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Culture and Consensus: the Use of Mathematical Models to Examine a Culture of Sports in the Portland Metropolitan Area

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THESIS APPROVAL

The abstract and thesis of Phillip M. Crawford for the Master of Science in Sociology were presented February 11, 1994, and accepted by the thesis committee and the department.

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ABSTRACT

An abstract of the thesis of Phillip M. Crawford for the Master of Science in Sociology presented February 11, 1994.

Title: Culture and Consensus: The Use of Mathematical Models to Examine a Culture of Sports in the Portland Metropolitan Area.

The question of what constitutes a culture has often been answered in one phrase: shared knowledge. Recent developments in both the theory and mathematics of examining this shared cultural knowledge allow researchers to produce mathematical models of informants' knowledge and perceptions of the culture they belong to. Many studies in cognitive anthropology have utilized these theoretical and mathematical tools: the present research sought to integrate a research design (based on the theory and mathematics mentioned above) with a relatively new cultural domain: the culture of sports.

Three main question pertaining to cultural knowledge were addressed in this research:

1) Did an informant's behavioral embeddedness in sports correspond to their cognitive embeddedness?
2) Did informants' behavioral embeddedness (as a group) affect their perceptions of the sports culture they belonged to?
3) Did informants' cognitive embeddedness (as a group) affect their perceptions of the sports culture they belonged to?

Behavioral embeddedness was measured using an instrument that contained 96 biographical variables primarily designed to investigate an informant's participation in sports. Cognitive embeddedness was measured using an instrument based on consensus theory. Subjects' perceptions (called "world view" in this study) of sports were based on their judgements of similarities and differences among 10 sports. These judgements were evoked by triadic analysis. Both consensus theory and triadic analysis followed the framework laid out in Romney and Weller's Systematic Data Analysis.

Sixty-six informants completed a self-administered survey containing the three parts mentioned above. Because of the nature of the sample used, this study was treated as an ethnography.

It was hypothesized that a) behavioral and cognitive embeddedness were correlated and, b) more culturally

embedded individuals would have more "sophisticated" perceptions of sports culture.

The first hypothesis was not supported: only weak correlations were found between cognitive embeddedness and variables measuring behavioral embeddedness. For the second hypothesis, the exact opposite was found: the more culturally embedded groups of informants had less "sophisticated" perceptions of the sports culture they belonged to.

CULTURE AND CONSENSUS:

THE USE OF MATHEMATICAL MODELS TO EXAMINE A CULTURE OF SPORTS IN THE PORTLAND METROPOLITAN AREA

by

PHILLIP M. CRAWFORD

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Secondly, I would like to thank Lee J. (Haggerty) for making me think (deeply and repeatedly) about the mathematics involved in the models used throughout the course of this thesis. Without his input, I would have blindly used incorrect statistical output throughout this thesis.

I would also like to thank Dr. Gerald Guthrie for allowing me to subject his Sports Psychology Class to the incredible torture of completing my survey instrument. Like great military men who wouldn't order their troops to do anything they wouldn't do themselves, he also agreed to be the outside reader on this thesis.

And thanks go to Bob Liebman, who insisted that I do the extra work and generate an extensive biographical questionnaire. In doing so, he inadvertently (?) forced me into a line of analysis that ended up comprising about

75% of the original thought in this thesis. Without his coercion, this thesis would have ended up quite deficient.

A back-handed slap of gratitude must be directed towards United Grocers Inc. and all the "memorable" times (all of them nauseating) I've had there. I will someday look back on my life as a uneducated and unskilled laborer with a nostalgic tear in my eye. Yeah, right.

Finally, I would like to thank my proof-reader, golf buddy, and principal sports "enculturator": Mom. This document is dedicated, with love, to you.

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CHAPTER I

INTRODUCTION

THE PROBLEM

The question of what constitutes a culture has often been answered in one phrase: shared knowledge. On the basis of this definition, there exists a "culture of sports" in the Portland metropolitan area. The purpose of this thesis was five-fold:

1) To develop an instrument which has three distinct functions:

   a) to measure the extent of shared cultural knowledge (this "knowledge" need not necessarily be "true" or accurate; it simply needs to be *agreed upon*);

   b) to collect biographical information from informants relating to sports involvement, socialization, and participation;

   c) to map informants' perceptions of their sports culture.

2) Using the concept of "cultural competence" (Weller and Romney 1988) (a level of relative knowledge a subject possesses about their culture), to assess a subject's

level of "embeddedness"[1] (in terms of cognitive socialization) in this culture of sports;

3) To determine if differences in a subject's biographical background (modes of cognitive and behavioral socialization) correspond to differences in these levels of cognitive embeddedness (cultural competence) in the culture of sports;

4) To examine whether the level of cultural competence affects subjects' perceptions about the sports culture they belong to, and;

5) To judge if variations in biographical background affects subjects' perceptions of the sports culture they belong to.[2]

To this end, items were presented (in survey format) dealing with the cultural domain of sports, and informants were asked to make judgements based on their knowledge of and experience with sports.

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[1] - "Embeddedness" is used in two different ways throughout this research. Cognitive embeddedness refers to the accumulation of knowledge about different aspects of sports culture. Behavioral embeddedness refers to the many participatory aspects of sports involvement.

[2] - Parts four and five required that the data from informants were aggregated. Groups of individuals were constructed on the basis of many different sports parameters derived from respondents' data. It must be stressed that these groups were artificial creations and members did not necessarily "interact" with each other.

LITERATURE REVIEW

Sociology of Sport

This research focused on several aspects of an individual's socialization into the culture of sports. McPherson (1976) identified three constituents of socialization into the role of sports consumer: 1) behavioral socialization - attendance at sporting events and watching events on T.V., etc.; 2) affective socialization - thinking about sports and loyalty towards teams or athletes, etc.; and, 3) cognitive socialization - knowledge about sports. Though the three types of socialization are undoubtedly interrelated, one concern here was with examining a manifest property of cognitive socialization - the amount of knowledge about sports. The amount of shared knowledge about sports that individuals possess was used as a measure of cultural competence with respect to a culture of sports. The accretion of knowledge about the field of sports implies involvement in a culture of sports. Also of interest were the modes of behavioral and cognitive socialization into sports, and the ways in which they related to both the accumulation of cultural knowledge and a subject's "world

view"[3] of their sports culture. Loy stated that "... a sports sociologist is often concerned with why man gets involved in sport and what effect his involvement has on other aspects of his social environment." He continued, suggesting that "degree" of involvement can be

> ... assessed in terms of frequency, duration, and intensity of involvement. The combination of frequency and duration of involvement may be taken as an index of an individual's "investment" in a sports situation, while intensity of involvement may be considered an index of an individual's "personal commitment" to a given sport situation (1972,p.64).

Different levels of "investment" and "commitment" suggest different degrees of socialization into (embeddedness in) the culture of sports. This research was an exploratory attempt to measure some of the end products of socialization into the culture of sports; the accumulation of cultural knowledge, behavioral embeddedness, and their effects on subjects' view of their culture.

The use of quantitative methodology in the sociology of sport is of increasing importance. According to McPherson, "The recent commitment to theoretical orientations and the subsequent emphasis on theory construction and causal modeling will continue with increasing mathematical sophistication" (1975,p.62). As

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[3] - "World View", as used in this research, has a very specific meaning. It represents an informant's (or collection of informants') perception of similarities among ten specific sports presented in a triadic comparison task.

with any substantive area, mathematical modeling has its dangers. Kenyon, who used path analysis to investigate factors relevant in sports socialization, properly warned that "...the empiricist, impatient with abstract verbal propositions, may come to view the treatment of data as an end in itself, making little effort to show the relevance of his findings, but preferring to dwell on the elegance of his methods." Path analysis, by its very nature, was somewhat immune to this vacuous empiricism; unfortunately, this research was not. Kenyon provided a useful edict to combat this problem: "Don't be afraid to oversimplify reality. It will then always be possible to introduce complexities a few at a time" (1970,p.194).

Cultural Knowledge

Boster and others "...view culture as an information pool that emerges when members of a community attempt to make sense of the world and each other" (1986,p.429). Sports provides a familiar base for Americans to make sense of the world. According to Raine, "If there is a common language in socially atomized, economically stressful, morally wandering America, it revolves around sports. As the pre-eminent sportswriter Thomas Boswell has put it: 'Sports may be what Americans talk about best.

With the most knowledge. The most passion...'" (1993,p.6). This knowledge in the culture of sports, according to Cashmore, is learned through socialization. For example, for the spectator, "[t]he ways in which we watch sporting events, the reasons we watch them, and those whom we watch are shaped by culture, not nature. In other words, we *learn* to appreciate performances... The sports fan is like an art critic who acquires a knowledge of what to look for, how to evaluate..." (1990,p.2).

In his treatise on knowledge in a postmodern world, Lyotard presented some very illuminating ideas on the nature of narrative knowledge and culture. In Lyotard's estimation, knowledge (as opposed to science and learning) "...is a question of competence that goes beyond the simple determination and application of the criterion of truth..." (1979,p.18). This implies that narrative knowledge is a product of culture inasmuch as it defies the usual scientific definition of "objective" truth and instead relies on cultural consensus as the ultimate determinant of truth. Lyotard also talked about the boundaries of a culture, stating "[t]he consensus that permits ...knowledge to be circumscribed and makes it possible to distinguish one who knows from one who doesn't (the foreigner, the child) is what constitutes the culture of a people" (1979,p.19). In addition to this absolute

level of knowledge that places the subject within the culture of sports, one premise of the present study was that an analysis of intra-cultural variation could distinguish between different quantities of cultural knowledge - in other words - different levels of cultural competence. Nerlove and Walters suggested "[t]he amount or the content of individual knowledge on any given subject in a community is seldom invariant. This idea is supported...by anthropologists ...dealing with intra-cultural variation" (1977,p.427).

In a short introduction to a series of articles on cultural consensus theory, Boster identified the crux of the issue in the study of intra-cultural variation. He stated "... by understanding how individuals come to vary from one another, we can begin to model how collective understandings emerge out of individual learning" (1987,p.150) Cultural meaning, according to Gottdeiner, is a function of cultural knowledge. Accumulation of cultural knowledge organizes "everyday experiences within social and material contexts" (1985,p.991). Culture gives meaning to the world by providing its members with a specialized knowledge base which they use to organize experience. Intra-cultural variation means simply that these cultural knowledge bases differ slightly (and sometimes significantly) in terms of size and content.

D'andrade (1987) discussed this major point in the study of culture. He wondered, if culture is shared knowledge and belief (consensus), why was there so much disagreement on these topics within a culture (variability)? Sankoff answered this in his study which investigated the feature of heterogeneity (variability) within a homogeneous system (culture). The premise of Sankoff's study was that culture is "...a complex structure or system which does not require cognitive sharing on the part of all individual members...it is not necessary that all members of society share all cognitive maps, they must share at least one." He concluded that "...cognitive models must, theoretically, be construed as a property of the individual" (1989,p.1). In other words, individuals infuse shared cultural knowledge with their own beliefs and interests.

Though cultural knowledge may be idiomatic to a certain extent, there is still significant common ground that the members of a culture share with respect to knowledge. Ultimately, the subjects' view of their culture is based in part on their knowledge of the cultural domain. Borgatti stated that "Anthropologists, psychologists, and others often investigate what people know about specific cultural domains (e.g., birds, plants, diseases, types of litigation, etc.). An important

starting point for these investigations is finding out how people judge the similarities and differences among items in the domain" (1990,p.1). By investigating these similarities and differences, one could illustrate the "cognitive map" that members of a culture use to "make sense of the world and each other." To this end, the mathematical models used by consensus theory (CONSENSUS) and triadic analysis (TRIADS) (1992a) were employed to create mathematical[4] representations of the concepts: 1) shared cultural knowledge, 2) cultural competence and, 3) cognitive mapping.

Mathematical Models

Consensus theory has been used frequently in the field of cognitive anthropology. Boster stressed the importance of the cultural consensus model as a precise empirical technique to determine the "pattern of agreement between informants... due to their shared knowledge of the cultural truth..." (1987, p.155). Boster conducted a study which used consensus theory and methodology to investigate manioc (a shrub used for food by swidden horticulturalists) identification among the Aguaruna of

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[4] - By using multidimensional scaling in conjunction with these two models, the representations become visual and highly useful in the interpretations of the data.

the Amazon basin. He identified three dimensions that accounted (though not completely) for the variation in "a shared cultural model of Aguaruna manioc identification." These were: 1) sexual division of labor (women had more expertise than men),
2) individual expertise (older women knew more than younger women), and 3) kinship and residence group membership (closely related women agreed with each other more). Cultural competence was defined as a "function of the extent to which each knows the culturally defined 'truth'" (1986,p.431). There was, however, a fundamental difference between Boster's work and this research: he was investigating a domain of concrete natural objects; this research investigated an abstract domain (sports).

In Nerlove and Walter's study (1977), the authors started with the premise that, though intra-cultural variation of knowledge about a certain domain existed, there was still some degree of community consensus about that domain and this consensus could be empirically verified. The study sample was drawn from two Guatemalan villages, and the concept (domain) measured was perceived 'smartness' (*listura*) among 64 children drawn from those villages. Using a pooled intra-cultural variation model, the authors concluded that there was a "considerable degree of community consensus" (1977,p.438) in terms of

the perceived 'smartness' of individual children. Consensus theory allowed these researchers to derive "Empirically-Based Statements of Community Consensus" (1977,p.427).

There were a variety of methods for collecting similarity data necessary for this research. Tversky provided the theoretical framework for the uses of similarity data for investigating a culture. He stated that "A new set-theoretical approach to similarity is developed in which objects are represented as collections of features, and similarity is described as a feature-matching process" (1977,p.327) In the case of the substantive area of sports and a triadic comparison task[5], if the common feature of two of the three sports in a single triad was that they are played with balls, then informant recognition of this was a "feature-matching process". On a more theoretical note, Tversky stated that "Similarity plays a fundamental role in theories of knowledge and behavior. It serves as an organizing principal by which individuals classify objects, form concepts, and make generalizations" (1977,p.327). However, triadic comparison measured differences, not

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[5]- Triadic comparison (TRIADS) asks informants to judge which item is most different in a group of three stimuli. For example, if presented with the TRIAD: DOG ROCK CAT most Americans would choose ROCK as the most different out of those three stimuli (for obvious reasons).

similarities. This was not problematic, according to Tversky - "It has been assumed that judgements of similarity and difference are complementary; that is, judged difference is a function of judged similarity with a slope of -1. This hypothesis has been confirmed in several studies" (1977, p.339). This means that, for the purposes of this study, difference data was similarity data.

There were several examples of studies which used various informant tasks to measure the similarities within items in a cultural domain. Weller (1983) used freelisting, pile-sorting, rank-ordering, and multidimensional scaling to develop a model of Latin illness conception based on a hot/cold dichotomy. Freelisting was used first to arrive at a list of diseases that constituted the cultural domain of Latin American illnesses that were analyzed using the other techniques. Pile-sorting is theoretically equivalent to triadic comparison in terms of the phenomenon it is designed to illustrate: a respondent's perceptions of differences and similarities among items within a domain. Informants were asked to sort illnesses into piles that represented similar illnesses. Rank ordering was used to order the illnesses on four concepts including: contagion, severity, child/adult disease, and hot or cold remedy. The results

were then portrayed to offer a conceptual representation based on the hot/cold dichotomy, contagion, and severity.

Perhaps the most relevant piece of research in this area was a study by Roberts and Enerstvedt entitled "Categorizations of Play Activities by Norwegian Children" (1986). In this study, 53 play activities were categorized using a pile-sorting technique. The children who were familiar with the activities were found to be "high in concordance" with what they defined as "play activity culture" (1886,p.6). In other words, by simply knowing the rules and strategies of the activities, the children possessed a level of cultural competence[6] necessary to complete the pile-sorting task. After the pile-sorts were completed and scored, multidimensional scaling was used to identify the criteria the children used to judge similarities and differences about the playground activities (these criteria emerged as dimensions of the multidimensional scaling solution). For the 47 girls, the dimensions were *tough, order,* and *war;* for the 31 boys, the dimensions were *tough, chase,* and *war.* The Norwegian study was quite similar to the present study. It utilized a methodology to study "playground culture" analogous to the one used here to study "sports

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[6] - My phrase.

culture".

Triadic comparison (TRIADS) has been used often to study a variety of cultural domains. Some examples included the study of animal terms (Henley 1969) and occupations (Burton 1972). There were several different methods for collecting similarity data about items in a cultural domain. Triadic comparison was used here because it is a task appropriate to a self-administered survey.

Multidimensional scaling (MDS) is used to generate "a geometric configuration of points" (Kruskal and Wish 1978, p.7). The resulting configuration reveals the "hidden structure" in the similarity data. Kachigan called this representation in MDS a "perceptual map" (Kachigan 1991, p.274). One hypothesis in this research was that this structure would differ as levels of cultural competence changed. People would develop more sophisticated "perceptual maps" as "cultural competence" increased. Mathematical analysis of these classification schemes could reveal the way in which groups of items in the domain cluster. As Sokal indicated:

> [m]uch recent progress in classification has consisted of devising methods of clustering... [c]lusters can be described by the different densities encountered on sweeping out the hyperspace. Properties of clusters include their location in space, their dispersion, their shapes, their connectivity, and the magnitude of gaps between clusters (Sokal 1974).

For the purposes of this research, these terms for related

phenomena - "perceptual mapping" and "hidden structure" - were given the term "world view". This type of "categorization" is certainly a subset of the more general phenomenon known in anthropology as "World View" but does not contain all the information informants use to make up their **complete** view of the world.

Multidimensional scaling has been used to represent the conceptual structure of Weller's Latin American illness terms (1983); the Roberts and Enerstvedt playground activity data (1986); the Henley animal terms data (1969); and the Burton occupational data (1972). The application of emergent clustering properties to the analysis of cultural knowledge is a contribution not only to the sociology of sport, but to the study of knowledge, culture, and society in general.

Biographical Data

Many of the studies discussed above used biographical data in conjunction with analyses of their particular cultural domains. Boster used kinship affiliation, age, and gender in his consensus analysis (1986). Nerlove and Walters also used biographical data in their Guatemalan 'smartness' study (1977). Roberts and Enerstvedt used

biographical data as control measures in their Norwegian playground activities study (1986). The present study used biographical data analysis as a way of constructing aggregates (groups) of informants that had similar modes of behavioral socialization to see if these various (different) modes had an affect on the groups' aggregated "world view."

CHAPTER II

RESEARCH DESIGN

In this section, six different areas relating to the overall research design of this research are addressed. They are:

1) Sampling considerations,
2) Consensus theory design,
3) Triadic comparison design,
4) The biographical section design,
5) Constructing the different groups,
6) Hypotheses.

SAMPLING CONSIDERATIONS

This study made use of a non-random, purposive sample of members of a population defined as "a Portland metro area sports culture". This sample had the following characteristics:

1- It consisted of people who identified sports as an important or very important part of their lives. This question was asked verbally by the investigator.

These people were then given a questionnaire that was completed either at that time or when it was convenient (business reply envelopes were provided).

2- Potential subjects were recruited from locations where sports culture members were known to congregate, including (but not exclusively):

- sporting events (either live or on television in places like bars, etc.);
- sports bars in the Portland metro area.

3- Other strategies were employed to increase the number of <u>completed</u> questionnaires which were returned including:

- inclusion of personally known members of the sports culture (family, friends, and acquaintances);
- the inclusion of questionnaires completed by PSU students enrolled in a Sports Psychology course.

After initial attempts at gathering a reasonable number of completed questionnaires were unsuccessful, a large block of questionnaires were given to the Sports Psychology class and the resulting returns were sufficient to place the number of returns in the target range (50-75 returns). The number of the returns was 66: 42 from the Sports Psychology class and 24 from independent sources. The two

separate return sources (Sports Psychology class versus other sources) were then tested (difference of means tests on all biographical variables) to see if the groups were indeed different. The findings of these tests are discussed in CHAPTER III - RESULTS (SAMPLING DESIGN - PROBLEMS AND RESULTS).

There were several reasons probability sampling could not be implemented, the main being that a complete enumeration of the population (members of the sports culture in Portland) did not exist. It would have been difficult to develop a complete enumeration for the simple reason that membership in a "sports culture" depends many intangibles[7] that, taken together with the identifiable features of affiliation within this culture, made both the issue of "membership" and the protocol for determining it complex at best. Further, given the considerations mentioned above, to have attempted such an enumeration would have been beyond the scope of this research and the resources of this researcher.

However, these factors did not detract from the original intent of the study, they merely required that this research be cast in a different, yet positive, light.

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[7]- For example; Features of affective socialization: team allegiance/identification, amount of elation experienced at sporting events, etc. These are concepts relating to membership that are difficult to operationalize.

This research was a *highly specialized form of ethnography*. It was an exploratory investigation into the culture of sports in the Portland area and into the feasibility of a research design that was relatively new to the sociology of sports (and a design that was synthesized from several different approaches used in cognitive anthropology[8]).

Previous research had encountered the same sampling problems. The study most closely related to this research in terms of substance and methods, the Norwegian children's study, contended that:

> ... a true sampling design could not be implemented, but because the play activity culture appeared to be high in concordance for the children who knew it, it was held that available respondents could be used, at least at the level of an exploratory study. (Roberts and Enerstvedt 1986,p.6).

Though a much more heterogeneous (on several parameters) sample than the one encountered in the Norwegian was expected, it was anticipated that there was an underlying set of features - an underlying concordance - that distinguished membership in the sports culture that was under investigation.

The number of returns used in the current study (66) corresponded well to the number of returns used in other

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[8]- Though TRIADS and CONSENSUS have been used in many different research applications, a literature search never found them used together.

studies that employed similar methodologies. A table of these studies is given below (see TABLE I).

TABLE I

SELECTED STUDIES, NUMBER, AND CHARACTERISTICS OF INFORMANTS

NAME AND AUTHOR(s) OF STUDY	CHARACTERISTICS OF THE SAMPLE	NUMBER OF SUBJECTS USED IN THE STUDY
Norwegian play activities study. Roberts and Enerstevdt, 1986.	Norwegian children involved in "play culture".	78 total. 47 girls, 31 boys.
Guatemalan "smartness" study. Nerlove and Walters, 1977.	Children matched from two Guatemalan villages.	64 total. 32 from each village.
Buang *dgwa* system study. Sankoff, 1971.	Men from a single Buang village.	42 total.
Latin illness conception study. Weller, 1983.	Women from both urban and rural Guatemala.	63 total. 24 urban, 29 rural.
Aguaruna manioc identification study. Boster, 1986.	Female horticulturalists from the Amazon basin. Single village.	70 total.
Sports culture study. Crawford, 1994.	Purposive sample of sports enthusiasts from a single city.	66 total. 43 men, 23 women.

The nature of the samples used in these studies showed that results could be obtained when using a less than optimal sampling design.

The treatment of this study as an ethnography of a culture of sports in the Portland metro area did place limitations on the external validity of the conclusions reached. However, these limitations were minor compared to the problems that would be encountered if an attempt were made to draw a probability sample from a population

whose boundaries were uncharted and whose membership was unknown.

