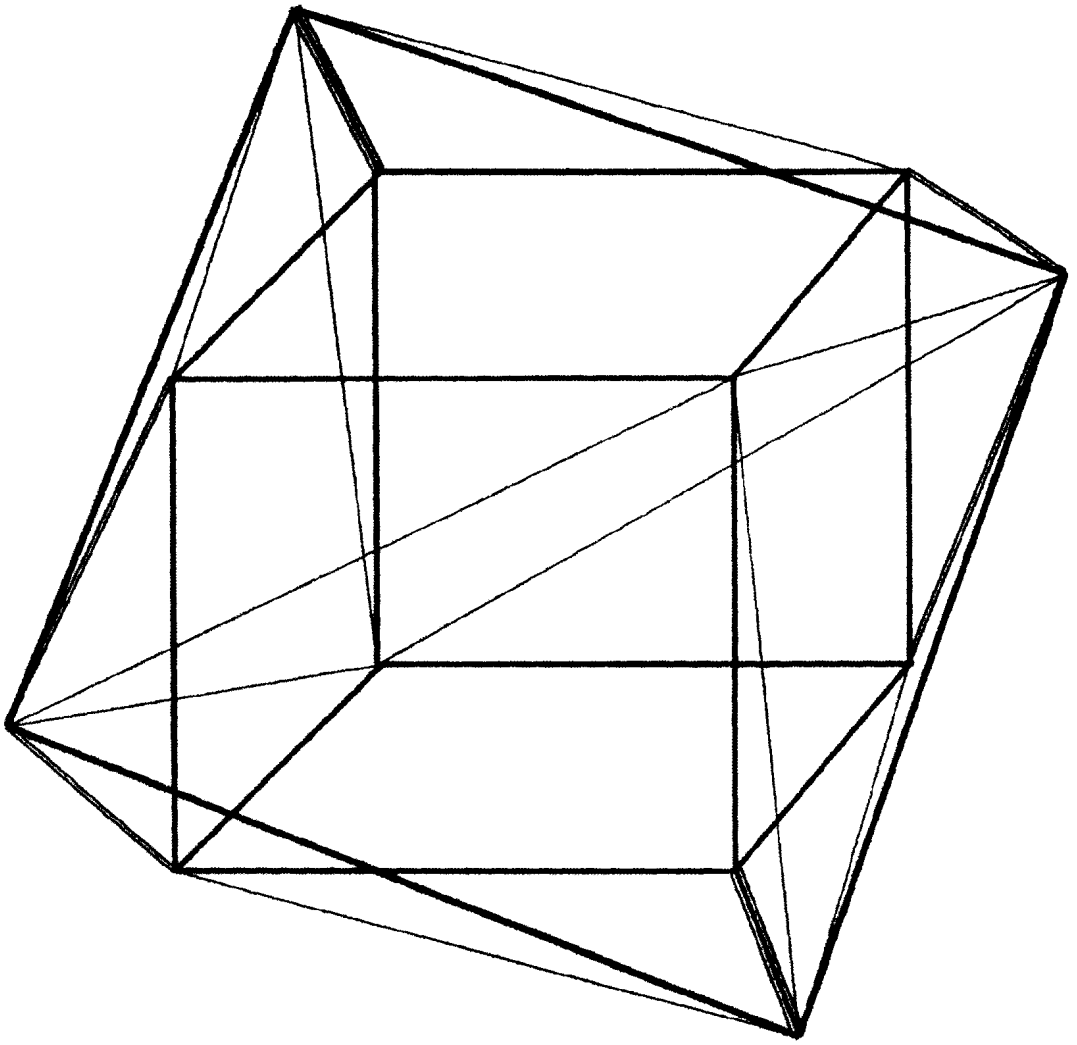

THE ARCHITECTONICS OF CULTURE

A Critique, Modification, and Extension of Hofstede's Study of Societal Culture

by

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THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNDER SPECIAL ARRANGEMENTS
with the Faculties of Business Administration and
Communication, and the Department of Humanities

SIMON FRASER UNIVERSITY

August 2003

APPROVAL

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Degree: Doctor of Philosophy

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Title of Thesis/Project/Extended Essay

The Architectonics of Culture: A Critique, Modification, and Extension of Hofstede's Study of Societal Culture with a Chinese-Based Typology

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Abstract

Over the past fifty years, scholars in social psychology, sociology, and organizational behavior have agreed on the importance of articulating culture using universal conditions. They apply this reasoning to conceptions of culture at various cultural levels: societal, national, organizational, occupational, ethnic, linguistic, group and family. However, they have not agreed on the characterization or nature of these universal conditions or core domains that inform cultural values, practice, behaviors, and artifacts.

This dissertation proceeds from theory to practice. I propose a three-dimensional binary cube matrix that identifies eight basic types, defined in terms of semantic content borrowed from eight trigram archetypes in the ancient Chinese classic, the *I Ching*. Together, this binary matrix and semantic content form the *Binary Archic Matrix* typology (BAM).

I apply this typology to a reanalysis of the data from Hofstede's study of culture, conducted with IBM (Hofstede, 1980 and 1991). In this study, Hofstede argues that his data identified four universal dimensions of culture. My analysis of his dimensions and data yields a more accurate, parsimonious, meaningful, and useful representation of culture. In this way, culture can be more readily understood in terms of traditional Chinese *yin-yang* cosmology, philosophy, and thought.

My methodology is closely related to the interpretive approach called architectonics, a comparative global hermeneutics developed by Walter Watson (1985/1993), and elaborated and deployed by David Dilworth (1989). These authors develop a typology for interpreting and ascertaining the universal characteristics of

major world philosophical texts and their authors. Furthermore, they argue that the whole notion of culture can be treated as text, which is subject to systematic interpretation and profiling. My dissertation applies the BAM typology as a method for interpreting the texts of Hofstede and the *I Ching* .

My thesis is an interpretation that translates one idiomatic view of culture, represented by Hofstede's survey, into another idiomatic view of culture, represented by the *I Ching*. The BAM typology is the method whereby these idiomatic views of culture are then translated into a new, incorporative, bi-cultural synthesis. This typology expands on conceptions of culture which can help improve cross-cultural collaboration and problem solving.

Dedication

This dissertation is dedicated to Ari Tomita, spouse, friend, artist, and inspiring companion. Her unwavering emotional support, encouragement, nourishment, and prodding, made it possible to complete this dissertation.

Ari's background in Chinese and Japanese literature, philosophy, and Zen provided many stimulating discussions, and formed an ideal sounding board for my emerging theories and ideas. Her culinary talent and stimulating artwork brought additional rewards to this challenging task.

Acknowledgments

Vast appreciation to my senior supervisor, Doug Cousineau, for his penetrating insight, patience, and commitment in helping me to bring greater cohesion and context to this unconventional work. And much appreciation to the members of my committee, Jan Walls, Gervase Bushe, and Neil Abramson, for helping me harness my theories and ideas over an extended period. Their direction and encouragement have been instrumental. I also thank Jan Walls for our many discussions that clarified my understanding of Chinese thought.

I want to thank Prof. Rosalie Tung for supervising my studies and early research, and introducing me to the work of Geert Hofstede. I thank Dr. Greg Tropea at California State University, Chico; Dr. Gordon Walter at the University of British Columbia; and professors Mark Wexler and Jerry Zaslove at Simon Fraser University for their most helpful contributions and feedback.

I extend thanks to the university for making this Special Arrangements PhD program possible; to Dean John Driver in the Graduate Studies office for invaluable assistance and confidence; and to his assistant, Vivian Baker for being constantly supportive throughout my studies. Appreciation to the Schools of Business and Communication which served as my home departments at different times, and to Neena Shahani, Lucy Menkveld, and Dr. Catherine Murray in the latter.

My, thanks to two fellow PhD students, Graham Coetzer and Dan Dorogi for introducing me to Gervase Bushe and Doug Cousineau. My sincere appreciation to Dr. Geert Hofstede for his correspondence, personal meeting, and permission to use his many diagrams. My thanks to all those who granted permission to use the many diagrams and other material in this dissertation. And finally, my gratitude to spouse, Ari Tomita to whom this is dedicated.

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Chapter 1

> In general we look for a new law by the following process. First we guess it. Then we compute the consequences of the guess to see what would be implied if this law we guessed is right. Then we compare the result with the computation to nature, with experiment to experience, compare it with observation to see if it works. If it disagrees with experiment it is wrong. In that simple statement is the key to science. However, too many scientific hypotheses are invented to account for the data.
>
> Richard Feynman (1967:156), Nobel laureate

Introduction

The subject of culture has become one of the most ubiquitous descriptive and explanatory concepts in all the social sciences (Danesi and Perron, 1999; Ashkanasey, Wilderom, and Peterson, 2000). In spite of this, there is still considerable debate and controversy about what culture may be. At the same time it is necessary to keep in mind that culture is a construct and not a thing per se.

1.A Translating and Modeling Culture Between the East and West

This dissertation makes a unique contribution to the understanding of culture by taking an authentically trans-cultural, East-West approach to modeling concepts of culture. In this sense, I make a systematic comparison of two conceptualizations of classifying cultural information in order to translate them into each other's terms, and then merge them into a typology that transcends both. This enables the re-examination of culture via a mutually inclusive and incorporative model that is designed to enhance and promote cross-cultural communication, understanding, and collaboration.

1.A.1. Identifying the Problem

Rosengren (1981:23 &35), refers to various interpretations and textual analysis as a form of model building based on addressing a problem with rules, a theory, and a method. My interpretive approach forms a rule-based textual analysis derived from, the *Architectonics of Meaning: Foundations of the New Pluralism,* in which Watson (1985/1993), develops a matrix for profiling philosophical texts inspired by Greek philosophy; and from Dilworth's (1989) *Philosophy in World Perspective: a Comparative Hermeneutic of the Major Theories* , representing an application of Watson's architectonic analysis, in which he profiles and compares historical and modern Western philosophical texts, with historical Chinese texts.

I then apply this interpretive mode of inquiry to two primary works. One is the *I Ching*, (*Classic of Change*), specifically the *Ten Wings Commentary* portion attributed to Confucius, which was added to the text by the Confucian School in the 4th or 3rd century BC (Wilhelm, 1950). The other consists of two books by Hofstede explicating his celebrated and much debated study on work related values with IBM, and from which he derived his four cultural dimensions: *Culture's Consequences*, (Hofstede, 1980), and *Cultures and Organizations* (Hofstede, 1991).

There is an ongoing debate about the constituents and the importance of studying national and organizational cultures. There is yet to be agreement on what or how many primary dimensions or variables define or account for culture; or on how the variables are determined. Still other issues are related to how to deal with, approach, address, represent, and discuss culture within the context of cross-cultural collaborations and other inter-cultural relationships.

Many models of culture have been created (Askanasy, Broadfoot, & Falkus, 2000; Earley & Erez, 1997), and still others are being developed (House, Wright, & Aditya, 1997). Most of these models employ different dimensions, with little agreement on the basic cultural variables. Furthermore, I contend that scholars have not done an adequate job of treating culture in an authentically cross-cultural manner, or of making their models and findings culturally relevant or meaningful in an inter-cultural, cross-cultural, trans-cultural, or global context.

The models primarily reflect the values and ideas of Western or Western-trained scholars, practitioners, and managers, and as a result are tilted in favor of the purposes, ends, and goals of those who operate from the paradigms they adopt. This may be unintentional or even unconscious. Most scholars and their models do not adequately consider other cultures that might operate or function according to different modes of cognition, perception, verbal and written codes, and who have different culturally conditioned world-views, or ways of apprehending, experiencing, and relating to environmental, social, and organizational situations.

I address this problem with an original research method, a typology that translates a Western approach to modeling culture into an East Asian way of understanding culture. Then I retranslate this East Asian perspective into a model that bridges both Western and Eastern views of culture.

I apply this method to an analysis of culture and obtain results that are clearer, more parsimonious, and more meaningful across cultural boundaries and in cross-cultural contexts. That is, the typology represents cultural information and data in a way that is simultaneously meaningful according to two different cultural

paradigms and from two vastly different frames-of-reference. It is a form of cultural modeling to bridge conceptual domains.

1.A.2. Using Hofstede's Survey as a Study

Essentially I am doing a study of Hofstede's study of societal culture, in which he also examines organizational culture. Hofstede derived sets of scores representing the cultures of 53 countries using the data from a larger study on work-related values within IBM's business organization and culture. For this reason it is not appropriate to consider his study of national culture outside of an organizational context. Moreover, much of the usefulness of this understanding of national culture, will be found within culture at the organizational level. Many of the benefits of this research are in its potential generalizability.

The value of this method for defining and depicting culture is twofold. First, it can represent statistically generated survey data in a way that is conceptually compatible with East Asian mental constructs, frames-of reference, and cultural values. Second, it provides a way for Westerners and other non-East Asians to consider and re-examine data from a holistic perspective shared by Chinese, Koreans, and Japanese, as well as a large number of South Asians.

In East-West collaborative ventures (both existing or being contemplated), parties can use this method to describe and discuss their organizational cultures. This provides a new way of perceiving and understanding cultural similarity and difference. It also brings the subject of culture into the forefront of negotiation and relationship formation, thereby improving the quality of communication and increasing the probability of developing a successful collaboration.

In this thesis I will develop a new model and application of the *I Ching, yin-yang* cosmology. This new model consists of three domains represented eidetically. I provide a unique appreciation of the understanding of culture and cultural dimensions by converting the eight trigrams from the *I Ching* system into a typology composed of three internally consistent dimensions of culture.

I propose this typology as a lens for conducting an in-depth analysis of Hofstede's (1980 and 1991) famous model and survey of national culture conducted with IBM. I use to examine Hofstede's data, dimensions, and cultural clusters, and in this way, I demonstrate the viability of my research method. While Hofstede's work continues to be hotly debated (McSweeny, 2002; Smith, 2002; Williamson, 2002; Bond; 2002), it has been the standard and accepted Western norm for dealing with culture for more than twenty years.

The value and viability of my research method and typology however, are not dependent on the validity of Hofstede's research methods or methodology. While the efficacy of my typology is demonstrated at the macro level using his study of national culture, I posit that that the three underlying dimensions, or what Schein calls domains (Schein, 2000), will also apply to culture at the mezzo and micro levels, which include organizational, occupational, institutional, various group levels, and family. The conditions that account for or explain each domain will be different for each of the levels of culture.

1.A.3. A Typology for Improving Cross-Cultural Collaboration

One of the important aims of my dissertation is to come up with a model that will make an important contribution to assisting organizations to improve their

rate of success in their cross-cultural collaborative ventures. There is an increasing awareness that cross-cultural collaborations have had a high rate of failure because most mangers fail to consider the importance of culture, and specifically, the differences in cultures at the national, organizational, and occupational levels. More recently, an increasing number of scholars are drawing attention to different aspects of the crucial role culture plays in successful alliance formation.

Information technology and globalization have fueled an exchange of ideas and a steady flow of communication. This has brought about a rapid expansion of global activity, commercial and non-commercial that traverses unfamiliar cultural territory and raises new problems for a majority of organizations and participants. Many difficulties in international joint ventures (IJVs) can be traced to differences in national cultures, but many seem to be related to differences in organizational culture. Parties may perceive their organizations to have compatible cultures, when they do not; or they may think they are not compatible even when they are.

The phenomenal expansion in cross-cultural collaborative ventures between Asia and the West has resulted in a high percentage of disappointments and failures. International mergers have an abysmally low success rate, probably not more than 25% (Hofstede, 1991:227). From my own experience, anecdotal evidence places the number of failures in East and Southeast Asia at closer to 90%, with the variation in figures being due in part to the different ways of defining failure. It may be the failure of either or both parties to meet reasonable goals or achieve realistic objectives, within a given time frame. Or it may be dissolution of the venture in which one or both parties suffer economic loss or market position.

1.A.4. Cultural Issues and Organizational Alliance Formation

The past few decades has witnessed an exceptional increase in the number of collaborative ventures between the Western and Eastern organizations, much of it with East Asia and Southeast Asia. A great deal of recent scholarship has arisen in response to the need to improve the quality of these collaborations, and in the recognition that many of the problems have their roots in the failure to consider the importance of culture in successful partnering.

Organizations with similar patterns of behaviors, norms, and values will have more compatible cultures. Cartwright and Cooper (1993), have found that organizational cultures are not meant to change easily. As a result, a high degree of cultural compatibility (cultural fit) has equal if not greater importance than technological, legal, and economic compatibility (strategic fit), in planning organizational relationships.

Cartwright and Cooper (1993) report that during the three decades preceding their research, even though most managers made partnering and other alliance decisions based primarily on quantitative (economic and legal) considerations, there was a significant increase in the number of Western organizations coming around to understanding and appreciating the importance of factoring culture into their strategic decision-making processes.

Ring and Van de Ven (1994) suggest that corporations with incompatible organizational cultures cannot form a successful alliance, although they admit there has been no general agreement on how compatibility is to be defined or determined. The authors note that in culturally incompatible ventures, cultural differences can

become multiplied so that obstacles become greatly magnified. As a result, of this, problems are exacerbated, and too many ventures become financially disappointing.

A form of strategic imprinting takes place during the initial phase of partnership formation. All newly formed international alliances require a change of acceptance in organizational culture, if not in fact then at least in perception (Boeker, 1989). Moreover, the strategies adopted by most cross-national alliances are culture bound. Those conditions set in place during and immediately following the founding processes, tend to limit and encourage or give direction to the modes of behavior and strategic change in new organizations (Parkhe, 1993).

Culturally conflicting communication styles, objectives, and values usually result in added instability, poor performance, with joint ventures mortality rates exceeding 70% (Geringer & Hebert, 1991). Extensive research shows that the best time to address and resolve cultural differences, and identify cultural similarities is at the starting up period in partnership formations (Guth & Taguri, 1965; Kimberly, 1975; Romanelli & Tushman, 1986; Hambrick & Finkelstein, 1987).

An intriguing fact is that "most current theories of cultural change in organizations (which includes cross-national partnerships and ventures) fail to take the nature of the culture to be changed into account" (Wilkins & Dyer, 1988:522). Since cultural frames or perspectives (both national and organizational) form the basis for interpreting events, it is highly beneficial to create working relationships that provide cultural understanding, or even better yet, take advantage of or build on shared cultural frameworks (Shaw, 1990).

One way to develop better partnering strategies in cross-cultural alliances is suggested by research in game theory. Danielson (1991) found that partners who want to generate a successful process and/or outcome should strive to develop a relationship that emulates kinship. He suggests creating an added layer of vested interest beyond the perceived strategic (economic and legal) plan. One approach to achieving this objective might be formed through the process of co-creating a co-venture organizational culture. In addition, when two (potential) partners discuss their own organizational cultures and explore a collaborative culture they build trust by raising the level of transparency, which contributes to improved cooperation.

At least one study has shown that a knowledge or awareness of what culture is, plus a clear grasp of organizational culture can help parties contextualize their organizational cultures to each other. This means they can "interpret and negotiate meaning for (their) members leading to greater cohesion and consistency of the corporate culture" (Cyr and Frost, 1989:12).

Duan (1997) found that when multinational enterprises consider foreign ventures, their ownership decisions are influenced by the cultural proximity between their national culture and the national culture of the country of entry. One finding was that "the shorter the cultural distance (between the two countries), the lower the ownership percentage that foreign investors have obtained" (Duan, 1997:6). A second finding was that the greater the cultural distance between the two countries, the more likely it was that a firm will choose to enter into a joint venture.

Tung (1991), found that when co-venture partners improve their grasp of each others' organizational cultural differences, they can improve communication

and increase their chances for success. "Even in situations where technology is the primary motivating force that initially draws the two partners together, continuation of the venture still depends on their ability to agree to work out any differences that may arise and to coexist peacefully" (Tung, 1991:39). Moreover, "technologies are not neutral with regard to values ... (and any) attempts at the transfer of leadership skills that do not take (cultural) values into account ... have very little chance of success" (Hofstede,1980:380).

I submit that as a result of these findings, a useful if not critical issue for managers and consultants in international and multinational firms could be to have a reliable method of creating cultural profiles for countries, regions, and sub-cultures, and also being able determine their cultural proximity and compatibility.

1.A.5. Proposing a Solution

My research method was initially inspired by the *yin-yang* cosmology and the *I Ching* system of binomial classification, and its eight trigrams. These showed promise as a system for representing cultural types because of their well-defined characteristics, and their traditional binary symbols. After my research had begun, I realized the benefit of organizing (adopting) the trigrams into a formal symbolic structure. That is, in order to explain or account for the trigram characteristics that are found throughout the Confucian Commentary portion of the *I Ching* or *Classic of Change,* it seemed necessary to explore the possibility of developing a method to explain the trigrams at a constitutional or constitutive level. From my analysis of the trigrams I derive three dimensions. I incorporate these into a typology that I use as a research method to analyze Hofstede's survey on national culture.

Parties need tools for understanding the underlying conditions of their own and each other's cultures according to a mutually meaningful model that helps them reduce or avoid misunderstandings, misinterpretations, and misplaced expectations. These often originate at the deeper structural levels of culture, and they are often responsible for attitudes and behaviors that lead to problems in communication and relating. Many of the breakdowns and failures in collaborative cross-cultural ventures (both commercial and non-commercial), reside in the inability of parties to recognize and resolve cultural differences and manage their incompatibilities.

If parties had an authentic cross-cultural typology, and a procedure for modeling and discussing culture, they could (re)interpret cultural differences and misunderstandings and preempt serious or fatal problems more often. My typology and research method can help address such problems by bringing factors that were not perceived or understood, into clearer view for open discussion and resolution.

This thesis proposes and tests a template called the *Binary Archic Matrix* (BAM), which interprets cultural dimensions according to eight trigrams in the *I Ching*. I propose that this method can be applied to a other cultural models, so they can be translated into each other's terms of reference for sharing information.

1.B. Historical Overview of the *I Ching*

"(P)hilosophically speaking (the *I Ching*) . . . has exerted more influence than any other Confucian Classic" (Chan, 1963:263), and stands out as the common thread that runs through traditional Chinese thought. The *I Ching* or Classic of Change has been one of the Confucian Classics for over two thousand years (Chan, 1967:*xiii-xix*). The *I Ching* is the common thread that runs through Chinese history,

and inspired a vast body of interpretative work by rival schools, each understanding it and using it in their own way (Dilworth, 1989:80).

The *I Ching* represents developments over several centuries, from the 10th to 4th centuries BC (Shaughnessy, 1996). This three thousand year old text is thought to have originally been a diviners manual that later came to serve as a political and moral treatise. The earliest part of the text was known as the *Zhouyi* (*Zhou Dynasty Change*), with primary authorship attributed to King Wen, (c 1150 BCE), father of King Wu, the first ruler of the *Zhou* Dynasty. Wilhelm (1950:xlvii), writes:

> *The Book of Changes* (*I Ching*), is unquestionably one of the most important books in the world's literature. . . . Nearly all that is greatest and most significant in the three thousand years of Chinese cultural history has either taken its inspiration from this book, or has exerted an influence on the interpretation of its text. . . . Small wonder then that both . . . Confucianism and Taoism have their common roots here.

The traditional view is that the *I Ching* is an ancient text of inspired wisdom that was written down and polished by a single editor about 800 B.C. (Kunst, 1985:4). The *I Ching* is a combination of the *Zhouyi* (the original text and symbols), and the *Ten Wings* (appendages), often referred to as the *Confucian Commentaries* on the *Zhouyi*. The Ten Wings provide a comprehensive discussion and explication of the structure and meaning of the *Zhouyi*. They are "(t)he oldest commentaries (and) as a rule combine structural interpretation of the hexagrams with philosophical explanations (which) go back to Confucius or at least to his circle" (Wilhelm (1950:255). Much of the commentary sheds light on the eight trigrams, the three-line symbols that combine in pairs to form the sixty-four hexagrams. These are regarded as universal, archetypal conditions, and their descriptive attributes make them one of the main tools for interpreting the hexagrams.

There is growing evidence that the Commentaries are originally from talks given by Confucius (551-479BC). These were collected and organized after his death, into its present form by about the 3rd century BCE. After that time everyone who entered into government service had to master the five Confucian classics, one of which was the *I Ching*.

After the *I Ching* was adopted as one of the Chinese Classics around the third century BC, it became compulsory study for all who aspired to serve in the Chinese bureaucracy to master this text. One of the objectives in having public servants master the *I Ching*, was to employ this cultural icon as a common and shared frame-of-reference for important decision-making and problem solving.

Chan (1967) called the *I Ching* the most sophisticated explication of the *yin-yang* system. This is an ancient system of cosmology that stressed the connection or mutual interaction between humans and nature, and which found its way into methods of astrology, the almanac, and divination (Fung, 1952:159). Archeological discoveries suggest that twenty-two hundred years ago it already must have been a very popular work. "In the form in which we see it today it is an anthology of omens, popular sayings, prognostications, historical anecdotes, nature wisdom, and the like, which have all been blended together and structured around a framework of hexagrams each consisting of six solid or broken lines" (Kunst, 1985:2-3) (see Figure 1.1). However there is no clear evidence whether the trigrams predate the hexagrams or visa versa.

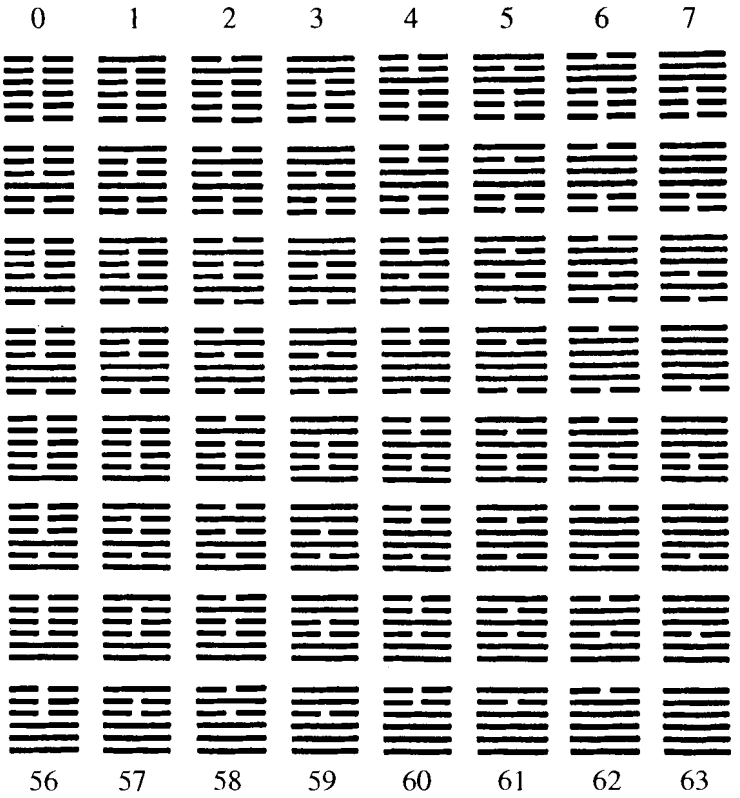


Figure 1.1 the Fuxi Square: the 8 trigram symbols recombined into 64 hexagrams

The broken lines in Figure 1.1 are treated as 0s and the solid lines as 1s. The sixty-four hexagrams form a numerical sequence of binary symbols arranged from 0 to 63, starting with the number 0 at the top left and proceeding horizontally across each row, ending with 63 at the bottom right. The terms hexagram and trigram were coined by the nineteenth century British sinologist, James Legge (1963/1899). In the *I Ching,* each hexagram symbol is followed by a brief, enigmatic text, also referred to as the hexagram.

From historical times to the present day, the *I Ching h*as been venerated by Confucians, highly esteemed by the schools of Daoist thought, utilized by religious Daoists in their rituals and canons; put to use by the Legalists for political ends; and

employed by the cosmologists of the *Yin-Yang School* who argued that they had identified fundamental forces, elements, and principles in its logical operations.

More books have purportedly been written about the *I Ching* than any other book in the world, with the possible exception of the Judeo-Christian Bible (the *Old Testament* and *New Testaments*). It has also played an important role in the intellectual history of Japan and Korea. As well as in Asia, and more recently in the West, much of the popularity and perhaps longevity of the *I Ching* has been due to its reputation as a reliable method of divination.

Most scholars agree that the *I Ching* was originally a method of divination that later became a work of philosophy, and subsequently developed into a system of cosmology (Shaughnessy, 1983; Kunst, 1985; Chan, 1963; and Fung, 1952). According to Shaughnessy (1996:1-2) "(O)ne or two passages in the Analects of Confucius suggest . . . that Confucius was not content to use the book just for divination, but rather saw in it – and perhaps imbued it with – a more general philosophical significance."

Ever since the *I Ching* was introduced to the West in the sixteenth century it has earned great respect as a work of philosophical insight, and yet it remains a great enigma, a consummate riddle, and a mystery shrouded in allegory and metaphor (Kunst, 1985:*v*). More recently it has become quite popular among those interested in Asian culture and in ancient esoteric, spiritual, and mystical traditions.

Since the landmark translation by Wilhelm (1950), into German and then English there has been considerable interest in the *I Ching*. This is evidenced by the dozens of academic and popular works written on the *I Ching* in the past fifty years.

1.B.1. *Yin* and *Yang* Trigram Lines as Conceptual Domains

The German philosopher, Binswanger (1963), proposed three existential domains within which all human life or realms of human relationships are pursued: *eigenvelt* or 'man to self,' *midvelt* or 'man to man,' and *umvelt* or man to the world'. These concepts accord with the dimensions I show are related to the three trigram lines, referred to in the *I Ching* Book of Change as the three primary powers. These are: Heaven (man to self); Earth (man to the world); and Man (man to man). I theorize that the three lines account for the attributes of the trigrams, and I demonstrate how they can be considered as equivalent to cultural domains.

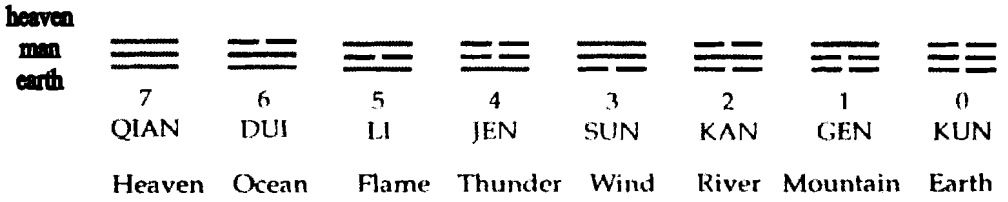


Figure 1.2 the eight traditional trigram images with binary values and names

The three primary powers are represented by and experienced in the three lines of the classic trigram symbols (Figure 1.2). The top line is identified as Heaven, the bottom line as Earth, and the middle line as Man. The trigrams are arranged according to completeness (Wilhelm, 1950:325). Each trigram is identified by its archetypal name, but the trigrams, Heaven and Earth should not be confused with the same terms that are used to identify the top and bottom trigram lines.

The lines of the traditional Chinese trigram symbols are binary in character, so they can be easily adapted to binary numbers (0s and 1s) that should be more comfortable in the West as a system of communicating information.

1.B.2. Discussion of the Trigrams in the *I Ching* Commentary

The *Shuo Gua* or Discussion of the Trigrams is a section in the *I Ching* Ten Wings commentaries, that explicates the trigrams. Wilhelm (1950:264) writes:

> the holy sages made the Book of Changes thus . . . . they determined the tao of heaven and called it the dark and the light. They determined the tao of the earth and called it the yielding and the firm. They determined the tao of man and called it love (loving kindness) and rectitude. They combined these three fundamental powers and doubled them. The places are divided into dark and light.

In Chinese writing, the characters or ideograms articulate, communicate, and convey information and meaning in a non-linear, multi-dimensional, holistic, and symbolic manner. In this dissertation, I often use a few synonyms to convey the meaning of a particular Chinese word, principle, notion, or concept, in order to better approximate its meaning. This style reflects the semantic character of the Chinese language, communication, mindset, and worldview, and generally makes Chinese concepts, notions, and terms more meaningful and easy to understand.

Furthermore, the structure of this dissertation adopts a similar, slightly non-linear mode. At first this might seem superfluous, over-explanatory and redundant, but it is most useful in that it brings the reader closer to an intuitive understanding of and appreciation for the many ideas in this dissertation related to or adopted from Chinese thought. This non-linear, multi-dimensional approach is reflected in my methodology and research method.

1.C. Chapter Outline

In what follows, I briefly set out the chapters that constitute my thesis.

1.C.1. Assessing the Need for Cultural Modeling

This first chapter has presented an outline of the complex problems related to culture and cultural compatibility that business managers are facing and that many scholars are striving to understand. The growing number of collaborative ventures between Western and East Asian organizations is leading to an unprecedented level of problems and business failures, especially in international joint ventures. A high percentage of the problems appear to be directly related to the incompatibility between the cultures at the national and organizational levels as well as misunderstanding of where compatibility and incompatibility actually lie.

Problems related to organizational culture are exacerbated by differences in national culture. These conditions can lead organizations that are culturally incompatible to believe or conclude that they are compatible, and visa versa. This chapter has so far elaborated and expanded on these problems, and presented a brief historical overview of the *I Ching*. An outline of the rest of the chapters follows.

1.C.2. Methodology

Chapter Two provides an overview of my interpretive textual analysis with a brief look at ontology, epistemology, and methodology. It also focuses on the need to distinguish methodology from research methods. This is followed by a review of Watson's interpretive approach, which he grounds in ancient Greek philosophy, and Dilworth's method of profiling philosophical texts.

Both approaches are based on a textual analysis of four schools of Greek philosophy. The authors' works form a methodological explanation and justification for the application of their research method as well as my own. Finally I outline my

own methodology for the study of texts as units of analysis, as it relates to my research method, the BAM typology.

1.C.3. The Binary Matrix Typology as a Research Method

In Chapter Three, I develop a cube typology that can represent or depict the trigrams as a three-dimension model. My intention is to develop a cultural typology and theory of culture based on the relationships that exist among triplets in the binary cube. In order to more fully understand the properties of a cube typology, including the three (axial) dimensions and the eight sections, I extend the model to cover the three interaction effects. These are the three doublet conditions that reside within each triplet.

Lastly, in order to more fully understand how the *I Ching* trigrams can inform the eight triplet typology, I extend the theory to explain the relationship between the binary triplets and binary doublets, since each doublet is embedded in four different triplets, and by extension, between the *I Ching* trigrams and bigrams.

1.C.4. Adopting the Semantic Content of the Trigrams to Binary Types

This fourth chapter describes the binomial character of *yin* and *yang*, and introduces the eight, three-line trigram symbols in the *I Ching*. I then conduct an analytical textual analysis of the eight trigrams with the objective of ascertaining whether or not the three *yin* and *yang* lines that constitute the trigram symbols could also represent a set of underlying dimensions that explain the attributes, qualities, and characteristics, historically associated with the trigrams.

The trigram lines are stacked vertically, with one on top, one on the bottom and one in the middle. I describe the attributes that characterize each of the

trigrams, and provide a simple graphic symbol that conveys that movement and character of each trigram. Then I analyze and compare the trigrams to discern if those trigrams that share *yin* or *yang* line features in one of the three positions (top, middle, or bottom), also share any attributes and/or characteristics.

Hence, from this analysis, I theorize that the trigrams are conditioned by three underlying, universal qualities. I propose that these qualities are comparable to cultural dimensions in the fields of cultural research, organizational behavior, and social theory. In order to communication this Chinese-based model more easily to the Western mindset and to those not familiar with the Chinese images, I convert the trigram symbols into the more universal language of binary digits. The three-digit binary numbers adopt those values and characteristics associated with the trigrams, while at the same time, the trigrams obtain binary numerical values.

1.C.5. An Overview of Culture and Hofstede's Study

In this chapter I review Hofstede's (1980 and 1991), survey on work-related values conducted with IBM in 67 countries. I then examine his four (and later five) dimensions, and the problems related to the two dimensions he created from one of his factors. I also look at the relationship between his dimensions and those proposed by Inkeles and Levinson, whose work inspired Hofstede's.

There is currently an active debate in the journal, *Human Relations*, related to Hofstede's survey. This began in January of 2002 with papers by Smith (2002) and McSweeney (2002a), followed in the November 2002 issue with Hofstede's response to McSweeney (2002), and McSweeney's rejoinder (2002b). The same issue includes a critique of both McSweeney and Hofstede (Williamson, 2002).

The controversy over Hofstede's work includes a critical article in the journal, *Philosophical Bulletin*, by one of Hofstede's former co-authors, Michael Bond (2002). All of these scholars explicate their critiques in terms of both research methods and methodological issues. The conclusion is that while Hofstede's work is not perfect, it is a reliable method for modeling culture, and it would be best not to discard it until after something better comes along.

1.C.6. Applying the BAM Model to an Analysis of Hofstede's Survey

This chapter is an in-depth textual interpretation of Hofstede's survey on culture (Hofstede, 1980 and 1991), a work that has been studied and cited more widely than any other modern social scientist (Bond (2002). Treating the scores Hofstede developed for 53 nations as 'texts,' I use the BAM typology as a research method to analyze his four cultural dimensions, six matrices, and clusters of countries on the matrices.

In the course of this inquiry I reach several conclusions. First, Hofstede can only justify three dimensions, one for each of his principle factors. Second, his factors approximate the universal dimensions, which I theorize, define the ancient trigrams in the *I Ching*. This could account for the consistently reliable results obtained, in spite of the critical shortcomings of his research and model, as described by both his supporters and his detractors (House, 2001). Third, the clusters that Hofstede defines with his six (2x2) plot graphs are inconsistent with the data that he provides. And, fourth, the dimensions lose their descriptive power and significance when taken outside of the context of all the dimensions.

1.C.7. Remodeling Hofstede's Data with Three Dimensions

In this chapter I translate my analysis of Hofstede in a number of diagrams and tables. This is based on a modeling of the data according to a three-dimension binary cube whose semantic properties have been appropriated from the *I Ching* trigrams. I use this typology to illustrate how the clusters I derive from Hofstede's data, represent the countries in cultural groups or types that can be understood more clearly using the characteristics of the *I Ching* trigrams.

I use several diagrams and tables to translate the substance and significance of Hofstede's data into an interpretive paradigm. These are not simply helpful visuals for supporting the text. Rather, the text serves to explicate the diagrams and tables. The result is a method of reinterpretation and communication that gives the data new meaning, clarity, and a simplicity that can be appreciated by the average person.

1.C. 8. Summary, Conclusions, and Future Research

In Chapter Eight, I review the dissertation and conclude that the *Binary Archic Matrix* is a viable candidate for unifying a diverse range of cultural models. I propose extending my research to: (a) account for cultural clusters by score range proximity in semantic space; (b) to understand cultures according to the score spreads of sub-dimensions; and (c) to confirm the tilted axis theory. In order to improve cultural collaboration, I plan to develop an instrument that will create cultural profiles for countries and organizations using the BAM typology.

Having provided a brief overview of the problem and a chapter outline, I proceed in Chapter 2 to articulate the general methodology.

Chapter 2

> (T)he holy sages ... determined the Dao of heaven and called it dark and light. They determined the Dao of earth and called it yielding and firm.
>
> *The I Ching*, (Wilhelm, 1950:264).

Methodology

This chapter discusses the methodological foundation of my dissertation, which examines the nature of culture and cultural dimensions that might be common to all levels of culture. I was interested in those studies in the fields of sociology, social psychology, organizational behavior, management theory, and philosophy that focus on various attributions of universal dimensions of culture As part of my investigation (see Appendix I). From this group of studies, I have selected Hofstede's (1980/ 1991) works on culture for a more detailed examination.

Hofstede's research has influenced and informed much of the scholarship in organizational culture over the past twenty years related to organizational culture, cross-cultural collaboration, international joint ventures, mergers and acquisitions, and offshore executive assignments. This is relevant because I see my research contributing to an improvement in cross-cultural collaboration.

2.A. Toward an Architectonics of Cultures and their Centralizing Texts

The methodology and research method developed by Watson in *The Architectonics of Meaning: Foundations of the New Pluralism* (1985 / 1993), and elaborated and deployed by Dilworth in *Philosophy in Global Perspective: A*

Comparative Hermeneutic of the Major Theories (1989), is the basis for my methodology and research method. The research method of this dissertation is a typology based on the eight Chinese archetypes from the *I Ching, Book of Change.*

When the *I Ching*-based typology is presented as a three-dimensional (2x2x2) binomial model, it forms a model called the *Binary Archic Matrix* (BAM). This forms the basis of an architectonics of culture. Dilworth (1989:154), represents architectonics as "the art of constructing systems," such as Kant's "complete schema of a transcendental philosophy" (Dilworth, 1989:155). Thus, architectonics is the structured representation of knowledge.

In this sense the BAM model is a tool for the systematic interpretation of texts that purport to convey ideas and knowledge about cultures. It holds promise for the study of culture at the macro level (national), mezzo level (organizational and institutional), and micro level (group, sub-group, and family). It also provides a potential research method for the analysis and profiling of cultures. The BAM model and matrix typology is itself justified by a set of reasons that constitute a supportive methodology.

Before elaborating upon my methodology and research method I provide a brief overview of some important philosophical and philosophy of science concepts that are overlapping and interrelated. Before turning to a discussion of methodology in general, I provide a very brief overview of the concepts of ontology and epistemology because they form a background to my methodology.

The explication of ontology, epistemology, and methodology is important to this thesis because these concepts, explicitly or implicitly underwrite all social

science inquiry (Morgan, 1983; Burrell & Morgan, 1985; Watson, 1985; Gioia & Pitre, 1990; Newman, 1992:60-86; Collins, 1998; Niinuluoto, 1999; Lakoff & Johnson, 1999:94-117). The aim here is to make these conceptual issues as they relate to this thesis, as explicit as possible.

2.A.1. Ontology

My thesis advances under the assumption of ontological realism. Ontologies are beliefs, primarily beliefs about the nature of being and reality. They constitute assertions, assumptions, and arguments about the nature of human existence, and often include such questions as "what is life?"; "what is the meaning of life?"; "what is it all about?"; and "is there a real world out there or not?" (Churchland, Pat 1990:239-276; Churchland, Paul 1990:1-96 / 1995:42-45).

Many ontologies usually presuppose (or include) the notion that prior to any inquiry there is something called "reality" that exists as a tangible, independent, *a priori* phenomenon (Shapin & Shaffer, 1985:19 / 80-110). Thus, some ontologies accept an 'existence' that is present, prior to the scholars who are trying to find, describe, and explain this existence.

Ontologies cannot be separated from or distinguished from the specific ways of human perceiving and apprehending that are the outcomes of experiencing the deep enculturation processes. Generally, ontologies, are derived, elaborated, clarified, or deduced from experience. (Niiniluoto, 1999; Lakoff and Johnson, 1999:94-117; Donald, 2001:211-214).

Ontologies can also be called belief systems, meaning systems, ideologies, and/or worldviews, as properties of the human brain/mind. Thus, Niiniluoto

(1999:21) states that: "as an ontological thesis, realism is the doctrine that there exists a mind-independent reality." Included in many ontological realisms are not only ideas about "what is real," but also notions about "how to" apprehend this reality or "real world." These "how tos" can be called epistemologies.

2.A.2. Epistemology

Epistemologies are arguments about the various ways of gaining access to reality and/or producing knowledge about reality (Alcoff, 1998). They include ideas about the nature of knowing and its subject matters. Epistemologies are usually entailed in ontologies as part of a worldview, and consist of arguments about whether reality actually exists and if so, then how it can be known.

Some epistemologies advance the position that reality actually does exist. These become arguments about the nature of the relationships between that reality and the ways of gaining knowledge about "that reality" (Smith, 1997:38-51). These epistemologies are typically called epistemological realism (Niiniluoto, 1999).

Realist epistemology is often the articulation of explicit criteria to ascertain the validity and/or reliability of knowledge and to establish its limits (Cooke, 1983). They are rarely just theories about ways of producing knowledge, but rather, they are also arguments about the nature of knowledge itself (Niiniluoto, 1999; Lakoff and Johnson, 1999).

In the social sciences, realist epistemologies often address the role of deduction, induction, intuition, observation, speculation, reason, analogy, discovery, and invention in the formation of concepts, constructs, methods, theories, and interpretations (Wallace, 1971). Central to many scientific epistemologies or

epistemologies of realism are the ideas of gaining access to reality via systematic theorizing and/or observing (Bunge, 1996:7-12). This thesis conjoins ontological realism with epistemological and methodological realism.

Generally, methodologies are the sets of general justifications and requirements that link particular epistemologies with specific ways of conducting inquiry (Babbie, 1996:2). Methodologies tend to occupy the intellectual space between epistemologies and modes of theorizing, and/or methods of research (Newman, 1997:60-86).

2.A.3. Methodology

Inquiries that relate in any way to apprehending cultural dimensions requires an appropriate methodology. This section examines the broad scope of methodologies as sets of criteria for the overall, general justifying and carrying out of inquiry, especially such pursuits as theorizing and/or researching (Selltiz, Wrightsman & Cook, 1976:12-50; Neuman, 1997:60-86). Generally, methodological issues address the question as to what the best methods are for pursuing knowledge (Niiniluoto: 1990:2).

In this thesis methodological realism is advanced as an appropriate methodology that is consistent with ontological and epistemological realism (Niiniluoto, 1999:160-205). Some ideas about methodologies are set out next. Two sociologists, Lazarfeld and Rosenberg (1955:*v-vi*), address the question of what methodology is. They write,

> Methodology . . . (has) developed as a bent of mind rather than as a system of organized principles and procedures. The methodologist is a scholar who is above all *analytical* in his approach to his subject matter. He tells other scholars what they have done, or might do, rather than

> what they should do. He tells them what order of finding has emerged from their research, not what kind of result is or is not preferable. This kind of analytical approach requires self-awareness on the one hand, and tolerance, on the other. The methodologist knows that alternative roads can reach the same goal.

Since the formulation of this version of methodology, several trends have emerged, and some methodologies now consist of general organized principles that justify specific sets of procedures for conducting inquiry (Kaplan, 1964:18-19); Tashakkori and Teddlie, 2003). In addition, some methodologies are also prescriptive, suggesting to scholars what they ought to do in order to carry out scholarly and /or scientific inquiry (Bunge, 1999; Cooper and Hedges, 2003). In these endeavors, methodology . . . "lies at the interface of theory and method and deals with matters that shape the conduct of inquiry" (Kaplan,1964:18-19).

Clarifying the links between specific kinds of research methods and their methodology is regarded as important scholarly work (Neuman, 2002:68-90). Thus, Smith (1991), called for several reconceptualizations of methodological issues in the social sciences, pointing to the conceptualization of methodology as separate from specific methods and theories.

Smith explicates some of the ways that methodologies are connected with research methods by specifying the links between what people want to know and how they ought to go about establishing that knowledge as the logic of the method. The connection between the two clarifies the way in which the course of inquiry is shaped by the phenomena being considered, the nature of the question under review, and the sort of answer that inquiries will satisfy. Smith (1991:2) points out that these conceptualizations of methodology are both critical and constructive.

> . . . these conceptualizations of methodology are also constructive - indicating what, how, where, and how much to observe - and critical - requiring us to assess how well we have handled these matters.

Methodological and research methods issues have become the focal topics in a current debate over Hofstede's works on cultures (Hofstede, 1980/ 1991/ 2001), (McSweeney, 2002a / 2002b; Williamson, 2002; Bond, 2002). The general methodological issues have been briefly noted above, not only because this debate over Hofstede's work is important for this thesis, but even more significantly, because it is important to explicate one's own methodology and research method.

2.A.4. An Interpretive Methodology and Research Method

At the most general level the methodology in this thesis should be understood to be interpretive social science (Lindkvist, 1981:23-41; Newman, 1997:61-80). Interpretive social sciences includes at least: ethnomethodology, symbolic intertactionsim, phenomenology, and hermeneutics (Burrell & Morgan, 1985:28-32, 227-259, 260-297; Newman, 1997:61-80). Several versions of the interpretive approach to the social sciences have been incorporated within the critical scientific realism (Lakoff & Johnson, 1999; Niiniluoto, 1999).

There are now disciplines such as sociolinguistics and semiotics that are entirely devoted to the study and application of interpretation (Thompson, 1983; Schleifer, Davis, & Mergler, 1992). While the methodology in this thesis is generally interpretive, it can more particularly be called a variant of comparative global hermeneutics (Dilworth, 1989).

Two early advocates of hermeneutics are the philosopher, Wilhem Dilthey, who distinguished abstract explanation from empathetic understanding (*verstehen*),

and the sociologist, Max Weber, who embraced the notion of *verstehen*, or 'understanding' by focusing on the motives that shape people's feelings and guide their decisions to act in particular ways (Burrell and Morgan, 1985:227-279; Newman, 1996:61-80). This line of reasoning resonates positively with European thinking, as expressed by a European management scholar who focuses on people's worldviews via hermeneutic methodologies. Schwaninger (1997:271) writes:

> hermeneutic methodologies . . . adopt a subjectivist worldview, emphasizing individual perceptions and interpretations of the world, and the interaction between multiple perspectives by which consensual domains are negotiated and (new) shared realities are constructed.

There are several justifications for this interpretive methodology, but the general rationale underlying it is essentially communicational. However it is also discursive and political. Schwaninger (1997:271) writes: "At the level of modeling, the hermeneutic methodologies rely on qualitative aspects, and thereby primarily on verbal expression."

Unfortunately, most interpretation is exegetical, unsystematic, and unguided by either an explicitly articulated theory of interpretation or a set of explicitly stated criteria (Lindkvist, 1981). Fortunately, there is an increasing body of literature that is redressing this trend, articulating explicit criteria and procedures for the systematic interpretation of textual materials in general (Cooper & Greenbaum, 1986). This also applies for those textual materials referred to as research (Noblit & Hare, 1988; Cooper & Hedges, 2003). There are several students of organizations and organizational structures who focus systematically on interpretive approaches (Denzin, 1983; Smircich, 1983; Bougon, 1983; Turner, 1983; Burrell & Morgan, 1985; Gioia & Pitre, 1990; Askanasy, Wilderom, & Peterson, 2000).

2.A.5. Frameworks for Systematic Interpretation

One way to ascertain people's worldviews is to study what they write. This variant of hermeneutics focuses on the study of written textual materials. "Hermeneutics is concerned with interpreting and understanding the products of the human mind which characterizes the social and cultural world" (Burrell and Morgan, 1985:235-236). This approach to hermeneutics focuses on texts and the meanings they convey.

This form of hermeneutics "emphasizes a detailed reading or examination of text . . . to discover meaning embedded within text (to) get inside the viewpoint it presents as a whole, and then develop a deep understanding of how its parts relate to the whole" (Newman, 1997:67). This variety of inquiry is included as a form of systematic, interpretive social science. Thus, regarding the interpretation of published field research, Noblit and Hare consider their approach a form of meta-ethnography, which they describe as comparative textual analysis of published field studies. Referring to this, they write (Noblit and Hare 1988:5-7): we are interested

> in how . . . researchers interpret and explain social and cultural events. . . . We are also convinced that all synthesis, whether quantitative or qualitative, is an interpretive endeavor. When we synthesize, we give meaning to the set of studies under consideration. We interpret them in a fashion similar to the ethnographer interpreting a culture.

The methodology in this thesis encompasses the notion of interpretation or hermeneutics that focuses on textual analysis. Lindkvist regards textual analysis as a form of systematic model building. According to his model, textual meaning can reside: a) with the producer (the author's intentions); b) with the consumer (the

subjective notions the reader brings to the text); c) with the interpreter (or scholar); and d) with the text itself (Lindkvist, 1981).

My approach to interpretation is exemplified by the works of Watson (1985/1993), and Dilworth (1989), which I discuss in the following section.

2.B. Building on the Interpretive Approach of Watson and Dilworth

My work parallels and extends the interpretive approach to texts developed by Walter Watson (1985/1993). His architectonics of meaning was extended and deployed by David Dilworth, who termed the approach 'comparative global hermeneutics,' that includes all other interpretive schemes, East and West. My approach, like Watson and Dilworth's, is a form of interpretation that articulates a comparative and global interpretation of texts.

2.B.1. Watson and Dilworth's Architectonics

Watson (1993:94-95), notes that in the preface to the *Critique of Practical Reason,* Kant (1909:95-96), uses the term architectonics to discuss the constructing of knowledge from its parts into a whole. Watson (1993:94-95) quotes Kant (1909):

> When we have to study a particular faculty of the human mind . . . we must begin with its parts. . . . There is another thing to be attended to which is of a philosophical and *architectonic* character, namely to grasp correctly *the idea of the whole, and from thence to get a view of all those parts as mutually related* by the aid of pure reason, and by means of their derivation from the concepts of the whole. This is only possible through the most intimate acquaintance with the system

It is both Watson and Dilworth's contention that architectonics provides a starting point for the constitution of meaning. It can be used to analyze, understand, and compare texts according to a fixed and limited number of linguistic elements.

Dilworth (1989:154-171), elaborates upon the idea of architectonics but prefers to the call the application of this approach 'a global comparative hermeneutics.'

2.B.2. Watson and Dilworth's Methodology and Research Method

Watson and Dilworth set out an elaborate methodology in order to justify their creation and use of a typology to categorize the architectonic meaning in all texts. For both authors, the methodology is everything that exemplifies, explains, and justifies the creation of a typology they call an archic matrix. In Watson's book, five of the six chapters are devoted to the methodological aspects, while one chapter articulates the typology as a research method. In Dilworth's book, almost all of the book is devoted to both methodological and research methods issues.

Interpretive analysis of texts has a long history in the social sciences, as well as in the study of the sciences (Thompson, 1982 & 1985; Holton, 1998:1-24; Noblit & Hare, 1988; Krippendorf, 1980; Rosengren, 1981). Recently, the interpretive modes of inquiry have been extended to the global level (Collins, 1998; Dilworth, 1989; Watson, 1993).

Watson and Dilworth's typology is their 'archic matrix, which is a research method that produces archic profiles for texts. These profiles are interpretations of the texts that then enables a comparative interpretive of archic profiles by applying the typology to two or more texts. Their typology is thus an interpretive tool that also constitutes what Noblit and Hare (1988:9-20) call a form of textual analysis.

2.C. A General Overview of Watson's Approach

Watson (1993:155), admits to seeking the same sort of thing in his four variables that Aristotle sought as *aitiai*, while at the same time emphasizing that the

variables are not intended to be fully identical to Aristotle's causes. His methodology supports the development of an archic matrix consisting of four distinct descriptive categories he calls archic variables. These categories are inspired by Aristotle's concept of four causes: material cause (the matter); formal cause (the shape or structure of the matter); efficient cause (how the matter got started); and the *telos* for the matter (its purpose and/or goal).

Watson refers to the closely related elements that compose or define each pure mode as affinitive. His notion is that affinity entails a group of elements or components that are well suited to one another, that seem to belong together, and are somehow naturally associated (Watson, 1993:151). It is not that they are always found together in the real world, but rather, he says, that when they are found together they constitute pure modes. According to Watson, one can begin from any one element and show that it naturally implicates the other three elements because they belong together.

Watson names the four archic variables: perspective, reality, method, and principle. He organizes each of the four according to four main schools of Greek philosophy: the Sophist, Democritean, Platonic, and Aristotelian, and identifies the specific descriptive element for each school that relates to each variable. Thus, each school of philosophy is represented by four archic elements, one for each variable.

Four elements constitute an archic profile. The four schools of philosophy are 'pure modes' or pure types, because each profile is internally consistent. It is quite evident, that its internal consistency derives from the fact that the four archic elements for each pure mode are obtained from a single philosophical source.

Watson intends to use this archic matrix for analyzing and profiling all philosophical texts; that is, to profile texts by identifying the four archic elements that descriptively represent the position taken by the author according to the four archic variables. Therefore he characterizes texts in terms of the variables. Profiles will then consist of archic variables made up of elements from more than one pure mode. Further, Watson calls these profiles, mixed modes. He proposes using the archic matrix as a method of profiling other works of literature, religious texts, and art, and for studying culture in general. The four archic variables, four pure modes, and the sixteen archic elements are represented in Table 2.1 and Figure 2.1.

Watson argues that most, if not all, important philosophical discourse will be grounded, at least in principle, according to the defining text(s) of a culture. These texts include such works as the Judeo-Christian Bible; the Upanishads and the Vedas from India; and the Confucian Analects from China, to name just a few.

In addition, Watson uses the word "architectonics" to include his typology as a research method and profiling technique in addition to being a methodology. He does this as a way of justifying and establishing it as an overarching interpretive scheme. The methodology is based on: 1) the fact of pluralism (there is more than one valid formulation of the truth); and 2) the assumption that this fact resides or inheres in elements that are inseparable from the nature of thought itself.

According to Watson, two inherent limitations and therefore problems of philosophical discourse have been: (a) its diverse and conflicting claims about truth, and (b) the observation that philosophers can apparently perceive other philosophies only through the lens of their own 'true' philosophical notions.

His research method is justified and supported by an elaborate set of arguments based upon an extensive overview of philosophy and accompanied with many examples. These arguments include definitions of all the components of the archic matrix, plus supporting quotations and illustrations drawn from philosophers. This material makes up Watson's methodology of scientific realism, and constitutes in part, the justifications for my own methodology.

Watson (1993:151-170), presents a process whereby he deconstructs and then reconstructs. This in turn constitutes a form of analysis followed by synthesis. His general strategy seems to be inductive, building his architectonic approach out of the arguments advanced by the many philosophers. Thus his methodology and research method are an outcome of these deconstructing and reconstructing processes.

In what follows, I will set out Watson's methodology and research method in some detail and then link this methodology and method to my own thesis. Before Watson sets out his entire methodology, he describes the problem that his methodology and research method is designed to solve.

2.C.1. Watson's Justifying the Study of Pluralism

Watson observed what he contends is the inevitability of philosophical inquiry, pluralism, or multiple philosophical approaches. This is the condition whereby large numbers of advocates of "the truth" hold to widely differing versions of what the truth is and how to find it.

Watson (1993:*xiv*), posits that the challenge of pluralism is that it runs counter to human nature due to "habits of thought deeply ingrained in both the

individual and the race." These habits, he adds, consist of regarding one's own views or philosophy as the only true one, deeming all other views as false. Therefore, philosophers are bound or constrained by their unavoidable forms of parochial myopia. Watson proposes that once this fact is recognized, it becomes necessary to have available a model that is capable of addressing the problems of communication, and that can bridge different philosophical schools, alternative theoretical approaches, varying paradigms, and conflicting frameworks.

Watson himself is of the school that argues that pluralism is the unavoidable and necessary sphere within which all philosophies exist, contend, thrive, and are set out. One of his aims is to confront this pluralism and try to discover if there are underlying principles of thought that govern the different versions of the truth.

2.C.2. Watson's Justifying a Focus Upon Philosophy

According to Watson (1993:xiv), all ideas and/or belief systems are underpinned by principles that form philosophies. Watson, 1993:*xiv*), states:

> the special arts and sciences are particular embodiments of philosophical principles. . . . (moreover) all of the sciences and arts are the expressions of philosophical principles.

Thus for Watson, all of the arts and science are manifestations of underlying principles that are inherently philosophical. Further, Watson (1989:xiii-xiv), sees the history of philosophy as a full repository for all human thought, such that there is no form of thought that does not have philosophical underpinning, writing:

> Differences of approach within the arts and sciences are not longer seen as differences to be settled by a simple appeal to the facts, but as differences of approach or framework or style or paradigm that determine what the facts are and that reflect ultimate philosophic differences.

Watson takes an approach that is a mode of inquiry into those aspects that make up the primary meanings conveyed in philosophical texts, because these philosophies convey all of the ways that people have thought and think.

2.C.3. Watson's Justifying Texts as Subject Matters

According to Watson, a model is required that is capable of studying and organizing the range of meanings entailed in all philosophical texts in order to tap into the overall structure of arguments by ascertaining the conceptual frameworks, root metaphors, and semantic schemata that are expressed in those texts. Philosophy is 'what philosophers have written about,' and philosophies are text conveyed insight into some purported aspect or claimed understanding of truth itself.

In addition, Watson extends his thesis to include all disciplines and their texts, and indeed, all texts. Furthermore, he proposes the treating of nature and society as if they were texts, stating, "(T)his primacy of the text is characteristic not only of philosophy today, but of all disciplines. All works of art have become texts in a broad sense of that word, and similarly social behavior and institutions, and even nature itself, have become texts for us to interpret" (Watson, 1989:5). This argument demands a mode of textual analysis that can accomplish such a task.

2.C.4. Watson's Justifying a Philosophical Approach to Philosophy

Watson takes a philosophical approach to philosophies in establishing a necessary translation between them, since such a process might enable philosophies that are seen to be incompatible from one perspective, to be reconcilable or even related at some fundamental level. Further, Watson (1993:8), refers to the tasks of philosophers in terms of three philosophical stages: investigation of existent things;

having knowledge of the matter brought into existence as a result of investigation; and finally, after a period of gestation, turning to the question of how we know.

For Watson, nothing is excluded by these tasks, which are exemplified in his own work. He states that both ancients and moderns alike, lack a method for discovering the nature of things, including presumably the nature of thought. Thus, he proposes the archic matrix as a solution to this issue. Central to his thinking is the notion that philosophies are constituted by a cycle of reciprocal, epochal shifts from being to knowing to meaning, and back to being again (Watson:1993:8-9).

Although Watson acknowledges the linguistic turn as an important development in focusing upon language and interpretation as core subject matters. In employing philosophers of interpretation and language as his primary sources he write: "Even the world has become a text to be interpreted, (and) it seems that a theory of interpretation is what is needed to master the world" (Watson, 19913:8-9).

2.D. The Archic Matrix

Watson proposes the archic matrix and architectonics as an interpretive solution. The matrix now becomes a research method, a tool for the systematic interpretation of texts. The matrix is set out below, following which each of the variables and their elements are then explicated (Watson, 1985/1993:151).

Four Pure Archic Modes	the four Archic Variables, each with four Archic Elements			
	Perspective	Reality	Method	Principle
Sophistic	personal	existential	agonist	creative
Democritean	objective	substrative	logistic	elemental
Platonic	diaphanic	noumenal	dialectic	comprehensive
Aristotelian	disciplinary	essential	problematic	reflexive

Table 2.1 Four archic variables, sixteen elements, and four pure modes.

Watson configures the archic matrix as a 4x4 two-dimensional model, and yet he assigns it four dimensional properties. That is, he suggests mixing the elements in the possible combinations that include one from each variable. This would describes a 4^4 or four-dimensional model with r 256 (4x4x4x4) profiles. Of these, there are 4 pure archic modes, and 252 mixed modes. I have adapted the archic matrix to a diagram that illustrates it mode visually This interpretation gives the archic elements the appearance of constituting a third dimension.

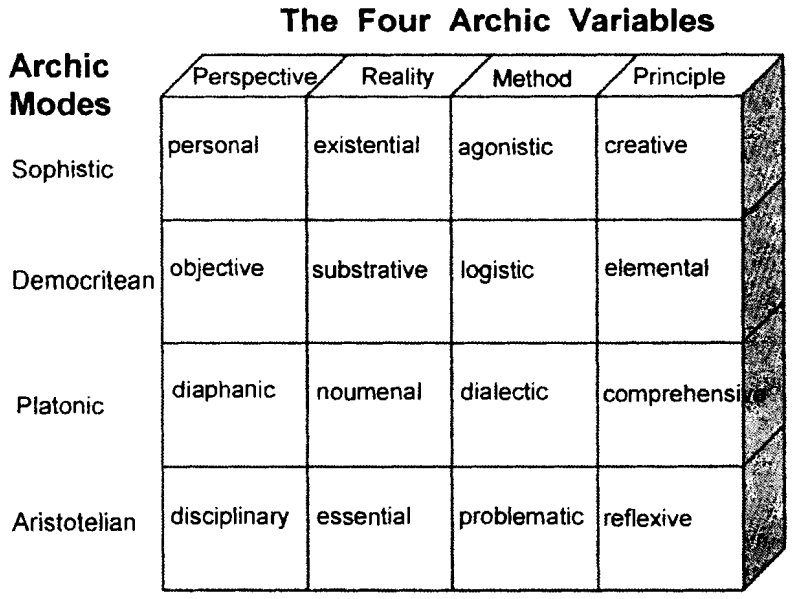


Figure 2.1 Adaptation of Watson's 4x4 archic matrix

2.D.1. Defining the Four Archic Variables and Their Sub-Categories

The four archic variables in Figure 2.1 are from left to right: perspective, reality, method, and principle. According to Watson (1993:15), these four variables are the internal determinants of the meanings in all texts. Each variable is categorized according to four distinct elements, that Watson asserts are mutually exclusive, and which form the basis of all archic profiles.

2.D.1.a. Perspective: the first variable

Perspective is the "authorizing voice of a world-text" (Watson, 1993:27), and the voice of the author in a text. It is essential to the text because the author of a text cannot disappear inside or become completely separated from the text. The *personal* perspective is "subjective." This represents and leads toward multiplicity. The *objective* perspective is "impersonal," removing the knower from the known as much as humanly possible. The *diaphanic* perspective is "revelatory," supposedly eliminating subjectivity and objectivity to reflect something deemed absolute, and perhaps divine. The *disciplinary* perspective consists of many independent and impersonal perspectives. It reflects shared or group-based views, and is impersonal because it is not the view of any one person, but is achieved by consensus.

2.D.1.b. Reality: the second variable

Reality relates to what philosophers regard as "real in the subject matters of their texts. Every text not only has a perspective, but a perspective on something. That on which any particular text has a perspective is its subject matter, and that on which texts in general have a perspective is reality" (Watson, 1993:41). This object or subject matter of the text's perspective may or may not be deemed fictional. It is those parts of the text that put forward a dominant sense of what is real. In the semantic context of a text, reality typically signifies as a universal matter, such as being, knowing, or meaning. However, some hold that what is seen as reality is not the "real" reality.

An *existential* reality is one which is nearest the author's own perspective, experientially. It is both apparent and phenomenal, and is most evident in its effects.

Substrative reality is "the object as it is in itself, apart from its effects on us" (Watson, 1993:50). It is regarded as independent of the perceiver, and yet it is the conduit of the effects whereby the perceived and perceiver are influenced to varying degrees. Those for whom actual reality is substrative, often contend that perception actually changes reality, so that reality itself consists of that which is seen to be reality, in addition to the effects of perception on it. *Noumenal* reality is perfect, imperishable, transcendent, supersensible, ideal, and intelligible as distinct from phenomenal or existential reality. *Essential* reality is what a thing is in itself; its essence and significance apart from our experience of it.

2.D.1.c. Method: the third variable

Method is the order, structure, form, and connectedness of the argument that aligns or orients a perspective in a text to the form of reality presented in that text. *Agonistic* methods are pragmatic, operational, or rhetorical and see validity in whatever works. They eschew other methods, even if they are potentially beneficial. *Logistic* methods define conclusions that follow from premises and contend that the whole is determined by the parts. *Dialectical* methods articulate the parts, but only in relation to the whole. The truth as a whole is that which constitutes a unity of opposite parts. *Problematic* methods account for all the facts, with the parts being indeterminate until the whole is articulated. They generates an organic whole whose meaning is not defined by the success of the outcome.

