3023.00	2	Slaughterers and Meat Packers
51-4011.01	2	Numerical Control Machine Tool Operators and Tenders, Metal and Plastic
51-4021.00	2	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic
51-4022.00	2	Forging Machine Setters, Operators, and Tenders, Metal and Plastic
51-4023.00	2	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic
51-4031.01	2	Sawing Machine Tool Setters and Set-Up Operators, Metal and Plastic
51-4031.02	2	Punching Machine Setters and Set-Up Operators, Metal and Plastic
51-4031.03	2	Press and Press Brake Machine Setters and Set-Up Operators, Metal and Plastic
51-4031.04	2	Shear and Slitter Machine Setters and Set-Up Operators, Metal and Plastic
51-4032.00	2	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4033.02	2	Buffing and Polishing Set-Up Operators
51-4051.00	2	Metal-Refining Furnace Operators and Tenders
51-4071.00	2	Foundry Mold and Coremakers
51-4072.01	2	Plastic Molding and Casting Machine Setters and Set-Up Operators
51-4072.03	2	Metal Molding, Coremaking, and Casting Machine Setters and Set-Up Operators
51-4081.02	2	Combination Machine Tool Operators and Tenders, Metal and Plastic
51-4121.02	2	Welders and Cutters
51-4121.05	2	Brazers
51-4122.02	2	Welding Machine Operators and Tenders
51-4122.03	2	Soldering and Brazing Machine Setters and Set-Up Operators
51-4191.02	2	Heat Treating, Annealing, and Tempering Machine Operators and Tenders, Metal and Plastic
51-4191.03	2	Heaters, Metal and Plastic
51-4193.02	2	Electrolytic Plating and Coating Machine Operators and Tenders, Metal and Plastic
51-5011.01	2	Bindery Machine Setters and Set-Up Operators
51-5022.12	2	Typesetting and Composing Machine Operators and Tenders
51-5022.13	2	Photoengraving and Lithographing Machine Operators and Tenders
51-5023.01	2	Precision Printing Workers
51-6021.01	2	Pressers, Delicate Fabrics
51-6041.00	2	Shoe and Leather Workers and Repairers
51-6092.00	2	Fabric and Apparel Patternmakers

occ code	job zone	occ title
51-7021.00	2	Furniture Finishers
51-7041.01	2	Sawing Machine Setters and Set-Up Operators
51-7041.02	2	Sawing Machine Operators and Tenders
51-7042.01	2	Woodworking Machine Setters and Set-Up Operators, Except Sawing
51-8013.02	2	Auxiliary Equipment Operators, Power
51-8021.01	2	Boiler Operators and Tenders, Low Pressure
51-8031.00	2	Water and Liquid Waste Treatment Plant and System Operators
51-8091.00	2	Chemical Plant and System Operators
51-8092.01	2	Gas Processing Plant Operators
51-9011.01	2	Chemical Equipment Controllers and Operators
51-9011.02	2	Chemical Equipment Tenders
51-9032.01	2	Fiber Product Cutting Machine Setters and Set-Up Operators
51-9032.02	2	Stone Sawyers
51-9041.01	2	Extruding, Forming, Pressing, and Compacting Machine Setters and Set-Up Operators
51-9071.06	2	Gem and Diamond Workers
51-9082.00	2	Medical Appliance Technicians
51-9121.01	2	Coating, Painting, and Spraying Machine Setters and Set-Up Operators
51-9122.00	2	Painters, Transportation Equipment
51-9131.03	2	Photographic Hand Developers
51-9132.00	2	Photographic Processing Machine Operators
51-9195.06	2	Mold Makers, Hand
51-9195.07	2	Molding and Casting Workers
51-9196.00	2	Paper Goods Machine Setters, Operators, and Tenders
51-1011.00	3	First-Line Supervisors/Managers of Production and Operating Workers
51-2011.01	3	Aircraft Structure Assemblers, Precision
51-2011.02	3	Aircraft Systems Assemblers, Precision
51-2011.03	3	Aircraft Rigging Assemblers
51-2022.00	3	Electrical and Electronic Equipment Assemblers
51-2023.00	3	Electromechanical Equipment Assemblers
51-2031.00	3	Engine and Other Machine Assemblers
51-3011.01	3	Bakers, Bread and Pastry
51-3011.02	3	Bakers, Manufacturing
51-3021.00	3	Butchers and Meat Cutters
51-3092.00	3	Food Batchmakers
51-4012.00	3	Numerical Tool and Process Control Programmers
51-4033.01	3	Grinding, Honing, Lapping, and Deburring Machine Set-Up Operators
51-4034.00	3	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4035.00	3	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic
51-4072.05	3	Casting Machine Set-Up Operators
51-4081.01	3	Combination Machine Tool Setters and Set-Up Operators Metal and Plastic
51-4122.01	3	Welding Machine Setters and Set-Up Operators
51-4191.01	3	Heating Equipment Setters and Set-Up Operators, Metal and Plastic
51-4192.00	3	Lay-Out Workers, Metal and Plastic