CONSENSUS THEORY

According to Weller and Romney, "[c]onsensus theory allows us to measure the competence of each informant and to reconstruct the correct answers with about as much assurance as if we had the actual answers" (1988,p.73-74). In the present study, the data used were not of a performative nature. The CONSENSUS procedure (based on consensus theory) relied instead on a respondent-weighted form of modal responses as **the** culturally "correct" answer. Cultural competence, for the purposes of this research, was defined as the accumulation of cultural knowledge (as measured by the CONSENSUS procedure).

Consensus theory, according to Borgatti, is based on three central assumptions: "(a) there exists one and only one 'true' answer to each question (known as the 'answer key'), (b) individuals' responses to questions they do not know are independent of each other, and (c) the questions are equally hard" (1989,p.1).

The first assumption required that there was a **single culture** to which the consensus questionnaire was being administered. The existence of multiple cultures or

subcultures would violate this most important assumption of consensus theory. If systematic bimodal responses (two groups of people answering the same questions with different responses) occurred on a substantial portion of the consensus questions, the single culture assumption could not be defended and either the consensus instrument or the sample group needed to be rejected. This issue is completely investigated in the results portion of this thesis.

The second assumption required that each of the subjects completed the consensus questionnaire independently. If a significant bloc of informants relied on each other for a number of responses, then this could affect the determination of the modal response and invalidate the data by either 1) mathematically creating the appearance of a second culture in the data or 2) skewing the "culturally correct" answer key and therefore the individual cultural competence scores. Steps were taken to prevent the violation of this assumption[9].

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[9] - Respondents were told when the instrument was given to them, and repeatedly reminded in the questionnaire, to complete the form without assistance. The instrument was given to a bloc of 42 sports psychology students who completed the questionnaire under supervision. Of the remaining 25 respondents, approximately 10 completed the questionnaire in my presence. Of the 15 questionnaires completed without supervision, most were handed out on an individual (single form) basis. It is safe to say that this assumption is of minimal concern because of these reasons.

The third assumption (all the questions were of equal difficulty) was less of a concern than the first two. First, consensus modeling is robust in terms of this assumption (Borgatti, personal communication). Second, after the data were submitted to the consensus modeling operation, problematic questions could be identified and expunged, and the remaining questions resubmitted to the consensus modeling operation. The relevance of these assumptions to the data used in this thesis is thoroughly investigated in the RESULTS chapter below.

The consensus questions were constructed so that there were no absolute answers[10]. Instead, respondents were asked questions that had several possible correct answers. A complete list of the questions that were used is in APPENDIX A. The "correct" answers were derived from the modal response for each question. The consensus analysis technique first determined the modal responses for each question and denoted those responses as "correct". It then weighted each respondent with a proportion that corresponded to the number of "correct" answers which that respondent chose. It then recalculated

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[10] - Trivia was not acceptable for consensus analysis. A question such as "Which major league baseball player has the most lifetime home runs?" was not a suitable question for consensus analysis. In this case, the culturally correct answer would also most likely be the absolutely correct answer.

the modes for each question and gave the "smart" respondents' (those with the most correct answers) answers more "weight" than the "not so smart" respondents. It continued recalculating the modal responses and respondent weights until convergence was achieved (no more appreciable differences in modes or weights could be gained with continued iterations). The final answers were then used to weight each respondent. These weights could then be interpreted as "cultural competence scores". Consensus theory is amenable to all levels of measurement. The consensus test in this research used a combination of nominal and ordinal level response categories.

After investigating the issue of the compliance with the above mentioned assumptions and deciding on whether to use the complete consensus instrument or a modified version of it, the cultural competence scores (weights) were then used to identify different levels of cultural competence (for example; high, medium, and low competence) by dividing the range of competencies into thirds, or terciles. These discrete groups could be considered internally consistent on a specific cultural parameter - cultural knowledge. The major questions that were addressed with respect to consensus analysis were - What biographical factors existed that could explain differential levels of cultural competence, and how did

different levels of cultural competence affect informants' (aggregated) "world view" of sports?

The first matter required the compilation of biographical data from the informants; the second necessitated an illustration of the subjects' (collective) "world view" of the cultural domain of sports. Gottdiener identified culture as "...the conceptual frames and accumulated knowledge by which social groups organize everyday experience within social and material contexts" (1985,p.991). It was this type of "organization" that was considered, for the purposes of this research, a group's "world view". Triadic comparison facilitated the illustration of this "world view."

TRIADIC COMPARISON

TRIADS presents items drawn from a specific cultural domain in groups of three and asks respondents to judge which item is **most** different from the other two. (Weller and Romney 1988). The TRIADS portion of the questionnaire consisted of having the subjects make distinctions among 10 different sports. These 10 sports were taken from a 1991 Sports Illustrated poll of a random sample of 2320 American adults. The poll identified three different areas relating to specific sports: interest, attendance,

and participation. The 10 sports chosen appeared within the top 15 in at least two of the three areas. Distinctions between college and professional forms of the same sport were disregarded. Using a lambda two balanced incomplete block (BIB) design resulted in a questionnaire of 30 triadic comparisons. A lambda two BIB design means that each pair of sports appeared together twice in the presence of another stimulus (sport) (Borgatti 1990). This allowed for a detailed comparison with a reasonable number of triads. The ANTHROPAC (Borgatti 1992a) computer software automatically randomized the triad questionnaire with these specifications in place. Each subject was presented with an identical questionnaire.

In this triadic comparison task, the subjects were required to use their own criteria for distinguishing among sports and choosing which one was most different from the other two. For example, in the triad:

BASEBALL FOOTBALL HOCKEY

a subject is given the opportunity to use one (or possibly more) criterion for choosing among a long list of common "features" (Tversky 1977) that these three sports share. Informants could choose:

1) HOCKEY, because the other two are traditionally played outdoors;

2) BASEBALL, because the other two tend to be more

physically violent;

3) HOCKEY, because the other two are played with balls;

4) FOOTBALL, because the other two tend to be lower scoring affairs;

5) Etc.

A complete list of the actual triads used in this research are presented in APPENDIX A.

An analysis of the raw triads data produced a 10 by 10 aggregate proximity matrix. The value in each cell of the matrix represented a proportion: the total number of times two sports were judged as similar by all the respondents, divided by the total number of times each pair of sports appeared together (which was also the number of opportunities the respondents had to judge a pair of sports as similar). If 20 respondents were given the triads task, then the total number of times, for example, football and baseball would appear together is 40 (20 respondents X two comparisons each). A .500 proportion meant that the 20 respondents chose the other sport in 20 of the 40 possible opportunities. This could occur in many possible ways. Ten of the 20 respondents could have judged football and baseball similar in both of their presented opportunities; all 20 could have judged football and baseball similar in one of the two

opportunities presented in their triads questionnaire; etc.

Triadic comparision was useful because it allows the researcher to use a variety of methods to present, mathematically and visually, a composite "perceptual map" (Kachigan 1991,p.274) of how a specific aggregate (group - based on some specific parameter of sports socialization) of subjects viewed the cultural domain of sports. There were two different types of analyses that were employed in an integrated attempt to address the issues presented by these perceptual maps. Multidimensional scaling (MDS) and factor analysis are related mathematical applications that could shed a slightly different light on the same data. Using these applications, four issues that arose in these analysis of the triadic comparison data could be confronted:

1) Dimensionality - This issue dealt with the **quantity** of criteria people (as a group) were using to distinguish among sports. The number of dimensions that emerged from the triad data was a function of the number of criteria the group was consistently using to discriminate among the 10 sports presented in the 30 triads. The maximum number of dimensions (in MDS) that could emerge from the data is N-1 or nine dimensions (N = the number of different items

presented in the triads). The goal was to determine the minimum number of dimensions required to adequately fit the data.

2) Clustering - This issue dealt with the identification of the **qualities** of the dimensions (factors) the groups of people were using to differentiate among the 10 sports. Obvious dimensions (criteria) such as Team/Individual, Ball/Non-ball, Indoor/Outdoor, etc. could be expected to emerge from the triad data, but more obscure or idiosyncratic[11] dimensions could materialize. How specific sports hung together was an integral part of this analysis.

3) Fuzziness vs. Clarity - This issue was the most problematic but was also very important. If an analysis using triad data supplied by one individual were run, both of the models (analyses) would have assumed a perfect fit (absolute clarity). As more subjects, with different views on how to discriminate among the 10 sports, were added, the models would become fuzzier in nature. However, if the respondents within a given aggregate

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[11] - To the point of non-identifiability.

(group) culled from the total sample[12] had similar views about how to differentiate the 10 sports, this fuzziness was minimized. There was a balancing point that was searched for in the analysis of the different groups' triad data where 1) the number of dimensions was minimized, 2) the sports separated into identifiable dimensions, and 3) the models explained the maximum amount of variance in the triads data. One could have just kept adding dimensions to the model until the number of dimensions = nine and assured a nearly perfect fit; however, this would have offered little insight into general patterns of social life.

In MDS, there is a measure of clarity/fuzziness called the Kruskkal stress formula (stress) (Kruskkal and Wish 1978). In non-technical terms, stress is the "distortion" of the original similarity data (the aggregate proximity matrix produced by the triads analysis procedure) that is required to fit the data into a MDS solution with less than the maximum number of dimensions (in this case, nine). Hence, the lower the stress, the

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[12] - Groups were formed using the consensus data and the biographical data. Parameters such as cultural competency, primary sports involvement, and secondary sports involvement, as well as other parameters were used to split the 66 informants into groups of approximately 20-25 (terciles) individuals and <u>their</u> triad data were analyzed separately. For more information on this, see CONSTRUCTING THE GROUPS and HYPOTHESES below (p. 34).

better the MDS solution (the clearer the picture). A stress value of greater than .150 is unacceptable and anything under .100 is excellent (Borgatti 1992b).

4) Closure - This final issue was one of using the three techniques to offer an evaluation of each group's triad data. The first guideline was that of stress. What was the fewest number of dimensions that produced a stress value of .100 or less (or as close as possible)? The maximum optimal number of dimensions was three. This number was important for two reasons. First, it was the maximum number of dimensions that could be visually represented. Second, with only ten sports, any more dimensions tended to significantly reduce the meaningful conclusions that could be made about the "world view" of the groups under consideration.

The second guideline was the identifiability of dimensions. Did the factors or dimensions have some recognizable properties (ball sports, team sports, etc.)? How each group's "world view" of their sports culture differed from other groups' (based on the upper versus lower tercile group comparisons) and how consistent (across respondents) this "world view" was within a given group could be evaluated.

The third guideline was the ordering of importance of

the dimensions chosen by the various groups. Factor analysis was used to complete this task. The eigenvalues of each of the factors in a factor analysis corresponded to a proportion of variance in the matrix accounted for by that factor. The sports that "hung together" under a given factor (dimension) not only helped identify that dimension but also implied that because the eigenvalue was, for example, the largest, it was also the group's most important criterion for differentiation of the ten sports that were included in the triads task. Additionally, the total amount of variance accounted for by two or three factors (dimensions, criteria) was compared among groups.

Summarily, there was a five step algorithm (procedure) that was used to evaluate the groups' (and the total sample's) triads data:

STEP 1 - Submit the triad similarity matrix to a two dimensional multidimensional scaling solution and assess the stress coefficient. If the stress is greater than .100, add another dimension to the MDS solution and reevaluate the stress. When the stress coefficient drops below .100 (with two or three dimensions), stop adding dimensions because the MDS solution already exhibits an

excellent fit with the data. Using the coordinate data supplied by MDS, plot the MDS solution using the appropriate number of dimensions.

STEP 2 - Submit the triad similarity matrix to a factor analysis. Count the number of complex sports that exist with the appropriate number of factors in the factor analysis. Complex sports are sports that load high (greater than .500) on more than one factor. High loadings on more than one factor suggests that the orthoginal factor solution represents a more complex view of the data matrix than a factor solution with no complex sports. A greater number of complex variables means more complexity in a group's aggregated "world view".

STEP 3 - Using the output from the factor analysis, evaluate the relative importance of each factor (dimension, criterion) by looking at its eigenvalue. Note the proportion of total variance explained by the number of dimensions (factors) that exist when stress has reached an acceptable level.

STEP 4 - Using output from the multidimensional scaling solution and the factor analysis, identify the criteria that the groups were using to differentiate among the ten sports in the triads task. After identification, label the MDS visual representation axes with the appropriate dimensions (factors).

STEP 5 - Compare the results from the various upper and lower tercile groups on the issues of dimensionality, clustering, fuzziness vs. clarity, and closure. Evaluate the results in terms of various initial hypotheses dealing with sports culture embeddedness and "world view."

THE BIOGRAPHICAL SECTION

This section of the questionnaire elicited biographical information consisting of standard questions - age, sex, education, etc.- and questions designed to identify the extent of a subject's exposure to sports culture. A complete biographical questionnaire is included in APPENDIX A. Special attention was paid to the issues of 1) access to sports information sources (newspapers, T.V., etc.), 2) primary sports involvement (actual participation in sports and attendance at sporting events), and 3) secondary sports involvement (fan participation {excluding spectators}, talking about sports, mass media sports consumption, etc.).[13]

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[13] - Kenyon (1970) defines the issues of primary and secondary sports involvement. Primary sports involvement is defined as actual participation as a contestant; secondary involvement is the consumption of sport as a spectator or consumer of the mass media. I take a slightly different stance on these definitions. I would suggest that the sports consumer who is a spectator at an actual sporting event both expends more energies (getting to the games, paying sometimes excessive ticket prices) and gets a

This information was then used to construct different groups (aggregates of informants) within the total sample based on a given parameter (just as the competency scores from CONSENSUS were used to split the sample into groups). Using triad data from the different groups (based on differences in biographical factors), an assessment was made concerning the effects of the sports culture they belong to, on members' "world views."

The biographical data were also used to look for factors that explained why some informants had higher cultural competency scores than others. Factors such as primary and secondary involvement in sports could provide some informants with the knowledge needed to perform better on the consensus test. It may also be that a significant bloc of informants had access to the same sports information sources and therefore established mathematical consensus on the basis of sheer numbers. Either way, the biographical portion could shed light on this subject.

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drastically different perspective of the sporting event than the consumer that watches games on, for example, T.V. Therefore, in my estimation (and for the purposes of this thesis), primary sports involvement will include spectators.

CONSTRUCTING THE GROUPS

The membership of the informants in various groups (aggregates of people based on some sports parameter) was not limited to just one group. Individuals may have been classified concurrently into several different groups formed on the basis of cultural knowledge and biographical background. Tests were run to assure that triad output from groups (formed on the basis of different factors) that have nearly identical membership were not being compared[14]. Separate analyses of the triad data of these different groups were conducted and comparisons of the results were made to discern differences in their aggregate "world view" of sports culture. The basic parameters for formation of these groups were[15]:

1) Cultural competence scores: The top and bottom terciles (in terms of scores) were analyzed.
2) Primary sports involvement: Factor analysis was used to identify biographical variables that "hung together" and indicated high primary sports involvement. Groups

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[14] - For example, the crowd that bets on sports frequently may also be the group that has the highest cultural competency scores. It would not be prudent to compare these two groups' triads results.

[15] - The actual groups are given in CHAPTER III, RESULTS, ACTUAL COMPOSITION OF THE GROUPS.

were then constructed on the basis of high primary sports involvement vs. low primary sports involvement.

3) Secondary sports involvement: Factor analysis was used with the biographical data to construct groups that consumed mass media sports on a frequent basis (defined as high secondary sports involvement). This appeared as general secondary sports involvement or in the form of sport-specific secondary sports involvement.

4) Sport-specific total involvement: Groups were constructed on the basis of total involvement (both primary and secondary) in a sport or group of similar sports.

5) Demographic and biographical factors: Groups were constructed on the basis of demographic factors such as age and self-reported sports involvement.

HYPOTHESES

HYPOTHESIS #1: The higher the competence scores, the more sophisticated the "world view". Expected Results: For the more cognitively embedded group, more criteria (dimensions, clusters) will be needed to lower the stress coefficient (MDS) to acceptable levels and explain a comparable amount of variance (factor analysis).

HYPOTHESIS #2: Groups that have higher amounts of primary

sports involvement also have different "world views" compared to groups with lower amounts. Expected Results: The informants that load together on a sport-specific primary sports involvement factor (for example -"Outdoor Sports Enthusiasts" - hunting and fishing, which are similar in many ways) will make **THAT** (outdoor sports) criterion more important in their differentiation among the ten sports. For non-"Outdoor Sports Enthusiasts", this "Outdoor Sports" criterion may not even appear. The "Outdoor Sports" factor (factor analysis) will have a higher eigenvalue for "Outdoor Sports Enthusiasts".

HYPOTHESIS #3: The groups with the highest sport-specific secondary sports involvement have a different "world view" (than groups with lower involvement), and groups with higher general secondary sports involvement have a more sophisticated "world view" (than groups with lower involvement). Expected Results: The "world view" will differ in the same way as sport-specific primary sports involvement for sport-specific secondary sports involvement (see HYPOTHESIS #2). In terms of general secondary sports involvement, the "world view" will differ in the same way as that of the high-low competency comparison (see HYPOTHESIS #1).

HYPOTHESIS #4: Groups that have higher amounts of sport-specific total involvement have different "world views"

than groups with lower amounts. Expected Results: The results of this comparison will be much the same as those of the high-low competency comparison (see HYPOTHESIS #1). HYPOTHESIS #5: Two hypotheses are: #5-A: Older people have a more sophisticated "world view" of sports than younger people. Expected Results: The results of this comparison will be much the same as those of the high-low competency comparison (see HYPOTHESIS #1). #5-B: People who have higher self-reported sports involvement also have a more sophisticated "world view" than those people with lower self reported involvement. Expected Results: The results of this comparison will be much the same as those of the high-low competency comparison (see HYPOTHESIS #1).

CHAPTER III

RESULTS

SAMPLING DESIGN - PROBLEMS AND RESULTS

There were many possible explanations for the very low return rate encountered during the data collection phase of this research. The most likely reason was the length and complexity of the instrument itself. This type of research design was best suited to an interview format rather than a self-administered questionnaire. Due to time and resource constraints, this format was unfeasible. Forty-two responses were collected from the Sports Psychology class and were added to the 24 responses collected with independent efforts. It was decided that a total of 66 completed questionnaires was a sufficient number (given the dismal return rate of the independent efforts) for the scope of this study.

The type of convenience sample used in this research evoked a different set of problems with respect to the quality of the sample. Specifically, were the two groups (the Psychology class and the independent sample)

different on key demographic and sports attributes? To address this issue, difference of means tests[16] were conducted on all 88 biographical variables (ordinal and interval level variables) using the Psychology class as one group and the independent sample as the second group. There were statistically significant different mean scores on a total of 14 variables from the biographical section (refer to APPENDICES A and C for descriptions of the variables) and the mean cultural competence scores among the two groups (complete statistics for these tests and the following ANOVA tests can be found in APPENDIX C). This brought up a major question as to the composition of the Psychology class: were the females in the class accounting for differences in the two main groups? Difference of means tests were run on the 14 variables and the cultural competence scores (exposed in the first series of difference means tests) using men as one group and women (both from the Psychology class) as another. Statistically significant differences (lower for women in terms of sports culture embeddedness) in the means of eight variables and cultural competence scores were found. This indicated that the Psychology class women may have been less embedded in sports culture than the rest of the sample used in this thesis. To investigate this idea, the

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[16] - Two tailed t-tests using alpha = .05

entire sample was split into separate groups on the basis of origin (Psychology class vs. non-Psychology class) and gender. The resulting four groups were then subjected to an analysis of variance on the 14 variables and cultural competence scores. The among-group variance of nine of the 14 variables and cultural competence score significantly exceeded the within-group variance[17]. The Psychology class women had the lowest means (with respect to embeddedness) on five of these nine variables and cultural competence scores. An analysis of variance was then run **excluding** the Psychology class women (again using the 14 variables and cultural competence scores). The among-group variances significantly exceeded the within-group variances on five of the 14 variables (and not cultural competence scores). The male Psychology students accounted for the differences in the means of these five variables. The differences could be easily explained for two of these variables; a number of the males in the class were members of the Portland State football team so the grouped frequency (mean) of both the 1) respondent and 2) their friends / relatives playing football would naturally be high compared to the means for the other groups in the sample. This led to the acceptance of the total sample

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[17] - The F statistic was used. Alpha = .05 was the significance level.

with the following reservations:

1) The Psychology class women, as a group, were less embedded in sports culture and had a significantly lower level of cultural competence than any of the other groups.

2) The Psychology class males were, if anything, more embedded in sports culture with respect to selected sports, but this did not result in significantly higher (or lower) cultural competence scores compared to the other groups (Psychology class women excluded).

3) Because of the way the groups were formed (based on the mathematical variation of several variables to be discussed later), variation in terms of embeddedness in the culture of sports was a desirable and necessary feature for the 66 informants.

4) It must be stressed that this sample was not construed as particularly "representative" of any larger group and was viewed for what it was: a purposive sample (group of informants) used in an exploratory "ethnography".

With these reservations, this thesis was completed using the entire sample of 66 people.

CONSENSUS ANALYSIS - PROBLEMS AND RESULTS

The data from the consensus instrument were analyzed for all 66 informants and the frequency distributions for each of the questions were analyzed to check for possible violations of the assumptions discussed above in the RESEARCH DESIGN section (the frequency distributions for each of the twenty consensus questions and the competence scores for each individual are listed in APPENDIX B). The distributions were evaluated in terms of the first and third assumptions: that 1) a single culture completed the consensus task and 2) the questions asked were of equal difficulty. A third important issue was also addressed. The multiple choice answers (depending on the question) had two different levels of measurement: nominal and ordinal. Five of the 20 questions had nominal level response categories. The data from each respondent were modified so that essentially three different tests emerged for analysis by the consensus procedure:

1) The first test consisted of all the questions originally asked in the consensus questionnaire. This was called TEST 1.

3) The second test consisted of 16 questions where four problematic questions had been removed from the original questionnaire. These four questions were

problematic in that they either had bimodal response distributions (thus contributing to the violation of the single culture assumption) or because one response was the resounding favorite among the respondents and therefore the question was clearly easier than the rest (thus violating the equal difficulty assumption). This was called TEST 2.

3) The third test consisted of 15 ordinal level responses only questions picked from the original questionnaire. This was called TEST 3.

The ordinal response only test (TEST 3) was submitted to the consensus analysis procedure[18]. When the ordinal level consensus procedure was run, the ANTHROPAC software (Borgatti 1992a) immediately identified a serious pathology in the CONSENSUS model. Because the response distributions were normal (bell shaped) around the culturally correct "answer", no clear, single culture could be identified by the ordinal level procedure. This is considered a fatal flaw in the data. Also, several informants had **negative** cultural competence scores. This is theoretically impossible using consensus methodology. An informant (in consensus theory) may have a competence

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[18] - The ANTHROPAC (Borgatti 1992a) software has different algorithms for ordinal level responses vs. multiple choice responses. The ordinal only test was suggested by Steve Borgatti, the creator of the software package.

score of zero (no cultural competence); however, there is no such thing as "negative cultural competence"[19]. Due to the nature of the algorithm used to score the ordinal level tests, those respondents that answered the ordinal level questions with responses that were consistently outside the relatively normal distributions that occurred on these items were able to receive "negative credit" for their responses. TEST 3 was immediately rejected because of these various problems.