2.D.1.d. Principle: the fourth variable

Principles are the ends or purposes that authors intend. Without aims, an argument cannot exist, so they cause or permit a text to function. *Creative*

principles are the ones we have appropriated as our own, and help bring new things into existence. *Elemental* principles are those, which persist through all changes. They determine the form of the unchanging whole (Watson, 1993:126). *Comprehensive* principles contribute to the design of the whole. In this sense they define functioning, in which everything is seen as ultimately working out for the best. *Reflexive* principles are those, which cause functioning. If they are self-sufficient or independent, they become first principles (Watson, 1993:114).

2.D.2. The Archic Matrix as a Structure of all Thought and Knowing

Watson's archic matrix typology (Table 2.1), is represented as a sixteen-cell matrix in which each archic type is composed of four elements, one from each column or archic variable. The archic matrix consists of sixteen elements, with each profile composed of one element for each variable. Thus there is a total of 4^4 or 256 different archic profiles (Watson, 1991:160). The four elements in each row are conceptually related and constitute archic profiles that Watson terms 'pure modes'.

For Watson, "the matrix schematizes the organic structure of knowing in its multiple modes" (Watson 1993:160). He asserts that it provides a key to the basic principles of interpretation, and can therefore be useful in ordering all of intellectual history. It was his expectation that because the archic matrix is totally inclusive of all philosophies, it could provide a means of illustrating the fundamental relatedness of diverse philosophies, and would thus have a broad application.

2.E. Dilworth's Elaboration: Emphasizing Analysis and Synthesis

Dilworth (1989:158-160), adapts the technical nomenclature for his methodology from Watson (see Watson, 1993:*ix-x*).

2.E.1. Dilworth's Emphasis Upon Philosophies West and East

Dilworth outlines an architectonics of texts East and West in his book, setting the stage for the universality of the archic matrix on the first page with the statement that "perfect perceptions of the world and of human life have been realized in history" (1989:1). The forms and expressions include music, art, and literature in addition to all philosophical ideas. At their best they represent the great works of civilization, and they require interpretation within and between cultures, both synchronically (at one point in time), and diachronically (across time).

Dilworth (1989:1) lists a number of examples of those whose works have left an indelible mark on human history, including thinkers from Greece, China, India, Japan, Germany, Italy, and England. He establishes the importance of the Chinese to his theory about the universality of the archic matrix by dedicating two of his six chapters to Chinese philosophy: *The Principles of Confucian Philosophy*, and *Chinese Philosophies in World Perspective*. In this way he hopes to establish the value of inclusiveness in the Watson/Dilworth model in making comparative descriptions and judgments, and demonstrating its universal east-west applicability.

2.E.2. Dilworth's Expansion of Methodological Precedents

Dilworth aspires to expand the support base for the matrix by identifying additional methodological precedents for it. While the potential for an overarching, universal, architectonic reconstruction of all philosophies was recognized by such philosophers as Leibniz, Hume, Neitzche, but it was explored and became central to the thinking and works of only a few philosophers, such as Aristotle, Kant and Pierce, who use the word architectonics to describe their synthesis approaches.

Kant employed the word architectonics to emphasize a synthesis that had been preceded by analysis (Dilworth, 1989:10-11). While Kant's synthetic approach reaches back to Aristotle, his "continuity of philosophical strains . . . look back on the methodological revolution initiated by Bacon and Descartes," repudiating their logicist methodological forms (Dilworth, 1989:9). Dilworth (1989:9), writes that Kant's methodology is different in kind in that it characterizes

> . . . our cognitive faculties as combining the apparently diverse elements of experience in holistically constitutive ways. (Kant's) synoptic method discriminates among parts according to an organic model of organization

This is in contrast to formal logistic approaches that adopt an epistemic rule of parts outside of wholes. Kant's synoptic strategy is captured (Dilworth, 1989:10):

> . . . in the organization of his own critical project, namely, the architectonic distribution of transcendental philosophy into three synoptically organized critiques.

2.E.3. Dilworth's Architectonics

Dilworth (1989:11) presents the idea that his own "comparative hermeneutic seeks to organize the variety of texts in the history of philosophy and contemporary interpretive practices into networks of internally consistent theoretical formations." This aim is tenable despite the observation that "some alleged philosophical texts or traditions may fall short of internal coherence" Dilworth, 1989:11).

Dilworth contends that his approach focuses upon the 'career text' of an author, which ". . . although it may amount to many separate volumes and many thousands of pages - must be assumed to constitute a single, internally coherent train of thought" (Dilworth, 1989:11). I can understand his thinking to the extent

that writing is an extension of authors, and not something the authors do, that is separate from or other than themselves. Dilworth then employs an author's words and writings to construct an archic profile, in the same way the culture of a country may be ascertained through a representative number of individuals.

Dilworth sets the methodological stage for (what he terms) an intellectual renaissance by identifying the requisite resources, namely the multiple heritage of world philosophy. He expands his philosophical boundaries to include examples from literature (Shakespeare), music (Mozart and Bach), art (van Gogh and Taoist paintings), science (Newton), and Japanese culture (Zen gardens) and Zen Buddhism (Dogen). Dilworth's (1989:41).architectonics seeks to:

> cultivate this potentially fertile domain of intertextual analysis as Aristotle originally envisioned it . . . by transforming Aristotle's textual principles into a first philosophy and prolegomena to any comparative hermeneutics.

2.E.4. Dilworth's Research Method: Synoptic Architectonic Analysis

Dilworth (1989:8) proposes a " . . . synoptic method of architectonic analysis to coordinate the essential principles of thought that inform the great books of world philosophy." His central task is to design a way of apprehending the essential principles that supposedly govern all thought. These governing principles become manifest in the 'great' world-texts of philosophy. For Dilworth, the 'way of apprehending' these essential principles is via a synoptic method that has three components. The first two components (Dilworth, 1989:8), address textual aspects:

> Such a method must proceed on two levels of textual operation. First, it requires a holistic orientation to the reading of individual classics. Second, it requires a resolution of the points of convergence and divergence . .

The third component focuses upon the relationship between the wholes and the parts in terms of substantive content (Dilworth, 1989:30).

> (the synoptic method) . . . converts a problem or subject matter into an analysis of generic and specific, relevant and irrelevant features. The whole and the parts are seen together (hence synoptically) and treated as form and matter of the same holistic function.

For Dilworth, as with Watson, the most developed worldviews in Greek philosophy are represented by Democritus, Plato, Aristotle, and lastly the Sophists (because of the inclusiveness their synoptic approaches). Dilworth follows Watson's example of examining the four schools of Greek thought from the perspective of Aristotle's four causes, arguing that together, these four distinct Greek world-views are fully inclusive and include all other worldviews. His plan seems to be a reconstitution of Aristotle in which he converts the interpretive potential of Aristotle's text and four causes into a broader architectonic of theories and interpretive model.

Dilworth agrees with Watson, that Aristotle correctly views the purpose of metaphysics "as an architectonic inquiry into the first principles of thought" such that Aristotle's metaphysics depicts "the historical manifestations of worldviews organized into their various interconnections" (Dilworth, 1989:13). For Dilworth, the legacy of Aristotle's message is that "(T)he passage of time in no way diminishes the relevance of the major works of philosophy" (Dilworth, 1989:12). By this he seems to be saying that Aristotle's ideas cannot be dismissed, even by post-modern thinkers.

2.E.5. Dilworth's Approach to Constructing the Archic Matrix

Dilworth (1989:34-42), explicates the evolution of the archic matrix slightly differently from Watson. He starts by identifying the four archic elements that apply to the texts of Aristotle (384-422 BC), one for each archic variable. Then he adds the four elements attributed to Plato (c.428- c.348 BC), and the four elements attributed to Democritus (c.460- c.370 BC), based on an interpretation of Aristotle's analysis of their writings (Table 2.2).

It is important to understand that Dilworth want to "see earlier forms of historical and intellectual experience in light of later ones . . . (and) The texts of the Sophists, Democritus, Plato, and Aristotle are the most developed worldviews in Greek philosophy" (Dilworth, 1989:33). This typology is Dilworth's interpretation of Aristotle's reading and interpretation of Democritus and Plato. This forms a model with twelve semantic elements.

The Four Archic Variables

Pure Modes	Perspective	Reality	Method	Principle
Aristotle	disciplinary	essential	synoptic	reflexive
Plato	diaphanic	noumenal	dialectical	comprehensive
Democritus	objective	substrative	logistic	elemental

Table 2.2. the archic elements for Aristotle, Plato, and Democritus (Dilworth, 1989)

Dilworth feels the typology at this stage is missing a category. Based on his reading of Aristotle's *Metaphysics,* Dilworth adds a set of elements for the Sophists (400 BC), an influential, heterogeneous group of itinerant scholars who stood in direct opposition to Democritean philosophy. This constituted a fourth 'pure mode that completed the typology with sixteen archic element categories.

The Four Archic Variables

Pure Modes	Perspective	Reality	Method	Principle
Sophists	personal	existential	agonistic	creative
Democritus	objective	substrative	logistic	elemental
Platonic	diaphanic	noumenal	dialectical	comprehensive
Aristotelian	disciplinary	essentialist	synoptic	reflexive

Table 2.3 Adding the Sophist mode to the archic matrix (Dilworth, 1989:42)

Dilworth (1989:42) asserts that each "of the sixteen variables represents an archic factor that is irreducible to any another" (Table 2.3). He further contends that this transforms Aristotle's own textual principles into a "first philosophy" and prolegomena to any comparative hermeneutic, that requires reconstituting and recharting "more thoroughly than Aristotle did, the primary sources of Greek philosophy for their first principles" (Dilworth, 1989:41).

If Table 2.3 fully represents the variety of semantic variability, it will describe the essential features of all texts. If it does not, then it will have to be expanded or redefined "until it is a self-completing set" (Dilworth, 1989:42). However, Dilworth suggests "that we do in fact have a complete set . . . and that Aristotle's four causes, transformed into a set of archic variables of philosophical texts . . . generate a multivariate typology of the formal possibilities of philosophical interpretation" (Dilworth, 1989:42).

2.E.6. Dilworth's Acknowledgement of Watson's Work

Dilworth (1989:42), believes Watson's interpretive (archic) variables are irreducible, all-inclusive, and mutually exclusive. He adds that they represent a "matrix of reciprocal yet distinguishable semantic factors" that function

interdependently. He believes they are synoptically related to Aristotle's four causes, but they represent "essentially different sub-functions of the mind (in that) each is its own kind of final cause of textual formation" in spite of being interdependent.

Dilworth applies archic matrix analysis to a number of both Western and Chinese (and other Asian) philosophical traditions and their texts. Then, Dilworth discusses, a number of Greek, Chinese, and Modern Western philosophers, historically, semantically, and comparatively, using the sixteen archic elements as a way to compare and contrast them, both intra-culturally (within their respective cultures), and inter-culturally (between cultures). Dilworth interestingly acknowledges that one could just as easily develop the same archic matrix by starting with Indian, Chinese, or Japanese thought.

In this way he establishes a link between Watson's architectonics of meaning and his own architectonics of theories, East and West. He is building on Watson's model and at the same time actually applying it to a large number and wide range of texts.

Whereas Watson's focus is theoretical, conceptually constitutive, and structural, Dilworth's thrust is more pragmatically cognitive and semantic. Watson articulates a methodology and research method for the systematic interpretation of texts, and Dilworth actually applies this framework to sets of specific texts, Western and Eastern in origin.

2.E.7. Dilworth's Elaboration on Watson: Texts Eastern and Western

Dilworth acknowledges that the richness of Asian civilizations provides the potential for unprecedented insights into philosophy today. He also contends that the enduring Asian worldviews inevitably intertwine with, clarify and confirm Western worldviews, thereby revealing a systematic relationship between philosophies East and West (Dilworth, 1989:66). Dilworth expands on this theme, suggesting the potential universality of the Confucian disciplines which includes the great Confucian Classics (Dilworth, 1989:74).

Dilworth (1989:84-85), wants to bring Eastern (Asian) texts within the descriptive purview and comparative explanatory domain of Western thought. He suggests this had previously been deemed impossible because what had been lacking were a set of bridging concepts. His solution is to interpret Chinese schools of thought in terms of the archic matrix, giving them archic profiles.

I propose that it would be useful to have an inclusive model that brings Western and East Asian thought more into descriptive alignment with each other. Hence, with this in mind, I examine Dilworth's approach to the *I Ching*, since this text has a constitutive role in my thesis.

2.E.8. The Role of the *I Ching* in Dilworth's Architectonics

This section reviews Dilworth's outline of the *I Ching*, a book that has been one of the Five Confucian Classics for over two thousand years (Chan 1967:*xiii-xix* trans. of Zhuxi). Dilworth takes many of his ideas on the *I Ching* from Chan's book, A Source Book in Chinese Philosophy (1963), noting the importance of the *I Ching* to Chinese thought (Dilworth, 1989:81).

The *I Ching* has inspired a complex body of interpretations by rival schools, each understanding it and using it in their own way (Dilworth, 1989:80). It was valued or venerated by Confucians, the Daoists, Legalists, and Buddhists. Understandably, Dilworth pays special attention to the Confucian tradition, which, he says, reflects a transmission of intellectual history, best understood though the classical texts that pre-date the Han period (BC 0206–220AD).

Dilworth mentions the *I Ching, Book of Change* a number of times, but not in the section on the Confucian Classics, of which the *I Ching* is one. Instead he assigns it its own section titled, "Yin Yang Theories and the Book of Changes" (Dilworth, 1989:79), noting that his intention is to understand the *I Ching* in light of the texts that interpret it. He gives the *I Ching* an archic profile that is primarily Platonic but with an Aristotelian Reality (Dilworth, 1989:83). An expanded discussion of the *I Ching* is included in Chapter 4.

Archic Mode	Perspective	Reality	Method	Principle
I Ching	*diaphanic* (Platonic)	*essential* (Aristotelian)	*dialectical* (Platonic)	*comprehensive* (Platonic)
Tung Chung-shu	*diaphanic*	*essential*	*dialectical*	*comprehensive*
Confucius	*diaphanic*	*essential*	*agonistic*	*comprehensive*
Plato	*diaphanic*	*noumenal*	*dialectical*	*comprehensive*

Table 2.4 Comparing the archic profile of the *I Ching* to Confucius and Plato

Dilworth's profile of the *I Ching* is clearly a Confucian interpretation (Dilworth, 1989:68), which is only one a few available interpretations. Perhaps the archic profile for the *I Ching* would be more accurate if it reflected the pre-Confucian qualities that enabled it to become important to a few schools of thought.

2.F. Summarizing Watson and Dilworth

Watson created a matrix for mapping meanings from philosophical texts and other (written and non-written) materials that spans a wide intellectual spectrum. Dilworth (1989) formulated a theory built on the methodology developed by Watson, and the research method it entails. The two closely related books represent an approach to modeling the pluralism of philosophical texts that can be applied to all texts. Moreover, they represent a way of considering philosophical semantics or the structure of language as used in philosophical texts to convey arguments.

Dilworth places considerable emphasis on Chinese philosophy, dedicating two chapters to the topic. His purpose is to demonstrate the validity and importance of comparing archic profiles across cultures and across time. Their work supports my methodology and my research method in that the *Binary Archic Matrix* generates profiles of many national cultures. In principle, this supports the typology I devise for analyzing Hofstede's survey and his dimensions of culture, and for interpreting his fifty-three national cultures 'as texts'.

The similarity between their two models is compelling, but the differences are substantial. Nevertheless, their methodologies and research methods combine to form a model referred to as a *Global Comparative Hermeneutics*, (Watson, 1993; Dilworth, 1989), which has great relevance to this dissertation.

2.F.1. The Importance of Watson and Dilworth to this Thesis

The works of Watson and Dilworth are important to my thesis in several ways. Their work explicates and justifies an elaborate scheme for the systematic and comparative interpretation of texts via the analysis and synthesis of the

meanings conveyed in a large number of books drawn from the cultures of the West and East. As a form of interpretive social science, their work:

1 articulates or exemplifies a methodology and a research method which attempt to create an all-inclusive set of categories for the interpretation of all texts;

2 systematically compares many philosophical texts within and between ancient cultures: Asian (primarily Chinese) and ancient Western (Greek);

3 systematically compares philosophical texts across time, ancient and modern;

4 addresses the importance of Chinese philosophy, focusing in considerable detail on the *I Ching* (Dilworth (1983:83);

5 attempts to locate or identify universal categories which are also diachronic meanings that tend to persist across time, thus linking past and present;

6. is deemed by them to not only be applicable to all other texts, but also to all other forms of cultural expression which they regard as if they were texts;

7 defines a 4x4 matrix for creating four-category profiles for comparing texts;

8 includes a comparative analysis of the similarities and differences between profiles in order to argue for the existence of pure modes of interpretation, i.e. internally consistent types defined by mutually exclusive archic elements;

9. underwrites my thesis and my typology for all the above reasons.

This chapter has examined the importance of the interpretive perspective as exemplified in the separate but related and overlapping works of Watson and Dilworth. Furthermore, I have specified some of the ways in which the Watson and Dilworth works are relevant to my thesis. In the next chapter I explicate in detail the binary matrix typology as a research method.

Chapter 3

> . . . there is in the (Book of) Changes the Great Primal Beginning (*taiji*). This generates the two primary forces (*yin* and *yang*). The two primary forces generate the four images (bigrams). The four images generate the eight trigrams
>
> *The I Ching: Great Treatise* II.2.5 (Wilhelm, 1950:318)

Constructing Knowledge: The Binary Matrix as a Research Method

The chapter presents a typology of culture based on and inspired by the *I Ching* system. I use this to define eight fundamental 'types' or archetypal cultures. I also use it as a research method for interpreting texts that convey ideas about the character and domains of culture(s). The model identifies three underlying domains or conditions that explain the eight cultural types in the model.

In general, binary dimensions are bipolar conditions in which one aspect such as high scores or values (which I depict with the symbol '1'), is distinguished from its complementary (opposing or contrary) aspect, such as low scores or values (which I depict with the symbol '0'). In a three-dimensional binary typology the cultural types are defined as three-digit binary numbers with numerical values. The character of each type can be found in the three digit number; its relative spatial position; and in the value of the number and whether it is high or low, odd or even.

A considerable body of multidisciplinary literature describes cultural phenomena in terms of "binarity" (Gadamer, 1985; Schleifer, Davis, & Mergler (1992:41-42). Considerable attention has been given to the ways that "binarity" contributes to the structures of meaning (Schleifer, Davis, & Mergler, 1992: 64-95).

The typology creates profiles based on eight binary types whose attributes are adopted from the *I Ching*. My analysis indicates that the eight binary types can be reduced to and explained by three all-inclusive domains that function as archetypal universals. The types are the expressions of their integration. I frame this typology as a matrix composed of two integrated matrices: a binary square that defines four types, and a binary cube that defines eight types.

3.A. Structuring the Flow Chart

The Flow Chart constitutes an eidetic typology that is described in terms of its components, its organization, and its contents. Eidetic models attempt to explicate the formation and organization of thought (Arduini, 1992:31). In most cases these eidetic models take the form of visual images often called 'mind maps,' or maps of the mind (Hampden-Turner, 1981).

My research develops these ideas by constructing a comprehensive theory of universal domains entailed in a binary typology which I have named the *Binary Archic Matrix* (BAM), because the descriptive, semantic conditions or domains can be converted into a system of binary notation, represented by 0s and 1s.

The *Binary Archic Matrix* develops a theoretical typology that consists of two interconnected models. One is based on three domains that define eight types, represented as a binary cube with eight binary triplet sub-sections. The other is based on two domains that define four types, represented as a binary square with four binary doublet quadrants. The two models are linked by the binary doublets. The components of my argument are outlined in Figure 3.1 and briefly described below.

3.A.1. Components of the Flow Chart

I begin by developing an eidetic mind map that serves as a flow chart for depicting elements of my argument (Figure 3.1). The chart consists of three main components. The first is operations, represented by ovals. These are actions taken or decisions made according to explicit rules and/or the deployment of definitions. The second component is outcomes, represented by rectangles. These outcomes are products such as figures and explanations that are the results or expressions of the operations. The last of the main components indicates the direction or flow of information and/or argumentation and is represented by arrows.

3.A.2. Organization of the Flow Chart

All the eidetic components that govern binary dimensions and their various relationships are based on rules that provide the model with integrity, internal consistency, and simplicity. These are depicted in the flow chart (Figure 3.1), which culminates in the *Binary Archic Matrix*, and a square-cube typology (Figure 3.17).

There are twenty-four elements in the flow chart, identified by the letters A to X. These elements are divided into three clusters. The first cluster (3.A), composed of twelve elements [A-L], employs symbolic logic and binary numbers as both a form of notation and as a set of decision-making rules. I use these clusters to explain the development or construction of a Binary Matrix [L]. This binary matrix is a model that integrates two dimensions (in the form of a 2x2 matrix) with three dimensions (in the form of a 2x2x2 matrix). The second cluster (3.B) is composed of five elements [M-Q]. I apply these steps as a system of symbolic logic and notation to a set of ancient symbols found in the *I Ching* [N & O].

In the third cluster I 'mine' the symbols for symbolic meaning and then import these meanings into the binary matrix [L] to form the *Binary Archic Matrix* [W]. This cluster, which is composed of seven elements [R-X], is explained in two ways. The first way adds a verbal descriptive face onto the binary matrix. I achieve this with a semantic model that is structurally equivalent to the binary cube, in which the attributes of the eight trigrams in the *I Ching* (Wilhelm, 1950) are used to characterize the triplets in the binary cube [S]. The process is described in detail in Chapter 4. I then analyze the eight trigrams in order to ascertain the underlying conditions that explain the trigram attributes and would thus correspond to the three binary dimensions of the binary cube matrix.

The ten operations located in the middle column are used to produce one or more outcomes. Those outcomes relate to the *I Ching* bigrams and their binary doublet equivalents (two-domain conditions), are on the left side of the flow chart (Figure 3.1). Those outcomes that relate to the trigrams and their binary triplet equivalents (three-domain conditions) are on the right side of the flow chart. The organization and content components of the Flow Chart, plus the interconnections between them explicate the methods of this thesis.

Finally, I apply this internally consistent structural model to specific parts of Hofstede's texts, namely those portions that comprise his survey and analysis of culture, and more specifically his four cultural domains and the scores he derived on each dimensions for fifty-three nations (fifty countries and three regions) [X]. The organization and contents of the Flow Chart are briefly depicted in the Flow Chart Outline (Table 3.1).

3.A.3. Content of the Flow Chart

The contents and organization of the Flow Chart are detailed in this chapter and subsequent chapters of the thesis. Returning to the top of the mind map, I adopt the *taijitu* as a model and metaphor for my typology, metaphor being the primary basis for language and thinking (Lakoff & Johnson, 1999). I also analyze the *Early Heaven Sequence*, a circular arrangement of the trigrams in the *I Ching*. By drawing links between the trigrams whose symbols have two common lines, I produce a diagram that can be interpreted as a cube (Chapter 3.B.2), [O]. I suggest using this trigram cube as a matrix for interpreting representations of culture. I submit that the trigram conditions in the model can be applied in order to interpret, describe, or characterize the domains of culture(s).

The cube matrix is a useful interpretive tool for apprehending and discussing text conveyed versions or notions of culture. The eight basic types in the typology (the eight sections of the cube) obtain semantic qualities by giving each type the characteristics of the trigram whose symbol has the same binary value. This provides an easy way to visualize and conceptualize this version of cultural domains and the cultural types they define. Moreover it demonstrates the feasibility of the BAM typology.

I employ a symbolic logic for developing the *Binary Archic Matrix* which is based on rules that govern and explain the relationships between binary numbers. The lines in the *I Ching* that define *yin* (— —) divided, and *yang* (——) undivided, are symbolically equivalent to the binary digits 0 (*yin*) and 1 (*yang*). In this thesis I refer to pairs of *yin* and *yang* lines as bigrams, and to pairs of binary digits as

doublets. Groups of three *yin* and *yang* lines are called trigrams, whereas I refer to groups of three binary digits as triplets. Based on this equivalence and correspondence, I adapt the descriptive characteristics of the trigrams to the triplets in the binary cube.

One objective in mapping the eight *I Ching* trigrams onto a cube is to construct a typology that will be meaningful to collaborating parties from both Western cultures (rational, linear, and goal-oriented), and East Asian cultures (relational, holistic, process-oriented). The model or method should: (a) act as an interpretive tool for translating depictions of culture into other depictions; (b) shed light on the fundamental nature of cultural domains; and (c) possess descriptive qualities based on Chinese archetypes (the trigrams) that will be meaningful and comfortable to collaborating parties from very different cultures. That is, a model that translates culture across cultural boundaries.

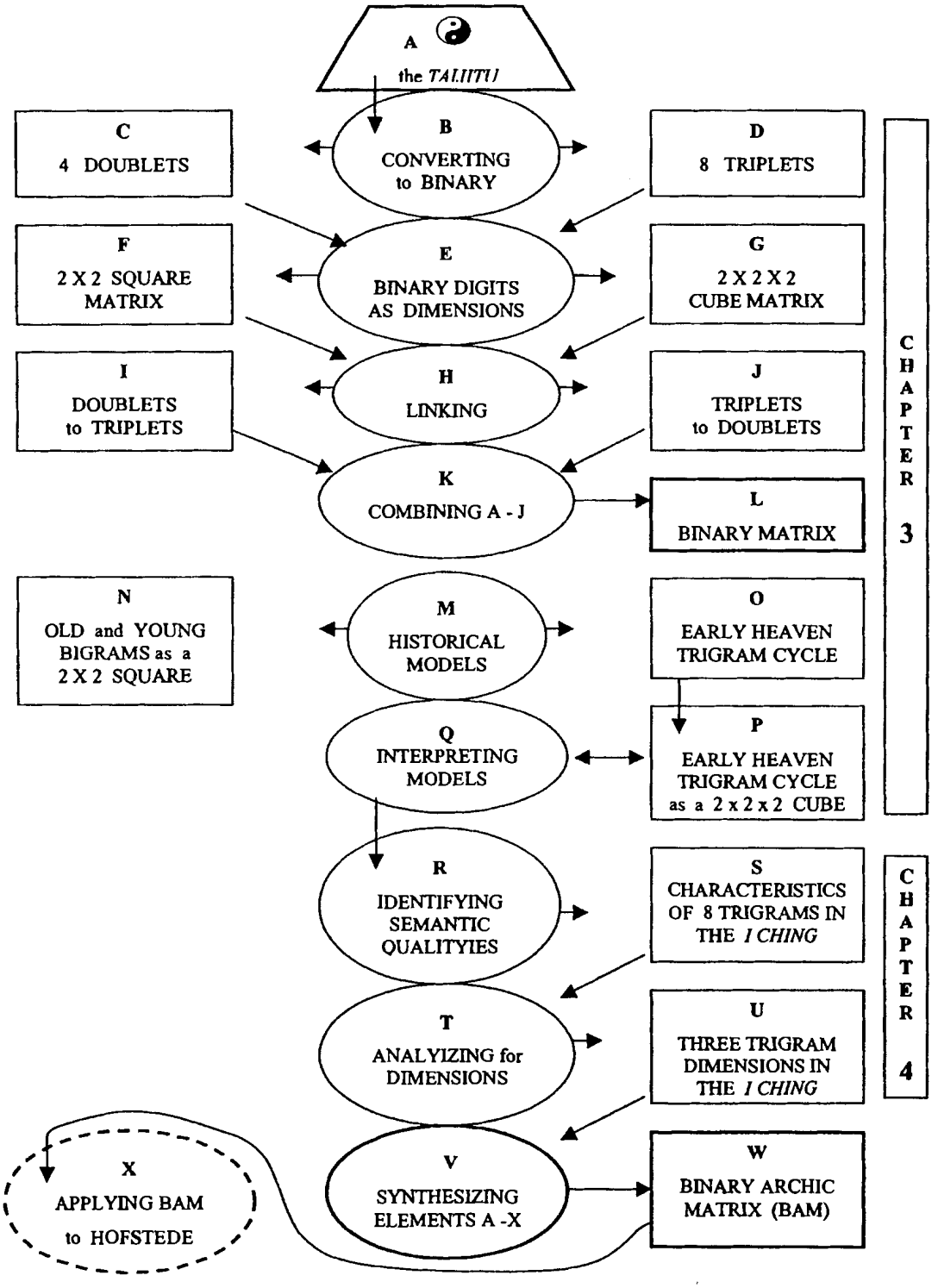


Figure 3.1 Flow chart of the argument

3.A.4. Flow Chart Outline

A. The black and white *taiji* symbol is the conceptual and practical starting point for adapting the *yin-yang* system into a three-dimensional typology and research method.
B. This operation converts the *yin and yang* lines to binary notation of 0s and 1s, with top line to the right digit, bottom line to the left digit, and middle line to middle digit.
C. The four bigrams are changed to doublets: 11, 10, 01, 00, and their equivalent numerical values are identified: 3, 2, 1, 0.
D. The eight trigrams are changed to triplets: 111, 110, 101, 100, 011, 010, 001, 000, and their equivalent numerical values identified as: 7, 6, 5, 4, 3, 2, 1, 0.
E. I define (the positions of) the digits in the doublets and triplets as dimensions and as probable domains
F. The doublets/bigrams form a 2x2 square matrix in which the lateral dimension is defined by the right digit and the horizontal dimension by the left digit.
G. The triplets/trigrams form a 2x2x2 cube matrix with the addition of a vertical (third) dimension defined by the middle digit.
H. I link the doublets to the triplets by the right-middle, right-left, and middle-left digits.
I. Each doublets is linked to four different triplets, and has a total of six links.
J. Each triplet has three doublets links, and may be linked to one, two, or three doublets
K. This step integrates the elements B to J to form a binary matrix.
L. The Binary Matrix consists of a square and a cube linked together by 24 lines.
M. This operation reinterprets two historical models in the *I Ching* whose images can be helpful in articulating the dimensional character of the bigrams and trigrams.
N. The historical model for the four bigrams consists of the terms: old *yin*, young *yin*, old *yang* young *yang*. *Yin* and *yang* refer to the lower bigram line; old indicates the upper line is the same as the lower; young indicates it is different (Figure 3.18).
O. The historical model for the eight trigrams is the *Early Heaven Sequence* in the *I Ching* (Wilhelm, 1950:266) (Figure 3.19)
P. This presents three reinterpretations of the *Early Heaven Sequence* as a cube, with each corner defined by one of the trigrams (Figure 3.20).
Q. The operation defines the conditions for transforming the *Early Heaven Sequence* into a cube.
R. This operation borrows semantic (descriptive) content for the eight triplets from the *I Ching* trigrams (Wilhelm, 1950).
S. The characteristics of each triplet in the binary cube is derived from the characteristics of the trigram with the corresponding binary symbol.
T. This operation analyzes the sets of characteristics in the binary square and binary cube to identify the underlying domains or constructs.
U. My analysis of the trigram characteristics identifies three domains. These are able to account for or explain most of the trigram attributes and qualities.
V. In this operation all the preceding elements (A to U) are synthesized.
W. The *Binary Archic Matrix* is the outcome of integrating all the mind map elements.
X. In this operation, the *Binary Archic Matrix* (BAM) is applied as a research method to the analysis of Hofstede's (1980/1991) survey of societal cultures.

Table 3.1 Flow Chart Outline

3. B. Structuring the Argument: the Flow Chart

3.B.1. The *Taijitu: Diagram of the Supreme Ultimate* [A]

The starting point for developing my research method typology is inspired by the passage from the *I Ching* at the start of this chapter, which is represented by the diagram in Figure 3.2: "(The) Great Primal Beginning (*taiji*) . . . generates the two primary forces (*yin* and *yang*). The two primary forces generate the four images (bigrams). The four images generate the eight trigrams" (Wilhelm, 1950:318).

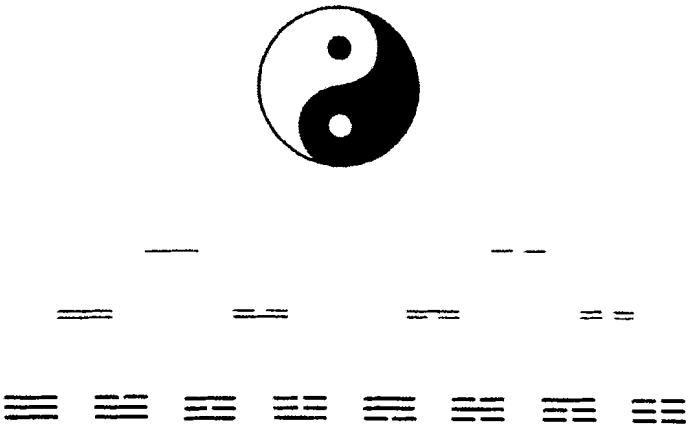


Figure 3.2 *Taijitu*: *yin-yang* symbol with bigrams and trigrams (Secter, 1984:20)

At the top of Figure 3.2 is the round, black and white *taiji* symbol (supreme ultimate), which represents the integration of *yin* and *yang*. Below this, the top row represents the separation of *taiji* the into *yin* and *yang*: the *yin* (— —) on the right, and the *yang* (——) on the left. The second row presents the four bigrams. On the left side, a *yang* and *yin* line are alternatively placed above the *yang* line (from the top row). On the right side, a *yang* and *yin* are each placed above the *yin* line (from the top row). In the third row a *yang* and *yin* line are added above each of the four bigrams to form the eight trigrams (Sherrill & Chu, 1977:14; Wei, 1987:3).

In the *taiji* symbol, the black dot in the white area and the white dot in the black area are stand for the seed of *yin* in the *yang* domain and the seed of *yang* in the *yin* domain. The dots do not translate directly into the bigrams or trigrams. This diagram provides the initial theoretical and conceptual basis for my binary matrix.

3.B.2. Converting the Bigrams and Trigrams into Binary Numbers [B]

Binary Number Theory was invented by Leibniz (1646-1716). He published his first theory of binary numbers in 1679 (Needham, 1956:341). Leibniz's invention came almost twenty years before Joachim Bouvet, a Jesuit missionary to China, returned to Europe with the *I Ching* and sent a copy to Leibniz in 1698.

In 1701 Leibniz sent a copy of his binary numbers to Bouvet, who recognized the Chinese symbols as binary images and reported this to Leibniz (Needham, 1956:341). From that time, Leibniz "was probably aware of every significant work on China produced in Europe in the seventeenth century" (Mungello, 1977:7).

Shortly before his death in 1716, Leibniz wrote a letter to Peter the Great, the Tzar of Russia, in which he claimed to have discovered correspondences between his binary arithmetic and the *I Ching* hexagrams (Mungello, 1977:7). Leibniz believed the Chinese understood binary numbers, but he did not document his reasoning, so his claims are generally dismissed (Needham, 1956:342).

The notational equivalence of the *yin-yang* symbols to binary numbers is undisputed, but there is no accepted evidence that the authors of the *I Ching* system understood the binary character or significance of the symbols or intended the symbols to represent binary numbers, ideas or values (Needham, 1956:342).

Binary numbers are formed out of sets or strings of 1s and 0s, such as 0011, or 001011010. The digits are not numbers but notations, with 1 meaning count, and 0 meaning don't count. Each digit has a positional value, with each position being double the value of the position to its right, starting with a value of 1 at the far right. But only positions with a "1" digit are counted.

To find the numerical value of a binary sequence, first determine the positional value of each digit. The positional values of the binary digits start with a value '1' for the right digit. Each successive position has double the numerical value of the preceding position. The second position has a value of 2; the third has a value of 4; the fourth position has a value of 8; etceteras. Then add up the positional values for only those positions with a binary 1 (Needham, 1956:340).

Table 3.2 illustrates how to calculate the numerical value of the nine-digit binary sequence 10110100. Row 2 depicts the position number; row 3 has the positional value; row 4 indicates the five positions in the example that have binary 1 (from the right they are: 1, 4, 6, 7, 9); and row 5 defines the positional value of these five positions with binary 1s. The numerical value of 10110100 is 361.

1.	1	0	1	1	0	1	0	0	1	binary number
2.	9	8	7	6	5	4	3	2	1	sequence position
3.	256	128	64	32	16	8	4	2	1	positional values
4.	+		+	+		+			+	positions with binary 1
5.	**256**		**64**	**32**		**8**			**1**	sum = 361

Table 3.2 Example of converting a binary number into a numerical value

To convert the trigram symbols of the *I Ching* to binary numbers, the *yin* lines (— —) are changed to 0s, and *yang* lines (——) are changed to 1s. The binary equivalent of bigrams (two *yin* or *yang* lines) are two-digit numbers that I call doublets: 11, 10, 01 00 (Figure 3.3). The binary equivalent to trigrams are three-digit numbers called triplets, such as 101 or 001 (Figure 3.4). This conversion will transform the traditional *yin-yang* symbols into binary notation (0s and 1s). By extending the logic, each bigram and trigram obtains a numerical value.

This imparts or assigns trigram meanings via numerical value to the triplets. For example, triplet 011 has a value of 3, and the characteristics of the Wind trigram. In this triplet, the right digit (1) has value of 1; the middle digit (1) has a value of 2; and the left digit 0 has a value of zero. The triplet 110 has a value of 6 and the characteristics of the trigram, Lake. The right digit (0) has a value of 0; the middle digit (1) has a value of 2; and the left digit (1), a value of 4 (Needham, 1956:340). Binary digits represent the *yin-yang* symbols in a way that non-East-Asian scholars and readers will find easier to relate with and understand.

3.B.2.a. Converting the four *Taijitu* bigrams to binary doublets [C]

The rule for transforming bigrams to binary doublets is: convert the top line of the bigram to the right digit of the binary doublet (with a positional value of 1), and the bottom line of the bigram to the left digit of the doublet (with a positional value of 2). *Yang* lines are converted to binary 1 digits, and *yin* lines are converted to binary 0 digits . The four bigrams in the middle row of the *taijitu* (Figure 3.2) convert to the four doublets: 11, 10 01, 00, with the numerical values: 3, 2, 1, 0, which are presented below in an order found in the *I Ching*.

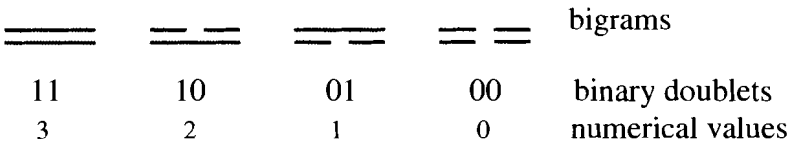


Figure 3.3 the four bigrams converted to binary values

3.B.2.b. Converting the eight trigrams to binary triplets [D]

The eight trigrams in the bottom row of Figure 3.2 are repeated in Figure 3.4 with the equivalent binary numbers and their numerical values. The top line of the symbol changes to the right digit, the bottom line changes to the left digit, and the middle line changes to the middle digit. From left to right the binary numbers are: 111, 110, 101, 100, 011, 010, 001, 000; with numerical values 7, 6, 5, 4, 3, 2, 1, 0.

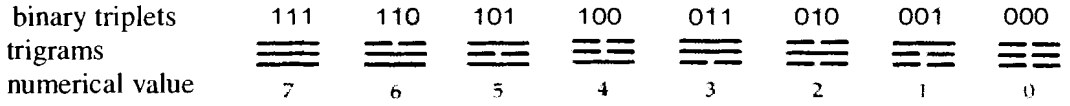


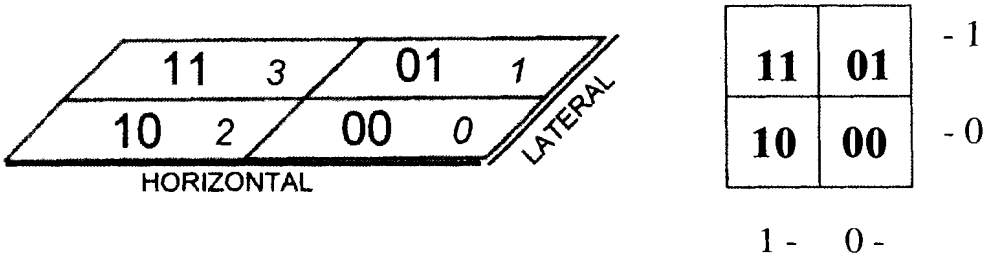
Figure 3.4 trigrams converted to binary triplets with numerical values (yin = 0, yang = 1. This sequence represents a traditional *I Ching* order (see Wilhelm, 1950:325)

3.B.3. A Graphic Depiction of Binary Digits as Dimensions [E]

In this operation I view the positions of the digits in both the doublets and triplets as if they were dimensions. Each dimension (i.e. binary digit position) is bipolar and defined by the digit 1 or 0. In order to develop a coherent model or typology the doublets and triplets need to share a set of common constructs.

The primary constituents in the triplets and doublets are the binary digits. The constructs they share are the relative positions (i.e. first, second, last). The most reliable common constructs doublets and triplets share are their left and right which represent absolute conditions, since left is always left, and right is always right. I

therefore choose left and right to represent the two shared constructs of dimensions. To maintain modeling consistency between the binary square and binary cube it is necessary to view the binary square matrix on a flat surface as seen from the front. Its two dimensions are: (a) lateral (depth), and (b) horizontal (width) (3.5a).



a) square as seen from front view on a flat surface (b) top view

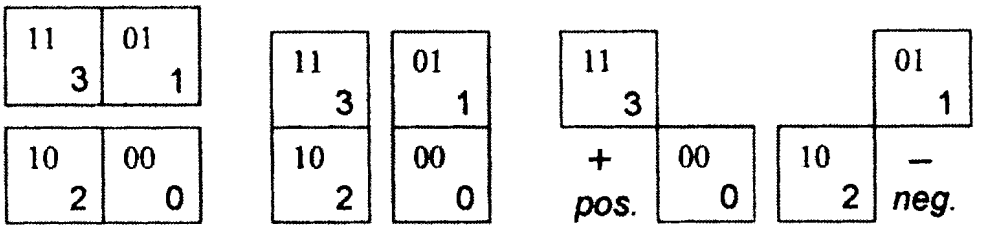
Figure 3.5 the 2x2 square matrix as seen from two perspectives: front and top

3.B.3.a. Articulating the 2 x 2 binary square [F]

Figure 3.5 (b) shows the square from an overhead perspective, so that the two bottom cells are at the front of the square while the two top cells are at the back of the square (Fig. 3.5.a). The two binary dimensions are the right and left digit positions. The two bipolar conditions for each dimension are 0-ness and 1-ness.

The first dimension is defined by the right digit and whether it is 0 or 1. This lateral dimension divides the doublets at the front of the square (appearing at the bottom), from those at the back (appearing at the top). The second dimension is defined by the left digit, and whether it is 0 or 1. This horizontal dimension divides the doublets on left side of the square from those on the right. The interaction effect refers to the internal condition of a binary number or profile. Then, when both binary digits in a doublet are the same (00 or 11), they have a positive interaction; when they are different (10 or 01), they have a negative interaction.

3.B.3.b. Explicating the dimensions and interaction effect



(a) dimension #1 right digit 0 or 1 (b) dimension #2 left digit 0 or 1 (c) interaction effect left is positive, right is negative

Figure 3.6 Two binary dimensions and their interaction effect (top view)

Each dimension in the binary square can be explained using the numerical values of the four quadrants (Figures 3.6). The binary digit 0 is treated as an even number. Doublet 00 and triplet 000 both have a numerical value of 0 and are even.

Dimensions define between-number conditions, based on whether the binary digit in a particular position is 0 or 1. The two doublet dimensions are odd-even and high-low. The interaction effect defines the within-number condition , based on whether two digits are the same or different. This is an internal- external condition.

Dimension #1 (lateral) separates the odd-numbered quadrants from the even-numbered quadrants. The quadrants on top (literally the back of the square), are 11 and 01; the numerical values of these doublets are 3 and 1, which are odd numbers. The two quadrants on the bottom (the front of the square), are 10 and 00. The numerical values of these two doublets are 2 and 0, which are even numbers.

Dimension #2 (horizontal) separates low from high. The two quadrants on the right side are 00 and 01. Their numerical values are 0 and 1, which are the two low numbers. The two quadrants on the left side are 10 and 11. Their numerical values are 2 and 3, which are the two high numbers.

The Interaction Effect separates the two quadrants with positive interactions (both digits the same), from the two quadrants with negative interactions (both digits are different). The positive interaction defines quadrants 00 and 11, whose numerical values are 0 and 3. The negative interaction defines quadrants 01 and 10, whose numerical values are 1 and 2. In the binary sequence: 0, 1, 2, 3, the numbers with a positive interaction are the first and last numbers (0 and 3) in the sequence. The numbers with a negative interaction (1 and 2) are in the middle of the sequence. This defines positive interaction as an external condition, and negative interaction as an internal condition.

3.B.3.c. Illustrating the binary digit dimensions

In order to maintain dimensional integrity, between doublets and triplets it is necessary to represent both doublets and triplets with their shared dimensional conditions. This means identifying the digits (and dimensions) shared by doublets and triplets. I determine these to be the right and left digits, since any other choice would involve relative positions, rather than absolute positions. I illustrate the binary dimensions and shared conditions or dimensional commonality in Figure 3.7.

The four diagrams illustrate the binary dimensionality and graphically depict the relationship between doublets and triplets. Shaded cubes are those whose dimensional condition is binary 0. To form triplets from doublets, a binary 0 or 1 is added between the two digits of each doublet, so the middle digit defines the vertical dimension in the binary cube matrix. The four triplets on the top of the cube are formed by adding a binary 1 to the middle of each doublet; the four triplets on the bottom of the cube are defined by adding a binary 0 to the middle.

Figure 3.7(a) shows the two digits shared by doublets and triplets as a function of the left and right digits. It also illustrates the vertical dimension (height) as an expression of the middle digit (highlighted in bold).

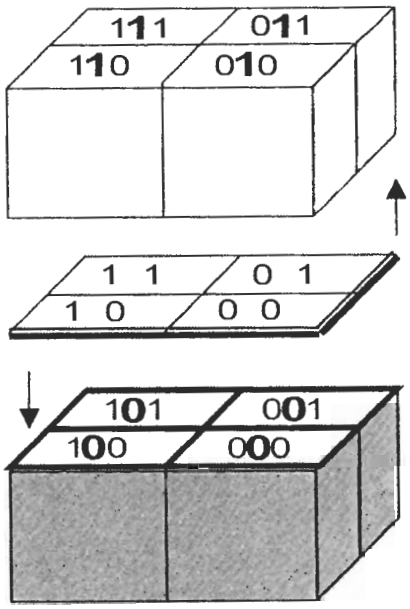
In Figure 3.7(b), the right digit is highlighted. This illustrates that way in which the digit in the right position defines the lateral dimension and distinguishes the quadrants at the front or near, whose right digit is binary 0, from the quadrants at the back or far, whose right digit is binary 1.

In Figure 3.7(c), the left digit is highlighted. This diagram illustrates how the digit in the left position defines the horizontal dimension, and distinguishes the quadrants on the right, whose left digit is binary 0, from the quadrants on the left, whose left digit is binary 1.

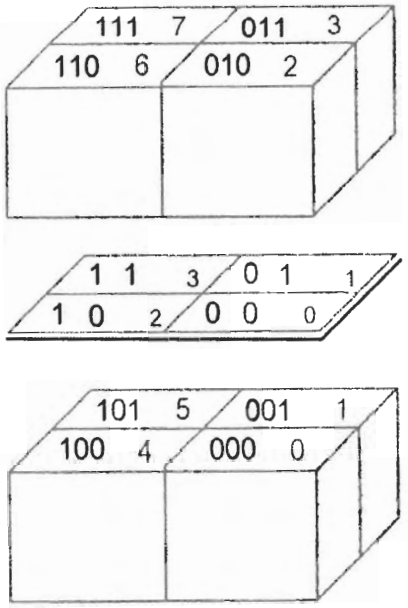
In Figure 3.7(d), binary numbers are all converted to their numerical values. This illustrates the numerical qualities or conditions shared by doublets and triplets, making it evident that the dimensions are numerical domains.

For both doublets and triplets, the lateral dimension is defined by the right digit position. Those with binary 0 all have even numbers and located in the front quadrants; those with binary 1 all have odd numbers, and are in the back quadrants. The horizontal dimension is defined by the left digit position. Doublets and triplets with binary 0 have the low numerical values, and are in quadrants on the right side. Those with binary 1 have the high numerical values, and are on the left side.

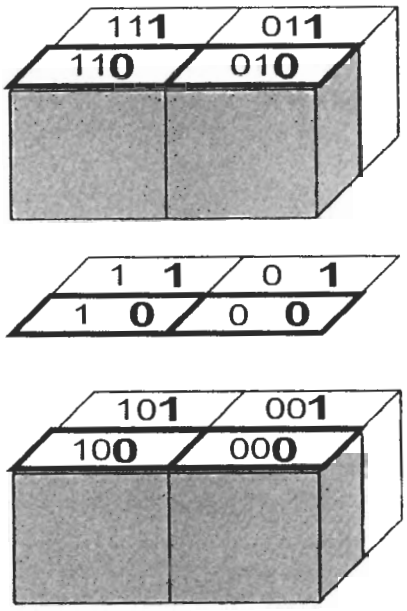
This approach establishes dimensional integrity as well as consistency between doublets and triplets, because the right and left digits in both represent the same thing in both models. The doublets define a square and the triplets a cube.



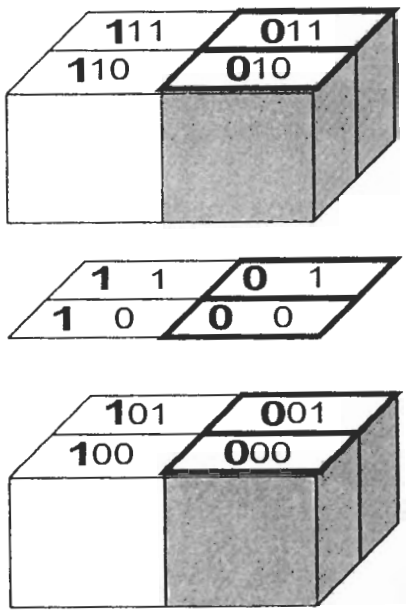
(a) middle digit is vertical dimension
1 on top; 0 on the bottom



(d) Shared Dimensionality: odd in back,
even front; high on left, low on right



(b) right digit is lateral dimension
1 in the back; 0 in front

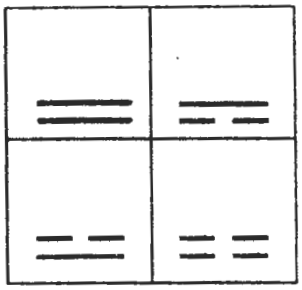


(c) the left digit horizontal dimension:
1 on the left; 0 on the right

Figure 3.7 Dimensional relationships between the binary square and binary cube

3.B.3.d. Nine ways to articulate the binary square

Conditions of bigrams in the *I Ching*



(a) bigrams

OLD YANG	YOUNG YIN
YOUNG YANG	OLD YIN

(b) *yin-yang* conditions

summer	autumn
spring	winter

(c) four seasons

Conditions related to the binary doublets

11	01
10	00

(d) binary numbers as doublets

3	1
2	0

(e) numerical value of the binary numbers

external (highest)	internal (mid-low)
internal (mid-high)	external (lowest)

(f) numerical position in 4-digit sequence

Dimensional (Binary Domain) Conditions

ODD	
EVEN	

(f) lateral dimension

HIGH	LOW

(g) horizontal dimension

+ positive	− negative
− negative	+ positive

(h) interaction effect

Figure 3.8 Nine articulations of the binary square (from a top view)

Figure 3.8. illustrates nine articulations of information on the binary square. The objective here is map different aspects of two equivalent models: the bigrams from the *I Ching* (a), and the binary doublets (d), to illustrate the translation of information between the two models. The *I Ching* discusses the bigrams in terms of old and young *yin* and *yang* (see Chapter 4.A.2.b.), as well as according to the four seasons. By mapping the bigrams and doublets onto a square matrix, we can see that they form equivalent sets, and that the dimensional conditions for the doublets can therefore be extended to or applied to the bigrams.

3.B.4. Explicating the 2 x 2 x 2 Binary Cube [G]

From a graphic perspective the binary cube represents the addition of a vertical dimension to the binary square (see Figure 3.5). In the cube as in the square, the right digit is assigned to the lateral dimension and the left digit to the horizontal dimension. In both models, the numbers at the back of the figure have the odd number values, and those at the front have even number values. And in both models, the four numbers with high numerical values are on the left while those with low values on the right.

Starting from 011 at the top right of the cube matrix (Figures 3.9 and 3.10), the triplets (moving clockwise) have the values: 3, 2, 1, 0, 4, 5, 6 7 (see Figure 3.4). The four triplets at the back of the cube have odd values (1, 3, 5 , 7), while the four at the front of the cube have even values (0, 2, 4, 6). From bottom to top, the four on the right side of the cube have the lower values (0, 1, 2, 3), while the four on the left side have the higher values (4, 5, 6, 7). In Figure 3.9, triplets (101) and (010) are in parentheses to indicate they are not visible on the perimeter of he cube.

This means that the right digit represents odd-even, whereas the left digit represents high-low. The vertical dimension) divides the four triplets at the bottom of the cube with middle digit 0: 000, 001, 100, 101 (values 0, 1, 4, 5), from the four triplets at the top of the cube with middle digit 1: 010, 011, 110, and 111 (values 2, 3, 6, 7). These two sets of numerical values represent a condition that is not readily apparent, but that is explained in the next section. In Figure 3.10, the relative positions of the eight triplets in the binary cube are clearly illustrated.

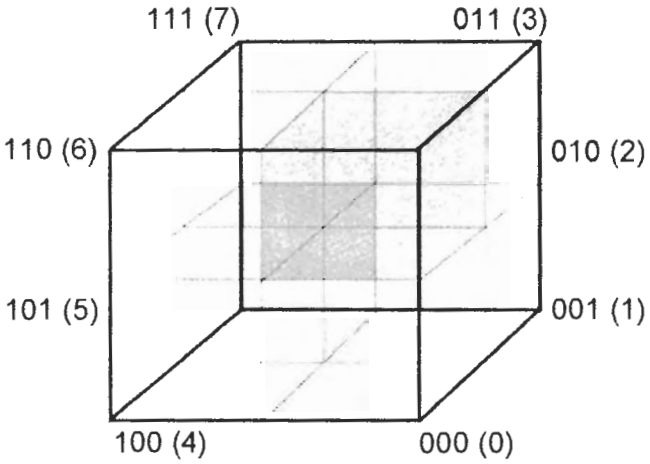


Figure 3.9 Cube typology with eight sections identified by triplet and binary value

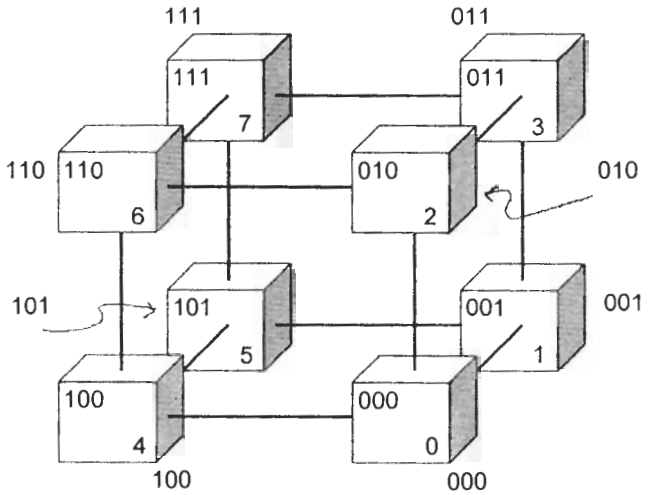
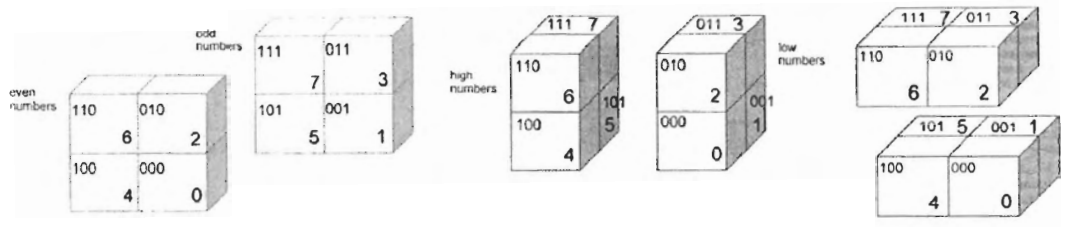


Figure 3.10 an exploded view of the binary cube to illustrate the eight sections



DIGIT	right (0)	(1)	left (1)	(0)	middle (0)	(1)
SIDE of cube	front	back	left	right	bottom	top
BINARY	even	odd	high	low	alternating pairs	
DIMENSION	lateral	(depth)	horizontal	(width)	vertical	(height)

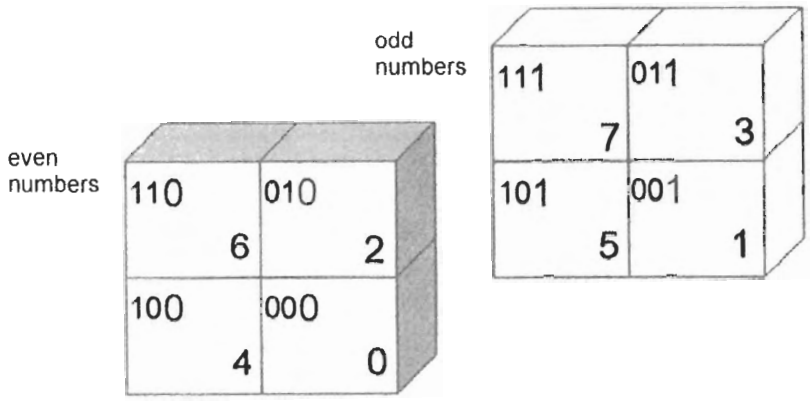
Figure 3.11 the Cube divided along its three axes into dimensional planes

Figure 3.11 presents a miniature overview of Figure 3.12, which illustrates the structural character of a cube whose three binary dimensions are defined when the cube is divided in two along each of its three axes. One side of the cube is assigned binary 0 digits, and the other is assigned binary 1 digits. This forms eight sections, each represented by a three-digit binary number or triplet. Thus, each axis is represented by one of the three binary digits positions: right, middle, or left.

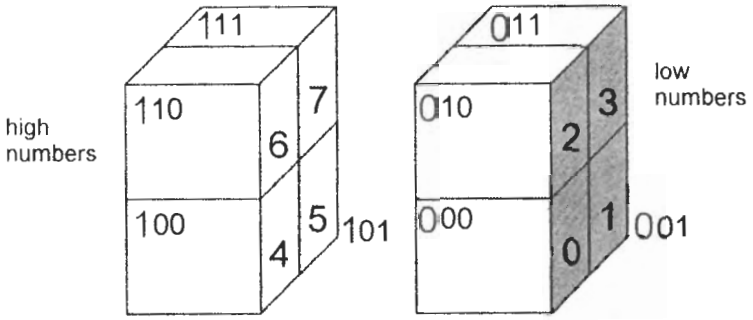
I defined the Interaction Effect as an intra-numerical condition. It compares internal similarity with internal difference for each pair of digits in a binary number (doublet or triplet). Doublets have two dimensions and one interaction effect, while triplets have three dimensions and three interaction effects. The interactions are: left-right; middle-right; and left-middle.

Figure 3.13 illustrates the structural and numerical character of the three interaction effects. In each diagram, the left side illustrates the positive interactions (those in which the interacting digits are the same), while the right side shows the negative interactions (those where the interacting digits are different).

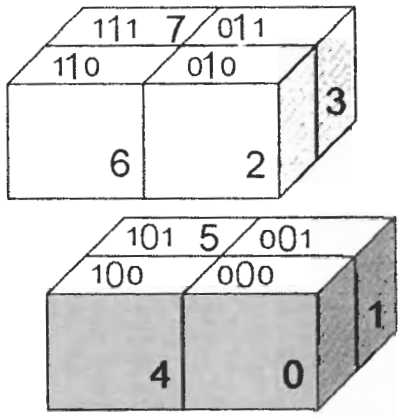
3.B.4.a. Articulating the three dimensions



(a) **lateral dimension:** triplets with right digit 0 are in front (four even numbers); those with right digit 1 are in the back (four odd numbers)



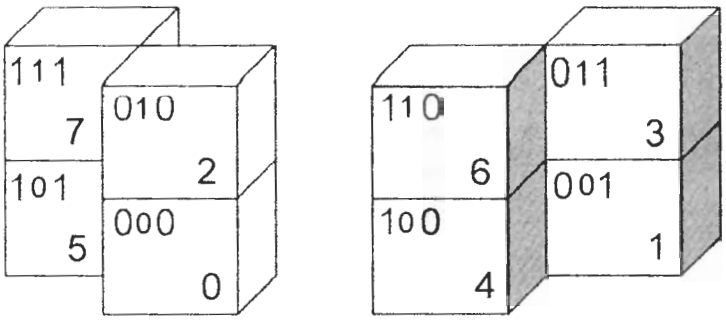
(b) **horizontal dimension:** triplets with left digit 0 are on the right (four low numbers); those with left digit 1 are on the left (four high numbers)



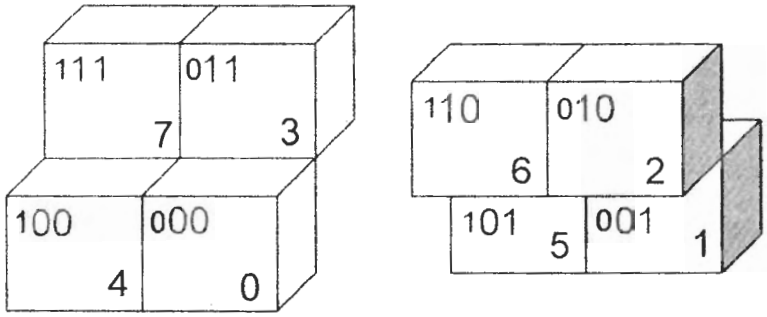
(c) **vertical dimension:**: triplets with middle digit 0 are on the bottom; those with middle digit 1 are on the top.

Figure 3.12 (a, b, and c): a graphic representation of the three binary dimensions

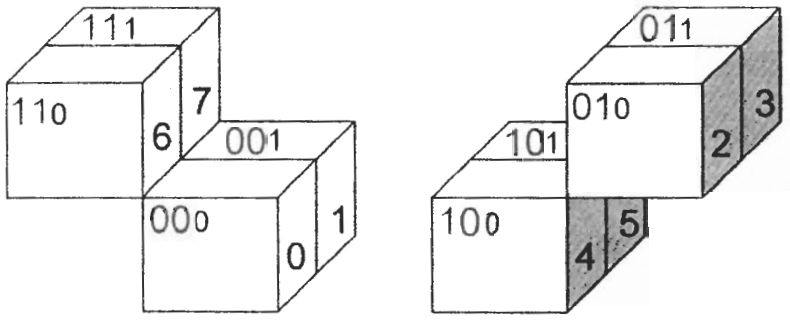
3.B.4.b. Articulating the three interaction effects



a) horizontal - lateral interaction (left and right digits)



(b) the vertical - lateral interaction (middle and right digits)



(c) the horizontal - vertical interaction (left and middle digits)

Figure 3.13 (a, b, and c): the three interaction effects: the triplets on the left side have a positive interaction (both digits are the same); those on the right have a negative interaction (both digits are different).

For example, triplets 111 and 010 share a positive interaction in the left and right digits (lateral and horizontal dimensions); triplets 110 and 101 share a negative interaction in the right and middle digits (lateral and vertical dimensions). We should not be surprised if interaction effects are found to have almost as much explanatory power as dimensions (as domains).

3.B.5. Linking the Binary Square to the Cube [H]

Doublets are linked to triplets according to the three doublet patterns within each triplet: the right and middle digits; right and left digits; and middle and left digits. Essentially each triplet is complex three-dimensional number composed of three doublets. In this way doublets and triplets are interconnected as dimensional constructs that define their domains and their dimensional character. I refer to this relationship as binary equivalence. This is central to explicating my research method.

Horizontal	Vertical	Lateral	
H	**V**	**L**	
1	1	0	triplet 110 (as an example)
	1	0	doublet of middle-right digits: vertical - lateral dimensions
1		0	doublet of left-right digits: horizontal - lateral dimensions
1	1		doublet of left - middle digits: horizontal - vertical dimensions

Table 3.3 Example of the three doublet-patterns within each triplet: middle-right, left-right, left-middle (H is horizontal, V is vertical, and L is lateral).

3.B.5.a. Binary linking of doublets to triplets [I]

Table 3.4, discloses the emergence of three dimensions from two dimensions. The asterisks (*) indicate the position of the third digit in the triplets, which can be either binary 0 or 1. The eight rows illustrate the three doublets that comprise each triplet. The frequency of a particular doublet in each triplet indicates its intensity. Doublet 11 occurs three times in 111, and once each in triplets 110, 101, and 011. Doublet 10 occurs twice in doublets 110 and 100, and once each in 101 and 010. Doublet 01 occurs twice in 011 and 001, and once each in 101 and 010. Doublet 00 occurs three times in 000 and once in each of 100, 001, and 010.

The doublet columns describe the position of each doublet in the triplets (left-middle, left right, middle right), and each doublet 's six occurrences. I posit that the attributes related to each triplet will embody and reflect the qualities and characteristics of the three doublets that are defined within it.

Doublets	11			10			01			00		
	11*	1*1	*11	10*	1*0	*10	01*	0*1	*01	00*	0*0	*00
Triplets.	LM*	L* R	*MR	LM*	L*R	*MR	LM*	L*R	*MR	LM*	L*R	*MR
111	1. 11*	1*1	*11									
110	2. 11*			1.	1*0	*10						
101	3.	1*1		2. 10*			1.		*01			
100				3. 10*	1*0					1.		*00
011	4.		*11				2. 01*	0*1				
010				4.		*10	3. 01*			2.	0*0	
001							4.	0*1	*01	3. 00*		
000										4. 00*	0*0	*00

Table 3.4 Equivalence between triplets and doublets. The letter L is the left digit; M is the middle digit; and R is the right digit. Asterisks * indicate the third digit.
Note: 4 different triplets in each column have a total of 6 occurrences

doublets	left-middle digits		left-right digits		middle-right digits	
11	111	110	111	101	111	011
10	100	101	100	110	110	010
01	011	010	001	011	001	101
00	000	001	000	010	000	100

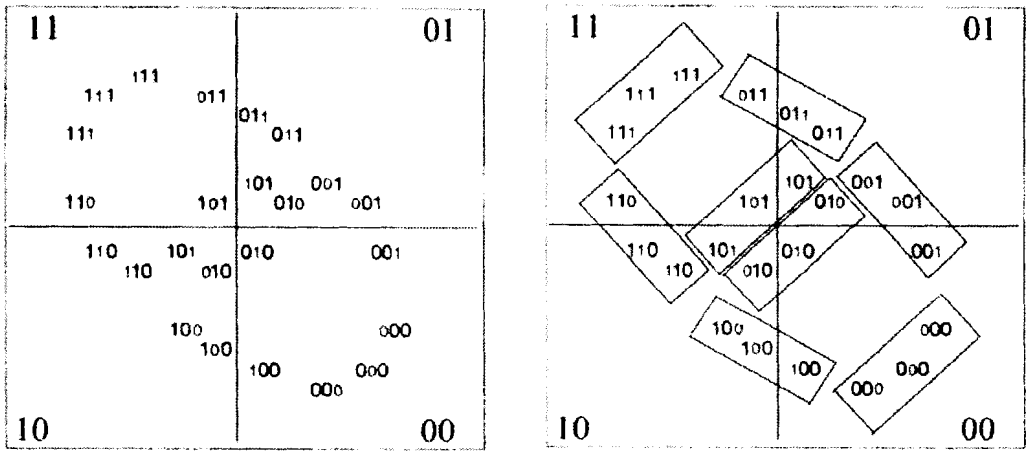
Table 3.5 Each doublet's content in four different triplets (Fig.3.14). The underlined digits show the embedded doublet in each triplet

Triplet	doublet format			Triplet	doublet format		
111	11*	1*1	*11	000	00*	0*0	*00
110	11*	1*0	*10	001	00*	0*1	*01
101	10*	1*1	*01	010	01*	0*0	*10
100	10*	1*0	*00	011	01*	0*1	*11

Table 3.6 the three doublets as the content and composition of each triplet

Each doublet is linked to four different triplets, with six total links to those triplets (Table 3.4). Table 3.5 depicts (for each doublet) where the doublet is located in its six triplets. Table 3.6 illustrates the doublet composition of each triplet. Two triplets (111 and 000) are each composed of three of the same doublet. These represent pure or homogeneous conditions. Two triplets (101 and 010) are composed of three different doublets. These are mixed or heterogeneous conditions. The other four triplets are each composed of two doublets, with two copies of one doublet and one copy of the other. These conditions weighted to one doublet.