occ code	job zone	occ title
51-4193.01	3	Electrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic
51-4193.03	3	Nonelectrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic
51-4194.00	3	Tool Grinders, Filers, and Sharpeners
51-5022.07	3	Platemakers
51-5023.03	3	Letterpress Setters and Set-Up Operators
51-5023.04	3	Design Printing Machine Setters and Set-Up Operators
51-5023.06	3	Screen Printing Machine Setters and Set-Up Operators
51-5023.07	3	Embossing Machine Set-Up Operators
51-6011.02	3	Precision Dyers
51-6052.01	3	Shop and Alteration Tailors
51-6062.00	3	Textile Cutting Machine Setters, Operators, and Tenders
51-6063.00	3	Textile Knitting and Weaving Machine Setters, Operators, and Tenders
51-6064.00	3	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders
51-6093.00	3	Upholsterers
51-7011.00	3	Cabinetmakers and Bench Carpenters
51-8021.02	3	Stationary Engineers
51-8092.02	3	Gas Distribution Plant Operators
51-8093.01	3	Petroleum Pump System Operators
51-8093.03	3	Gaugers
51-9061.01	3	Materials Inspectors
51-9061.03	3	Precision Devices Inspectors and Testers
51-9061.04	3	Electrical and Electronic Inspectors and Testers
51-9071.02	3	Silversmiths
51-9071.03	3	Model and Mold Makers, Jewelry
51-9071.04	3	Bench Workers, Jewelry
51-9081.00	3	Dental Laboratory Technicians
51-9083.01	3	Precision Lens Grinders and Polishers
51-9131.01	3	Photographic Retouchers and Restorers
51-9131.02	3	Photographic Reproduction Technicians
51-9194.01	3	Precision Etchers and Engravers, Hand or Machine
51-9194.02	3	Engravers/Carvers
51-9194.03	3	Etchers
51-9194.06	3	Engravers, Hand
51-9195.01	3	Precision Mold and Pattern Casters, except Nonferrous Metals
51-9195.03	3	Stone Cutters and Carvers
51-2041.01	4	Metal Fabricators, Structural Metal Products
51-2041.02	4	Fitters, Structural Metal- Precision
51-4041.00	4	Machinists
51-4061.00	4	Model Makers, Metal and Plastic
51-4062.00	4	Patternmakers, Metal and Plastic
51-4111.00	4	Tool and Die Makers
51-4121.03	4	Welder-Fitters
51-5012.00	4	Bookbinders
51-5022.01	4	Hand Compositors and Typesetters

occ code	job zone	occ title
51-5022.02	4	Paste-Up Workers
51-5022.03	4	Photoengravers
51-5022.04	4	Camera Operators
51-5022.05	4	Scanner Operators
51-5022.06	4	Strippers
51-5022.09	4	Electronic Masking System Operators
51-5023.08	4	Engraver Set-Up Operators
51-6052.02	4	Custom Tailors
51-7031.00	4	Model Makers, Wood
51-7032.00	4	Patternmakers, Wood
51-8011.00	4	Nuclear Power Reactor Operators
51-8012.00	4	Power Distributors and Dispatchers
51-8013.01	4	Power Generating Plant Operators, Except Auxiliary Equipment Operators
51-8093.02	4	Petroleum Refinery and Control Panel Operators
51-9061.02	4	Mechanical Inspectors
51-9071.01	4	Jewelers
51-9071.05	4	Pewter Casters and Finishers
51-9083.02	4	Optical Instrument Assemblers
51-9131.04	4	Film Laboratory Technicians
51-9195.02	4	Precision Pattern and Die Casters, Nonferrous Metals
51-9195.04	4	Glass Blowers, Molders, Benders, and Finishers
51-9195.05	4	Potters
51-5021.00	5	Job Printers
51-5022.08	5	Dot Etchers
51-5022.10	5	Electrotypers and Stereotypers
51-5022.11	5	Plate Finishers
51-5023.02	5	Offset Lithographic Press Setters and Set-Up Operators