The remaining two tests (the test with all 20 questions {TEST 1} and the test with the 16 non-problematic questions {TEST 2}) were compared to see if there were significant differences in the competency scores when the problematic questions were removed from consideration. Both tests, by virtue of their eigenvalue ratios[20], did not violate the one culture assumption. The eigenvalues and their ratios are given in TABLE II.

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[19] - Though, when it comes to sports, more heavily embedded members may vigorously disagree.

[20] - The ratio of the eigenvalues in a two factor consensus solution should exceed the value of three if the one culture assumption is to remain intact. A ratio of less than three indicates that there are multiple cultures answering the consensus questions.

TABLE II

EIGENVALUES AND RATIOS ON TEST 1 AND TEST 2

TEST 1			TEST 2		
Analysis:MULTIPLE CHOICE			Analysis:MULTIPLE CHOICE		
MINIMUM RESIDUAL EIGEN VALUES			MINIMUM RESIDUAL EIGEN VALUES		
FACTOR	VALUE	RATIO	FACTOR	VALUE	RATIO
1:	12.695	5.214	1:	10.340	3.966
2:	2.435		2:	2.607	
total	15.130		total	12.948	

An analysis of the two tests showed that the cultural competence scores for TEST 1 and TEST 2 are highly correlated (r = .893, r-squared = .797). The informants were also rank ordered (their ranks and actual competence scores are given at the end of APPENDIX B) on the basis of their competency scores so that a rank order correlation could be run. Because the use of the competency scores would be based on relative position (ranking), a rank order correlation was more important in determining if the two tests were measuring essentially the same thing (cultural knowledge). The Spearman rank order correlation was .90 for the two tests.

The Spearman rank order correlation coefficient shows that the rankings on the two tests were very similar. Therefore, it can be concluded that either test can be used without a significant loss of information.

TEST 2 was chosen as the better of the two tests because four of the problematic items were removed. The

bimodal items (refer to questions 1 and 12 in APPENDIX B) diminished the quality of the consensus test by not providing a clear, culturally correct answer. The two easy items (questions 13 and 17) failed to provide any discrimination among informants because almost everybody answered the items identically. They were also inconsistent (in terms of difficulty) with the rest of the items. For these reasons, cultural competence was defined as the weighted[21] proportion of culturally correct answers each informant got right on TEST 2.

The scores for the 66 informants on TEST 2 ranged from a high of .611 to a low of .079 (total range = .532). The mean score on TEST 2 was .377 with a standard deviation of .121. In other words, TEST 2 was challenging to even the most culturally embedded informants.

The next issue was, using the biographical data, to attempt to explain variation in the test scores. Correlations were run using all the biographical variables as independent variables and the informant's competency score on TEST 2 as the dependent variable. Five biographical variables with statistically significant[22] Pearson's product-moment correlations emerged from this

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[21] - Refer to page 22 in the RESEARCH DESIGN chapter for a discussion of how informants are "weighted".

[22] - Based on the t value of the beta coefficient, alpha = .05

analysis. These variables and their correlations are given in TABLE III.

TABLE III

BIOGRAPHICAL VARIABLES WITH STATISTICALLY SIGNIFICANT CORRELATIONS WITH THE COMPETENCY SCORE ON TEST 2

INDEPENDENT BIOGRAPHICAL VARIABLE	PEARSON'S r	r-SQUARED
FREQUENCY INFORMANTS TALK ABOUT SPORTS (V16)	.380	.145
FREQUENCY INFORMANTS READ ABOUT BASEBALL (V32)	.320	.102
FREQUENCY INFORMANTS READ ABOUT BASKETBALL (V33)	.307	.094
INFORMANT'S SELF-REPORTED SPORTS INVOLVEMENT (V2)	.303	.092
FREQUENCY INFORMANT PLAYS BASEBALL/SOFTBALL (V46)	.272	.074

Each of the independent variables explains essentially the same variance[23] in the cultural competence scores. A forced entry regression using all five independent variables only explained about 16% of the variance compared to 14.5% in a one independent variable model. It can be concluded that the biographical variables were not very useful in predicting cultural competence scores. One

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[23] - A stepwise regression was run using all five of the independent variables. The first variable ("frequency respondent talks about sports") explained most of the variance that the other variables also explain. In other words, the independent variables were correlated with each other.

possible explanation is that the consensus test and the biographical variables were measuring different aspects of the cultural domain of sports. It may have also been due to the nature of the sample used.

THE ACTUAL COMPOSITION OF THE GROUPS

A main thrust of this research was to assess how cultural embeddedness affects a group of informants perceptions about the sports culture they belong to. For this reason, it was necessary to divide the 66 informants into groups based on different amounts of different types of sports culture embeddedness. Twenty groups were composed on the basis of the distributions of seven scale variables (created using factor analysis), two variables taken directly from the biographical section, and the cultural competence scores on TEST 2. After the distributions on these 10 variables were calculated, the informants belonging to the upper and lower terciles of these distributions were identified, and the triad data for these individuals were separated into different files suitable for submission to the triadic analysis procedure. The upper and lower terciles were chosen to provide the greatest amount of distinction among the two groups to be compared. Because there were 66 informants, each group

consisted of about 22 individuals.

Seven scale variables were identified using factor analysis to discover biographical variables that "hung together" when submitted to this technique. The complete results of these factor analyses are given in APPENDIX D. The scale variables were then created by first standardizing the component biographical variables, and then simply adding the standardized variables together (for each informant). After these variables were created, the relative contributions of each biographical variable to composition of its scale variable was assessed. This information is given in TABLE IV.

TABLE IV

THE SEVEN SCALE VARIABLES, THEIR COMPONENT BIOGRAPHICAL VARIABLES, CLASSIFICATION, AND THE RELATIVE CONTRIBUTIONS OF THE COMPONENT VARIABLES TO THE SCALE VARIABLE

SCALE VARIABLE	COMPONENT VARIABLES	RELATIVE CONTRIBUTION
WINTER SPORTS	Frequency respondent reads about football (V34)	.226
	Frequency respondent reads about basketball (V33)	.223
	Frequency respondent watches football on TV (V20)	.196
	Frequency respondent watches basketball on TV (V19)	.181
	Frequency respondent reads about boxing (V37)	.175
Total amount of scale variable explained by component variables		%100
This variable was classified as a sports-specific secondary sports involvement measure		
OUTDOORSY CROWD	Frequency respondent attends outdoors shows (V81)	.363
	Frequency respondent goes hunting/fishing (V53)	.330
	Frequency respondent attends bowling events (V78)	.307
Total amount of scale variable explained by component variables		%100
This variable was classified as a sports-specific primary sports involvement measure		
RA-RA-RAs	Frequency respondent attends football events (V74)	.500
	Frequency respondent attends basketball events (V73)	.500
Total amount of scale variable explained by component variables		%100
This variable was classified as a sports-specific primary sports involvement measure		
BASEBALL PLAYERS	Frequency respondent plays baseball/softball (V46)	.500
	Baseball identified as one of respondent's favorite sports to play	.500
Total amount of scale variable explained by component variables		%100
This variable was classified as sports-specific primary sports involvement measure		

TABLE IV (continued)

THE SEVEN SCALE VARIABLES, THEIR COMPONENT BIOGRAPHICAL VARIABLES, CLASSIFICATION, AND THE RELATIVE CONTRIBUTIONS OF THE COMPONENT VARIABLES TO THE SCALE VARIABLE

SCALE VARIABLE	COMPONENT VARIABLES	RELATIVE CONTRIBUTION
NET SPORTS CROWD	Frequency respondent plays soccer (V55)	.223
	Frequency respondent attends soccer events (V83)	.218
	Soccer identified as one of respondent's favorite sports to play	.208
	Soccer identified as one of respondent's favorite sports to watch	.197
	Frequency respondent attends hockey events (V80)	.159
Total amount of scale variable explained by component variables		%100
This variable was classified as a sports-specific total sports involvement measure		
THE LINKS CROWD	Frequency respondent plays golf (V49)	.220
	Frequency respondent watches golf of TV (V21)	.217
	Frequency respondent reads about golf (V35)	.201
	Golf identified as one of respondent's favorite sports to play	.182
	Golf identified as one of respondent's favorite sports to watch	.178
Total amount of scale variable explained by component variables		%100
This variable was classified as a sports-specific total sports involvement measure		
BETTING INFO CROWD	Frequency respondent reads the sports page (V14)	.221
	Frequency respondent talks about sports (V16)	.216
	Frequency respondent watches the sports report on TV (V15)	.212
	Frequency respondent bets on sporting events (V17)	.187
	Respondent participates in sports betting pools at work (V13)	.164
Total amount of scale variable explained by component variables		%100
This variable was classified as a general secondary sports involvement measure		

In addition to the 14 groups formed on the basis of these seven biographical scale variables, an additional

six groups were formed using three other variables:

1) Respondent age,

2) Respondent's self-reported sports involvement,

3) Respondent's cultural competency score.

Using the upper and lower terciles of all these variables yielded 20 groups of triadic comparison data. The twenty groups are given in TABLE VI.

TABLE V

GROUP NUMBER, NUMBER OF INFORMANTS, AND CHARACTERISTICS OF THE TWENTY GROUPS USED IN THE TRIADIC ANALYSIS

GROUP #	N	IDENTIFYING CHARACTERISTIC
Group 1	21	Lower tercile - WINTER SPORTS scale variable
Group 2	21	Upper tercile - WINTER SPORTS scale variable
Group 3	22	Lower tercile - OUTDOORSY CROWD scale variable
Group 4	20	Upper tercile - OUTDOORSY CROWD scale variable
Group 5	19	Lower tercile - RA-RA-RA's scale variable
Group 6	21	Upper tercile - RA-RA-RA's scale variable
Group 7	23	Lower tercile - BASEBALL PLAYERS scale variable
Group 8	19	Upper tercile - BASEBALL PLAYERS scale variable
Group 9	20	Lower tercile - NET SPORTS CROWD scale variable
Group 10	20	Upper tercile - NET SPORTS CROWD scale variable
Group 11	23	Lower tercile - LINKS CROWD scale variable
Group 12	21	Upper tercile - LINKS CROWD scale variable
Group 13	22	Lower tercile - BETTING INFO CROWD scale variable
Group 14	19	Upper tercile - BETTING INFO CROWD scale variable
Group 15	22	Lower tercile - Cultural competency score
Group 16	22	Upper tercile - Cultural competency score
Group 17	25	Lower tercile - Respondent's age
Group 18	22	Upper tercile - Respondent's age
Group 19	20	Lower tercile - Respondent's self-reported sports involvement
Group 20	27	Upper tercile - Respondent's self-reported sports involvement

The next question dealt with the issue of concurrent membership in multiple groups. When comparing the triadic comparison output (en masse) for the upper tercile groups

versus the lower tercile groups, it could be possible the upper and lower groups exhibited similar "world views" because many of the members in these groups were the same people. It was therefore necessary to evaluate the twenty groups' membership to see if this was problematic before the triad data were analyzed. Because membership in the upper and lower tercile groups of each of the ten variables was impossible, concurrent membership was not an issue, for example, groups #1 and #2 (#3 and #4, etc.). Correlations among the ten discriminating variables were run. The results of these correlations are given in APPENDIX D. If two of the variables were highly correlated, there was a good chance that the groups culled on the basis of the distributions of these two variables had many **concurrent** members[24]. The following sets of variables were found to have statistically significant **positive** correlations:

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[24] - For example - WINTER SPORTS and BETTING INFO CROWD had a correlation of .8279. The chances are very good that the individuals comprising upper and lower tercile groups based on WINTER SPORTS are also many of the same individuals comprising the upper and lower tercile groups based on BETTING INFO CROWD.

WINTER SPORTS & RA-RA-RA's
WINTER SPORTS & BASEBALL PLAYERS
WINTER SPORTS & BETTING INFO CROWD
WINTER SPORTS & Self-reported sports involvement (V2)
RA-RA-RA's & BETTING INFO CROWD
RA-RA-RA's & Self-reported sports involvement (V2)
BASEBALL PLAYERS & BETTING INFO CROWD
BASEBALL PLAYERS & Self-reported sports involvement (V2)
LINKS CROWD & BETTING INFO CROWD
LINKS CROWD & Respondent's age (V86)
BETTING INFO CROWD & Self-reported sports involvement (V2)
Cultural competence score & Self-reported sports involvement

TABLE VI gives a complete listing (by group number) and the average concurrent membership averages[25] of the problematic groups. Refer to TABLE V for the nature of the groups given in TABLE VI.

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[25] - Average concurrent membership is a percentage that was derived by first calculating the number of members two groups have in common, then dividing that number by the number of subjects in each group. The resulting two proportions were then added together, divided by two, and converted to a percentage.

TABLE VI

GROUP NUMBERS AND AVERAGE CONCURRENT MEMBERSHIP PERCENTAGE FOR PROBLEMATIC GROUPS

GROUP NUMBERS	AVERAGE CONCURRENT MEMBERSHIP %
Groups #1 & #5	65.0
Groups #1 & #13	84.0
Groups #1 & #19	73.0
Groups #1 & #7	59.5
Groups #5 & #13	49.0
Groups #5 & #19	51.5
Groups #7 & #13	53.5
Groups #7 & #15	53.5
Groups #7 & #19	65.5
Groups #11 & #13	49.0
Groups #11 & #17	46.0
Groups #13 & #19	62.0
Groups #2 & #6	48.0
Groups #2 & #8	55.5
Groups #2 & #14	65.0
Groups #2 & #20	46.5
Groups #6 & #14	40.0
Groups #6 & #20	50.5
Groups #8 & #14	42.0
Groups #8 & #16	54.0
Groups #8 & #20	58.0
Groups #12 & #14	55.0
Groups #12 & #18	37.0
Groups #16 & #20	53.5

The concurrent membership issue turned out to be one of considerable importance. Due to the fact that many informants had concurrent membership in multiple groups, it was decided that no comparisons between lower tercile groups would be undertaken (this also held true for comparisons between upper tercile groups). It seemed that there was a core group of informants that belonged to many of the ten groups that comprised the upper and lower terciles in this study. An analysis was undertaken to confirm this observation. In the lower tercile groups, nine informants belonged to seven or more groups (thus constituting a "core group" of informants). In the upper tercile groups, only three informants belonged to seven or more groups. Thus, due to the results of the average concurrent membership and core group issues, the concurrent membership matter was more problematic for the lower tercile groups than for the upper tercile groups.

Because the concurrent membership seemed consistent with regard to the relative level of cultural embeddedness (ie., members of lower tercile groups were not also members of different upper tercile groups), a comparison of **general aspects** of the "world views" of the lower vs. upper tercile groups could be assumed with caution. The next step was to analyze the triadic comparison data using the five step algorithm put forth in the research design.

ANALYSIS OF THE TRIADIC COMPARISON DATA

The triad data were analyzed using the ANTHROPAC 4.0 software package (Borgatti 1992a). This analysis produced a ten by ten matrix of the aggregate proximities of each of the ten sports to each of the other nine sports. The resulting matrix was a quasi-correlation matrix where the cell values represented proportions (the total number of times two sports were not chosen as the most different (and thus considered the most similar out of the three listed in the triads) by all respondents in that group, divided by the number of times those sports appeared together in a triad). Thus, if this proportion for the two sports, baseball and football, was .500, then these two sports were judged as 'similar' as many times they were judged as 'dissimilar'. If this proportion is 1.0, then every time the sports appeared together (for every member of the group), they were judged as most similar. Conversely, if this proportion was .000, then every time the sports appeared together, one of the two was singled out as 'most different'.

Two analyses (factor analysis and MDS) were performed on the aggregate proximity matrices that resulted from the twenty groups triad data and the entire sample of 66 informants. The results of these analyses are detailed in

TABLES VII through X. When examining these results, the following points will prove useful[26]:

1) A stress coefficient of under .150 meant that the number of dimensions that were used provided a reasonably **clear** picture of the 10 sports. A stress coefficient under .100 meant the picture was exceptionally clear (refer to dimensionality and fuzziness/clarity above).
2) The first factor/dimension identified the **most** important criterion the group used in judging differences (similarities) among the ten sports (based on % of variance explained). The second and third factors also followed this scheme. The factors were identified (and also **subjectively** rated as to how comprehensible this factor was) by the loadings of each of the sports on each factor. If a pattern of factor loadings that suggested some possible aggregate criterion (factor, dimension) emerged, an analysis of the visually represented multidimensional scaling solution was undertaken to see if

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[26] - Remember that Fuzziness/Clarity referred to how well the visual model (from multidimensional scaling) and the factor model (from factor analysis) fit the aggregate proximity matrix derived from the triadic comparison data. The goal was to fit these models to the data with a minimal number of dimensions/factors and a minimal amount of distortion of the original triad data. How well these models fit were indicated by the stress coefficient (for multidimensional scaling) and the amount of variance explained (for factor analysis).

TABLE VII

SUMMARY STATISTICS FOR GROUPS #1 THROUGH #6

GROUP ###	GROUP VARIABLE	STRESS WITH SUFFICIENT DIMENSIONALITY	MOST IMPORTANT FACTORS/CRITERIA	% OF VARIANCE EXPLAINED BY 2 or 3 FACTORS	# OF COMPLEX SPORTS WITH N FACTORS
#1	WINTER SPORTS	.061 3 dimensions	1. Team # 2. Ball # 3. Guy sports ?	74.7***	2***
#2	" "	.093 2 dimensions	1. Ball # 2. Team #	63.9**	0**
#3	OUTDOORSY CROWD	.076 3 dimensions	1. Ball # 2. Team # 3. Outdoor sports ?	76.5***	0***
#4	" "	.055 3 dimensions	1. Team # 2. Ball # 3. Guy Sports ?	77.6***	2***
#5	RA-RA-RA's	.052 3 dimensions	1. Team # 2. Ball # 3. Unknown	76.4***	2***
#6	" "	.094 2 dimensions	1. Ball # 2. Team #	63.9**	0**

Comprehensibility of factors # = highly comprehensible ? = questionable unknown = incomprehensible
% of Variance Explained & # of Complex sports ** = Two factors only *** = Three factors

TABLE VIII

SUMMARY STATISTICS FOR GROUPS #7 THROUGH #12

GROUP ###	GROUP VARIABLE	STRESS WITH SUFFICIENT DIMENSIONALITY	MOST IMPORTANT FACTORS/CRITERIA	% OF VARIANCE EXPLAINED BY 2 or 3 FACTORS	# OF COMPLEX SPORTS WITH N FACTORS
#7	BASEBALL PLAYERS	.077 3 dimensions	1. Ball # 2. Team # 3. Unknown	75.3***	0***
#8	" "	.057 3 dimensions	1. Team # 2. Ball # 3. Unknown	77.5***	2***
#9	NET SPORTS CROWD	.066 3 dimensions	1. Ball # 2. Team # 3. Unknown	75.6***	0***
#10	" "	.060 3 dimensions	1. Team # tied with 2. Ball # 3. Unknown	77.5***	2***
#11	LINKS CROWD	.069 3 dimensions	1. Team # 2. Ball # 3. Unknown	74.6***	1***
#12	" "	.073 2 dimensions	1. Ball # 2. Team #	65.1**	0**

Comprehensibility of factors # = highly comprehensible ? = questionable unknown = incomprehensible
% of Variance Explained & # of Complex sports ** = Two factors only *** = Three factors

TABLE IX

SUMMARY STATISTICS FOR GROUPS #13 THROUGH #18

GROUP ###	GROUP VARIABLE	STRESS WITH SUFFICIENT DIMENSIONALITY	MOST IMPORTANT FACTORS/CRITERIA	% OF VARIANCE EXPLAINED BY 2 or 3 FACTORS	# OF COMPLEX SPORTS WITH N FACTORS
#13	BETTING INFO CROWD	.063 3 dimensions	1. Team # 2. Ball # 3. Unknown	74.4***	1***
#14	" "	.076 2 dimensions	1. Ball # 2. Team #	66.0**	0**
#15	CULTURAL COMPETENCY SCORE	.064 3 dimensions	1. Ball # tied with 1. Team # 3. Unknown	75.0***	0***
#16	" "	.096 2 dimensions	1. Ball # 2. Team #	66.2**	0**
#17	RESPONDENT'S AGE	.072 3 dimensions	1. Team # 2. Ball # 3. Unknown	75.2***	2***
#18	" "	.046 3 dimensions	1. Ball # 2. Team # 3. Outdoor Sports ?	79.1***	0***

Comprehensibility of factors # = highly comprehensible ? = questionable unknown = incomprehensible
% of Variance Explained & # of Complex Sports ** = Two factors only *** = Three factors

TABLE X

SUMMARY STATISTICS FOR GROUPS #19 AND #20

GROUP ###	GROUP VARIABLE	STRESS WITH SUFFICIENT DIMENSIONALITY	MOST IMPORTANT FACTORS/CRITERIA	% OF VARIANCE EXPLAINED BY 2 or 3 FACTORS	# OF COMPLEX SPORTS WITH N FACTORS
#19	SPORTS INVOLVEMENT	.061 3 dimensions	1. Team # 2. Ball # 3. Unknown	75.4***	2***
#20	" "	.046 3 dimensions	1. Ball # tied with 1. Team # 3. Unknown	72.2***	1***
ALL SUBJECTS	ALL 66 INFORMANTS	.063 3 dimensions	1. Ball # tied with 2. Team # 3. Unknown	76.3***	1***

Comprehensibility of factors # = highly comprehensible ? = questionable unknown = incomprehensible
% of Variance Explained & # of Complex Sports ** = Two factors only *** = Three factors

this criterion materialized in the visual data. For example, if bowling, golf, and pool loaded highly positive on factor 1 and fishing/hunting and autoracing loaded negatively on factor 1 (and the MDS visual data confirms this scheme), then it was safe to assume that factor one represented a Ball/non-Ball factor (criterion) and the **subjective** comprehensibility rating was **high** (refer to clustering and fuzziness/clarity above).

3) The total variance explained by the number of listed factors was an indicator of how well the factors (collectively) explained similarities and differences among the 10 sports (refer to fuzziness/clarity above).

4) The number of complex sports (sports that load above .500 on two or more factors in the factor analysis - only the specified number of factors was considered) was lower for representations of the triad data that were lower in **complexity**. A high number of complex sports suggested that similarities among sports were either a) being evaluated by all members of a group using multiple criteria, b) being evaluated by different members of the group using different criteria consistently, or c) a combination of these two causes was occurring. Either way, a greater number of complex sports meant a more complex representation of the triad data (refer to fuzziness/clarity above). Complete results (final

statistics for the rotated factors) for the factor analyses for all 66 informants and for each of the 20 groups appear in APPENDIX E.