Figure 3.14(a) arranges the triplet-doublet combinations by quadrant, and locates the six triplets linked to each doublet in the quadrant. If a triplet has two links to a particular doublet it is shown two times; if it has three links it is shown three times. Figure 3.14(b) encompasses the three occurrences for each triplet in order to illustrate the connection or relationship between that triplet and one or more doublets.



(a) the six triplets in each doublet (b) triplet doublet affiliation

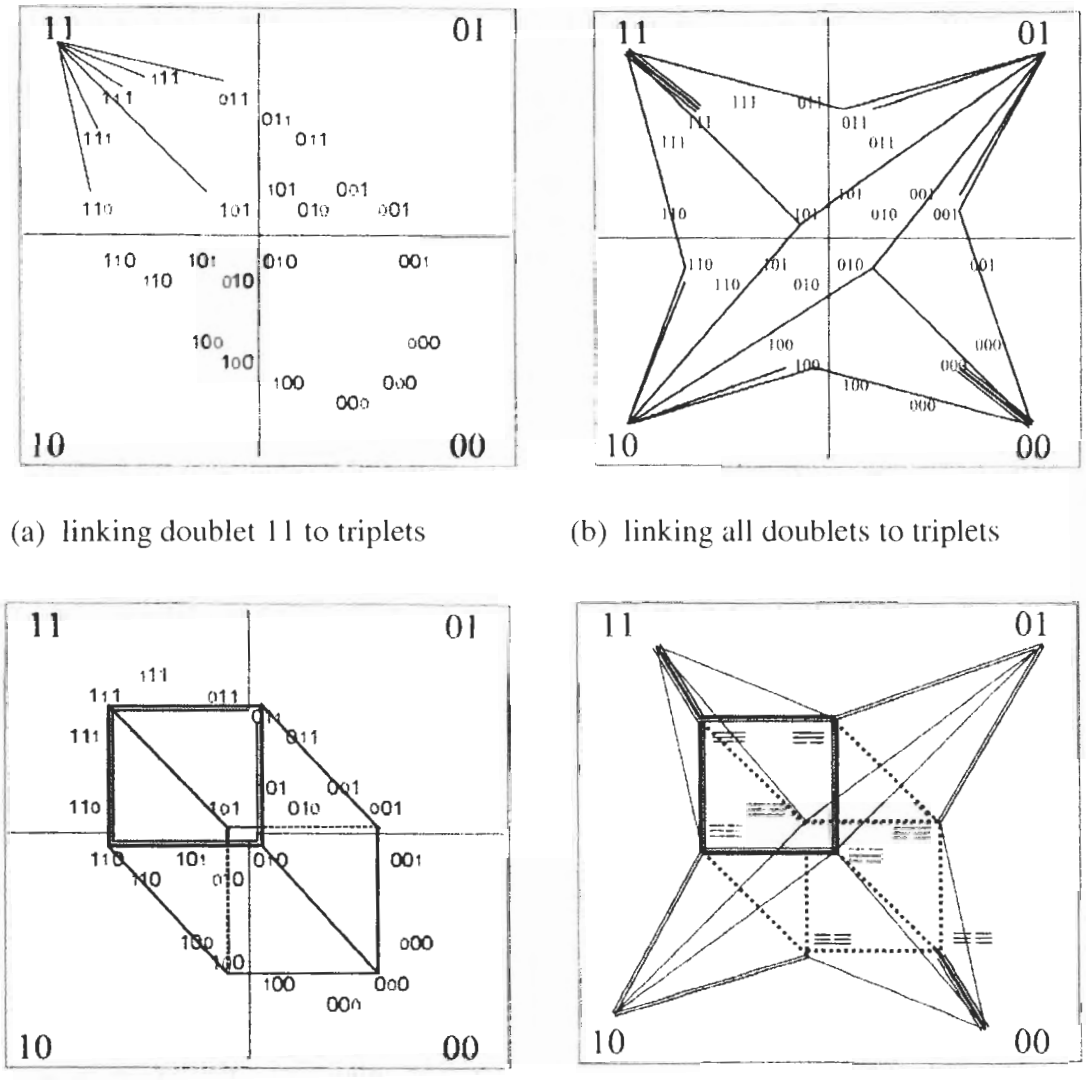
Figure 3.14 Locating the triplets within the quadrants of the four doublets. The large-size numerals illustrate the location of the doublet in each triplet.

3.B.5.b. Constructing the matrix with links between triplets and doublets [J]

In binary modeling, doublets organize and define a 'whole' or a 'totality' by organizing it according to four conditions shown as quadrants. Triplets organize and express the same 'whole' according to eight conditions or sections. Doublets have greater descriptive generality, and triplets have greater specificity. At the same time, the qualities that define each triplet are conditioned in part by doublet qualities.

The dimensionalization of doublets to triplets is illustrated in Figure 3.15, in a way that generates or reveals how the cube matrix can be formed by triplets within

the doublet quadrants. Figure 3.15(a) shows each quadrant with its four related triplets, with an example of the links to doublet 11. Figure 3.15(b) illustrates all twenty-four links between the doublets and triplets, consolidating all the links to the middle triplets in each group of three. Figure 3.15(c) illustrates the cube pattern formed by these eight central triplets. And Figure 3.15(d) defines the doublet-triplet links with the cube defined. This is the template for a binary matrix.



(a) linking doublet 11 to triplets

(b) linking all doublets to triplets

(c) defining the triplets as a cube

(d) linking the square to the cube

Figure 3.15 Four defining stages in the doublet - triplet links of the binary cube

3.B.5.c. Integrated triplet values (ITV)

Table 3.7 shows the frequency of the links between the four doublets and the eight triplets. This frequency is then used to calculate a numerical value for each triplet by adding the values of its links to its three doublets. The integrated triplet values (ITVs) are in the **bold** row at the bottom of the Figure. This means that the doublets are functions of the triplets, and the triplets are each an expression of three particular doublets. Where a triplet has more than one link to the same doublet, the binary value of the doublet is multiplied by the number of links.

triplet value >	0	1	2	3	4	5	6	7
triplet number	000	001	010	011	100	101	110	111
doublet 00 (0)	3x0	1x0	1x0		1x0			
01 (1)		2x1	1x1	2x1		1x1		
10 (2)			1x2		2x2	1x2	2x2	
11 (3)				1x3		1x3	1x3	3x3
(ITV (integrated	**0**	**2**	**3**	**5**	**4**	**6**	**7**	**9**
triplet values)	0	1	2	3	4	5	6	7

Table 3.7 the integrated triplet value (ITV) for each triplet (see Figure 3.15)

3.B.5.d. Do the integrated triplet values define the vertical dimension?

The four triplets whose integrated triplet value (ITV) is an *even* number all have a binary 0 in the middle digit, and occupy sections in the bottom half of the binary cube: 101 is 6; 100 is 4; 001 is 2; and 000 is 0. The four triplets whose ITV is an *odd* number all have a binary 1 in the middle digit, and occupy the quadrants in the top half of the binary cube: 111 is 9; 110 is 7; 011 is 5; and 010 is 3.

The integrated triplet values (ITVs) are significant because they provide the first evidence of a defining mathematical explanation for the vertical dimension. In the same way that the lateral dimension is an odd-even condition, and the horizontal dimensions is a high-low condition, the vertical dimension can now be understood to be an "interactive or integrated" odd-even doublet-triplet condition. This reveals that the vertical dimension is an expression of an odd-even interaction between doublets and triplets. It also defines the vertical dimension as a function of both the lateral and horizontal dimensions. At the same time, it establishes this as a condition that is co-equal with the first two dimensions.

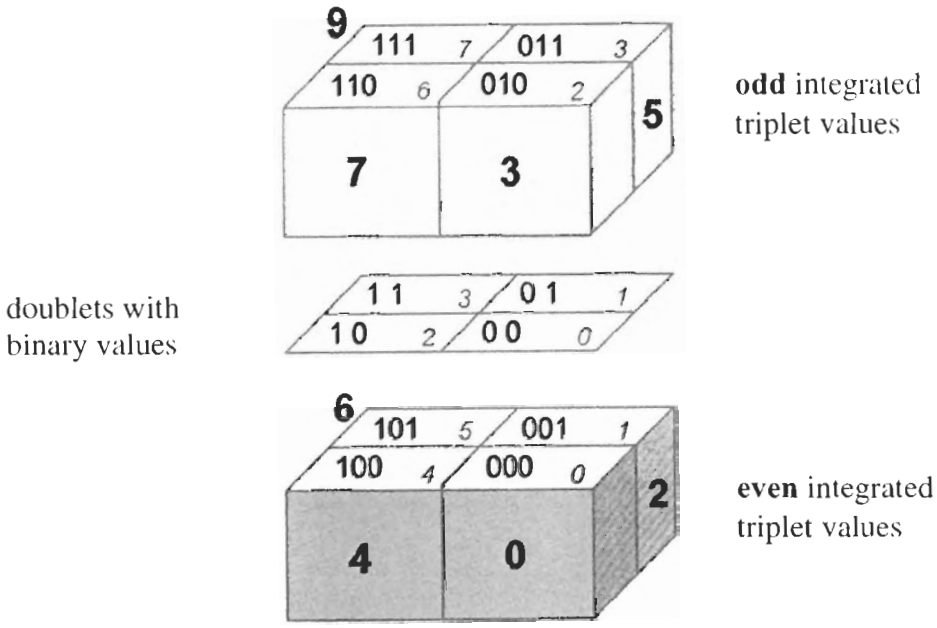


Figure 3.16 Vertical dimension defined by the bold integrated triplet values. Triplets with even-number ITVs are on the bottom; those with odd-number ITVs are on top.

The lateral dimension defines the even-odd condition (see Figure 3.12.a). Conceptually this is absolute, since odd and even numbers are unconditionally distinct; odd is always odd, and even is always even. The horizontal dimension defines the high-low condition (see Figure 3.12.b). This is relative, since numbers

(in a sequence or set) will shift from high to low if the sequence is expanded (numbers are added), or from low to high if it is contracted (numbers are taken out).

I refer to the vertical dimension as a synchronous or integrated condition. Of the four even-numbered triplets, two have *odd* integrated triplet values (ITV), and two have odd ITVs. Of the four odd-numbered triplets, two have *odd* integrated triplet values (ITV), and two have odd ITVs. Binary 0 = 0; 1 = 2; 2 = 3; 4 = 4; 5 = 6; 6 = 7; and 7 = 9.

3.B.6. Rules for Mapping the Binary Matrix Diagram [K]

This section reviews and consolidates the development of the doublet-triplet interaction into a coherent binary matrix, based on the mathematical integration of doublets (two dimensions) with triplets (three dimensions). It represents a logical set of steps that defines a general typology. To design an accurate binary matrix it is necessary to define the rules of the design by establishing the ratio of the binary square to the binary cube.

The ratio of the size of the square to the size of the cube is governed by the distance from each doublet (as a corner of the square) to its four triplets (as four corners of the cube). Two doublets have three links to one triplet and one link to three other triplets. The other two doublets have two links to two triplets and one link to two other triplets.

The first design parameter for the binary matrix is that triplets with three links to a doublet will be connected with a line that is one third as long as the line from triplets with one link to the same doublet. The second design parameter is that triplets with two links to a doublet will have a line that is one half as long as triplets

with one link to the same doublet. There is only one position inside the binary square that satisfies this set of conditions for each doublet. This is a mathematical function. My basis for placing the cube inside the cube is shown in Figure 3.15.c. which illustrates how the binary cube is generated by the square and within it.

In summary, doublet 11 has three links to triplet 111, and one link to triplets 110, 011 and 101. Doublet 00 has three links to 000, and one link to triplets 001, 100, and 010. Doublet 10 has two links to 110 and 100, and one link to 101 and 010. Doublet 01 has two links to 011 and 001, and one link to 101 and 010. This defines the parameters of the binary matrix

3.B.6.a. The binary matrix [L]

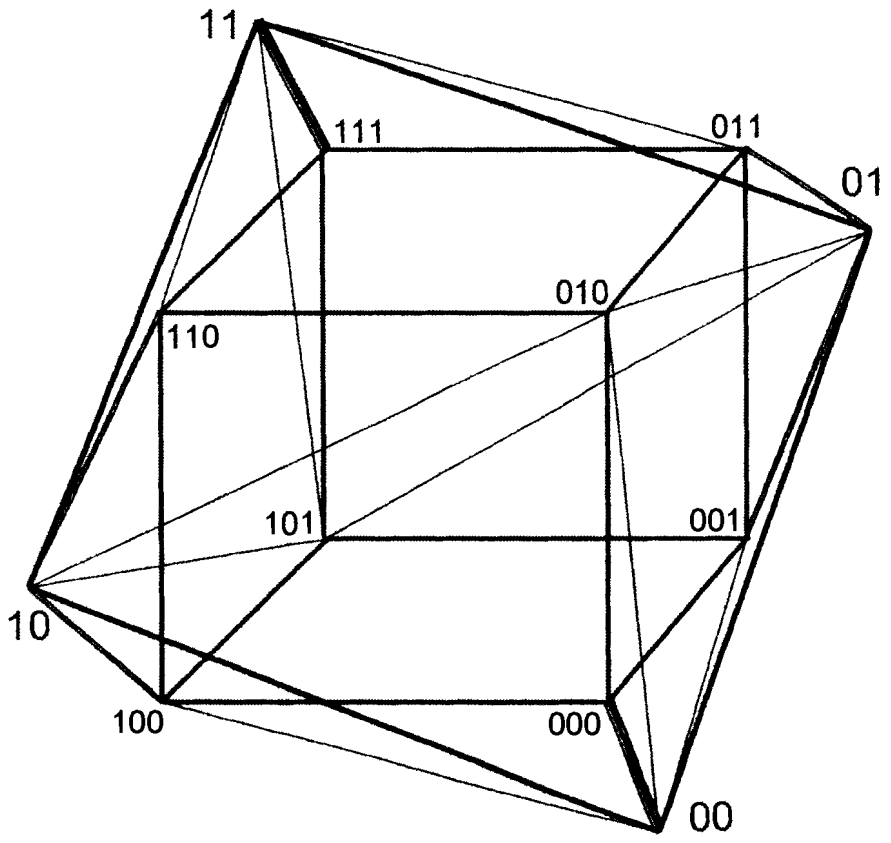


Figure 3.17 Binary matrix: the square matrix integrated with the cube matrix (see 3.26)

One result is that the binary square is not actually a square but a diamond. (Figure 3.17). Another result is that so-called binary square, is oriented to the cube in such a way that the two models cannot co-exist in the same dimensional plane or orientation. This is important to this thesis because it makes explicit the premise that an authentic two-dimensional model of culture cannot be adapted to or converted into a three-dimensional model by simply adding another dimension.

The mathematical principles on which the model is based make it clear that two dimensions and three dimensions are inextricably interconnected and mutually informing, but they exist and function according to two different dimensional planes or spheres. As triplets are composed of three doublets, the characteristics of each triplet express the characteristics of its three constitutive doublets.

3.C. A Historical (*I Ching*) Connection to the Binary Cube and Square [M]

In the process of transforming the *Taiji Diagram* (Figure 3.2) into a binary matrix, I reached the conclusion that my case and position would be strengthened if I could identify some example or condition in the *I Ching* text that might suggest or support a connection between the trigrams and a binary matrix. I have identified material in the *I Ching* that supports interpreting bigrams as the cells of a square matrix, and supports interpreting trigrams as a cube matrix.

3.C.1. The 2 x 2 Binary Matrix Embedded in the Bigrams [N]

Figure 3.6 illustrates that the four bigrams satisfy the conditions of a 2 x 2 square matrix. This is shown by converting the bigrams into binary doublets, and identifying the two digits as representing the two-dimensional conditions in a binary square matrix: the right digit even-odd, and the left digit is low-high.

The *I Ching* identifies the top line of the bigrams as Heaven, and the bottom line as Earth. Heaven is dark (*yin* / 0) or light (*yang* /1). Earth is yielding (*yin* / 0) or *firm* (yang / 1) (Wilhelm, 1950: 264). The binary typology is limited to words that function as symbols (especially symbols with attributes that can define domains), rather than simply words that have semantic meaning or function in a descriptive capacity.

The *I Ching* defines the bigrams as the four emblems (xi*ang*): old, great, or major *yang* (11); young, little, or minor *yang* (10); old *yin* (00); and young *yin* (01) (Wu, 1991:16-17; Legge, 1964:*xxxvi*). They also relate to the four seasons, of which the *I Ching* says, "There is nothing that has more movement or greater cohesion (than the four seasons)" (Wilhelm, 1950:319).

The terms *yang* and *yin* indicate the bottom line (the horizontal dimension), and their process of *yang*-ing or *yin*-ing the top line (lateral dimension), denoted as old and young, which indicates the interaction effect. Old indicates 'doubled' or two lines 'the same.' Young is a qualifier indicating the top line is different or opposite to the 'process' symbol. One interpretation of young *yang* would be "*yang*-ing" the opposite (i.e. *yin*); while young *yin* would be "*yin*-ing" the opposite (i.e. *yang*)

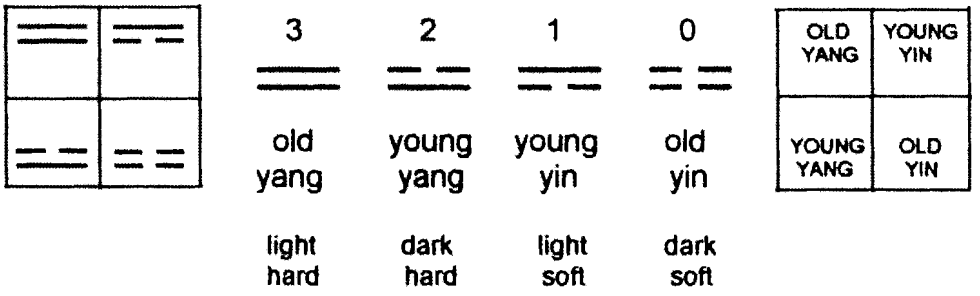
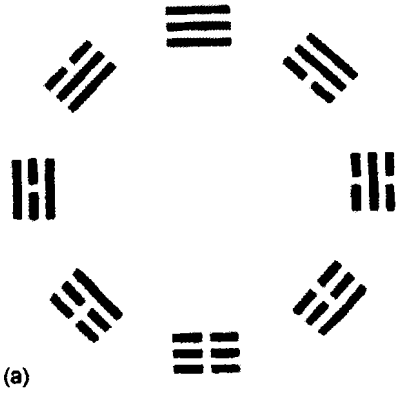


Figure 3.18 the bigrams *(xiang* /emblems) as old or young *yin* or *yang* conditions.

The way the term Old is used, one interpretation of old *yang* is "*yang*-ing the same" (i.e. *yang*). Old *yin* is "*yin*-ing the same" (i.e. *yin*). This suggests the horizontal dimension defines *yang*-ing versus *yin*-ing). The lateral dimension (top line) is the subject (*yang* on top and *yin* below) of this *yin*-ing and *yang*-ing.

3.C.2. Impression of a Cube in the *Early Heaven* Trigram Sequence [O]

The *Early Heaven Sequence* (also *Prior Heaven Arrangement* or the *Outer World Map*) is described in The *Discussion of the Trigrams* in the *Ten Wings* section of the *I Ching* (Wilhelm, 1950:265-269). In this diagram the trigrams are arranged in a circle (Figure 3.19), attributed to Fuxi (c. 3322 BCE), the legendary father of Chinese culture and science (Legge, 1963:11). This indicates that the diagram probably predates the *I Ching* by a considerable time (Wilhelm, 1950:266). The binary order clockwise from the top right is 3, 2, 1, 0, 4, 5, 6, 7, and from the top, counterclockwise it is 7, 6, 5, 4, 0, 1, 2, 3. This suggests an intrinsic order.



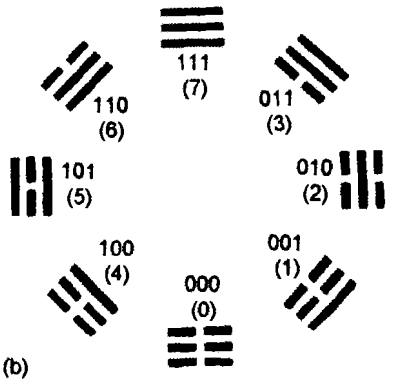


Figure 3.19 (left) *Early Heaven* circular trigram sequence (Fuxi arrangement)

Figure 3.20 (right) *Early Heaven* arrangement with binary notations and numbers

3.C.2.a. Interpretive modeling: the Early Heaven Sequence as a cube [P]

I draw lines from each trigram to the three other trigrams that have two common *yin* and/or *yang* lines. This yields an impression of a cube (Figure 3.21), from an unusual frame of reference that depicts two different perspectives at the same time. This cubic model makes the *Early Heaven Sequence* relevant to this thesis because it establishes a crucial link between the *I Ching* and the binary matrix.

There is nothing in the historical literature that relates the *Early Heaven Sequence* to a cube or suggests the notion of dimensions. And yet from a structural perspective, this diagram satisfies the conditions of a cube. More importantly it establishes a conceptual link between the *Binary Archic Matrix* and the *I Ching* trigrams, which thereby grounds the BAM model in Chinese cosmology. The trigrams in the *Early Heaven Sequence* clearly identify the corners of a cube.

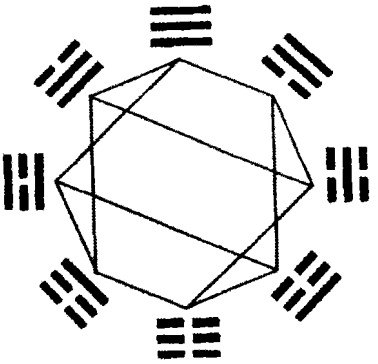


Figure 3.21 *Early Heaven Sequence* with trigrams linked by two shared lines

In Figure 3.22, the cube is oriented to the *Early Heaven Sequence* in two ways, to illustrate the relationship of each trigram to a specific corner of the cube. This supports the conceptual link between the binary matrix and the *I Ching* system.

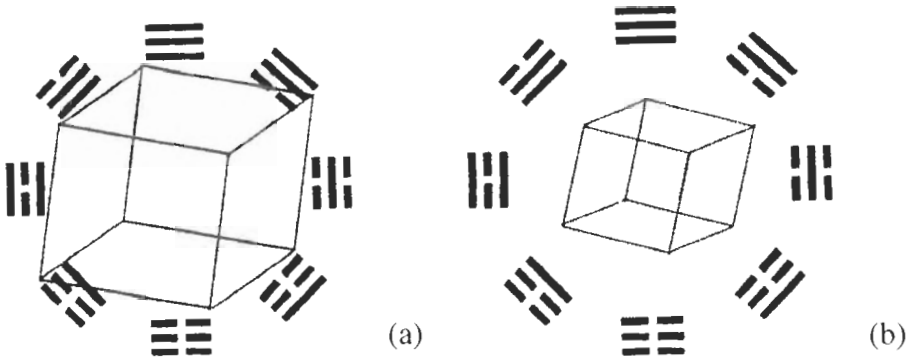


Figure 3.22 Defining a cube: (a) on the *Early Heaven Sequence*, and (b) within it

3.C.3. Contemporary Models that Represent the Trigrams as a Cube

After conceiving of the trigrams on a cube, I recalled a very different cube model I was shown in 1989 by Dr. K. Dhiegh, director of the International *I Ching* Studies Institute. His "*I Ching* Universe Cube" is composed of eight sub-cubes (Figure 3.23), each with a different primary trigram at one corner (Dhiegh, 1973: 239). While the positions of the trigrams relative to each other on the cube are changeable, the arrangements he shows indicates that he appears to be dealing with a system of combinatorics, rather than with a set of dimensional principles.

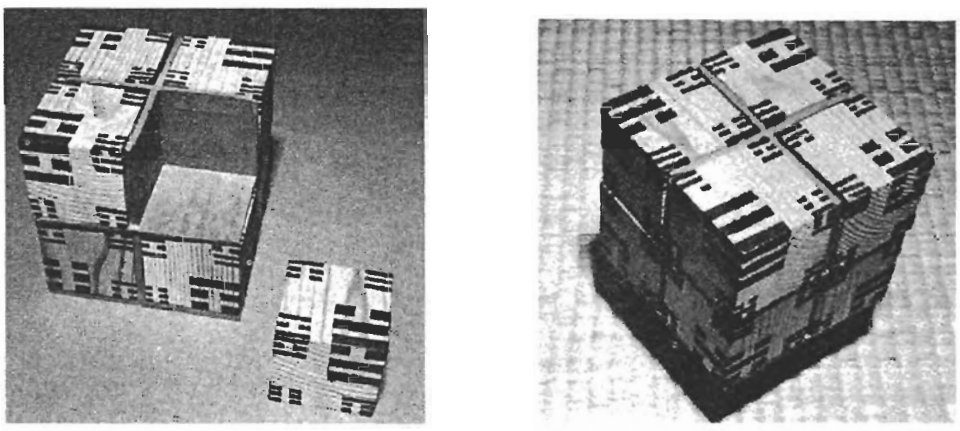
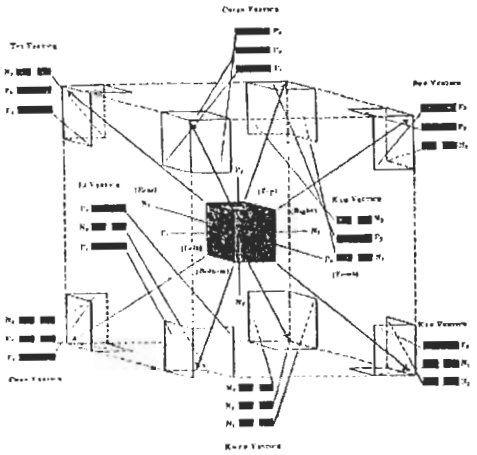
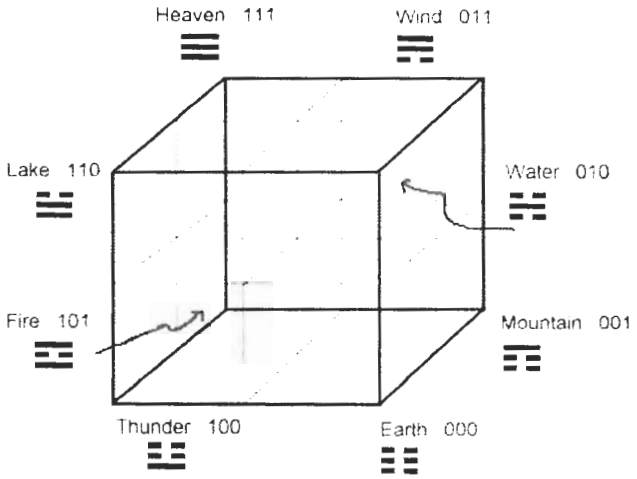


Figure 3.23 Khigh Dhiegh's *I Ching* Universe Cube: two views (Dhiegh, 1973)

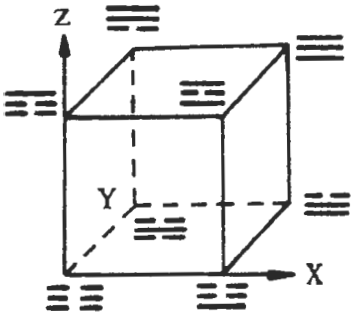
I subsequently developed four more diagrams with trigrams arranged in a cube format. All five cubes present the trigrams in different orientations, none of which shares the same orientation as my cube. Therefore none can be directly overlaid onto the trigrams in the *Early Heaven Sequence* or my interpretation of it as a cube. The earliest is a cube by Z.D. Sung (1934:12), a scholar from Taiwan who demonstrated the algebraic and geometric properties of the trigram set. Other cubes were created by Jou (1984:57), Yan (1991:28), and Walter (1994:125.



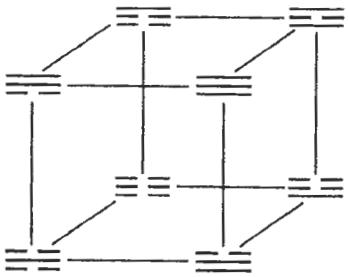
(a) Sung's cube



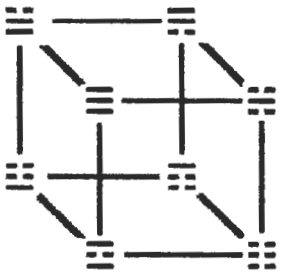
(d) Secter's binary cube



(b) Jou's cube



(c) Yan's cube



(d) Walter's cube

Figure 3.24 Five contemporary diagrams with the trigrams in a cube format
3.24 (b), (c), and (d) reprinted by permission of author.

In the cubes by Sung, Jou, and Yan, the trigrams are connected by the same principle that defines my cube based on the *Early Heaven Sequence*; each trigram is linked to the three other trigrams with two common lines in their symbols. The cubes by Walter and Dhiegh are not constructed on this principle. Other historical books with diagrams on the *I Ching* show various trigrams arrangements (Wilhelm, 1950; Fung, 1952/53; Hook, 1973; Sherril & Chu, 1977; Liu, 1979; Govinda, 1981; Cleary, 1989). None of these discusses a cube, so it is reasonable to conclude that a cubic format is not a historical model, or part of the early *I Ching* literature.

3.D. Articulating the Binary Cube Based on The *Early Heaven Sequence*

The Binary Cube diagram is an orientation of the trigrams (binary triplets) based on the cube interpretation of the *Early Heaven Sequence*. The eight sections of the cube are separated and shown as distinct binary 'types' (Figure 3.25.a). I demonstrate equivalence between the binary matrix and the *Early Heaven Sequence* by placing a copy of each triplet outside the perimeter of the binary cube. I also rotate the *Early Heaven Sequence* (Figure 3.25.b) to align with the binary cube.

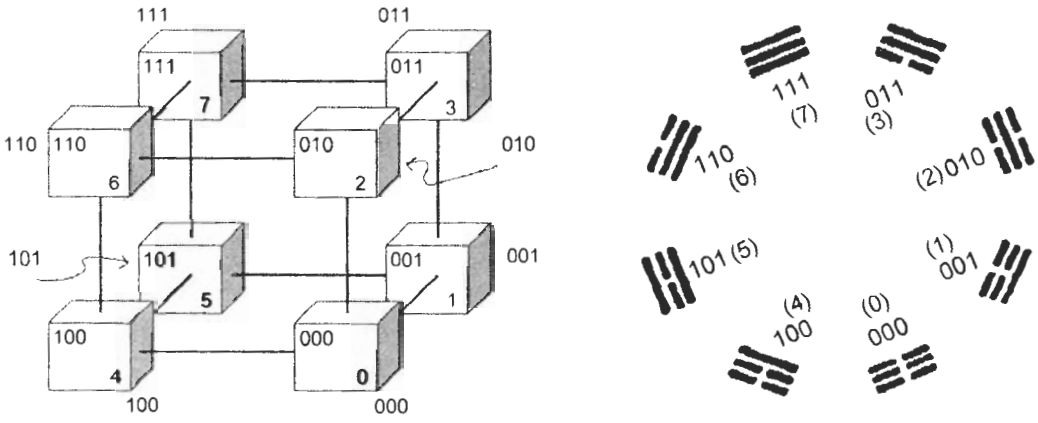


Figure 3.25 (a) an exploded binary cube model as the (b) the *Early Heaven Sequence*

3.D.1. Integrating the Binary Cube with the Bigrams and Trigrams

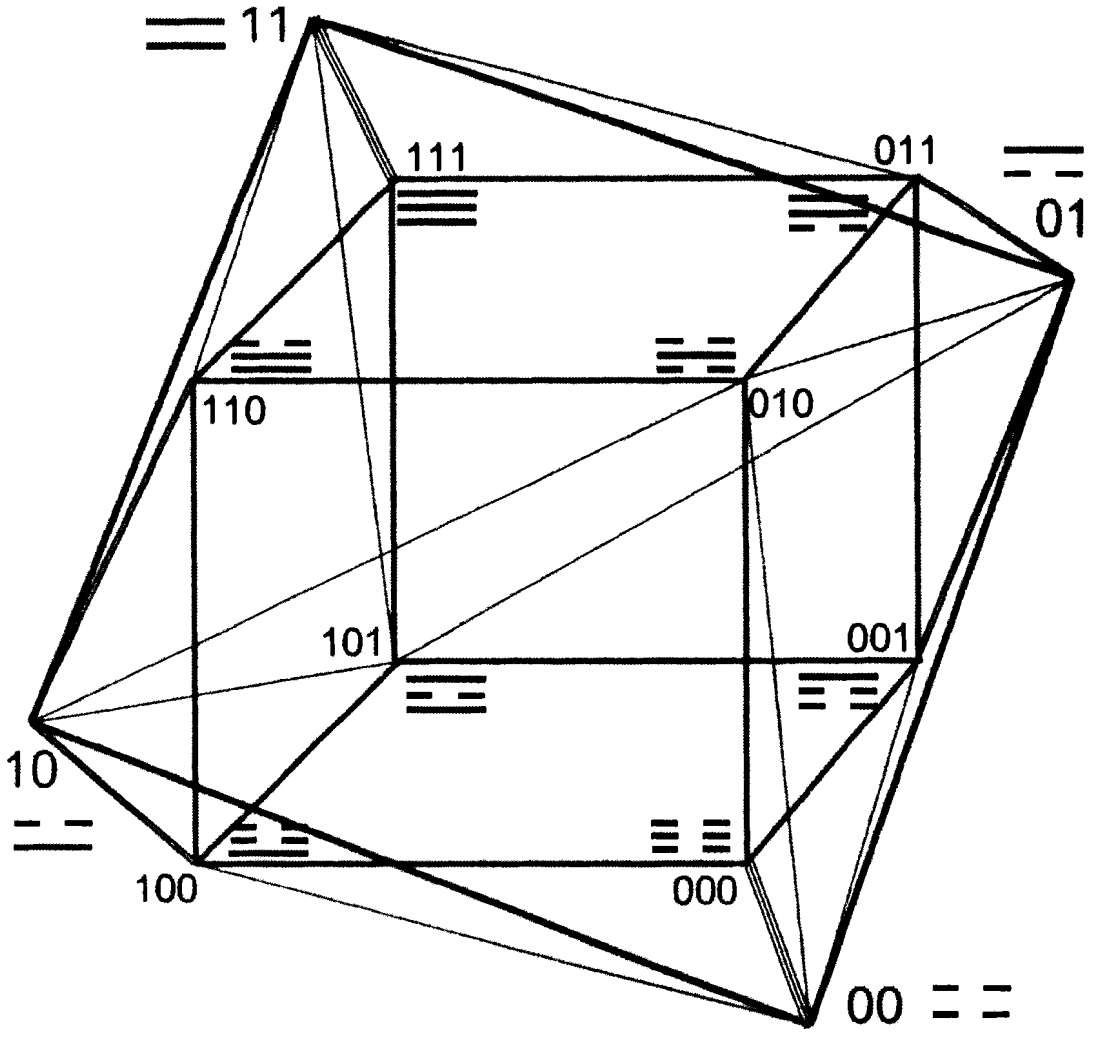


Figure 3.26 the *Binary Archic Matrix* with trigrams, bigrams, triplets, and doublets. the trigrams and bigrams represent the archic (descriptive) conditions

The *Binary Archic Matrix* (Figure 3.26) is a mathematical model in which a cube and a square are connected according to the binomial (two-digit) links between the doublets and the triplets. Single links between doublets and triplets are depicted with one line; double links with two lines; and triple links with three lines.

3.D.1.a. The structure of the binary matrix design

I have designed the binary matrix so the size and orientation of the square to the cube is a function of the relative distances between the doublets and triplets. I arbitrarily base the distances on the number of links from each doublet to its four triplets (Table 3.6), using an inverse ratio: the more links, the shorter the distance. For example, with doublets 10 and 01 have single and double links to triplets. The distance to triplets with two links (110 and 100 for doublet 10, and 001 and 011 for doublet 01) is half as much as the distance to the two triplets with one link (101 and 010 for both doublets).

Doublets 00 and 11 have single and triple links. The distance to the triplets with three links (111 for doublet 11, and 000 for doublet 00), is one third the distance to the three triplets with a single link (110, 101, 011 for doublet 11, and 001, 010, 100 for doublet 00). These rules or conditions circumscribe the specific proportions of the square relative to the size of the cube. Moreover they define the 2x2 matrix as being a diamond rather than a square (Figure 3.26).

The Binary Matrix illustrates how structure and character changes from two dimensions to three. This means dimensions (in binary modeling), are constrained by a principle that precludes creating a three-dimension model or state by adding one more dimension to two existing dimensions. I cannot create a cube by adding one more dimension to a square. A third dimension can be added to two dimensions only if the two dimensions are actually a pair of three-dimensional conditions.

That is, I can add a third condition if all three can be explained according to triplets. Conversely, where some internally consistent theory or method of modeling

identifies three dimensions, one of the dimensions cannot arbitrarily be removed to achieve simplicity or economy. This suggests that the defining characteristics of the dimensions in a two-dimension typology convey or inform culture in a way that is fundamentally different from the way in which the characteristics of the dimensions in a three-dimension typology convey culture.

Basically, triplets and doublets are different in kind, so that conditions represented by a doublet (such as 10), do not operate in the same descriptive sphere or dimensional domain as condition represented by a triplet (such as 110).

3.D.1.b. A structure of transformation from two dimensions to three

When a totality is defined by two domains (or dimensions), each generates half the descriptive character or explanatory power. Together they define four types that can be represented by two binary digits. One domain is represented by the right digit (R), and the other is represented by the left digit (L) (Figure 3.27.a and b).

Further, when a totality is defined by three domains, each domain provides one third of the explanatory power. These define eight types that can be represented by three binary digits. Since R and L represent the totality, a shift from two to three domains is a change in the description of the totality, and not a change of the totality (Figure 3.27). Nothing substantive is added to the totality, but something is added to the description, characterization, and understanding of that totality.

Therefore, the third domain (shown as the middle digit in Figure 3.27.c), expresses an integrative aspect whose RL combination is different in kind from either LL (left) or RR (right). Figure 3.27(b) represents the conditions of right-ness (R) and left-ness (L) in doublets with three symbols (letters) each, in order to be

able to represent the three digits in the triplets with an equal number of symbols (letters). In this way, the total condition of doublets can be shown to be equal to the total condition of triplets. They are the same condition conceptually reorganized in different dimensions.

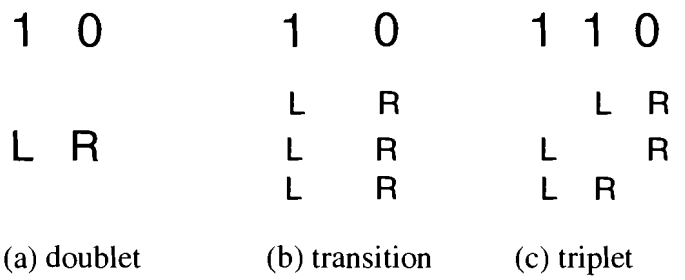


Figure 3.27 Transition from two dimensions to three; the binary digits in the doublets and triplets in the example could be any combination of 1s and 0s.

The third domain is defined by taking one letter from each of the two original domains. The left digit remains an exclusively L domain, and the right digit remains an exclusively R domain. While the middle digit is half R and half L. Each domain is described by two letters: left is LL, middle is LR, and right is RR. This provides an illustration of the eidetic reduction that defines a third distinct domain.

The descriptive shift from a model composed of two-domains (doublets), to a model composed of three domains (triplets), reduces the explanatory power of each domain by one third since three domains are required to describe what was previously described with two domains. Figure 3.27 illustrates that there are only three unique and distinct domains when description is limited to the two original conditions or R and L; these are R-ness, L-ness, and RL-ness.

3.D.2. Synthesizing the Binary Matrix

The *Binary Archic Matrix* represents a typological paradigm shift. It is an alternative approach to understanding culture, and to modeling or representing culture and cultural dimensions. This approach defines culture according to two sets of mutually informing and mathematically interconnected conditions: doublets and triplets. The inter-connections are deployed graphically. The *Binary Archic Matrix* is a typology that consists of the binary square, the binary cube, and the semantic elements or conditions that describe the characteristics of the triplets and doublets.

My dissertation identifies the semantic conditions of the triplets, which I adapt from the *I Ching*. These semantic conditions are the words and phrases used in the *I Ching* to describe the attribute of the trigrams, and to a very limited degree, the bigrams. I propose that cultural types can be understood by using the BAM model with its triplet/trigram typology.

Adding the semantic component is an important, and perhaps essential explanatory element to escribing the eight types in the *Binary Archic Matrix* typology. This constitutes in the main, the BAM model. My method of identifying dimensions by comparing shared trigram attributes to a common feature in the trigram symbols, is compatible with one described by Adamopoulos (1984:494:

> Dimensions of social behavior are usually derived from the factor analysis of similarity indexes between behaviors. These indexes - usually correlation coefficients - are constructed from observations of the co-occurrence of behaviors in different situations.
>
> An alternative method of obtaining behavioral dimensions could use similarities between behaviors based on the different resources implied by these behaviors. If the suggested relationship between behavioral features and the structure of the resource classes exists, then, as a minimum, the dimensions derived from the two approaches should be the same

I transpose the underlined portion of the above quote as follows (the underlining is mine), retaining the format as a quote to facilitate comparison:

> An alternative method of obtaining behavioral dimensions could use similarities between the trigram characteristics based on the three underlying conditions or dimensions implied by these characteristics. If the relationship exists between trigram characteristics and dimensions whose conditions are implied by the trigram lines, then, as a minimum, the dimensions derived from the trigrams should be the same as dimensions derived for those characteristics using factor analysis.

This means that when different cultural units or clusters, including the trigrams themselves, are organized on the BAM matrix, we should be able to explain cluster behaviors and/or trigram characteristics according to domains implied by the behaviors. I will use the BAM model to show that the shared behavioral features or characteristics correspond to the common line conditions in the trigram symbols, namely the *yin*-ness or *yang*-ness of each of the three lines.

To the extent that relationships between behavioral features of the clusters and the three trigram lines can be suggested, the underlying conditions or domains related to those lines should be the same as the domains found for the same clusters using some operational instrument and factor analysis.

In the next chapter I examine and explicate the characteristics of the eight trigrams in the *I Ching*. I then analyze the characteristics using theoretical reasoning and intuitive logic to identify three underlying domains for the eight trigrams. Finally, I adapt the descriptions and domains to the binary matrix to provide semantic qualities for the eight binary triplet sections in the binary cube.

Chapter 4

> Heaven and Earth are in symmetric harmony,
> Bestowing sweet dew (rain) upon the world below.
> None of the people can command it to be so,
> And yet it is equally distributed of its own accord.
> After the genesis of things, came the dispensation of names.
> Since the names have already been dispensed,
> We should understand where to stop.
>
> Lao Tzu, (Ch'en trans. by Young & Ames, 1981:171)

Adapting the Semantic Content of the Trigrams to Binary Types

In this chapter I embrace the eight archetypal trigrams from the *I Ching* to the binary cube. Up to this point I have linked each trigram symbol to the triplet with the same binary value or imprint. Next I adopt the trigram characteristics to the triplets, providing them with semantic meaning. This defines a typology with eight basic descriptive terms that can be used to characterize cultural types. My last objective in this chapter is to identify three underlying conditions that account for or explain the descriptive attributes of the trigrams. My intention is to explore the viability of these attributes as cultural domains. Before doing this I provide some general background material on the *I Ching* system as it relates to this thesis.

4.A. A Conceptual Approach to Identifying Semantic Qualities [R]

I conduct an explication of the eight trigrams, which form a natural development in the *yin-yang* system. This system is captured succinctly in the *Taijitu, Diagram of the Supreme Ultimate* (Figure 4.1). Fung, 1953:546) writes:

> Confucius has said that the Principle of Change (*yi*) took its origin in he Supreme Ultimate (which) divided to become two, and thus produced Heaven and Earth. (This) produced the four seasons (which) are divided

according to the *yin* and the *yang*, the hard and the soft, and thus produced the eight trigrams (Fung, 1953:102). The Supreme Ultimate (*taiji*) . . . contains the Principles governing movement and quiescence. . . . Movement and quiescence, in their alternation, are each the root of the other. . . . These two forms are Heaven and Earth.

4.A.1. *Taijitu*: Diagram of the Supreme Ultimate

The meaning of the *taiji* symbol and diagram (Figure 4.1), is explained by Fung (1953). In the *I Ching*, the terms *yang* and *yin* are named and equated to Heaven and Earth. The four bigrams (two-line symbols) are also known as the four images (*xiang*), and are referred to as the four seasons. These form the first layer of bifurcation in the *yang-yin* system. The three-line trigrams extend the bifurcation.

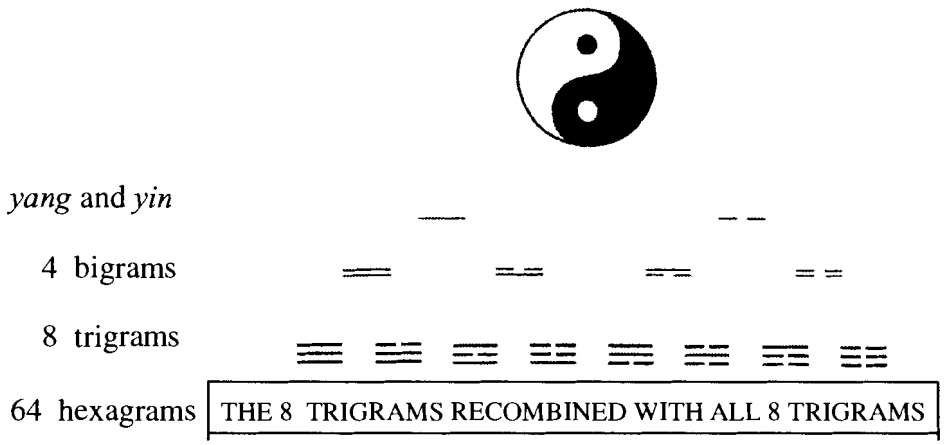


Figure 4.1 *Taijitu - Diagram* of the *Supreme Ultimate* and *taiji* symbol (Secter, 1984:20)

At this point the expansion of the system is not defined with bifurcation, but by trigram duplication. This can be best described as placing each of the 8 trigrams above each of the eight trigrams. This forms (8 x 8 =) 64 six-line symbols called hexagrams (Figure 4.2).The trigrams are part of a highly structured taxonomy that classifies information and ideas according to the sixty-four hexagrams (Figure 4.2). Each hexagram is composed of a pair of trigrams (three-line images).

4.A.2. The Nature of *Yin* and *Yang*, and the Bigrams and Trigrams

The trigrams and hexagrams are divided into three domains referred to as the three primary powers, a tripartite of which little is said in the *I Ching*. The first domain is called heaven and is represented by the top line in trigrams and the top two lines in hexagrams. The second domain is called earth, and is represented by the bottom line in trigrams and the bottom two lines in hexagrams. The third domain is called person (man), and is represented by the middle line in trigrams and the middle two lines in hexagrams. *I Ching* divination employs a method of randomly selecting a hexagram in response to a query, with the possibility of the hexagram it changing into another hexagram. This serves as a way to contextualize the situation presented by the query (Secter, 1993/2002).

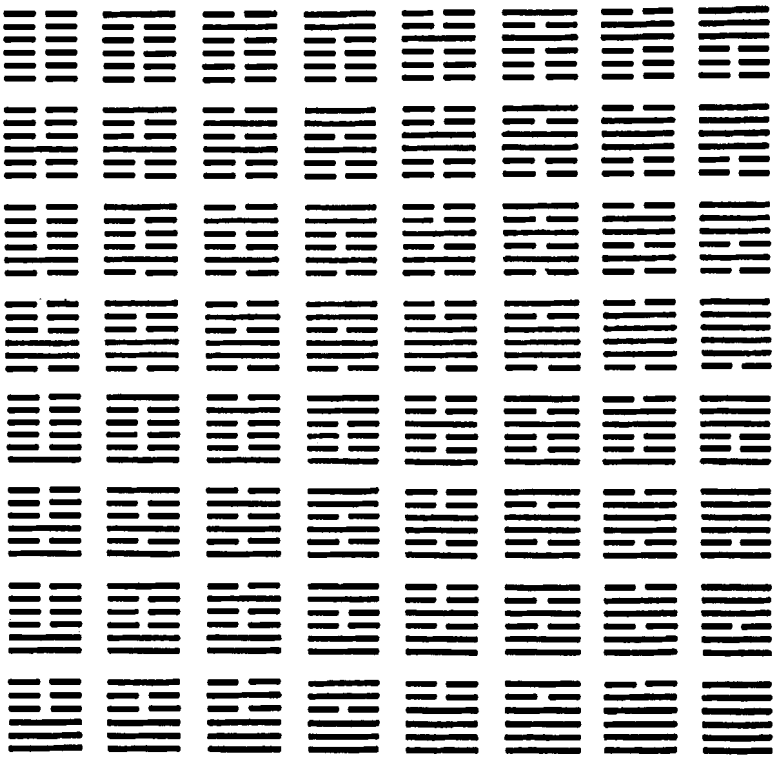


Figure 4.2 Fuxi Square arrangement of the sixty-four hexagrams (Secter, 1984:xv)

4.A.2.a. The basic qualities of *yin* and *yang*

Yin and *yang* are the polar complements at the foundation of Chinese cosmology. *Yin* is the receptive principle, depicted as a divided or open line ⚋ and characterized as yielding, passive, spreading, expanding, still, curved, and heterogeneous. *Yang* is the light, active principle, depicted as an undivided or closed line ⚊ and characterized as assertive, closing, penetrating, contracting, rigid, firm, and homogeneous. *Yin* relates to binary 0, and *yang* to binary 1. A list of the qualities associated with *yin* and *yang* is set forth in Table 4.1.

YANG ⚊ (1)	YIN ⚋ (0)
creative	receptive
undivided	divided
odd	even
light	dark
begetter of dark	begetter of light
firm	yielding
bright	shadow
contracting	expanding
in motion	at rest
positive	negative
begins things	completes things
abstract	matter
heaven	earth
accelerating	decelerating
high	low
upward moving	downward moving
straight	flexible
separating	aggregating
co-mingling	integrating
discharging	assimilating
hot	cold
closed	open
light	heavy
energy	matter
homogeneous	heterogeneous

Table 4.1 Attributes of *yang* and *yin:* paraphrased from Wilhelm (1950:280-300)

4.A.2.b. The bigrams

In his translation of the I Ching, Wilhelm writes (1950:289 & 319):

> There are no greater primal images than heaven (*yang*) and earth (*yin*)
> There is nothing that has more movement or greater cohesion that the four seasons (the bigrams)

The second layer of *yin* and *yang* consists of the bigram symbols composed of two *yin* or *yang* lines. The bottom line denotes beginning and the top line denotes ending. When both lines are the same they represent a matured state and are called old or great: *yin* over *yin* is old or great *yin*; *yang* over *yang* is old or great *yang*. Also, when the two lines are different they denote an emerging, developing, or immature state and are called young, little, or minor: *yang* below *yin* is young or minor *yang; yin* below *yang* is young or minor *yin* (Wilhelm, 1950:319).

bigram	season	identity	doublet	value	condition of motion
⚌	spring	young (minor) *yang*	10	2	developing motion
⚊	summer	old (great) *yang*	11	3	culminating motion
⚍	autumn	young (minor) *yin*	01	1	developing stillness
⚋	winter	old (great) *yin*	00	0	culminating stillness

Table 4.2 the four bigrams with their season, identity, doublet, value, and motion

Each bigram symbol is identified in Table 4.1 with one of the four seasons; an identity as old or young, *yin* or *yang*; a binary doublet; a binary number value; and stage of movement. The binary values (which range from 0 to 3), indicate that the two *yin* bigrams have the two lowest binary values: (old *yin* is 00 (0) and young *yin* is 01(1). The *yang* bigrams have the two highest values: old *yang* is 11 (3) and

young *yang* is 10 (2). The terms 'old' refers to bigrams 00 (0) and 11 (3). These are at beginning and end of the four number sequence 0, 1, 2, 3, so I interpret 'old' to mean external or enclosing. The term 'young' refers to bigrams 01 (1) and 10 (2). These numbers are in the middle of the four-number sequence, so I interpret 'young' to mean internal or enclosed.

The old *yin* bigram ⚌ (00), is a doubling, extending, maximizing or reinforcing of *yin*. Both lines are pressing down, depicting a process of aggregation, cohesion, and spreading out (Secter, 1993). The old *yang* bigram ䷀ (11), is a doubling or maximizing of the *yang*. This depicts the intensification of contraction, upward motion, and acceleration (Wilhelm, 1950:319).

The young *yin* and young *yang* bigrams are dynamic countervailing conditions, which are more erratic and unpredictable than the old *yin* and old *yang* bigrams. The young *yin* bigram ䷧ (01), represents emerging *yin*. The motion of *yin* is spreading out and settling down, and the motion of *yang* is rising up and out. So the two lines are pulling apart or away from each other. The *yin* line exerts a pull on the *yang* line impeding and/or redirecting its movement.

The young *yang* bigram ䷩ (10), represents emerging *yang*. Here the progress of the *yang* line moving up is redirected, or temporarily interrupted by the *yin* line which is pressing down from above. This also creates a form of integration or fusion as the two lines press into each other (Wilhelm, 1950).

The addition of a third *yin* or *yang* line above each bigram creates the eight trigrams, shown in the third layer (row) of the *taiji* diagram (Figure 4.1). Their attributes and qualities are characterized extensively and form a well-defined

typology and system of classification in Chinese cosmology and divination that exhibits such substantial comprehensive descriptive power based on binary bifurcation, that I suggest it can be adapted as a model for typing culture.

4.A.3. Using the *I Ching*

The *I Ching* is not so much a system of prognostication or fortune-telling as a method of classification that lends itself to problem-solving and decision-making (Secter, 1993/ 2002) . The *I Ching* can be used to frame unknown conditions in terms of that which is known: namely one of the sixty-four hexagram archetypes. In this way, the *I Ching* could be considered a kind of expert system.

The traditional way of using the *I Ching* is a form of divination. One defines or articulates a problem or situation in the form of a query, and then uses a method of random selection to choose a hexagram. Three traditional methods of divination use fifty yarrow stalks, or three coins, or sixty-four bamboo strips to generates a hexagram. This response provides a context for understanding, reflecting on, considering, and dealing with the situation related to the query.

Those who use the *I Ching* in this way are exercising a form of "rational intuition" to interpret the hexagram text within the context of the situation, and where necessary, to decide on the appropriate mindset and course of action required to achieve the optimal outcome (Secter, 1993/2002). The sixty-four hexagrams constitute a system of classification. The method of random selection provides an unplanned lens through which to creatively consider situations. It also provides a common conceptual language, framework, and frame-of-reference for problem-solving and decision-making.

4.B. Utilizing the Trigram Characteristics as an Explanatory System [S]

One reason for adopting the trigrams and their characteristics as a descriptive typology for the binary matrix, is that the binary matrix is lacking the necessary descriptive qualities and conditions for describing culture(s). I have established a binary correspondence between the eight triplets and the eight trigrams (Chapter 3).

Without semantic content, the binary matrix is simply an internally consistent binary typology and framework. I therefore adopt the archetypal characteristics of the trigrams as semantic content for the eight sections in the binary cube. This imbues the binary cube matrix with descriptive qualities for each type and invests the cube with semantic meaning.

The trigrams are each assigned a considerable array of characteristics that provide them with the equivalent of archetypal personalities. The trigram symbols serve as visual mnemonic metaphors that graphically assist to recall and convey their characteristics. Although there are no conditions in the *I Ching* system that are equivalent to domains that account for those trigram characteristics.

There is nothing specifically linking the *yin* or *yang* state of each trigram line to its characteristics. But, I submit there is a defining relationship between the three trigram lines and the trigram characteristics. This chapter will demonstrate that the trigram lines provide a context for expressing the semantic character of the trigrams. This adds descriptive and interpretive flesh to the structural bones of the binary cube. In this way I define the *"Binary Archic Matrix"* as a typology for schematizing the structure and character of culture.

I use the term 'archic' to refer to the conceptual and philosophical principles that function implicitly in the minds of most people, that enable them to make the notational and semantic components of the *Binary Archic Matrix* understandable and meaningful (Watson, 1993:166). The *Binary Archic Matrix* is composed of binary states: domains that define elements, that describe types in the binary realm. The matrix also includes descriptive conditions borrowed or adopted from the trigrams. These provide the binary states with semantic context and meaning.

4.B.1. Explicating the Trigrams

In this section, I compare the trigrams to see what similarities if any can be identified among those trigrams that have shared *yin* or *yang* lines. I then compare those trigrams with a *yin* line in any one of the three positions, to those with a *yang* line in the same position. This helps determine the 'within-group' similarities and the 'between-group' differences. This enables me to identify the underlying condition or eidetic domain that identifies or determines the characteristics for that trigram line.

As a review, the eight trigrams are archetypes represented by three-line symbols. These symbols form the *yin-yang* system and cosmology that is at least three thousand years old. The trigrams are each historically imbued with a comprehensive set of characteristics. They also function as the basic building blocks of hexagrams, the sixty-four categories in the *I Ching*. The trigrams are symbolic metaphors that are understood throughout East Asia and across much of South East Asia. Moreover, they represent a conceptual model that east Asians can generally identify with and/or relate to (Fung, 1952; Chan, 1967).

I will demonstrate that the trigrams can be easily adapted to a typology of culture, and more importantly, to Western notions, theories, and approaches to depicting and modeling culture. For that reason the trigrams represent an Asian paradigm for modeling culture that I have adapted to a Western context. This could make it useful as a tool discussing and negotiating culture and cultural issues in global situations and cross-cultural relationships.

4.B.2. The Underlying Principles of the Three Trigram Lines: a Theory

The Confucian commentary appended to the *I Ching* text provides a wealth of information and explanation about the trigrams and about *yin* and *yang*. Little is written in the *I Ching* (or elsewhere) about the four two-line images called bigrams. According to *I Ching* tradition the bigrams represent the interim stage between the polar forces of *yin* and *yang* and the three-line trigrams (Secter, 1993:20).

The original terms in the *I Ching* for expressing complementarity are Heaven (whose two modes are dark and light); and Earth (whose two modes are yielding and firm). Later, *yin* and *yang* were employed, with *yin* meaning dark, cloudy, and overcast, while *yang* referred to something bright and shone upon. *Yang* is the south side of a slope that receives sunlight, and the north side of a river that receives reflected light. The reverse is true for *yin,* which is the north side of a mountain and the south side of a river. (Wilhelm, 1950:297).

When the lines combine or cluster into three they form trigrams. These are accorded names, qualities, characteristics, and archetypal status. Table 4.3 introduces each trigrams with its main attribute, Chinese name, translation of the name, and a primary quality. These are adapted from Wilhelm (1950:*l-li*).

trigram	attribute	name	(in Chinese)	characterisic
	Receptive	Earth	kun	yielding
	Still	Mountain	gen	dependable
	Mysterious	Water	gan	unfathomable
	Subtle	Wind	sun	penetrating
	Arousing	Thunder	jen	energetic
	Clinging	Fire	li	graceful
	Joyful	Lake	dui	brash
	Creative	Heaven	qian	powerful

Table 4.3 the eight trigrams with their name and main attribute

The trigrams are thoroughly explained in the *Discussion on the Trigrams* (*Shuo Gua*), a section of the Ten Wings commentary that focuses exclusively on the trigrams (Wilhelm, 1950: 262-279). This chapter of the *I Ching* explicates the trigram system, defines the trigram attributes, and describes their characteristics.

Additional explanations of the trigrams are found throughout the *I Ching*. My intention is to ascertain whether or not trigrams share any identifiable characteristics when they are grouped according to the *yin*-ness or *yang*-ness of each trigram line. I therefore analyze all the descriptive material on the trigrams, and analyze their binary numbers and values to determine if a significant aspect or portion of the trigram characteristics could be explained according to the *yin* or *yang* character of the three trigram lines.

The analytical process entails an 'internal' comparison of the four trigrams with the same *yin* or *yang* condition for each line, and an 'external' comparison between the *yin* group and the *yang* group for each of the three lines. In Table 4.4 the binary component (triplets and their numerical values), is added to the trigrams. These are shown in ascending numerical order (0 to 7).

000	0		Receptive	EARTH
001	1		Still	MOUNTAIN
010	2		Mysterious	WATER
011	3		Subtle	WIND
100	4		Arousing	THUNDER
101	5		Clinging	FIRE
110	6		Joyful	LAKE
111	7		Creative	HEAVEN

Table 4.4 the eight trigrams with binary numbers, symbols, attributes, and names

I will show that the trigram attributes are conditioned or informed by three specific domains or conditions that relate to the three lines to a significant extent. This leads to my theory that the trigrams lines represent eidetic conditions. My reasoning was that if cultures can be categorized according to the various trigrams, they can be compared for relative compatibility based on the similarities and differences of both the trigram symbols and their attributes.

4.B.3. A Brief Description of the Eight Trigrams

I outline the trigrams below. The descriptive attributes and page number references in parentheses are for *The I Ching* (Wilhelm,1950). Other descriptions are from *I Ching Clarified / The I Ching Handbook* (Secter, 1993/ 2002:20-32). Wilhelm (1950:*l*), translating *The I Ching*, writes:

> (The) eight trigrams were conceived as images of all that happens in heaven and on earth. (They are) symbols standing for changing transitional states. (They are) not representations of things as such but of their tendencies in movement

4.B.3.a. Receptive Yielding Earth ䷁

This trigram is homogeneous, adaptable, accepting, expansive, and harmonious, as well as absorbing and all-encompassing. Its nature is yielding (565), giving (482) and generous (502), humanitarian, frugal (448), devoted (409, 427), soft, and gentle. It is also described as matter or material substance, and in terms of being abundant, sheltering, nourishing, open and receiving (427). Its nature is to sink down (428, 441, 446); its character is level (579). [spreading outward].

4.B.3.b. Still Stable Mountain ䷳

This trigram is the proverbial or notorious immovable object. It is everything that something massive and firm (516) should be: steadfast, rock solid (469), sturdy, calm (512), and protective. It can be counted on to be in the same place, which is reassuring, and makes it reliable, faithful, reserved, dependable, helpful, fostering and nourishing (511). It is firmly established (496), self-assured, humble, and has an overview of things (399). Its movement is within, pressing down (675), moving down (461), and yet piling up. [unwavering stillness]

4.B.3.c. Mysterious Unfathomable Water 

This trigram is fearless, courageous, and rugged, often challenging itself and contending with others. Like a river whose banks confine the water, this trigram is likewise confined, often leading to melancholy, doubt (468), insecurity, and inner turmoil. It can also be emotionally distraught (532) or confused, and perhaps wild in acting out its frustrations. Water nourishes and erodes, always flowing and filtering downward into the darkness (426-28). This accounts for its association with mystery (468) and wisdom (426), as well as danger (400, 411) and cunning (416) or crafty ingenuity. [flowing, spiraling, down]

4.B.3.d. Subtle Penetrating Wind 

This trigram is self-assured, purposeful, and determined. While sharing (434), it likes to maintain order (576) and exert influence (614) or control (680) things. Like living plants, it is supple and pliable, adaptable (654), vigorous and penetrating (432). It is often unseen (616) or concealed (454), elusive, suggestive, and insinuating, and can be reflective and proud. It is curvaceous, voluptuous, and amorous, as well as unpredictable. It sometimes drifts aimlessly (471), but it ultimately settles down. [blowing upward, settling down]

4.B.3.e. Arousing Energetic Thunder 

This trigram is energetic, adventurous, speculative, and restless (655), as well as arousing, instigating, energizing, impulsive, and stimulating. In addition to being imaginative, versatile, and taking initiative (474), it is the personification of all that is enterprising, resourceful, exciting (600), skillful, and resilient, and noted for moving and inciting others to action. It is exceptionally mobile (507, 547), fast,

and pressed forward (584), generally spreading out and up (429, 461) rather than sinking down, but it can become agitated (423). [resonating upward and outward]

4.B.3.f. Clinging Graceful Fire 

This trigram is devoted, gracious (439), and warm, with a tendency to being hot, explosive, and combustible. It has no material substance and relies on external resources for its sustenance, which may account for its pragmatic devotion (458, 571) and commitment. This also makes it feel restrained (494). Its dependency (435) requires clarity (412, 452), quickness, perceptive, clever, sharp, bright, and beautiful. This causes it to be clinging, indecisive, temperamental, consuming, and inclined to expend more energy on form (423) than on substance. Although its movements are quick it actually moves slowly and upward (451). [flaring up]

4.B.3.h. Joyful Brash Lake 

This trigram is not always what it seems. On the surface it can be casual, precocious, easy-going, and cheerful (625), often inviting, attracting, tempting, with the promise of joy and pleasure (412). It can also be brash or foolhardy. In difficult or dicey situations it will use its innocence or inexperience to advantage. It can also be mischievous, manipulative, and destructive (666, 685), breaking things up (631) and being divisive (433). It's upward motion is through mistiness (431) and evaporation (591, 624), but this powerful, upward streaming energy is usually overlooked.

4.B.3.h. Creative Powerful Heaven 

This trigram is essentially homogenous. It is serious, principled, and inasmuch as it is true to itself, it moves effortlessly (327). It is judging (438) and authoritarian, and stern (604), strong (211, 516), dominating, resolute, defiant (604), unswerving, and inflexible. It is generally compared to metal (493), which is hard and cold, and is associated with being reserved (552), efficient and compact, and lean. Overall, it is strong, muscular, aggressive, virile, contending (268), and pushes ruthlessly (438). Its substance is energy rather than material and it moves upward (432, 436) quite forcefully, in a straight line (301). [propelling upward].