Major Group 53: Occupational Code, Job Zone, and Occupational Title

occ code	job zone	occ title
53-3011.00	1	Ambulance Drivers and Attendants, Except Emergency Medical Technicians
53-3021.00	1	Bus Drivers, Transit and Intercity
53-3031.00	1	Driver/Sales Workers
53-3032.01	1	Truck Drivers, Heavy
53-3033.00	1	Truck Drivers, Light or Delivery Services
53-3041.00	1	Taxi Drivers and Chauffeurs
53-4021.02	1	Railroad Yard Workers
53-6021.00	1	Parking Lot Attendants
53-6031.00	1	Service Station Attendants
53-7011.00	1	Conveyor Operators and Tenders
53-7041.00	1	Hoist and Winch Operators
53-7051.00	1	Industrial Truck and Tractor Operators
53-7061.00	1	Cleaners of Vehicles and Equipment
53-7062.01	1	Stevedores, Except Equipment Operators
53-7062.03	1	Freight, Stock, and Material Movers, Hand
53-7063.00	1	Machine Feeders and Offbearers
53-7064.00	1	Packers and Packagers, Hand
53-7081.00	1	Refuse and Recyclable Material Collectors
53-3022.00	2	Bus Drivers, School
53-3032.02	2	Tractor-Trailer Truck Drivers
53-4013.00	2	Rail Yard Engineers, Dinkey Operators, and Hostlers
53-4021.01	2	Train Crew Members
53-4041.00	2	Subway and Streetcar Operators
53-5011.01	2	Able Seamen
53-5011.02	2	Ordinary Seamen and Marine Oilers
53-5022.00	2	Motorboat Operators
53-6011.00	2	Bridge and Lock Tenders
53-6051.04	2	Railroad Inspectors
53-6051.05	2	Motor Vehicle Inspectors
53-6051.06	2	Freight Inspectors
53-7021.00	2	Crane and Tower Operators
53-7031.00	2	Dredge Operators
53-7032.01	2	Excavating and Loading Machine Operators
53-7032.02	2	Dragline Operators
53-7033.00	2	Loading Machine Operators, Underground Mining
53-7062.02	2	Grips and Set-Up Workers, Motion Picture Sets, Studios, and Stages
53-7071.01	2	Gas Pumping Station Operators
53-7072.00	2	Pump Operators, Except Wellhead Pumpers
53-7111.00	2	Shuttle Car Operators
53-1021.00	3	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand
53-1031.00	3	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators
53-4012.00	3	Locomotive Firers

53-5021.02	3	Mates- Ship, Boat, and Barge
53-7121.00	3	Tank Car, Truck, and Ship Loaders
53-2011.00	4	Airline Pilots, Copilots, and Flight Engineers
53-2012.00	4	Commercial Pilots
53-2021.00	4	Air Traffic Controllers
53-4011.00	4	Locomotive Engineers
53-4031.00	4	Railroad Conductors and Yardmasters
53-5021.01	4	Ship and Boat Captains
53-6041.00	4	Traffic Technicians
53-6051.01	4	Aviation Inspectors
53-6051.02	4	Public Transportation Inspectors
53-7071.02	4	Gas Compressor Operators
53-7073.00	4	Wellhead Pumpers
53-5021.03	5	Pilots, Ship
53-5031.00	5	Ship Engineers
53-6051.03	5	Marine Cargo Inspectors

Appendix I.

Multiple Regression and Discriminant Analyses Results

Regression Analysis Results (All Domain Factors) –
X variables: Domain Factors; Y variable: Job Zone

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.800	**.641**	**.629**	.765	.641	53.519	29	870	.000

Note.
a Predictors: (Constant), DF29, DF24, DF26, DF28, DF25, DF27, DF17, DF20, DF18, DF23, DF6, DF21, DF16, DF3, DF15, DF8, DF19, DF7, DF13, DF22, DF4, DF5, DF2, DF12, DF9, DF1, DF11, DF10, DF14

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	907.698	29	31.300	**53.519**	**.000**
	Residual	508.812	870	.585		
	Total	1416.510	899			

Note.
a Predictors: (Constant), DF29, DF24, DF26, DF28, DF25, DF27, DF17, DF20, DF18, DF23, DF6, DF21, DF16, DF3, DF15, DF8, DF19, DF7, DF13, DF22, DF4, DF5, DF2, DF12, DF9, DF1, DF11, DF10, DF14
b Dependent Variable: JOB_ZONE