In terms of the more general results of the triadic data analysis, three points could be made that cover many of the findings gleaned from an analysis of the twenty groups' and the entire sample's information. These were:

1) All of the groups' aggregated "world views" of the ten sports were sufficiently "clear" to reduce stress to an excellent level with either two or three dimensions. No more than three dimensions were needed.

2) In all the groups Team and Ball (not necessarily in that order) were the two most important dimensions/factors in terms of percentage of variance explained by a factor analysis. These two dimensions/factors were easily identifiable in both the multidimensional scaling visual output (see FIGURES 1 through 21) and the factor analyses (see APPENDIX E). In the 15 three-factor solutions, these two factors explained 55 - 60% of the total variance in each of the groups' triad proximity matrix. In the five two- factor solutions, these two factors explained about 65% of the total variance in these matrices. Without exception, the order of importance of the factors in the five two- factor solutions was 1) Ball, followed by 2)

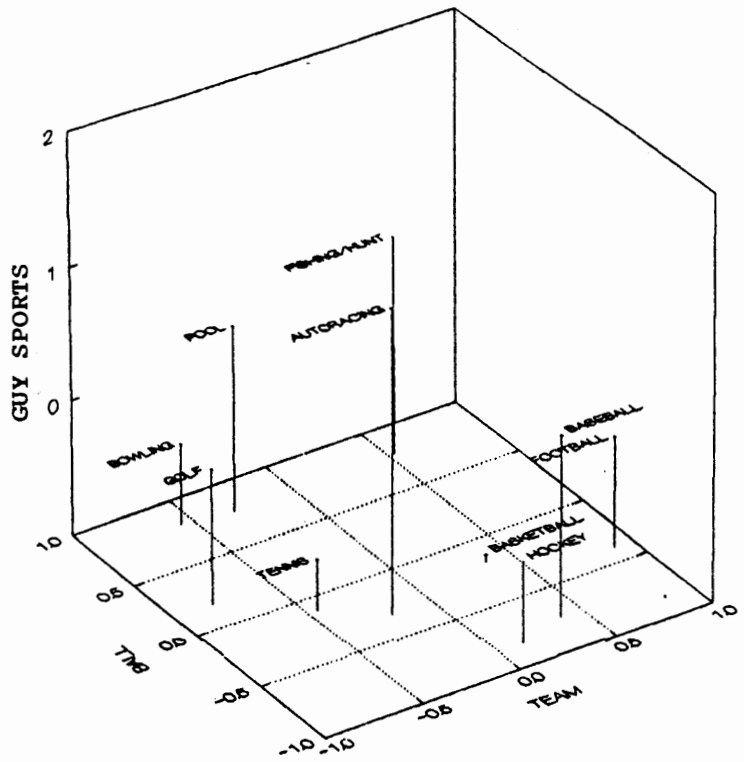

Figure 1. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #1. [Lower tercile, Winter Sports]

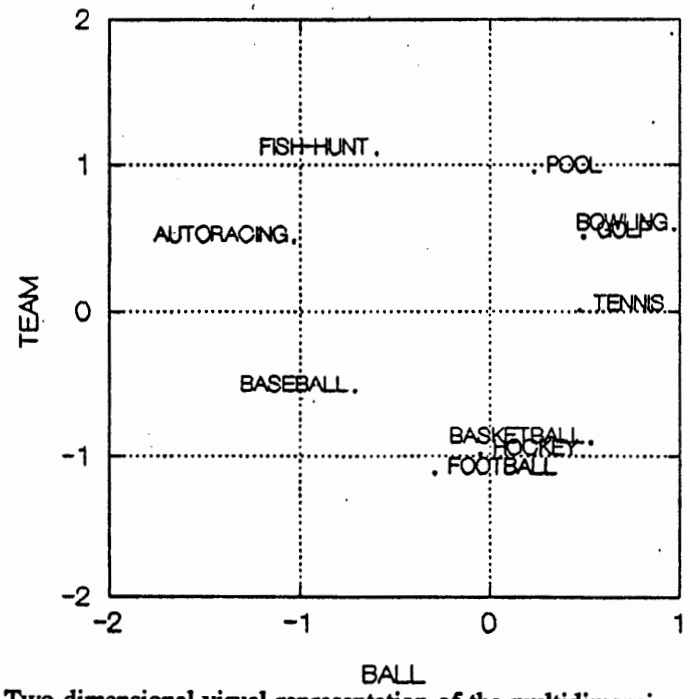

Figure 2. Two dimensional visual representation of the multidimensional scaling coordinate data for GROUP #2. [Upper tercile, Winter Sports]

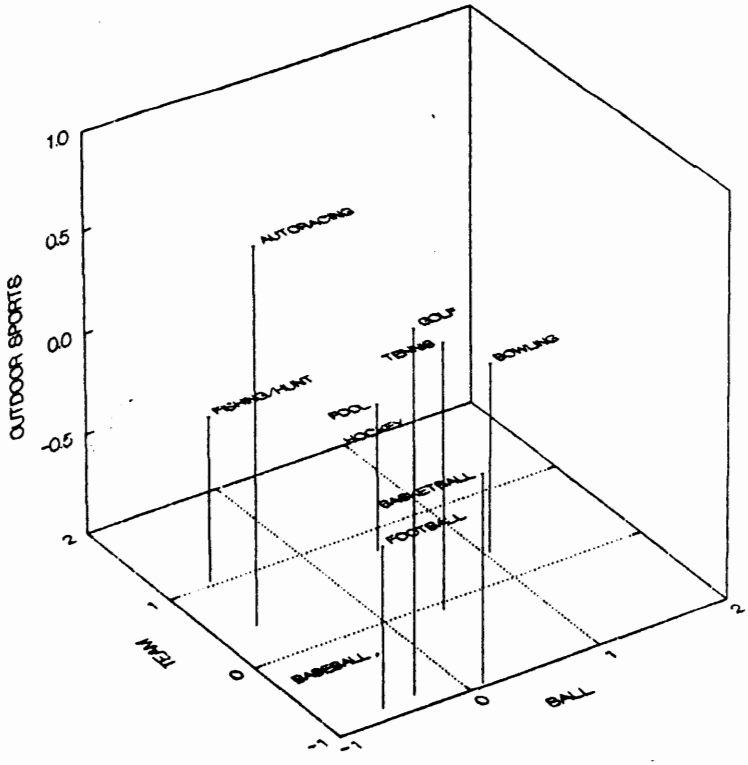

Figure 3. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #3. [Lower tercile, Outdoorsy Crowd]

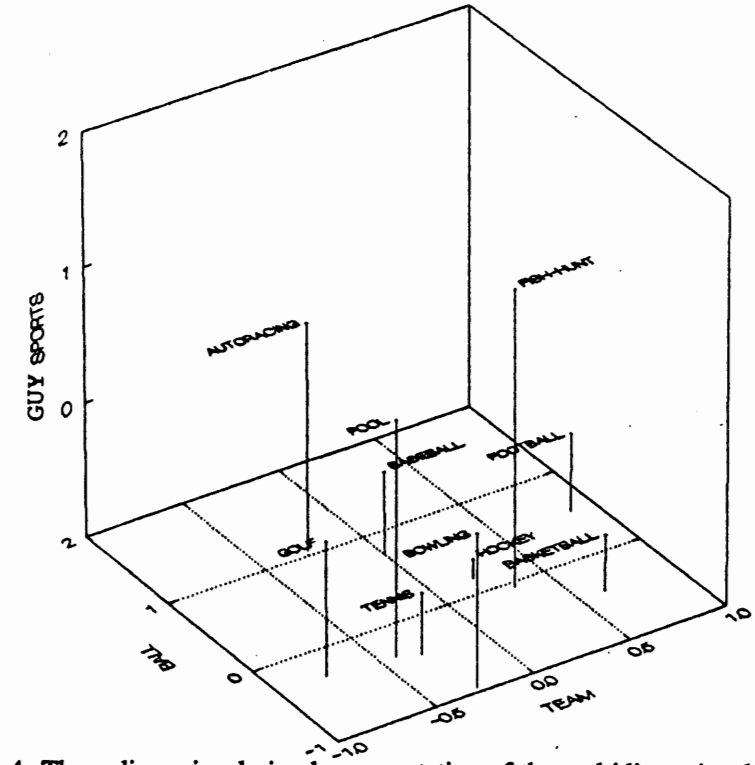

Figure 4. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #4. [Upper tercile, Outdoorsy Crowd]

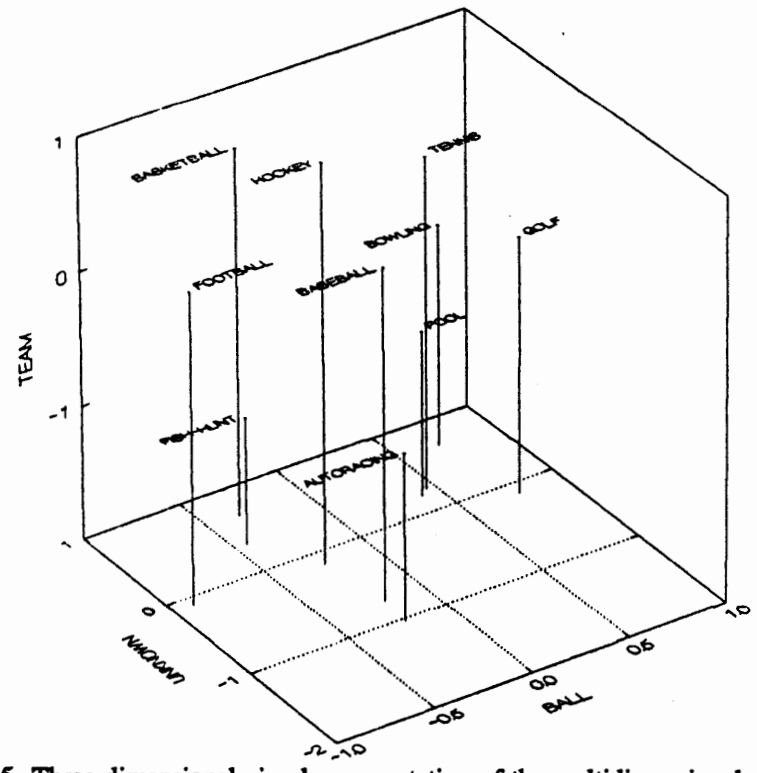

Figure 5. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #5. [Lower tercile, Ra-Ra-Ra's]

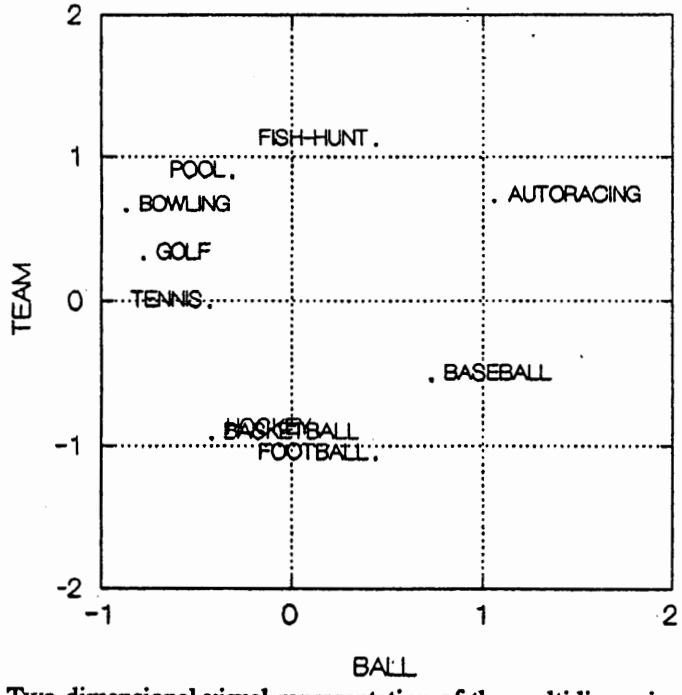

Figure 6. Two dimensional visual representation of the multidimensional scaling coordinate data for GROUP #6. [Upper tercile, Ra-Ra-Ra's]

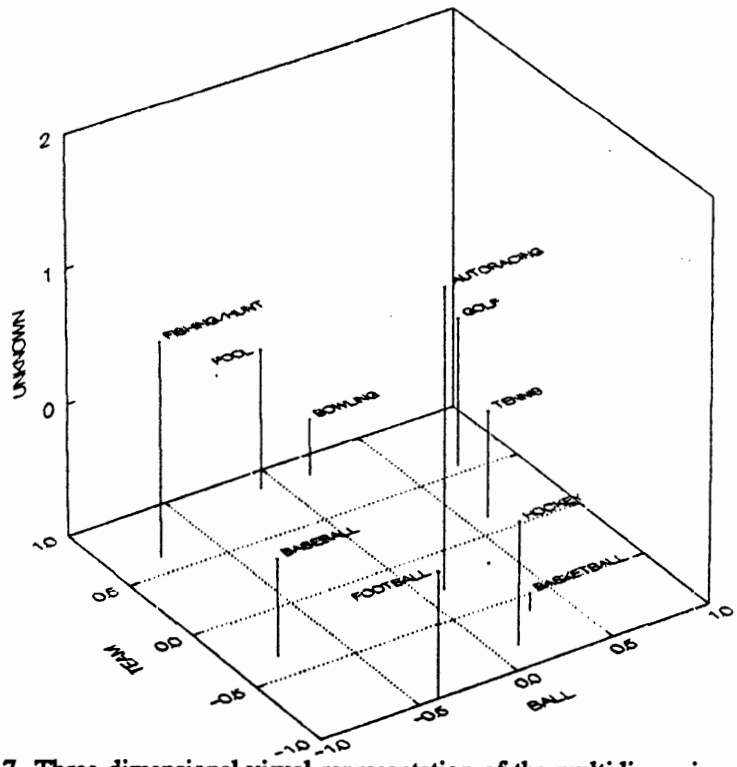

Figure 7. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #7. [Lower tercile, Baseball Players]

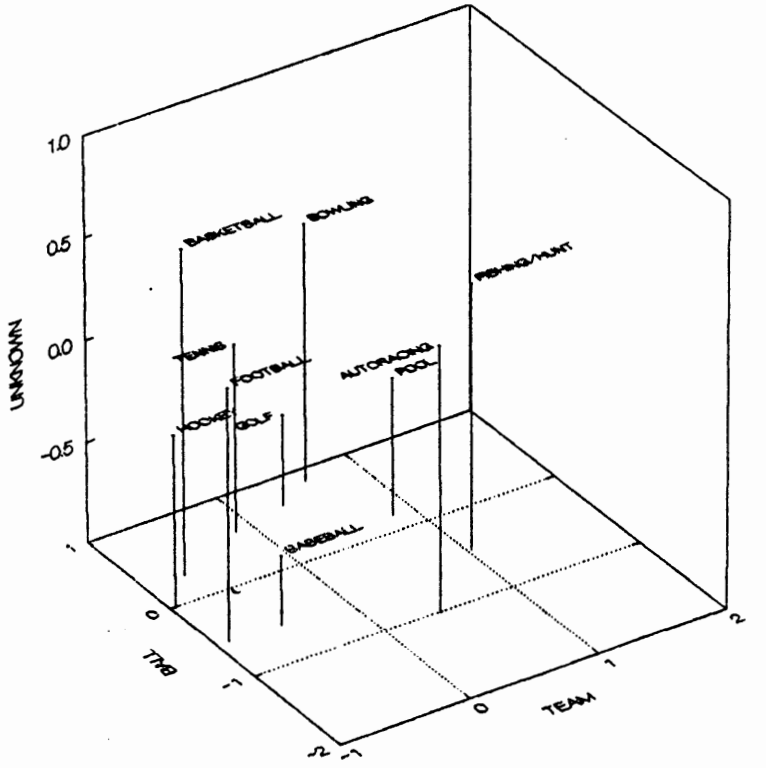

Figure 8. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #8. [Upper tercile, Baseball Players]

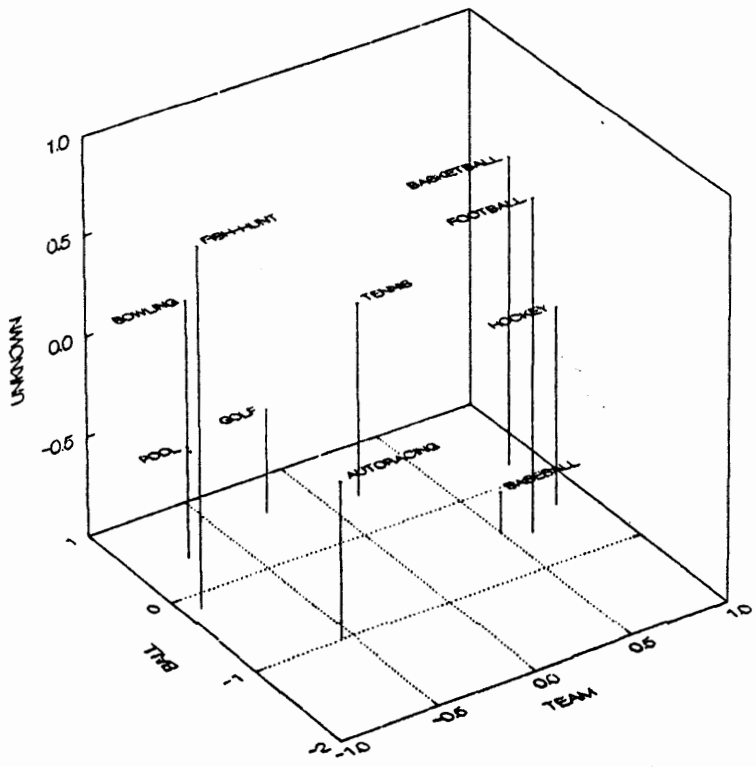

Figure 9. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #9. [Lower tercile, Net Sports Crowd]

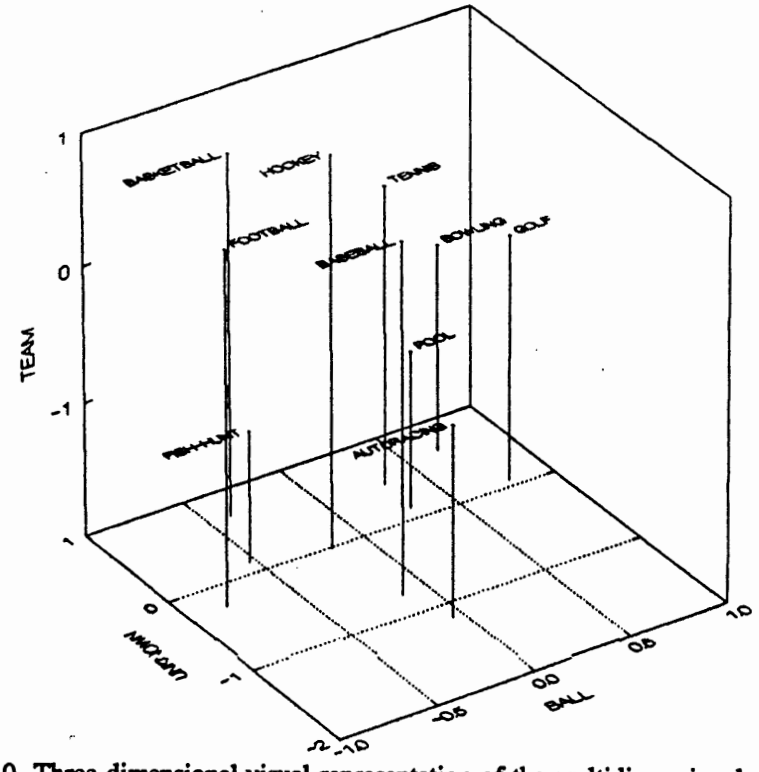

Figure 10. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #10. [Upper tercile, Net Sports Crowd]

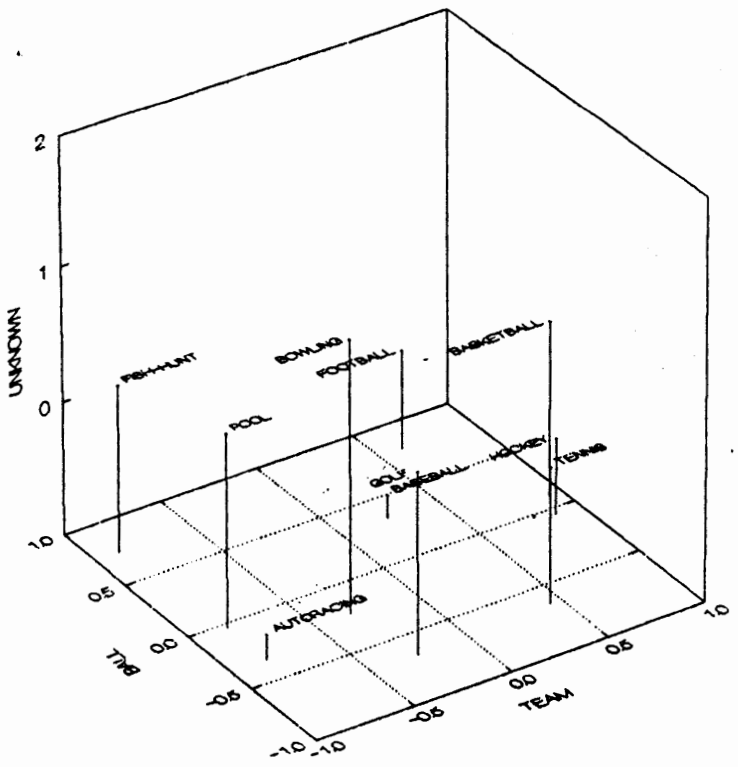

Figure 11. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #11. [Lower tercile, Links Crowd]

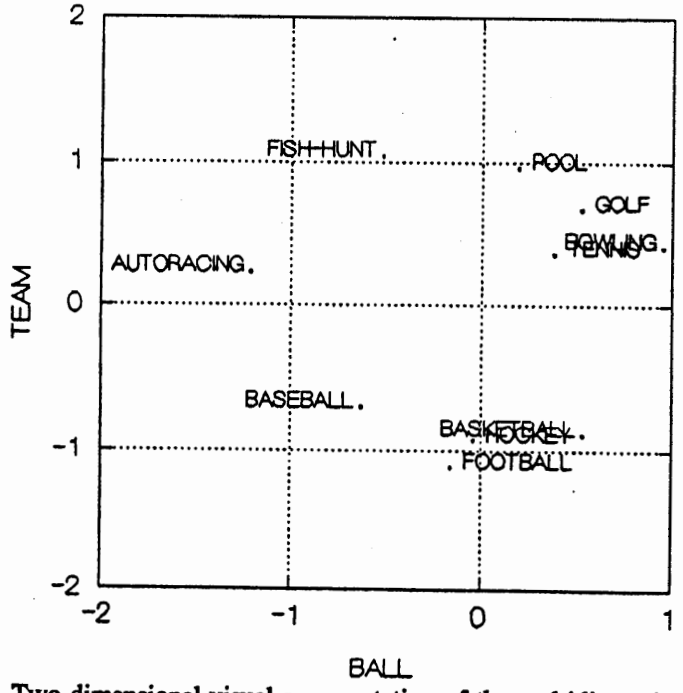

Figure 12. Two dimensional visual representation of the multidimensional scaling coordinate data for GROUP #12. [Upper tercile, Links Crowd]