4.B.4. Attributes and Qualities of the Eight Trigrams

Next I analyze the trigrams attributes, first examining those whose top line is *yin* in order to identify their common characteristic; and then examining those whose top line is *yang* in order to identify their common characteristic. Finally I compare and contrast these two groups to determine what general condition best describes or articulates the two sets of characteristics. I then repeat the comparison for the middle and bottom trigram lines.

The trigram attributes and characteristics are summarized in Table 4.5. At the top of each column is the original trigram symbol and a new eidetic symbol that characterizes its direction, basic energy, and motion (Secter 1984/1993/2002). The Table includes, the Chinese name, its English counterpart, the corresponding binary number, and its numerical value. The descriptive information is divided into two groups: the main traditional attributes; and some of additional descriptive qualities and behavioral characteristics associated or identified with the trigrams.

3.B.4.a. Attributes of the Eight Trigrams




Kun	**Gen**	**Kan**	**Sun**
Earth	Mountain	Water	Wind
000 (0)	001 (1)	010 (2)	011 (3)
<u>Traditional Attributes</u>			
mother	youngest son	middle son	eldest daughter
ample / huge	solid	portly	shapely
abundant	heavy	stocky	voluptuous
cow	dog	wild boar	rooster
soil	stone /mineral	timber /logs	trees / plants
pitch black	green	bright red	white / silver
early autumn	early spring	winter	early summer
southwest	northeast	north	southeast
<u>Qualities and Characteristics</u>			
spreading down	pressing down	spiraling down	billowing down
accessible	impenetrable	penetrable	impermeable
all-encompassing	immovable object	assimilating	ephemeral
shapeless	massive	flowing	twisting
amorphous	resisting	coursing	elusive
spreading out	heaped up	delimited	unbounded
indefinable	piled	contained	billowing
all-absorbing	protective	confined	fanning out
encompassing	calm	easily incensed	pliable
diverse	introspective	easily provoked	supple
divergent	dedicated	adaptable	resilient
accepting	principled	adjustable	multi-tasking
yielding	dependable	inner turmoil	purposeful
open-hearted	humble	easily frustrated	reticent
maternal	faithful	tactical	proud
sheltering	responsible	expedient	surreptitious
humane	helpful	wild	secretive
nourishing	encouraging	courageous	clandestine
natural	ethical	brave	persistent
accommodating	immense	unpredictable	cerebral
unflappable	immovable	adventurous	seductive
undisturbed	self-assured	fearless	sinuous
unconcerned	not intimidated	welcomes risk	influencing
free of agenda	service oriented	ingenious	designing

4.5(a) Outline of attributes for the four trigrams whose bottom line is *yin*. Some of these are presented in contemporary idiomatic terms.

			
Qian	**Dui**	**Li**	**Jen**
Heaven	Lake	Fire/Flame	Thunder
111 (7)	110 (6)	101 (5)	100 (4)
Traditional Attributes			
father	youngest daughter	middle daughter	eldest son
blasting off	ascending mist	rising light / heat	rebounding
muscular	ripe	lithe	athletic
virile	nubile	impassioned	stimulating
unimaginative	sensual	spirited /spicy	ingenious
lean horse	sheep / goat	pheasant	dragon / reptile
metal	pond /evaporation	flame	grain
deep red	blue	yellow	ochre /orange
early winter	autumn	summer	spring
northwest	west	south	east
Qualities and Characteristics			
propelling up	streaming up	flaring up	resonating up
propelling	embracing	blazing	electric
irresistible force	receiving	incinerating	magnetic
dispassionate	overwhelming	intellectual	independent
autocratic	indifferent	explosive	individualistic
analytical	self-indulgent	temperamental	enterprising
despotic	tempting	equilibrium	enthusiastic
efficient	insensitive	self-control	stimulating
oppressive	immense	intelligent	encouraging
overpowering	provocative	shrewd	changeable
hard	daring	warm	personable
lean	defiant	friendly	charming
muscular	manipulative	energetic	inspiring
combative	teasing	cerebral	persuasive
unyielding	audacious	perceptive	convincing
controlling	impudent	methodical	creative
authoritarian	presumptuous	supportive	inventive
tireless	bold	insecure	exciting
impassive	immodest	vulnerable	instigating
contending	desirable	engaging	communicative
demanding	appetizing	alluring	arousing
inflexible	rash	dependent	adaptable
merciless	arrogant	passionate	swift
relentless	tempting fate	piercing	versatile
predictable	foolhardy	securing	resilient
prepared	inexperienced	tactical	elastic

4.5(b) Outline of attributes for the four trigrams whose bottom line is *yang*

Table 4.5 Attributes of the eight trigrams

4.C. Analyzing the Trigrams for Universal Domains [T]

In this section I analyze and compare the trigram attributes according to the three trigram lines. I propose that the attributes can be explained with three integrated conditions or domains that correspond to the three trigram lines. I suggest that the trigram qualities and three underlying domains or conditions can be used as a template for describing cultural types. Such a model can be used as a tool organizations for defining and describing culture.

In order to discover whether there are any characteristics that can be identified with or related to the three trigram lines, I divide the trigrams into groups of four, based on the three axes, which correspond to the three trigram lines. In one group the line in question is *yin* (0), and in the other it is *yang* (1).

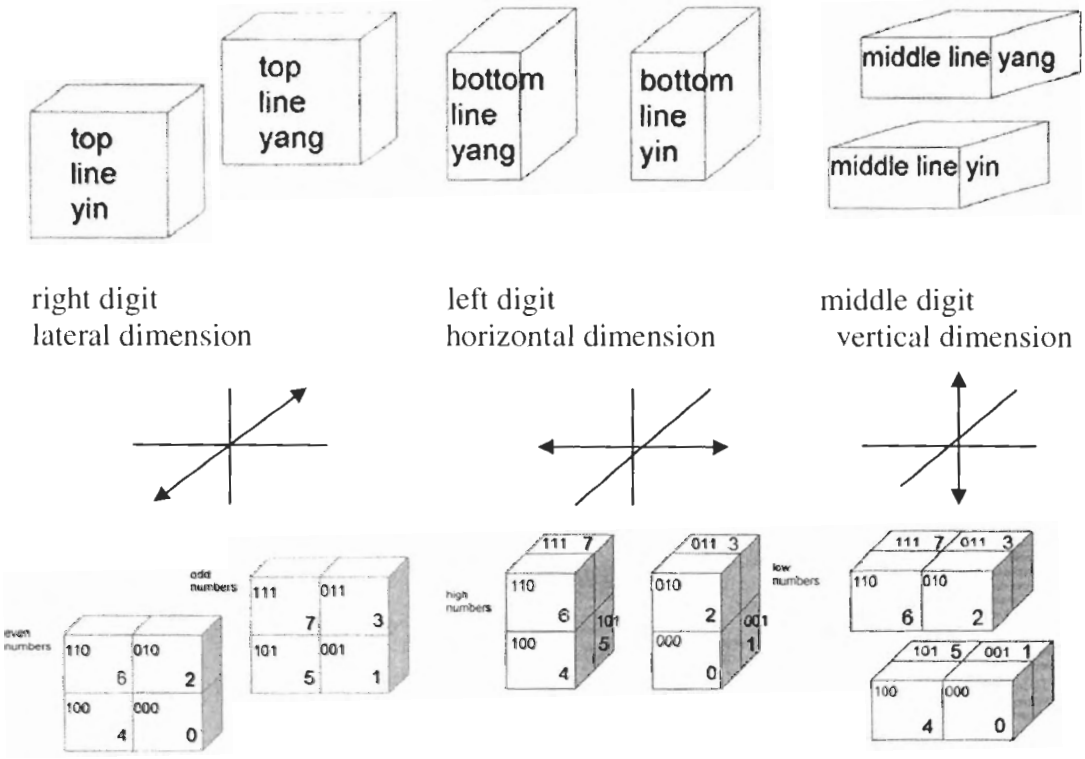


Figure 4.3 the binary cube divided on its three axes: identifying three dimensions

My aim is to create a method of mapping three dimensions and their interactions in order to capture the fundamental constellations of relationships within and between the three lines. I propose that descriptive qualities related to the trigram lines represent core conditions that explain the dimensions. I treat the model as if it represented the whole of a conceptual domain. The model then serves as an analytical tool and a perceptual device for seeing patterns, constellations, and clusters of relationships within the context of the whole.

In this way we come to understand the information, ideas, and meanings disclosed by those sets of relationships, that in turn represent interactions, and explain all of the permutations that constitute the whole. Essentially I am slicing and dicing the cube and linking the subsets in an internally consistent manner that establishes the rules by which we can articulate wholeness. This tool and its consequences constitute a mode of interpretation. In Figure 4.4, the eight labels refer to the corners of the cube.

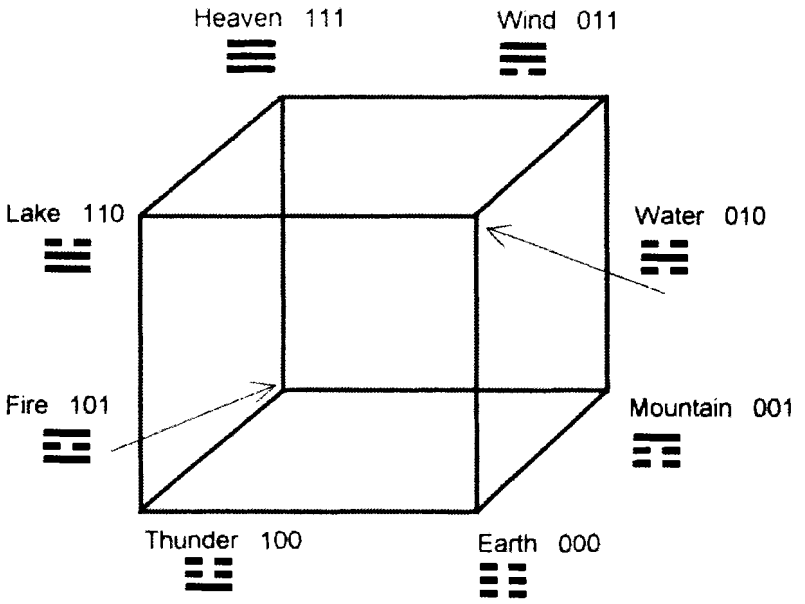


Figure 4.4 Binary cube with trigrams in the *Early Heaven Arrangement*

First I separate the four trigrams whose top line is *yin* (⚋) from the four whose top line is *yang* (⚊), and repeat this with the bottom and middle lines. For each line, I examine the 'within-group' characteristics of the four trigrams in both the *yin* and the *yang* groups. I then make a 'between-group' comparison to determine the condition that distinguishes the trigrams in two groups from each other. In this way I identify three conditions that I submit function as domains in the eight archetypal trigrams, and which explain their characteristics.

4.C.1. The Top Trigram Line as a Defining Domain Condition

The top line of the trigram relates to temperament, disposition, or attitude toward the unknown, unfamiliar, and unexpected. It distinguishes spontaneity and comfortability with uncertainty, represented by *yin* (0), from systematic and more comfortable with certainty, represented by *yang* (1), which exhibits a preference for creating systems and structures that reduce, minimize, or eliminate unpredictability.

The four trigrams whose top line is *yin* are: Earth ☷ , Water ☵ , Thunder ☳ , and Lake ☱ . These form the front of the cube. Earth, is completely lacking in any semblance of structure. As the receptive, Earth accepts and supports all things without question or conditions, and with little or no concern for its own well-being. *Water* has wild courage, and thrives on challenges, danger, and rapidly changing or risky endeavors with little concern for danger or personal safety. *Thunder* is inquisitive, enterprising and outgoing, often adventuring into the unknown. *Lake* is audacious, bold, and daring often taking unnecessary risks just for the fun of it, and pushing the boundaries of the familiar and acceptable.

The four trigrams whose top line is *yang* are Heaven ☰, Fire ☲, Wind ☴, and Mountain ☶. These four form the back of the cube. Heaven is dominant, controlling, inflexible, and homogeneous, and exemplifies rationality, firmness, and control. Fire is completely dependent and cannot afford the luxury of venturing far from what sustains it, so it clings to what is familiar and known. Wind is indecisive and is constantly planning and working to create structure, maintain order, and insure the desired outcome. Mountain is the physical embodiment of structure. It is so limited that it cannot venture anywhere, and so solid and firmly set that it cannot take in anything, except on the surface.

The key factor that distinguishes the trigrams in the first group is their ability to deal spontaneously, flexibly, and comfortably with the unknown. The four with a *yin* line accept, thrive in, and relish or at least open themselves to unexpected, unpredictable, and quickly changing conditions. By contrast, the four trigrams with a *yang* line have developed various strategies to limit risk, eliminate unpredictability, and avoid uncertainty. Heaven uses power, Fire uses charm, Wind uses subtlety, and Mountain uses its stillness and strength.

In the binary model, the top line identifies the four trigrams with a *yin* line at the front of the cube (Figure 4.4). These all have even-number values. The four with a *yang* line are at the back of the cube, and all have odd-number values, suggesting that even numbers are related to trigrams that deal spontaneity and comfortably with uncertainty. Odd-numbers are related to trigrams that are uncomfortable with uncertainty, and prefer structures and systems that reduce or eliminate the unknown. I call the *yin* group Spontaneous (0), and the *yang* group Systematic (1).

4.C.2. The Middle Trigram Line as a Defining Domain Condition

The middle line corresponds to patterns of relating. It distinguishes cooperative, mutually supportive, and nourishing conditions (*yin* / 0), from competitive, contending, and dispassionate states (*yang* / 1).

The four trigrams whose middle line is *yin* are: Earth ☷ , Fire ☲ , Thunder ☳ , and. Mountain ☶ . These form the bottom of the cube. Earth nourishes and supports all things non-judgmentally. Fire creates inter-dependent, symbiotic relationships based on perceived fairness, balance, and equilibrium in order to secure that its needs for its combustion are met. Thunder usually explores new places or situations, relying on communication skills, diplomacy, and collaboration to win friends and influence others. Mountain uses its power and stability in helping others and protecting their interests. All four trigrams are people-oriented, and consider the interests of others.

The trigrams whose middle line is *yang* are: Water ☵ , Wind ☴ , Lake ☱ , and Heaven ☰ . These form the top of the cube. Water contends, and has little concern for its own safety. Thus it always represents an element of danger. Wind (wood /living /plants) is highly competitive and well-planned. Water functions within the confines of riverbanks, while Wind eventually settles down when the high and low air pressure differences are neutralized.

Both conditions represent collective contexts and interests, but they usually act unilaterally and assertively in achieving their objectives. Lake is joyful, brash, and extremely willful, pushing the limits to get what it wants - often intangible. It usually offers something pleasurable in exchange. On the other hand, Heaven is

uncompromising when it comes to defining and achieving its objectives. It justifies its action by taking a benevolent attitude, maintaining high principles, rarely leaving little if anything to chance.

The main condition that distinguishes *yin* and *yang* in the middle line is that the *yin* trigrams are relational and process oriented, whether their interests are seen as cooperative or competitive. I would argue that Thunder, Fire, and Mountain might define cooperative outcomes unilaterally but in different ways. The *yang* trigrams are very goal-oriented. It can also be argued that while Lake, Water, and Wind establish goals with highly competitive strategies, these trigrams are not necessarily (or always) seeking zero-sum outcomes.

In the binary model, the *yin* trigrams (0, 1, 4, and 5) are on the bottom half of the cube, while the *yang* trigrams (2, 3, 6, 7) are on the top half of the cube (Figure 4.4.c). The rule that defines these two groups is not as clear as it was with the top and bottom lines. It is somehow a product of the relationship between the top and bottom trigram lines.

There is a passage in the *I Ching* that Wilhelm relates to the middle trigram line. "By what are men gathered together? Through goods" (Wilhelm, 1950:328). In explaining this he says "The means by which goods are administered, and defended against wrong, is justice. . . . This presents a theory of society, based on cosmic principles" (ibid.). In this way the middle line is conceptually related to exchange, commerce, give and take, benefits and losses, assets and liabilities, or what I denote as Cooperation (0) and Competition (1).

4.C.3. The Bottom Trigram Line as a Defining Domain Condition

The bottom line relates to identity, and distinguishes qualitative, organic, and physical/material conditions (*yin* / 0), from quantitative, inorganic conditions and ways of being or doing (*yang* / 1).

The trigrams whose bottom line is *yin* are: Earth ☷, Water ☵, Mountain ☶, and Wind ☴. These form the right side of the cube. Earth is matter, material form, and nature, in which all things assemble and are nourished. Water flows down, fills voids, provides sustenance and sustains life. Mountain is like a mound of lava, rich in nutrients on which plants take root and grow. Wind is also known as wind/wood, which is synonymous with living plants whose roots, stems, and branches spread and penetrate. The wind also carries seeds. These trigrams all have physical substance and nourish life in direct and immediate ways. Also, they all tend to flow or press downward and spread out.

The four trigrams whose bottom line is *yang* (1) are: Thunder ☳, Fire ☲, Lake ☱, and Heaven ☰. These form the left side of the cube. In this context, Lake is not a body of water but evaporation or rising mist. It is also the surface of the water that mirrors the images around it, and reflects light back into the sky. Thunder is sound and resonance; Fire refers to light and heat (as flame); and Heaven is principle, template, model, and impetus or energy. These four trigrams represent conditions with no apparent material substance, and different aspects of energy.

On the bottom of the cube, the main thing that distinguishes *yin* and *yang* line is that *yin* is basically material, expansive, and collective, whereas *yang* can be

expressed in terms of individual units of energy which are basically immaterial. The *yin* trigrams appear to be heterogeneous or support heterogeneity, and deal with things in holistic terms. The *yang* trigrams are much more homogeneous.; they do not define organic conditions, but things that can be quantified and measured.

In the binary model, the *yin* group is on the right and constitutes the four low numbers, 0, 1, 2, and 3. The *yang* group is on the left and constitutes the four high numbers, 4, 5, 6, and 7 (Figure 4.4). Moreover, the low number trigrams are all characterized with downward movement or motion, and the high numbers with upward movement or motion. This suggests a parallel between low numbers, heavier weight, organic material, and heterogeneity; and between high numbers, lighter weight, inorganic energy, and homogeneity. The low numbered trigrams are *yin* and Qualitative (0). The high numbered *yang* trigrams are Quantitative (1).

4.D. Formalizing the Trigram Conditions as Universal Domains [U]

According to the above analysis I propose that many of the trigram attributes and characteristics can be accounted for or explained by three underlying conditions related to the three trigram lines. The top line distinguishes trigrams that are Spontaneous and easy with uncertainty (*yin*) from those that are Systematic and comfortable with certainty (*yang*). The bottom line distinguishes trigrams that are Qualitative and heterogeneous (*yin*) from those that are Quantitative and homogeneous (*yang*). The middle line distinguishes trigrams that are Cooperative and process-oriented (*yin*) from those with Competitive and goal-oriented (*yang*).

The principle in the *I Ching* of the top line as Heaven, the bottom line as Earth, and the middle line as Person (man), relates Heaven to Spontaneous -

Systematic, Earth to Qualitative - Quantitative; and Person (man) to Cooperative - Competitive. This establishes a set of domains derived directly from the *I Ching*. This makes it possible to justify adopting the semantic conditions related to the trigrams into the binary matrix typology and research method for typing culture.

4.D.1. Explicating the Three Trigram-Based Domains

The brief descriptions and explanations of the domain conditions or constructs are based primarily on my analytic interpretation of the characteristics shared by groups of four trigrams whose common denominator is having a *yin* or *yang* attribute for one of the three trigram lines.

The Spontaneous-Systematic domain reflects an attitude or disposition toward security that appears to be culturally embedded and function at the intuitive level. The Cooperative-Competitive reflects a set of goal-oriented values or motives that are culturally acquired or developed. It depicts an interactive relational attitude and process that functions at the emotional level, with behaviors that range from generously altruistic to harmfully selfish. The Qualitative- Quantitative domain characterizes the sense of identity that appears to be informed or conditioned at a deep level and express the mode of connection, as part of an integrated whole or as a part in an interconnected whole. It probably functions at the intellectual level. Each of the bipolar pairs is briefly outlined.

4.D.1.a. Spontaneous - Systematic: top line and right digit

The first binary dimension deals with attitude toward security. Spontaneous is the condition that exists when the top line is *yin* (— —) or right digit is 0. It indicates capacity for dealing comfortably and easily with uncertainty and

unpredictability. These types are at ease in unfamiliar and changeable situations, and often create such conditions, or actively seek them out.

Systematic is the condition that exists when the top line is *yang* (——) or right digits is 1. It reflects a tendency or need to create structures, systems, and networks in order to reduce or try and eliminate uncertainty. These types often develop forms and norms to stabilize predictability. They may be able to cope with uncertainty but prefer to have comfortable structures to fall back on.

4.D.1.b. Cooperative - Competitive: middle line, middle digit

Cooperative is the condition that exists when the middle line is *yin* (— —) and/or middle digit is 0. It refers to engaging in processes that are symbiotic, and mutually enhancing or beneficial. These types prefer situations or create conditions in which relationships supercede personal objectives, and the interest or well-being of others is addressed, considered, and met, often at a personal detriment.

Competitive is the condition that exists when the middle line is *yang* (——) and/or middle digit is 1. It refers to goal-oriented behaviors that focus on prevailing or winning, primarily with self-interest and little consideration for the perspective of others. These types usually define objectives and success in terms of winning versus losing. Mutually beneficial outcomes are not usually intended.

4.D.1.c. Qualitative - Quantitative: bottom line, left digit

Qualitative is the condition that exists when the bottom line is *yin* (— —) and/or left digit is 0. It refers to an sense of collectivity in which the individual is defined by the whole. Earth, Mountain, Wind, and Water (river) are collectively defined by their essence and nature. The very identity of these types depends first

and foremost on maintaining their wholeness. The notion of self or individuality is necessarily subsumed within a heterogeneous whole.

Quantitative is the condition that exists when the bottom line is *yang* (——) or left digit is 1. It refers to seeing self-identity in terms of a network of changeable relationships based on rationally defined laws and processes. Heaven (quanta bits of energy), Thunder (sound waves), Fire (light waves), and Lake (water droplets), are measurable constituents that and subject to such analytical processes.

4.D.2. Mapping the Trigrams on a Cube Model

The third row of the *taiji* diagram (Figure 4.1) contains the eight trigrams. In this section I relate the bigrams to the trigrams, and map the trigrams onto the *Binary Archic Matrix* cube, with the cultural three dimensions I have hypothesized. I illustrate the eight trigrams around the cube as close as possible to its corner of the cube. This interestingly defines the *Early Heaven Sequence* (Chapter 3.B.2).

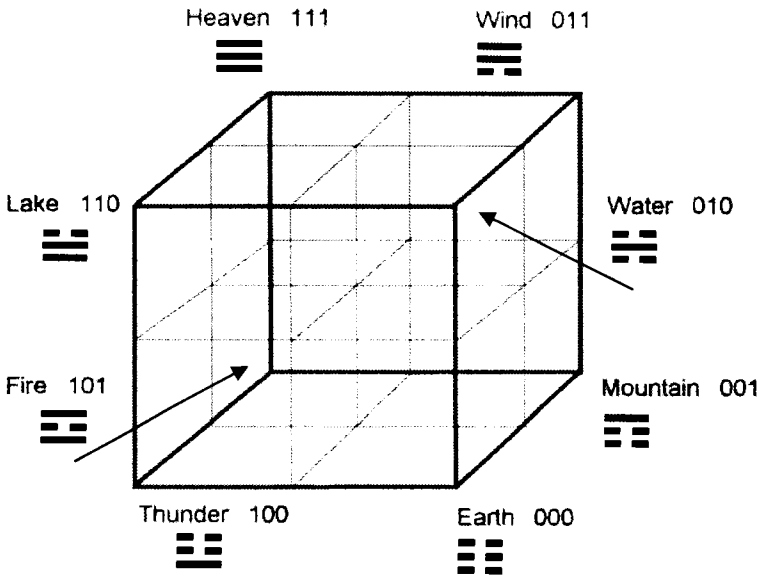


Figure 4.5 Binary cube divided along its three axes into eight sub-cube sections

Figure 4.6 and Table 4.6 illustrate the domain profiles of the eight binary archic types. Figure 4.5 locates the types on a simulated cube. This technique uses a pair of overlapping 2x2 matrix diagrams to capture the relative location of each type in three-dimensional space. The benefit of this model is that it graphically identifies the members of each binary type or the units in each group or cluster, without the difficulties that some have in relating to information on three-dimensional models.

Figure 4.6 presents the same information in a simulated cube. Table 4.6 consolidates the domains, identifying the profile for each triplet / trigram.

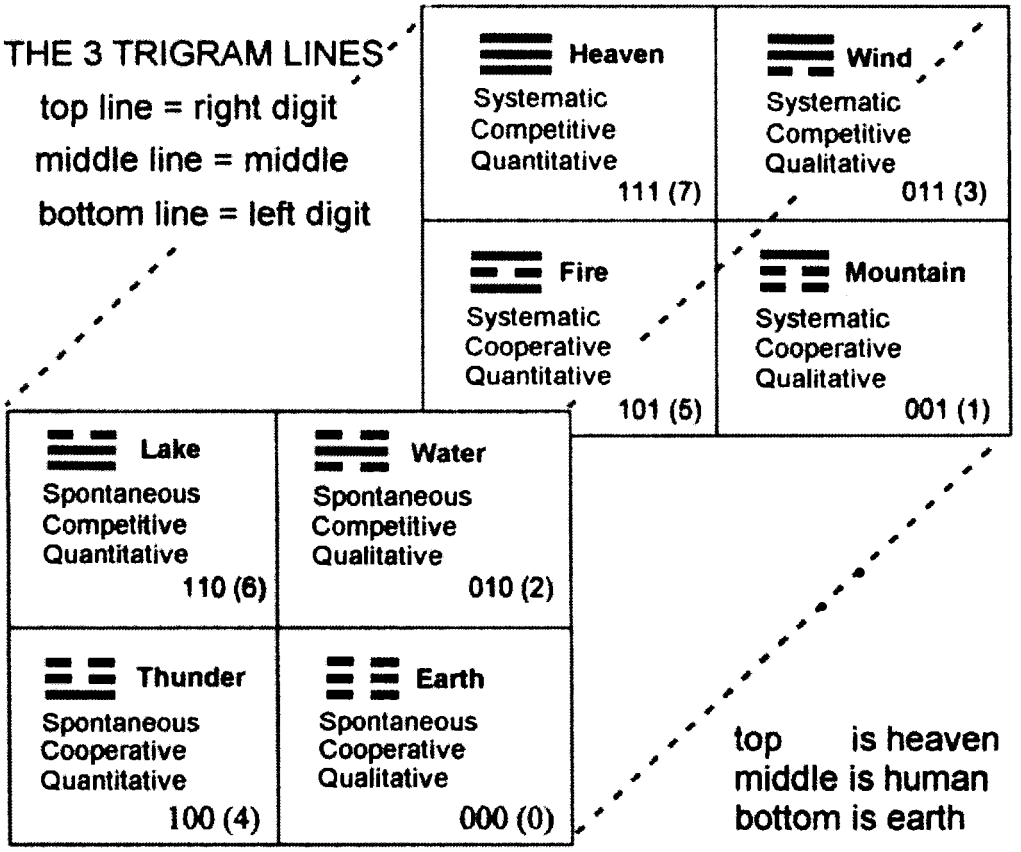


Figure 4.6 Simulated Cube with eight sections and trigrams: identified by trigram symbol; name; three binary archic domains; binary triplet number; and binary value

Triplets, Trigrams and BAM Domains

positional value		4	2	1
binary triplet	trigram name	left digit **bottom line**	middle digit **middle line**	right digit **top line**
111	Heaven	1 quantitative	1 competitive	1 systematic
110	Lake	1 quantitative	1 competitive	0 spontaneous
101	Fire	1 quantitative	0 cooperative	1 systematic
100	Thunder	1 quantitative	0 cooperative	0 spontaneous
011	Wind/wood	0 qualitative	1 competitive	1 systematic
010	Water	0 qualitative	1 competitive	0 spontaneous
001	Mountain	0 qualitative	0 cooperative	1 systematic
000	Earth	0 qualitative	0 cooperative	0 spontaneous

Table 4.6 Each triplet with its trigram and three BAM domains

In this chapter I have examined the eight archetypal trigrams from the *I Ching* and adapted them to the binary cube matrix. In doing so I have provided the triplets with semantic meaning, thus defining a typology with descriptive terms that I propose can be used to characterize cultural types. I then identified three underlying conditions that I posit can account for or explain the descriptive attributes of the trigrams. I suggest adopting these attributes as cultural domains.

In the next chapter I present an overview of culture with a focus on cultural domains or dimensions, from an organizational perspective. This is followed by an overview of Hofstede's (1980 and 1991) study of societal culture with IBM.

Chapter 5

> The Creative (*yang*) knows through the easy. The Receptive (*yin*) can do things through the simple. . . . What is easy, is easy to know; what is simple, is simple to follow. . . . By means of the easy and the simple we grasp the laws of the whole world.
>
> The *I Ching*: Book II-1 (Wilhelm, 1950:286-287)

An Overview of Culture and Hofstede's Survey

One interest of this dissertation is on the crucial defining role that an understanding of national and organizational culture can play in contributing to a success of outcome in collaborative ventures. This is especially true for those relationships between different types of organizational cultures, both within and between societal cultures. For the past several decades, scholars have been trying to identify the basic conditions that define culture. Such terms as core domains, dimensions, and universals are used by some scholars to identify the underlying conditions of culture and the related values, behaviors, and practices that reflect or describe them (Hofstede, 1980; Triandis, 1988; Ashkanasy et al, 2000a).

This chapter starts by briefly examining culture as a context and construct. It then proceeds to an overview of Hofstede's (1980; 1991) study with IBM, followed by an examination of his cultural dimensions. Finally I review some of the current debate on Hofstede's study and research. In the following chapter I conduct an analysis of Hofstede's findings using the binary archic matrix as part of my research method. Hofstede (1980:380), considers culture as a master concept, noting that

> . . . technologies are not neutral with regard to values . . . (so that any) attempts at the transfer of leadership skills that do not (consider cultural) values have very little chance of success.

5.A. Contextualizing Culture

This dissertation examines the construct of culture using a trans-cultural typological model inspired by Chinese cosmology. I then use this to analyze Hofstede's (1980; 1991) survey of national culture in order to demonstrate the efficacy of my typology. He conducted his research within an organizational setting, and not surprisingly it has had a significant impact on a large body of subsequent research related to organizational culture. This includes work on the understanding of organizational culture itself, as well as on the influence of national culture on organizational culture.

Hofstede's study has raised a number of issues. One is whether various levels of culture (societal, national, organizational, and occupational) are explained or defined by the same underlying domains or dimensions. Another is whether the same approach(es) or instrument(s) can be used to measure or determine culture at the various levels. The question here is, to what extent if any do organizational and societal culture share the same domains, and in what way do they differ?

According to Ashkanasey, Broadfoot, and Kalkus (2000:131), scholars still disagree on the best way to measure organizational culture. There is also no clear agreement on the boundaries between cultures. This includes determining whether practices constitute or express organizational culture, or whether they form the basis of an organizational climate that reflects the national or societal culture, which then becomes useful for understanding and describing organizational culture. Some researchers have adopted Schein's three level typology of culture (Schein, 2000), in

which he does not distinguish the domains national culture from the domains of organizational culture.

Hosfstede is a strong advocate of the position that organizational culture is rooted in practices, while national culture can be located in values. This is contrary to many other scholars who understand all culture to be informed and expressed by a few core underlying conditions (core or eidetic domains) Culture is reflected in values, practices, behaviors, and artifacts at all levels of culture.

Some scholars distinguish the deeper layers of culture from the shallower layers that are more explicit and therefore easier to study using a structured quantitative approach (Schein, 2000). Moreover, the variety of questionnaires designed to assess organizational culture have significant differences, with most lacking a theoretical basis (Ashkanasey, Broadfoot, & Falkus, 2000:132-133). This reflects the lack of agreement as to what constitutes organizational culture.

Some want to study culture in order to understand "what culture is" in terms if its core domains (Hofstede, 1980, Schein, 2000). Others study culture in order to understand "how it is expressed" through various practices and behaviors (Ashkanasy et al, 2000b). Still others want to study culture for utilitarian reasons. These include effecting a change in culture; establishing a new culture for a new organization or organizational collaboration; improving relations between organizations; developing better relationships between divisions with different sub-cultures within an organization; or using a knowledge of culture to achieve some strategic advantage.

This dissertation considers organizational culture and societal culture as two levels of "culture." As such they share those very conditions or descriptive domains that define culture at the deeper, definitive layer, thereby allowing all culture to be understood and described according to a common typology. In posing whether cultures can be categorized, typed, modeled, or profiled, Schein (2000), does not articulate any distinction between societies and organizations. He suggests (2000:xxvii), that the key element is to "minimize the impact of our own models and to maximize staying open to new experiences and concepts we may encounter." Schein (2000:xxv), recommends that when analyzing cultures, one should:

> . . . look for the critical defining events in their evolution as organizations, and be confident that when we have done this we can indeed describe sets of shared assumptions that derive from common experiences of success and shared traumas. And we can legitimately think of these sets of assumptions as "the culture" at a given time. . . .
>
> It becomes a matter of choice whether one elects to focus . . . on building typologies of cultural "states," categories that freeze a given organization at as given point in time, or on analyzing the moment to moment interactions in which members of a given social system attempt to make sense of their experience and, in that process, reinforce and evolve cultural elements. Both are valid methodologies

Schein (2000:xxviii), distinguishes between domains, the primary factors that define what culture is, and dimensions, which explain or describe domains. Culture, he says, is explained according to three critical domains. These are: 1) task functions; 2) group building and maintaining functions; and 3) boundary maintenance functions. He identifies the first and third as external survival issues, and the second as an internal integration issue. Each domain is described by dimensions of behavior, attitude, and belief. Schein draws again on anthropology and sociology in identifying a deeper level composed of more abstract issues that

link with cognitive psychology and address how "we fundamentally view the world and our relationships to it" (Schein, 2000:xxviii).

A number of leading scholars who study organizational culture employ the same domains or core dimensions for describing and discussing organizational culture as they use for societal culture. Schein moves effortlessly back and forth between the two in seeking to achieve an understanding of culture at its core level.

As a way of shedding light on organizational culture Shein (2000:xxviii) recommends Hall's (1976) concepts of space and spatial relationships; and refers to Kluckhohn and Strodtbeck's (1961) research in the Southwestern United States comparing Native Americans, Hispanics, and Anglos. He is clearly proposing that we adopt the same models for defining organizational culture that were developed for culture at the societal level. He notes (Schein, 2000:xxvii), that unfortunately:

> . . . most of the questionnaires that have been developed draw their initial dimensions from narrow sociopsychological theories and ignore broader models developed by anthropologists and sociologists. . . . I have found it empirically useful to start with a broad list of "survival functions" (what any group must do to survive in its various environments and fulfill its primary tasks) and "internal integration functions" (what any group must do to maintain itself as a functioning system).

Cultures exist at regional and national levels, and at the industry or institutional level, and at the organizational level. There are also occupational cultures and sub-cultures within organizations based on functions and tasks (Schein, 2000:xxix).

According to some authors, the content manifests in the form of "attributes" such as values, beliefs, schemas and implicit theories commonly held by the members of both societies and organizations. The process manifests in the form of

"practices" observed in and reported by families, schools, work organizations, economic and legal systems, and political institutions. Robert House and his colleagues employ the same nine dimensions for both societal and organizational culture, but they select different items from the respective literatures to represent each in the questionnaires (Dickson et al, 2000:450).

In conceptualizing the dimensions that constitute organizational culture, "from the perspective that societal and organizational cultures can be described using the same dimensions, recognizing that these dimensions can have somewhat different psychological meanings at the different levels of analysis" (Dickson et al, 2000:453). Care was taken so that the factors developed at the societal level and assumed to be meaningful at the organizational level, were in fact conceptually distinct and meaningful at the organizational level.

One notable exception to the preceding examples is Hofstede, who asserts that countries (nations or societies) are defined by different dimensions that are used for organizations. At the same time he acknowledges that organizations are in some sense societies that have cultures or exist as cultures, in that they have qualities that transcend the qualities of the individuals within them. Moreover, organizations, like nations or societies, can be subject to the same "collective programming of the mind," even though he attributes values to countries and practices to organizations (Hofsetde & Peterson, 2000:404).

Geert Hofsede and Robert House both take the position that organizational culture as well as national or societal culture is defined by values and practices. However House explicates both levels of culture with the same nine dimensions.

Hofstede notes that values are deeper and practices are more superficial. He then adds an element of confusion. He defines national culture according to values (using four dimensions), and organizational culture according to practices (using six completely different dimensions. And yet he presents a diagram that specifically shows that a portion of organizational culture is defined by values (Hofsetde, 1991:182) (Figure 5.1).

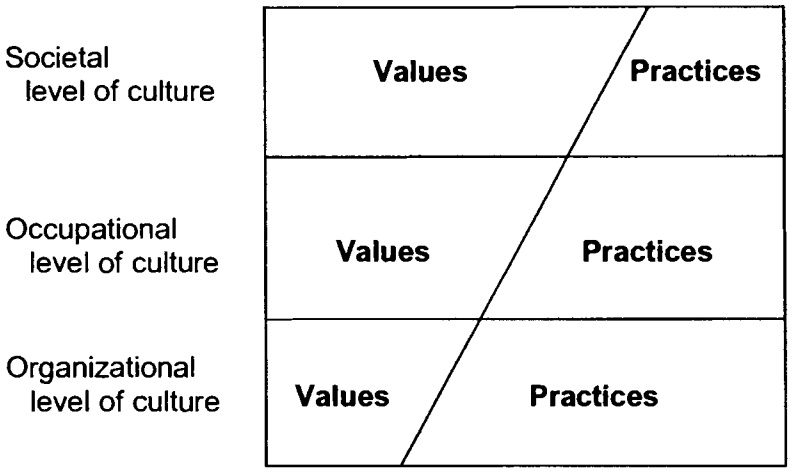


Figure 5.1 Hofstede's three levels of culture defined by values and practices

This diagram reveals Hofstede's understanding that the three levels of culture shown in Figure 5.1, are understood according to both values and practices. Values play a larger role in defining societal culture than with organizational culture. Hofstede defines societal culture on the value side using four dimensions, but he defines organizational culture on the practices side using six dimensions. Since all levels of culture are defined in part by values, I suggest that the same dimensions can be used for defining culture at all three levels from a values position. This thesis limits its approach to the value side of the Hofstede's diagram. He does not expound on the practices portion of national culture.

This dissertation treats both societal and organizational levels of culture from the left side of the diagram (values), in contrast to Hofstede who defines societal and organizational culture from opposite sides of the diagram: one with values and the other with practices. Robert House, resolves this sticky dilemma by using the same nine dimensions for organizations and societies but employing different for measuring each (House et al, 1997; Dickson et al, 2000). Edward Schein takes the position that all levels of culture are defined by a few core domains, a term he uses in place of dimensions for describing fundamentals.

Hofstede (1991:10), identifies different layers or levels of culture, of which the most significant are: 1) national; 2) regional and/or ethnic and/or and/or linguistic national sub-cultures; and 3) organizational. While Hofstede acknowledges there is no standard definition for organizational culture, several people in the field claim that it is: holistic; historically determined; related to things anthropologists study; socially constructed; soft; and difficult to change (Hofstede, 1991:179-180). Hofstede (1991:180), defines culture as,

> . . . 'the collective programming of the mind which distinguishes the members of one group or category of people from another.' Consequently 'organizational culture' can be defined as *the collective programming of the mind that which distinguishes the members of one organization from another.* (italics are Hofstede's)

For Hofstede, culture constitutes an aggregate of interactive characteristics that influence how individuals respond to their environment There is, writes Hofstede (1991:180, citing Smircich, 1983), a distinction among those who study and write about organizational culture

> between those who those who see culture as something an organization has, and those who see it as something an organization is. . . . The

> former leads to an analytic approach . . . The latter supports a synthetic approach and a concern with understanding.

Hofstede addresses national culture in terms of the deeper underlying level of values which determine for people the meaning of practices, which Hofstede (1991:181), correctly defines as the superficial (surface) manifestations of culture. He then proceeds to define national culture according to values and organizational culture in terms of practices (Hofstede, 1991:188; Dickson et al, 2000:461).

I agree with House, who takes a "perspective on culture, which includes both practices and values at any give level of analysis." (Dickson et al, 2000:461), two levels being national and organizational culture. That is, while all levels of culture are expressed through values and practices, the practices exist as superficial conditions that reflect the core values.

I synthesize the perspectives of Hofstede and House, and then extend them by defining national and organizational culture in terms of the same core conditions or domains. However I assign a secondary position to defining or describing culture (national and organizational) with dimensions related practices and behaviors. I agree with Hofstede that practices define culture from a more superficial position. In what follows, I provide a brief overview of some of the ways in which culture is defined and conceptualized.

One cannot appreciate another culture if one is not aware of their own cultural filters. One of the main reasons for organizational and societal problems is that we cannot communicate very well across cultural boundaries, and there are very few tools for helping people to improve communication across boundaries.

5.B. Explicating Culture

The study of organizational culture came into its own between the late 1970s and mid 1980s, growing out of research in social and cultural anthropology, psychology, and sociology (Ashkanasey et al, 2000a:4). Before then, there was only marginal interest in researching organizational culture and performance (Wilderom, et al (2000). This accounts in part for the persisting methodological, theoretical, and epistemological differences among those who study this subject, and it explains some of the biases that have led to definitional and other disputes that undermine the progress of research (Gioia & Pitre, 1990; Pettigrew, 2000:xiv).

The definitions of culture, reflect *three different ontologies* (Ashkanasy et al. 2000a:7), that could be at the root of additional confusion and disagreement among student of organizational culture. The structural realist ontology sees organizations as structures with properties that have a culture. The social construction ontology looks for patterns of discernible regularities in work-related events that are grouped into a culture. The third is a form of semantic ontology that treats culture as a heuristic for linguistic convenience in helping people think about structures, processes, and events.

Definitions of culture can also reflect three epistemological approaches. In deductive approaches, researchers construct broadly applicable cultural dimensions or analytic categories that are based on observable phenomena, and used for typing or profiling organizations. With inductive approaches, researchers derive cultural categories from direct observation of particular organizations. This means that the aggregate of categories may be unique to each organization. There are also radical

approaches that tend to be more interested in identifying constructions that reflect a researcher's personal interests (Ashkanasy et al, 2000a:7) than in cultural accuracy.

A fourth potentially problematic area in studying organizational culture can be found in three perspectives identified by Joanne Martin (1995), for defining and empirically studying culture (Payne, 2002:164-165). The *integration perspective* adopts the assumption that people share a common set of beliefs, values and norms that are expressed and shared by the vast majority of those who identify with that culture. These are maintained through stories and myths, as well as in mission statements, logos, ceremonies, that create and maintain a culture.

The *differentiation perspective* prevails in organizations where people and groups have widely differing interests, and disagreement about aims and methods. Although, there is a certain degree of cooperation so parties can achieve individual rewards and objectives, which means preventing organizational failure.

The *fragmentation perspective* reflects the rampant ambiguity in contemporary cultures, where aims, beliefs, norms, and values are fragmented and continually changing, along with shifting needs, ideas, and motives. Relationships are not long-lasting, and reflect changing conditions and shifting self-interests.

Payne (2000), notes that each perspective requires interpretation regardless of whether the methods are qualitative or quantitative. He also advocates taking all three perspectives into account in order to understand the dynamics of culture as a whole. It seems to me that the integrative perspective relates more to national culture, while the differentiation perspective applies more culture at the organizational and institutional levels.

5.B.1. Explicating and Defining National and Organizational Culture

This section looks briefly at some of the ways culture is defined, especially within the context or organizations and the organizational literature (Burrell & Morgan, 1985:100-101). Sathe & Davidson (2000:280) express culture as the set of important assumptions (often unstated) that members of a community share in common, noting that Schein's (1985:9) definition is more commonly accepted.

> (Culture is a) pattern of basic assumptions-invented, discovered, or developed by a group as it learns to cope with it problems or external adaptation and internal integration - that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those processes

Schein suggests studying culture "through the examination of its *artifacts and creations*, which include physical space, technology, art, symbols, language, mottoes, and overt behavior," as well as values (what ought to be), and the deepest level of basic underlying assumptions (Sathe & Davidson, 2000:280). Schwartz and Davis (1981:99), consider organizational culture to be: "a pattern of beliefs and expectations shared by members of an organization . . . which produce rules for behavior - norms - which powerfully shape the behavior of individuals and groups in the organization."

One of the problems in dealing with the construct of culture is that scholars (especially between fields of study) "disagree on what culture is and use different set of words to define the construct. (And while there is) general agreement that organizational cultures are based in sets of meanings *shared* by some groups of people . . . (T)here is less agreement on where such shared cultural meanings reside"(Beyer, Hannah, & Milton, 2000:324).

For some, cultural meaning resides in the mind, as cognitive phenomena. For others, it is conveyed through symbolic phenomena that manifest in behavior, language, and artifacts, "in the concrete observable things that provide the context for human behavior and thought" (Beyer et al, 2000:324). There is some general agreement that the elements of culture are reflexive and influence each other, as illustrated by Schein's (1992:17), three interactive levels of culture: assumptions, espoused values and norms, and artifacts.

Brannen and Kleinberg (2000:393) express culture as "the shared meanings, sensemaking, assumptions, understanding, knowledge by which a group of people give order to their social world." These not only influence behavior, but the way people interpret their social and physical environment. One of the main problems is that national culture is a construct that is analytically useless because it is too unwieldy to be adequately operationalized (Brannen & Kleinberg, 2000:394).

House, Wright, and Aditya (1997:539-540) "distinguish the operational elements of national culture from those of organizational culture, by identifying the experiential components or environmental events (at both levels)." This offers another way of differentiating national or societal culture from the various levels of group culture.

5.B.2. Studying Organizational Culture

Culture has been studied in many ways. For example it is often defined with dimensions obtained using statistical (factor) analysis, or by some method of interpretive analysis based on the social sciences and the study of human behavior. Some scholars identify the basic dimensions or domains, while others seek

dimensions through statistical validity that explains distinct behaviors or expressions of culture. Adamopolous (1984:494) writes,

> Dimensions of social behavior are usually derived from the factor analysis of similarity indexes between behaviors. . . . An alternative method of obtaining behavioral dimensions could use similarities between behaviors based on the different resources (fundamentals) implied by these behaviors. If the suggested relationship between behavioral features and the structures of the resource classes exists, then, as a minimum, the dimensions derived from the two approaches should be the same.

While "organizational culture studies began to appear around the early 1970s, it was not until the 1980s that management scholars widely adopted the culture concept" (Hatch, 1993:657). According to Hatch (1993:660), a dynamic version of organizational culture, and a conceptual framework for intervening in that culture is articulated by the noted social psychologist, Ed Schein (1981:98)

> Culture is the set of basic assumptions which members of a group invent to solve the basic problems of physical survival ..... and social survival ..... (that) serve the function of helping members of the group to avoid or reduce anxiety . . . Once invented, those solutions which work are passed on to successive generations.

One of the three main components to a multi-perspective theory of organizations is Cultural Theory, which proposes "that organizational structures are determined by the socio-cultural characteristics of the people inside and outside the organization" (Hatch, 1993:153). Hatch argues that:

1) culture is a critical component of organizational structure;
2) there is probably a significant transfer of national culture to organizational culture;
3) there are distinctive internal and external components to culture;
4) the discussion of cultural profiles facilitates collaborative, (especially heterogeneous and cross-national) problem-solving

One goal of studying culture is do find ways of typing, and determining cultural proximity by creating clusters based on cultural similarity (Hofstede, 1980; Trompenaars, 1993; Schwartz & Sagiv, 2000). Ronen and Shenkar (1985:446), report that some of the functions of cultural clustering in organizations are to: name, display, summarize, predict, and set out that which requires explanation. They note that cultural proximity can be important to predicting, forecasting, employee training, and making foreign assignments.

According to Ronen and Shankar (1985), where work values are known about some of the countries or organizations in a coherent and cohesive cluster, it is possible to project similar values onto other members of the cluster. And where a non-surveyed country or organization has characteristics that bear a strong similarity to members of a particular cluster, one can reasonably infer work values.

Another scholar who looks at cross-national organizational collaboration is Bate (1982:27) who writes:

> Perhaps the initial step would be for the change agent to attempt to raise the parties awareness of their culture - the taken-for-granted meanings that they share and collectively maintain, and which inhibit the development of effective problem-solving activities.

From this perspective, Tayeb (1988), conducted an insightful cross-national empirical study that examined the influence of societal culture on organizational structures and systems She found that the closer the cultural proximity between two organizations on some measure or scale, the greater the degree of cultural affinity or commonality. The closer the proximity of two organizational cultures (independent of their societal cultures), the greater the likelihood of shared understanding, inter-organizational rapport, and successful cooperation (Tayeb, 1988).

Specifically, when parties have a general grasp of each other's national culture, they are better able to initiate a culturally based discussion. Cultural awareness is especially important to alliances where one partner is from a developing country and the other from a developed country. The ability to discuss cultural issues and examine the similarities and differences in their organizational cultures can serve to build trust and cooperation. It also draws the attention of participating managers to non-technical considerations that are unique to their respective societies, instead of focusing exclusively on the technical factors where there is usually significant imbalance (Tayeb, 1988).

Parties who obtain greater insight into their own culture as well as the other party's culture appear to be better able to engage in constructive and collaborative problem solving (Tayeb, 1988:158). Further, Tayeb (1988), concludes that while it may be easier to focus on contingencies when conducting surveys and avoid cultural issues, it may not be a more useful course of action, since there are definite benefits that accrue from creating a cultural context.

Tayeb (1988:153-154), writes that many cross-cultural management studies unfortunately suffer because they treat culture as a residual factor in which observed characteristics are attributed to culture in the absence of any non-cultural explanation. Any methods that partnering organizations can employ to clarify their basic cultural similarities and differences can help them identify areas of strength and weakness in the various approaches they take to cooperative management and problem solving.

When two successful companies form a co-venture each has a conflicting vested interest to perpetuate its individual organizational culture into the alliance. A critical roadblock to alliance success may be related to the notion that "change is an unnatural act, particularly in successful companies (where) powerful forces are at work to avoid and defeat it" (Porter, 1990:75).

Under some conditions, change is often resisted by certain types of firms or managers. I submit this is not because change is an unnatural act, as Porter writes. According to Chinese philosophy, change is natural and inevitable, and a constant that underlies all things. Therefore it may not be cultural difference that leads to much of the failure in cross-cultural collaborative ventures, but the inability of the parties to recognize the importance or relevance that culture plays.

Parties can utilize their understanding of cultural at both the national and organizational levels, to help them constructively deal with to cultural differences, and take advantage of cultural similarities. This could improve the inability of parties to collaborate effectively and achieve optimum results or outcomes.

5.C. An Overview of Hofstede's IBM Survey of National Culture

Hofstede collected the data for his research between 1967 and 1974 as part of a study of work-related values among mid-level IBM employees (Hofstede, 1984:40), and subsequently used these data to study national culture (Hofstede, 1980, 1991). Two main reasons for choosing this surveys for a more thorough examination, is: I) it has become one of the most cited research surveys in social science literature; and II) the cultural dimensions he identified have been studied and used by scholars around the world in many different fields (Bond, 2002).

5.C.1. Hofstede's Mapping

Hofstede is an organizational sociologist who as Research Director for IBM in the 1960s, conducted an extensive survey with company employees (1980). One of Hofsetde's later collaborators, Michael Bond (2002:20), writes:

> (The IBM) survey included 32 items which Hofstede (1980) described as work goals or values. For each of his (initially) 40 nations, Hofstede computed an average score for the endorsement given by each nation-sample to each of those 32 "work-related values". He then produced a correlation matrix for these 32 "average-nation" values. This matrix was factor analyzed yielding three factors, the largest of which was sub-divided. This procedure yielded four dimensions by which nations could be described in terms of their factor score on each of the four dimensions.

Subsequently, Hofstede had some changes in his thinking, and made some additions to his model, including the incorporation of an additional cultural dimension that was identified in the *Chinese Value Survey* (CVS) (Hofstede & Bond, 1988). What follows is a brief outline of Hofstede's work.

The validity, legitimacy, and relevance of his work on cultural dimensions has been widely covered in top-tier journals and discussed at length in his two books (Hofstede, 1980, 1991). His methodology, research methods, and findings have been subjected to extensive scrutiny. In spite of the criticisms that his dimensions are faulty, or that his findings and representations flawed, Hofstede's work has remained important if not essential to a large body of literature (Bond, 2002; Williamson, 2002). It is helpful to keep in mind the wide influence and impact that Hofstede's findings and dimensions continue to have on research into the role of culture in organizations. Hofstede writes (1980:322):

> Stressing the cultural element in organizational structure and functioning ... is only ... a warning that the structure and functioning of organizations are not determined by a universal rationality. . . . Technology

> contributes to the shaping of organizations; but it is insufficient for explaining how they work.

Hofstede describes culture as the collective programming of the mind. He takes the position that culture is a unique, core, implicit condition, shared by the members of each society or country, that distinguishes countries from each other. These may be common cultural values, or statistical averages of heterogeneous or diverse conditions. Hofstede refers to these as a national norm (Hofstede, 1980b:45), or a central tendency (Hofstede, 1991:253). Bond (2002:20) states:

> Hofstede had mapped the values of nations much as former Dutch explorers had mapped the geography of terra ingognita" (the unknown world). Hofstede's Herculean achievement was to provide the social sciences with an empirical mapping of 40 (later 53) of the world's major nations across four dimensions of culture, integrating these results with previous theorizing and data about national cultures, dimension by dimension. Social scientists were galvanized, and in the ensuing 20 years, Hofstede has become one of the most widely cited social scientists of all time

5.C.2. IBM Survey and Questionnaire

Hofstede's initial survey was originally intended only for internal company use to provide a vast resource of information and data on work-related values to draw from. He eventually conceived of the idea to take the large body of data collected by IBM to survey work-related values and used it to generate a second order of data that provide insight into the nature of national culture.

Much of the impressiveness of Hofstede's survey has been attributed to the sheer size of the study. The survey consisted of 150 questions, translated into twenty languages. It was conducted in 66 countries, at two different times between 1967 and 1973. Overall, about 117,000 questionnaires were completed by about

88,000 respondents (Hofstede, 1984:46). In order to achieve homogeneity in his survey, he limited the cultural data analysis to employees in sales and marketing.

Hofstede justified this approach, arguing on the basis that each employee was subject to three basic cultures: occupational, corporate, and national. Hofstede (1980:73) argues that when respondents have the same corporate and occupational culture, that differences in values would primarily reflect their national culture.

He created a correlation matrix of items and then factor analyzed the data. He found that the sample size for some countries in the initial study was too small to provide sufficient data, so he reduced the number of countries from 66 to 40. He then realized that his matrix had a structural weakness since the number of countries was smaller than the number of variables, so he eliminated variables that did not relate to any of the factors. He also consolidated other variables leaving him with a smaller more manageable matrix with 32 items and calculated country means for each question.

In the final analysis, Hofstede based his scores for each dimension of culture on the responses to just three questions (Hofstede, 1980:73). Hofstede standardized the scales using a method of statistical conversion to change the scores from their original scales to values ranging 1 to 100. The result was a set of four scores, one for each dimension, that provided a kind of dimensional profile of numerical values.

5.C.2.a. Hofstede's factor analysis and theoretical reasoning

After subjecting the data to factor analysis (and theoretical reasoning), Hofstede identified four factors that together explained 57% of the variance. Factor 1 (unnamed), explained 24% of the total variance; Factor 2, uncertainty avoidance

(UAV), explained 13% of the variance; Factor 3, masculinity (MAS), explained 12%; and Factor 4, which he identified as 'weak power distance,' explained 8% .

Hofstede discarded Factor 4 because he felt it was not large enough to be important, and then divided Factor 1 into two dimensions: power distance (PDI), and individualism (IDV). He concluded that the rest of the variance was related to other as yet unidentified dimensions. As a result, the four dimensions represented three factors and explained 49% of the variance, with each dimension accounting for 12 to 13% of the variance.

Hofstede reconfigured the data to generate dimensional scores for each country, and proposed that these described the social patterns that countries use for dealing with the fundamental issues they confront. He then mapped the country scores on six plot graphs and organized them in clusters. He also employed a multi-dimensional, hierarchical smallest space cluster analysis (SSA), that displays the results in a dendogram (Hofstede, 1980:334). The SSA "maintains several important advantages over factor analysis" (Ronen & Shenkar, 1985:443).

Hofstede acknowledges his conceptual roots in the work of Inkeles and Levinson (1954), who used theoretical reasoning, statistical studies, and reflection on field experiences to identify the problems common to all societies. In fact, Hofstede (1991:14) writes that empirical studies found four dimensions or areas that "covered amazingly well the areas predicted by Inkeles and Levinson 20 years before," that are fundamental to identifying and understanding national culture.

The three standard analytic issues identified by Inkeles and Levinson, which Hofstede calls dimensions "qualify as common basic problems worldwide, with

consequences for the functioning of societies, of groups within those societies, and of individuals within those groups" (Hofstede, 1991:13). These are:

(1) relation to authority;
(2) conception of self including: a). the individual's concept of masculinity and femininity; and b) the relationship between individual and society)
(3) primary dilemmas or conflicts and ways of dealing with them, including the control of aggression and the expression versus inhibition of affect. (Hofstede, 1984:37 and 1991:13; from Inkeles & Levinson, 1969:447) .

With regard to the number of dimensions or principal components, Hofstede (1980:48-50), notes that the use of factor analysis involves three arbitrary decisions: I) which variables and cases to include and which to leave out; II) the number of factors to be retained; and III) whether to look for mutually independent factors (orthogonal rotation), or mutually correlated factors (oblique rotation).

He advocates having a recognizable theoretical framework, and an a priori theory in order to avoid reaching conclusions that are trivial. After the second phase of the IBM survey was completed in 1973, Hofstede decided that he had sufficient data to add eight countries and three regions to his study on national culture.

5.C.3. Hofstede's Cultural Dimensions and National Clusters

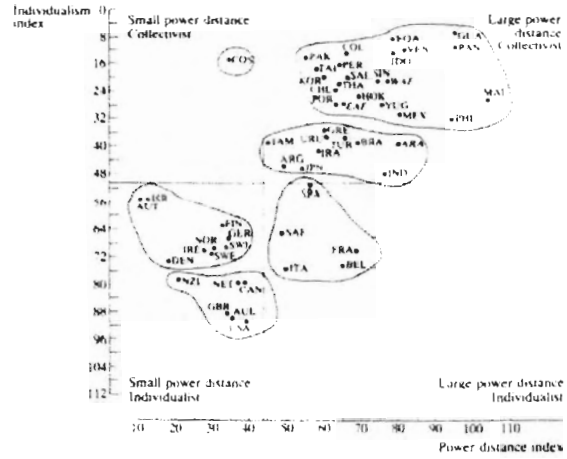
In 1991, after Hofstede gathered additional data from two more surveys he concluded that differences in cultural values are "ultimate determinants of human organization and behavior." . . . "Four important cultural measures were found. Individualism and Masculinity resulted from factor analysis; while two others, Power Distance and Uncertainty Avoidance, were derived from theoretical concepts" (Franke, Hofstede, & Bond, 1991:101-02).

Hofstede determined it was necessary to impose a conceptual linkage between "some very fundamental problem in human societies" and his cultural dimensions, "such as the distribution of power, or the distribution of roles between sexes" as revealed by cultural anthropologists.

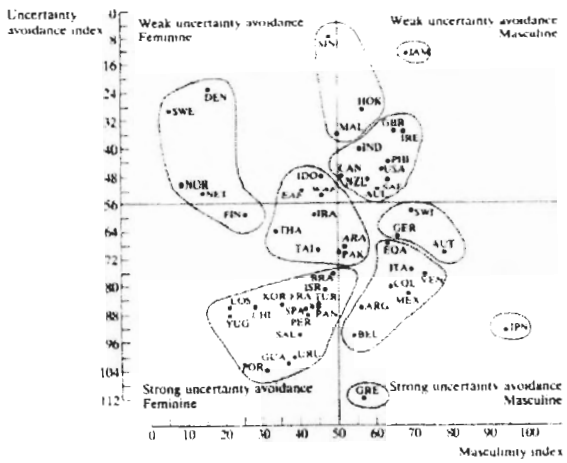
"The first dimension is labeled 'Individualism versus Collectivism' The fundamental issue involved is the relations between an individual and his or her fellow individuals" (Hofstede, 1983:79). "The second dimension is labeled 'Power Distance.' The fundamental issue involved is how society deals with the fact that people are unequal." These two conditions comprised one of the three basic factors in his original factor analysis, and yet he is reluctant to recognize that these fundamental issues are conceptually related, and essentially intertwined.

In view of the correlation between power distance and collectivism one could consider them as two manifestations of *one* single dimension of cultural differences (Hofstede, 1991:56). It is almost impossible to distinguish the effects of individualism, power distance on such things as the government of countries. If rich countries are compared to rich ones and poor countries to poor ones there would be no visible distinction between the two dimensions (Hofstede (1991: 68). He illustrated the dimensional relationships on six matrices, and identified clusters of countries by encircling them in groups.

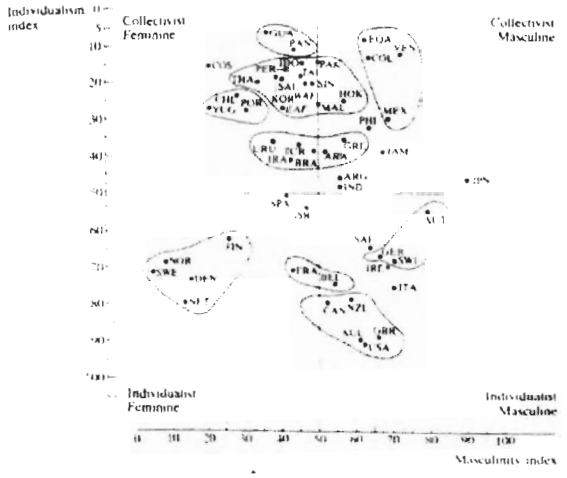
The 3-letter codes in Figure 5.1 and throughout this thesis, are the exact same way Hofstede represents the 53 countries in his study (see Table 6.2). The upper right and lower left quadrants in Figure 5.2 represent a very high inverse (negative) correlation (see Figure 6.11).



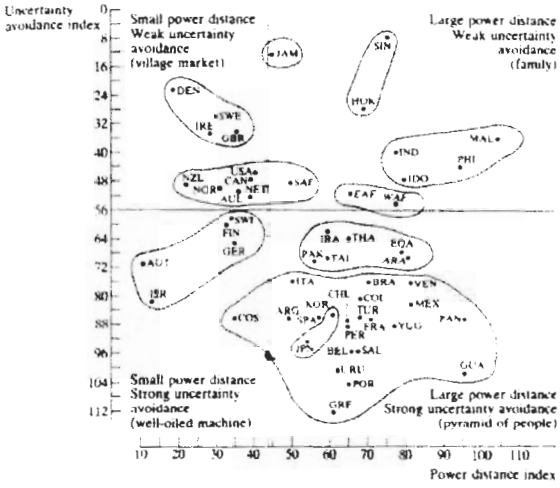
PDI-IDV



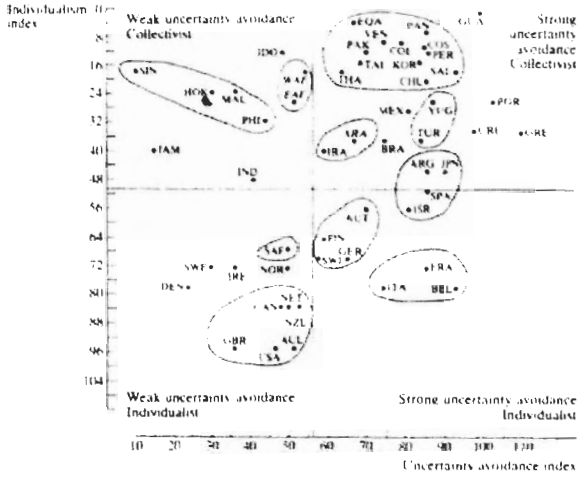
MAS-UAV



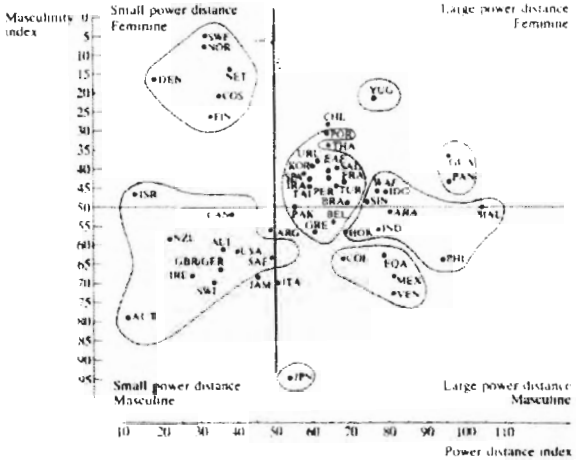
IDV-MAS



PDI-UAV



IDV-UAV



PDI-MAS

Figure 5.1 Hofstede's (1991) six plot graphs: PDI-IDV (p54); MAS-UAV (p123); IDV-MAS (p99); PDI-UAV (p141); IDV-UAV (p129); PDI MAS (p87)

5.D. Explicating Hofstede's Dimensions

This section provides a brief description of Hofstede's four original dimensionsWhile he calculated Individualism and Uncertainty Avoidance (UAV) as factor scores (Hoppe, 1991:10), Hofstede developed PDI and UAV from theoretical reasoning. I also include a fifth dimension that Hofstede adopted later into his schema. This was obtained from the *Chinese Value Survey* (CVS) (Hofstede & Bond, 1988), and originally termed, "Confucian Dynamism." Since the dimension shows up in a number of non-Confucian societies, the name was subsequently changed to Long term - Short term orientation.

5.D.1. Factor 1: Two Dimensions - Power Distance and Individualism

Hofstede considers power distance (PDI) and individualism (IDV) to be two distinct dimensions. He treats them as such, with separate scores for each. At the same time he acknowledges that they are essentially the same. Hofstede (1983:78), writes:

> The four [cultural] dimensions were found through a combination of multivariate statistics (factor analysis) and theoretical reasoning. This factor analysis showed that 49 percent of the variance in answer patterns between countries on the value questions could be explained by three factors, (equivalent to dimensions 1+2, 3 and 4). Theoretical reasoning led to the further splitting of the first factor into two dimensions.

In defining Power Distance, Hofstede (1991:28), distinguishes between those with power and those without. Power Distance is:

> the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally."

Individualism is different, he says, in that it reflects in the extent to which people define themselves by their groups or whether they define themselves by their individual accomplishments. Hofstede (1991:51) states that:

> Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself and his immediate family. Collectivism . . . pertains to societies in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty.