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.977	.025		116.770	.000
	DF1	**-.163**	**.073**	**-.123**	**-2.230**	**.026**
	DF2	3.139E-02	.058	.024	.545	.586
	DF3	8.174E-03	.046	.006	.177	.860
	DF4	8.054E-02	.050	.060	1.597	.111
	DF5	4.220E-02	.057	.031	.736	.462
	DF6	-5.095E-02	.040	-.037	-1.276	.202
	DF7	**-.141**	**.044**	**-.102**	**-3.181**	**.002**
	DF8	1.915E-02	.047	.013	.408	.683
	DF9	**.334**	**.074**	**.260**	**4.525**	**.000**
	DF10	**.301**	**.087**	**.236**	**3.454**	**.001**
	DF11	-.135	.074	-.106	-1.828	.068
	DF12	-6.631E-02	.068	-.050	-.976	.329
	DF13	-1.790E-02	.048	-.013	-.375	.708
	DF14	7.060E-02	.093	.056	.755	.450
	DF15	-8.598E-02	.055	-.067	-1.574	.116
	DF16	2.196E-02	.045	.017	.492	.623
	DF17	4.712E-03	.037	.004	.126	.900
	DF18	-2.385E-03	.033	-.002	-.073	.942
	DF19	-5.539E-02	.049	-.040	-1.134	.257
	DF20	**-.216**	**.032**	**-.152**	**-6.795**	**.000**
	DF21	**-.136**	**.037**	**-.097**	**-3.659**	**.000**
	DF22	**.238**	**.047**	**.172**	**5.040**	**.000**
	DF23	-5.429E-02	.037	-.039	-1.457	.145
	DF24	**.426**	**.094**	**.335**	**4.541**	**.000**
	DF25	**.191**	**.066**	**.149**	**2.897**	**.004**
	DF26	-1.663E-02	.066	-.013	-.251	.802
	DF27	.123	.076	.093	1.620	.106
	DF28	1.199E-02	.055	.009	.218	.828
	DF29	**.110**	**.046**	**.080**	**2.398**	**.017**

Note.
a Dependent Variable: JOB_ZONE

Regression Analysis Results (Only 10 Domain Factors have significant beta values) – X variables: Domain Factors; Y variable: Job Zone

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.794	**.630**	**.626**	.768	.630	151.212	10	889	.000

Note.
a Predictors: (Constant), DF29, DF24, DF25, DF20, DF7, DF21, DF22, DF1, DF9, DF10

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	892.057	10	89.206	**151.212**	**.000**
	Residual	524.453	889	.590		
	Total	1416.510	899			

Note.
a Predictors: (Constant), DF29, DF24, DF25, DF20, DF7, DF21, DF22, DF1, DF9, DF10
b Dependent Variable: JOB_ZONE

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.977	.026		116.265	.000
	DF1	-.198	.051	-.150	-3.894	.000
	DF7	-.130	.031	-.094	-4.127	.000
	DF9	.337	.057	.263	5.962	.000
	DF10	.306	.064	.239	4.769	.000
	DF20	-.218	.029	-.153	-7.421	.000
	DF21	-.143	.031	-.102	-4.595	.000
	DF22	.274	.033	.198	8.206	.000
	DF24	.526	.066	.414	7.933	.000
	DF25	.223	.048	.174	4.614	.000
	DF29	9.313E-02	.034	.068	2.707	.007

Note.
a Dependent Variable: JOB_ZONE

Discriminant Analysis Results
Occupation Number, Actual Job Zone, Predicted Job Zone, and p value

Occupation Number	Actual Job Zone	Predicted Job Zone	p
1	4	4	.186
2	5	4	.019
3	4	4	.220
4	4	4	.018
5	4	4	.111
6	4	4	.582
7	5	4	.515
8	5	5	.046
9	4	4	.234
10	4	4	.005
11	4	4	.005
12	4	5	.175
13	4	4	.221
14	4	4	.213
15	4	4	.012
16	4	4	.175
17	4	3	.033
18	4	3	.034
19	4	4	.182
20	3	1	.088
21	4	4	.361
22	4	4	.245
23	4	4	.245
24	5	5	.322
25	5	4	.055
26	4	4	.526
27	4	2	.476
28	3	3	.266
29	3	3	.294
30	4	4	.046
31	5	5	.023
32	4	4	.112
33	4	4	.080
34	4	4	.162
35	3	4	.087
36	4	3	.374
37	3	4	.505
38	4	4	.347
39	4	4	.247
40	3	4	.693
41	4	3	.617
42	3	4	.827
43	3	2	.680
44	4	4	.885
45	3	3	.532
46	4	4	.562
47	4	4	.813
48	4	4	.443
49	3	4	.864
50	3	4	.571
51	3	4	.801
52	4	4	.778
53	4	4	.513
54	4	4	.535
55	4	5	.234
56	4	5	.106
57	4	4	.241
58	4	4	.100
59	4	5	.317
60	4	3	.910
61	5	5	.213
62	3	4	.656
63	4	4	.441
64	4	4	.640