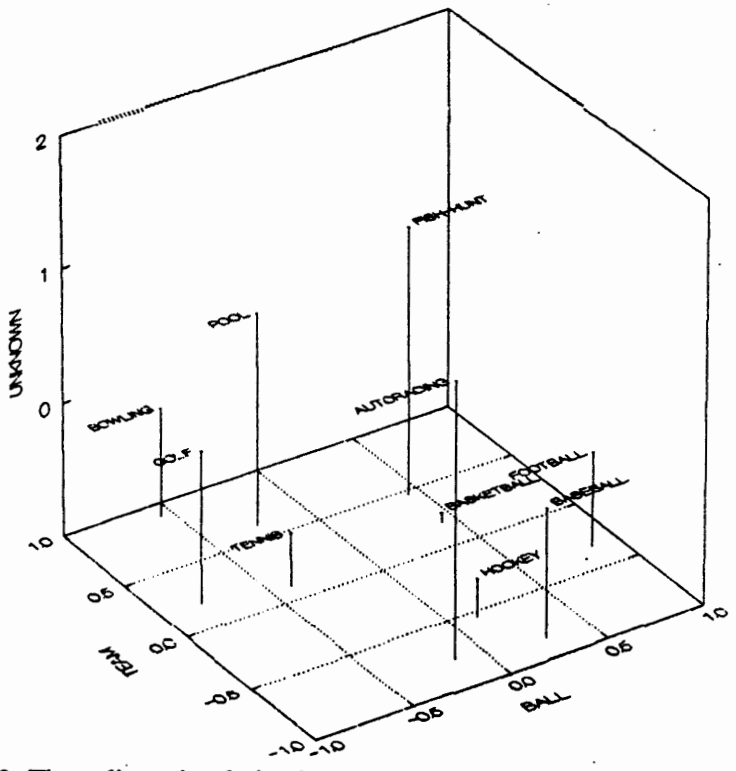

Figure 13. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #13. [Lower tercile, Betting Info Crowd]

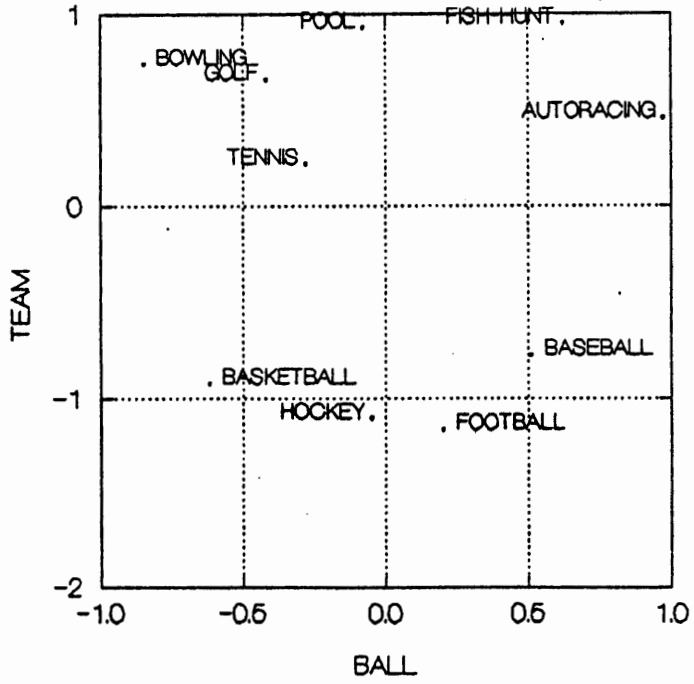

Figure 14. Two dimensional visual representation of the multidimensional scaling coordinate data for GROUP #14. [Upper tercile, Betting Info Crowd]

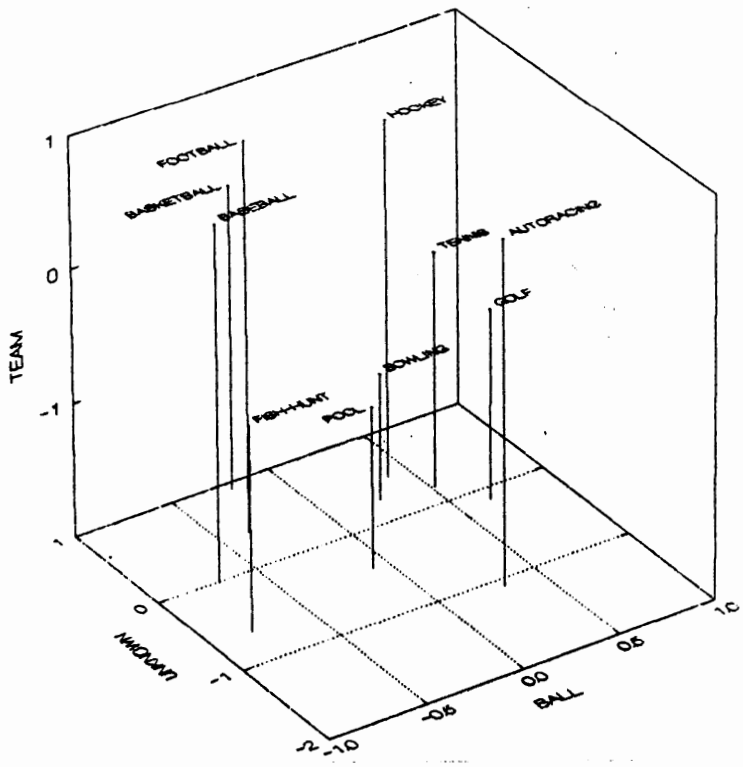

Figure 15. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #15. [Lower tercile, cultural competency score]

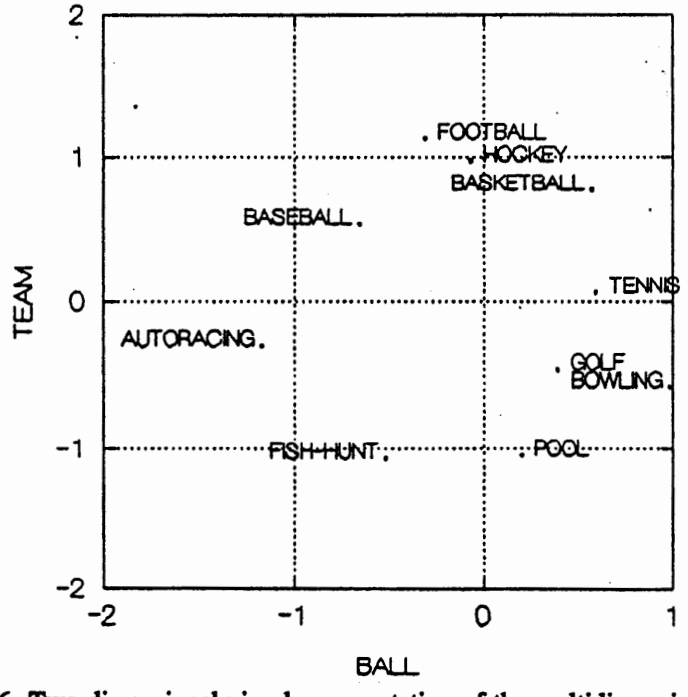

Figure 16. Two dimensional visual representation of the multidimensional scaling coordinate data for GROUP #16. [Upper tercile, cultural competency score]

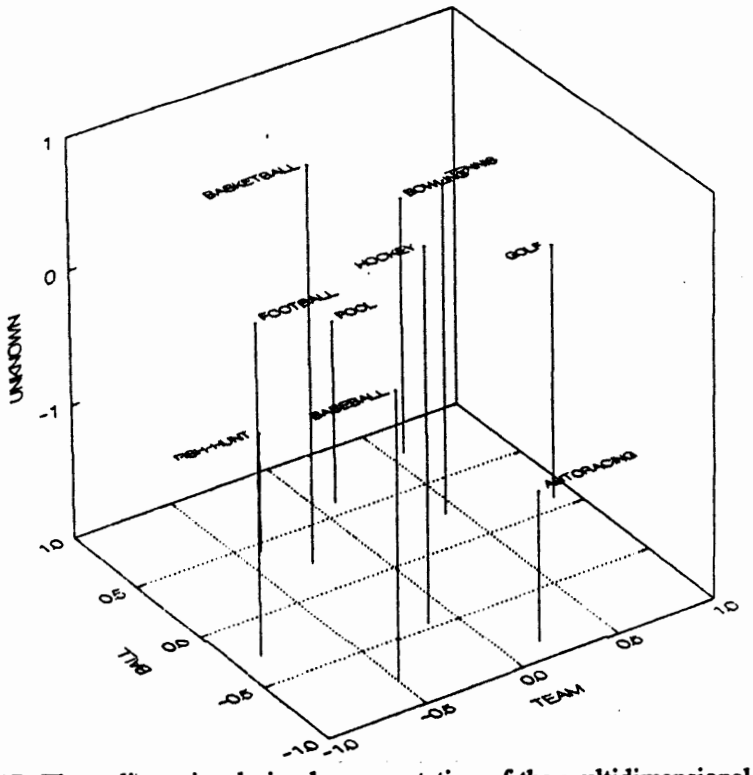

Figure 17. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #17. [Lower tercile, respondent's age]

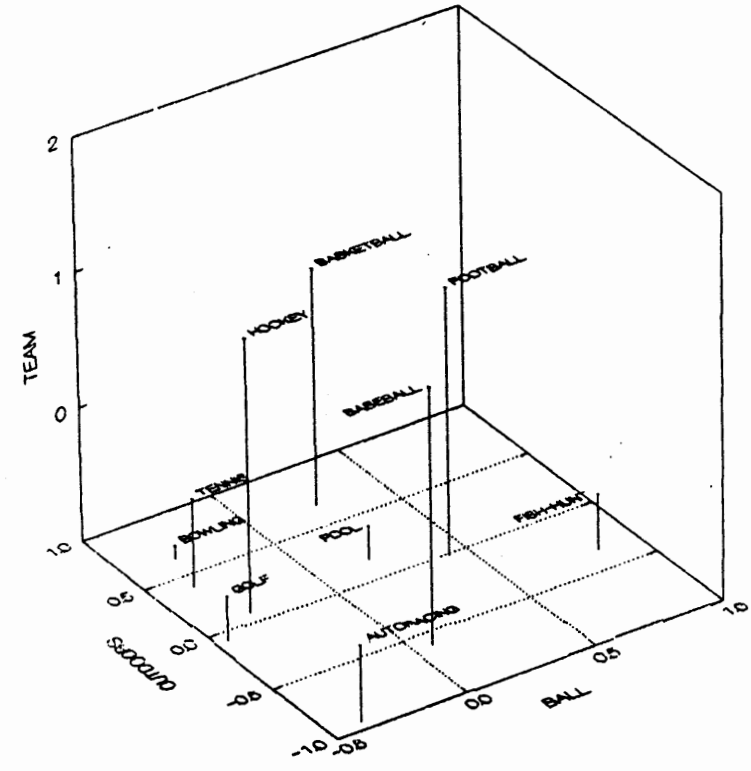

Figure 18. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #18. [Upper tercile, respondent's age]

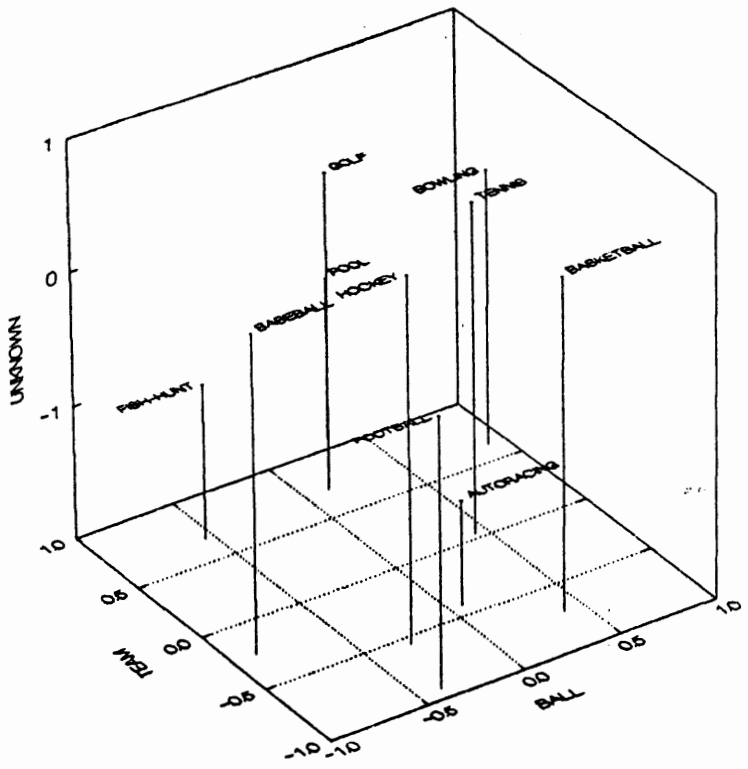

Figure 19. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #19. [Lower tercile, self-reported sports involvement]

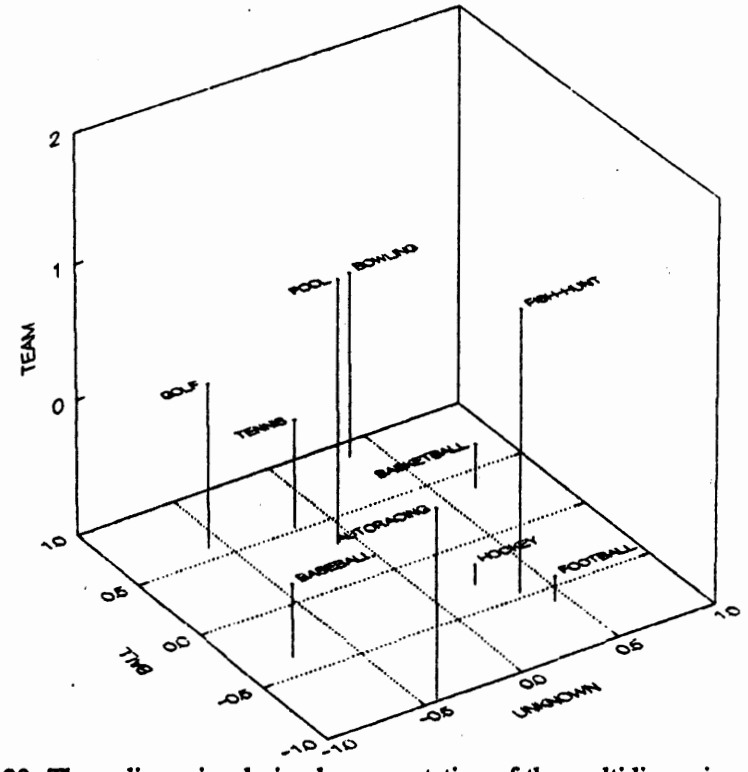

Figure 20. Three dimensional visual representation of the multidimensional scaling coordinate data for GROUP #20. [Upper tercile, self-reported sports involvement]

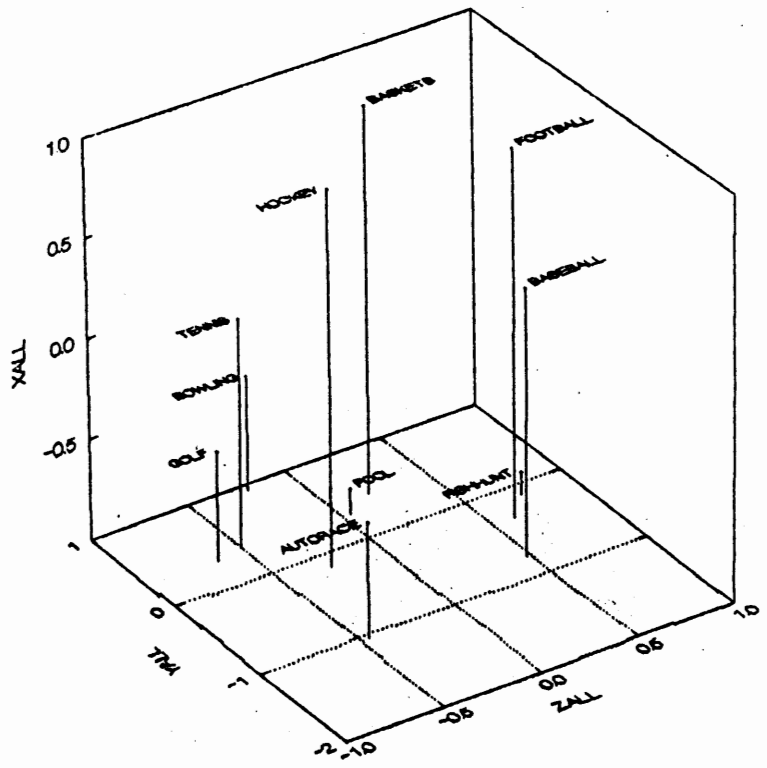

Figure 21. Three dimensional visual representation of the multidimensional scaling coordinate data for all 66 informants.

Team.

3) In the three-factor/dimension solutions, a third, more enigmatic, factor emerged. Fishing/hunting and Autoracing **always** loaded above .600 on this factor. In eight of the 15 three-factor solutions, pool/billiards also loaded above .500 on this factor (and was a complex sport, also loading high on the Ball dimension). If this occurred, then the multidimensional scaling visual output was consulted to see if this **Guy sports** dimension emerged. In the remaining seven cases where pool/billiards did not load above .500, baseball and football loaded moderately (around .300) on this third factor. Again, the multidimensional scaling visual output was consulted to see if this **Outdoor sports** dimension emerged[27]. The labeling of the third factor in TABLES VII through X reflects the conclusions reached on this subject.

An analysis of the entire sample's information showed a three dimension/factor solution that looked remarkably like a three dimension/factor solution from any of the groups (perhaps even better - in some cases - in terms of

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[27] - In the case of the third dimension, the **enforcement** of these labels may be just that: forcing order on data that may or may not have order. It may be that autoracing and fishing/hunting are very different from the other eight sports (in the minds of the informants) and the third factor/ dimension is merely a reflection of this. Therefore, the third factor could just as easily be labeled the **fishing/hunting - autoracing** factor/dimension.

the issue of fuzziness versus clarity). The factor analysis and multidimensional scaling solution relied on the aggregate proximity matrix. Because the values represented in the cells of the matrix were proportions, sample size **did not** affect the overall complexity of the factor and MDS solutions. The entire sample contained the entire range of possible levels of cultural embeddedness. Due to this, the representations for the entire sample were, in actuality, somewhere in between a lower tercile group's and an upper tercile group's representations (with respect to fuzziness versus clarity).

In terms of the specific hypotheses set forth in the RESEARCH DESIGN - HYPOTHESES section above, the results were quite interesting, if unexpected.

More specifically, HYPOTHESIS #1: The higher the competence scores, the more sophisticated the "world view". Expected Results: For the more cognitively embedded group, more criteria (dimensions) are needed to lower the stress coefficient (MDS) to acceptable levels and explain a comparable amount of variance (factor analysis).

Findings: In this case, the exact opposite was true. The higher competency group (#16) needed fewer criteria (two) to lower stress to an excellent level and explain a

great deal of variance in the triad data. In each case, no complex sports emerged from the factor solution. The lower competency group (#15) actually had the more "sophisticated" (complicated) "world view".

HYPOTHESIS #2: Groups that have higher amounts of primary sports involvement also have different "world views" than those groups with lower amounts. Expected Results: The informants that load together on a sport-specific primary sports involvement factor would make **THAT** criterion more important in their differentiation among the ten sports.

Findings: For the first set of groups (#3 & #4 - Outdoorsy Crowd scale variable), the first and second most important criteria were reversed - for the lower tercile group (#3) the order of importance was 1) Ball then 2) Team and for the upper tercile group (#4) it was 1) Team 2) Ball. Outdoor sports **did not** emerge as the third dimension for the upper tercile group (#4) but **did** emerge as the third dimension for the lower tercile group. Again, this is exactly the opposite of what was initially hypothesized. For the second set of groups (#5 & #6 - RA-RA-RA's scale variable) the upper tercile groups' (#6) data was sufficiently clear using only two criteria 1) Ball and 2) Team whereas the lower tercile group (#5) needed three criteria - 1) Team, 2) Ball, and an unknown

third criterion - to sufficiently explain the triads data. Thus, though groups #5 and #6 **do** have different "world views" of the sports in the triads task, it was difficult to say if these "views" differ in the way that was initially hypothesized. For the third set of groups formed on the basis of the primary (sports-specific) involvement scale variable, Baseball Players (groups #7 & #8), both needed three dimensions to depict their "world view" based on the ten sports in the triads task. For the upper tercile group, the first two criteria were 1) Team and 2) Ball, but this arrangement was reversed for the lower tercile group. In both cases the third dimension was incomprehensible. The upper tercile groups' depiction did contain two complex sports but had slightly better stress and variance explained numbers. Though it is possible to say that these two groups **do** have slightly different "world views", it would be difficult to suggest that these views are different in the way that was initially hypothesized.

HYPOTHESIS #3: Two hypotheses were:

#3-A The groups with the highest secondary sports involvement (sport-specific secondary sports involvement) have a different "world view" than those with lowest and,

#3-B groups with higher general secondary sports

involvement would have a more sophisticated "world view" than those with the lowest. Expected Results: The "world view" for sport-specific secondary sports involvement would differ in the same way as sport-specific primary sports involvement (see HYPOTHESIS #2). In terms of general secondary sports involvement, the "world view" will differ in the same way as that of the high-low competency comparison (see HYPOTHESIS #1).

Findings: For the sport-specific secondary sports involvement groups (#1 & #2 - Winter Sports scale variable) the upper tercile group (#2) was able to adequately express their "world view" using only two dimensions - 1) Ball and 2) Team. The lower tercile group (#1) needed three dimensions - 1) Team, 2) Ball and, 3) Guy sports to clarify their "world view" of the ten sports given the triads task. Therefore, the first part of this hypothesis **was** supported (to the greatest extent possible) by the triads results: the upper tercile group (the Winter Sports scale variable has 3 component sports: football, basketball, and boxing) used only the two basic distinguishing components - ball and team - to express their "world view". The lower tercile group had a completely different "world view" based on the number and ordering of the criteria they used. In terms of general secondary sports involvement, the "world views" of groups

#13 and #14 (Betting Info Crowd scale variable) were compared. The upper tercile group (#14) needed only two dimensions (with no complex sports) to adequately depict their "world view". The lower tercile group needed three dimensions (with one complex sport) to render their "world view". Again, exactly the opposite of what was expected emerged from an analysis of the data: the group which was more culturally embedded had a more simplified "world view" of their culture.