Hofstede (1991:55), recognizes the correlation between PDI and IDV:

> . . . the two dimensions tend to be negatively correlated: large power distance countries are more likely to be collectivist, and small power distance countries to be more individualist" (Hofsede, 1991:54).
>
> In cultures in which people are dependent on ingroups these people are *usually* also dependent on power figures"

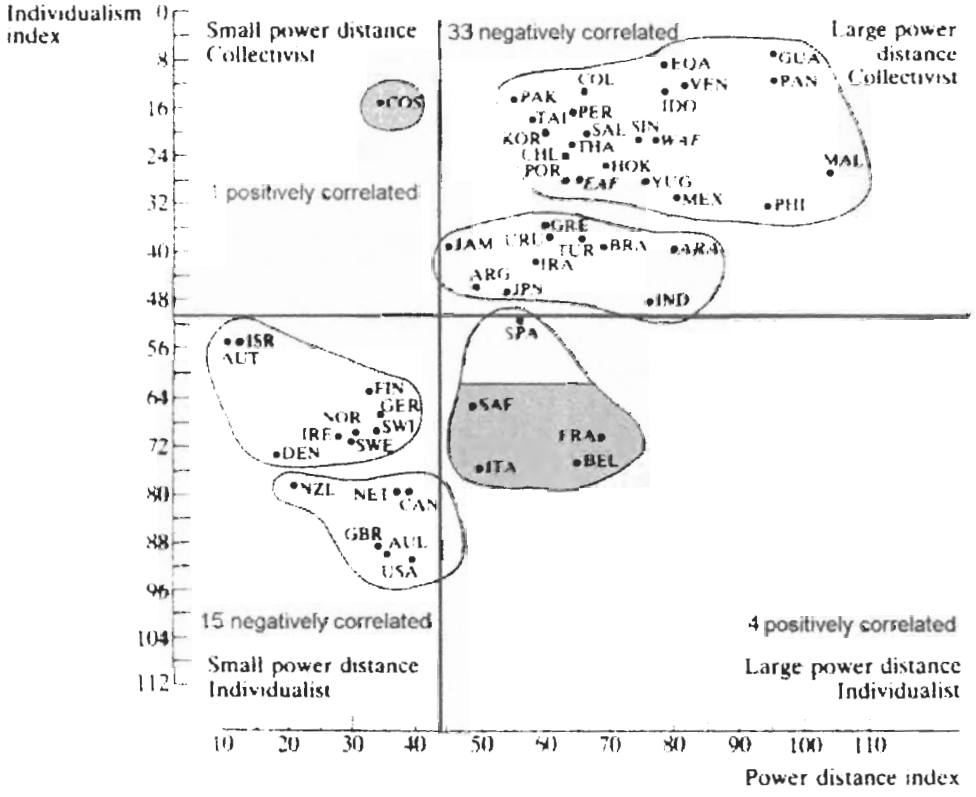


Figure 5.2 Hofstede's IDV-PDI plot graph showing high negative correlation. The gray shaded areas identify countries with a positive PDI-IDV correlation

One reason put forth by Hofstede for separating the two dimensions is that power distance can be computed for both countries and organizations, whereas individualism can only be computed for countries. As an alternative, he substitutes extrinsic-intrinsic motives for individualism-collectivism, when dealing with organizational culture, basing this choice on theoretical reasoning. Based on the correlation between power distance and collectivism (Hofstede, 1991:56), I treat them as two manifestations of *one* single dimension of cultural differences The high inverse correlation between these two conditions is shown in Figure 5.2.

An inverse correlation is one in which a high score for one dimensions (above the axis or mean occurs together with a low score for another dimension (below the axis or mean). Figure 5.2 is a copy of Hofstede's Individualism-Power Distance plot graph with his axis lines (Hofstede, 1991:54; 2001:217).

The negative correlation is shown in the upper right and lower left quadrants, which include 48 of the 53 countries (more than 90%). The positive correlation in the upper left and lower right quadrants, includes 5 countries (less than 10%), shaded in gray.

Hofstede identifies economic development as a non-cultural factor that both dimensions correlate with. If economic development is held constant so that rich countries are compared to rich countries and poor countries to poor one there would be no visible distinction between the two dimensions. Hofstede (1991: 68) observes that it is almost impossible to distinguish the effects of individualism, power distance, and national wealth on the government of countries.

5.D.2. Factor 2: The Masculine - Feminine Dimension

Hofstede introduces Masculinity-Femininity as the distinction between assertiveness and modesty. In masculine societies, both men and women expect themselves and each other to fill certain roles. In feminine societies, social gender roles overlap and there is greater gender equality. Hofstede (1991:82-83), defines this dimension as pertaining to:

> . . . societies in which the social gender roles are clearly distinct (i.e. men are supposed to be assertive, tough, and focused on material success, whereas women are supposed to be more modest, tender, and concerned with the quality of life; femininity pertains to societies in which social gender roles overlap (i.e. both are supposed to be modest, tender, and concerned with the quality of life).

5.D.3. Factor 3: The Uncertainty Avoidance Dimension (UAV)

Hofstede (1991:171), writes that Uncertainty Avoidance represents a search for truth that leads to reduction in ambiguity. People in strong Uncertainty Avoidance cultures tend to have tight and absolute classifications of what is dirty and dangerous, and they may even need these categories in order to defend themselves. At the other end of the scale are weak UAV cultures, which have wider, more flexible classifications and a willingness to take risks. Hofstede (1991:113), defines Uncertainty Avoidance (UAV) as:

> . . . the extent to which the members of a culture feel threatened by uncertain or unknown situations. This feeling is . . . expressed through nervous stress and in a need for predictability: a need for written and unwritten rules.

5.D.4. Long Term versus Short Term Orientation: A Fifth Dimension?

Hofstede admitted there were likely other dimensions that had not been identified in the IBM survey. One, termed long term versus short term orientation,

was discovered by Michael Bond in the Chinese Value Survey (CVS) (Hofstede & Bond, 1988). Hofstede (1991:14) attributes overlooking this dimension to his Western cultural bias. The CVS was a forty-item questionnaire based on Hofstede's model, designed with a Chinese team and administered to 100 university students (fifty men and fifty women) in each of 23 countries (Hofstede, 1991:161).

According to Hofstede, the CVS confirmed Power Distance (PDI), Individualism (IDV), and Masculinity (MAS), but found nothing equivalent to Uncertainty Avoidance (UAV), which Hofstede had considered 'a search for truth'. Another dimension that reflected 'societies search for virtue' was identified. This was originally termed Confucian dynamism because it was constructed from Confucian values. The name was later changed to Long-term / Short-term Orientation (LSO) because the dimension could be identified in many non- Asian nations. LSO was subsequently incorporated as a fifth descriptive dimension.

By defining Uncertainty Avoidance (Factor 3), as 'society's search for truth,' Hofstede may have attributed a distinctly Western bias to a fundamental dimension. This focus would have prevented researchers from considering or recognizing that uncertainty avoidance (UAV) and long term-short term orientation (LSO) might be essentially the same condition perceived from two different cultural perspectives.

I submit that what he refers to as 'society's search for virtue' (an East Asian, Confucian value), might actually encompass a different cultural approach to coping with or managing (the stress of) uncertainty. As such, it would perform a similar cultural function to what he describes as 'societies search for truth' in the West.

Hofstede considers his four factors to be fundamental dimensions of culture. As such, Uncertainty Avoidance cannot arbitrarily or merely be done away with from describing a societal culture. What makes this quite interesting and especially compelling, is the *Chinese Value Survey* failed to identify Uncertainty Avoidance in a number of countries for Hofstede's survey had already identified UAV scores.

5.D.5. Relating Hofstede's Dimensions to Inkeles and Levinson's

Hofstede's dimensions "describe societal patterns or norms that different countries over time developed over time to deal with fundamental issues that each of them faces" (Hoppe, 1990:1). These are: I) Power Distance or the inequality of power accepted by the members of a society; II) Individualism and III) Masculinity two ways members of a society define themselves; and IV) Uncertainty Avoidance, or ways of coping with conflicts, dilemmas, and unpredictability (Hoppe, 1990:1).

As mentioned above (section 5.B.2.a.), Hofstede relates his four dimensions to four conditions identified by Inkeles and Levinson (1969). But as I show below, this link has its problems because Hofstede's four dimensions are elicited from three factors that do not "fit" as a group, with Inkeles and Levinson's four conditions or "areas" which they elicited from three standard analytic issues (Table 5.1).

Also, Table 5.1, compares Hofstede's four dimensions and three factors to the three issues and four dimensions identified by Inkeles and Levinson, aligning the two models conceptually. The difference is that Hofstede divides Factor 1 into two dimensions while Inkeles and Levinson divide Issue 2 issue into two conditions.

As Table 5.1 shows, Factor 1 (power distance and individualism), coincides with Inkeles and Levinson's 'inequality of power' plus the first of their two 'self-defining' conditions. Factor 2, Masculinity, coincides with the gender condition, which forms second sub-issue, termed self-definition. As a result, Factor 2 in Hofstede's model (MAS), represents only half of one of Inkeles and Levinson's three primary issues. Factor 3, uncertainty avoidance (UAV), is the only condition in which the two models exhibit a degree of functional equivalence.

Hofstede's four dimensions	Hofstede's three factors	Inkeles & Levinson three issues; four conditions
1. **Power Distance**	Factor 1a	1. Inequality of power
2. **Individualism-Collectivism**	Factor 1b	2a **Self-definition (general)**
3. Masculine-Feminine	Factor 2	2b **Self-definition (gender)**
4. Uncertainty Avoidance	Factor 3	3. Coping with conflict
5. Long Term - Short Term	No Factor	

Table 5.1 Comparing Hofstede's Dimensions to those of Inkeles and Levinson

5.E. The Current Debate and Critique of Hofstede's Work

According to Hofstede's colleague, co-author, and now critic, Michael Bond "Hofstede has become one of the most widely cited social scientists of all time" (Bond, 2002:74). Now, twenty years after Hofstede introduced his research, Bond, and several other respected scholars believe that the decisions he made about his data, dimensions, and the conflation of concepts, have resulted in his work being deeply flawed in ways that have had profound deleterious effects on subsequent cultural research (Bond, 2002:73).

5.E.1. Bond's Assessment of Hofstede's Dimensions

According to Bond, most scholars overlooked the fact that Hofstede divided his first factor to create two sub-factors: individualism-collectivism (IDV), and power distance (PDI). By separating this first factor into two interrelated conditions the overall data becomes artificially skewed. This creates a serious change in perception that the sub-factors are distinct, separate dimensions, when in fact they were not. The result is that this created many expectations and assumptions that could not be supported (Bond, 2002:21-22).

Bond employed Hofstede's research approach to conduct a study of Chinese values. This meant standardizing the values within nations or generating scores on a scale from 1 to 100. Thus, when results of the standardized solution were compared to results from the non-standardized solution, Bond found there was no difference. Bond's conclusion was that it seems to have made no difference that Hofstede's standardized the 32 work-related values within nations. Bond (2002:21-22) writes:

> (H)ad Hofstede not standardized his nation values within each nation, thereby generating bi-polar dimensions, the contrast of collectivism against individualism might never have been visited upon our subsequent work.

In spite of weakness and limitations attributed to Hofstede's cultural model, many studies have used this measurement to operationalize the variable of cultural distance (Duan, 1997:3-6). A number of scholars consider Hofstede's Individualism - Collectivism dimension to be extremely useful in contrasting the value orientation of peoples from different countries (Ronen & Shenkar 1985; Ralston et al, 1995).

Many scholars now consider this dimension to have serious shortcomings that generate significant research problems, especially when it is used in isolation from other dimensions (Bond 2002). In addition, Bond proposes abandoning "these two over-freighted constructs altogether, and move toward narrower theories based on more specific constructs" (Bond, 2002:27).

5.E.2. The Current Debate in the Journal of Human Relations

Hofstede's empirical model presented a direct challenge to many of the American theories and models used in international training and development. Many scholars in such fields as comparative management, information management, international business, and organizational behavior have found Hofstede's material both useful and generally reliable. Others have found it highly unconvincing and problematical with major limitations (House et al, 2000).

Some scholars acknowledge citing Hofstede's findings in spite of their inherent shortcomings (Shore & Venkatachalam, 1995; and Duan, 1997), because of the size of his survey and the shortage of comparable surveys, There is increasing evidence that the data is useful but troubling, and that moreover, something simply does not 'fit' (Yeh & Lawrence, 1995).

The debate on Hofstede's research on national and organizational culture continues to occupy a central role in international management and organizational behavior. A determined critique of Hofstede's survey, methodological assumptions, concepts, findings, and research methods was mounted by McSweeney (2002a), in the journal, *Human Relations*. The ensuing debate illustrated the importance of both Hofstede's work, and of distinguishing methodology from research methods.

5.E.3. The Relevance of the Debate to this Thesis

It is important to consider this debate in my thesis for two reasons. The first reason is that it illustrates that Hofstede's cultural survey continues to be important to organizational research. The second reason is that it articulates a strong and comprehensive criticism of Hofstede's survey, focusing on his fundamental methodological assumptions. I believe the evidence shows that the criticisms reflect different paradigms are therefore misguided.

The recently published outcome of the debate make it clear that the work of Hofstede and others who study culture from the same paradigm, is well done, exceptionally beneficial, and something that ought to be used until something better replaces it (Williamson, 2002:1374-1375; Bond, 2002).

The debate starts with a strong challenge to Hofstede's (1980 and 1991) work by McSweeney (2002a). Hofstede's (2002a) response and McSweeney's (2002b) rejoinder, is moderated by Williamson (2002), who evaluates McSweeney and Hofstede, and provides an insightful analysis of the two positions, bringing clarity to a heated discussion and complex issue. Williamson's position is that there are significant "difficulties of examining social phenomenon, such as culture without acknowledging assumptions about ontology, epistemology, and human nature" (Williamson, 2002:1391). This raises the argument to a provocative height.

The McSweeney - Hofstede debate also sheds light on the lack of clarity that plagues the larger debate on culture between national and organizational culture, and within organizational culture, arising from and reflecting different paradigms.

Each paradigm involves sets of assumptions, and each paradigm shift requires new sets of assumptions.

A failure to shift assumptions, or to make one's assumptions clear generates confusion that arises from using logic to challenge premises, or from using logic with arguments based on assumptions from different paradigms (Williamson, 2002:1391). It would therefore be irresponsible to conduct cultural research without addressing and resolving the differences among paradigms and their assumptions.

5.E.4. McSweeney's Critique of Hofstede's Assumptions

McSweeney (2002a), argues that Hofstede's positivist and functionalist methodology is fundamentally flawed. He accuses Hofstede of adopting several 'false assumptions' which should be rejected. The first of these is the assumption that national culture can be distinguished from organizational and/or occupational culture.

Second, McSweeney questions whether the assumption that national culture is identifiable, and if so, whether each national culture is uniform. Even then, he doubts the tendencies in the IBM samples accurately reflect national tendencies. Two objections he makes are: that nomothetic or generalizing research is not methodologically appropriate for identifying national culture; and that Hofstede's research methods do not measure culture directly.

A third assumption McSweeney attributes to Hofstede is the fact that he assumes responses to the IBM questions reflect national culture so that national culture determines questionnaire responses. McSweeney contends that organizing responses into any variety of categories would have produced cultural differences.

Within this context, McSweeney charges Hofstede with two additional problems. The first is assuming that people are 'cultural dopes,' whose values are wholly determined by national culture, meaning they simply relay the culture. The second is the issue of participant gaming. This refers to the possibility that the subjects do not answer questions honestly, but 'put on' or deceive researchers with misleading or untrue responses. If this were true it would seriously challenge the reliability of Hofstede's data. But Williamson (2002) notes that this issue is answered by many other studies that corroborate Hofstede's model.

The fourth assumption McSweeney attributes to Hofstede is in regard to his questionnaire. First, he says, a few bi-polar dimensions are too simplistic to capture the richness of national culture, and that Hofstede's dimensions are not dominant dimensions. While McSweeney doesn't explain what dominant is (Williamson, 2002:1386), he does bring attention to the fact that Hofstede's model is just a rough approximation of cultural complexity (Williamson, 2002:1384-85).

Williamson does not negate the ability of a more parsimonious model to effectively express national culture. Lastly, McSweeney charges Hofstede with using dimensions that are not situation specific.

Williamson (2002:1376), diagrammatically synthesizes McSweeney's critique on what he refers to as Hofstede's false assumptions (Figure 5.3). In section 5.E , I present an outline of his assessments of McSweeney's charges. In order to participate in the larger discussion and debate on national, organizational, and occupational culture, it is necessary to articulate an appropriate paradigm and construct a viable methodology with entailed research methods.

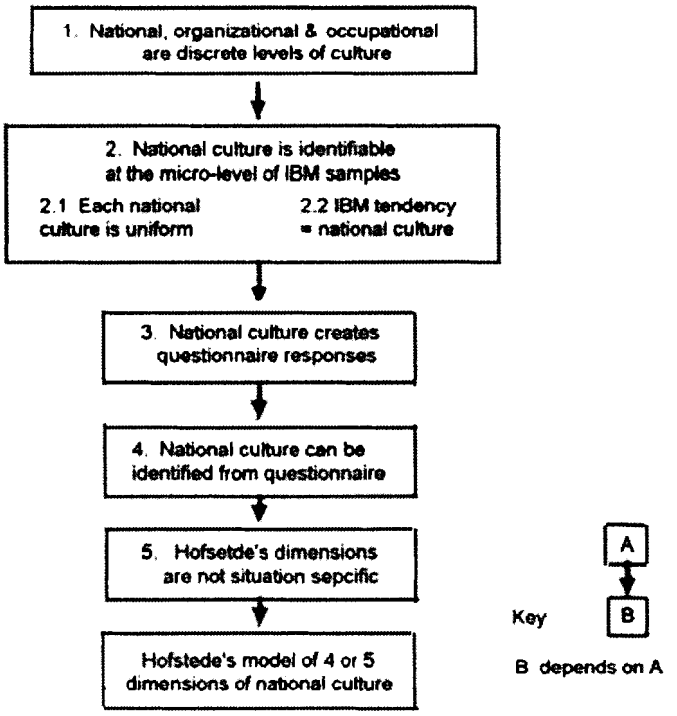


Figure 5.3 Five assumptions McSweeney attributes to Hofstede (Williamson, 2002)
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5.F. Williamson's Response to McSweeney's Critique of Hofstede

I agree with Williamson's contention that McSweeney is ambiguous, and that much of his critique of Hofstede fails because he does not use an articulated paradigm to govern his assessment. Williamson (2002:1375) states:

> McSweeney's paradigm is unclear. This article shows how he both criticizes Hofstede's logic within evaluative criteria, and also challenges the functionalist assumptions adopted by Hofstede. Each of these approaches is feasible, but together they are incompatible. The former requires adoption of evaluative criteria of the functionalist paradigm chosen by Hofstede. The latter is a rejection of this paradigm. Without clear premises, his conclusions are difficult to assess.

In order to explicate a set of critical issues that have merit, Williamson asserts his own position is called meta-paradigmatic. Williamson takes a meta-

paradigm position in evaluating his critique of both the functionalist and interpretive paradigms. He follows Gioia and Pitre (1990), in that selecting an appropriate paradigm may require a meta-paradigm perspective.

In contrast to McSweeney, who does not consider alternative paradigms, Williamson (2002:1392), asserts that what is necessary for a meaningful discussion or examination of culture is a meta-paradigm. This consists of multiple theories and methods from several paradigms, presumably embracing their pertinent methodologies. Expanding the discussion of culture, especially national culture, outside the functionalist paradigm would facilitate "inquiry into the complex dynamic interrelationships among cultures, institutions, histories, and social adaptation" (Williamson, 2002:1392)

While Williamson claims a meta-paradigm for himself, he does not make it clear what that is or how it functions. However based on his example, I suggest that Williamson is implying that his position is a form of mediation between paradigms, because as he notes, his position is not itself a paradigm, but rather a perpetuation of the existing paradigms.

Williamson uses the meta-paradigm approach to describe an approach that compares the positivist-functionalist paradigm used by Hofstede with interpretive paradigms. In doing so he is also able to evaluate McSweeney's critical review of Hofstede's works on culture. Williamson, however does not attempt to explicitly synthesize these two dueling paradigms into a third incorporative paradigm.

My dissertation responds to his call for multi-paradigmatic approaches with arguments for a new paradigm that translates between paradigms and could hold the promise of embracing a number of the other paradigms in their entirety.

5.F.1. A Positivist-Functionalist Paradigm versus an Interpretive Paradigm

Hofstede's subject matter is national and organizational culture (Hofstede, 1991), which he approaches from a positivist - functionalist paradigm. (Williamson, 2002:1375) writes:

> Hofstede researches national culture as a given regularity that shapes shared values. He adopts realist and determinist assumptions. His research into national culture is through careful collection of data from large stratified samples, which he analyzes with statistical techniques designed to suppress subjective interpretations. The dimensions of his model purport to be universally applicable. He may safely be described as working within the functionalist paradigm. McSweeney's paradigm is unclear.

Williamson (2002), references Burrell & Morgan (1979), and Gioia and Pitre (1990), to point out that it is necessary to distinguish paradigms and their respective methodologies, and research methods. Williamson (2002:1375) writes:

> Research methods are generally the specific "techniques used by researchers in gathering and analyzing data. Methodology is concerned with the choice and justification of research methods. Methods should follow logically from the nature of a study and its methodology. In contrast, methodology is based on premises of the researcher. These are assumptions that should be consistent with assumptions about epistemology, ontology and human nature.
>
> The above distinctions have been justified in both Chapters Two and Three.

5.F.2. Williamson's Assessment

In section 5.D.4 I outlined the so-called false assumptions McSweeney accused Hofstede of making in conducting his survey and analysis. I now outline

Williamson's assessment of three of those assumptions. Williamson neutralizes the first assumption challenge by McSweeney that organizational, national, and occupational cultures are discrete, by noting that Hofstede cannot be challenged for setting these out as a prior hypothesis, because that is a widely respected method within his methodology (Williamson, 2002:1377).

Furthermore, Williamson (2002), allows McSweeney to question the reliability of Hofstede's measurements, and whether he adequately or validly controlled for culture at the organizational and occupational levels. Williamson's caveat is that the different cultural levels only become critical when there is some degree of interdependence between them or between their measured manifestations. It is precisely when organizations or occupations have an effect on national culture, that holding them constant reduces their effect.

As for the challenge that Hofstede could identify national culture at the micro-level of IBM samples, Williamson, points out that the paradox of culture lies in "common cultural characteristics being shared within a population that also displays internal cultural variety" (Williamson, 2002:1379). This addresses McSweeney's question as to the uniformity of national culture, and whether the IBM survey can capture that tendency. Williamson says that intra-national variety of cultural values can be expected or allowed for, and should not be ignored.

Williamson's (2002:1381) answer is that McSweeney "misattributes an assumption of cultural uniformity to Hofstede" and appears to confuse the phenomenon of culture, which is a construct, with the measurement of culture. Although he does credit McSweeney with raising awareness of two issues: of not

confusing scores with cultural constructs; and that the scores for Hofstede's dimensions are not absolute measures, but relative positions by which nations can be compared (Williamson, 2002:1380).

McSweeney objects to Hofstede's model because it does not measure culture directly, and because it uses a nomothetic methodology. Williamson points out that McSweeney overlooks the fact that culture is a construct, and as such has no direct measure (Williamson, 2002:1388). Also, any challenge to Hofstede using nomothetic methodology is not an objection to Hofstede per se, but rather to a form of research that requires universal variables which can be measured and compared between cultures with demonstrably useful results (Williamson, 2002:1387).

Williamson disallows the challenge that national culture creates and accounts for questionnaire responses, by noting this requires a more deterministic position than can be attributed to Hofstede (Williamson, 2002:1383). Furthermore, Williamson disallows McSweeney's critique of Hofstede's fourth and fifth assumptions, that national culture cannot be identified from a questionnaire, or that Hofstede's dimensions are universal. Williamson concludes that McSweeney is not successful in dislodging Hofstede's thesis or his model, but he does credit McSweeney with raising a number of legitimate issues related to Hofstede's work, and for highlighting several important problems in conducting cultural research.

Williamson notes that quantitative studies using a positivist epistemology generally maintain objectivity, precision, and credibility, and have a great potential for comparability. He concludes that there is over-reliance on Hofstede, and a need to consider McSweeny's criticisms of Hofstede, in spite of their shortcomings.

Williamson says that if an interpretive paradigm challenge were mounted to Hofstede, it might come from using an ideographic methodology, because it would be more feasible than a nomothetic methodology for researching emic values that disclose culture. Williamson (2002:1374), cautions:

> If . . . commentators rebut McSweeney's argument for its flaws, use of Hofstede's model may be strengthened. This would be unfortunate for the warnings raised by McSweeney, and for well-founded criticism of over-reliance on Hofstede's model (e.g. Bhimani, 1999; Harrison & McKinnon, 1999; Redding, 1994)

The preceding review of the McSweeney - Hofstede debate, mediated by Williamson, is intended to shed light on the strengths and merits of Hofstede's study. It also identifies some of the limitations in Hofstede's work raised by McSweeney; this in spite of the fact that McSweeney is critiquing Hofstede from a paradigm that is different from Hofstede's, and thus the critique falls short of being definitive.

In general, I agree with Williamson, who takes the widely held position that Hofstede's research including his dimensions and scores, provides one of the best methods of modeling culture, and should continue to be utilized until a better model presents itself.

In the next chapter, I use an interpretive typology based on an East Asian cultural perspective to map the data Hofstede derived and to then explicate this statistically derived data with his dimensions. I use Hofstede's own material to demonstrate that he has only three viable or justifiable dimensions. At the same time my analysis suggests that his data is probably valid and quite useful.

Chapter 6

> Suppose that we are investigating a certain phenomenon, and that we have at our disposal a set of data. We now want to find out whether this phenomenon may be adequately described by means of some suggested theoretical model. How should we proceed in order to test the agreement between the theoretical model and the actual observations as expressed by our data? There are many models. All of them simply wait in the cabinet until someone tests one of them against a data set, to see how it fits.
>
> Bruce Brooks, 2002 (paraphrasing Harald Cramer, 1955).

Applying the BAM Model to an Analysis of Hofstede's Survey

This chapter does not comprise a synthesis per se, but an attempt to translate one idiomatic view of culture (Hofstede's), into another idiomatic view of culture, (my interpretive adaptation of the *I Ching*). I also retranslate my interpretation of the *I Ching* into a model that is more meaningful in Hofstede's terms. My work can be considered a form of translation between cultures and between paradigms.

This chapter provides an analysis of Hofstede's survey on national culture with IBM (1980), using the *Binary Archic Matrix* (BAM) typology as a research method. Hofstede developed scores for 53 societal cultures (50 countries and 3 regions) along four cultural dimensions: Power Distance (PDI), Individualism (IDV), Masculinity (MAS), and Uncertainty Avoidance (UAV). He derived from three main factors, and generated PDI and IDV from one of these factors.

My binary analysis reveals that Individualism and Power Distance are about 90% inversely correlated, so I combine them to create an integrated dimension with a single score. As the other two dimensions originally constituted individual factors, I obtain three scores for each country related to Hofstede's three main factors. I then convert each score into a binary digit.

In this way the countries obtain three-digit binary triplet profiles. Since the three-line *I Ching* trigrams symbols are also binary in character, I associate each triplet with its corresponding trigram number. The triplet-trigram equivalence makes it possible to represent culture according to two paradigms: the functionalist paradigm used by Hofstede, and the interpretive paradigm of the *I Ching*.

6.A. Hofstede's Survey: Overview of the Research Method

I originally proceeded with two research objectives. The first was to provide an integrative approach to translating culture defined by its core domains, between East and West by developing an interpretive model that would be meaningful to both Western and East Asian parties in two cultural frames-of-reference.

This kind of model should enable managers to discuss and deal with culture and related issues in a positive and productive manner. Perhaps this syncretic approach to modeling culture could facilitate cross-cultural collaboration, and improve the chances of success in intercultural partnerships.

The second objective was to devise a method of organizing cultural data that would define internally consistent types or clusters that could be graphically modeled in a visually meaningful and easy to understand way. I specifically wanted to achieve clusters whose integrity remained consistent regardless of the graphing technique or perspective used for depicting the data.

In the early stages of this research I came to appreciate that the Chinese-inspired typology had several additional benefits, not the least of which is its potential to function as a typology that can be used for bridging or communicating between other models and studies. This is discussed briefly at the end of the chapter

with a number of cultural models illustrated in Appendix 3. The research method for analyzing Hofstede's study is outlined here and then graphically presented below in a mind map (Figure 6.1), which is a flow chart of the argument.

6.A.1 Reanalyzing and Reinterpreting Hofstede's Data

I use the *Binary Archic Matrix* (BAM) to conduct an in-depth analysis and re-interpretation of Hofstede's IBM survey. My findings support returning his four dimensions to his three original factors. I find it conceptually problematic to divide a factor into two dimensions, and then treat them on an equal basis with other dimensions that were true factors.

I recombine Power Distance and Individualism, and map the scores for his factors (dimensions) onto the three-dimensional typology matrix. It is my position that individualism and collectivism should be abandoned as one separate dimension because they do not constitute a separate dimension. Moreover, they should be replaced with a dimension that accurately reflects Hofstede's Factor 1 by conjoining power distance and individualism.

Once this is done, the countries cluster in a more elegant and parsimonious way than Hofstede's clusters. In addition, they form eight clusters with binary profiles that correspond to the eight binary trigram symbols in the *I Ching* - Book of Change. I therefore propose a parsimonious model composed of the three universal dimensions equivalent to Hofstede's three factors, to provide a framework within which narrower theories with more specific constructs can obtain greater meaning.

I suggest that firms from various countries (or subcultures) can employ a cultural construct such as Individualism -Collectivism to advantage by using it as a

useful starting point in their collaborative ventures for developing a framework to contrast their work- related values. The benefit of individualism-collectivism is that: it is easy to understand; easy to identify with; and it is not burdened in the same way as power distance; uncertainty avoidance, or masculinity.

6.A.2. Overview of the BAM Analysis of Hofstede's Data

The research data in this dissertation is primarily Hofstede's data. The data consists of: a) the four above-mentioned dimensions: PDI, IDV, MAS, and UAV; b) the four scores for fifty-three countries (one for each dimension); c) six plot graphs (one for each pair of dimensions), with axis lines and clusters of countries; and d) Hofstede's (2001: 64) dendogram, a hierarchical cluster analysis.

I convert the scores for each dimension to bipolar values: binary 0 for scores below Hofstede's axis line, and 1 for scores above the axis line. This generates compact four-digit cultural profiles, and defines cultural types in a way that is hypothetically compatible with the binary symbols in the *yin-yang* system.

I conduct a between-dimension analysis of the binary digits. Two of the dimensions, IDV and PDI, were derived from a single factor. They also correlate negatively for 90% of the countries. As an experiment, I combine the scores for IDV and PDI for each country, to create a consolidated dimension, called IPD (Individualism Power Distance); reducing the number of dimensions to three.

After ascertaining a probable axis line for IPD, I identify15 countries that have at least one score within +/-3 of its respective axis line. I suggest this range constitutes a possible margin of error zone, such that a score in this zone could be 0 or 1. The choice will be determined by other factors that are discussed below.

I use the three scores to identify each country's position in three dimension Euclidean space, and then measure the spatial distance or proximity between each country and its six closest neighbors. Each distance is a proximity value (PV). I use these PVs to help determine whether a binary digit in the +/-3 margin of error zone is most likely 1 or 0. The three scores for each country convert to three-digit binary numbers or triplets that form binary profiles. The eight binary profiles organize the countries into eight cultural groupings.

I next ascertain the viability and validity of this method of converting individual scores to binary digits and representing the aggregate of scores as binary profiles and using these as the basis for identifying societal groups or clusters. My intention is to compare Hofstede's clusters with the binary triplet clusters. The plot graph of choice is Uncertainty Avoidance - Masculinity, since that is the only one of Hofstede's six graphs that remains unchanged after I combine the Individualism and Power Distance dimensions.

6.A.3. Explication of the Flow Chart

The components of this flow chart outline the operations that constitute the BAM analysis of Hofstede's IBM survey. The ten ovals in the middle column represent the main procedures of the research method. The rectangles on both sides identify the main observations resulting from each procedure.

6.A.3.a. Flow Chart

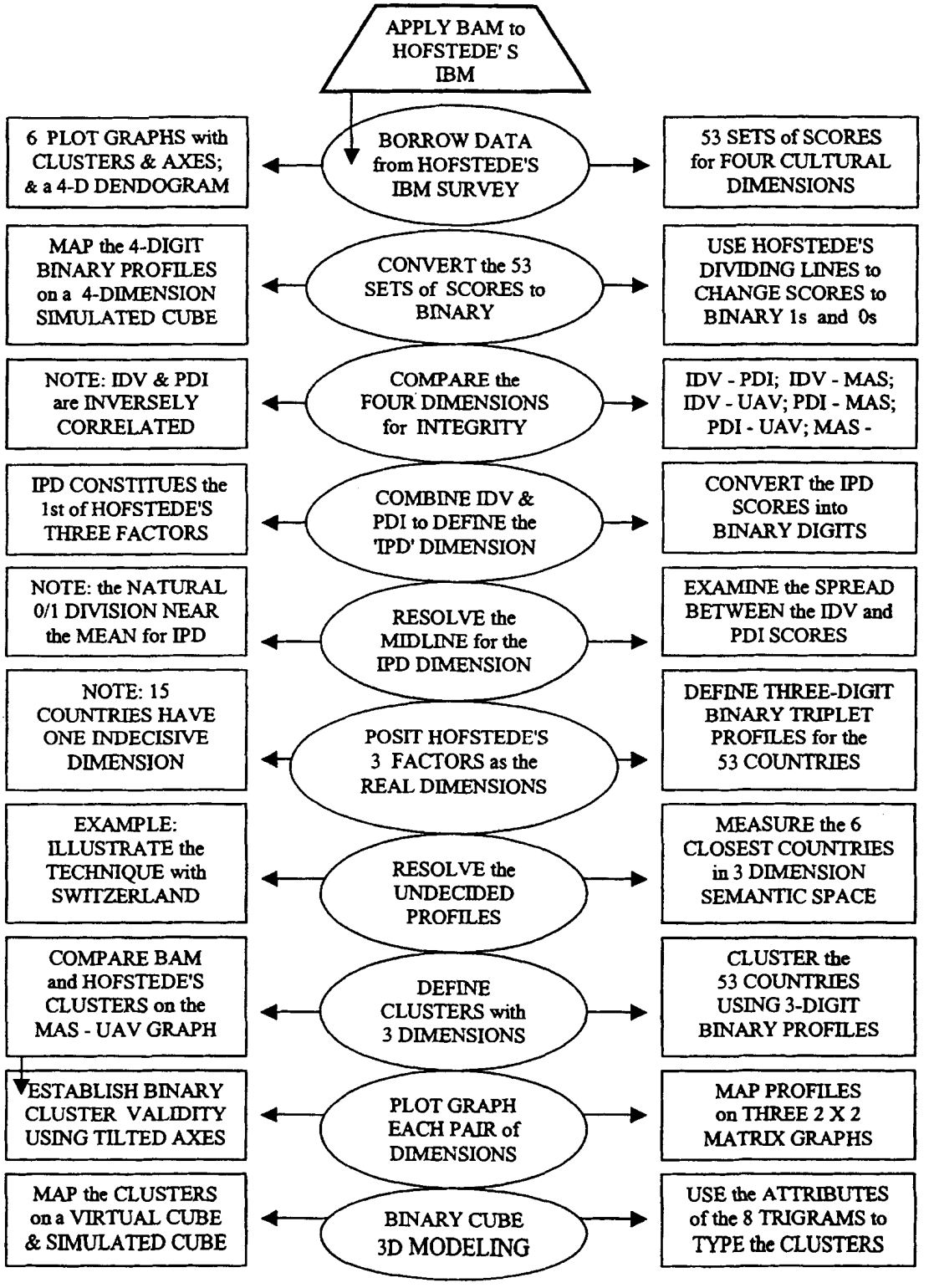


Figure 6.1 Flow chart of the BAM analysis of Hofstede's survey

6.B. Elements of Analysis

This stage of my project constitutes a reanalysis of Hofstede's (1980 and 1991) data, generated from the IBM questionnaire he originally developed to study work-related values. This means that his data is my data but seen from a different conceptual perspective. The 'sets' that form the basis of my study are the fifty countries and three regions he included in his survey. They were limited to countries or regions in which IBM had active operations.

The primary data for my analysis consists of Hofstede's four dimensions, and the scores that he generated for each country along these dimensions. The four dimensions are: Power Distance, Individualism, Masculinity, and Uncertainty Avoidance (Chapter 5). The next component of my analysis are the six 2x2 plot graphs (one for each pair of dimensions), and the last is a dendogram (Figure 6.3), that illustrates a closest space graphs analysis of the data in four dimensions.

The dendogram identifies clusters of countries in which the differences within clusters are minimal and the differences between clusters are maximal. "The advantage of this method is that the configuration of countries for various numbers of clusters can be seen at a glance" (Hofstede, 1984:221). Hofstede obtained eleven clusters by modifying the data statistically (Hofstede, 1984:228).

These elements of analysis provide interesting windows for examining and considering the data. The axis lines he identifies on each matrix are not means, but rather dividing lines that he considers more meaningful due to the way the countries in the survey are weighted in an unbalanced manner. Hofstede also identifies clusters on each matrix that differ from one matrix to the other.

6.B.1. The Data

This analysis yields results that are useful for understanding the character of cultural domains; for depicting societal and organizational culture; for predicting cultural types; and for graphing cultural data. It also seems to confirm the value of Hofstede's data and his overall theory of culture, while at the same time calling into question some of his conclusions and the manner in which his represents his findings. The findings also suggests that the he may have captured some aspect that reflects the deep structure of culture. I focus on four elements in Hofstede's survey:

i. the four cultural dimensions: Individualism–Collectivism, (IDV); Power Distance (PDI); Masculinity (MAS); and Uncertainty Avoidance (UAV);
ii. scores for each dimension for 50 countries and 3 regional groups (Table 6.1)
iii. the six plot graphs for the six pairs of dimensions (Figure 6.2): PDI–IDV; PDI–MAS; PDI–UAV; IDV–MAS; IDV– UAV; and MAS–UAV;
iv. the country clusters Hofstede describes on the plot graphs (Figure 6.2); and
v. a hierarchical cluster analysis that produces a dendogram (Figure 6.3)

Country	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	CODE
Arab States	80	38	53	68	ARA
Argentina	49	46	56	86	ARG
Australia	36	90	61	51	AUL
Austria	11	55	79	70	AUT
Belgium	65	75	54	94	BEL
Brazil	69	38	49	76	BRA
Canada	39	80	52	48	CAN
Chile	63	23	28	86	CHL
Colombia	67	13	64	80	COL
Costa Rica	35	15	21	86	COS
Denmark	18	74	16	23	DEN
East Africa	64	27	41	52	EAF
Ecuador	78	8	63	67	EQA
Finland	33	63	26	59	FIN
France	68	71	43	86	FRA
Germany	35	67	66	65	GER
Great Britain	35	89	66	35	GBR
Greece	60	35	57	112	GRE
Guatemala	95	6	37	101	GUA
Hong Kong	68	25	57	29	HOK
India	77	48	56	40	IND
Indonesia	78	14	46	48	IDO
Iran	58	41	43	59	IRA
Ireland	28	70	68	35	IRE
Israel	13	54	47	81	ISR
Italy	50	76	70	75	ITA
Jamaica	45	39	68	13	JAM
Japan	54	46	95	92	JPN
Korea	60	18	39	85	KOR
Malaysia	104	26	50	36	MAL
Mexico	81	30	69	82	MEX
Netherlands	38	79	14	53	NET
New Zealand	22	80	58	49	NZL
Norway	31	69	8	50	NOR
Pakistan	55	14	50	70	PAK
Panama	95	11	44	86	PAN
Peru	64	16	42	87	PER
Philippines	94	32	64	44	PHL
Portugal	63	27	31	104	POR
Salvador	66	19	40	94	SAL
Singapore	74	20	48	8	SIN
South Africa	49	65	63	49	SAF
Spain	57	51	42	86	SPA
Sweden	31	71	50	29	SWE
Switzerland	34	68	70	58	SWI
Taiwan	58	17	45	69	TAI
Thailand	64	20	34	64	THA
Turkey	66	37	45	85	TUR
United States	40	91	62	46	USA
Uruguay	61	36	38	100	URU
Venezuela	81	12	73	76	VEN
West Africa	77	20	46	54	WAF
Yugoslavia	76	27	21	88	YUG

Table 6.1 53 countries in Hofstede's survey with scores for all four dimensions

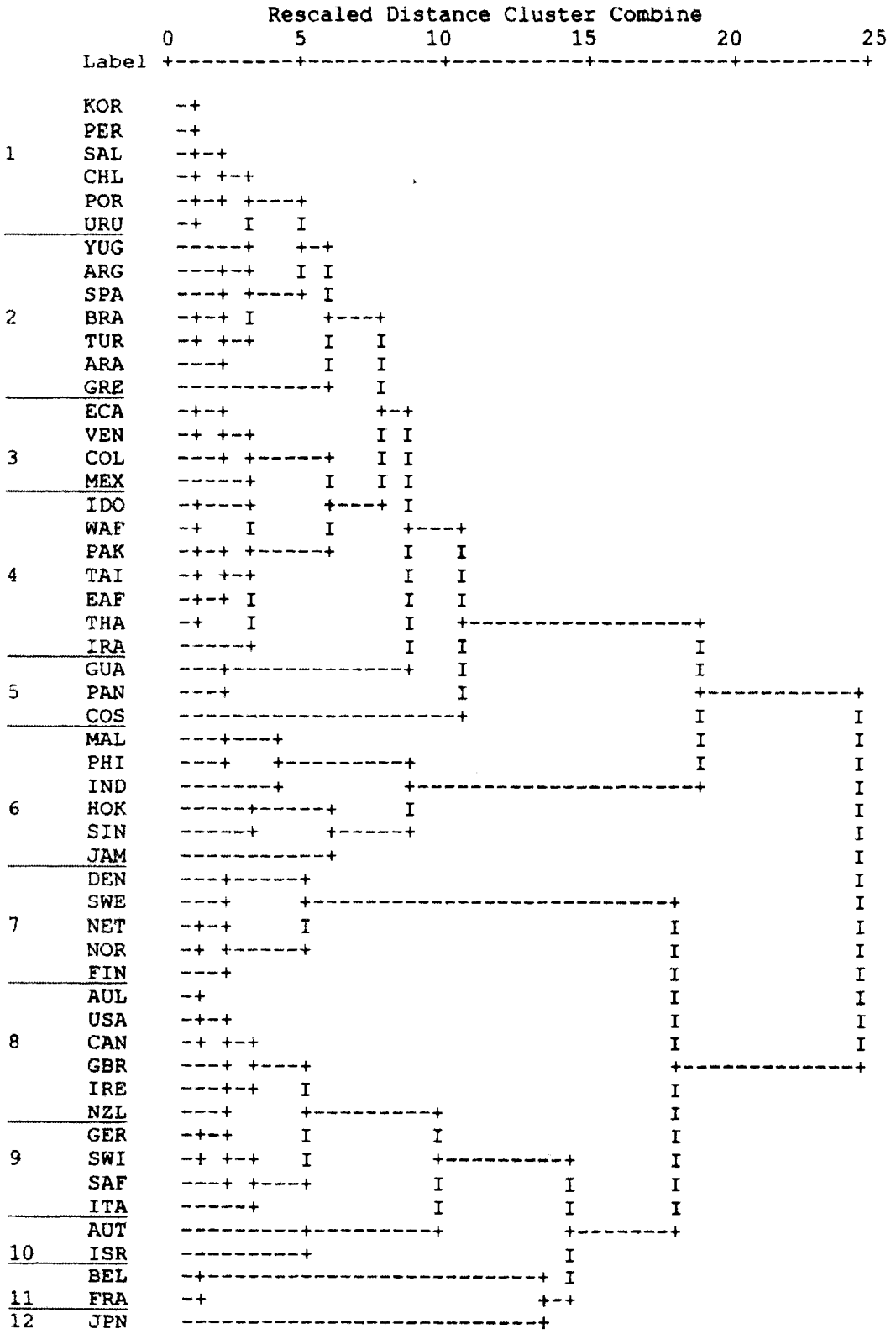


Figure 6.2 Dendogram of Hofsetde's (2001:64) data: a modified, hierarchical, closest space cluster analysis of 50 countries and 3 regions with four dimensions

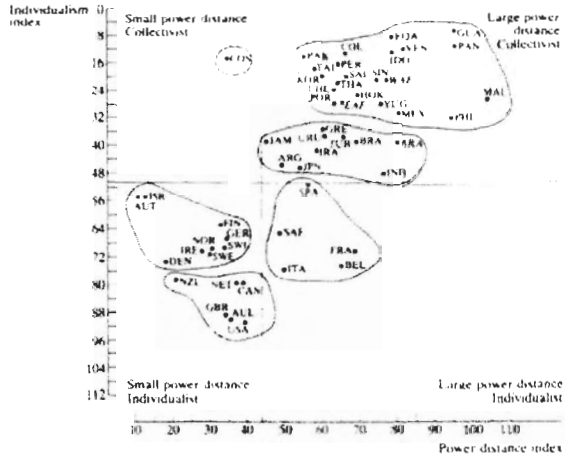
6.B.2. Explicating Hofstede's Six Plot Graphs and Clusters

Hofstede created six 2 x 2 matrix plot graphs (Figures 6.5 to 6.10), one for each pair of dimensions: IDV - PDI, MAS - UAV, IDV - MAS, PDI - UAV, IDV - UAV, PDI - MAS. Two questions that arise are that the axis lines are not means; and the clusters of countries change from graph to graph in spite of the fact that his hierarchical analysis (Hofsetde, 2001:64) identified specific clusters. I have not located any published material that specifically discusses these issues. Hofstede, 2002b) generously responded to my inquiry, writing that the midlines on his graphs:

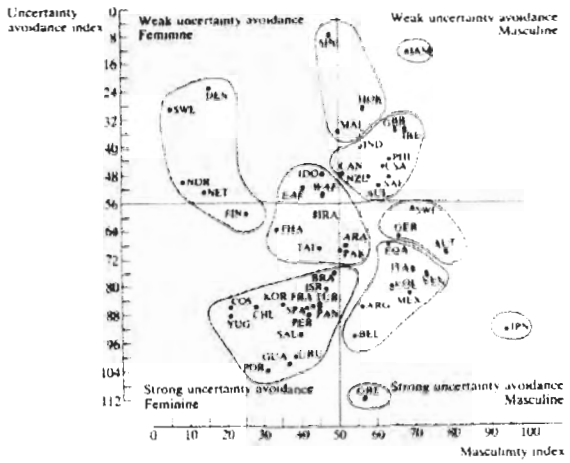
> . . . are not always means - I sometimes shifted them in order to get the clearest possible separation between countries. Interpreting research data is always a partly subjective process. . . . The circles (around groups of countries) are completely subjective, showing the proximity of countries that have other characteristics in common (language, history, geography). Another example of subjectivity on behalf of clarity of interpretation is the choice of the number of factors in factor analysis.

From these comments and a personal discussion, I understand that one reason Hofstede may have shifted the lines was to account for the imbalance from the high number of countries from Central and South America. As for the clusters, it is my position that they should represent the data as a whole, in "n" dimensional space. That is because clusters that depict only part of the data will compromise or distort its meaning and value.

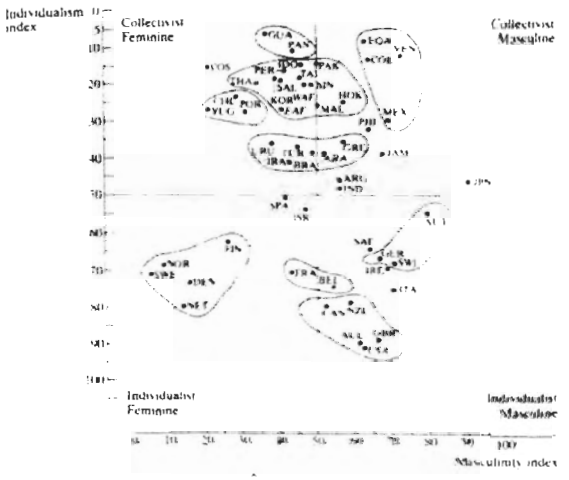
Hofstede's clusters are portrayed in his plot graphs (Figures 6.4 to 6.9). I suggest his approach to clustering is conceptually problematic because it treats dimensions as conditions that function independently of each other; as conditions that happen to occur together, but which each have separate, independent existence I include examples of Spain, Israel, India and the Philippines to illustrate my point.



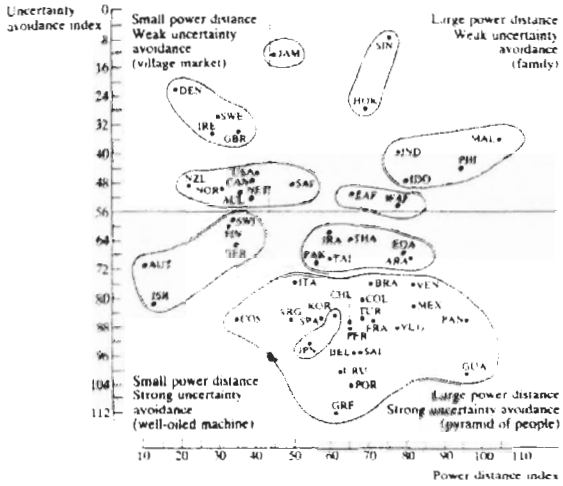
PDI-IDV



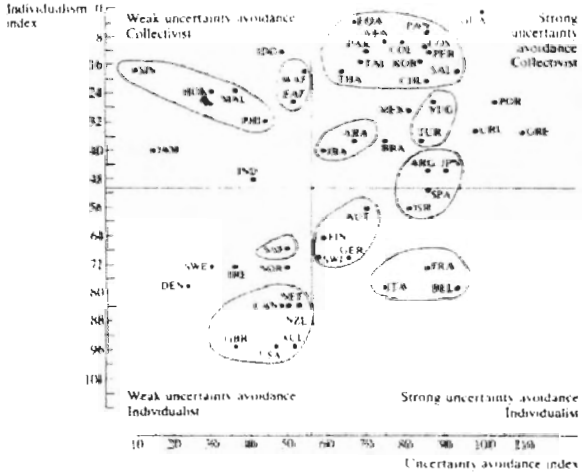
MAS-UAV



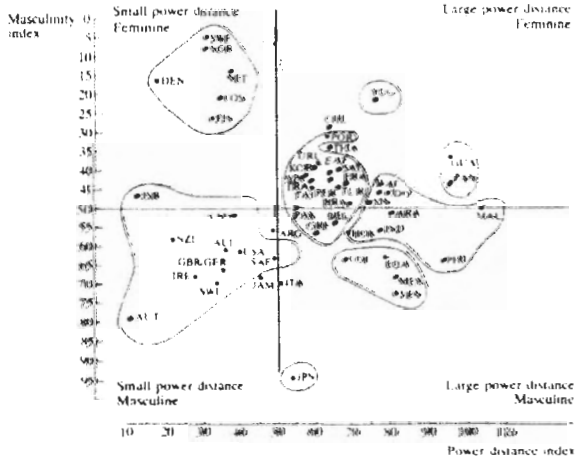
IDV-MAS



PDI-UAV



IDV-UAV



PDI-MAS

Figure 6.3 Hofstede's (1991):six plot graphs: PDI-IDV (p54); MAS-UAV (p123); IDV-MAS (p99); PDI-UAV (p141); IDV-UAV (p129); PDI MAS (p87)

6.B.2.a Examples of Cluster Inconsistency in Hofstede's Graphs

Spain (SPA) is grouped with South Africa (SAF), Italy (ITA), France (FRA), and Belgium (BEL) in Figure 6.4. In Figure 6.8, it is grouped with Japan (JPN), Israel (ISR), and Argentina (ARG); and in Figure 6.6, it is alone, even though it is in close proximity to Israel (ISR). In Figure 6.5, Spain is clustered with more than a dozen countries including Yugoslavia (YUG), Korea (KOR), Israel (ISR), and Turkey (TUR), and a few Central and South American nations. In Figure 6.9, it is clustered with another culturally diverse group of countries including Greece (GRE) and Pakistan (PAK).

Israel (ISR) provides another example of the confusion created by Hofstede's clusters, because he clusters Israel differently in each graph. In Figures 6.4 and 6.7, it is with the Germanic speaking countries and one or more Nordic countries. In Figure 6.5 it is with the Hispanic countries plus France and Spain. In Figure 6.6 it is alone, in spite of being close to both Spain and France. In Figure 6.8 it is with Argentina, Japan, and Spain. And in Figure 6.9 it is with the Anglo and Germanic countries, even though Israel has no close proximity values to the Anglo countries.

India (IND) and the Philippines (PHI) serve as another example of cluster confusion. In Figure 6.4 they are in two different clusters, while in Figures 6.5, 6.7, and 6.9.they are clustered together. In Figure 6.5 they are with Canada and the other Anglo countries, and in Figures 6.7 and 6.9 they are with Indonesia and Malaysia, with the latter also including West Africa, Singapore, and Hong Kong. In Figure 6.6 both countries are alone, while in 6.8 only India is alone even though it is close to the cluster that includes the Philippines. This raises a number of questions.

There are a number of other such inconsistencies, which are understandable in light of Hofstede's subjective approach to clustering. I suggest that Hofstede's clusters display a spurious image of the data. I find them not only not useful, but also confusing. Moreover the clusters are problematic because they are misleading and misinforming, and can lead to misinterpretation, misunderstanding, or mistakes. I therefore propose that once clusters are determined, in "n" dimensions, (which for Hofstede is four), they should remain consistent in each of the diagrams, especially if they are meant to be basic or universal.

The notion of describing culture in terms of basic domains or universals, implies a coherent cultural unity and identity. And the method of describing culture with dimensions or universals should reflect the organic integrity or wholeness of the data. If culture can be likened to an organic system, then the defining parts (which in this case are the dimensions) only make sense within the context of all the other parts (dimensions). By looking at only two dimensions of culture when the analysis generates more than two, is to study something other than or less than what it actually is. A study based on one or two dimensions represents only a fragment of the culture being studied.

The following six figures repeat Hofstede's plot graphs with the clusters for Israel, Spain, and India shaded.

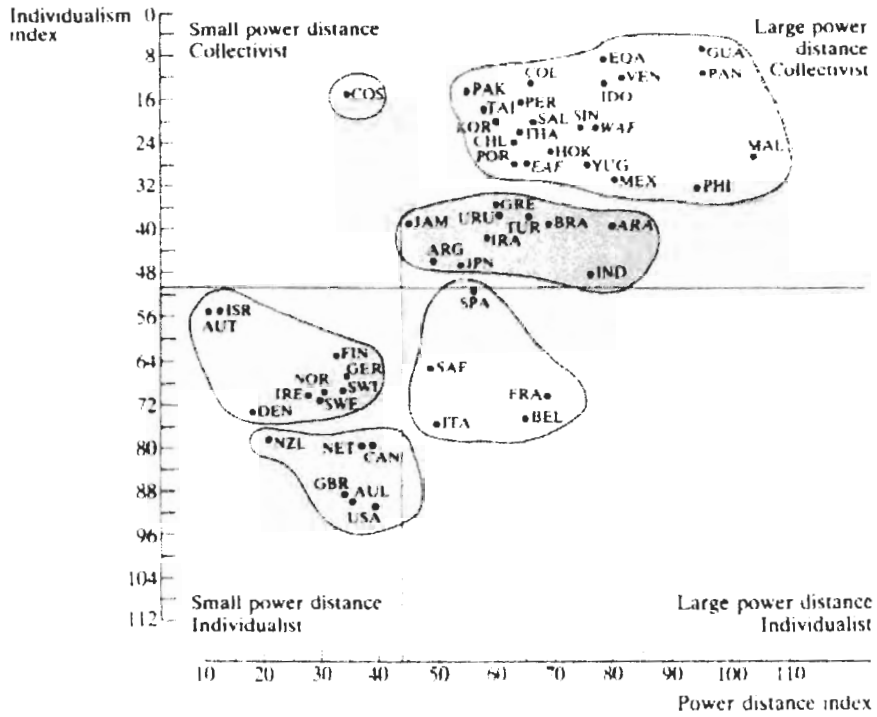


Figure 6.4 Hofstede's IDV - PDI Plot graph

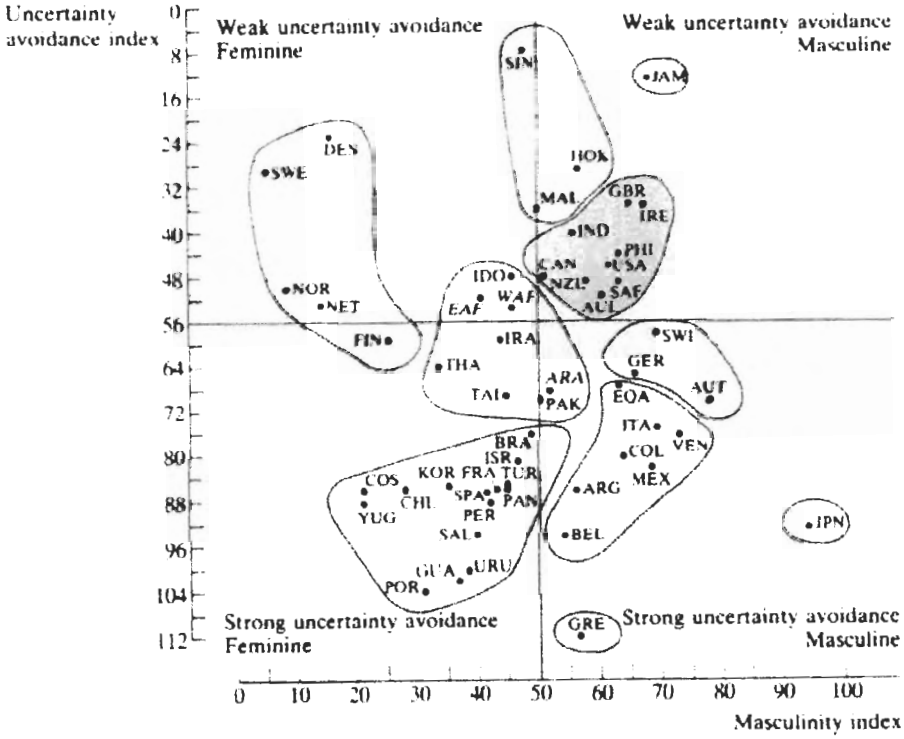


Figure 6.5 Hofstede's MAS - UAV plot graph

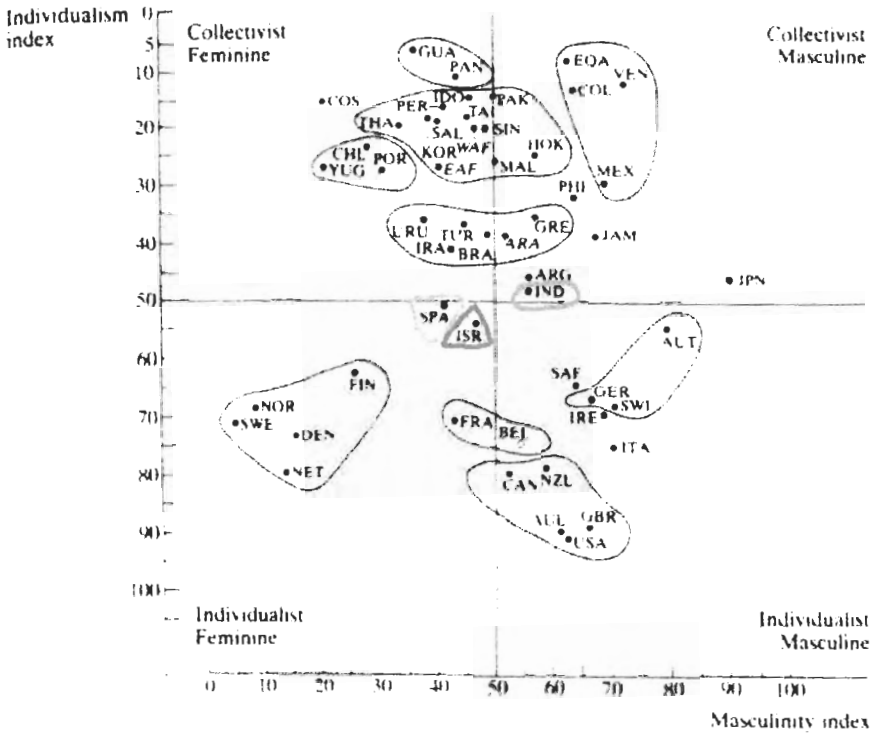


Figure 6.6 Hofstede's IDV - MAS Plot graph

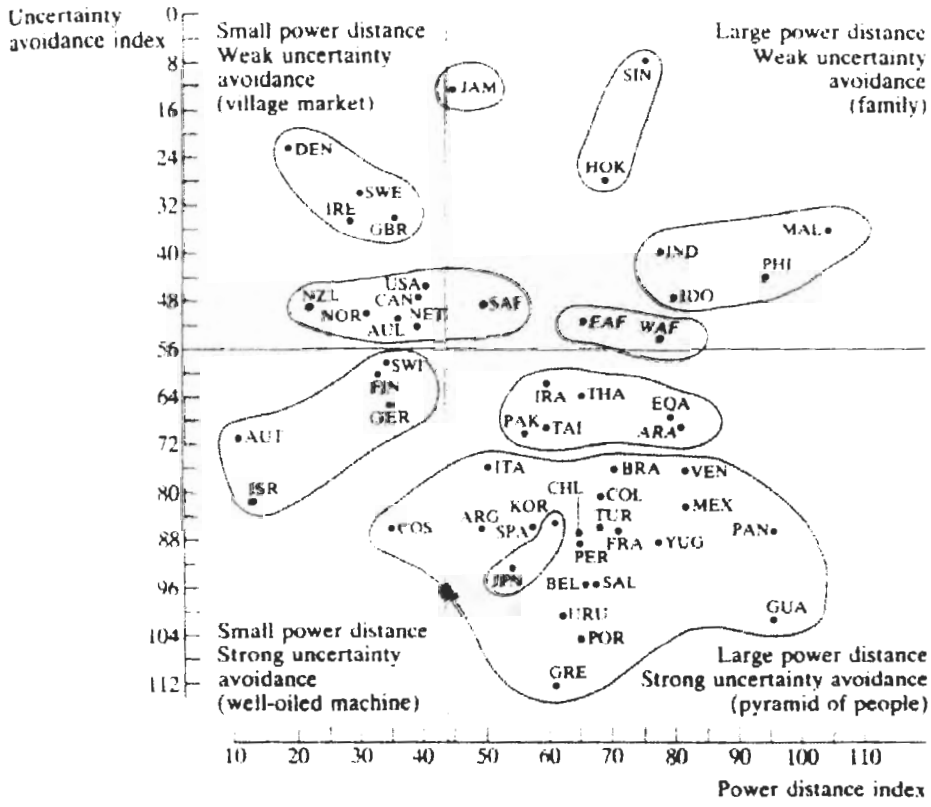


Figure 6.7 Hofstede's PDI - UAV Plot graph

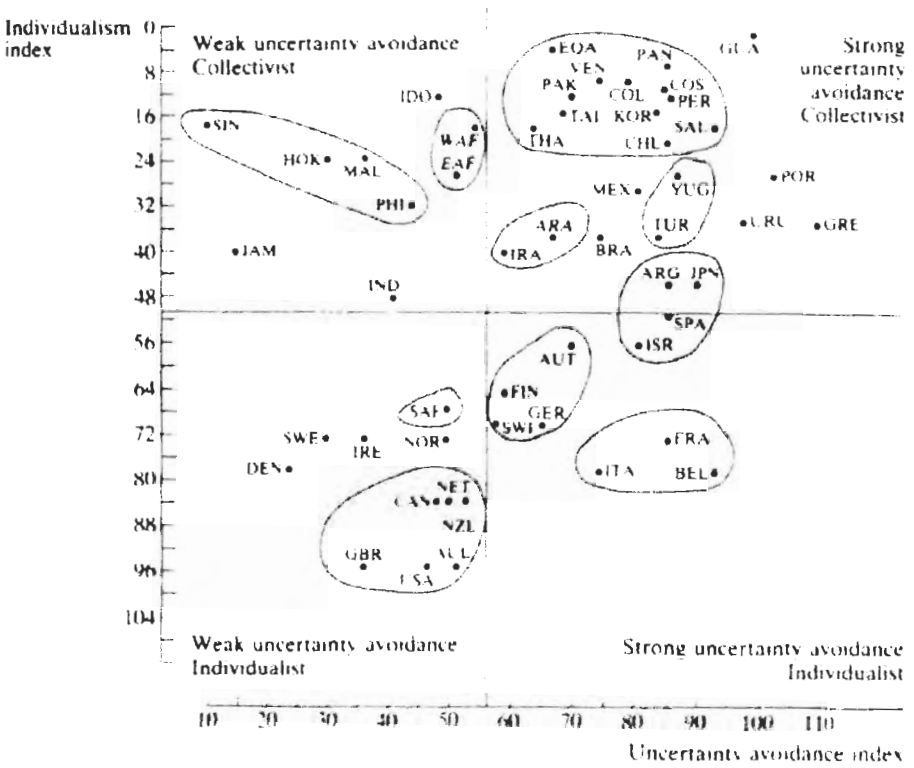


Figure 6.8 Hofstede's IDV - UAV Plot graph

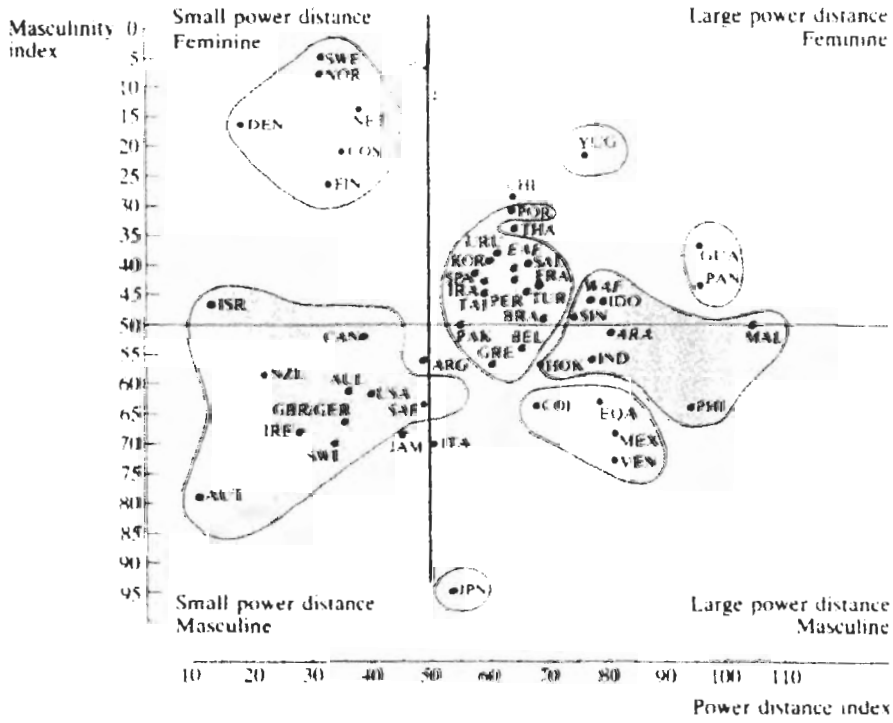


Figure 6.9 Hofstede's PDI - MAS Plot graph

6.C. Reframing and Analyzing Hofstede's Data

In order to understand the country profiles in terms of the binary aspect of *yin* and *yang*, I convert the four scores for each of the 53 countries to binary digits. Scores above the axis line (as shown on Hofstede's graphs) are binary 1, and scores below the axis line are binary 0. Hofstede uses two different axis lines for Power Distance: 44 in the PDI-IDV graph and the PDI-UAV graph, and 50 in the PDI-MAS graph. This suggested the +/-3 point margin of error range.