Occupation Number	Actual Job Zone	Predicted Job Zone	p
65	4	4	.708
66	4	4	.708
67	4	4	.806
68	2	2	.757
69	4	5	.420
70	4	4	.396
71	4	4	.396
72	4	4	.034
73	3	4	.491
74	4	4	.735
75	4	4	.858
76	4	4	.128
77	5	5	.087
78	5	5	.771
79	4	5	.786
80	4	5	.109
81	4	5	.650
82	4	4	.026
83	5	4	.492
84	4	4	.175
85	4	4	.908
86	5	5	.046
87	5	5	.899
88	5	5	.170
89	4	4	.303
90	4	4	.396
91	5	5	.133
92	5	4	.073
93	4	5	.392
94	4	5	.225
95	5	5	.771
96	4	4	.044
97	5	4	.391
98	5	5	.269
99	5	5	.803
100	4	5	.685
101	4	5	.175
102	5	5	.092
103	5	4	.292
104	4	4	.994
105	3	4	.663
106	3	4	.763
107	4	4	.130
108	4	5	.351
109	4	4	.209
110	4	4	.409
111	4	3	.696
112	4	4	.965
113	4	4	.247
114	4	3	.632
115	3	5	.871
116	4	4	.889
117	4	4	.351
118	3	4	.103
119	5	5	.254
120	4	5	.895
121	5	5	.356
122	5	5	.794
123	5	5	.418
124	5	5	.664
125	5	5	.956
126	5	5	.479
127	5	5	.847
128	4	5	.248
129	5	5	.417
130	4	4	.046
131	4	5	.827
132	4	5	.406
133	4	5	.406

Occupation Number	Actual Job Zone	Predicted Job Zone	p
134	5	5	.028
135	5	5	.041
136	4	5	.142
137	4	5	.660
138	4	5	.747
139	5	5	.390
140	5	5	.756
141	5	5	.069
142	5	5	.692
143	4	4	.840
144	4	5	.836
145	4	5	.980
146	5	5	.086
147	5	5	.658
148	3	5	.509
149	4	5	.910
150	4	5	.072
151	4	5	.184
152	4	5	.338
153	4	5	.507
154	5	5	.331
155	2	1	.974
156	2	3	.368
157	2	1	.974
158	3	4	.478
159	3	4	.870
160	3	3	.209
161	3	2	.879
162	3	5	.380
163	3	2	.659
164	3	5	.405
165	4	4	.811
166	4	4	.844
167	4	5	.916
168	4	4	.844
169	4	4	.697
170	4	4	.844
171	4	4	.844
172	5	5	.871
173	3	4	.349
174	2	3	.981
175	5	5	.299
176	5	5	.180
177	5	5	.301
178	5	4	.600
179	5	4	.600
180	5	5	.190
181	4	4	.438
182	4	4	.818
183	2	2	.231
184	3	2	.432
185	5	5	.238
186	5	5	.268
187	5	5	.435
188	5	5	.111
189	5	5	.111
190	5	5	.111
191	5	5	.411
192	5	5	.258
193	5	5	.358
194	5	5	.358
195	5	5	.358
196	5	5	.358
197	5	5	.358
198	5	5	.358
199	5	5	.289
200	5	5	.832
201	5	5	.439
202	5	5	.884

Occupation Number	Actual Job Zone	Predicted Job Zone	p
203	5	5	.884
204	5	5	.358
205	5	5	.651
206	4	5	.511
207	4	4	.394
208	4	4	.392
209	4	5	.675
210	4	5	.711
211	4	5	.711
212	4	5	.711
213	4	5	.711
214	4	5	.849
215	4	5	.849
216	4	5	.849
217	4	5	.436
218	4	5	.436
219	5	5	.526
220	4	4	.003
221	3	4	.584
222	4	3	.913
223	2	1	.716
224	4	4	.454
225	4	4	.563
226	5	5	.886
227	3	4	.744
228	4	4	.189
229	4	4	.346
230	3	4	.699
231	4	4	.249
232	5	4	.214
233	4	4	.453
234	3	4	.274
235	2	3	.732
236	4	4	.586
237	4	4	.117
238	3	4	.945
239	5	4	.125
240	4	4	.104
241	3	3	.538
242	4	4	.027
243	4	4	.155
244	5	4	.382
245	3	3	.361
246	4	4	.515
247	3	1	.810
248	5	4	.414
249	3	1	.935
250	4	4	.008
251	5	4	.017
252	5	4	.894
253	4	4	.566
254	5	4	.058
255	2	1	.478
256	5	4	.319
257	2	3	.847
258	3	1	.959
259	4	5	.377
260	4	4	.226
261	4	4	.787
262	4	4	.982
263	5	5	.676
264	4	4	.188
265	4	4	.217
266	3	3	.876
267	4	4	.985
268	3	1	.357
269	4	4	.454
270	4	3	.738
271	3	2	.177