HYPOTHESIS #4: Groups that have higher amounts of sport-specific total involvement have different "world views" than groups with lower amounts. Expected Results: The results of this comparison would be much the same as those of the sports-specific primary involvement hypothesis (see HYPOTHESIS #2).

Findings: In this case two sets of groups were compared (#9 & #10 and #11 and #12). For the Net Sports Crowd scale variable (groups #9 & #10) both groups needed three dimensions to portray their "world view" with excellent clarity. The ordering of the first two dimensions was similar in both cases. Though the upper tercile groups' portrayal contained one complex sport, their stress coefficient was slightly lower, and the amount of variance explained was slightly higher. Both

groups' third criterion was unidentifiable. Thus, it **could not** be concluded that these two groups have different "world views", and the hypothesis was not supported in this case. For the groups formed on the basis of The Links Crowd scale variable (#11 & #12), the upper tercile group needed only two dimensions (1 - Ball & 2 - Team) to signify their "world view" with extreme clarity. The lower tercile group had a more involved "world view": three dimensions (1 - Team & 2- Ball with the third being incomprehensible) and one complex sport. Hence; though the two groups **did** have different "world views", these views did not differ in precisely the way which was originally hypothesized.

HYPOTHESIS #5: The two hypotheses were:

#5-A: Older people have a more sophisticated "world view" of sports than younger people[28]. Expected Results: The results of this comparison would be much the same as those of the high-low competency comparison (see HYPOTHESIS #1).

#5-B: People who have higher self-reported sports involvement also have a more sophisticated "world view"

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[28] - The distribution of respondents with respect to age was not normal. The range was 17 to 64 years of age. The lower tercile consisted of those people 22 and younger; the upper tercile consisted of those people 28 and older.

than those people with lower self reported involvement. Expected Results: The results of this comparison would be much the same as those of the high-low competency comparison (see HYPOTHESIS #1).

Findings: For hypothesis 5-A, groups #17 and #18's (respondent's age variable) triads results were analyzed. Both groups needed three dimensions to clarify their "world views", but the upper tercile's view seems less complicated (no complex sports vs. two complex sports for the lower tercile group; better stress and variance explained numbers) than the lower tercile group. Additionally, the third dimension was identifiable as Outdoor sports (though this was questionable) whereas the lower tercile's third dimension was incomprehensible. Therefore, the original hypothesis of greater sophistication **was not** verified; however, the older informants did have **greater clarity** with respect to their "world view". For the groups based on the self-reported sports involvement variable (#19 & #20), no emergent distinctions in regard to their "world view" could be noted. Both groups needed three dimensions (the third being "unknown"). Most of the other gauges used for differentiation among the groups were too close to make a "judgement call" on the differences among this set of groups. Thus, the hypothesis of more sophistication for

the upper tercile group **was not** supported.

This analysis could be taken one step further. Disregarding the specific cultural parameters (ie. total sports involvement) mentioned above and concentrating **strictly** on the idea of "embeddedness" (the higher vs. lower tercile groups), the more culturally embedded groups had, in general, a more simplified "world view" than the less culturally embedded groups.

The issue of concurrent membership in multiple groups was a problem in the consideration of general aspects of the low vs. high tercile groups. An examination of TABLE VI shows that many groups had a significant number of concurrent members in the lower tercile groups. Because of this, there was a danger that any generalizations would apply to only the core group of less embedded individuals. Even with the fact that many of the less culturally embedded individuals came from a single core group, they were still unable, even with the inclusion of moderately embedded individuals, to simplify their aggregate "world view". Because of this and the fact that there were **no** comparisons attempted among the lower tercile groups (other than on a very general basis), the importance of this "concurrent membership" issue, though still meaningful, was diminished.

Five of the ten upper tercile groups were able to

reduce the representation of their "world views" to only two dimensions. Additionally, seven of the ten upper tercile groups had identical first and second criteria: 1) Ball followed by 2) Team. Moreover, considering only the upper and lower tercile groups with three dimensional solutions, the upper tercile groups **consistently** had a lower stress coefficient and a higher amount of variance explained by these three criteria solutions. Though these differences in stress and amount of variance could be dismissed as negligible if viewed on an individual basis, the consistency of their differences only added credibility to the following conclusion:

> Given a defined cultural parameter relating to sports (ie. cultural competence, primary involvement, secondary involvement, total involvement), the groups of individuals that are **more culturally embedded** appear to have a clearer, more well defined, and less complex "world view" of their culture.

CHAPTER IV

CONCLUSIONS

Further thought led to one of three probable conclusions: either 1) the simplicity in "world view" for more culturally embedded individuals was a manifestation of a conformist phenomenon dealing with sports socialization; 2) more culturally embedded individuals, by virtue of their greater cultural knowledge base **and** interest, were **able** to simplify their "world view" by reducing it to a minimal number of "expansive" differentiating criteria suitable for the triadic comparison task presented to them; or, 3) the grouping of informants with similar "world views" did not occur systematically (due to similar levels and type of cultural embeddedness) but by sheer chance.

The third conclusion required a monumental amount of "dumb luck" to have accidentally (rather than systematically) grouped informants with similar "world views" together. This conclusion was immediately discarded.

The first conclusion implied a hegemonic view of

sports enculturation where some entity (mass media, organized scholastic sports programs?) was "programming" this simplified, collective "world view" of sports. This required that this preprogrammed "world view" was sort of a "knee-jerk" reaction to a task the informants had no familiarity with: the triadic comparison task. It suggests that informants were not using judgement but a pre-formulated set of responses with regard to the triadic comparison task (a task they, in all likelihood, had never seen before). Though this type of conclusion was plausible, it was also quite inconsistent with other research in the area of cultural knowledge.

The second conclusion was more congruent with the findings of other researchers in the area of cultural knowledge: culturally embedded individuals **selectively** used their cultural knowledge of a given domain in dealings with that domain. Given this, when the more embedded people were presented with a task that involved a new and different way of looking at the culture they belong to (such as triadic comparison), the results of this research show that they tended to reduce aspects of their culture to the simplest, most encompassing terms.

This was also quite compatible with the notion of "schema" in cognitive science. Stillings et al. (1987) explains that schema is

> ...any cognitive structure that specifies the general properties of a type of object or event and leaves out any specification of details that are irrelevant to the type. A schema is an *abstraction* that allows particular objects or events to be assigned to general *categories*. General knowledge of the category can then be applied to the particular case... The schema *abstracts away* from the details in order to allow categorization and further thought and action based on the categorization. Some form of schematization is absolutely essential to intelligent information processing. (p.30)

This was apparently a reasonable approximation of the way informants approached the triadic comparison task. More culturally embedded informants were better equipped (by virtue of being more cognitively "in tune" with the domain of sports) to "abstract away from the details" and, in half of the more culturally embedded groups examined, "assign" the ten sports to a fewer number of "general categories". Because the triad task data was examined on an aggregate basis, the "abstractions" that the informants were performing were clearly not idiosyncratic but of a more general nature.

With respect to the notion that lived experience somehow related to cultural competence (as measured by the consensus instrument), the results were inconclusive. Because the consensus instrument was constructed by a single person (this researcher), it may be an invalid tool to assess an all-encompassing concept such as "cultural competence". Though consensus theory, by the way in which

it measures competence (correct answers are not absolute but culturally determined), is moderately resistant to the idiosyncracies of the measurement instrument, it would seem practical to use input from a group of different culturally embedded individuals (brainstorming) whose members are familiar with consensus theory to construct a more **objective** consensus instrument.

While conducting this research, the possibilities of the methodology that was used became more and more evident. Unfortunately, due to the exploratory nature of this study (which used a relatively untested research design), the results were somewhat less "astounding" than those which were originally envisioned. However, given the following modifications to the research design, the issues initially raised in this research could be investigated with much greater success:

1) Drop the survey format in favor of a interview format. This would certainly lead to a much better examination of the biographical issues of behavioral, affective, and cognitive socialization that were raised.

2) As mentioned above, construct a more objective consensus instrument with more questions covering a greater depth and breadth of cultural knowledge.

3) Instead of using triadic analysis to evoke an

informant's "world view", use a pile-sorting technique. This allows for the inclusion of more items. A definite advantage to pile-sorting is that the same effort (by the informant) produces much more data. In this technique, the interviewer's efforts make up for the knowledge that is lost in a self-administered task (such as triads). In other words, many more sports could be included in a pile-sorting task without any greater imposition on an informant. 4) Implement a sampling design that draws a sample of 50-75 informants that represents a cross-section of American sports culture (based on several measures, both demographic and sports-related). Use this sample to conduct in-depth interviews on the sample with the specifications mentioned above.

The methodology that was used in this study is certainly not limited to the analysis of sports culture only. This methodology (given the proper modifications) is applicable to any **well-defined cultural domain.** Given very little thought, several domains in American culture come to mind: Rock music culture, drug culture, military culture, etc. are just a few of the many possible domains for inquiry using the methodology put forth in this study.

It would be interesting to see if the results of a

study with the modifications mentioned above would produce the same results as this exploratory study did. By improving the methodology, this type of analysis might provide a better view of how cultural knowledge and embeddedness affect a subject's "world view" of culture.

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APPENDIX A

THE COMPLETE SURVEY COMPLETED BY INFORMANTS WITH VARIABLE NUMBERS FOR BIOGRAPHICAL VARIABLES

Hello,

My name is Phillip Crawford and I am a graduate student at Portland State University. I am interviewing people here in Portland about their views and knowledge of sports. The results of this study will be used in completing my master's thesis for the Department of Sociology at Portland State University. The questions are about sports and your involvement in them.

This survey will take about 10 minutes to complete. There are no right answers: I merely wish to learn your views about the field of sports. Please complete this questionnaire without help from anyone else; if others are interested in this survey, just let me know and I would be glad to send them a copy.

Please answer each item as thoroughly as you can and return it to me when you're done. You may tear off this page if you wish.

The results of this survey will be completely anonymous. If you wish to contact me or find out any details of this study, you can do so at:

Phillip Crawford
Portland State University
Department of Sociology
217 Cramer Hall

THANK YOU FOR YOUR PARTICIPATION.

This section of the questionnaire is designed to test your knowledge of several different sports. Please answer all the questions without help from anyone else. Just circle the response you feel is closest to the answer. Remember, there are no absolutely correct answers. Have fun.

1- A "booming" home run in professional baseball would travel how far (in feet)?

a. 350 ft.
b. 375 ft.
c. 400 ft.
d. 425 ft.
e. 450 ft.
f. 475 ft.
g. other _____ (please specify).

2- In men's professional tennis, how fast does a "big" serve travel?

a. 140 MPH
b. 130 MPH
c. 120 MPH
d. 110 MPH
e. 100 MPH
f. other _____ (please specify).

3- A "respectable" team batting average in major league baseball (NL) is how high?

a. .275
b. .265
c. .255
d. .245
e. .235
f. .225
g. other _____ (please specify).

4- In professional football, the first digit of the number on an offensive lineman's jersey is "usually" the number

a. 5
b. 6
c. 7
d. 8
e. 9
f. other _____ (please specify).

5- In professional basketball, from how far away is a "long" jump shot taken?

a. 18 feet
b. 20 feet
c. 22 feet
d. 24 feet
e. 26 feet
f. 28 feet
g. 30 feet
h. other _____ (please specify).

6- The average non-professional golfer carries how large a handicap?

a. 5
b. 10
c. 15
d. 20
e. they are "scratch" golfers
f. other _____ (please specify).

7- A <u>trophy sized</u> deer would have how many "points" on its antlers?

a. 2 points
b. 3 points
c. 4 points
d. 5 points
e. 6 points
f. other _____ (please specify).

8- Usually, a driver would need at least this qualifying speed to make the field at the Indy 500:

a. 230 MPH
b. 225 MPH
c. 220 MPH
d. 215 MPH
e. 210 MPH
f. 200 MPH
g. other _____ (please specify).

9- If one went to a tavern or pool hall, most of the cues would weigh this much:

a. 21 ounces
b. 20 ounces
c. 19 ounces
d. 18 ounces
e. 17 ounces
f. 16 ounces
g. other _____ (please specify).

10- For a male league bowler, the following is a decent per game average:

a. 150
b. 160
c. 170
d. 180
e. 190
f. 200
g. other _____ (please specify).

11- Historically, this country has been the most successful in Davis Cup tennis competition:

a. France
b. Germany
c. the United States
d. Sweden
e. Great Britain
f. Australia
g. other _____ (please specify).

12- Of the 25 players on a major league baseball team, "usually" how many are pitchers?

a. 8
b. 9
c. 10
d. 11
e. 12
f. 13
g. other _____ (please specify).

13- The "biggest" auto race in the world is this race:

a. Lemans
b. the Indianapolis 500
c. Daytona 500
d. the U.S. Nationals (Drag Racing)
e. other _____ (please specify).

14- An example of a "good-sized" fall chinook salmon would weigh how much?

a. 50 lbs.
b. 40 lbs.
c. 30 lbs.
d. 20 lbs.
e. 10 lbs.
f. other _____ (please specify).

15- The <u>most difficult</u> game to successfully hunt is

a. deer
b. elk
c. wild turkey
d. duck
e. bear
f. other _____ (please specify).

16- In the National Hockey League, an "excellent" goalie would allow only how many goals per game (season average)?

a. 4.0 goals per game
b. 3.5 goals per game
c. 3.0 goals per game
d. 2.5 goals per game
e. 2.0 goals per game
f. other _____ (please specify).

17- In bowling, the most difficult split to pick up a spare on is this split:

a. the 5-10 split
b. the 4-6 split
c. the 7-10 split
d. the 4-10 split
e. the 5-7 split
f. other _____ (please specify).

18- In professional football, from how far away is a "long" field goal kicked (in yards)?

a. 60 yards
b. 55 yards
c. 50 yards
d. 45 yards
e. 40 yards
f. other _____ (please specify).

19- In professional basketball, an "excellent" rebounder averages how many rebounds per game?

a. 8 rebounds
b. 10 rebounds
c. 12 rebounds
d. 14 rebounds
e. 16 rebounds
f. other _____ (please specify).

20- For the male golf pros, a "big" drive travels how far (in yards)?

a. 250 yards
b. 275 yards
c. 300 yards
d. 325 yards
e. 350 yards
f. other _____ (please specify).

This section of the study is designed to elicit information about how you group sports together. On the following pages, you will find sets of three sports on each line. For each set, please circle the sport which is MOST DIFFERENT from the other two (using any criteria you choose). For example, for the set of items

HOUSE WOMAN BUILDING

you would circle WOMAN, since it is the item most different. Here is another example:

DOG CAT ROCK

In this case, you would circle ROCK.

Please give an answer for EVERY set of three, even if you are not sure of the answer. DO NOT SKIP ANY sets: if you don't know the answer, just guess. Thank you.

TENNIS	*FOOTBALL*	*GOLF*
TENNIS	*FISHING/HUNTING*	*HOCKEY*
TENNIS	*FOOTBALL*	*POOL/BILLIARDS*
AUTORACING	*FISHING/HUNTING*	*GOLF*
FISHING/HUNTING	*BOWLING*	*BASKETBALL*
HOCKEY	*FISHING/HUNTING*	*BASEBALL*
GOLF	*BASKETBALL*	*POOL/BILLIARDS*
FISHING/HUNTING	*FOOTBALL*	*AUTORACING*
GOLF	*BOWLING*	*FISHING/HUNTING*
BOWLING	*TENNIS*	*BASEBALL*
POOL/BILLIARDS	*BOWLING*	*HOCKEY*
FOOTBALL	*BASEBALL*	*BOWLING*
TENNIS	*BASKETBALL*	*POOL/BILLIARDS*
AUTORACING	*FOOTBALL*	*BASKETBALL*
BASEBALL	*FISHING/HUNTING*	*POOL/BILLIARDS*
BASKETBALL	*FISHING/HUNTING*	*TENNIS*
FOOTBALL	*HOCKEY*	*BOWLING*
GOLF	*BOWLING*	*BASKETBALL*

AUTORACING	*BASEBALL*	*POOL/BILLIARDS*
HOCKEY	*POOL/BILLIARDS*	*GOLF*
HOCKEY	*BASKETBALL*	*BASEBALL*
POOL/BILLIARDS	*BOWLING*	*AUTORACING*
FOOTBALL	*BASEBALL*	*BASKETBALL*
BASEBALL	*GOLF*	*AUTORACING*
POOL/BILLIARDS	*FISHING/HUNTING*	*FOOTBALL*
GOLF	*TENNIS*	*BASEBALL*
BASKETBALL	*AUTORACING*	*HOCKEY*
AUTORACING	*TENNIS*	*BOWLING*
HOCKEY	*TENNIS*	*AUTORACING*
FOOTBALL	*GOLF*	*HOCKEY*

In this next portion of the survey, I would like to know something about your involvement in sports. Please take into account that different sports have different seasons. For example, it's hard to find baseball news in December. Also remember that participation levels vary from sport to sport: playing golf "often" may be twice a week - playing football "often" might be once every other week.

1. On a scale from 1 to 10, rate your involvement with sports in general-

No involvement with sports				*Some involvement with sports*				*Major involvement with sports*		
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*V2*

*2. What are your **favorite** sports to watch and/or play? Please list your **top 3** with <u>1</u> being your **most favorite** and <u>3</u> being your **third most favorite**. List **<u>only</u> 3**.*

WATCH		*PLAY*	
1. _____	*V3*	*1.* _____	*V6*
2. _____	*V4*	*2.* _____	*V7*
3. _____	*V5*	*3.* _____	*V8*

3. Does your household subscribe (or have) to any of the following? (circle all that apply)

1. Sports magazines or publications *V9*
2. The local newspaper *V10*
3. Cable T.V. *V11*
4. A cable sports channel (example: ESPN) *V12*

4. Do you participate in sports betting pools where you work?

1. YES 2. NO (please circle) *V13*

5. How often do you participate in the following sports related behaviors (activities)?
1 = OFTEN 5 = DAILY

1	2	3	4	5	Read the sports page	V14
1	2	3	4	5	Watch the sports report on TV	V15
1	2	3	4	5	Talk about sports	V16
1	2	3	4	5	Bet on sporting events	V17
					Watch these events on TV (when in season)	
1	2	3	4	5	-baseball	V18
1	2	3	4	5	-basketball	V19
1	2	3	4	5	-football	V20
1	2	3	4	5	-golf	V21
1	2	3	4	5	-pool/billiards	V22
1	2	3	4	5	-boxing	V23
1	2	3	4	5	-bowling	V24
1	2	3	4	5	-auto racing	V25
1	2	3	4	5	-hockey	V26
1	2	3	4	5	-outdoor shows (hunting, fishing, etc.)	V27
1	2	3	4	5	-tennis	V28
1	2	3	4	5	-soccer	V29
1	2	3	4	5	-other _____	
					_____	

6. How often do you read about the following sports in a magazine or newspaper (when in season)?

1 = OFTEN *5 = DAILY*

1	*2*	*3*	*4*	*5*	*-baseball*	*V32*
1	*2*	*3*	*4*	*5*	*-basketball*	*V33*
1	*2*	*3*	*4*	*5*	*-football*	*V34*
1	*2*	*3*	*4*	*5*	*-golf*	*V35*
1	*2*	*3*	*4*	*5*	*-pool/billiards*	*V36*
1	*2*	*3*	*4*	*5*	*-boxing*	*V37*
1	*2*	*3*	*4*	*5*	*-bowling*	*V38*
1	*2*	*3*	*4*	*5*	*-auto racing*	*V39*
1	*2*	*3*	*4*	*5*	*-hockey*	*V40*
1	*2*	*3*	*4*	*5*	*-outdoor activities (hunting, fishing, etc.)*	*V41*
1	*2*	*3*	*4*	*5*	*-tennis*	*V42*
1	*2*	*3*	*4*	*5*	*-soccer*	*V43*
1	*2*	*3*	*4*	*5*	*-other* _____	

_____

(please specify)

(PLEASE CIRCLE EACH RESPONSE)

7. How often do you actually play the following sports? Take into account seasonal differences and ease of participation when considering frequency (example: playing basketball is easier to arrange than a hunting trip)

1 = NEVER *5 = VERY OFTEN*

1	2	3	4	5	-baseball/softball	V46
1	2	3	4	5	-basketball	V47
1	2	3	4	5	-football	V48
1	2	3	4	5	-golf	V49
1	2	3	4	5	-pool/billiards	V50
1	2	3	4	5	-bowling	V51
1	2	3	4	5	-hockey	V52
1	2	3	4	5	-outdoor activities (hunting, fishing, etc.)	V53
1	2	3	4	5	-tennis	V54
1	2	3	4	5	-soccer	V55
1	2	3	4	5	-other _____	
1	2	3	4	5	_____	
1	2	3	4	5	_____	

8. How often do close relatives and friends play the following sports?

1 = NEVER *5 = VERY OFTEN*

1	*2*	*3*	*4*	*5*	*-baseball/softball*	***V59***
1	*2*	*3*	*4*	*5*	*-basketball*	***V60***
1	*2*	*3*	*4*	*5*	*-football*	***V61***
1	*2*	*3*	*4*	*5*	*-golf*	***V62***
1	*2*	*3*	*4*	*5*	*-pool/billiards*	***V63***
1	*2*	*3*	*4*	*5*	*-bowling*	***V64***
1	*2*	*3*	*4*	*5*	*-hockey*	***V65***
1	*2*	*3*	*4*	*5*	*-outdoor activities (hunting, fishing, etc.)*	***V66***
1	*2*	*3*	*4*	*5*	*-tennis*	***V67***
1	*2*	*3*	*4*	*5*	*-soccer*	***V68***
1	*2*	*3*	*4*	*5*	*-other* _____	
1	*2*	*3*	*4*	*5*	_____	
1	*2*	*3*	*4*	*5*	_____	

(please specify)

(CIRCLE EACH RESPONSE)

*9. How often do you **attend** these sporting events (at any level ie. little league, college, etc.)?*

1 = NEVER *5 = VERY OFTEN*

1	*2*	*3*	*4*	*5*	*-baseball*	***V72***
1	*2*	*3*	*4*	*5*	*-basketball*	***V73***
1	*2*	*3*	*4*	*5*	*-football*	***V74***
1	*2*	*3*	*4*	*5*	*-golf*	***V75***
1	*2*	*3*	*4*	*5*	*-pool/billiards*	***V76***
1	*2*	*3*	*4*	*5*	*-boxing*	***V77***
1	*2*	*3*	*4*	*5*	*-bowling*	***V78***
1	*2*	*3*	*4*	*5*	*-auto racing*	***V79***
1	*2*	*3*	*4*	*5*	*-hockey*	***V80***
1	*2*	*3*	*4*	*5*	*-outdoor shows (hunting, fishing, etc.)*	***V81***
1	*2*	*3*	*4*	*5*	*-tennis*	***V82***
1	*2*	*3*	*4*	*5*	*-soccer*	***V83***
1	*2*	*3*	*4*	*5*	*-other* _____	

_____

(please specify)

In this final section of the survey, I'd like to find out some basic information about you. Please remember that you will remain <u>anonymous</u>.