The (bold) PDI and IDV columns on the right side of Table 6.2, indicate that 48 of the 53 countries (90%), have opposite binary digits for Power Distance (PDI) and Individualism (IDV). When one is binary 1 the other is binary 0. This binary conversion indicates that the two dimensions are highly negatively correlated.

In Table 6.2 the countries are listed alphabetically. Those with scores +/-3 of the axis line are noted by an asterisk (*). The four-digit binary profiles are arranged from left to right: PDI - IDV - MAS - UAV, maintaining Hofstede's (1991) order. In Table 6.3, the countries are regrouped according to their 4-digit binary profiles. The shading visually separates the countries in one group from another. A few countries have an x-score instead of a binary digit. These are scores that fall on the axis line. As a result, the profiles straddle two binary groups.

I use a simulated 3-D matrix (Figure 7.6), to model the countries in the four combinations of four dimensions: 1, 2, 3 (PDI, IDV, MAS); 1, 2, 4 (PDI, IDV, UAV); 1, 3, 4 (PDI, MAS, UAV); and 2, 3, 4 (IDV, MAS, UAV). As this was less that satisfactory, I created a simulated four-dimension matrix to model the all four dimensions as a whole (Figure 6.10).

Country	PDI/47	IDV/51	MAS/50	UAV/56	CODE	PDI	IDV	MAS	UAV
Arab States	80	38	53*	68	ARA	1	0	1*	1
Argentina	49*	46	56	86	ARG	0*	0	1	1
Australia	36	90	61	51	AUL	0	1	1	0
Austria	11	55	79	70	AUT	0	1	1	1
Belgium	65	75	54	94	BEL	1	1	1	1
Brazil	69	38	49*	76	BRA	1	0	0*	1
Canada	39	80	52*	48	CAN	0	1	1*	0
Chile	63	23	28	86	CHL	1	0	0	1
Colombia	67	13	64	80	COL	1	0	1	1
Costa Rica	35	15	21	86	COS	0	0	0	1
Denmark	18	74	16	23	DEN	0	1	0	0
East Africa	64	27	41	52	EAF	1	0	0	0
Ecuador	78	8	63	67	EQA	1	0	1	1
Finland	33	63	26	59*	FIN	0	1	0	1*
France	68	71	43	86	FRA	1	1	0	1
Germany	35	67	66	65	GER	0	1	1	1
Great Britain	35	89	66	35	GBR	0	1	1	0
Greece	60	35	57	112	GRE	1	0	1	1
Guatemala	95	6	37	101	GUA	1	0	0	1
Hong Kong	68	25	57	29	HOK	1	0	1	0
India	77	48*	56	40	IND	1	0*	1	0
Indonesia	78	14	46	48	IDO	1	0	0	0
Iran	58	41	43	59*	IRA	1	0	0	1*
Ireland	28	70	68	35	IRE	0	1	1	0
Israel	13	54	47*	81	ISR	0	1	0*	1
Italy	50*	76	70	75	ITA	0*	1	1	1
Jamaica	45*	39	68	13	JAM	1*	0	1	0
Japan	54	46	95	92	JPN	1	0	1	1
Korea	60	18	39	85	KOR	1	0	0	1
Malaysia	104	26	50*	36	MAL	1	0	-*	0
Mexico	81	30	69	82	MEX	1	0	1	1
Netherlands	38	79	14	53*	NET	0	1	0	0*
New Zealand	22	80	58	49	NZL	0	1	1	0
Norway	31	69	8	50	NOR	0	1	0	0
Pakistan	55	14	50	70	PAK	1	0	-*	1
Panama	95	11	44	86	PAN	1	0	0	1
Peru	64	16	42	87	PER	1	0	0	1
Philippines	94	32	64	44	PHL	1	0	1	0
Portugal	63	27	31	104	POR	1	0	0	1
Salvador	66	19	40	94	SAL	1	0	0	1
Singapore	74	20	48*	8	SIN	1	0	0*	0
South Africa	49	65	63	49	SAF	1	1	1	0
Spain	57	51*	42	86	SPA	1	1*	0	1
Sweden	31	71	50	29	SWE	0	1	0	0
Switzerland	34	68	70	58	SWI	0	1	1	1*
Taiwan	58	17	45	69	TAI	1	0	0	1
Thailand	64	20	34	64	THA	1	0	0	1
Turkey	66	37	45	85	TUR	1	0	0	1
United States	40	91	62	46	USA	0	1	1	0
Uruguay	61	36	38	100	URU	1	0	0	1
Venezuela	81	12	73	76	VEN	1	0	1	1
West Africa	77	20	46	54*	WAF	1	0	0	0*
Yugoslavia	76	27	21	88	YUG	1	0	0	1

Table 6.2 53 sets of scores with countries listed alphabetically

Country	PDI-47	IDV-51	MAS-50	UAV-56	CODE	PDI	IDV	MAS	UAV
Costa Rica	35	15	21	86	COS	0	0	0	1
Argentina	49	46	56	86	ARG	0*	0	1	1
Denmark	18	74	16	23	DEN	0	1	0	0
Netherlands	38	79	14	53	NET	0	1	0	0*
Norway	31	69	8	50	NOR	0	1	0	0
Sweden	31	71	50	29	SWE	0	1	0	0
Finland	33	63	26	59	FIN	0	1	0	1*
Israel	13	54	47	81	ISR	0	1	0*	1
Australia	36	90	61	51	AUL	0	1	1	0
Canada	39	80	52	48	CAN	0	1	1*	0
Great Britain	35	89	66	35	GBR	0	1	1	0
Ireland	28	70	68	35	IRE	0	1	1	0
New Zealand	22	80	58	49	NZL	0	1	1	0
United States	40	91	62	46	USA	0	1	1	0
South Africa	49	65	63	49	SAF	1	1	1	0
Austria	11	55	79	70	AUT	0	1	1	1
Germany	35	67	66	65	GER	0	1	1	1
Italy	50	76	70	75	ITA	0*	1	1	1
Switzerland	34	68	70	58	SWI	0	1	1	1*
East Africa	64	27	41	52	EAF	1	0	0	0
Indonesia	78	14	46	48	IDO	1	0	0	0
West Africa	77	20	46	54	WAF	1	0	0	0*
Singapore	74	20	48	8	SIN	1	0	0*	0
Malaysia	104	26	50	36	MAL	1	0	x*	0
Hong Kong	68	25	57	29	HOK	1	0	1	0
India	77	48	56	40	IND	1	0*	1	0
Philippines	94	32	64	44	PHL	1	0	1	0
Jamaica	45	39	68	13	JAM	1*	0	1	0
Iran	58	41	43	59	IRA	1	0	0	1*
Chile	63	23	28	86	CHL	1	0	0	1
Guatemala	95	6	37	101	GUA	1	0	0	1
Panama	95	11	44	86	PAN	1	0	0	1
Peru	64	16	42	87	PER	1	0	0	1
Korea	60	18	39	85	KOR	1	0	0	1
Portugal	63	27	31	104	POR	1	0	0	1
Salvador	66	19	40	94	SAL	1	0	0	1
Taiwan	58	17	45	69	TAI	1	0	0	1
Thailand	64	20	34	64	THA	1	0	0	1
Turkey	66	37	45	85	TUR	1	0	0	1
Uruguay	61	36	38	100	URU	1	0	0	1
Yugoslavia	76	27	21	88	YUG	1	0	0	1
Brazil	69	38	49	76	BRA	1	0	0*	1
Pakistan	55	14	50	70	PAK	1	0	x*	1
Arab States	80	38	53	68	ARA	1	0	1*	1
Colombia	67	13	64	80	COL	1	0	1	1
Ecuador	78	8	63	67	EQA	1	0	1	1
Venezuela	81	12	73	76	VEN	1	0	1	1
Greece	60	35	57	112	GRE	1	0	1	1
Japan	54	46	95	92	JPN	1	0	1	1
Mexico	81	30	69	82	MEX	1	0	1	1
France	68	71	43	86	FRA	1	1	0	1
Spain	57	51	42	86	SPA	1	1*	0	1
Belgium	65	75	54	94	BEL	1	1	1	1

Table 6.3 the 53 countries grouped according to their 4-digit binary profiles

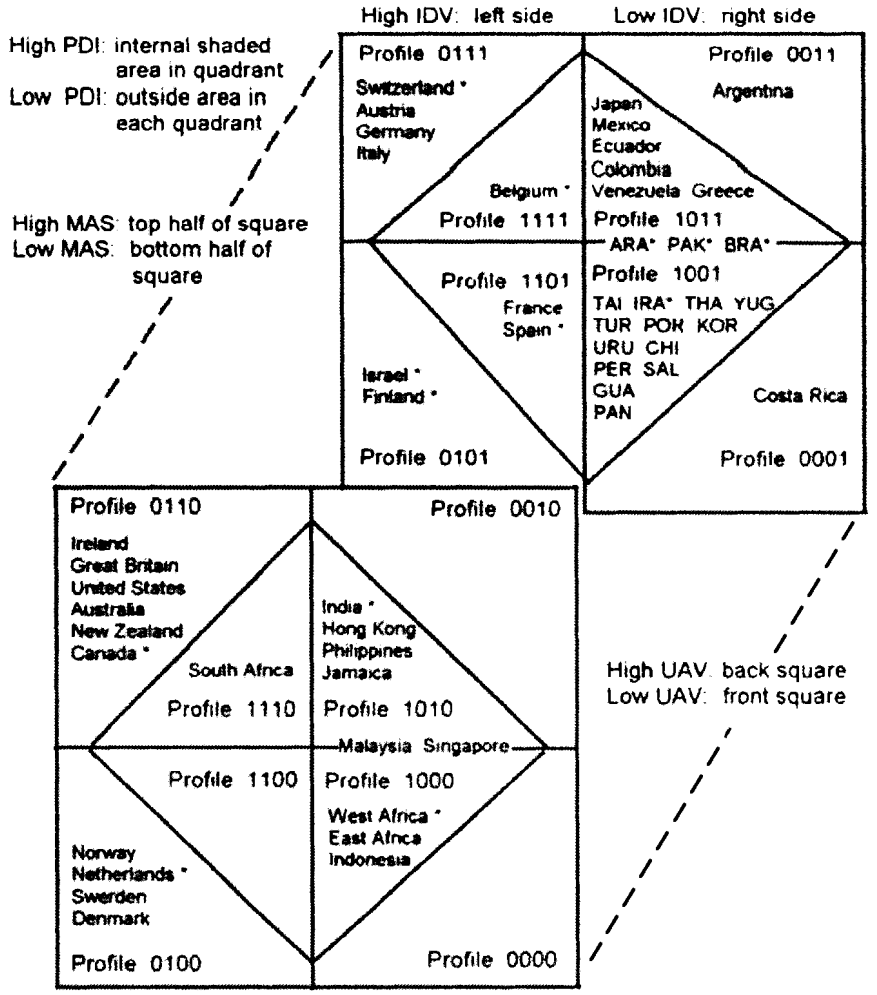


Figure 6.10 Simulated 4-D hypercube matrix: 53 countries with 4-digit profiles

6 .D. Interpreting the Data

In Figure 6.10, the countries are placed in one of sixteen sections according to their binary value profiles, without regard for the actual scores. I have placed Individualism (IDV) on the horizontal plane, with 0 on the right side of each square and 1 on the left side. Masculinity (MAS) is positioned on the vertical plane, with 0 on the bottom half of each square, and 1 on the top half. Uncertainty Avoidance (UAV) is located on the lateral plane (front to back), with 0 on the near side (front square), and 1 in the far side (back square).

In order to accommodate the fourth dimension, Power Distance (PDI), I divide each of the eight sections or quadrants diagonally into two parts. Countries whose scores convert into binary 1 are placed in the inside area, while those whose scores convert into binary 0 are placed in the outside area. For graphing purposes I consider this construct to be the external-internal dimension. I have arranged the dimensions this way because it provides a clear image of the inverse relationship between the Individualism and Power Distance dimensions.

An examination of Figure 6.10 reveals that almost all the countries gravitate to seven of the sixteen quadrants. Another seven quadrants have 1 or no countries; and two have only two countries. Of the 20 countries on the left side of the diagram (High IDV), 16 are in the outside area of each quadrants (Low PDI). Of the 33 countries on the right side (Low IDV), 31 are in the inside (shaded) area of each quadrant (High PDI). This illustrates the inverse correlation for 47 of the 53 countries, or 88.7%, which is very high. It also suggests that that Hofstede might not have the four dimensions he proposes.

Only six countries are positively correlated: Belgium, France, Italy, South Africa, and Spain have 1:1 values, and Costa Rica has 0:0. Modeling the scores as binary profiles in these two different ways illustrates the benefit of binary modeling for re-conceptualizing and evaluating cultural information and dimensions.

6.D.1. Comparing the Scores of the Four Dimensions for Integrity

In this section I ascertain the degree of correlation by comparing the binary digits (0s and 1s) between each of the six pairs of dimensions: IDV-PDI; MAS-UAV; IDV-MAS; PDI-UAV; IDV-UAV; and PDI-MAS. Tables 6.4 shows the

degree of positive correlation among each pair, and Table 6.5 illustrates the degree of negative correlation among each pair. The tables are two complementary ways of looking at the same data.

After calculating the ratio of countries with a positive correlation (1:1 or 0:0) as a percent of the total, I change the binary notation for those scores with an asterisk (*) from 0 to 1 and from 1 to 0, to maximizes the positive correlation (column B), and recalculate the ratios. I then change the binary notation for those scores with an asterisk (*) to minimize the positive correlation (column C). I then repeat the calculations to express the negative correlation.

6.D.2. Percentage of Correlation Between Pairs of Dimensions

In Tables 6.4 and 6.5, the 'A' columns show the degree correlation between pairs of dimensions. In columns B and C, those countries in Table 6.2 with an asterisk (*) are converted to binary 0s and 1s so as to minimize and maximize the degree of negative (or positive) correlation. For example the IDV-PDI pair (row 1) has five countries whose Power Distance (PDI) or Individualism (IDV) scores are in the margin or error range: Argentina, India, Italy, Jamaica, and Spain.

Table 6.4, column B shows the lowest percent of IDV-PDI negative correlation when India and Italy (both 0*:1) are changed to 1:1, and Jamaica (0:1*) is changed to 0:0. The highest percent (column C) occurs when Spain (1*:1) is changed to 0:1, and Argentina (0*:0) is changed to 1:0). This technique is applied to the other five pairs of dimensions. In Table 6.5 the number of countries and percentages are inverted to show the number of countries with positive correlation. and their respective percentage of positive correlation.

Column A in Table 6.4 shows a very high negative correlation of 90.6% between Individualism and Power Distance. The negative correlation for the other five pairs range between 28.3% and 67.9%. To put this in perspective, 1-12% and 88-99% can be considered very high correlation; 13-25% and 76-87% would be a high correlation; 26-37% and 63-75% is moderate correlation; and 38-62% is low correlation. Other than IDV-PDI, the other five pairs all fall in the moderate to low correlation range. None are in the high range. This provides one more indication that IDV and PDI are inversely correlated and should be combined.

	Negative Correlation in Pairs of Dimensions 1:0 and 0:1	**A** number of countries and percentage	**B** adjusting scores with an asterisk* decreasing % to minimum	**C** adjusting scores with an asterisk* increasing % to maximum
1.	IDV - PDI	48 (90.6%)	45 (84.9%)	50 (94.3%)
2.	IDV - MAS	19 (35.8%)	15 (28.3%)	24 (45.3%)
3.	IDV - UAV	38 (71.7%)	36 (67.9%)	42 (79.2%)
4.	PDI - MAS	31 (58.5%)	28 (52.8%)	36 (67.9%)
5.	PDI - UAV	17 (32.1%)	12 (22.6%)	19 (35.8%)
6.	MAS -UAV	31 (58.5%)	26 (48.1%)	38 (72.7%)

Table 6.4 Negative correlation for the six pairs of dimensions (number and percent)

	Positive Correlation between Dimensions 0:0 and 1:1	**A** number of countries and percentage	**B** adjusting scores with an asterisk* increasing % to maximum	**C** adjusting scores with an asterisk* decreasing % to minimum
1.	IDV - PDI	5 (9.4%)	8 (15.1%)	3 (5.7%)
2.	IDV - MAS	34 (64.2%)	38 (71.7%)	29 (54.7%)
3.	IDV - UAV	15 (28.3%)	17 (32.1%)	11 (20.8%)
4.	PD I - MAS	22 (41.5%)	25 (47.2%)	17 (32.1%)
5.	PDI - UAV	36 (67.9%)	41 (77.4%)	34 (64.2%)
6.	MAS - UAV	22 (41.5%)	27 (50.9%)	15 (28.3%)

Table 6.5 Positive correlation between dimensions; the inverse of Table 6.4

6.E. Recombining Power Distance (PDI) and Individualism (IDV)

In this section I (re)combine the Power Distance and Individualism scores. because using binary logic, the placement of 91% the countries can be predicted by either dimension. I designate this dimension Individualism Power Distance or IPD.

- First I subtract all the PDI scores from 100, and then average this with the IDV score for each country. This dimensions is termed IPD
- Second, I identify a probable IPD axis line
- Third, I tentatively resolve the binary digits for countries whose IPD score is in the margin of error zone of +/- 3 of the PDI axis line.
- Fourth I identify each country's three-digit binary profile
- Fifth, I resolve the binary profiles for all countries based on the proximity of each country to its six closest neighbors in 3-D (Euclidean) space.

Hofstede seems to have been theoretically and conceptually committed to his four dimensions, deriving both dimensions from Factor 1, even though he formed Power Distance theoretically and identified Individualism with factor analysis. Hofstede and Bond (1988:79 and 81), write:

> (With Individualism), (t)he fundamental issue involved is the relation between an individual and his or her fellow individuals. At one end . . . we find societies in which the ties between individuals are very loose. . . At the other end . . . the ties between individuals are very tight. . . . (T)he Individualist society is loosely integrated, and the Collectivist society tightly integrated.
>
> (Power Distance is about) how society deals with the fact that people are unequal. . . . the degree of centralization of authority and the degree of autocratic leadership. . . It exists just as much in the members (of society) as in the leaders. It requires cooperative participation of both the members and leaders of a society. High Power Distance requires a sense of group identity, collective social consciousness, or shared social structure to evolve.

Hofstede was aware that Individualism and Power Distance were inversely correlated, and might well represent a single dimension. The strong correlation between Individualism and Power Distance is evident in Tables 6.2 to 6.5, and in Figures 6.4 and 6.5. He writes (Hofstede, 1991:82; 54-55; and 28):

> Factor 1 combined Individualism with the reverse of Power Distance (p82);
>
> (In addition), (M)any countries which score high on the PDI score low on the IDV and visa versa. In other words, the two dimensions tend to be negatively correlated: large power distance countries are also likely to be more collectivist, and small power distance countries to be more individualist. (p54)
>
> (Almost all the countries are) are grouped around a diagonal from lower left to upper right, reflecting the correlation between power distance and collectivism. In cultures in which people are dependent on in-groups these people are usually also dependent on power figures. (p54-55)
>
> Power distance can therefore be defined as *the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally.* (p28)

In the PDI-IDV graph (Figure 6.5), Hofstede's axis lines identify thirty-three countries in the upper right quadrant (low IDV high PDI), and fifteen countries in the lower left quadrant (high IDV low PDI). This means 48 of the 53 countries (90.6%), are negatively correlated (Table 6.5).

6.E.1. Illustrating the Inverse Correlation between PDI and IDV

Since the axis lines do not indicate the means, the actual degree of inverse correlation is determined by where Hofstede chose to position the axis lines, notwithstanding the fact the he places the PDI axis at 44 in two plot graphs (Figures 6.4 and 6.7), and at 50 in the other (Figure 6.9). I treat this as a margin of error range, and place the axis line in the middle at 47, with a +/- 3 margin of error zone.

I extend the same approach to the other dimensions. Scores in this zone (see Table 6.2), are noted by an asterisk (*). These will convert to either binary 0 or 1. Figure 6.11 graphically presents this zone. I extend the horizontal axis so the 'margin of error' zone ranges from 45-51 with an axis line at 48. This illustrates the possibility that 50 of 53 countries (94.3%), could be inversely correlated.

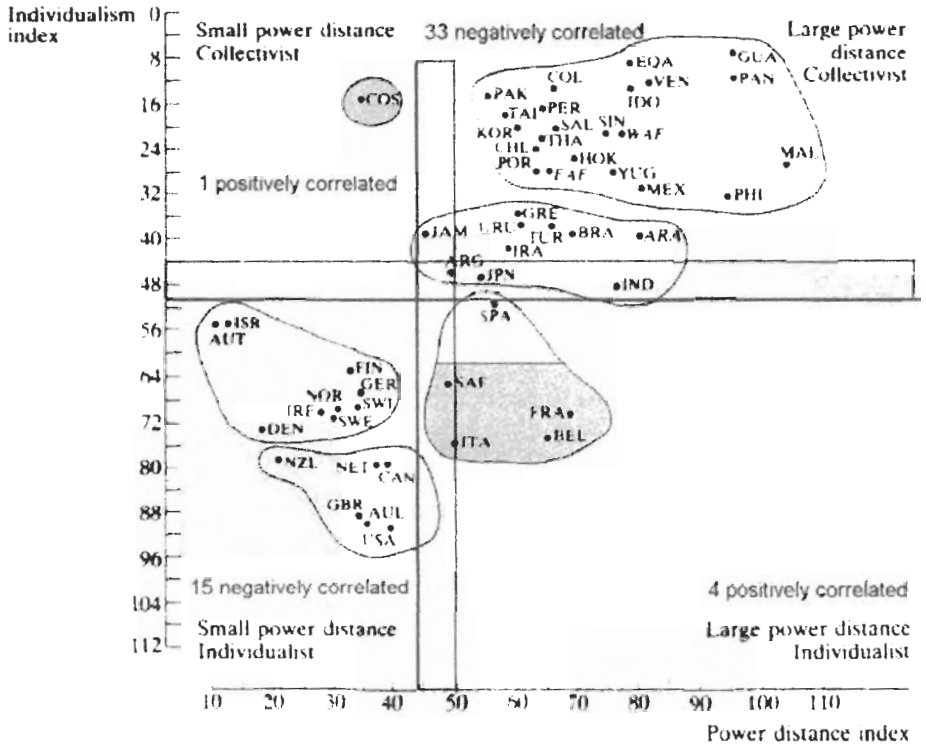


Figure 6.11 Hofstede's IDV- PDI plot graph with +/-3 point margin of error "gray zone"

The encircled clusters are defined by Hofstede. The 'five countries that he identifies as being positively correlated are shaded in gray: Costa Rica in the upper left quadrant, and Belgium, France, Italy and South Africa in the lower right, with the latter two now located in the margin of error zone. The main objectives of this example or exercise is to emphasize the full extent of the negative correlation between the IDV and PDI that is possible, and to illustrate a new principle of modeling culture.

6.E.2. The Rationale for Combining Power Distance and Individualism

The case for combining Individualism and Power Distance is in large part supported by Hofstede (1983:78), who reported that he found his four dimensions

> through a combination of multivariate statistics (factor analysis) and theoretical reasoning. . . . (The) factor analysis showed that 50 percent of the variance in answer patterns between countries on the value of questions could be explained by three factors, corresponding to dimensions 1+2, 3, and 4. Theoretical reasoning led to the further splitting of the first factor into 2 dimensions.

"Individualism and masculinity resulted from factor analysis while . . . power distance and uncertainty avoidance (are) derived from theoretical concepts" (Franke, Hofstede, & Bond, 1991:102). For Individualism, the " fundamental issue involved is the relations between an individual and his or her fellow individuals" (Hofstede, 1983:79). (I)ts "central element . . . is our . . . self concept" (Hofstede, 1980:215). As for Power Distance, "the fundamental issue involved is how society deals with the fact that people are unequal" (Hofstede, 1983:81).

Based on the high IDV-PDI negative correlation it is reasonable to think that "the relations between an individual and his or her fellow individuals" (Hofstede, 1983:79), is closely related with "how society deals with the fact that people are unequal" (Hofstede, 1983:81), and that they probably constitute a single dimension.

Based on Hofstede's descriptions and the data, it is difficult to imagine that IDV and PDI are not intimately interrelated and fundamentally united. Hofstede not only divided Factor 1 into these two dimensions, but his decision for each dimension was based on different criteria: factor analysis, and theoretical reasoning. This makes it difficult to explicate both dimensions in each other's terms or frames-

of-reference, and suggests that an additional method is needed to bridge or reconcile the two. I submit that the validity of joining (returning) IDV and PDI into a single condition is suggested in part, by the quality of the information obtained as a result of doing so. The proof is in the 'proverbial pudding' - in the combining.

6.E.3. Factor 1 as a Single Dimension Renamed IPD

I have also determined that Individualism and Power Distance cannot be equivalent to Masculinity and Uncertainty Avoidance because MAS and UAV are factor-dimensions, whereas IDV and PDI are dimensions but not factors. They are sub-factors. As a result, MAS and UAV are different in-kind from IDV and PDI, and not equal. It would appear that Hofstede has attributed functional equivalence to two logically incompatible conditions.

A factor cannot be both a factor and a non-factor at the same time. For MAS and UAV, Factor equals Dimension, or F = D. For IDV and PDI, one half a Factor equals a dimension, or F/2 = D. If F = D, then F/2 ≠ D. Therefore Factor 1 should be admitted as the real dimension, on logical grounds. I name this Factor IPD.

Table 6.6, lists the countries alphabetically, with their IDV scores and the inverse of the PDI scores (100 minus PDI). The averages of these two scores are listed under the IPD column. Following this, I list all the IPD scores in sequential order (Table 6.7), together with their country codes (Hofstede, 1991:55). The sequence reveals only two large-number gaps in the sequence (more than four points). There is a 5 point spread between SAF (58) and ITA (63), and a 4.5 point gap between IRA (41.5) and JPN (46). After considering the implication in this sequence, I tentatively place the IPD axis line between Iran and Japan.

Country	Power Distance	Individualism	100-PDI	IPD	CODE
Arab States	80	38	20	29	ARA
Argentina	49	46	51	48.5	ARG
Australia	36	90	64	77	AUL
Austria	11	55	89	72	AUT
Belgium	65	75	35	55	BEL
Brazil	69	38	31	34.5	BRA
Canada	39	80	61	70.5	CAN
Chile	63	23	37	30	CHL
Colombia	67	13	33	23	COL
Costa Rica	35	15	65	40	COS
Denmark	18	74	82	78	DEN
East Africa	64	27	36	31.5	EAF
Ecuador	78	8	22	15	EQA
Finland	33	63	67	65	FIN
France	68	71	32	51.5	FRA
Germany	35	67	65	66	GER
Great Britain	35	89	65	77	GBR
Greece	60	35	40	37.5	GRE
Guatemala	95	6	5	5.5	GUA
Hong Kong	68	25	32	28.5	HOK
India	77	48	23	35.5	IND
Indonesia	78	14	22	18	IDO
Iran	58	41	42	41.5	IRA
Ireland	28	70	72	71	IRE
Israel	13	54	87	70.5	ISR
Italy	50	76	50	63	ITA
Jamaica	45	39	55	47	JAM
Japan	54	46	46	46	JPN
Korea	60	18	40	29	KOR
Malaysia	104	26	- 04	11	MAL
Mexico	81	30	19	24.5	MEX
Netherlands	38	79	78	71	NET
New Zealand	22	80	62	78.5	NZL
Norway	31	69	69	69	NOR
Pakistan	55	14	45	29.5	PAK
Panama	95	11	5	8	PAN
Peru	64	16	36	26	PER
Philippines	94	32	6	19	PHL
Portugal	63	27	37	32	POR
Salvador	66	19	34	26.5	SAL
Singapore	74	20	26	23	SIN
South Africa	49	65	51	58	SAF
Spain	57	51	43	47	SPA
Sweden	31	71	69	70	SWE
Switzerland	34	68	66	67	SWI
Taiwan	58	17	43	29.5	TAI
Thailand	64	20	36	28	THA
Turkey	66	37	34	35.5	TUR
United States	40	91	60	75.5	USA
Uruguay	61	36	39	37.5	URU
Venezuela	81	12	19	15.5	VEN
West Africa	77	20	23	21.5	WAF
Yugoslavia	76	27	24	25.5	YUG

Table 6.6 Combining the IDV and PDI scores to define a single IPD score

6.E.4. Defining an Axis Line for the New IPD Dimension

In this thesis I propose that Hofstede's research and data will be more manageable and useful when Individualism and Power Distance are combined to reflect Factor 1 as the actual dimension. The question of where to place the axis line arises, since binary profiling is based on this value. The potential usefulness of IDV and PDI would then be as sub-dimensions (which is not the subject of this thesis).

If the IPD axis is based on Hofstede's IDV and PDI axis lines, then the value would be the average of the IDV axis (51), and the value of the PDI axis subtracted from 100. But he uses two different axis lines for PDI: 44 and 50, whose average is 47. This converts to 53. The averages of IDV and the converted PDI suggests an IPD axis of 52. However, the IPD scores suggests that this would not be a realistic axis line. A possible solution can be found in the space I have left in the sequence of countries according to their IPD values (Table 6.7).

5.5 GUA	8 PAN	11 MAL	15 EQU	15.5 VEN	18 IDO	19 PHL	21.5 WAF	23 SIN	23 COL	24.5 MEX
25.5 YUG	26 PER	26.5 SAL	28 THA	28.5 HOK	29 KOR	29 ARA	29.5 PAK	29.5 TAI	30 CHL	31.5 EAF
32 POR	34.5 BRA	36.5 TUR	37.5 GRE	37.5 URU	40 COS	40.5 IND	41.5 IRA	--	46 JPN	47 JAM
47 SPA	48.5 ARG	51.5 FRA	55 BEL	58 SAF	63 ITA	65 FIN	66 GER	67 SWI	69 NOR	70 SWE
70.5 ISR	70.5 CAN	71 IRE	71 NET	72 AUT	75.5 USA	77 AUS	77 GBR	78 DEN	78.5. NZL	

Table 6.7 List of 53 IPD scores, showing a central gap between 41.5 and 46

6.E.4.a. Natural separation in the sequence

I have employed two conditions in using this approach to establish an IPD axis line. The first is to identify natural spacing or gap in the scores somewhere near the central part of the IPD sequence. The second is to identify a natural division between two groups of countries whose cultures are distinctly different from each other. Both these conditions occur between Iran (41.5) and Japan (46) (Table 6.7).

The spacing between Iran and Japan is 4.5 points, which is the second largest gap in the sequence. The only other sizeable gaps are 4 points, between Malaysia (11) and Ecuador (15); and 5 points between South Africa (58) and Italy (63), which divides the European countries n two. The four countries below 44 are Uruguay (37.5), Costa Rica (40), Hong Kong (40.5), and Iran (41.5). The four countries above 44 are Japan (46), Jamaica (47), Spain (47), and Argentina (48.5).

By averaging these eight scores I obtain a tentative axis line value of 43.5 and round it off to 44. This may not be the actual axis line, but I propose the axis is between 42 and 45.5. There are four countries with scores +/-3 of this axis line (which I term the Gray Zone): Iran (41.5), Japan (46), Jamaica (47), and Spain (47).

6.E.5. Using the IDV-PDI Spread to Resolve IPD Scores in the gray zone

Table 6.8 illustrates the score spreads between Individualism and Power Distance. I utilize this spread or distance between the Individualism and Power Distance scores to help determine whether countries with IPD scores in the +/-3 margin of error zone (gray zone), should be converted to binary 0 or binary 1. Two key factors are the size of the spread between Individualism and Power Distance a well as the relative IDV and PDI positions: left - right and nearness to the axis line.

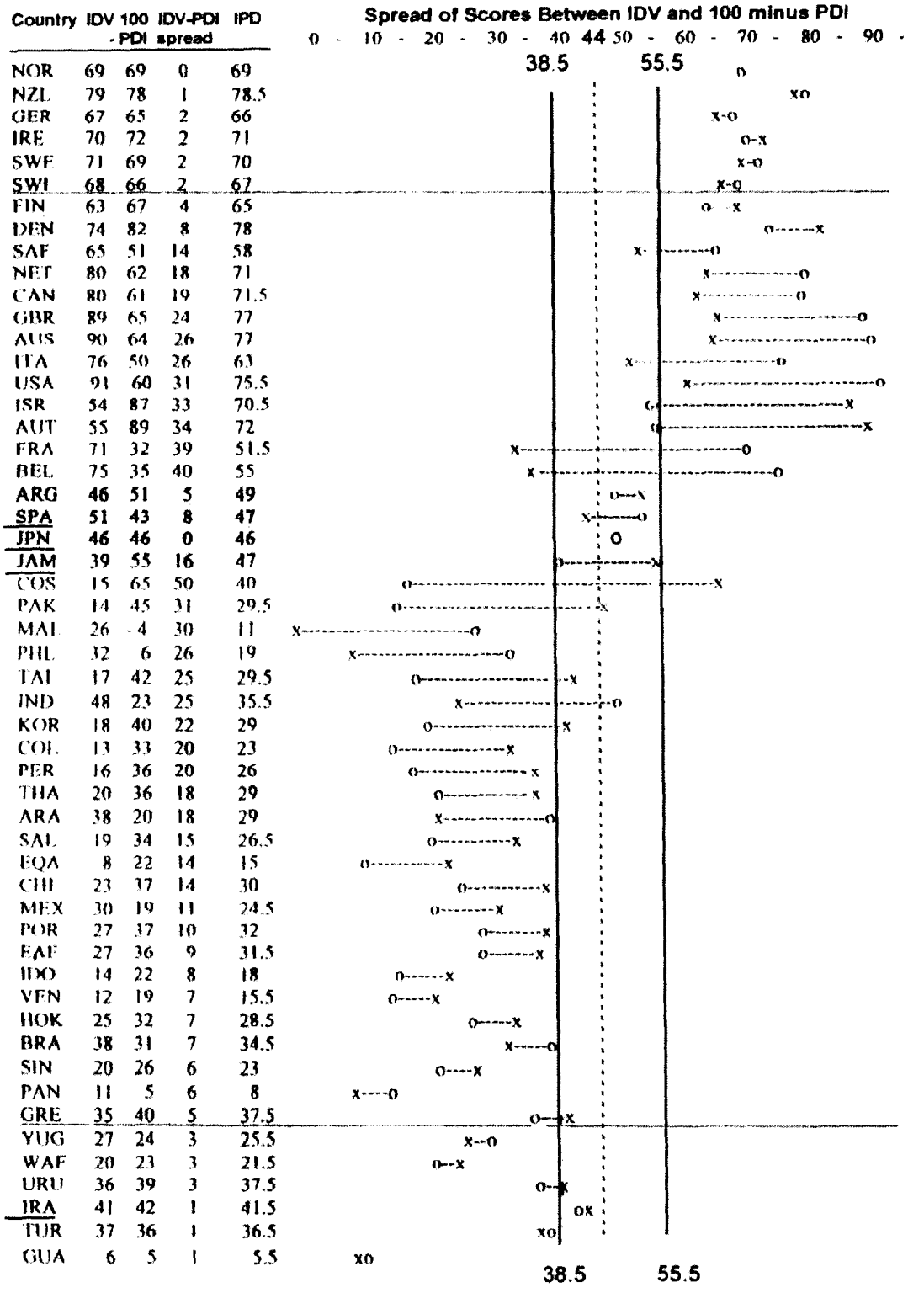


Table 6.8 the score spread between IDV and PDI (100 - PDI). The IDV score is noted by 'o', and the PDI score is noted by 'x'. The proposed axis line is at 44.

6.E.5.a. Resolving the binary digits for countries in the gray zone

With the axis line placed at 44, Japan, Jamaica, Spain, and Iran are in the IPD Gray Zone +/- 3 points. One way of resolving the IPD score to binary 0 or 1 is to compare their IDV-PDI spreads to countries with the same binary digits for the MAS and UAV dimensions.

There are five conditions in the score spreads that I employ, and which could be potentially useful: a) the general size of the score spread (narrow, medium, or large); b) whether IDV or PDI is closer to the axis line; c) whether the IDV score is to the left or right of the PDI score; d) whether the score spread crosses the axis line or midline; and e) whether the closest score to the midline is relatively near or far from the axis.

In Table 6.8, the countries with IPD scores of binary 1 (above the axis) are listed in order of increasing spread distance (i.e. smallest to largest). Countries with IPD scores of binary 0 (below the axis), are listed in order of decreasing spread distance (i.e. from largest to smallest). The name codes of the 4 countries whose IPD scores are in the gray zone are underlined.

Spain (X01) will have a 001 or 101 profile. As for the 101 cluster, Spain's PDI range (43-51) completely overlaps Argentina's range (46-51), and it is completely overlapped by France's (32-71) and Belgium's (35-75). As for the countries with 001 profiles, Spain is completely overlapped by Costa Rica (15-65), and it overlaps only one country, Pakistan (14-45), by a slight 3 points.

Japan (X11) will have a 011 or 111 profile. It has a zero PDI range. Moreover it does not overlap any 011 or 111 countries. The PDI spreads and

distances to Japan of the four 011 countries are: Colombia (20/23), Ecuador (14/31), Mexico (11/21), and Venezuela (7/31). The PDI spreads and distances to Japan of four 111 countries are: Germany (2/20), Switzerland (2/21), Italy (26/17) and Austria (34/26). Japan's zero spread has more in common with two 11 countries (GER and SWI) than with any 011 countries. Also, Japan' has a total PDI distance of 84 to the 111 countries, and 106 to the 011 countries. I therefore assign Japan a PDI of binary 1, giving it a 111 profile.

Jamaica (X10) will have 110 or 010 profile. All but one country in both binary groups has Individualism on the right, whereas Jamaica has it on the left. Moreover, the countries in both groups have similarly larger spreads, and similar average IPD distance to Jamaica with 010 being slightly closer. Jamaica can only be resolved by determining which countries it is closest to in three-dimensional space. This is addressed in the following section.

Iran (X00) will have a 001 or 101. A quick look at Table 6.8 indicates that Iran's spread of 1 (41-42), and PDI score gives it a PDI of binary 0. The IDV-PDI score spread is helpful for resolving binary assignment but not conclusive.

The spread also provides a way to rethink the way Individualism and Power Distance (as sub-dimensions) inform the PDI dimension. They also play a role in defining sub-dimensions as indicators of cultural similarity or compatibility at a levels that may otherwise remain unnoticed. For example, it is possible that countries with similar size IDV-PDI spreads will share certain characteristics or regardless of differences their binary profiles. The same could be true with regard to whether IDV is to the left or right of PDI, and which is closer to the axis line.

6.F. Ascribing 3-Digit Binary Profiles to Countries

1	2	3	4	5	6	7	8	9	10	11	12
3 Dimensions with axis lines			100 minus	44	53	56	binary digits			binary	gray zone
Country	Code	IDV	PD score	IPD	MAS	UAV	IPD	MAS	UAV	profile	countries
Arab region	ARA	38	20	29	53	68	0	*	1	0 x 1	ARA
Argentina	ARG	46	51	48.5	56	86	1	1*	1	1 x 1	ARG
Australia	AUS	90	64	77	61	51	1	1	0	1 1 0	
Austria	AUT	55	89	72	79	70	1	1	1	1 1 1	
Belgium	BEL	75	35	55	54	94	1	1*	1	1 x 1	BEL
Brazil	BRA	38	31	34.5	49	76	0	0	1	0 0 1	
Canada	CAN	80	61	70.5	52	48	1	0*	0	1 x 0	CAN
Chile	CHI	23	37	30	28	86	0	0	1	0 0 1	
Colombia	COL	13	33	23	64	80	0	1	1	0 1 1	
Costa Rica	COS	15	65	40	21	86	0	0	1	0 0 1	
Denmark	DEN	74	82	78	16	23	1	0	0	1 0 0	
East Africa	EAF	27	36	31.5	41	52	0	0	0	0 0 0	
Ecuador	EQA	8	22	15	63	67	0	1	1	0 1 1	
Finland	FIN	63	67	65	26	59	1	0	1*	1 0 x	FIN
France	FRA	71	32	51.5	43	86	1	0	1	1 0 1	
Germany	GER	67	65	66	66	65	1	1	1	1 1 1	
Great Britain	GBR	89	65	77	66	35	1	1	0	1 1 0	
Greece	GRE	35	40	37.5	57	112	0	1	1	0 1 1	
Guatemala	GUA	6	5	5.5	37	101	0	0	1	0 0 1	
Hong Kong	HOK	25	32	28.5	57	29	0	1	0	0 1 0	
India	IND	48	33	40.5	56	40	0	1*	0	0 x 0	IND
Indonesia	IDO	14	22	18	46	48	0	0	0	0 0 0	
Iran	IRA	41	42	41.5	43	59	0*	0	1*	x 0 x	IRA
Ireland	IRE	70	72	71	68	35	1	1	0	1 1 0	
Israel	ISR	54	87	70.5	47	81	1	0	1	1 0 1	
Italy	ITA	76	50	63	70	75	1	1	1	1 1 1	
Jamaica	JAM	39	55	47	68	13	1*	1	0	x 1 0	JAM
Japan	JPN	46	46	46	95	92	*	1	1	x 1 1	JPN
Korea	KOR	18	40	29	39	85	0	0	1	0 0 1	
Malaysia	MAL	26	4	11	50	36	0	0*	0	0 x 0	MAL
Mexico	MEX	30	19	24.5	69	82	0	1	1	0 1 1	
Netherlands	NET	80	62	71	14	53	1	0	0*	1 0 x	NET
New Zealand	NZL	79	78	78.5	58	49	1	1	0	1 1 0	
Norway	NOR	69	69	69	8	50	1	0	0	1 0 0	
Pakistan	PAK	14	45	29.5	50	70	0	0*	1	0 x 1	PAK
Panama	PAN	11	5	8	44	86	0	0	1	0 0 1	
Peru	PER	16	36	26	42	87	0	0	1	0 0 1	
Philippines	PHL	32	6	19	64	44	0	1	0	0 1 0	
Portugal	POR	27	37	32	31	104	0	0	1	0 0 1	
Salvador	SAL	19	34	26.5	40	94	0	0	1	0 0 1	
Singapore	SIN	20	26	23	48	8	0	0	0	0 0 0	
South Africa	SAF	65	51	58	63	49	1	1	0	1 1 0	
Spain	SPA	51	43	47	42	86	1*	0	1	x 0 1	SPA
Sweden	SWE	71	69	70	5	29	1	0	0	1 0 0	
Switzerland	SWI	68	66	67	70	58	1	1	1*	1 1 x	SWI
Taiwan	TAI	17	42	29.5	45	69	0	0	1	0 0 1	
Thailand	THA	20	36	28	34	64	0	0	1	0 0 1	
Turkey	TUR	37	36	36.5	45	85	0	0	1	0 0 1	
Uruguay	URU	36	39	37.5	38	100	0	0	1	0 0 1	
United States	USA	91	60	75.5	62	46	1	1	0	1 1 0	
Venezuela	VEN	12	19	15.5	73	76	0	1	1	0 1 1	
West Africa	WAF	20	23	21.5	46	54	0	0	0*	0 0 x	WAF
Yugoslavia	YUG	27	24	25.5	21	88	0	0	1	0 0 1	

Table 6.9 consolidating the scores into 3 domains/dimensions with binary triplet profiles (the column numbers at the top are for reference)

6.F.1. Resolving the Binary Notation (0 or 1) for Scores in the Gray Zone

Table 6.9 lists the scores and binary digits for the three dimensions based on Hofstede's three Factors, with Factor 1 titled IPD. There are fifteen countries with a binary score in the gray zone (28.3%), indicated by an asterisk (*), changed to an 'x' in the binary profiles: the Arab region (0*1), Argentina (**1), Belgium (1*1), Canada (1*0), Finland (10*), India (0*0), Iran (00*), Jamaica (*10), Japan (*11), Malaysia (0*0), Netherlands (10*), Pakistan (0*1), Spain (*01), Switzerland (11*), and West Africa (00*).

When considering whether scores in the gray zone (asterisked *) should be binary 0 or 1, I visually compare the three scores to scores for other countries with similar score patterns. I then compare the relative position of each country on the MAS-UAV plot graph (Figures 6.12 and 6.13). This is the only graph that is not eliminated when Individualism and Power Distance are combined in a single dimension, Individualism-Power Distance. Finally, I compare each country to the six closest countries in semantic (three-dimensional Euclidean) space (Table 6.10).

In Figure 6.12, the countries with IPD scores of binary 1 are underlined in order to distinguish them from those countries in the same quadrant whose IPD score is binary 0 (IPD being the third dimensions). There is one country with a 100 profile in the 101, and two countries with 101 profiles in the 111 quadrant. In Figure 6.13, the fifteen countries with a score in the margin of error zone. These are enclosed (boxed in) for easy identification. The ones that are not shown in the MAS or UAV gray zones (Jamaica, Spain, and Japan), are in the IPD gray zone. Note, that Argentina is in both the MAS and IPD gray zones.

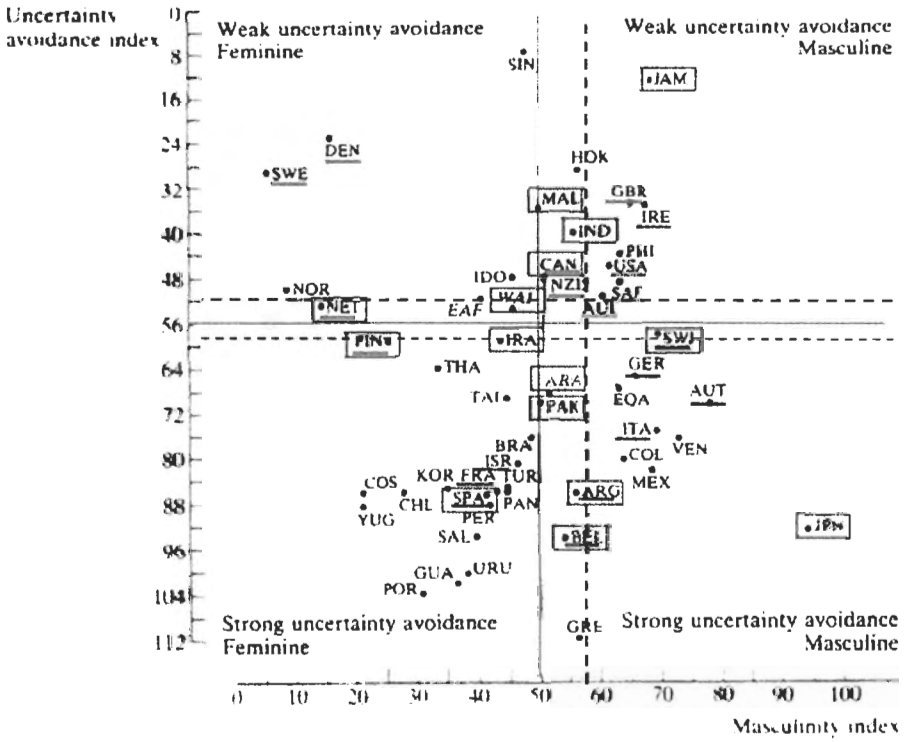


Figure 6.12 the MAS-UAV plot graph with proposed binary groups

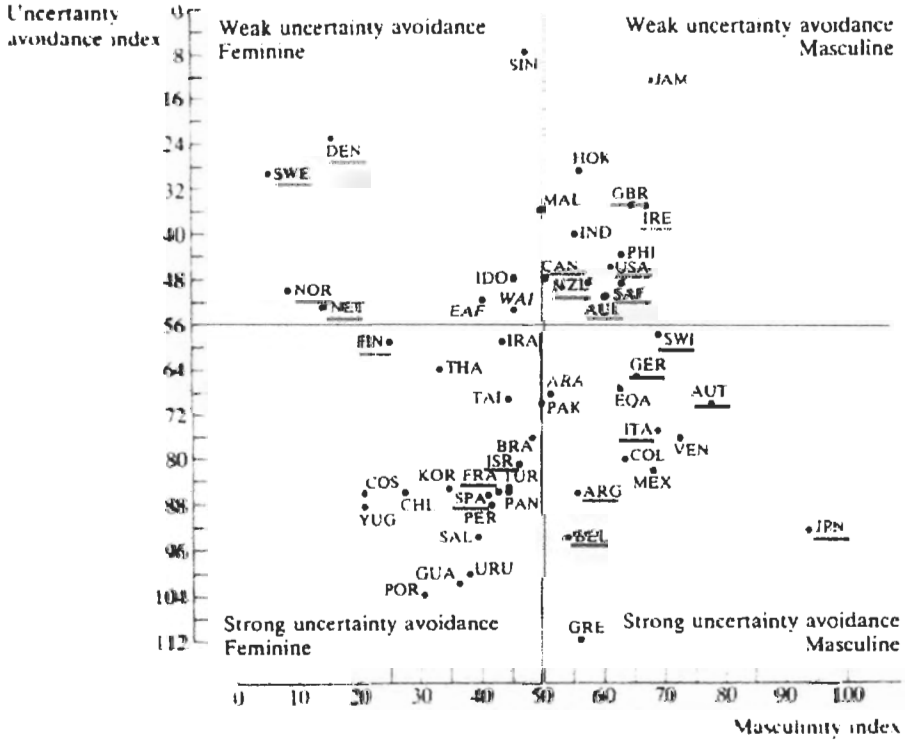


Figure 6.13 the MAS-UAV plot graph with 15 countries in the gray zone (asterisked *)

6.F.2. Smallest 3-Dimensional Space Analysis (SSA) Between Countries

The Proximity Values identify the distance from each country to the six closest countries in 3-D space (Table 6.10). This Table helps resolve the profiles of the fifteen countries that have a dimensional score close to one of the axis lines to a binary 0 or 1. These have been highlighted in the Code column in Table 10. Under each country is the profile and the proximity value to the target country.

Country	Code	Proximity Values (PV) in 3-Dimension Space					
Arab States	ARA 0*1	PAK	TAI	BRA	EQA	COL	WAF
	0x1	0*1	0x1	0x1	011	011	00*
		3.64	8.08	10.50	17.23	17.35	17.36
Argentina	ARG 1*1	BEL	FRA	SPA	TUR	BRA	ITA
	101	1*1	101	101	001	0x1	111
		10.50	13.34	14.08	17.06	18.57	22.96
Australia	AUL	NZL	USA	CAN	SWI	GBR	IRE
	110	110	110	1*0	11*	110	110
		3.91	5.32	11.50	15.17	16.76	18.47
Austria	AUT	ITA	GER	SWI	AUL	USA	SAF
	111	111	111	11*	110	110	110
		13.67	15.17	15.81	26.65	29.62	29.88
Belgium	BEL 1*1	ARG	FRA	SPA	ISR	TUR	URU
	101	101	101	101	101	001	001
		10.50	14.04	16.49	21.41	23.29	24.46
Brazil	BRA	PAK	TAI	TUR	ARA	KOR	PER
	0x1	0*1	0x1	001	0x1	001	001
		7.87	9.49	9.90	10.50	14.53	15.56
Canada	CAN 1*0	NZL	USA	AUL	SAF	GBR	IRE
	110	110	110	110	110	110	110
		10.05	11.36	11.50	16.68	20.18	20.62
Chile	CHL	YUG	KOR	COS	PER	SAL	TUR
	001	001	001	001	001	001	001
		8.56	11.09	12.21	14.59	14.84	17.90
Colombia	COL	MEX	VEN	EQA	ARA	PAK	BRA
	011	011	011	011	0x1	0*1	0x1
		5.59	12.38	15.30	17.35	18.39	19.32

Costa Rica	COS		CHL	YUG	KOR	POR	SPA	URU
	001		001	001	001	001	101	001
			12.21	14.64	21.12	22.09	22.14	22.16
Denmark	DEN		SWE	NOR	NET	FIN	CAN	NZL
	100		100	100	10*	10*	110	110
			14.87	29.56	30.87	39.56	44.47	49.40
East Africa	EAF		WAF	IRA	THA	IDO	TAI	IND
	000		000	00*	0x1	000	0x1	010
			11.36	12.37	14.33	14.94	17.58	19.62
Ecuador	EQA		VEN	COL	ARA	MEX	PAK	WAF
	011		011	011	0x1	011	0x1	000
			13.46	15.30	17.23	18.74	19.70	22.37
Finland	FIN	10*	NET	NOR	CAN	IRA	ISR	FRA
	100		10*	100	110	00*	101	101
			14.70	20.52	28.76	29.00	30.91	34.64
France	FRA		SPA	ARG	BEL	TUR	ISR	URU
	101		101	101	101	001	101	001
			4.61	13.34	14.04	16.16	20.05	20.42
Germany	GER		SWI	ITA	AUT	SAF	AUL	USA
	111		11*	111	111	110	110	110
			8.12	11.18	15.17	18.14	18.49	21.62
Great Britain	GBR		IRE	USA	NZL	AUL	CAN	SAF
	110		110	110	110	110	110	110
			6.32	11.80	16.19	16.76	20.18	23.79
Greece	GRE		URU	BEL	SAL	POR	ARG	TUR
	001		001	101	001	001	101	001
			22.47	25.28	27.09	27.75	28.25	29.61
Guatemala	GUA		PAN	SAL	PER	POR	KOR	YUG
	001		001	001	001	001	001	001
			16.74	22.34	25.32	27.34	28.50	28.72
Hong Kong	HOK		IND	PHL	MAL	SIN	IDO	JAM
	010		0*0	010	010	000	010	*10
			13.08	19.09	20.11	23.50	24.34	26.82
India	IND	0*0	HOK	PHL	EAF	IDO	WAF	IRA
	010		010	010	000	000	00*	0x1
			13.08	18.77	19.62	21.69	22.18	23.79

Indonesia	IDO		WAF	MAL	EAF	PHL	IND	THA
	000		00*	010	000	010	010	0x1
			6.95	14.46	14.94	18.47	21.69	22.36
Iran	IRA	00*	EAF	TAI	THA	PAK	ARA	BRA
	0x1		000	0x1	0x1	0x1	0x1	0x1
			12.37	15.75	16.98	17.72	18.36	19.34
Ireland	IRE		GBR	USA	AUL	NZL	SAF	CAN
	110		110	110	110	110	110	110
			6.32	13.31	18.47	18.77	19.75	20.62
Israel	ISR		FRA	BEL	ARG	SPA	ITA	GER
	101		101	101	101	101	111	111
			20.05	21.41	24.29	24.54	24.92	25.24
Italy	ITA		GER	AUT	SWI	ARG	ISR	BEL
	111		111	111	11/	1/1	101	1/1
			11.18	13.67	17.46	22.96	24.92	26.10
Jamaica	JAM	*10	HOK	SIN	IND	IRE	GBR	SAF
	010		010	000	010	110	110	110
			26.82	31.64	31.71	32.56	37.26	37.97
Japan	JPN	*10	ITA	MEX	AUT	ARG	COL	VEN
	111		111	011	111	101	011	011
			34.68	35.19	37.63	39.54	40.42	40.87
Korea (South)	KOR		PER	TUR	SAL	CHL	BRA	TAI
	001		001	001	001	001	0x1	0x1
			4.69	8.85	9.39	11.09	14.53	17.10
Malaysia	MAL	0*0	IDO	PHL	HOK	WAF	IND	EAF
	010		000	010	010	00*	010	000
			14.46	18.00	20.11	21.22	25.54	27.52
Mexico	MEX		COL	VEN	EQA	ARA	PAK	BRA
	011		011	011	011	0x1	0x1	0x1
			5.59	11.53	18.74	21.73	23.02	23.15
Netherlands	NET	10*	NOR	FIN	SWE	DEN	CAN	IRA
	100		100	100	100	100	110	0x1
			7.00	14.70	25.65	30.87	38.33	41.80
New Zealand	NZL		AUL	USA	CAN	GBR	IRE	SWI
	110		110	110	110	110	110	11*
			3.91	5.83	10.05	16.19	18.77	18.90

Norway	NOR		NET	FIN	SWE	DEN	CAN	IRA
	100		100	100	100	100	110	0x1
			7.00	20.52	21.24	29.56	44.07	45.41
Pakistan	PAK	0*1	ARA	TAI	BRA	TUR	THA	IRA
	0x1		0x1	0x1	0x1	001	0x1	0x1
			3.64	5.10	7.87	16.91	17.15	17.72

Panama	PAN		GUA	PER	SAL	KOR	COL	CHL
	001		001	001	001	001	011	001
			16.74	18.14	20.55	21.61	25.71	27.20
Peru	PER		KOR	SAL	TUR	CHL	BRA	URU
	001		001	001	001	001	0x1	001
			4.69	7.30	10.16	14.59	15.56	17.81
Philippines	PHL		MAL	IDO	IND	HOK	WAF	EQA
	010		010	000	010	010	000	011
			18.00	18.47	18.77	19.09	20.74	23.37
Portugal	POR		URU	SAL	CHL	YUG	KOR	PER
	001		001	001	001	001	001	001
			9.76	14.53	18.36	19.96	20.83	21.12
Salvador	SAL		PER	KOR	URU	TUR	POR	CHL
	001		001	001	001	001	001	001
			7.30	9.39	12.69	13.67	14.53	14.84

Singapore	SIN		HOK	MAL	JAM	IND	PHL	IDO
	000		010	010	010	010	010	000
			23.50	30.53	31.64	35.27	39.60	40.36
South Africa	SAF		SWI	CAN	USA	GER	AUL	IRE
	110		11*	110	110	111	110	110
			14.53	16.68	17.78	18.14	19.21	19.75
Spain	SPA	*01	FRA	TUR	ARG	BEL	URU	BRA
	101		101	001	101	101	001	0x1
			4.61	11.93	14.08	16.49	17.39	17.47
Sweden	SWE		DEN	NOR	NET	FIN	CAN	IRA
	100		100	100	100	100	110	0x1
			14.87	21.24	25.65	36.96	50.70	56.18
Switzerland	SWI	11*	GER	SAF	AUL	AUT	USA	ITA
	111		111	110	110	111	110	111
			8.12	14.53	15.17	15.81	16.74	17.46

Taiwan	TAI	PAK	ARA	BRA	THA	IRA	WAF
	0x1	0x1	0x1	0x1	0x1	0x1	00*
		5.10	8.08	9.49	12.18	15.75	17.03
Thailand	THA	TAI	EAF	WAF	IRA	PAK	ARA
	0x1	0x1	000	00*	0x1	0x1	0x1
		12.18	14.33	16.92	16.98	17.15	19.44
Turkey	TUR	KOR	BRA	PER	SPA	SAL	FRA
	001	001	0x1	0x1	101	001	101
		8.85	9.90	10.16	11.93	13.67	16.16
United States	USA	AUL	NZL	CAN	GBR	IRE	SWI
	110	110	110	110	110	110	111
		5.32	5.83	11.36	11.80	13.31	16.74
Uruguay	URU	POR	SAL	TUR	KOR	SPA	PER
	001	001	001	001	001	101	001
		9.76	12.69	16.67	17.27	17.39	17.81
Venezuela	VEN	MEX	COL	EQA	ARA	PAK	BRA
	011	011	011	011	0x1	0x1	0x1
		11.53	12.38	13.46	25.42	27.59	30.61
West Africa	WAF 00*	IDO	EAF	THA	TAI	ARA	PAK
	000	000	000	0x1	0x1	0x1	0x1
		6.95	11.36	16.92	17.03	17.36	18.33
Yugoslavia	YUG	CHL	COS	KOR	SAL	POR	PER
	001	001	001	001	001	001	001
		8.56	14.64	18.58	19.95	19.96	21.03

Table 6.10 Proximity values (PV): distance in 3-D space to six closest countries

When using semantic space to resolve the binary value for a country with a score in the gray zone, the decision is usually based on the closest average of two other countries with the same binary profile. For example, the two closest countries to West Africa (WAF) are Indonesia (IDO) and East Africa (EAF), both of which have 000 profiles. Therefore the 00* profile for WAF is resolved to 000. In the case of Switzerland (11*), the two countries with the closest average are the 1st and 4th closest: Germany and Austria with 111 profiles.

There are twelve ways to replace one digit in a three-digit binary number with an asterisk (*). In Table 6.9, weleven of the twelve combinations actually occur with Hofstede's scores for three dimensions. One country, Iran, has two scores in the gray zone.

*11	JPN	11*	SWI	1*1	ARG, BEL
*10	JAM	10*	FIN, NET	1*0	CAN
*01	SPA	01*	---	0*1	ARA, PAK
*00	IRA (*0*)	00*	WAF	0*0	IND, MAL

Table 6.11 Twelve gray zone (asterisked *) profiles with gray zone countries

6.F.2.a India and Malaysia (0*0) are both 010

India is resolved to a 010 profile because its two closest countries are Hong Kong (13.08) and Philippines (18.77), which both have 010 profiles. India also has a large IDV-PDI spread of 25, with the IDV score closer to the midline. This is similar to the Philippines with a spread of 26. Moreover it is dissimilar to all three countries with 000 profiles, which have small spreads of 9 or less, and IPD closer to the midline.

Malaysia is not as simple. The six closest countries are: IDO (14.46), PHL (18.00), HOK (20.11), WAF (21.22), and IND (25.54), and EAF (27.52). The 1st 4th and 6th have 000 profiles. The average distance of the two closest 000 countries is 17.84; the average of the three closest is 21.07. The 2nd , 3rd , and 5th have 010 profiles. The average distance of the two closest 010 countries is 19.06; the average of the three closest is 21.22. Malaysia lies right in the middle of the two clusters.

But Malaysia has an IDV-PDI spread of 30 with IDV closer to the midline. This is the same pattern as the Philippines and India with spreads of 26 and 25, and

IDV closer to the midline. The three 000 countries all have small spreads ranging from 3 to 9 points with PDI closer to the midline. I conclude that Malaysia has greater cultural affinity with the 010 countries, and I assign it a 010 profile.

6.F.2.b. Jamaica (*10) is 010

The three closest countries to Jamaica are HOK (26.82), SIN (31.64) and IND (31.71), with an average distance of 30.06. Hong Kong and India have 010 profiles and Singapore is undetermined, but is probably a 010 outlier. The next three closest countries to Jamaica are: IRE (32.56), GBR (37.26), and SAF 37.97. All have 110 profiles and an average distance to Jamaica of 35.93. Their average distance is, almost 20% farther than the three 010 countries. This suggests that Jamaica has a 010 profile. Its distances suggest it may be a 010 outlier.

6.F.2.c. Iran (*0*) is 0x1

The six closest countries to Iran are EAF (12.37), TAI (15.75), THA (16.98), PAK (17.72), ARA (18.36), and BRA (19.34). Only one, the first, has a 000 profile, the rest all have 001 profiles, so assign Iran a 001 profile.

6.F.2.d. West Africa (00*) is 000

West Africa is significantly closer to two 000 countries, IDO (6.95) and EAF (11.36), than to its next two closest neighbors THA (16.92) and TAI (17.03), which are both 001 countries. It is clear that WAF has a 000 profile. Moreover this helps establish the 000 cluster.

6.F.2.e. The Arab Region and Pakistan (0*1) are both 001 / 0x1

The are three closest countries to the Arab Region are Pakistan (3.64), Taiwan (8.08), and Brazil (10.5). The three closest to Pakistan are the Arab States

(3.64) Taiwan (5.10), and Brazil (7.87). As Taiwan and Brazil have 001 profiles, I assign the Arab Region and Pakistan 001 profiles.

6.F.2.f. Spain (*01) is 101

The closest countries to Spain are FRA (4.61), TUR (11.93), ARG (14.08), and BEL (16.49). All but Turkey have 101 profiles. Moreover, Spain has an IPD score of 47, which is close to FRA (51.5), ARG (48.5), and BEL (55), so I assign Spain a 101 profile.

6.F.2.g. Finland (10*) and the Netherlands (10*) are both 100

The three closest countries to the Netherlands are: NOR (7.00), FIN (14.70), and SWE 25.65). Finland is undecided, but Norway and Sweden both have 100 profiles. The next three closest countries (DEN, CAN, IRA) all have binary 0 for the right digit. I assign the Netherlands a profile of 100. This means the four closest countries to Finland are NET (14.70), NOR (20.52), CAN (28.76), and IRA (29.00). The one thing they have in common is a right digit 0. Moreover, the two closest, NET and NOR have 100 profiles so Finland is assigned a 100 profile.

6.F.2.h. Belgium (1*1) and Argentina (1*1) are both 101

Belgium's closest neighbors are ARG (10.50), FRA (14.04), SPA (16.49), and ISR (21.41). France and Israel have 101 profiles, and large IDV-PDI spreads like Belgium: 35 (BEL), 39 (FRA), and 33 (ISR). ARG and SPA are unresolved, but Spain has an 1*01 profile. This indicates Belgium probably has a 101 profile.

Argentina's closest neighbors are BEL (10.50), and FRA (13.34). It has a very narrow IDV-PDI spread (5), compared FRA and BEL, which are 39 and 40,

but its IPD score (49) is very close to the other two: France (51) and Belgium (55). The third closest country is Spain (1*01), all of which supports a 101 profile.

6.F.2.i. Switzerland (11*) and Japan (*11) are both 111

Of the six closest countries to Switzerland, three have 111 profiles: the 1st, 4th, and 6th (Germany, Austria, and Italy); and three have 110 profiles: the 2nd, 3rd, and 5th (South Africa, Australia, and Canada). The average distance for the two closest 111 countries is 11.97, and for the three closest it is 13.80. The average distance for the two closest 110 countries it is 14,96 and for the three closest it is 15.48. Based on this, and shared culture, I assign Switzerland a 111 profile.

Japan has a zero Individualism - Power Distance spread, and the largest average distance (36.76) to its four closest neighbors: ITA (34.68), MEX (35.19), AUT (37.63), ARG (39.54). The 1st and 3rd have 111 profiles, the 2nd has a 011 profile, and the 4th has a 101 profile. And none of the four has a 011 profile. Moreover, Switzerland and Germany with 111 profiles, both have very small IDV-PDI spreads, while no country in the 011 cluster has a very small spread. I therefore propose that Japan has a 111 profile, and is an outlier in this quadrant.