Occupation Number	Actual Job Zone	Predicted Job Zone	p
272	3	4	.531
273	3	4	.573
274	3	3	.786
275	4	4	.770
276	4	4	.090
277	5	5	.312
278	5	5	.865
279	5	5	.775
280	5	5	.693
281	5	5	.776
282	4	5	.546
283	4	5	.063
284	4	5	.897
285	5	5	.291
286	5	5	.097
287	5	5	.097
288	5	5	.097
289	5	5	.097
290	5	5	.771
291	5	5	.516
292	4	5	.513
293	4	5	.870
294	4	4	.581
295	4	5	.884
296	4	4	.353
297	4	5	.822
298	4	3	.981
299	4	5	.839
300	3	3	.175
301	4	5	.884
302	5	5	.059
303	4	5	.456
304	2	1	.426
305	3	2	.500
306	3	5	.237
307	4	5	.210
308	4	3	.574
309	4	2	.367
310	2	3	.654
311	4	4	.861
312	2	2	.894
313	3	3	.997
314	3	2	.965
315	3	3	.882
316	3	3	.887
317	4	3	.853
318	3	3	.217
319	5	4	.766
320	5	3	.353
321	1	2	.996
322	2	2	.770
323	2	2	.932
324	2	3	.460
325	2	3	.460
326	2	3	.424
327	2	3	.424
328	3	3	.802
329	3	2	.394
330	2	1	.982
331	3	2	.428
332	4	4	.143
333	4	4	.649
334	5	4	.270
335	2	2	.518
336	2	3	.379
337	2	3	.709
338	4	4	.105
339	2	4	.744
340	1	1	.664

Occupation Number	Actual Job Zone	Predicted Job Zone	p
341	2	1	.736
342	4	4	.024
343	3	2	.344
344	4	4	.096
345	4	2	.283
346	3	2	.522
347	3	4	.272
348	1	2	.885
349	3	2	.093
350	3	2	.137
351	2	2	.116
352	2	2	.595
353	2	2	.936
354	2	4	.401
355	1	2	.458
356	1	1	.476
357	2	3	.891
358	4	3	.368
359	3	3	.070
360	2	1	.975
361	2	3	.400
362	3	3	.988
363	1	1	.678
364	1	1	.898
365	1	1	.840
366	1	1	.989
367	1	1	.827
368	1	1	.614
369	1	1	.992
370	1	1	.942
371	1	1	.967
372	3	3	.646
373	4	4	.603
374	3	3	.483
375	4	3	.983
376	3	3	.445
377	1	2	.957
378	1	1	.899
379	2	3	.594
380	1	1	.766
381	2	2	.979
382	2	2	.954
383	3	3	.266
384	3	3	.908
385	3	2	.625
386	1	1	.894
387	2	1	.760
388	2	1	.760
389	2	1	.998
390	1	1	.847
391	1	1	.824
392	4	4	.705
393	1	1	.595
394	4	3	.879
395	1	2	.841
396	3	1	.938
397	3	3	.376
398	2	4	.934
399	1	1	.815
400	1	2	.729
401	1	1	.931
402	2	1	.802
403	2	1	.424
404	1	1	.980
405	1	2	.885
406	2	2	.742
407	3	4	.749
408	3	4	.719
409	3	3	.881

Occupation Number	Actual Job Zone	Predicted Job Zone	p
410	3	4	.379
411	3	4	.379
412	1	1	.994
413	1	1	.933
414	2	3	.425
415	2	1	.855
416	3	4	.722
417	3	4	.773
418	4	4	.517
419	3	3	.933
420	2	2	.355
421	2	2	.935
422	3	2	.215
423	2	1	.789
424	2	3	.530
425	3	3	.873
426	3	2	.696
427	2	3	.950
428	1	2	.830
429	1	1	.246
430	2	3	.717
431	5	4	.205
432	1	1	.584
433	1	1	.584
434	3	4	.858
435	3	4	.298
436	1	1	.815
437	1	1	.492
438	1	1	.842
439	2	1	.942
440	2	2	.923
441	2	2	.879
442	1	1	.790
443	2	2	.733
444	2	2	.973
445	1	3	.463
446	2	1	.844
447	2	1	.968
448	2	2	.953
449	3	2	.976
450	2	1	.984
451	2	1	.890
452	1	1	.803
453	1	2	.745
454	2	2	.671
455	2	1	.846
456	2	2	.627
457	2	4	.847
458	1	2	.931
459	2	1	.762
460	1	1	.854
461	1	1	.966
462	2	1	.958
463	2	2	.642
464	2	1	.476
465	2	3	.850
466	1	1	.992
467	2	2	.713
468	2	2	.470
469	2	2	.403
470	1	1	.737
471	2	2	.541
472	2	1	.815
473	1	1	.824
474	2	1	.652
475	1	1	.428
476	2	3	.560
477	1	2	.931
478	1	1	.930