10. What is your present age? _____ **V86**

11. What is your current occupation?

_____

12. Briefly describe what you do at work:

_____

_____

12a. At work, which of the following items do you spend most of your time dealing with? (please circle only one)

1-Information 2-People 3-Things **V87**

13. What shift do you normally work? (please circle)

1-Days 2-Swing 3-Nights 4-Other **V88**

14. When at work/school, are you able to do the following? (please circle all that apply)

1-listen to the radio **V89** **V90** *2-watch the television*

3-read the newspaper **V91**

15. What is your current marital status? (please circle)

1-Single 2-Married 3-Divorced

4-Cohabiting (with partner) 5-Other **V92**

16. How many people of each of the following age groups live in your household? Don't forget to include yourself. (fill in the blanks)

_____ *# of people under 6 years old* **V93**

_____ *# of people 6-17 years old* **V94**

_____ *# of people 18 years or older* **V95**

17. What is the highest level of education you have completed?
(please circle)

1. Presently in high school
2. Some high school
3. High school graduate
4. Vocational/technical training or degree
5. Some college
6. AA degree
7. College graduate (BA or BS)
8. Advanced degree (MA, Ph.D, etc.) ***V96***

18. What is your gender? *Male* *Female* ***V97***
(please circle)

Thank you for your participation in this survey. If you wish to find out more details or the results of the project, feel free to contact me at the address contained in the cover letter. If you have any additional comments, please write them in the area below.

Thanks Again
Phil Crawford

APPENDIX B

CONSENSUS QUESTIONS, RESPONSE DISTRIBUTIONS, AND ANSWER SELECTION FOR THE COMPLETE BATTERY OF CONSENSUS ITEMS AND COMPETENCY SCORES AND RANKINGS FOR ALL INFORMANTS

RESPONSE LETTER		DISTRIBUTION NUMBER
unknown	=	0
a	=	1
b	=	2
c	=	3
d	=	4
e	=	5
f	=	6
g	=	7
h	=	8

1- A "booming" home run in professional baseball would travel how far (in feet)?

a. 350 ft.
b. 375 ft.
c. 400 ft.
d. 425 ft.
e. 450 ft.
f. 475 ft.
g. other _____ (please specify).

QUESTION 1

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	2	0.0303	0.0000
1	1	0.0152	0.0000
2	4	0.0606	0.0000
3	7	0.1061	0.0000
4	15	0.2273	0.0005
5	18*	0.2727*	0.9562*
6	18	0.2727	0.0433
7	1	0.0152	0.0000
8	0	0.0000	0.0000
Choice:	5	5	5

2- In men's professional tennis, how fast does a "big" serve travel?

a. 140 MPH
b. 130 MPH
c. 120 MPH
d. 110 MPH
e. 100 MPH
f. other _____ (please specify).

QUESTION 2

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	1	0.0152	0.0000
1	3	0.0455	0.0000
2	9	0.1364	0.0000
3	26*	0.3939*	1.0000*
4	18	0.2727	0.0000
5	8	0.1212	0.0000
6	1	0.0152	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

3- A "respectable" team batting average in major league baseball (NL) is how high?

a. .275
b. .265
c. .255
d. .245
e. .235
f. .225
g. other _____ (please specify).

QUESTION 3

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	0	0.0000	0.0000
1	7	0.1061	0.0000
2	18	0.2727	0.0004
3	21*	0.3182*	0.9996*
4	12	0.1818	0.0000
5	4	0.0606	0.0000
6	2	0.0303	0.0000
7	2	0.0303	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

4- In professional football, the <u>first</u> digit of the number on an offensive lineman's jersey is "usually" the number

a. 5
b. 6
c. 7
d. 8
e. 9
f. other _____ (please specify).

QUESTION 4

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	2	0.0303	0.0000
1	9	0.1364	0.0000
2	26*	0.3939*	1.0000*
3	20	0.3030	0.0000
4	6	0.0909	0.0000
5	3	0.0455	0.0000
6	0	0.0000	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	2	2	2

5- In professional basketball, from how far away is a "long" jump shot taken?

a. 18 feet
b. 20 feet
c. 22 feet
d. 24 feet
e. 26 feet
f. 28 feet
g. 30 feet
h. other _____ (please specify).

QUESTION 5

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	1	0.0152	0.0000
1	11	0.1667	0.0000
2	19*	0.2879*	1.0000*
3	10	0.1515	0.0000
4	8	0.1212	0.0000
5	10	0.1515	0.0000
6	1	0.0152	0.0000
7	5	0.0758	0.0000
8	1	0.0152	0.0000
Choice:	2	2	2

6- The average non-professional golfer carries how large a handicap?

a. 5
b. 10
c. 15
d. 20
e. they are "scratch" golfers
f. other _____ (please specify).

QUESTION 6

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	2	0.0303	0.0000
1	6	0.0909	0.0000
2	20	0.3030	0.4729
3	22*	0.3333*	0.5271*
4	11	0.1667	0.0000
5	2	0.0303	0.0000
6	3	0.0455	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

7- A <u>trophy sized</u> deer would have how many "points" on its antlers?

a. 2 points
b. 3 points
c. 4 points
d. 5 points
e. 6 points
f. other _____ (please specify).

QUESTION 7

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	2	0.0303	0.0000
1	3	0.0455	0.0000
2	7	0.1061	0.0000
3	16	0.2424	0.0002
4	12	0.1818	0.0000
5	21*	0.3182*	0.9998*
6	5	0.0758	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	5	5	5

8- Usually, a driver would need at least this qualifying speed to make the field at the Indy 500:

a. 230 MPH
b. 225 MPH
c. 220 MPH
d. 215 MPH
e. 210 MPH
f. 200 MPH
g. other _____ (please specify).

QUESTION 8

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	2	0.0303	0.0000
1	3	0.0455	0.0000
2	12	0.1818	0.0000
3	12	0.1818	0.0000
4	20*	0.3030*	1.0000*
5	9	0.1364	0.0000
6	6	0.0909	0.0000
7	2	0.0303	0.0000
8	0	0.0000	0.0000
Choice:	4	4	4

9- If one went to a tavern or pool hall, most of the cues would weigh this much:

a. 21 ounces
b. 20 ounces
c. 19 ounces
d. 18 ounces
e. 17 ounces
f. 16 ounces
g. other _____ (please specify).

QUESTION 9

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	4	0.0606	0.0000
1	6	0.0909	0.0000
2	9	0.1364	0.0000
3	16	0.2424	0.0022
4	21*	0.3182*	0.9978*
5	4	0.0606	0.0000
6	6	0.0909	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	4	4	4

10- For a male league bowler, the following is a decent per game average:

a. 150
b. 160
c. 170
d. 180
e. 190
f. 200
g. other _____ (please specify).

QUESTION 10

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	0	0.0000	0.0000
1	2	0.0303	0.0000
2	5	0.0758	0.0000
3	13	0.1970	0.0000
4	16	0.2424	0.0070
5	18*	0.2727*	0.9930*
6	9	0.1364	0.0000
7	3	0.0455	0.0000
8	0	0.0000	0.0000
Choice:	5	5	5

11- Historically, this country has been the most successful in Davis Cup tennis competition:

a. France
b. Germany
c. the United States
d. Sweden
e. Great Britain
f. Australia
g. other _____ (please specify).

QUESTION 11

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	1	0.0152	0.0000
1	7	0.1061	0.0000
2	8	0.1212	0.0000
3	34*	0.5152*	1.0000*
4	4	0.0606	0.0000
5	10	0.1515	0.0000
6	2	0.0303	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

12- Of the 25 players on a major league baseball team, "usually" how many are pitchers?

a. 8
b. 9
c. 10
d. 11
e. 12
f. 13
g. other _____ (please specify).

QUESTION 12

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	1	0.0152	0.0000
1	19	0.2879	0.0000
2	11	0.1667	0.0000
3	20*	0.3030*	1.0000*
4	3	0.0455	0.0000
5	1	0.0152	0.0000
6	0	0.0000	0.0000
7	11	0.1667	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

13- The "biggest" auto race in the world is this race:
a. Lemans
b. the Indianapolis 500
c. Daytona 500
d. the U.S. Nationals (Drag Racing)
e. other _____ (please specify).

QUESTION 13

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	0	0.0000	0.0000
1	13	0.1970	0.0000
2	51*	0.7727*	1.0000*
3	2	0.0303	0.0000
4	0	0.0000	0.0000
5	0	0.0000	0.0000
6	0	0.0000	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	2	2	2

14- An example of a "good-sized" fall chinook salmon would weigh how much?
a. 50 lbs.
b. 40 lbs.
c. 30 lbs.
d. 20 lbs.
e. 10 lbs.
f. other _____ (please specify).

QUESTION 14

Response	Rule: Majority Frequency	Rule: Majority Proportion	Rule: Bayes
0	0	0.0000	0.0000
1	6	0.0909	0.0000
2	13	0.1970	0.0000
3	25*	0.3788*	1.0000*
4	17	0.2576	0.0000
5	2	0.0303	0.0000
6	3	0.0455	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

15- The most difficult game to successfully hunt is
a. deer
b. elk
c. wild turkey
d. duck
e. bear
f. other _____ (please specify).

QUESTION 15

Response	Rule: Majority Frequency	Rule: Majority Proportion	Rule: Bayes
0	1	0.0152	0.0000
1	4	0.0606	0.0000
2	14	0.2121	0.0000
3	18	0.2727	0.0000
4	4	0.0606	0.0000
5	23*	0.3485*	1.0000*
6	2	0.0303	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	5	5	5

16- In the National Hockey League, an "excellent" goalie would allow only how many goals per game (season average)?

a. 4.0 goals per game
b. 3.5 goals per game
c. 3.0 goals per game
d. 2.5 goals per game
e. 2.0 goals per game
f. other _____ (please specify).

QUESTION 16

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	1	0.0152	0.0000
1	0	0.0000	0.0000
2	0	0.0000	0.0000
3	2	0.0303	0.0000
4	24	0.3636	0.0000
5	34*	0.5152*	1.0000*
6	5	0.0758	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	5	5	5

17- In bowling, the most difficult split to pick up a spare on is this split:

a. the 5-10 split
b. the 4-6 split
c. the 7-10 split
d. the 4-10 split
e. the 5-7 split
f. other _____ (please specify).

QUESTION 17

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	0	0.0000	0.0000
1	6	0.0909	0.0000
2	2	0.0303	0.0000
3	49*	0.7424*	1.0000*
4	6	0.0909	0.0000
5	3	0.0455	0.0000
6	0	0.0000	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

18- In professional football, from how far away is a "long" field goal kicked (in yards)?

a. 60 yards
b. 55 yards
c. 50 yards
d. 45 yards
e. 40 yards
f. other _____ (please specify).

QUESTION 18

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	0	0.0000	0.0000
1	2	0.0303	0.0000
2	13	0.1970	0.0000
3	28*	0.4242*	1.0000*
4	11	0.1667	0.0000
5	9	0.1364	0.0000
6	3	0.0455	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

19- In professional basketball, an "excellent" rebounder averages how many rebounds per game?

a. 8 rebounds
b. 10 rebounds
c. 12 rebounds
d. 14 rebounds
e. 16 rebounds
f. other _____ (please specify).

QUESTION 19

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	0	0.0000	0.0000
1	4	0.0606	0.0000
2	19	0.2879	0.0002
3	22*	0.3333*	0.9998*
4	12	0.1818	0.0000
5	8	0.1212	0.0000
6	1	0.0152	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

20- For the male golf pros, a "big" drive travels how far (in yards)?

a. 250 yards
b. 275 yards
c. 300 yards
d. 325 yards
e. 350 yards
f. other _____ (please specify).

QUESTION 20

	Rule		
Response	Majority Frequency	Majority Proportion	Bayes
0	0	0.0000	0.0000
1	6	0.0909	0.0000
2	13	0.1970	0.0000
3	26*	0.3939*	1.0000*
4	13	0.1970	0.0000
5	7	0.1061	0.0000
6	1	0.0152	0.0000
7	0	0.0000	0.0000
8	0	0.0000	0.0000
Choice:	3	3	3

Overall Frequencies of Response

RESPONSE	FREQUENCY	PROPORTION
0	20	0.015
1	118	0.089
2	273	0.207
3	389	0.295
4	233	0.177
5	194	0.147
6	68	0.052
7	24	0.018
8	1	0.001

IDENTIFICATION NUMBERS, COMPETENCY SCORES ON TEST 1 AND TEST 2, AND RANKS ON TEST 1 AND TEST 2

ID	COMP1	COMP2	RANK1	RANK2
1	553	513	12.50	10
2	391	353	39.00	41
3	498	383	19.50	30
4	553	481	12.50	14
5	576	504	7.00	11
6	621	567	3.00	5
7	283	251	59.00	56
8	366	340	44.50	43
9	589	524	5.00	8
10	491	424	21.00	23
11	368	303	43.00	50
12	362	359	46.00	39
13	409	466	35.00	18
14	512	415	18.00	24
15	432	358	30.00	40
16	306	159	55.50	64
17	558	493	11.00	13
18	548	497	15.00	12
19	454	426	26.00	22
20	498	395	19.50	28
21	370	378	42.00	32
22	552	474	14.00	17
23	393	407	38,00	26
24	302	318	57.50	47
25	264	202	63.00	61
26	523	464	16.00	19
27	513	583	17.00	3
28	478	366	24.00	36
29	463	384	25.00	29
30	220	85	65.00	65
31	433	310	29.00	49
32	489	480	22.00	15
33	396	291	37.00	52
34	564	516	9.00	9
35	647	597	1.00	2
36	333	298	52.00	51
37	334	315	50.50	48
38	397	380	36.00	31
39	335	330	49.00	45
40	265	227	62.00	59
41	230	79	64.00	66
42	414	377	32.00	33
43	318	184	54.00	63
44	410	281	34.00	53

IDENTIFICATION NUMBERS, COMPETENCY SCORES ON TEST 1 AND TEST 2, AND RANKS ON TEST 1 AND TEST 2

ID	COMP1	COMP2	RANK1	RANK2
45	348	374	48.00	35
46	486	364	23.00	37
47	565	476	8.00	16
48	334	244	50.50	57
49	411	438	33.00	21
50	559	611	10.00	1
51	447	363	28.00	38
52	276	257	60.00	55
53	357	342	47.00	42
54	302	322	57.50	46
55	324	196	53.00	62
56	585	551	6.00	6
57	371	376	40.50	34
58	195	235	66.00	58
59	271	222	61.00	60
60	366	413	44.50	25
61	631	579	2.00	4
62	306	261	55.50	54
63	415	449	31.00	20
64	452	336	27.00	44
65	371	397	40.50	27
66	602	541	4.00	7

APPENDIX C

T-TESTS AND ANALYSIS OF VARIANCE TESTS FOR THE TWO SAMPLE GROUPS REFERED TO IN THESIS

t-tests for independent samples of **GENDER** 1 = males 0 = females

Variable	Number of Cases	Mean	SD	SE of Mean
V17 participation - bet on sports				
GROUP .00	42	2.1190	.993	.153
GROUP 1.00	24	2.7083	.999	.204

Mean Difference = -.5893

Levene's Test for Equality of Variances: F= .048 P= .828

t-test for Equality of Means Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-2.31	64	.024	.255	(-1.098, -.081)
Unequal	-2.31	47.75	.025	.255	(-1.102, -.076)

Variable	Number of Cases	Mean	SD	SE of Mean
V18 participation - watch baseball				
GROUP .00	42	2.5476	1.253	.193
GROUP 1.00	24	3.3750	1.279	.261

Mean Difference = -.8274

Levene's Test for Equality of Variances: F= .102 P= .750

t-test for Equality of Means Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-2.56	64	.013	.323	(-1.473, -.182)
Unequal	-2.55	47.19	.014	.325	(-1.481, -.174)

Variable	Number of Cases	Mean	SD	SE of Mean
V26 participation - watch hockey				
GROUP .00	42	2.3810	1.209	.187
GROUP 1.00	24	3.0417	1.301	.266

Mean Difference = -.6607

Levene's Test for Equality of Variances: F= .185 P= .669

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-2.08	64	.042	.318	(-1.296, -.025)
Unequal	-2.04	45.11	.048	.325	(-1.315, -.007)

Variable	Number of Cases	Mean	SD	SE of Mean
V32 reading about - baseball				
GROUP .00	42	2.7381	1.624	.251
GROUP 1.00	24	3.6250	1.469	.300

Mean Difference = -.8869

Levene's Test for Equality of Variances: F= .776 P= .382

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-2.21	64	.031	.402	(-1.690, -.084)
Unequal	-2.27	52.09	.027	.391	(-1.671, -.103)

Variable	Number of Cases	Mean	SD	SE of Mean
V35 reading about - golf				
GROUP .00	42	1.6190	.936	.144
GROUP 1.00	24	2.5000	1.414	.289

Mean Difference = -.8810

Levene's Test for Equality of Variances: F= 11.583 P= .001

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-3.04	64	.003	.289	(-1.459, -.303)
Unequal	-2.73	34.73	.010	.323	(-1.536, -.226)

Variable	Number of Cases	Mean	SD	SE of Mean
V38 reading about - bowling				
GROUP .00	42	1.1190	.328	.051
GROUP 1.00	24	1.4583	.658	.134

Mean Difference = -.3393

Levene's Test for Equality of Variances: F= 27.797 P= .000

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-2.80	64	.007	.121	(-.582, -.097)
Unequal	-2.36	29.65	.025	.144	(-.632, -.046)

Variable	Number of Cases	Mean	SD	SE of Mean
V40 reading about - hockey				
GROUP .00	42	2.2381	1.428	.220
GROUP 1.00	24	3.0000	1.474	.301

Mean Difference = -.7619

Levene's Test for Equality of Variances: F= .043 P= .836

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-2.06	64	.043	.370	(-1.501, -.023)
Unequal	-2.04	46.74	.047	.373	(-1.512, -.011)

Variable	Number of Cases	Mean	SD	SE of Mean
V48 respondent playing - football				
GROUP .00	41	2.7317	1.566	.245
GROUP 1.00	24	1.8750	.992	.202

Mean Difference = .8567

Levene's Test for Equality of Variances: F= 8.304 P= .005

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	2.41	63	.019	.356	(.146, 1.568)
Unequal	2.70	62.53	.009	.317	(.222, 1.491)

Variable	Number of Cases	Mean	SD	SE of Mean
V53 respondent playing - outdoor activities				
GROUP .00	42	2.7857	1.457	.225
GROUP 1.00	24	2.0417	1.233	.252

Mean Difference = .7440

Levene's Test for Equality of Variances: F= 2.357 P= .130

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	2.11	64	.039	.353	(.038, 1.450)
Unequal	2.20	54.79	.032	.337	(.068, 1.421)

Variable	Number of Cases	Mean	SD	SE of Mean
V54 respondent playing - tennis				
GROUP .00	42	2.4048	1.191	.184
GROUP 1.00	24	1.5417	.884	.180

Mean Difference = .8631

Levene's Test for Equality of Variances: F= 4.551 P= .037

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	3.09	64	.003	.279	(.306, 1.421)
Unequal	3.35	59.53	.001	.257	(.348, 1.378)

Variable	Number of Cases	Mean	SD	SE of Mean
V60 friends-relatives play - basketball				
GROUP .00	42	3.7857	1.159	.179
GROUP 1.00	24	2.9583	1.301	.266

Mean Difference = .8274

Levene's Test for Equality of Variances: F= .447 P= .506

t-test for Equality of Means Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	2.67	64	.010	.310	(.208, 1.447)
Unequal	2.58	43.55	.013	.320	(.182, 1.473)

Variable	Number of Cases	Mean	SD	SE of Mean
V61 friends-relatives play - football				
GROUP .00	42	3.3571	1.411	.218
GROUP 1.00	23	1.8261	1.029	.215

Mean Difference = 1.5311

Levene's Test for Equality of Variances: F= 5.280 P= .025

t-test for Equality of Means Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	4.57	63	.000	.335	(.862, 2.200)
Unequal	5.01	57.76	.000	.306	(.919, 2.143)

Variable	Number of Cases	Mean	SD	SE of Mean
V73 attendence at events - basketball				
GROUP .00	42	3.2143	1.159	.179
GROUP 1.00	24	2.5833	.881	.180

Mean Difference = .6310

Levene's Test for Equality of Variances: F= 1.601 P= .210

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	2.31	64	.024	.273	(.085, 1.177)
Unequal	2.49	58.77	.016	.254	(.123, 1.138)

Variable	Number of Cases	Mean	SD	SE of Mean
V82 attendence at events - tennis				
GROUP .00	41	1.5366	.840	.131
GROUP 1.00	24	1.1250	.338	.069

Mean Difference = .4116

Levene's Test for Equality of Variances: F= 24.701 P= .000

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	2.29	63	.025	.180	(.052, .771)
Unequal	2.78	57.53	.007	.148	(.115, .708)

Variable	Number of Cases	Mean	SD	SE of Mean
COMP2				
GROUP .00	42	354.1190	129.057	19.914
GROUP 1.00	24	417.1250	96.777	19.754

Mean Difference = -63.0060

Levene's Test for Equality of Variances: F= 1.747 P= .191

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-2.08	64	.042	30.315	(-123.581, -2.431)
Unequal	-2.25	59.20	.028	28.050	(-119.147, -6.865)

ANOVA TESTS WITH PSYCHOLOGY CLASS FEMALES INCLUDED

Summaries of V17 participation - bet on sports
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	1.6000	.9103	11.6000	15
1.00	n-psych female	2.2500	.8864	5.5000	8
2.00	psych male	2.4074	.9306	22.5185	27
3.00	n-psych male	2.9375	.9979	14.9375	16
Within Groups Total		2.3333	.9380	54.5560	66

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	14.1106	3	4.7035	5.3453	.0024
Within Groups	54.5560	62	.8799		

Eta = .4533 Eta Squared = .2055

Summaries of V18 participation - watch baseball
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	1.7333	.8837	10.9333	15
1.00	n-psych female	3.1250	1.5526	16.8750	8
2.00	psych male	3.0000	1.2089	38.0000	27
3.00	n-psych male	3.5000	1.1547	20.0000	16
Within Groups Total		2.8485	1.1764	85.8083	66

Criterion Variable V18

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	26.6765	3	8.8922	6.4250	.0007
Within Groups	85.8083	62	1.3840		
	Eta = .4870		Eta Squared = .2372		

Summaries of V32 reading about - baseball
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	1.6667	1.2910	23.3333	15
1.00	n-psych femal	3.1250	1.8077	22.8750	8
2.00	psych male	3.3333	1.4936	58.0000	27
3.00	n-psych male	3.8750	1.2583	23.7500	16
Within Groups Total		3.0606	1.4366	127.9583	66

Criterion Variable V32

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	41.7992	3	13.9331	6.7510	.0005
Within Groups	127.9583	62	2.0638		
	Eta = .4962		Eta Squared = .2462		