6.F.3. Example of a More Detailed Analysis: Switzerland

As shown above, the six closest countries to Switzerland include three with 111 profiles and three with 110 profiles. The average dimensional distances to the three 111 countries are: IPD of 3.3; MAS of 4.3; and UAV of 12 (total 19.67). The averages to the three 110 countries are: IPD of 9.0; MAS of 8.0; and UAV of 9.7 (total 26.5), which is 37.4% farther). I assign Switzerland a 111 profile.

	11*	111 Profiles			110 Profiles		
	SWI	GER	AUT	ITA	SAF	AUL	USA
spatial distance		8.12	15.81	17.46	14.54	15.17	16.74
IDV-PDI spread	2	2	34	26	14	26	31
IPD score	67	66	72	63	58	77	75.5
IPD distance		1	5	4	9	10	8.5
MAS score	70	66	79	70	63	61	62
MAS distance		4	9	0	7	9	8
UA score	58	65	70	75	49	51	46
UA distance		7	12	17	9	7	12
Sum of 3 distances		12	26	21	25	26	28.5
Total of the three sums		----	59	----	----	79.5	----

Table 6.12 Evaluation of Switzerland's profile based on six closest PV neighbors

6.F.4. Countries with Questionable Profiles

There are two countries, Greece and Singapore with profiles that are not in the gray zone (i.e. encumbered by an asterisk), but which do not correspond with their closest countries in semantic space. I resolve the profiles for these countries in the same way that I resolve those in the gray zone.

Based on its three scores, Greece has a 011 profile. But none of the six closest countries in 3-D semantic space has a 011 profile. This suggests that some other, as yet undefined dimensional forces or influences are at work, that define Greece with a different profile. I use a similar approach to resolving countries with a dimensional score in the gray zone.

Greece	GRE	URU	BEL	SAL	POR	ARG	TUR
	001	001	101	001	001	101	001
		22.47	25.28	27.09	27.75	28.25	29.61

The two closest countries to Greece with a 001 profiles are Uruguay, with a PV of 22.47, and Salvador, whose PV is 27.09. Their average distance is 24.78. The two closest countries with a 101 profile are Belgium, with a PV of 25.28, and Argentina, whose PV is 28.25. Their average distance is 26.77. Although Greece lies close to the middle of these two pairs of countries, four of the six closest countries have 001 profiles, so I place Greece in the 001 groups as an outlier.

Singapore is another example. Based on its three scores, it has a 000 profile. Of the six closest countries, all have 010 profiles, except for Indonesia, in the 6th position, with a 000 profile. For this reason I adjust Singapore's profile to 010.

Singapore	SIN	HOK	MAL	JAM	IND	PHL	IDO
		23.50	30.53	31.64	35.27	39.60	40.36
		010	010	010	010	010	000

Table 6.13 lists all 50 countries and 3 regions with their three-digit binary profiles, together with the numerical scores for the three factor/dimensions. There is a group of six countries with a 001 profile that appear to form a distinct 001 sub-group by virtue of their proximity to each other, and their relative distance to their rest of the countries in the 001quadrant. These are identified by a plus (+) sign.

The benefit of mapping Hofstede's data in three dimensions with the BAM typology is that: a) it accurately represents Hofstede's three factors from which he derived his four dimensions; b) its data can be converted into and thus represented with a Chinese (and East-Asian) cultural model; c) it enables a rendering of the data and finding with considerable fidelity; and d) it suggests that Hofstede's factors and his data are fundamentally correct and useful for articulating and defining basic cultural types.

Country	IPD (44)	MAS (53)	UAV (56)	PROFILE	CODE
Arab States	29	53	68	0 0 1	ARA
Argentina	48.5	56	86	1 0 1	ARG
Australia	77	61	51	1 1 0	AUL
Austria	72	79	70	1 1 1	AUT
Belgium	55	54	94	1 0 1	BEL
Brazil	34.5	49	76	0 0 1	BRA
Canada	70.5	52	48	1 1 0	CAN
Chile	30	28	85	0 0 1	CHL
Colombia	23	64	80	0 1 1	COL
Costa Rica	40	21	86	0 0 1	COS
Denmark	78	16	23	1 0 0	DEN
East Africa	31.5	41	52	0 0 0	EAF
Ecuador	15	63	67	0 1 1	EQA
Finland	65	26	59	1 0 0	FIN
France	51.5	43	86	1 0 1	FRA
Germany	66	66	65	1 1 1	GER
Great Britain	77	66	35	1 1 0	GBR
Greece	37.5	57	112	0 0 1	GRE
Guatemala	5.5	37	101	0 0 1	GUA
Hong Kong	28.5	57	29	0 1 0	HOK
India	35.5	56	40	0 1 0	IND
Indonesia	18	46	48	0 0 0	IDO
Iran	41.5	43	59	0 0 1	IRA
Ireland	71	68	35	1 1 0	IRE
Israel	70.5	47	81	1 0 1	ISR
Italy	63	70	75	1 1 1	ITA
Jamaica	47	68	13	0 1 0	JAM
Japan	46	95	92	1 1 1	JPN
Korea	29	39	85	0 0 1	KOR
Malaysia	11	50	36	0 1 0	MAL
Mexico	24.5	69	82	0 1 1	MEX
Netherlands	71	14	53	1 0 0	NET
New Zealand	78.5	58	49	1 1 0	NZL
Norway	69	8	50	1 0 0	NOR
Pakistan	29.5	50	70	0 0 1	PAK
Panama	8	44	86	0 0 1	PAN
Peru	26	42	87	0 0 1	PER
Philippines	19	64	44	0 1 0	PHL
Portugal	32	31	104	0 0 1	POR
Salvador	26.5	40	94	0 0 1	SAL
Singapore	23	48	8	0 1 0	SIN
South Africa	58	63	49	1 1 0	SAF
Spain	47	42	86	1 0 1	SPA
Sweden	70	5	29	1 0 0	SWE
Switzerland	67	70	58	1 1 1	SWI
Taiwan	29.5	45	69	0 0 1	TAI
Thailand	28	34	64	0 0 1	THA
Turkey	35.5	45	85	0 0 1	TUR
United States	75.5	62	46	1 1 0	USA
Uruguay	37.5	38	100	0 0 1	URU
Venezuela	15.5	73	76	0 1 1	VEN
West Africa	21.5	46	54	0 0 0	WAF
Yugoslavia	25.5	21	88	0 0 1	YUG

Table 6.13 Country scores and binary profiles (shaded countries are in the 001 sub-group)

The differences I have with Hofstede are not in his data or his general theory, but in the assumptions he makes in representing and interpreting the data, and in some of the conclusions he draws. My main emphasis is on representing the data "as a whole." This is because there is a high risk that the meaning or relevance of the data and its interpretation will be lost or distorted when fewer than all the domains or dimensions are used to define any level of culture. I feel this can be a serious problem when one domain is used for some application in isolation from all the other domains.

If a study defines four dimensions with eleven clusters such as Hofstede proposes, then these eleven clusters should necessarily be maintained or kept in mind in all the charts, tables graphs, and other representations of the data. Even the use of alternate clusters or meta-clusters should be combined with the primary clusters in order to maintain fidelity and not lose track of the underlying integrity of the model and findings.

In this chapter I have argued for the efficacy of remodeling Hofstede's data in three dimensions. In the next chapter, I illustrate the robustness of my model by reinterpreting and arraying the data in a series of figures and tables that are explicated by the text.

Chapter 7

The Way gave birth to the One.
The One gave birth to the Two.
The Two gave birth to the Three.
And the Three gave birth to the ten thousand things.

Lao Tzu (translated by Henricks, 1989:106)

Re-modeling Hofstede's Data With Three Core Domains

In this chapter I intend to emphasize the ways in which the characteristics of the eight trigram archetypes and the underlying domains can be linked to Hofstede's data. This will serve as a demonstration of how the *yin-yang* cosmological system in the *I Ching* Classic from ancient China can have relevance to modern models of culture, both interpretive and functionalist.

The chapter is divided into six sections. The first section relates Hofstede's dimensions to the three domains in the *Binary Archic Matrix*. The second defines the 53 countries in binary groups or clusters. The third introduces my theory that the axis lines are tilted in three-dimensional cultural models. The fourth maps the eight binary groups into binary culture regions. The fifth section models the countries in 3-D semantic space. And the sixth translates Hofstede's data into clusters whose characteristics are defined by the eight trigrams.

7.A. Relating Hofstede's Dimensions to the Three BAM Domains

I use a number of diagrams in order to create a conceptual context illustrating my argument and modeling technique. Overall, Figure 7.1 describes the relationship between the *I Ching* trigrams, binary numbers, and a three-dimension

cube. In remodeling Hofstede's data into three dimensions, I initially articulate a 3-D matrix according to the Early Heaven Arrangement of the trigrams (Figure 7.1.a).

The trigrams are related to the binary triplets with 0 for each *yin* line (— —), and 1 for each *yang* line (——) (Figure 7.1.b.). The trigrams (in the Early Heaven arrangement), are then superimposed onto to cube (Figure 7.1.c), and the diagram is then rotated 1/16 to define a cube that is level to the ground (Figure 7.1.d).

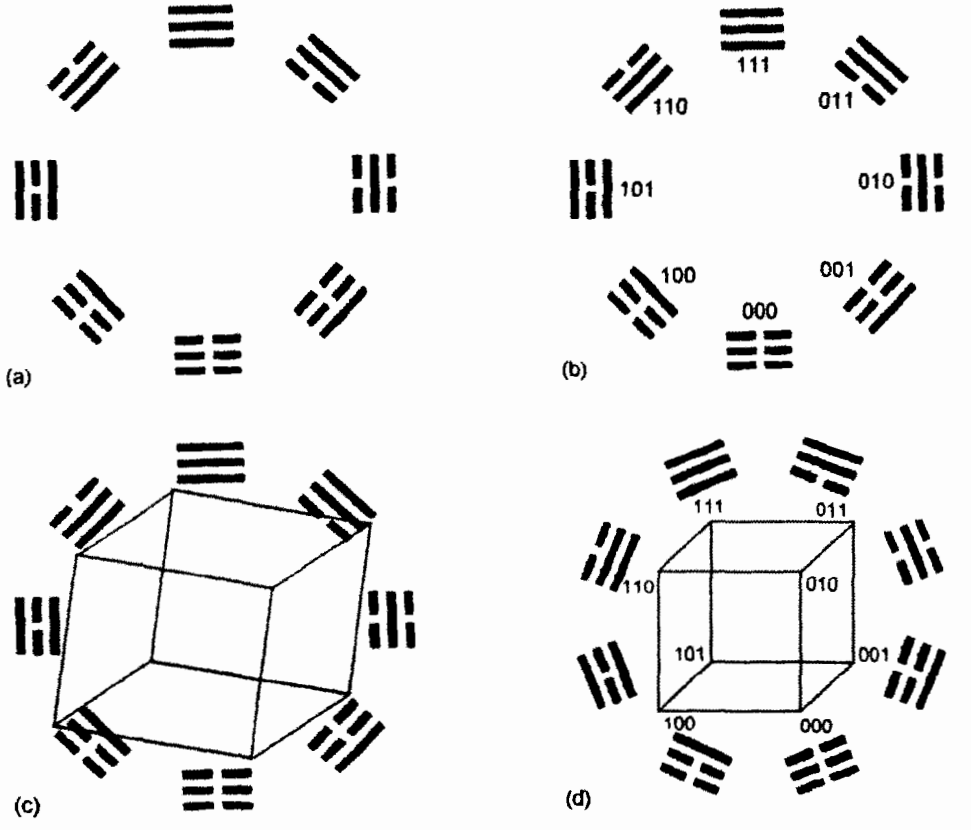
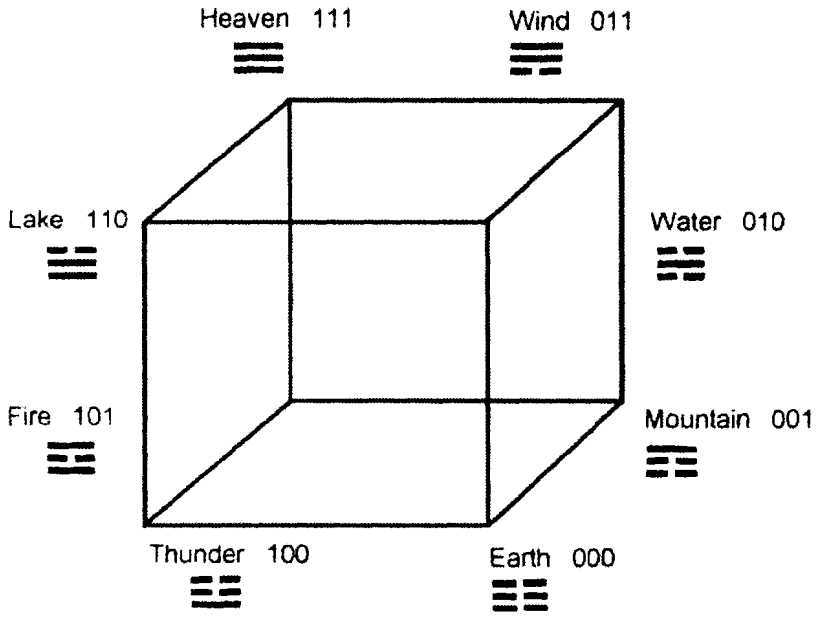


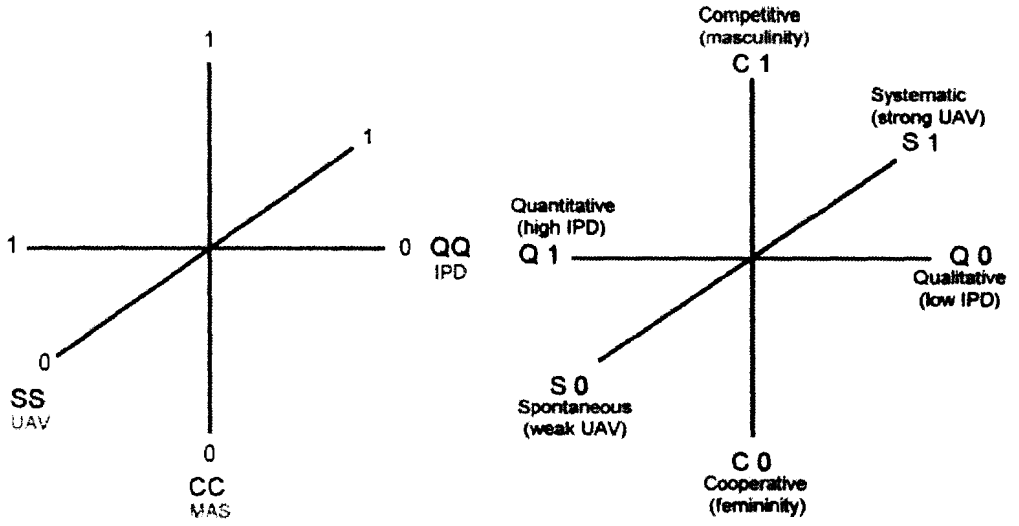
Figure 7.1 Transition from the *Early Heaven* trigram sequence to a binary cube.; (a) is EHS; (b) binary triplets; (c) superimposed cube; (d) rotated to level

Figure 7.2 shifts focus from the trigrams to the cube while identifying each section of the cube with a trigram symbol and name, binary triplet, and numerical values. In Figure 7.2a the 1s and 0s indicate values above and below the axis in

each dimensions. It also links these the above elements to the BAM domains and Hofstede's factors: SS (Spontaneous-Systematic) is lateral; CC (Cooperative-Competitive) is vertical; and QQ (Qualitative-Quantitative) is horizontal. It also relates the dimensions with IPD combining Individualism and Power Distance.

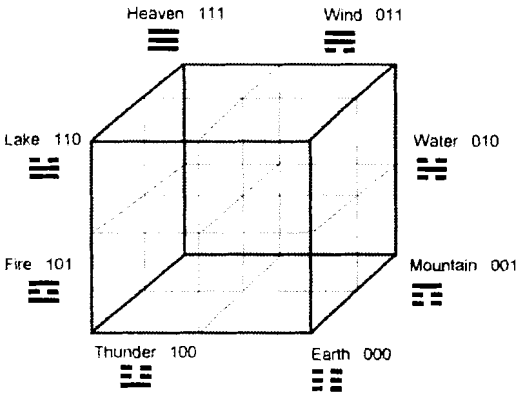


7.2a binary cube revealing the *Early Heaven Arrangement*

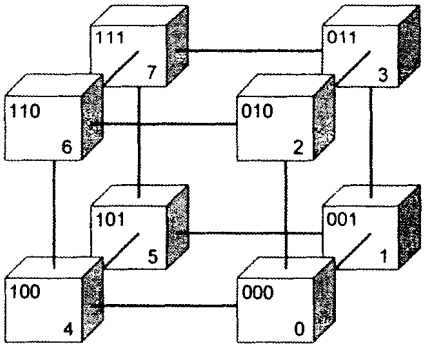


7.2.b BAM domains and Hofstede's factors 7.2.c variation on 7.2.b

Figure 7.2 the BAM cube identifying the 3 axes, BAM domains and Hofstede's factors



7.3a Cube divided into eight sections (with three axis lines); 101 is at back left



7.3b cube exploded to show the eight binary sections

Figure 7.3 Eight sections of the binary cube with trigrams and numerical values

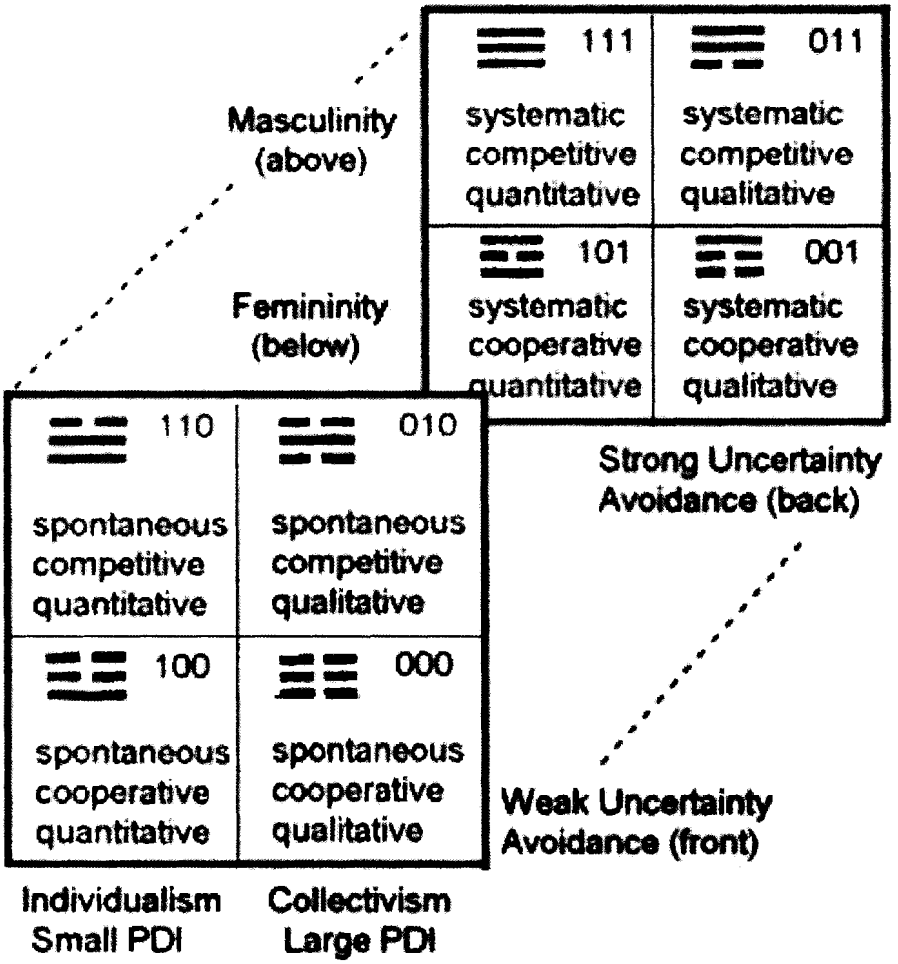


Figure 7.4 Simulated cube with eight types defined by three dimensions

The eight sections of the binary cube are articulated in Figure 7.3, with each section related to one of the trigrams. In Figure 7.4 the sections are mapped onto a simulated cube. Each section of the cube is identified by its trigram and binary triplet, as well as the conditions of the three domains. Hofstede's corresponding dimensions are identified on the outside the cube.

The simulated cube is a useful template for remodeling Hofstede's data because it is concise, informative, visual, and easy to understand. In addition, it identifies each section using both the BAM domains (derived from the trigrams), and the BAM conversion of Hofstede's model into three dimensions.

7.A.3. Mapping the Three BAM Domains to Hofstede's Three Factors

This portion of the thesis presents a brief recap and synthesis of Chapter 4.C (Analyzing the Trigrams for Universal Domains), and Chapter 5.C (Explicating Hofstede's Four Dimensions). My aim is to illustrate that the three BAM domains are commensurate with Hofstede's three factors. Other material related to the trigrams and BAM domains that supports this assertion is located in Chapter 4 (4.B.3 through 4.D).

I am not proposing total alignment between the two models. I am suggesting that each BAM domain evidences the same core (universal or eidetic) condition as each of Hofstede's factors. Hofstede represents two factors (Uncertainty Avoidance and Masculinity), as dimensions, and divides his third factor into two dimensions. I reconstitute this into a single dimension called Individualism Power Distance.

7.A.1.a. Uncertainty Avoidance as Spontaneous-Systematic (SS)

The SS domain includes the natural inclination for dealing with unpredictability. It relates broadly to uncertainty avoidance, and is placed on the lateral plane of the binary cube matrix. Spontaneous (0) corresponds to weak UAV at the front of the cube, while systematic (1) relates to strong UAV at the back of the cube. Hofstede (1991:113) defines Uncertainty Avoidance as:

> . . . the extent to which the members of a culture feel threatened by uncertain or unknown situations. This feeling is . . . expressed through nervous stress and a need for predictability: a need for written and unwritten rules.

Hofstede describes strong UAV as the need for clear classifications and for reducing ambiguity and what is dangerous. This is the systematic end of the SS domain: binary 1 in the right triplet digit, or *yang* for the top trigram line. An analysis of the four trigrams with this condition (Heaven, Fire, Wind, Mountain), shows a strong leaning in this direction. As I wrote (see 4.C.1), all four develop individual strategies to limit risk, reduce or eliminate unpredictability, and avoid uncertainty.

This is in direct contrast to weak UAV, which he describes as having wider, more flexible classifications and a willingness to take risks. This relates to the spontaneous end of the SS domain: binary 0 in the right triplet digit, or *yin* for the top trigram line. The four trigrams with this condition (Earth, Water, Thunder, Lake), are strongly inclined in this direction. As I wrote (see 4.C.1), this group is distinguished by an ability to deal flexibly, comfortably, and spontaneously with the unknown.

7.A.1.b. Masculinity-Femininity as Cooperative-Competitive (CC)

The CC domain distinguishes mutually enhancing process orientations from highly focused goal orientations. It is located on the vertical plane of the binary cube matrix and relates well to masculinity-femininity (MAS) in Hofstede's model. Cooperative relates to femininity on the bottom of the cube (0), while competitive relates closely to masculinity on the top (1). Hofstede (1991:82-3), defines masculinity and femininity this way:

> (masculinity relates to) societies in which social gender roles are clearly defined (i.e. men are supposed to be assertive, tough, and focused on material success . . . (while) femininity pertains to societies in which social gender roles overlap (i.e. both are supposed to be modest, tender, and concerned with the quality of life.

Hofstede notes that masculine societies are assertive, and both men and women expect themselves and each other to fill certain roles. This is closely related to the competitive end of the CC domain: binary 1 in the middle triplet digit, or *yang* for the middle trigram line. An analysis of the trigrams with this condition (Heaven, Lake, Wind, Water), shows a strong leaning toward winning or defeating. As I noted (see 4.C.2), the trigrams with a *yang* middle line are very goal-oriented, and for the most part embrace highly competitive strategies.

This is in direct contrast to feminine societies, which Hofstede says have greater gender equality and modesty which might be interpreted as moderation, restraint, and propriety. This relates to the cooperative end of the CC domain: binary 0 in the middle triplet digit, or *yin* for the middle trigram line. An analysis of the trigrams with this condition (Earth, Mountain, Thunder, Fire), shows they are relational, process-oriented (see 4.C.2), and have a mutually beneficial orientation.

7.A.1.c. Individualism/Power Distance as Qualitative-Quantitative

The QQ domain includes those conditions that relate to identity, including societal organization and interaction. It is located on the horizontal plane of the binary cube matrix and is associated with the two dimensions, individualism (IDV) and power distance (PDI) derived from one factor and "tend to be negatively correlated" (Hofstede, 1991:54). In countries with high PDI , "the less powerful . . . expect and accept that power is distributed unequally" (Hofstede, 1991:28), and people are usually dependent on power figures (Hofstede, 1991:55).

I (re)combine these into a single dimension named IPD. Qualitative (low IPD) includes collectivism and high power distance on the right side of the cube (0), while Quantitative (high IPD), includes individualism and low power distance on the left side of the cube (1). Hofstede (1991:51 writes:

> Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself and his immediate family. Collectivism . . . pertains to societies in which people . . . are integrated into strong, cohesive in-groups . . . in exchange for loyalty.

The characteristics associate with high IPD countries are consistent with quantitative side of the QQ domain: binary 1 for the left triplet digit, or *yang* for the bottom trigram line. In these societies people tend to look after themselves and their immediate family. An analysis of the four trigrams with this condition (Heaven, Lake, Fire, Thunder), reveals archetypes that are fiercely individual in action and attitude. Moreover they function in independent, homogeneous environments.

This is in contrast to low IPD societies, which Hofstede says from birth on integrates people and protects them in exchange for unquestioning loyalty. As such people define themselves as members of their group. This relates to the qualitative

side of the QQ domain: binary 0 for the left triplet digit, or *yin* for the bottom trigram line. An analysis of the four trigrams with this condition (Earth, Mountain, Water, and Wind), shows they deal with things heterogeneously and holistically.

The above sets of associations show that Hofstede's factors and dimensions correspond conceptually to the three BAM domains. This means that the trigrams (which are defined according to the BAM domains), should have characteristics that correspond to the groups of countries that are organized according to Hofstede's three factors (and four dimensions). The countries in each binary profile group can be described using attributes of the trigram related to the group.

7.A.2. The BAM - Hofstede flow chart

The BAM - Hofstede flow chart (Figure 7.5), illustrates in 9 steps how the 53 countries in Hofstede's survey can be organized into eight binary triplet groups that can then be related to the eight *I Ching* trigrams:

1. there are 8 trigrams each consisting of symbols composed of three-lines;
2. the three lines are either broken (*yin*) or solid (*yang*); and the positions are noted as earth (on the bottom), man (in the middle), and heaven (on top);
3. each trigram is assigned a group of attributes and characteristics;
4. these characteristics can be explained by three core domains or conditions that are consistent with the *yin* or *yang* condition of each line. I term the top line as spontaneous-systematic, the middle as cooperative-competitive, and the bottom line as qualitative-quantitative;
5. the three domains resemble Hofstede's three factors: weak-strong uncertainty avoidance, femininity-masculinity, low-high individualism/power distance;

6. the 53 sets of country scores in Hofstede's survey are converted to binary digits (1s or 0s) depending on whether they are above or below an axis line;
7. the binary digits for the countries form binary profiles, and the countries are then organized into eight binary profile groups called binary triplets;
8. the 53 countries are plotted into a 3-D cube divided into eight sections, one for each triplet. The cube is called a *Binary Archic Matrix* (BAM);
9. each triplet section becomes identified with one of the eight trigrams and its characteristics. This means the characteristics would be relevant to describing the cultures of the countries in that section.

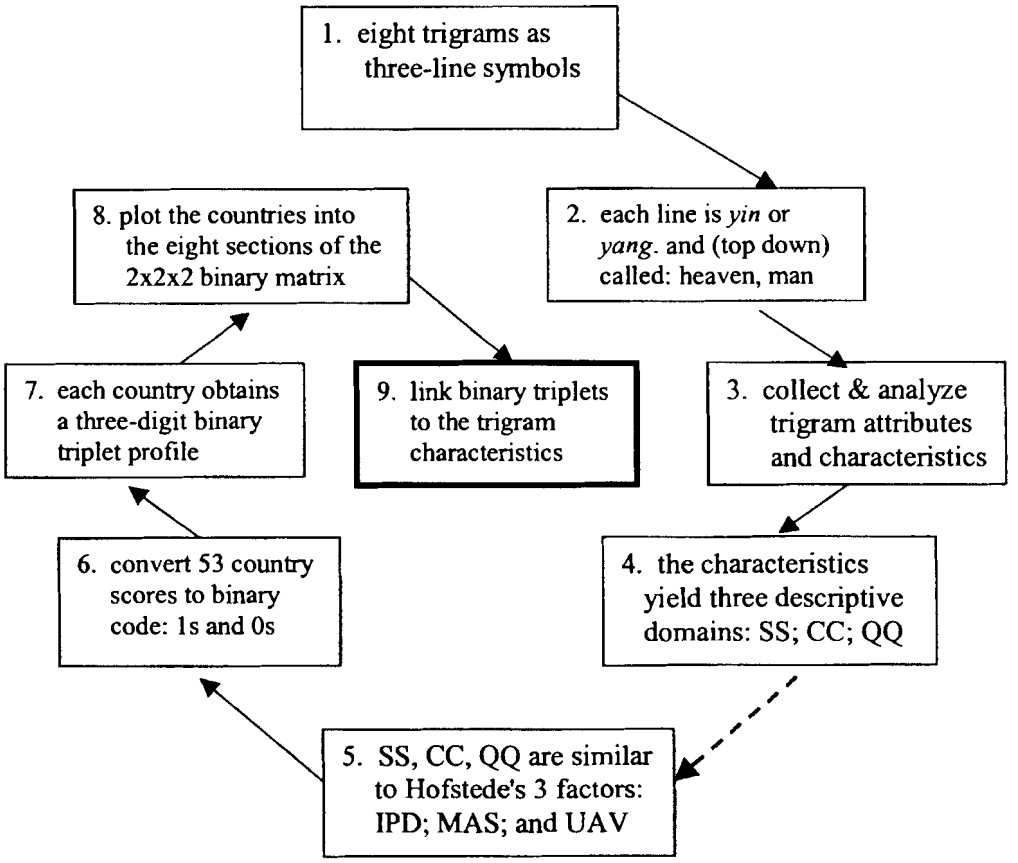


Figure 7.5 BAM-Hofstede Flow Chart and Mind Map (dotted line proposes the link from the BAM domains to Hofstede's factors; step 9 synthesizes the two models)

Country	QQ (IPD)	CC (MAS)	SS (UAV)	Profile	Code
Colombia	23	64	80	0 1 1	COL
Ecuador	15	63	67	0 1 1	EQA
Mexico	24.5	69	82	0 1 1	MEX
Venezuela	15.5	73	76	0 1 1	VEN
Arab States	29	53	68	0 0 1	ARA
Pakistan	29.5	50	70	0 0 1	PAK
Taiwan	29.5	45	69	0 0 1	TAI
Brazil	34.5	49	76	0 0 1	BRA
Thailand	28	34	64	0 0 1	THA
Iran	41.5	43	59	0 0 1	IRA
Portugal	32	31	104	0 0 1	POR
Turkey	35.5	45	85	0 0 1	TUR
Yugoslavia	25.5	21	88	0 0 1	YUG
Korea	29	39	85	0 0 1	KOR
Chile	30	28	85	0 0 1	CHL
Peru	26	42	87	0 0 1	PER
Uruguay	37.5	38	100	0 0 1	URU
Salvador	26.5	40	94	0 0 1	SAL
Costa Rica	40	21	86	0 0 1	COS
Panama	8	44	86	0 0 1	PAN
Guatemala	5.5	37	101	0 0 1	GUA
Greece	37.5	57	112	0 0 1	GRE
Malaysia	11	50	36	0 1 0	MAL
Philippines	19	64	44	0 1 0	PHL
India	35.5	56	40	0 1 0	IND
Hong Kong	28.5	57	29	0 1 0	HOK
Singapore	23	48	8	0 1 0	SIN
Jamaica	47	68	13	0 1 0	JAM
East Africa	31.5	41	52	0 0 0	EAF
West Africa	21.5	46	54	0 0 0	WAF
Indonesia	18	46	48	0 0 0	IDO
Australia	77	61	51	1 1 0	AUL
New Zealand	78.5	58	49	1 1 0	NZL
United States	75.5	62	46	1 1 0	USA
Great Britain	77	66	35	1 1 0	GBR
Ireland	71	68	35	1 1 0	IRE
Canada	70.5	52	48	1 1 0	CAN
South Africa	58	63	49	1 1 0	SAF
Netherlands	71	14	53	1 0 0	NET
Norway	69	8	50	1 0 0	NOR
Finland	65	26	59	1 0 0	FIN
Sweden	70	5	29	1 0 0	SWE
Denmark	78	16	23	1 0 0	DEN
Argentina	48.5	56	86	1 0 1	ARG
Belgium	55	54	94	1 0 1	BEL
Spain	47	42	86	1 0 1	SPA
France	51.5	43	86	1 0 1	FRA
Israel	70.5	47	81	1 0 1	ISR
Austria	72	79	70	1 1 1	AUT
Germany	66	66	65	1 1 1	GER
Switzerland	67	70	58	1 1 1	SWI
Italy	63	70	75	1 1 1	ITA
Japan	49	95	92	1 1 1	JPN

Table 7.1 53 country scores and three dimension/domain profiles (by binary group)

7.A.3. Mapping the Countries on a Simulated Cube

The countries are placed into the eight sections of a simulated cube (Figure 7.6), on the basis of their binary profiles in Table 7.1. Possible outliers are indented. Six of the eighteen countries with a 001 profile form a spatially distinct sub-group. I suggest they define a 9th, somewhat central cluster whose profile I denote as 0x1. The benefit of this model is that it provides a quick synopsis of the clusters and their core domains. The countries are distributed relatively evenly among the sections, except for the main 001 group.

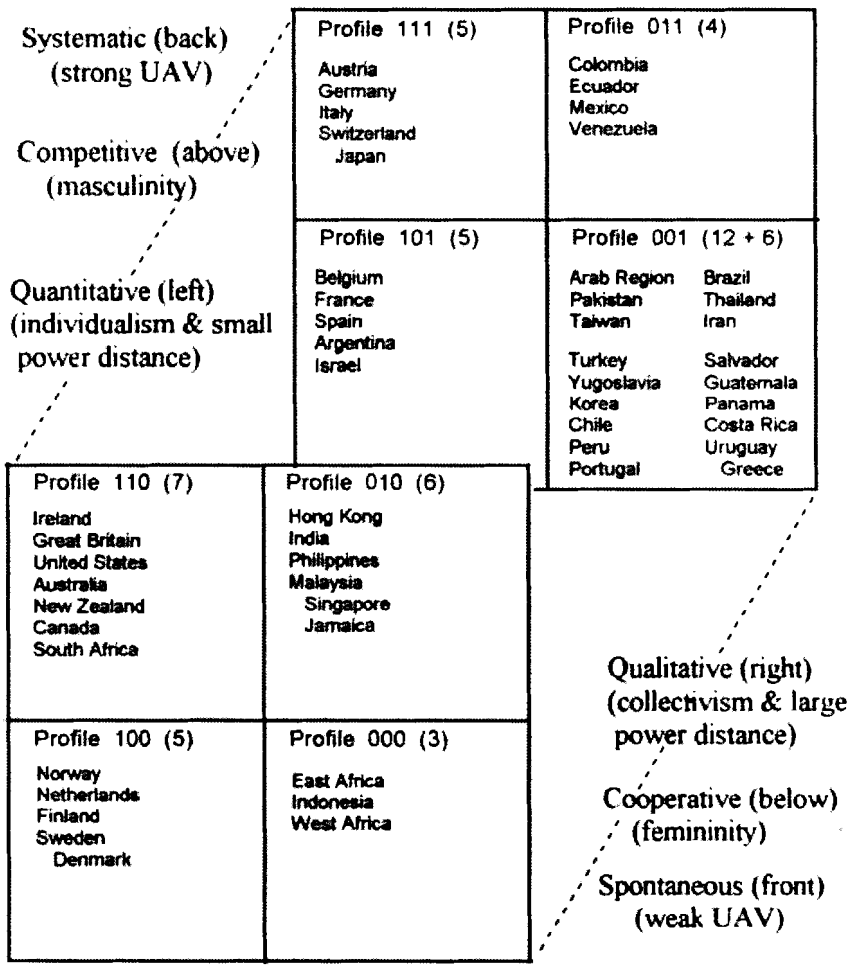


Figure 7.6 Mapping the 53 countries on a simulated cube by binary triplet profile

It can also be useful to use the simulated cube with the scores for all three domains. The scores, from left to right, correspond to the three domains: QQ (IPD), CC (MAS), and SS (UAV). This enables a comparison of the scores within sections as well as between sections. The proposed ninth cluster (0x1) is placed below the 001 section from which it is derived. I will illustrate later that the scores for the 001 sub-group (0x1) put it centrally between the 001, 011, and 000 clusters.

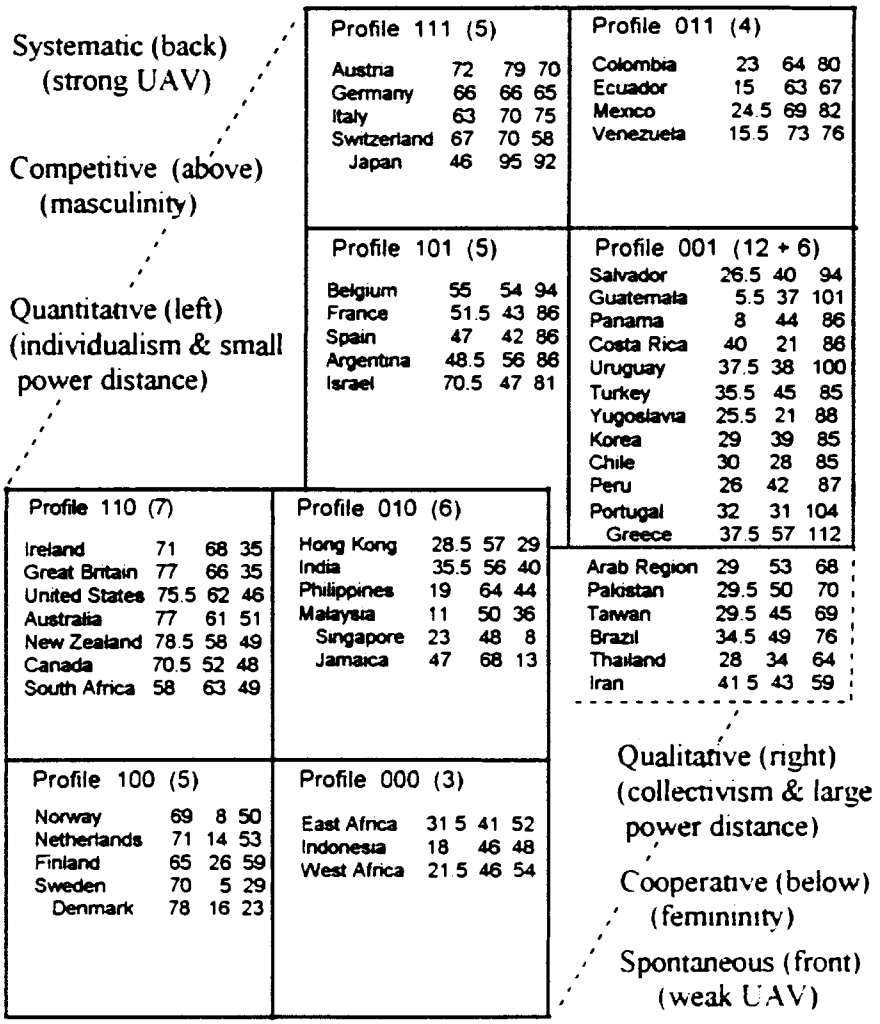


Figure 7.7 Simulated 3-D cube with countries and scores arranged in nine groups

7.B. Defining the Countries in Clusters

The 53 countries are arranged into nine groups in Table 7.1, with their three scores and binary triplet profiles. In order to achieve a meaningful mapping of the countries with these three cultural domains, it is necessary to distinguish the which countries in each binary triplet group constitute the main cluster; which countries are closely connected to the cluster; and which ones are outliers. I utilize the proximity values in Table 6.10 to suggest a set of tentative rules for defining cluster members, cluster affiliates, and outliers.

7.B.1 The Internal Consistency or Integrity of Clusters

I pointed out in Chapter 6, how Hofstede's clusters change in each of his plot graphs. As a result, the clusters are not defined by the data, and the very notion of clusters and looses its meaningfulness. According to the BAM typology, when culture is defined by three domains, the clusters are always defined by all three domains. In this way they remain constant from one graph to the next. The clusters do not change even when there is a compelling reason to consider some condition from a two-dimensional perspective.

Hofstede's clusters are inconsistent, and bare little or no resemblance to his data, meaning countries are placed in the same cluster even when they are not close to each other in four dimensional space. This is unfortunate, because his data supports nine distinct clusters that for the most part group countries in culturally consistent societal clusters.

In the BAM approach, clusters always represent the sum of the data that produced them. Therefore the representation of countries (or other sets) in clusters

according to the data would be exceptionally useful. I do not consider two-dimensional clusters a viable option when the overall data is derived from or defined by three or more dimensions. That is, any model that does not depict the data as a whole does not provide an authentic or meaningful representation.

7.B.2. Establishing Parameters for Defining Proximity within Clusters

I define clusters as groups of countries with the same binary profile, where each country has a proximity value or PV (see Table 6.10), to two other countries with the same binary profile, whose average score is smaller than the average PV to two countries in another binary group. I call this number a country's cluster value (CV). There is also a cluster value for each binary profile. This is the average of three smallest CVs in each binary cluster (Table 7.2).

In Table 7.2, Column 1 identifies each country by name, name code, and binary profile. Columns 2 and 3 list the closest ands second-closest countries with the same binary profile, together with their PVs. Column 4 has the CV for each country, while Column 5 has the three-country CV for each cluster, as well as the CVs for all the countries in each cluster, with the number of countries noted below in parentheses. It also has the CV for all cluster members and affiliates (indented non-italicized countries. The CVs do not include any italicized outliers.

Except where noted by a number after the three-letter country code, the countries in columns 2 and 3 have the two smallest PVs for each target country, as listed in Column 1. For example, , the number -2 after the country code in Column 2 means the country with the smallest PV is in a different binary profile group. Therefore the country in Column 2 actually the second-smallest PV.

Country	Code	Profile	Closest	Score	Second	Score	Average		cluster values	
Colombia	COL	0 1 1	MEX	5.59	VEN	12.38	8.99	*		
Ecuador	EQA	0 1 1	VEN	13.46	COL	15.30	14.38		9.84	10.97
Mexico	MEX	0 1 1	COL	5.59	VEN	11.53	8.56	*	(3)	(4)
Venezuela	VEN	0 1 1	MEX	11.53	COL	12.38	11.96	*		
Arab States	ARA	0 0 1 +	PAK	3.64	TAI	8.08	5.86	*		
Pakistan	PAK	0 0 1 +	ARA	3.64	TAI	5.10	4.37	*	5.61	6.38
Taiwan	TAI	0 0 1 +	PAK	5.10	ARA	8.08	6.59	*	(3)	(4)
Brazil	BRA	0 0 1 +	PAK	7.87	TAI	9.49	8.68			
Thailand	THA	0 0 1 +	TAI	12.18	IRA -4	16.98	14.58			9.41
Iran	IRA	0 0 1 +	TAI -2	15.75	THA -3	16.98	16.37			(6)
Portugal	POR	0 0 1	URU	9.76	SAL	14.53	12.15			
Turkey	TUR	0 0 1	KOR	8.85	PER -3	10.16	9.51			
Yugoslavia	YUG	0 0 1	CHL	8.56	COS	14.64	11.60			
Chile	CHL	0 0 1	YUG	8.56	KOR	11.09	9.83			
Korea	KOR	0 0 1	PER	4.69	TUR	8.85	6.77	*	7.04	9.87
Peru	PER	0 0 1	KOR	4.69	SAL	7.30	6.00	*	(3)	(9)
Salvador	SAL	0 0 1	PER	7.30	KOR	9.39	8.35	*		
Uruguay	URU	0 0 1	POR	976	SAL	12.69	11.23			11.44
Costa Rica	COS	0 0 1	CHL	12.21	YUG	14.64	13.43			(11)
Panama	PAN	0 0 1	GUA	16.74	PER	18.14	17.44			
Guatemala	GUA	0 0 1	PAN	16.74	SAL	22.34	19.54			
Greece ?	GRE	0 0 1	URU	22.47	SAL -3	27.09	23.36			
Philippines	PHL	0 1 0	MAL	18.00	IND -3	18.77	18.39	*		
India	IND	0 1 0	HOK	13.08	PHL	18.77	15.93	*	16.80	17.38
Hong Kong	HOK	0 1 0	IND	13.08	PHL	19.09	16.09	*	(3)	(4)
Malaysia	MAL	0 1 0	PHL -2	18.00	HOK -3	20.11	19.06			
Singapore	SIN	0 1 0	HOK	23.50	MAL	30.53	27.02			
Jamaica	JAM	0 1 0	HOK	26.82	IND -3	31.71	29.27			
East Africa	EAF	0 0 0	WAF	11.36	IDO -4	14.94	13.15	*		
West Africa	WAF	0 0 0	IDO	6.95	EAF	11.36	9.16	*	11.09	11.09
Indonesia	IDO	0 0 0	WAF	6.95	EAF -3	14.94	10.95	*	(3)	(3)
Australia	AUL	1 1 0	NZL	3.91	USA	5.32	4.62	*		
New Zealand	NZL	1 1 0	AUL	3.91	USA	5.83	4.87	*	5.02	7.44
United States	USA	1 1 0	AUL	5.32	NZL	5.83	5.58	*	(3)	(6)
Great Britain	GBR	1 1 0	IRE	6.23	USA	11.80	9.06			
Ireland	IRE	1 1 0	GBR	6.32	USA	13.31	982			8.84
Canada	CAN	1 1 0	NZL	10.05	USA	11.36	10.71			(7)
South Africa	SAF	1 1 0	CAN -2	16.68	USA -3	17.78	17.23			
Netherlands	NET	1 0 0	NOR	7.00	FIN	14.70	10.85	*	14.04	15.05
Norway	NOR	1 0 0	NET	7.00	FIN	20.52	13.67	*	(3)	(4)
Finland	FIN	1 0 0	NET	14.70	NOR	20.52	17.61	*		
Sweden	SWE	1 0 0	DEN	14.87	NOR	21.24	18.06			16.48
Denmark	DEN	1 0 0	SWE	14.87	NOR	29.56	22.21			(5)
Spain	SPA	1 0 1	FRA	4.61	ARG -3	14.08	9.35	*	10.08	10.63
France	FRA	1 0 1	SPA	4.61	ARG	13.34	8.98	*	(3)	(4)
Argentina	ARG	1 0 1	BEL	10.50	FRA	13.34	11.92	*		
Belgium	BEL	1 0 1	ARG	10.50	FRA	14.04	12.27			12.65
Israel	ISR	1 0 1	FRA	20.05	BEL	21.41	20.73			(5)
Austria	AUT	1 1 1	ITA	13.67	GER	15.17	14.42			
Germany	GER	1 1 1	SWI	8.12	ITA	11.18	9.65	*		
Switzerland	SWI	1 1 1	GER	8.12	AUT -3	15.17	11.65	*	11.24	12.04
Italy	ITA	1 1 1	GER	11.18	AUT	13.67	12.43	*	(3)	(4)
Japan	JPN	1 1 1	ITA	34.68	AUT -3	37.63	36.16			
									10.08	12.37

Table 7.2 Two smallest PVs to each country with same profile

For example Iran (IRA) is in the 001+ sub-group, which I have identified as a distinct cluster. Iran lists Taiwan in Column 2 as TAI-2, and Thailand in Column 3 as THA -3. This is because the closest country to Iran is East Africa, whose profile is 000. So they have the 2nd and 3rd smallest PVs. Also, while Thailand is 3rd closest to Iran, Iran is 4th closest to Thailand. But it is listed in Column 3 as IRA -4 because in the 001+ sub-group it has the second-smallest PV to Thailand.

Table 7.3 lists the countries in order of their increasing cluster values (CV). The first fifty countries exhibit gaps in the numerical sequence that are all less than 1.6 points. The three largest gaps are: 1.58 points between KOR and SAL; 1.35 points between THA and IND; and 1.48 points (ISR • DEN). There aer three large gaps at the end: 3.66 points (GRE ♦ SIN); 2.25 points (SIN ♦ JAM); and 6.89 points (JAM ♦ JPN).

4.37	4.62	4.87	5.58	5.86	6.00	6.59	6.77	8.35	8.56
PAK	AUL	NZL	USA	ARA	PER	TAI	KOR •	SAL	MEX
8.68	8.98	8.99	9.06	9.16	9.35	9.51	9.65	9.82	9.83
BRA	FRA	COL	GBR	WAF	SPA	TUR	GER	IRE	CHL
10.71	10.85	10.95	11.23	11.60	11.65	11.92	11.96	12.15	12.27
CAN	NET	IDO	URU	YUG	SWI	ARG	VEN	POR	BEL
12.43	13.15	13.43	13.67	14.38	14.42	14.58	15.93	16.09	16.37
ITA	EAF	COS	NOR	EQA	AUT	THA •	IND	HOK	IRA
17.23	17.44	17.61	18.06	18.39	19.06	19.54	20.73	22.21	23.36
SAF	PAN	FIN	SWE	PHI	MAL	GUA	ISR	DEN	GRE♦
27.02	29.27	36.16							
SIN ♦	JAM♦	JPN♦							

Table 7.3 the cluster value (CV) for each country (average of two smallest PVs in the same binary profile group. The average CV for all 49 cluster members is 11.94. The last four are not cluster members, and so are not included.

7.B.2.a. Comparing Hofstede's clusters to BAM clusters of the same data

In order to illustrate the efficacy of this modeling approach I define the BAM clusters on Hofstede's MAS-UAV plot graph (Figure 7.8.), and compare them to the clusters he identified on the same graph (Figure 7.9). This raises some interesting and important issues with regard to the relationship between clusters and axis lines, since the axis lines in both graphs cut through clusters.

The BAM typology organizes the countries into eight distinct profile groups that theoretically should not be divided. In an ideal three-digit binary typology, each of the eight binary groups should fit into one of the eight binary sections, and none of the groups would straddle both sides of an axis line. That is, the axis lines should define the binary clusters, within the margin of error zone of +/- 3 points.

It was problematic and conceptually troubling to have the axis lines bisect two or more clusters with at least one country over the axis line, outside the +/- 3 point margin of error zone. This occurs no matter where the axis lines are placed. The MAS axis, at 50, divides four clusters (Figure 7.8). Two clusters have one country over the axis line but within the margin of error: ARA at 53, and SIN at 48. The other two clusters have countries over the MAS axis line but outside the margin or error zone: ARG at 56 (6 points over); BEL at 54 (4 points over); and GRE at 57 (7 points over).

In Hofstede's graph (Figure 7.9), the UAV axis, placed at 56, divides two clusters. While each has one country over the axis line within the margin or error zone, FIN at 59, and WAF at 54, the second cluster has two countries over he axis line, outside the margin of error zone: IDO at 48 (8 points under), and EAF at 52 (4 points under).

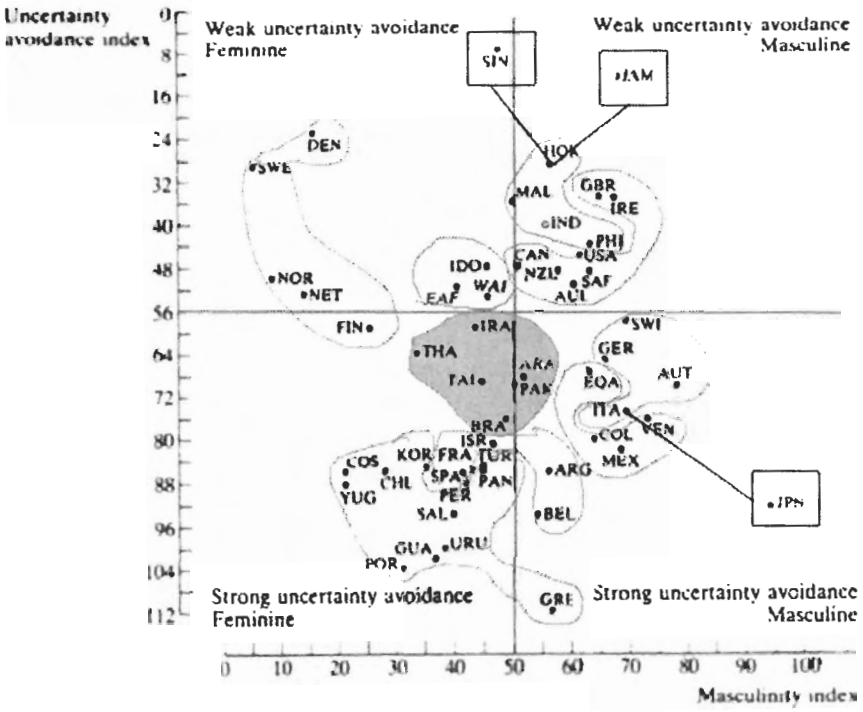
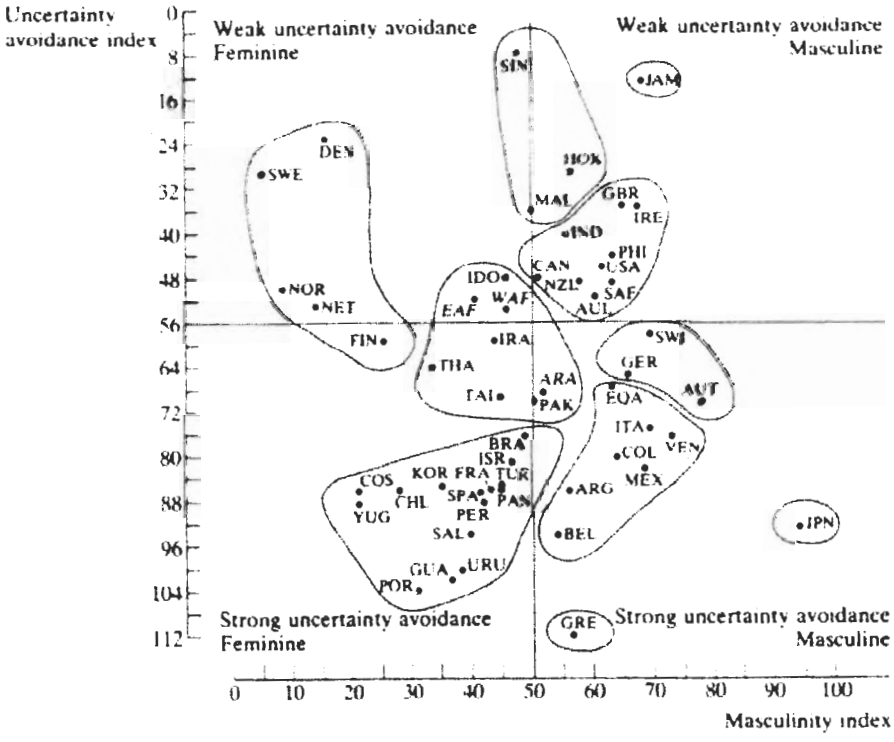


Figure 7.8 the MAS-UAV plot: with the nine BAM clusters



(b)

Figure 7.9 the MAS-UAV plot graph with Hofstede's seven clusters

7.C. The Tilted Axis Theory

After struggling for a considerable time, with the problem of the way that axis lines bisect clusters, I realized that this apparently unavoidable condition could be solved by rotating (tilting) the axis lines. This solution is demonstrated in Figure 7.10, a copy of the MAS-UAV plot graph with BAM clusters (Figure 7.8). The axis lines are rotated about 15 degrees counter-clockwise (shown as dotted lines), at which point each quadrant contains two binary clusters. None of the clusters is divided by an axis line. One cluster in each quadrant has a high QQ (high IPD scores) and one has low QQ (low IPD scores). The 001 sub-group is shown in the lower right quadrant in a darker shade.

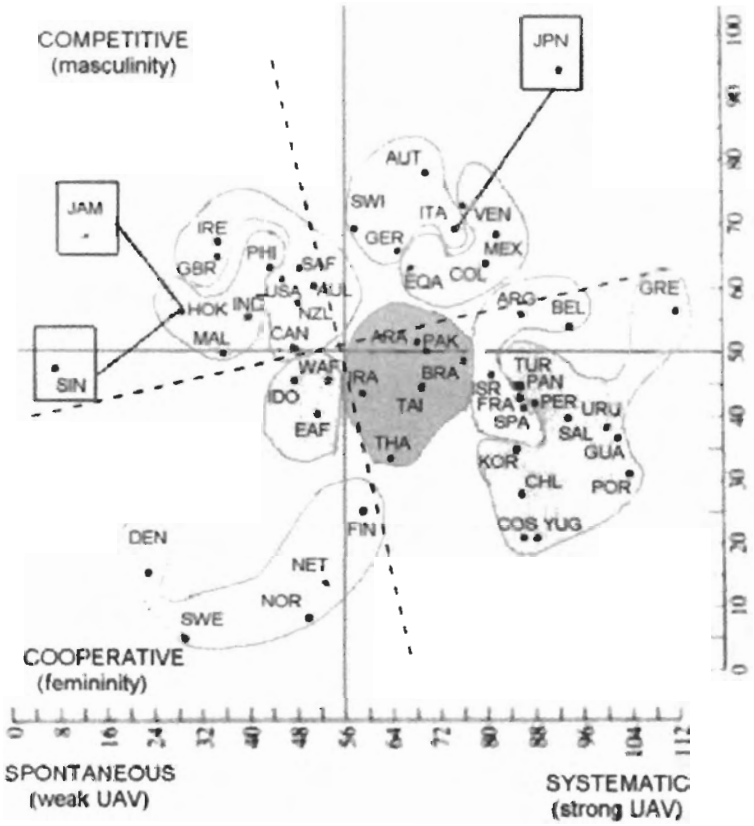


Figure 7.10 Tilted axes with BAM clusters on the CC-SS plot graph (MAS-UAV)

7.C.1. Explicating the Tilted Axis

Using Figure 7.10 as a guide, the tilted axis lines provide and define cluster integrity when using three dimensions. The CC-SS graph illustrates that at the extreme Systematic end of the SS axis, the Cooperative scale expands from 0-50 to about 0-65. As a result, at the extreme Spontaneous end of the axis, the allowance for defining a culture as Competitive expands from 50-100 to about 38-100. This means very Spontaneous countries have a higher probability of being Competitive, and very Systematic cultures have a higher probability of being Cooperative.

On the CC axis, at the extreme Competitive end of the scale, the Systematic range expands from 56-112 to about 42-112. While at the extreme Cooperative end, the Spontaneous range expands from 0-56 to 0-68. This translates into very Cooperative countries having a higher probability of being Spontaneous, while very Competitive countries have a higher probability of being Systematic.

The titled axis condition seems to capture a natural aspect of cultural variation. This nuance does not exist with two domains, nor can it be generated or defined in two dimensions. Moreover, the phenomena would be too complex to perceive, communicate, or appreciate with four domains or dimensions, let alone describe in any meaningful way. This seems to indicate that three integrated and/or interacting domains are not only mutually influencing and/or defining, but they have an influence or "pull" on each other in a specific, somewhat predictable way.

7.D. Mapping the Eight Binary Groups as Cultural Regions

There are nine distinct groups in this typology (Figure 7.11). Most of the countries appear to be grouped in a way that is fairly predictable or explainable. A number of countries are grouped in an unanticipated or inexplicable way. I suggest however, these unexpected combinations will be useful for achieving a better understanding of cultural commonality. Perhaps these three dimensions capture an underlying cultural similarity that countries share at a deep level, in spite of their obvious differences on the surface.

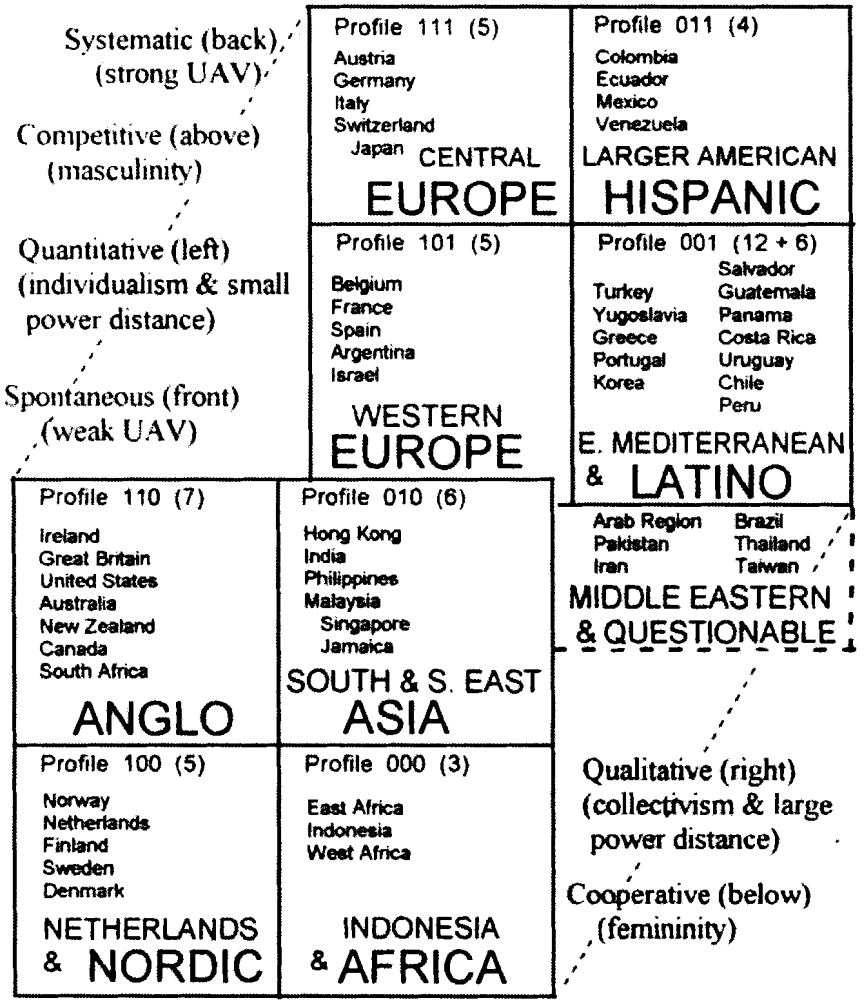


Figure 7.11 Countries grouped by binary profile and identified by region

7.D.1. Explication of the Binary Profile Triplet Groups

The simulated cube in Figure 7.11 provides a visual model of how the countries group into sections in three dimensions according to their binary triplet profiles. I have identified each section by region using terms that can communicate the identity of each group quickly and clearly. It is obvious that the nine sections represent a high level of cultural integrity. I suggest this model further confirms the efficacy of the BAM model as an organizing tool.

111 Central Europe

The 111 group consists of three German speaking countries plus Italy, whose three closest countries are the other three in this group (GER, AUT, and SWI). The next three closest to Italy are ARG, ISR, and BEL, all in the 101 group, and not France and Spain, as many might expect. Japan is an outlier in this group.

110 Anglo

The 110 group includes all the English-speaking countries including white South Africa, which is slightly remote but closer than to 111 which is next closest.

101 Western Europe

The 101 included BEL, FRA, and SPA plus Argentina and Israel, two countries that blend German and Spanish influences. Israel is slightly distant from the other four. Hofstede places Israel together with Austria, but Austria is not one of the six closest countries to Israel, although Germany is the sixth closest.

100 Nordic

The 100 cluster includes the four main Nordic countries as well as the Netherlands, whose next closest 3-D proximity values are to Canada and Iran.

011 Larger American Hispanic

This includes three South American countries and Mexico.

010 South and South East Asia (all former British Colonies)

This group has six countries including two outliers, Singapore and Jamaica.

001 Eastern Mediterranean and Latino

This is the most diverse group in that it includes four European countries (mostly Eastern Mediterranean), and Korea, whose scores place it closest to Peru, Turkey, Salvador, and Chile. I use the term Latino to distinguish these Central and South American countries from those in the 011 group, titled Hispanic.

0x1 Middle Eastern and other (a distinct 001 sub-group)

These six countries do not form a binary group per se, but a separate sub-group within the 001 profile. The Arab countries, Pakistan, and Iran give this group a distinct Middle Eastern definition, but it also includes Taiwan, Brazil, and Thailand. The countries are all relatively close to each other, and closer to other groups than to most countries in the main 001 cluster.

000 Indonesia and Africa

This is the smallest group, but in all fairness it includes two "regions" that are composed of a larger number of countries.

This typology is noteworthy not only because it is derived from Hofstede's data, but because it provides a rationale, a form of logic-based clarity, and a cultural relevance and understanding that Hofstede was unaware his data embodied or might provide. The next three diagrams (Figures 7.12- 7.14) present the Binary Matrix Cube from three views. The numbers are the scores for the absent dimension.

7.D.1.a. Behind cultural distinctions among Latin American countries

There is a valuable cross-national examination of Latin America countries that might account for or explain to some degree why they separate into binary groups the way they do. For example, in "Argentina, Uruguay and Chile . . .none of the pre-colonial social systems has endured" (Lenartowicz & Johnson, 2003:270). Peru and Ecuador form a second group, and Colombia and Venezuela a third, with Brazil and Mexico having identities that are somewhat distinct.