Occupation Number	Actual Job Zone	Predicted Job Zone	p
479	1	2	.984
480	2	3	.497
481	2	1	.918
482	1	3	.950
483	4	3	.844
484	3	3	.791
485	3	2	.976
486	2	1	.868
487	3	3	.446
488	2	2	.989
489	2	1	.975
490	4	4	.520
491	2	2	.804
492	2	1	.881
493	1	1	.877
494	1	2	.600
495	1	1	.944
496	1	1	.910
497	2	1	.946
498	2	2	.417
499	3	3	.234
500	3	3	.270
501	3	3	.515
502	3	3	.275
503	4	4	.644
504	3	3	.139
505	4	3	.387
506	3	1	.736
507	1	1	.924
508	2	3	.632
509	1	1	.839
510	1	2	.663
511	1	1	.979
512	1	1	.567
513	2	2	.774
514	1	1	.588
515	1	2	.884
516	2	2	.812
517	2	1	.733
518	4	3	.402
519	3	4	.662
520	4	3	.852
521	3	2	.999
522	4	2	.891
523	4	3	.944
524	3	3	.687
525	2	3	.931
526	3	3	.989
527	4	3	.687
528	2	3	.916
529	4	2	.862
530	3	3	.988
531	2	1	.958
532	2	2	.799
533	3	2	.996
534	3	2	.996
535	2	1	.977
536	2	2	.926
537	2	2	.562
538	2	1	.919
539	3	1	.846
540	4	2	.952
541	2	2	.941
542	2	1	.905
543	3	3	.523
544	3	1	.972
545	3	2	.978
546	3	2	.978
547	4	2	.705

Occupation Number	Actual Job Zone	Predicted Job Zone	p
548	2	2	.874
549	2	2	.880
550	4	3	.866
551	3	3	.602
552	2	2	.996
553	4	2	.872
554	3	2	.584
555	3	2	.939
556	3	3	.932
557	3	2	.854
558	1	1	1.000
559	1	1	.991
560	2	2	.862
561	1	1	.997
562	2	2	.998
563	3	4	.295
564	4	3	.625
565	2	2	.897
566	2	1	.269
567	1	1	.486
568	1	2	.882
569	2	2	.564
570	2	2	.928
571	3	2	.929
572	4	4	.624
573	2	2	.357
574	3	2	.922
575	2	2	.356
576	2	2	.842
577	2	2	.901
578	2	2	.464
579	2	2	.956
580	2	1	.907
581	1	1	.903
582	4	3	.157
583	3	2	.876
584	4	3	.157
585	3	3	.815
586	3	3	.764
587	4	3	.191
588	2	3	.719
589	3	3	.957
590	3	2	.368
591	4	3	.454
592	4	3	.106
593	3	3	.405
594	3	3	.820
595	2	1	.993
596	4	2	.901
597	2	1	.720
598	2	3	.871
599	3	3	.556
600	3	4	.204
601	5	4	.519
602	3	3	.556
603	3	3	.218
604	4	3	.006
605	4	4	.009
606	3	3	.626
607	3	3	.853
608	2	2	.962
609	3	3	.407
610	2	3	.286
611	3	3	.600
612	3	3	.501
613	4	3	.344
614	3	3	.448
615	3	3	.447
616	2	3	.454

Occupation Number	Actual Job Zone	Predicted Job Zone	p
617	3	3	.540
618	2	3	.465
619	2	3	.210
620	1	1	.935
621	3	3	.853
622	3	3	.860
623	3	3	.218
624	2	2	.915
625	4	3	.280
626	4	3	.802
627	3	2	.896
628	4	3	.437
629	3	3	.013
630	3	3	.377
631	1	3	.768
632	4	3	.770
633	1	2	.900
634	4	3	.663
635	3	3	.185
636	4	3	.049
637	3	3	.260
638	3	3	.595
639	3	3	.772
640	4	3	.689
641	3	3	.854
642	3	3	.446
643	2	2	.729
644	2	3	.803
645	1	1	.943
646	3	3	.617
647	2	3	.210
648	3	3	.964
649	4	3	.299
650	1	3	.381
651	3	4	.328
652	3	3	.553
653	3	3	.547
654	3	3	.843
655	2	2	.948
656	3	3	.172
657	3	3	.971
658	3	3	.900
659	4	3	.691
660	4	4	.174
661	2	3	.711
662	3	1	.763
663	3	1	.939
664	3	1	.875
665	1	1	.929
666	2	1	.731
667	1	1	.715
668	3	1	.743
669	1	1	.406
670	2	1	.912
671	3	4	.583
672	2	1	.816
673	2	2	.833
674	2	3	.446
675	2	2	.971
676	2	1	.943
677	2	3	.890
678	2	1	.685
679	2	2	.888
680	3	3	.870
681	2	1	.958
682	3	1	.730
683	3	1	.771
684	4	4	.302
685	2	2	.981