Summaries of V48 respondent playing - football
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	1.5333	1.0601	15.7333	15
1.00	n-psych female	1.6250	.9161	5.8750	8
2.00	psych male	3.4231	1.3906	48.3462	26
3.00	n-psych male	2.0000	1.0328	16.0000	16
Within Groups Total		2.4154	1.1871	85.9545	65

Criterion Variable V48

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	45.8301	3	15.2767	10.8415	.0000
Within Groups	85.9545	61	1.4091		

Eta = .5897 Eta Squared = .3478

Summaries of V54 respondent playing - tennis
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	2.6000	1.1212	17.6000	15
1.00	n-psych female	1.7500	1.1650	9.5000	8
2.00	psych male	2.2963	1.2346	39.6296	27
3.00	n-psych male	1.4375	.7274	7.9375	16
Within Groups Total		2.0909	1.0974	74.6671	66

Criterion Variable V54

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	12.7874	3	4.2625	3.5394	.0196
Within Groups	74.6671	62	1.2043		

Eta = .3824 Eta Squared = .1462

Summaries of V60 friends-relatives play - basketball
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	3.4000	1.2421	21.6000	15
1.00	n-psych female	2.5000	1.3093	12.0000	8
2.00	psych male	4.0000	1.0742	30.0000	27
3.00	n-psych male	3.1875	1.2764	24.4375	16
Within Groups Total		3.4848	1.1916	88.0375	66

Criterion Variable V60

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	16.4473	3	5.4824	3.8610	.0134
Within Groups	88.0375	62	1.4200		

Eta = .3968 Eta Squared = .1574

Summaries of V61 friends-relatives play - football
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	3.2000	1.5213	32.4000	15
1.00	n-psych female	1.3750	.7440	3.8750	8
2.00	psych male	3.4444	1.3681	48.6667	27
3.00	n-psych male	2.0667	1.0998	16.9333	15
Within Groups Total		2.8154	1.2923	101.8750	65

Criterion Variable V61

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	37.9096	3	12.6365	7.5664	.0002
Within Groups	101.8750	61	1.6701		

Eta = .5208 Eta Squared = .2712

Summaries of V82 attendence at events - tennis
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	1.8571	1.0995	15.7143	14
1.00	n-psych female	1.3750	.5175	1.8750	8
2.00	psych male	1.3704	.6293	10.2963	27
3.00	n-psych male	1.0000	.0000	.0000	16
Within Groups Total		1.3846	.6761	27.8856	65

Criterion Variable V82

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	5.4990	3	1.8330	4.0097	.0114
Within Groups	27.8856	61	.4571		

Eta = .4059 Eta Squared = .1647

Summaries of COMP2
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
.00	psych female	296.8000	74.4390	77576.4000	15
1.00	n-psych female	437.2500	87.9184	54107.5000	8
2.00	psych male	385.9630	142.5921	528644.963	27
3.00	n-psych male	407.0625	102.1257	156444.938	16
Within Groups Total		377.0303	114.7770	816773.800	66

Criterion Variable COMP2

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	142150.1389	3	47383.3796	3.5968	.0183
Within Groups	816773.8005	62	13173.7710		

Eta = .3850 Eta Squared = .1482

ANOVA TESTS WITH PSYCHOLOGY CLASS FEMALES EXCLUDED

Summaries of V48 respondent playing - football
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
1.00	n-psych female	1.6250	.9161	5.8750	8
2.00	psych male	3.4231	1.3906	48.3462	26
3.00	n-psych male	2.0000	1.0328	16.0000	16
Within Groups Total		2.6800	1.2223	70.2212	50

Criterion Variable V48

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	30.6588	2	15.3294	10.2602	.0002
Within Groups	70.2212	47	1.4941		

Eta = .5513 Eta Squared = .3039

Summaries of V54 respondent playing - tennis
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
1.00	n-psych female	1.7500	1.1650	9.5000	8
2.00	psych male	2.2963	1.2346	39.6296	27
3.00	n-psych male	1.4375	.7274	7.9375	16
Within Groups Total		1.9412	1.0904	57.0671	51

Criterion Variable V54

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	7.7564	2	3.8782	3.2620	.0470
Within Groups	57.0671	48	1.1889		

Eta = .3459 Eta Squared = .1197

Summaries of V60 friends-relatives play - basketball
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
1.00	n-psych female	2.5000	1.3093	12.0000	8
2.00	psych male	4.0000	1.0742	30.0000	27
3.00	n-psych male	3.1875	1.2764	24.4375	16
Within Groups Total		3.5098	1.1765	66.4375	51

Criterion Variable V60

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	16.3076	2	8.1538	5.8910	.0052
Within Groups	66.4375	48	1.3841		

Eta = .4439 Eta Squared = .1971

Summaries of V61 friends-relatives play - football
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
1.00	n-psych female	1.3750	.7440	3.8750	8
2.00	psych male	3.4444	1.3681	48.6667	27
3.00	n-psych male	2.0667	1.0998	16.9333	15
Within Groups Total		2.7000	1.2158	69.4750	50

Criterion Variable V61

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	35.0250	2	17.5125	11.8472	.0001
Within Groups	69.4750	47	1.4782		

Eta = .5789 Eta Squared = .3352

Summaries of V73 attendence at events - basketball
By levels of GROUPGEN

Value	Label	Mean	Std Dev	Sum of Sq	Cases
1.00	n-psych female	2.1250	.9910	6.8750	8
2.00	psych male	3.2593	1.1298	33.1852	27
3.00	n-psych male	2.8125	.7500	8.4375	16
Within Groups Total		2.9412	1.0052	48.4977	51

Criterion Variable V73

Analysis of Variance

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	8.3258	2	4.1629	4.1202	.0223
Within Groups	48.4977	48	1.0104		

Eta = .3828 Eta Squared = .1465

APPENDIX D

FACTOR ANALYSES USED TO CREATE THE SEVEN SCALE VARIABLES AND CORRELATIONS BETWEEN ALL CRITERIA VARIABLES USED TO FORM THE TWENTY GROUPS

- - - - F A C T O R A N A L Y S I S - - - -

Analysis Number 1 Replacement of missing values with the mean
Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
V49	.78291	*	1	4.19444	41.9	41.9
V34	.83028	*	2	2.32848	23.3	65.2
V33	.78581	*				
V20	.59471	*				
V35	.69514	*				
V19	.45689	*				
V21	.77367	*				
V37	.50629	*				
GOLFPLAY	.59241	*				
GOLFWACH	.50482	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 3 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2
V34	.89543	
V33	.87147	
V20	.75990	
V37	.70822	
V19	.66541	
V49		.86867
V21		.86161
GOLFPLAY		.76109
V35	.34951	.75696
GOLFWACH		.70888

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2
FACTOR 1	.71420	.69995
FACTOR 2	-.69995	.71420

- - - - F A C T O R A N A L Y S I S - - - -

Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
V83	.79059	*	1	2.78266	25.3	25.3
V55	.80925	*	2	2.22118	20.2	45.5
V80	.49763	*	3	2.00557	18.2	63.7
V81	.78519	*	4	1.06966	9.7	73.4
V53	.73140	*				
V78	.62534	*				
V73	.74381	*				
V74	.73635	*				
V46	.79892	*				
BASEPLAY	.82317	*				
SOCCPLAY	.73742	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 5 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
V55	.88840			
V83	.88359			
SOCCPLAY	.80904			
V80	.63107			
V81		.88582		
V53		.78041	.34346	
V78		.70947		
V74			.82872	
V73			.82378	
BASEPLAY				.89165
V46				.85745

- - - - F A C T O R A N A L Y S I S - - - -

Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)
Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
V16	.75962	*	1	3.19271	63.9	63.9
V15	.75212	*				
V14	.80760	*				
V17	.51503	*				
V13	.35834	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Correlations:	WINTER	OUTDOORS	RARA	PLAYBASE	NETCROWD
WINTER	1.0000	-.0386	.5325**	.3973*	-.0715
OUTDOORS	-.0386	1.0000	.0598	-.1428	-.0574
RARA	.5325**	.0598	1.0000	.2539	-.1302
PLAYBASE	.3973*	-.1428	.2539	1.0000	.0332
NETCROWD	-.0715	-.0574	-.1302	.0332	1.0000
LINKS	.2196	-.0182	.1554	.0975	-.1266
BETINFO	.8279**	-.1353	.3781*	.3709*	.0227
COMP2	.2815	-.0663	.0248	.3451*	-.0918
V86	.1651	-.1115	-.1175	-.1089	-.1289
V2	.5516**	-.1684	.4128**	.4890**	.1148

Correlations:	LINKS	BETINFO	COMP2	V86	V2
WINTER	.2196	.8279**	.2815	.1651	.5516**
OUTDOORS	-.0182	-.1353	-.0663	-.1115	-.1684
RARA	.1154	.3781*	.0248	-.1175	.4128**
PLAYBASE	.0975	.3709*	.3451*	-.1089	.4890**
NETCROWD	-.1266	.0227	-.0918	-.1289	.1148
LINKS	1.0000	.3344*	.1561	.3653*	.2154
BETINFO	.3344*	1.0000	.3219	.2458	.5013**
COMP2	.1561	.3219	1.0000	.1286	.3385*
V86	.3653*	.2458	.1286	1.0000	-.0811
V2	.2154	.5013**	.3385*	-.0811	1.0000

N of cases: 62 2-tailed Signif: * - .01 ** - .001

APPENDIX E

FACTOR ANALYSES FOR ALL 66 INFORMANTS AND EACH OF THE TWENTY GROUP'S "WORLD VIEW" OF THE TEN SPORTS USED IN THE TRIADS TASK

GROUPS #1 & 2 - WINTER SPORTS SCALE VARIABLE

ROTATED LOADINGS - **GROUP #1 LOWER TERCILE**

	1	2	3
HOCKEY1	0.903	0.131	0.018
FOOTBAL1	0.879	-0.137	0.344
BBALL1	0.788	0.300	-0.112
BASEBAL1	0.623	0.163	0.379
TENNIS1	0.599	0.731	-0.132
BOWLING1	0.029	0.911	0.098
GOLF1	0.246	0.841	0.116
POOL1	-0.031	0.768	0.531
FISHUNT1	0.030	0.206	0.748
AUTORAC1	0.133	0.007	0.646

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.037	2.857	1.573

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.369	28.566	15.733

ROTATED LOADINGS - **GROUP #2 UPPER TERCILE**

	1	2
POOL2	0.903	0.013
GOLF2	0.874	0.121
BOWLNG2	0.834	0.046
TENNIS2	0.748	0.466
FISHNT2	0.548	0.026
FOTBAL2	-0.035	0.954
HOCKY2	0.074	0.916
BBALL2	0.153	0.800
BASBAL2	0.235	0.609
AUTORC2	0.409	0.181

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2
3.386	3.028

PERCENT OF TOTAL VARIANCE EXPLAINED

33.860	30.285

GROUPS #3 & 4 - OUTDOORSY/MILWAUKIE CROWD SCALE VARIABLE

ROTATED LOADINGS - **GROUP #3 LOWER TERCILE**

	1	2	3
BOWLING3	0.952	0.022	-0.031
GOLF3	0.862	0.114	0.272
POOL3	0.831	0.010	0.424
TENNIS3	0.796	0.428	0.057
HOCKEY3	0.076	0.930	0.042
FOOTBAL3	-0.066	0.930	0.176
BBALL3	0.308	0.795	-0.230
BASEBAL3	0.173	0.615	0.338
FISHUNT3	0.193	0.009	0.775
AUTORAC3	0.090	0.122	0.701

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.153	2.951	1.550

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
31.532	29.511	15.496

ROTATED LOADINGS - **GROUP #4 UPPER TERCILE**

	1	2	3
FOOTBAL4	0.936	-0.125	0.189
HOCKEY4	0.878	0.220	-0.007
BBALL4	0.804	0.315	-0.099
BASEBAL4	0.625	0.102	0.395
TENNIS4	0.557	0.787	-0.073
BOWLING4	0.045	0.903	0.078
GOLF4	0.189	0.878	0.098
POOL4	-0.069	0.725	0.607
FISHUNT4	-0.061	0.201	0.823
AUTORAC4	0.233	-0.057	0.674

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.095	2.948	1.722

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.945	29.479	17.224

GROUPS #5 & 6 - RA-RA-RA's SCALE VARIABLE

ROTATED LOADINGS - **GROUP #5 LOWER TERCILE**

	1	2	3
HOCKEY5	0.937	0.164	-0.034
FOOTBAL5	0.921	-0.121	0.283
BBALL5	0.778	0.366	-0.203
BASEBAL5	0.659	0.093	0.334
TENNIS5	0.560	0.780	-0.107
BOWLING5	-0.016	0.892	0.159
GOLF5	0.233	0.847	0.173
POOL5	-0.058	0.722	0.591
FISHUNT5	-0.001	0.213	0.715
AUTORAC5	0.161	0.027	0.672

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.163	2.875	1.613

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
31.627	28.746	16.127

ROTATED LOADINGS - **GROUP #6 UPPER TERCILE**

	1	2
POOL6	0.915	0.008
BOWLNG6	0.841	0.042
GOLF6	0.809	0.202
TENNIS6	0.735	0.463
FISHNT6	0.634	-0.008
FOTBAL6	-0.069	0.934
HOCKY6	0.108	0.886
BBALL6	0.169	0.777
BASBAL6	0.229	0.705
AUTORC6	0.320	0.185

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2
3.340	3.050

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2
33.404	30.496

GROUPS #7 & 8 - BASEBALL PLAYERS SCALE VARIABLE

ROTATED LOADINGS - **GROUP #7 LOWER TERCILE**

	1	2	3
POOL7	0.886	0.031	0.348
BOWLING7	0.885	0.083	-0.112
GOLF7	0.855	0.115	0.237
TENNIS7	0.827	0.366	0.062
FOOTBAL7	-0.083	0.917	0.189
HOCKEY7	0.101	0.867	0.156
BBALL7	0.258	0.808	-0.269
BASEBAL7	0.282	0.630	0.174
AUTORAC7	-0.005	0.175	0.782
FISHUNT7	0.320	0.010	0.697

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.247	2.827	1.453

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
32.471	28.275	14.534

ROTATED LOADINGS - **GROUP #8 UPPER TERCILE**

	1	2	3
FOOTBAL8	0.941	-0.109	0.184
HOCKEY8	0.926	0.168	-0.017
BBALL8	0.757	0.298	-0.127
BASEBAL8	0.658	0.059	0.361
TENNIS8	0.545	0.794	-0.046
BOWLING8	0.009	0.897	0.159
GOLF8	0.136	0.886	0.162
POOL8	-0.042	0.678	0.619
FISHUNT8	-0.019	0.185	0.845
AUTORAC8	0.175	0.051	0.688

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.099	2.847	1.805

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.989	28.471	18.048

GROUPS #9 & 10 - NET SPORTS CROWD SCALE VARIABLE

ROTATED LOADINGS - **GROUP #9 LOWER TERCILE**

	1	2	3
BOWLING9	0.936	0.049	-0.028
GOLF9	0.877	0.123	0.178
POOL9	0.819	-0.007	0.423
TENNIS9	0.767	0.458	0.055
FOOTBAL9	-0.084	0.929	0.179
HOCKEY9	0.088	0.887	0.093
BBALL9	0.276	0.830	-0.185
BASEBAL9	0.230	0.587	0.335
FISHUNT9	0.160	0.020	0.779
AUTORAC9	0.076	0.147	0.736

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.079	2.933	1.551

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.786	29.333	15.506

ROTATED LOADINGS - **GROUP #10 UPPER TERCILE**

	1	2	3
BOWLNG10	0.916	0.017	0.061
GOLF10	0.895	0.140	0.178
TENNIS10	0.799	0.491	0.031
POOL10	0.737	-0.046	0.588
FOTBAL10	-0.117	0.942	0.250
HOCKY10	0.181	0.939	-0.019
BBALL10	0.296	0.810	-0.205
BASBAL10	0.079	0.623	0.418
FISHNT10	0.273	-0.060	0.715
AUTORC10	0.002	0.167	0.682

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.037	3.107	1.637

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.368	31.068	16.370

GROUPS #11 & 12 - LINKS CROWD SCALE VARIABLE

ROTATED LOADINGS - **GROUP #11 LOWER TERCILE**

	1	2	3
HOCKY11	0.898	0.140	-0.022
FOTBAL11	0.897	-0.142	0.248
BBALL11	0.772	0.254	-0.127
BASBAL11	0.700	0.196	0.272
TENNIS11	0.584	0.688	-0.028
BOWLNG11	0.019	0.859	0.118
GOLF11	0.247	0.854	0.051
POOL11	0.019	0.796	0.456
FISHNT11	-0.021	0.26i	0.818
AUTORC11	0.155	0.026	0.713

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.124	2.785	1.555

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
31.239	27.846	15.550

ROTATED LOADINGS - **GROUP #12 UPPER TERCILE**

	1	2
POOL12	0.937	-0.001
GOLF12	0.881	0.131
TENNIS12	0.813	0.373
BOWLNG12	0.813	0.091
FISHNT12	0.627	-0.010
FOTBAL12	-0.035	0.937
HOCKY12	0.078	0.897
BBALL12	0.146	0.809
BASBAL12	0.182	0.638
AUTORC12	0.329	0.248

VARIANCE EXPLAINED BY ROTATED COPONENTS

1	2
3.539	2.971

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2
35.392	29.706

GROUPS #13 & 14 - BETTING INFO CROWD SCALE VARIABLE

ROTATED LOADINGS - **GROUP #13 LOWER TERCILE**

	1	2	3
HOCKY13	0.891	0.142	0.012
FOTBAL13	0.888	-0.116	0.266
BBALL13	0.794	0.240	-0.133
BASBAL13	0.643	0.228	0.343
TENNIS13	0.590	0.696	-0.055
BOWLNG13	0.063	0.903	0.006
GOLF13	0.199	0.866	0.128
POOL13	0.028	0.801	0.448
FISHNT13	0.001	0.212	0.775
AUTORC13	0.133	0.003	0.702

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.037	2.879	1.519

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.368	28.791	15.193

ROTATED LOADINGS - **GROUP #14 UPPER TERCILE**

	1	2
POOL14	0.948	-0.016
GOLF14	0.848	0.130
BOWLNG14	0.826	0.016
TENNIS14	0.815	0.374
FISHNT14	0.611	0.018
FOTBAL14	-0.016	0.944
HOCKY14	0.061	0.927
BBALL14	0.173	0.760
BASBAL14	0.148	0.700
AUTORC14	0.467	0.128

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2
3.612	2.992

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2
36.124	29.916

GROUPS #15 & 16 - CULTURAL COMPETENCY SCORE

ROTATED LOADINGS - **GROUP #15 LOWER TERCILE**

	1	2	3
BOWLNG15	0.880	0.025	0.024
GOLF15	0.863	0.184	0.091
POOL15	0.792	0.004	0.492
TENNIS15	0.791	0.443	0.056
FOTBAL15	-0.112	0.930	0.220
HOCKY15	0.165	0.886	0.002
BBALL15	0.265	0.767	-0.149
BASBAL15	0.179	0.686	0.302
AUTORC15	-0.037	0.178	0.737
FISHNT15	0.332	-0.022	0.736

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.025	2.971	1.502

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.254	29.715	15.019

ROTATED LOADINGS - **GROUP #16 UPPER TERCILE**

	1	2
POOL16	0.899	-0.019
BOWLNG16	0.884	0.036
GOLF16	0.879	0.177
TENNIS16	0.756	0.487
FISHNT16	0.531	-0.014
HOCKY16	0.061	0.967
FOTBAL16	-0.069	0.966
BBALL16	0.218	0.798
BASBAL16	0.142	0.647
AUTORC16	0.318	0.197

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2
3.393	3.232

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2
33.932	32.321

GROUPS #17 & 18 - RESPONDENT'S AGE

ROTATED LOADINGS - **GROUP #17 LOWER TERCILE**

	1	2	3
FOTBAL17	0.930	-0.133	0.174
HOCKY17	0.865	0.253	-0.020
BBALL17	0.757	0.300	-0.157
BASBAL17	0.679	0.183	0.313
TENNIS17	0.533	0.775	-0.025
BOWLNG17	0.053	0.862	0.075
GOLF17	0.215	0.829	0.096
POOL17	0.004	0.733	0.560
FISHNT17	-0.049	0.224	0.825
AUTORC17	0.170	-0.027	0.734

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.013	2.825	1.702

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.127	28.245	17.020

ROTATED LOADINGS - **GROUP #18 UPPER TERCILE**

	1	2	3
BOWLNG18	0.975	0.026	-0.084
POOL18	0.899	0.010	0.364
GOLF18	0.878	0.047	0.309
TENNIS18	0.864	0.255	0.188
FOTBAL18	-0.031	0.952	0.107
HOCKY18	0.042	0.930	0.039
BBALL18	0.215	0.814	-0.154
BASBAL18	0.061	0.637	0.285
AUTORC18	0.104	0.140	0.828
FISHNT18	0.343	0.002	0.666

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.456	2.928	1.516

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
34.560	29.275	15.161

GROUPS #19 & 20 - SELF-REPORTED SPORTS INVOLVEMENT

ROTATED LOADINGS - **GROUP #19 LOWER TERCILE**

	1	2	3
HOCKY19	0.925	0.130	-0.036
FOTBAL19	0.912	-0.139	0.304
BBALL19	0.762	0.289	-0.132
BASBAL19	0.665	0.191	0.242
TENNIS19	0.548	0.764	-0.082
BOWLNG19	0.017	0.901	0.088
GOLF19	0.221	0.846	0.125
POOL19	0.011	0.780	0.503
AUTORC19	0.108	0.012	0.737
FISHNT19	0.037	0.233	0.736

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.073	2.930	1.537

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.727	29.304	15.374

ROTATED LOADINGS - **GROUP #20 UPPER TERCILE**

	1	2	3
BOWLNG20	0.919	0.010	0.055
GOLF20	0.856	0.136	0.198
TENNIS20	0.848	0.443	-0.006
POOL20	0.743	-0.058	0.544
FOTBAL20	-0.100	0.946	0.168
HOCKY20	0.172	0.919	0.056
BBALL20	0.340	0.808	-0.225
BASBAL20	0.081	0.607	0.425
FISHNT20	0.252	-0.080	0.766
AUTORC20	0.018	0.219	0.718

VARIANCE EXPLAINED BY ROTATED COMPONENTS (EIGENVALUES)

1	2	3
3.076	3.033	1.703

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.761	30.326	17.031

ROTATED LOADINGS - **ALL 66 INFORMANTS**

	1	2	3
BOWLING	0.920	0.018	0.034
GOLF	0.866	0.149	0.181
TENNIS	0.809	0.445	0.035
POOL	0.788	-0.021	0.502
FOOTBALL	-0.092	0.930	0.178
HOCKEY	0.135	0.907	0.014
BASETB	0.266	0.789	-0.178
BASEBALL	0.134	0.640	0.323
FISHHUNT	0.266	-0.026	0.773
AUTORACE	0.029	0.172	0.734

VARIANCE EXPLAINED BY ROTATED COMPONENTS

1	2	3
3.070	2.973	1.591

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3
30.698	29.732	15.906