Occupation Number	Actual Job Zone	Predicted Job Zone	p
686	1	3	.872
687	4	3	.566
688	4	3	.909
689	2	1	.959
690	2	1	.907
691	1	1	.961
692	2	2	.952
693	1	1	.672
694	3	1	.943
695	3	3	.836
696	2	2	.904
697	4	3	.992
698	1	2	.996
699	2	2	1.000
700	4	3	.811
701	1	1	.941
702	2	1	.953
703	3	3	.997
704	2	2	.950
705	2	2	.840
706	1	3	.724
707	3	2	.974
708	2	1	.989
709	2	2	.738
710	3	4	.931
711	3	3	.805
712	2	1	.672
713	3	1	.623
714	1	1	.930
715	3	3	.486
716	2	2	.770
717	1	2	.999
718	4	2	.958
719	5	2	.904
720	4	2	.977
721	4	4	.949
722	4	1	.827
723	4	3	.925
724	4	2	.902
725	4	4	.869
726	3	3	.948
727	5	2	.692
728	4	4	.518
729	5	2	.969
730	5	1	.995
731	2	1	.955
732	2	1	.786
733	2	3	.488
734	5	3	.826
735	3	3	.813
736	3	1	.776
737	1	1	.706
738	3	3	.404
739	3	1	.949
740	4	1	.950
741	1	1	.511
742	1	2	.924
743	3	2	.772
744	1	1	.998
745	2	1	.966
746	1	1	.984
747	1	1	.925
748	1	1	.885
749	1	1	.926
750	2	3	.883
751	1	1	.906
752	1	1	.760
753	3	2	.761
754	4	3	.345

Occupation Number	Actual Job Zone	Predicted Job Zone	p
755	1	1	.996
756	3	3	.924
757	3	3	.924
758	3	3	.924
759	1	1	.970
760	2	3	.873
761	3	3	.971
762	3	3	.985
763	2	3	.985
764	4	3	.947
765	4	3	.947
766	2	1	.480
767	2	1	.987
768	2	1	.830
769	1	3	.764
770	4	2	.223
771	4	4	.440
772	4	3	.604
773	2	1	.862
774	2	2	.965
775	3	3	.855
776	2	2	.865
777	2	4	.513
778	2	3	.897
779	3	3	.873
780	3	2	.886
781	4	3	.474
782	3	2	.904
783	2	3	.943
784	2	1	.628
785	1	3	.749
786	1	1	.764
787	1	2	.952
788	1	1	.764
789	1	1	.987
790	2	1	.995
791	2	2	.992
792	1	2	.999
793	1	1	.879
794	2	1	.769
795	1	1	.885
796	1	1	.719
797	3	3	.777
798	4	3	.666
799	3	3	.689
800	3	3	.637
801	1	3	.958
802	4	3	.961
803	3	3	.929
804	3	3	.851
805	3	3	.759
806	4	3	.729
807	2	3	.596
808	3	2	.736
809	2	3	.620
810	3	2	.958
811	4	3	.851
812	1	1	.895
813	2	2	.970
814	1	1	.603
815	2	2	.922
816	1	1	.917
817	3	3	.894
818	3	3	.905
819	2	1	.887
820	4	3	.968
821	2	2	.979
822	1	3	.960
823	1	1	.921

Occupation Number	Actual Job Zone	Predicted Job Zone	p
824	1	1	.805
825	1	1	.753
826	3	2	.914
827	3	3	.719
828	3	2	.966
829	1	1	.993
830	1	3	.975
831	3	3	.997
832	3	1	.867
833	4	1	.520
834	3	3	.941
835	4	1	.468
836	4	1	.438
837	2	1	.964
838	2	1	.800
839	2	2	.945
840	1	1	.832
841	1	1	.973
842	1	1	.602
843	3	3	.913
844	3	3	.570
845	4	4	.005
846	4	4	.005
847	4	4	.110
848	1	1	.667
849	1	1	.303
850	2	1	.142
851	1	1	.899
852	1	1	.300
853	2	1	.651
854	1	1	.518
855	1	1	.515
856	4	2	.343
857	3	2	.165
858	2	2	.618
859	2	1	.838
860	1	1	.665
861	4	4	.686
862	2	2	.208
863	2	2	.241
864	2	3	.502
865	4	4	.188
866	3	4	.075
867	5	4	.004
868	2	2	.602
869	5	4	.124
870	2	3	.648
871	1	1	.959
872	1	1	.844
873	4	4	.040
874	4	4	.039
875	4	2	.057
876	5	4	.375
877	2	3	.474
878	2	2	.912
879	2	2	.851
880	1	1	.829
881	2	2	.758
882	2	2	.230
883	2	1	.955
884	2	1	.238
885	2	2	.931
886	1	2	.822
887	1	2	.876
888	1	3	.911
889	1	2	.780
890	2	3	.502
891	1	2	.224
892	1	1	.965

Occupation Number	Actual Job Zone	Predicted Job Zone	p
893	1	1	.991
894	2	2	.985
895	4	3	.964
896	2	1	.976
897	4	2	.918
898	1	1	.373
899	2	1	.422
900	3	1	.780