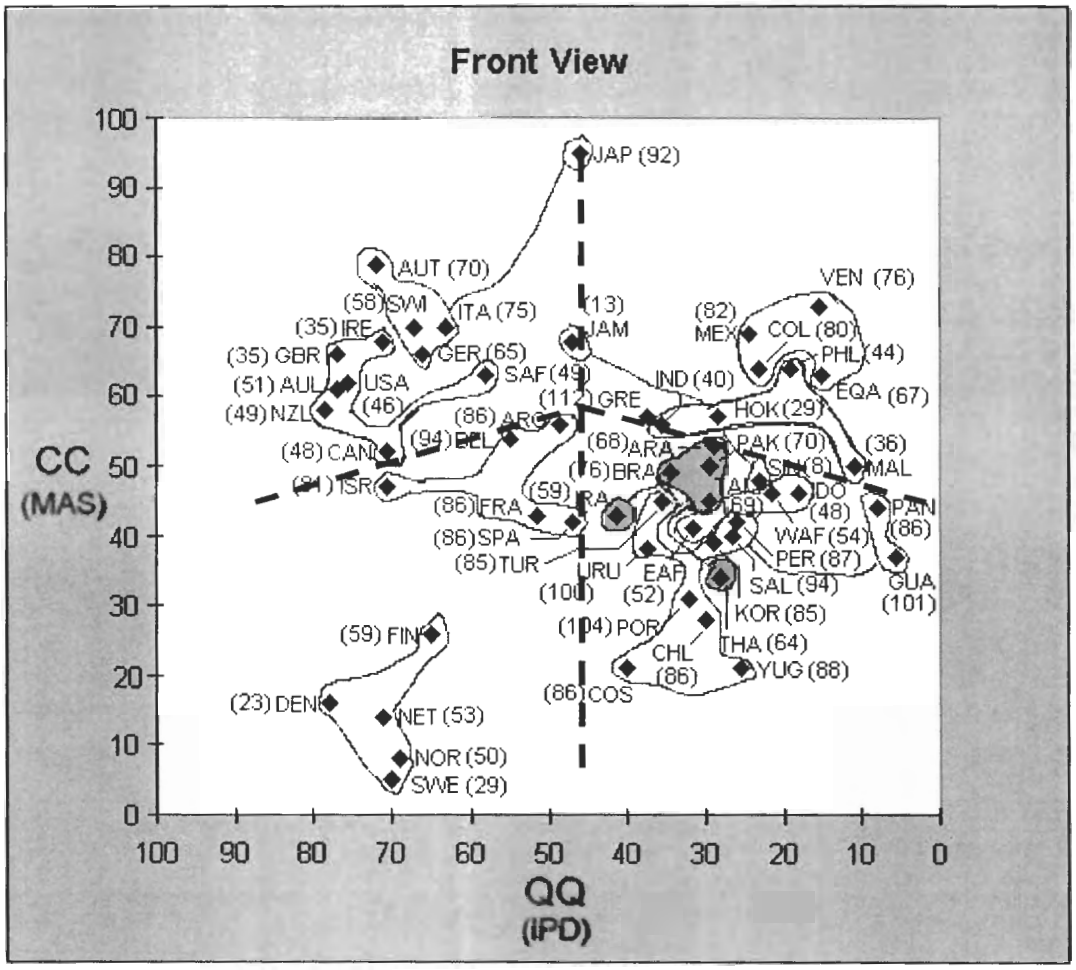


Figure 7.12 QQ-CC plot graph (IPD-MAS): a front view of the binary cube matrix. qualitative-quantitative and cooperative competitive

The first graph, QQ-CC (Figure 7.12), is a front view of the binary cube, with the QQ domains on horizontal axis and CC on the vertical axis. The second graph, QQ-SS (Figure 7.13), is a top view with QQ on the horizontal axis and SS shown as vertical, but the lateral axis on the cube. The third graph, CC-SS (Figure 7.14), is a view of the cube from the right side, with SS on the horizontal axis (actually the lateral axis, with left-to-right being front-to-back. The dotted axis lines in each graph divide it into four quadrants, each with two binary profile groups

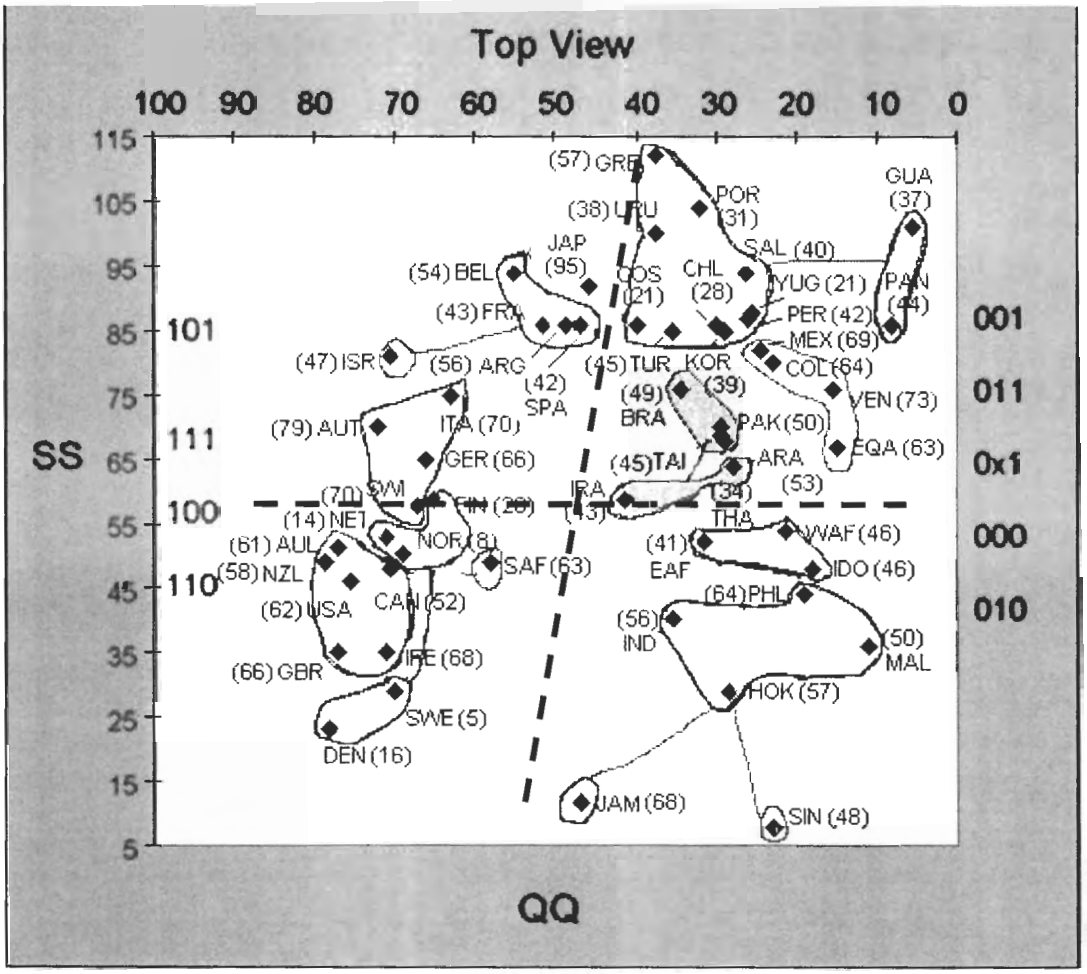


Figure 7.13 QQ-SS plot graph (IPD-UAV): a top view of binary cube matrix. qualitative-quantitative and spontaneous-systematic

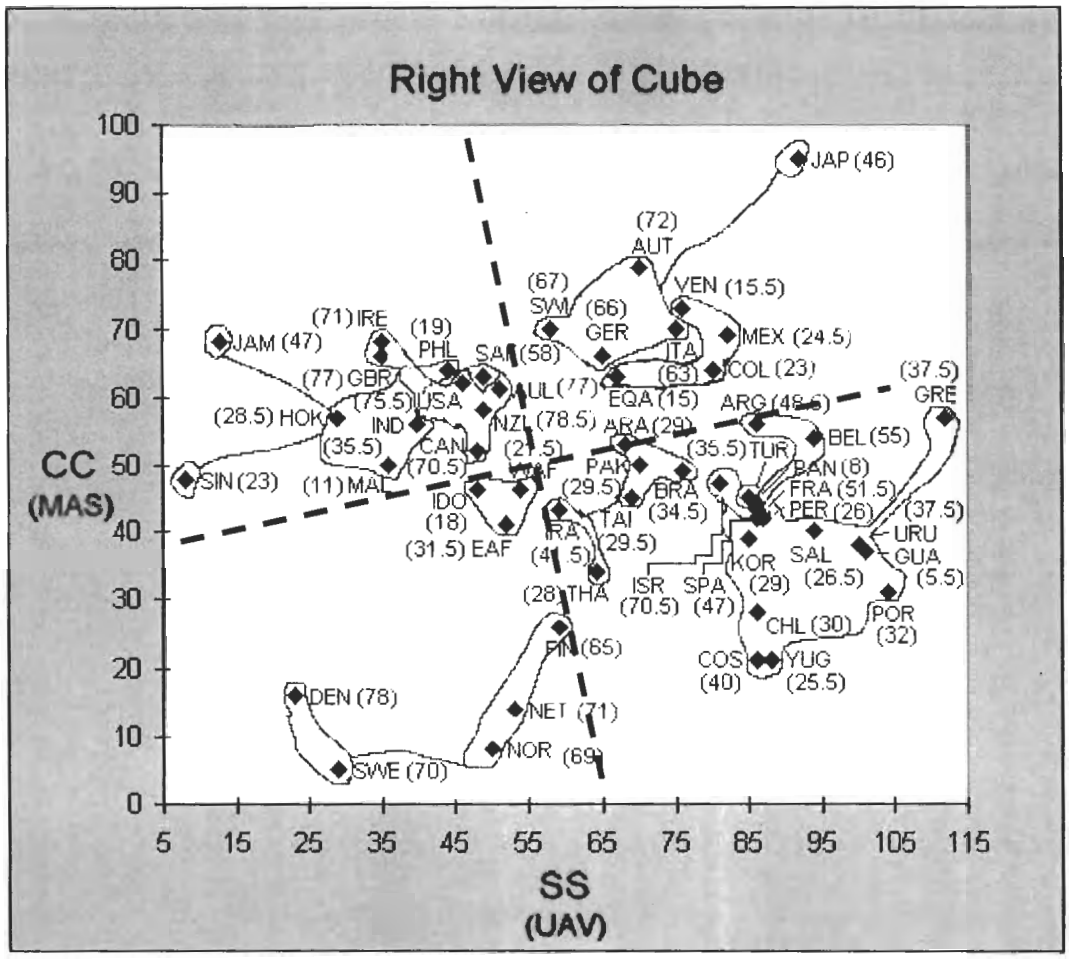


Figure 7.14 SS-CC plot graph (UAV-MAS): a right side view of the binary cube matrix. spontaneous -systematic and cooperative competitive

The next three diagrams (Figures 7.15 to 7.17), are all variations of the Binary Matrix plot graphs, but with each country connected by a line to the country in the same binary group with the smallest PV (proximity value) (see Table 6.10). The outliers are connected by a dotted line, while more affiliated cluster members are linked by a thin line. A darker line indicates that the score for the other (absent or ungraphed) dimension converts to binary 0, while a lighter line indicates that the score for the other dimension converts to binary 1.

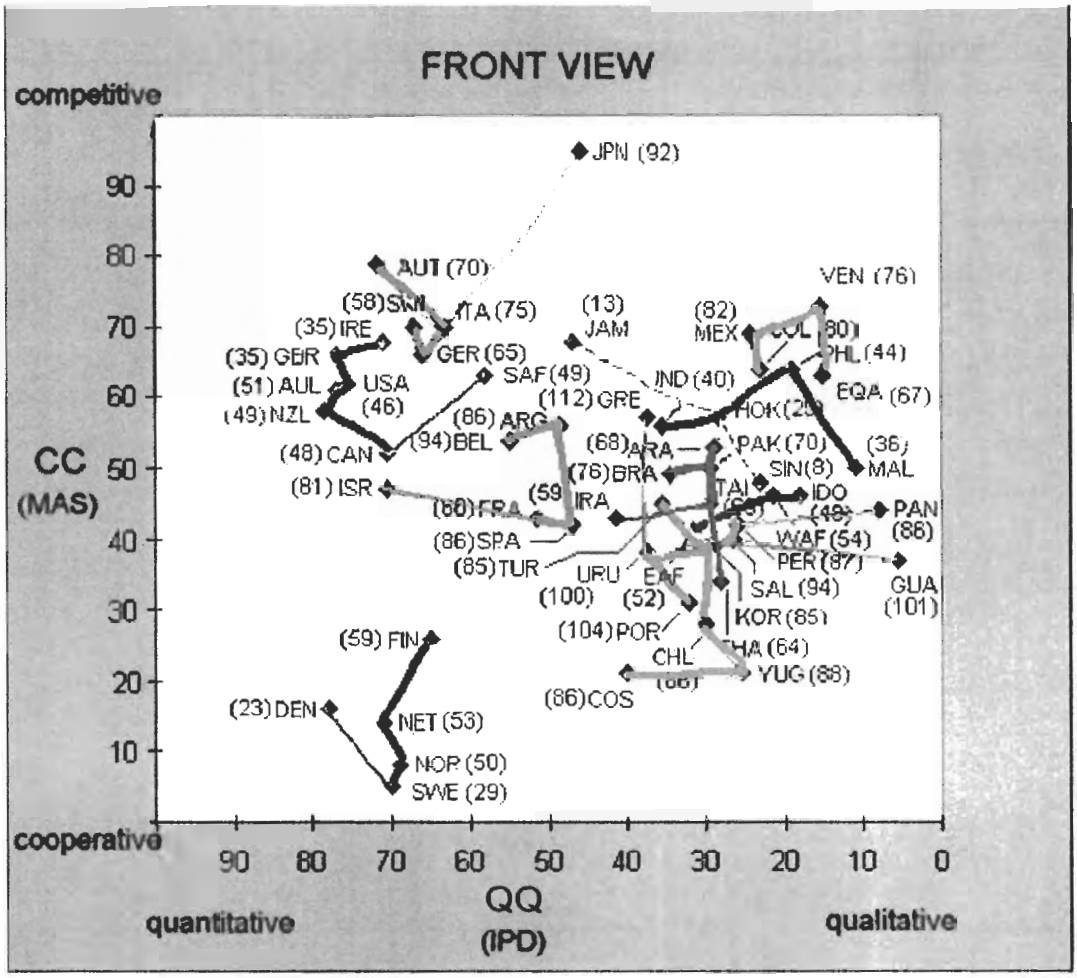


Figure 7.15 QQ-CC plot graph (IPD-MAS) with linked clusters and groups

In Figure 7.15 the other BAM domain is spontaneous-systematic (SS), or Hofstede's uncertainty avoidance. Dark lines indicate countries that are spontaneous (weak UAV), while the light lines denote those that are systematic (strong UAV). The numbers are Hofstede's UAV scores. In Figure 7.16 the other BAM domain is cooperative-competitive (CC). Dark lines indicate countries that are cooperative (feminine), while light lines denote those that are competitive (masculine). The numbers are exact same as Hofstede's MAS scores.

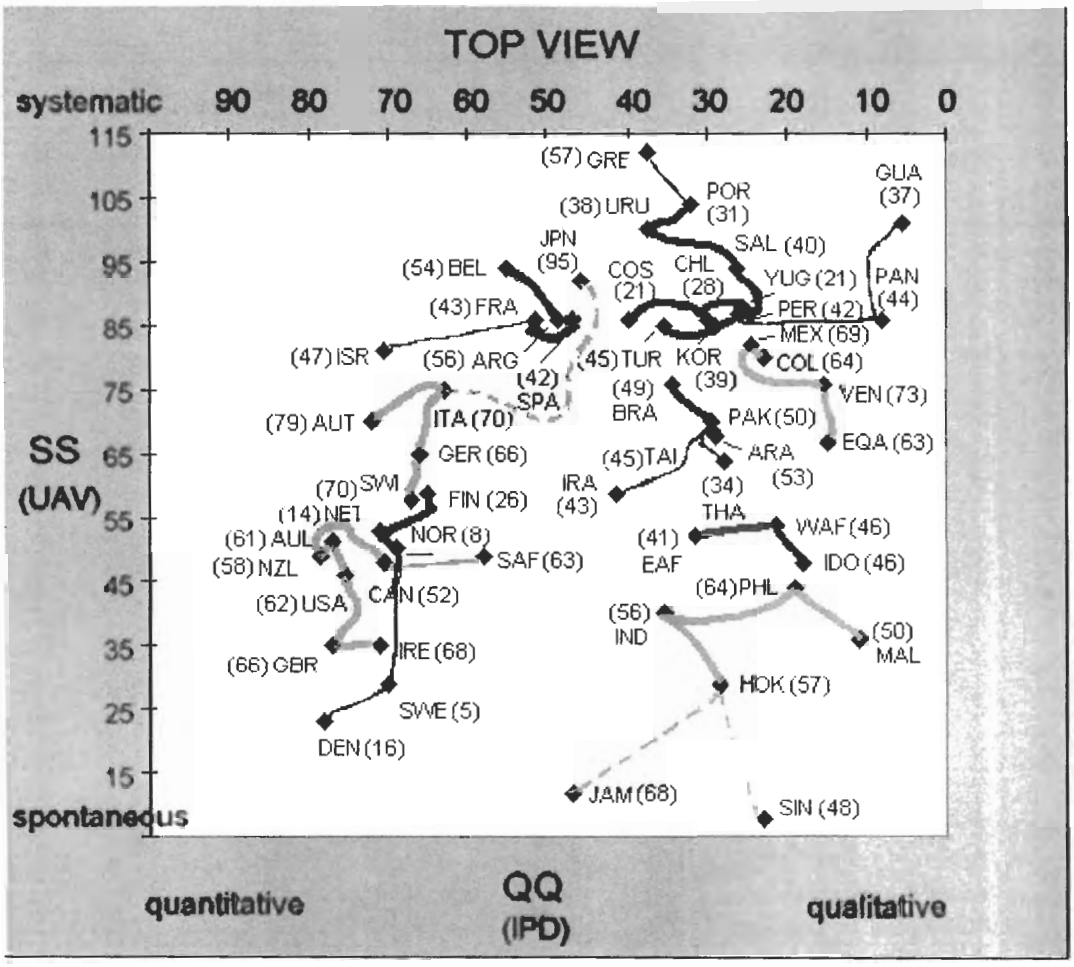


Figure 7.16 QQ-SS (IPD-UAV) plot graph with linked clusters and groups

In Figure 7.17 the other dimension is qualitative-quantitative (IPD). The dark lines indicate qualitative (low IPD, which is composed of collectivism and large power distance). The light lines denote those countries that are quantitative (high IPD, which is composed of individualism and low power distance). The numbers are the IPD scores.

Together, the three plot graphs show that the binary groups are all distinct in three dimensional space. Countries that appear to be in close proximity in one plot graph, may be far removed from each other in one or both of the other two graphs.

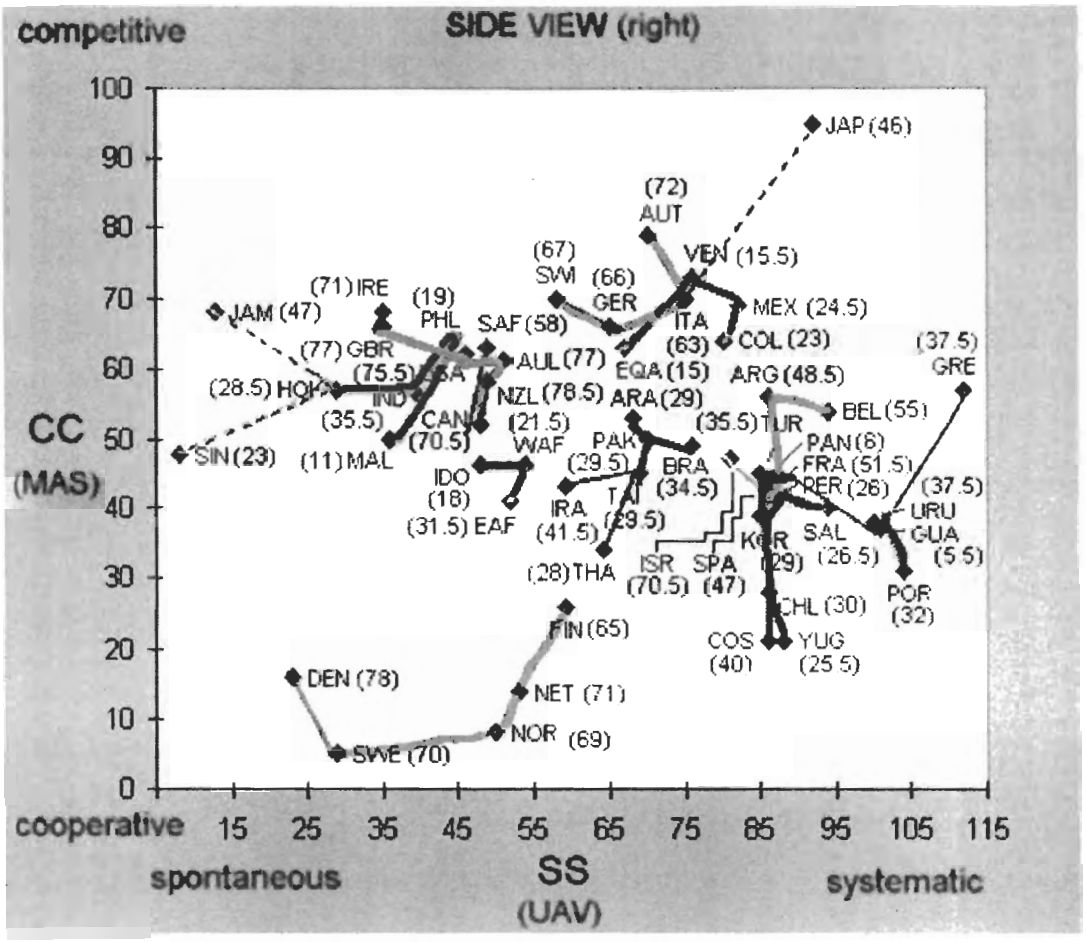
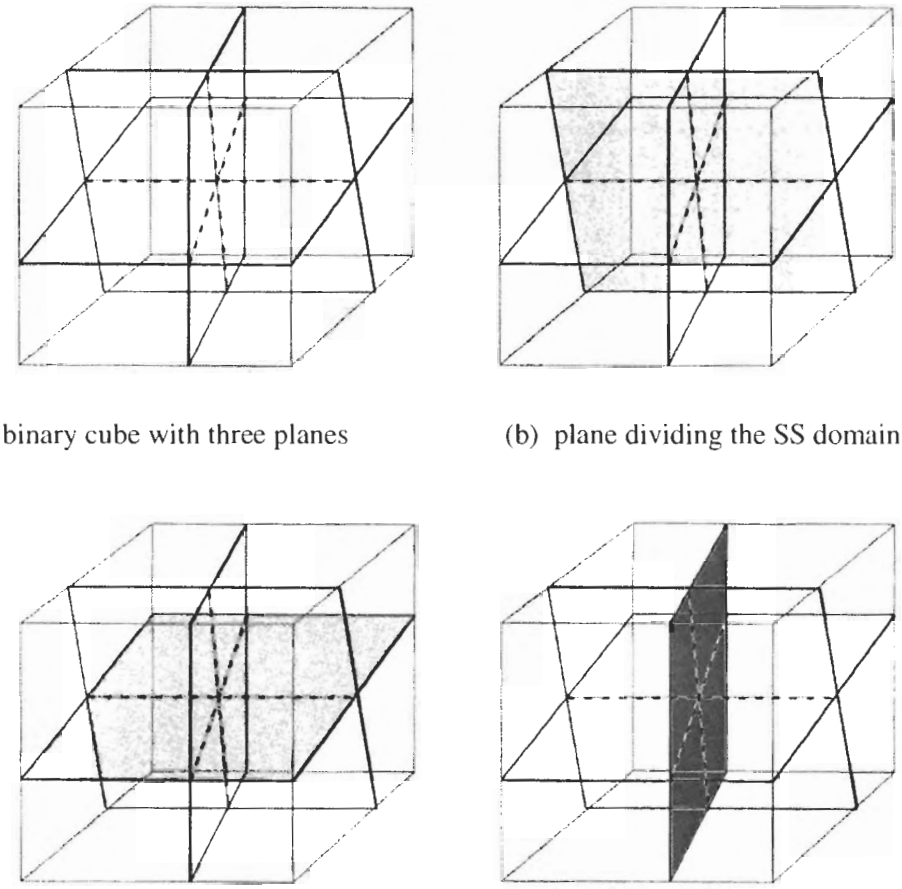


Figure 7.17 SS-CC (UAV-MAS) plot graph with linked clusters and groups

The two sets of plot graphs: the circled clusters in Figures 7.12 to 7.14; and the linked clusters in Figures 7.15 to 7.17, illustrate the internal consistency of both the data, the three binary domains, and the tilted axis lines. And in general they support the typological integrity of the BAM modeling method. I propose the clusters and binary groups can be used with a high degree of confidence and reliability. Based on the data, the fact that some binary groups include unlikely combinations of countries should be an invitation to learn more about culture.

7.E. Modeling the Countries in 3-D Semantic Space with Tilted Axes



(a) binary cube with three planes

(b) plane dividing the SS domain

(c) plane dividing the CC domain

(d) plane dividing the QQ domain

Figure 7.18 Binary cube matrix illustrating the three tilted axis planes. the QQ plane (d), tilts from the front (right of center) to the back (left of center).

7.E.1. The Semantic Cube as a Visual Model

The four dark sections are in front ; the four light sections are at the back.

110 front left	111 back left	011 back right	010 front right	(TOP 4)
101 back left	100 front left	000 front right	001 back right	(BOTTOM 4)

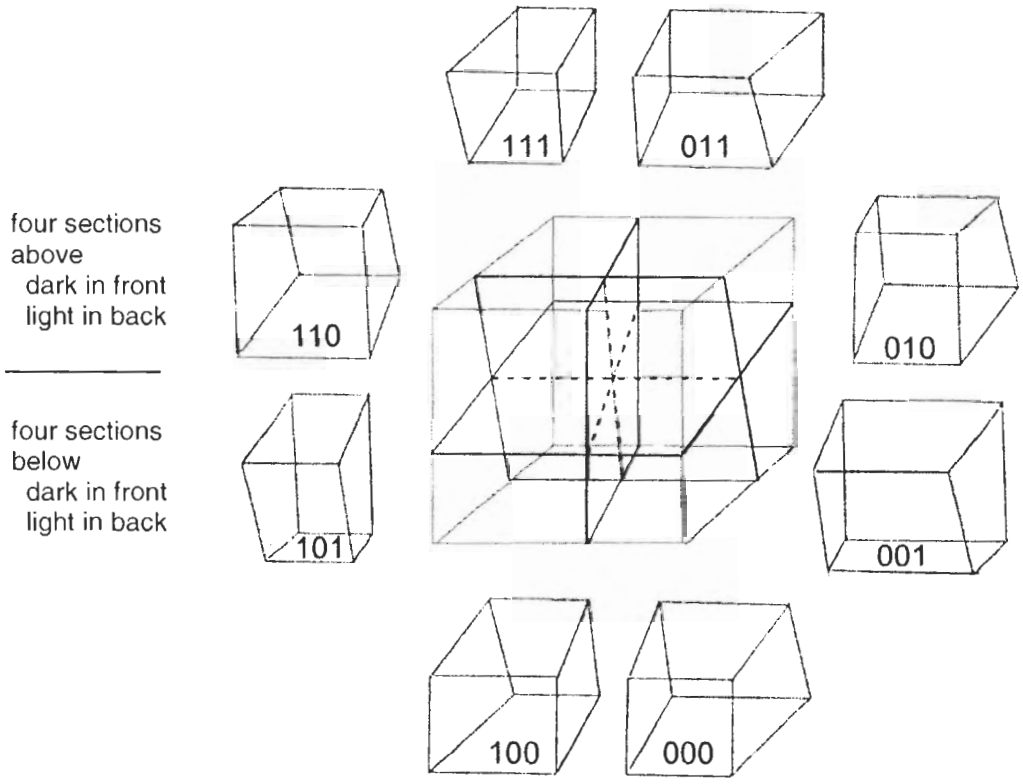


Figure 7.19 Binary cube (an exploded view), defining the eight tilted sections

Position	BAM Domains	Hofstede's Dimensions
front: (S = 0)	spontaneous	= weak uncertainty avoidance
back: (S = 1)	systematic	= strong uncertainty avoidance
bottom: (C = 0)	cooperative	= femininity
top: (C = 1)	competitive	= masculinity
right: (Q = 0)	qualitative	= collectivism /large power distance (low PDI)
left: (Q = 1)	quantitative	= individualism /small power distance (high PDI)

The three planes transform the cube space and the dimensional conditions it represents from a collection of eight identical sections defining predictable cultural types, into eight unique sections (Figure 7.20) defining probable types. That is, it illustrates the unique and distinct spatial configuration of each section which may represent the character of the culture within it. Each cultural type is no longer a function of three rigid dimensions, but instead a confluence of three domains interacting within the culturally defining boundary space in which it resides

7.E.2. Distinct Spatial Domains of the Cultural Groups in the BAM Model

Figures 7.18 and 7.19 illustrate that the BAM typology is not simply a method of mapping dimensions and converting scores into binary notation to create three-digit profiles. Rather it is a method of explicating culture according to or by virtue of the spatial domain of each section. Each of the eight sections of the cube is different from all the others, and defines a unique semantic space. I suggest that the characteristic shape of each semantic space structurally and physically captures and expresses the collective descriptive qualities of the three domains. In this way, the form of the space reflects the character of its contents.

The character of the BAM typology as a semantic space or collection of semantic spaces is conveyed in a fully articulated *Binary Archic Matrix*, with the 53 countries identified in 3-D space and groups by binary profile according to the three scores (Table 7.1). The countries in each section are not, as might be expected, scattered across or throughout their semantic space. Each section has a main cluster that is confined to a very distinct area within the section (Figure 7.20).

Based on a BAM translation and reinterpretation of Hofstede's data, this finding suggests that the three eidetic domains exert influences on each other that compel the scores for each profile to gravitate to a certain range.

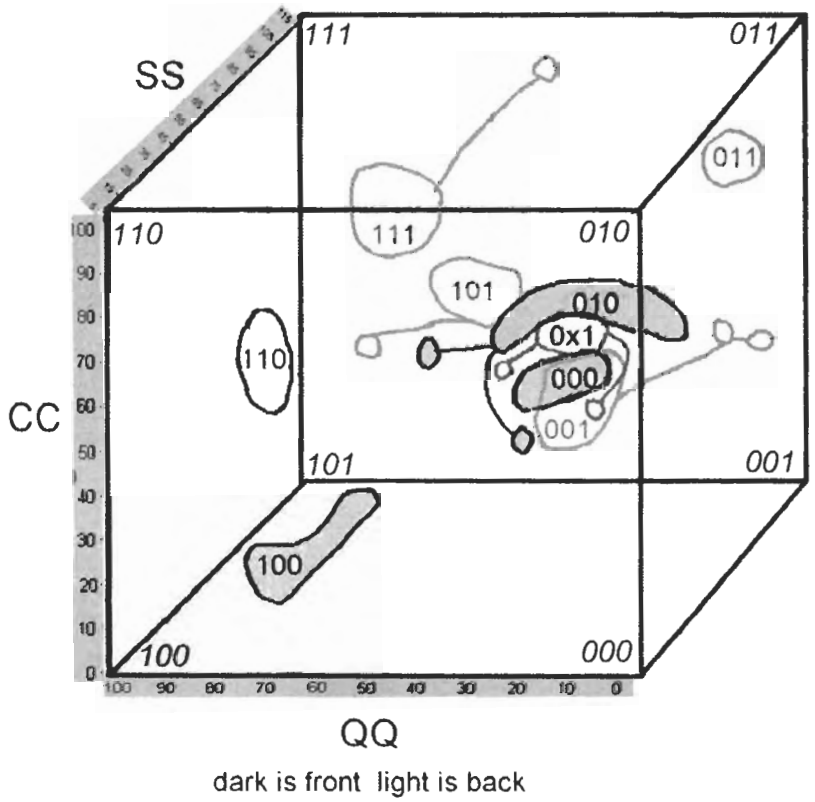


Figure 7.20 Nine BAM clusters, remote members and outliers in 3-D space

7.E.3. Cluster Analysis (Dendogram) of the 53 Sets of Country Scores

The final exercise is a hierarchical cluster analysis or closest space analysis of the scores conveyed in a table called a dendogram (Table 7.4). The relationships are defined according to the proximity values between each country and all the other countries. The BAM dendogram is based on my transformed scores for the IPD dimension (Hofstede's Individualism plus Power Distance), and Hofstede's

scores for MAS (masculinity), and UAV (uncertainty avoidance). This defines cultural proximity of countries very differently from Hofstede's dendogram (Figure 6.3), because Hofstede's analysis gives 50% of the numerical weight to Factor 1 (half each for IDV and PDI). Hofstede's dendogram is reproduced in this chapter for easy comparison of the two (Figure 7.23).

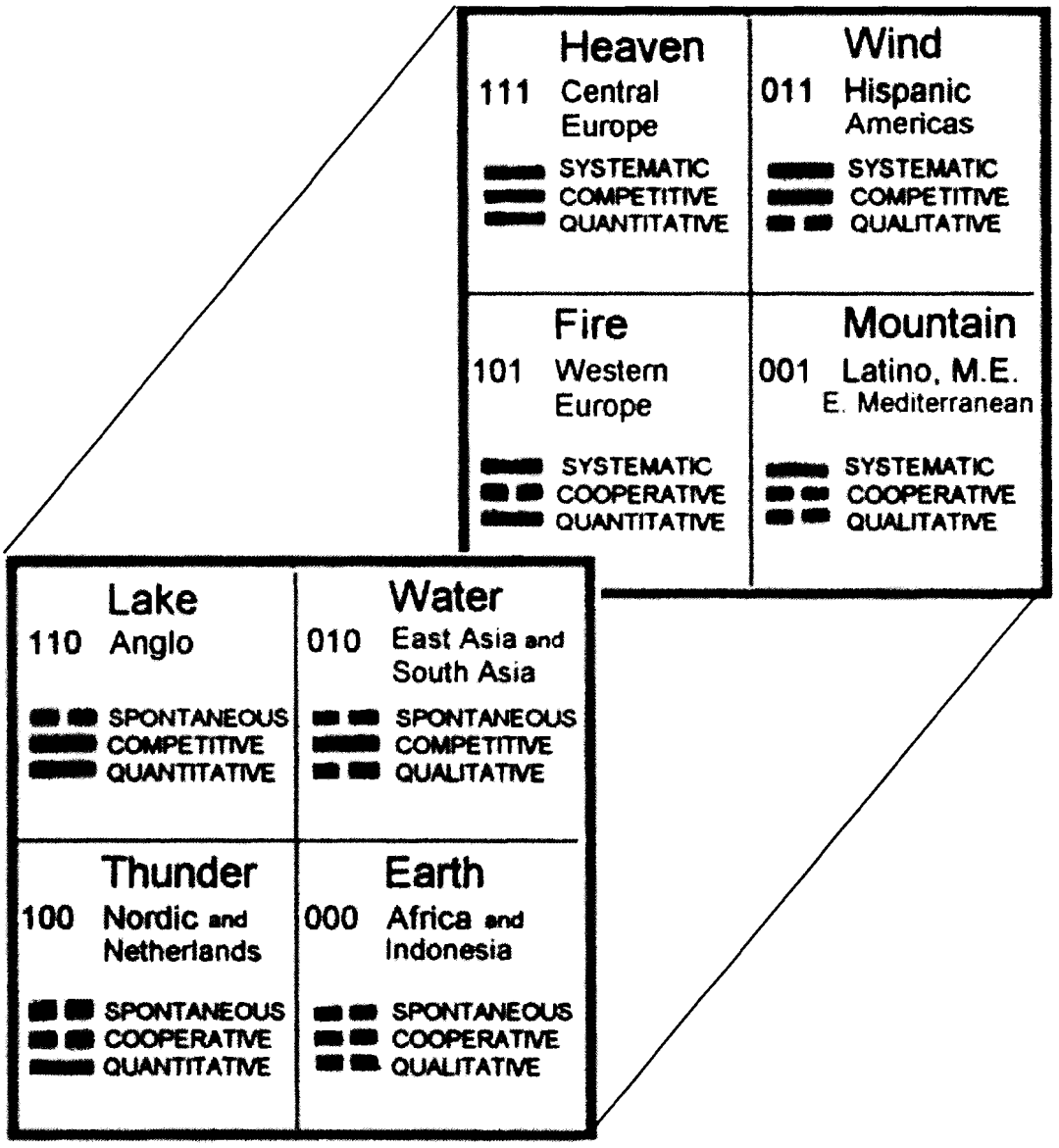


Figure 7.21 Simulated cube with binary regions, BAM domains, and trigrams

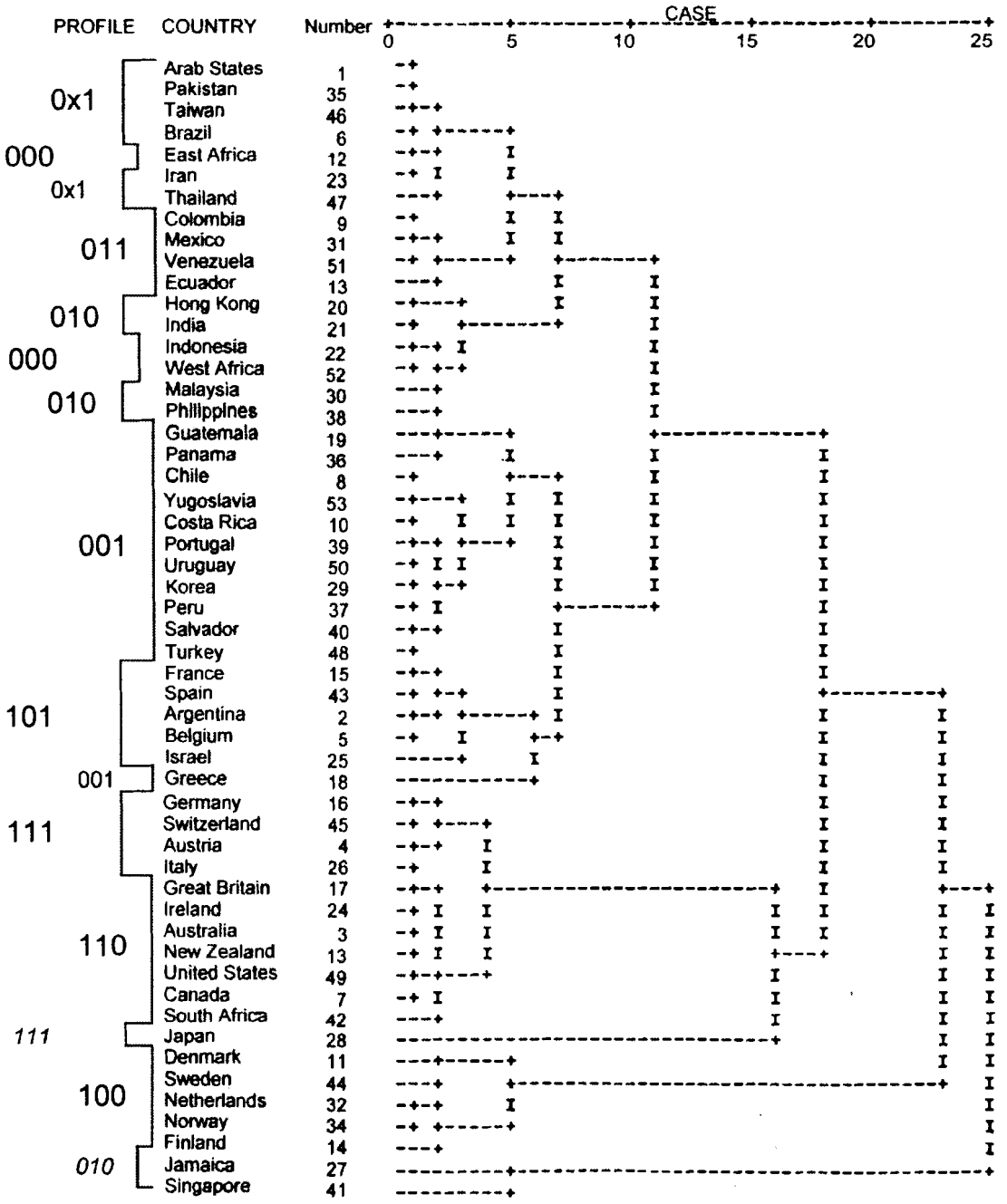


Figure 7.22 BAM dendogram: a closest space analysis in three dimensions

7.E.4. Explicating the BAM Dendogram

Five clusters in the BAM dendogram have internal consistency (all the countries in the cluster excluding outliers are located together: 011, 101, 111, 110, 100). In two others (0x1 and 001), the main cluster is separated slightly from a

remote cluster member. Only two clusters have the countries divided: 010 and 000. In Table 7.4 , the binary profiles are listed on the left side. The large numbers indicate countries in the main cluster, together with remote cluster members if they are in the same sequence in the dendogram. The smaller numbers indicate remote members that are detached from the main cluster in the dendogram sequence. The italicized numbers are outliers.

The efficacy and validity of BAM modeling will be found in the degree to which the groups of countries on the dendogram are consistent with the nine groups in the BAM typology. The 0x1 group at the top (the sub-group in the 001 profile), comprises six of the first seven countries. The fifth country, East Africa, in the 000 cluster separates the main 0x1 cluster (ARA, PAK, TAI, BRA), from two remote cluster members (THA and IRA).

Next are the four countries from the 011 cluster (COL, MEX, VEN, EQA), followed by the four countries in the 010 cluster (HOK, IND, MAL, PHI), which are separated in half by the other two countries in the 000 cluster (IDO and WAF). The next sequence includes all the countries from the 001 cluster (GUA, PAN, CHI, YUG, COS, POR, URU, POR, KOR, SAL, TUR) except for one remote member (GRE) which surprisingly comes after the next cluster, 101 (FRA, SPA, ARG, BEL, and ISR, remote member).

The two clusters after Greece (111 and 110), are completely intact. GER, SWI, AUT, ITA constitute 111), while GBR, IRE, AUL, NZL, USA, CAN, and remote member, SAF constitute 110. Next is Japan, an outlier with a 111 profile, followed by the Nordic group (DEN, SWE, NET, NOR, FIN), and two countries at the end (JAM and SIN), which are outliers in the 010 group.

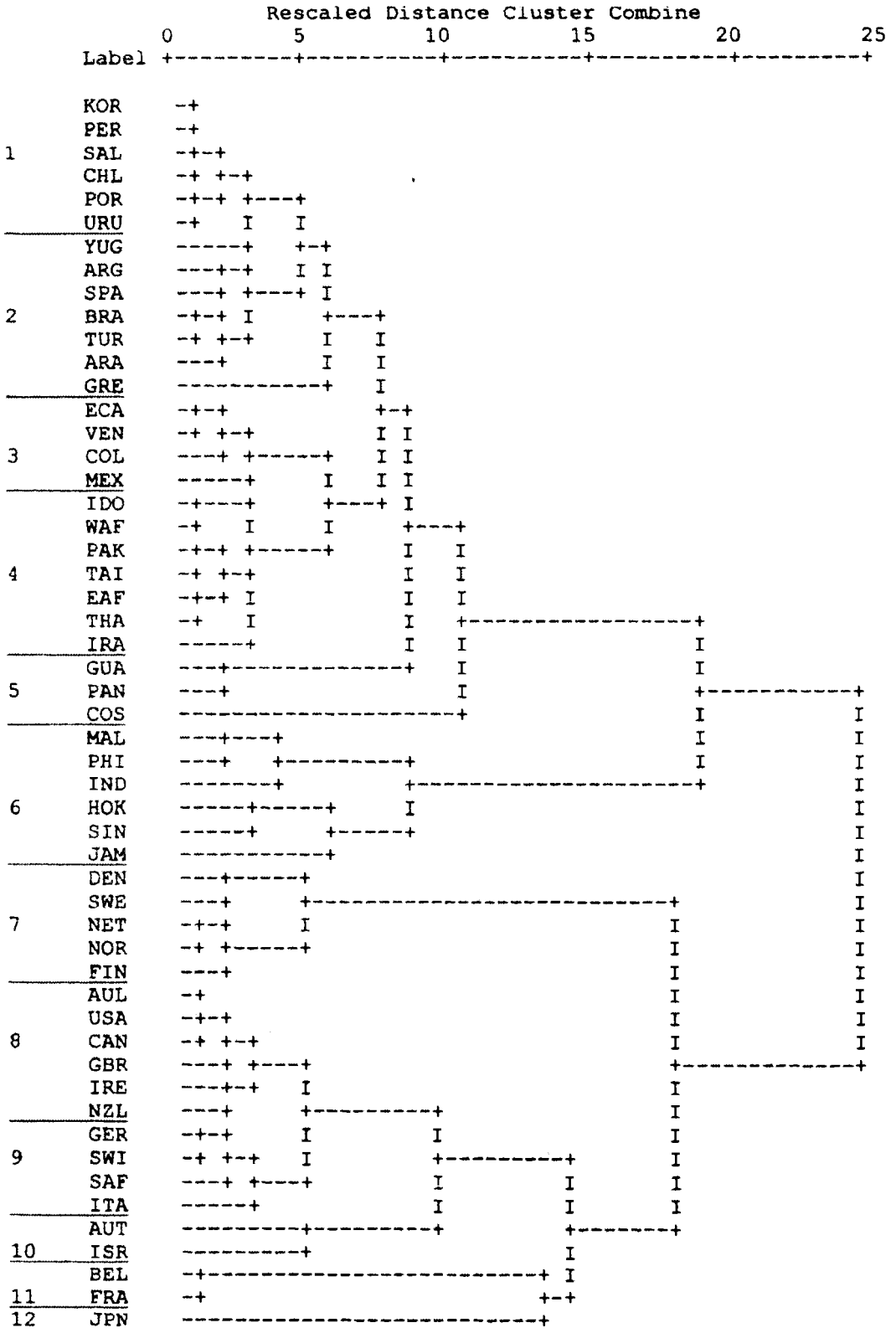


Figure 7.23 Hofstede's dendogram (Figure 6.3) repeated for comparison to Figure 7.22

The dendogram is a complex table because the position of each country is determined by its scores to all the other countries. The fact that the clusters and remote members in the binary typology are grouped consistently in the dendogrram supports the validity of the BAM typology.

7.F. Translating Hofstede's Data into Trigram-Based Clusters

In this section I relate the cultural profiles from the *Binary Archic Matrix* to the trigram attributes. I organize the countries according to binary profiles, and distinguish those countries that seem to be outside the primary cluster. I indicate the three cultural domains for that profile and the corresponding trigram. Next I describe a few of the main characteristics related to the trigram.

I hypothesize that for the most part, the countries in each profile group will have cultures whose characteristics are closely related to the those of the corresponding trigram. As a result of the (hypothesized) descriptive equivalence between cultural profiles and *I Ching* trigrams, the BAM typology would achieve authentic East-West relevance and significance that could improve trans-cultural understanding and cross-cultural collaboration.

7.F.1. Profile 000: Earth - Receptive and Yielding

The three countries with a 000 profile are the regions of West Africa, East Africa, and Indonesia. The profile is Qualitative Cooperative, and Spontaneous, and corresponds to the Earth trigram, whose character is spreading out and nourishing. Earth is natural, unassuming, nurturing, and responsive to the environment or surroundings, and exhibits minimal assertiveness, and maximum openness.

7.F.2. Profile 001: Mountain - Stationary and Resolute

The countries with a 001 profile form two distinct groups. The main cluster includes unlikely neighbors: Korea, Portugal, Turkey, Yugoslavia, Chile, Uruguay, Peru, and Salvador, as well as Panama, Guatemala, plus Greece. The second cluster includes the Arab region, Pakistan, Taiwan, Brazil, as well as Thailand and Iran.

This profile is Qualitative, Cooperative, and Systematic, and corresponds to the Mountain trigram whose character is fixed and determined. Mountain is loyal, protective, autocratic, still, stable, dependable

7.F.3. Profile 010: Water - Unfathomable and Mysterious

The countries with a 010 profile are Hong Kong, India, the Philippines, and Malaysia, plus Singapore and Jamaica. These are countries that have been strongly influenced by Anglo culture (mostly British and more recently American). All but Jamaica are Asian, and all but the Philippines are Commonwealth countries.

The profile is Qualitative, Competitive, and Spontaneous, and corresponds to the Water trigram, whose character is abysmal, mysterious, competitive, fluid, changeable, contained, mostly concealed, and usually unpredictable. Their profile differs from Anglo countries by the left digit which is Quantitative, not Qualitative.

7.F.4. Profile 011: Wind - Subtle and Penetrating

The countries with a 011 profile are Mexico, Venezuela, Ecuador, and Colombia. These are all larger Hispanic countries in the Americas. Their profile is Qualitative, Competitive, and Systematic, and corresponds to the Wind trigram, which is alternatively related to living plants.

This trigram's character is adaptable, usually invisible, striving for transparency and accountability, lacking a formal structure, concerned with systems, highly motivated. It almost always finds a way to wind its way into (and out of) whatever it wants, often unnoticed.

7.F.5. Profile 100: Thunder - Arousing and Adventuresome

The countries with a 100 profile are Finland, Norway, Holland, as well as Sweden, and Denmark. These countries are all Nordic with the exception of the Netherlands.

The profile is Quantitative, Cooperative, and Spontaneous, which corresponds to the Thunder trigram. Thunder is the explorer, communicator, mediator, arbitrator, multi-lingual, seeking excitement and discovery. It is able to respond rapidly and make critical decisions quickly at a moment's notice. This trigram is noted for collaboratively instigating and inspiring others to action.

7.F.6. Profile 101: Fire - Refined and Adhering

The countries with a 101 profile are Belgium, France, Spain, Argentina, and Israel. Three countries are in Western European with Latin languages. The other two countries, Argentina and Israel, both have strong Germanic influences. The profile is Quantitative, Cooperative, and Systematic, which corresponds to Fire.

This trigram is quick, bright, and seeks to establish mutually supportive and interdependent relationships. It is passionate, enterprising, clinging, and prone to a sense of good taste, and showing oneself and others in a good light. This trigram is very changeable, but is also committed and equitable.

7.F.7. Profile 110: Lake - Joyful and Enterprising

The countries with a 110 profile are Great Britain, Ireland, the United States, Australia, New Zealand, Canada, and European (white) South Africa, which is English speaking, and slightly closer to this countries in profile than to the those in the 111 (Germanic) profile.

This profile is Quantitative, Competitive, and Spontaneous. As the name Lake suggests, this trigram is preoccupied with enjoyment, feeling good, and self-satisfaction. It exudes an aura of pleasure and fulfillment, and employs brash, bold, and unconventional means to achieve its aims. It wants others to benefit or enjoy things as well, but if necessary this is expendable.

7.F.8. Profile 111: Heaven - Originating and Commanding

The countries with a 111 profile are Germany, Austria, Switzerland, and Italy, plus Japan. Three of the four in the main cluster are German speaking, or in the case of Switzerland, half French speaking, but that half is strongly influenced by the German culture. Italy may seem as a surprise here. But it's main historical connection to the rest of Europe is through Austria and Switzerland.

This profile is Quantitative, Competitive, and Systematic. It corresponds to the Heaven trigram which emphasizes homogeneity in a highly structured manner. This trigram is highly principled, but very autocratic, and wants to manage things in a very tightly controlled way. The name Creative conveys its procreative energy, and perhaps a commitment to fostering and supporting creative expression, but within a highly structured and controlled context.

7.F.9. Synopsis of Trigrams, and Clusters of Countries

By way of a synopsis, I have compared eight binary profile clusters of the 53 countries from Hofstede's IBM survey to the eight archetypal trigrams in the *I Ching*. It is my assessment that the common cultural characteristics of countries that share the same binary profile, are generally closely aligned with the characteristics of the associated trigram, and to a greater extent than with the other trigrams.

I therefore am of the opinion the *Binary Archic Matrix*, whose sections are descriptively supported by the trigrams, can serve as a typology for interpreting, communicating, and reconciling Western scientific notions and models of culture that operate from functionalist paradigms, with East Asian ways of considering culture from a interpretive paradigm and process - relational perspective.

Binary	Trigram	Countries
000	Earth	West Africa, East Africa, Indonesia
001	Mountain	Turkey, Korea, Yugoslavia, Portugal, Uruguay, Chile, Peru, Salvador, Costa Rica, Panama, Guatemala, Greece
0x1		the Arab region, Pakistan, Taiwan, Brazil, Thailand, Iran
010	Water	Hong Kong, Malaysia, India, Philippines, *Singapore, Jamaica*
011	Wind	Mexico, Venezuela, Ecuador, Colombia
100	Thunder	Finland, Norway, Netherlands, Sweden, Denmark
101	Fire	Belgium, France, Spain, Argentina, Israel
110	Lake	Ireland, Great Britain, United States, Australia, Canada, New Zealand, South Africa
111	Heaven	Austria Germany, Switzerland, Italy, *Japan*

Table 7.4 the eight trigrams with the countries correlated to each

7.G. Summary

"The stronger the cultural links between people, the greater the 'energy efficiency of their communication" (Espejo et al. 1996). The critical element or condition is the definition of cultural links. I define these in terms of shared cultural domains and common interaction effects. The latter might account for or explain the little understood phenomenon of compatibility among apparent opposites.

According to Chinese cosmology, the factors Hofstede identified were not just important cultural dimensions, they are 'the' cultural domains. This has important implications for cross-cultural collaboration. If the model can help create cultural profiles that are used by organizations in determining compatibility, it means that the very substance of the method necessarily resonates with the fundamental cultural and social principles of East Asian tradition.

The model is no longer a Western-based paradigm. Unlike Western models, this one is relational and process oriented; it is non-linear, multi-dimensional, and designed to function or operate in an environment of constantly changing social, economic, technological, and environmental conditions. At the same time, the formal binary structure and qualities of the model suggest that it fits with, or adapts to Western concepts. Given that the *I Ching* is a text it is necessary to consider some of the ways that texts have and can be subjected to systematic study.

In this chapter I have presented a wealth of material presented in diagrams and tables in order to illustrate the power of the BAM model. This provides a more concise interpretation and much clearer representation of Hofstede's data. In the eighth and final chapter of this thesis I present my summary and conclusions.

Chapter 8

> "The stronger the cultural links . . . the greater the 'energy efficiency' of the communication"
>
> Espejo et al. 1996:73

Summary, Conclusions, and Future Research

I have brought together two very different idiomatic views of culture in an attempt to further the understanding of culture and of cross-cultural collaboration

8.A. Summary

In this dissertation I distinguish three general problems related the study of national, organizational, and general culture. The first problem is related to issues that arise from not clearly distinguishing the methodology from the research methods and/or the techniques used in conducting the research. One major contribution to this confusion is the custom among business scholars to use the term methodology for what social scientists call research methods. As a result, most business research in America does not include social science methodology.

The second general problem is related to universal cultural dimensions. This entails identifying and differentiating core dimensions from behaviors and measures and then comparing cultures by describing activities or explaining behaviors. These dimensions generally disclose the fundamental character of cultures and define a typology of basic cultural types. Included in this is the issue of depicting, mapping, and communicating the information. The number of widely different and divergent

models of culture that cannot be reconciled only confirm the magnitude of the problem, and the need for a typology to bridge many of the studies and models.

The third problem has to do with the perspective from which the discussion of culture is approached and the paradigms or models used to represent and discuss culture. The positivist-functionalist perspective reflects a Western, and primarily North American paradigm. This makes it very difficult for Western scholars and practitioners (and others trained in the West), to communicate and collaborate with those who are culturally inclined or predisposed to an interpretive, process-oriented or relational approach to understanding culture.

In this dissertation I was inspired and informed by the ancient Chinese Classic, the *I Ching*, to develop an integrative cultural typology that combines an East Asian interpretive way of classifying archetypes, with a Western post-functionalist way of typing culture with questionnaires and factor analysis, as represented by Hofstede's landmark survey with IBM. One might possibly argue that Hofstede's research might be a semiotic study due to the manner in which he utilized the information and data contained in the questionnaires.

I reviewed about fifty studies and models of culture, and examined the ways in which they approach or think about culture and define dimensions or their functional equivalent. Most of the models consisted of 2 to 4 dimensions, with a few sporting a larger number of values. I then focused on the details of Hofstede's research and the current debate related to his work.

I defined my methodological roots in the architectonic or comparative global hermeneutics of Watson and Dilworth, two philosophers who created an

archic matrix inspired by Aristotle's four causes. They organize these according to four schools of Greek philosophy, that serve as archic prototypes. The archic matrix was especially useful because its objectives and application parallel those of my dissertation. Dilworth used the matrix to analyze the *I Ching* and a number of other ancient Chinese philosophical texts, presenting their archic profiles for comparison to each other, as well as to several ancient Greek philosophers, and a number of modern Western philosophers.

I proposed a general binary typology for describing culture with three eidetic domains, and for modeling this in three-dimensional property space. I outlined the thinking and logic of the model, and in binary language, distinguished dimensions from interaction effects. I then differentiated the two-dimensional 2 x 2 square matrix from the three- dimensional 2 x 2 x 2 cube matrix, and created rules for unifying two and three dimensions in a single integrated model.

I then looked to the archetypal trigrams in the *I Ching* to provide my binary model with semantic, that is, descriptive characteristics that could be used as the basis for identifying or defining eight universal cultural types. Given that the traditional trigrams are composed of three-line binary symbols, I examined them to determine if the similarity of trigram lines was possibly related to dimensions that described their attributes. I was satisfied that they did. I matched the trigrams to the eight sections of the cube with the same binary value, and matched the three dimensions with the three axes of the cube. I called this the *Binary Archic Matrix* or BAM typology and proposed it as a research method for analyzing texts that convey cultural studies and models.

Next I applied the BAM cube typology to an in-depth analysis of Hofstede's texts conveying his IBM survey of culture for 53 countries. I converted his scores to binary digits, and demonstrated that his four dimensions were best reconceptualized as Hofstede's three main factors. I remapped the data onto the BAM cube, which clustered the countries into eight cultural profile groups, whose characteristics were defined by the eight trigrams. I noted that the character of the countries in each section of the cube was surprisingly similar to that of the corresponding trigram.

After translating Hofstede's four dimensions into three, I theorized that the 53 sets of country scores could be mapped onto the BAM cube, so that the countries in each of the eight cubic sections, could be related to one of the archetypal trigrams. This meant that those who understand ideas better with interpretive or symbolic systems would be able to understand the implications of the cultural typology and the underlying dimensions according to a non-linear mode of comprehension.

That is, cultural meaning could be conveyed without parties necessarily having to know anything about such things as cultural surveys, Western research and studies, or factor analysis. This means that the BAM typology can be used to conduct meaningful and constructive cultural dialogue and collaboration in trans-cultural settings. I propose the BAM typology as a bridge for communication and understanding across cultures.

8.B. Conclusions

I have demonstrated the need to distinguish the function of two dimensions from three, and the benefit of integrating two and three cultural dimensions to achieve a more robust and powerful picture and understanding of national and organizational culture and cultural types. As a result of my analysis, I demonstrate that bigrams are explanatory paradigms for trigrams. In this way, the clusters of countries in Hofstede's survey are not only grouped or "typed" according to Hofstede's factor/dimensions, but they are further characterized by the archetypal Chinese trigrams. This means that clusters obtained with factor analysis confirms and supports the eight trigrams, and visa versa.

Cultural research and practice seem to have no generally accepted cultural dimensions or standards for modeling culture. As a result it is virtually impossible for the data or findings derived from one study or according to one research model to be rendered meaningful according to any other study or model. Therefore, research that could potentially have a wider application is deprived of that opportunity.

I believe this dissertation is a first step in demonstrating the benefit of the BAM cube typology, and for adopting its dimensions and method of modeling as a cultural lingua that other cultural models can share as a template for sharing their data and information. Each model clearly has its benefits, but these are limited by virtue of the difficulty in translating ideas between models. While the BAM will have its own limitations, it provides a clear, parsimonious, understandable, and concise alternative that functions from two radically different cultural traditions.

8.B.1. Mind Map

The Mind Map is a visual synopsis of the argument and approach to developing the *Binary Archic Matrix* typology which then serves as the research method for analyzing Hofstede's survey. In this dissertation I have not developed the semantic content of the doublets because the *I Ching* bigrams lack the kind of semantic character found in the trigrams. However I believe a compatible set of semantic values can be found elsewhere.

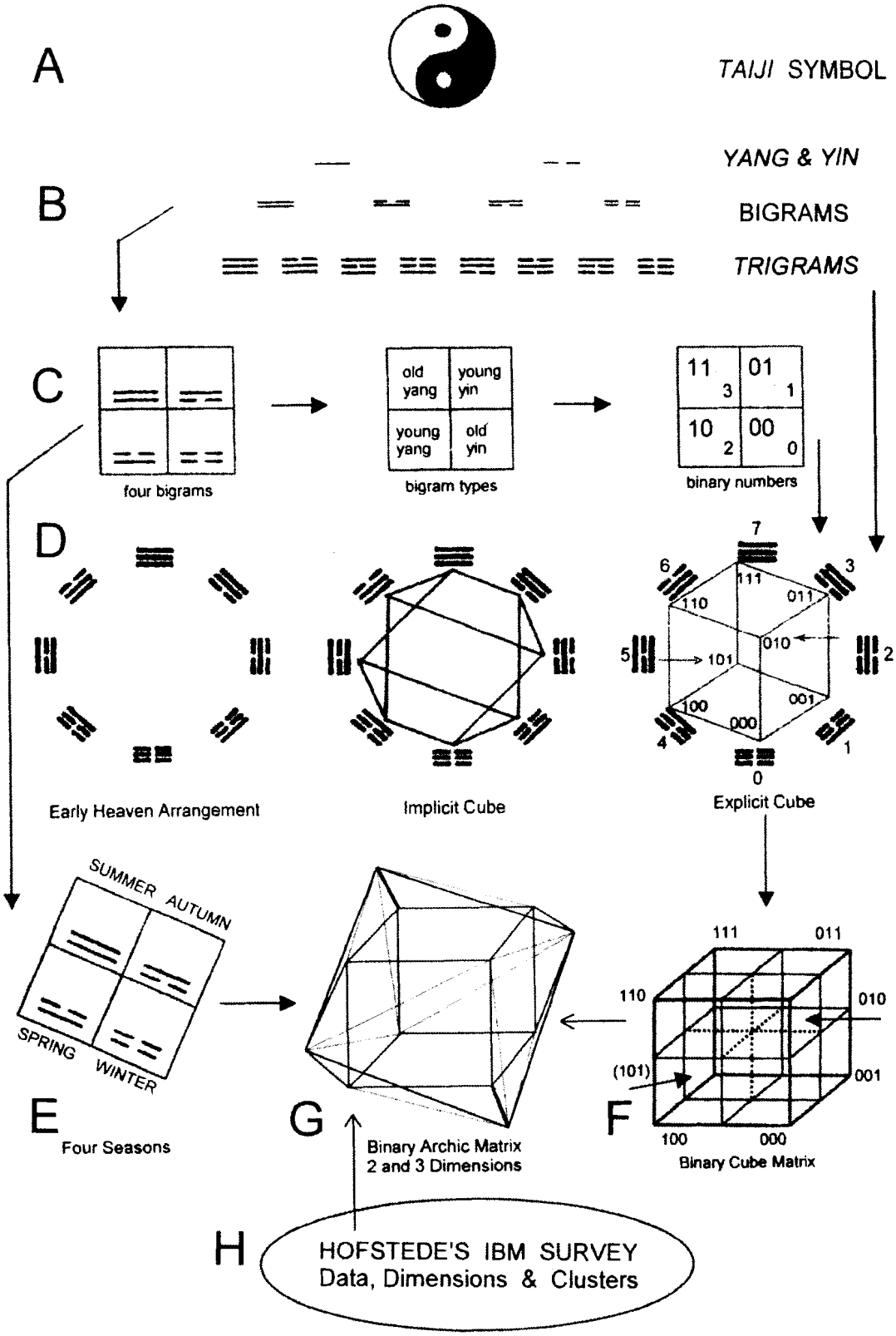


Figure 8.1 Mind Map

The Mind Map is a diagrammatic explication that encapsulates in the manner of a flow chart, what I do in this dissertation. I have divided the diagram into eight explanatory steps or stages.

A. This is the familiar eidetic symbol of the Dao (*taiji tu*). The diagram is a representation of binary complementarity and mutation or change, as distinct from binary opposition.
B. This is a binary explication of the unfolding of Dao. The top line is the definition of *yin* (0) and *yang* (1). The second line has the four binary bigrams. And the third line has the eight trigrams. Below that are the binary values of the trigram symbols together with their names, main characteristic, and binary number.
C. This is a map of the bigrams on a 2 x 2 square matrix with four quadrants. In C(a), the bigrams are arranged with the *yang* lines (—) on top. In C(b), the bigrams are replaced with the traditional cosmological names. And in C(c), the bigram symbols are replaced with binary digits and their values. Top and bottom divide odd and even; left and right divide high and low.
D. D(a) is the classic representation of the Early Heaven trigram arrangement. In D(b), I link the trigrams that have two identical lines and one different line. I perceive in the *Early Heaven Diagram* a cubic kind of form, and note that the edges and corners are consistent with the properties of a cube. In D(c), I replace the matrix in D(b) with the actual representation of a cube. The corners are oriented to the eight trigrams in the *Early Heaven* circular arrangement. This allowed me to map the trigrams "as if" they were the corners of a cube.
E. This is a square matrix that replaces the bigrams in C(a) with the four seasons in the Chinese cosmology: spring, summer, autumn, and winter. These stand for four stages: developing growth and expansion; maximization of growth and expansion; beginning of contraction; and maximization of contraction.
F. This is a diagram of the cube extracted from D(c). I have replaced the trigram symbols with their names, and binary numbers. Each of the eight corners and sections obtains the characteristics of the corresponding trigram.
G This illustrates the formal integration of the bigrams and trigrams, in which each trigram is linked to bigrams in three ways: right and middle digits; left and right digits, and left and middle digits. This defines the way in which trigram meaning is related to or informed by bigram meaning. It therefore reveals trigram meaning according to four schools of Greek philosophy.

    This diagram is the *Binary Archic Matrix* (BAM) typology. I propose this as a trans-cultural, East-West model for interpreting text about culture, and as a research method for analyze cultural texts and models.
H This represents Hofstede's survey of culture that I analyze with the BAM; as well as several other cultural models that I propose can be reconciled with the BAM.

8.C Future Research

The ideas, data, and findings related to my research provide a wealth of opportunity for conducting further research, that I propose could be of considerable value and benefit in all areas of inter-cultural and trans-cultural cooperation and collaboration. A few of these are discussed briefly.

8.C.1. Investigating Sub-dimensions for Cultural Content

In this typology, the sub-dimensions are Individualism and Power Distance. The spreads between the IDV and PDI scores (Table 6.8), appear to provide three sets of information that can be used to better understand culture, and various forms of cultural commonality and perhaps compatibility. I suggest this approach might be studied for organizations to determine potential compatibility between two parties and thereby improve partnering success.

The first condition is the size of the spread between the two sub-dimension scores. Are they close together, moderately spread apart, or quite distant? I hypothesize that countries with similar spreads will have more in common.

The second condition is the orientation of the sub-dimensions to the axis line, referring to which sub-dimension is closer to the axis line. Two countries may have identical scores for a dimension, and an identical spread between the two sub-dimensions, but the relative positions of the two may be reversed. I suggest that countries with one orientation might have something particular in common, regardless of the distance to the midline, or the side of the midline the scores are on.

The third condition is distance of each sub-dimension to the established midline, and within this, does the spread cross or straddle the midline? I

hypothesize that where the distance to the midline is similar the two countries will have something in-common. And when both distances are similar, there will be more in-common, again regardless of which side of the midline the scores are on.

Each of these modes of analysis can probably reveal something valuable or critical about a culture, and about cultural compatibility, independent of the actual score of the primary dimension they combine to form.

8.C.2. Adding Specificity to Binary Profiles and Cluster Membership

As part of plotting the 53 countries in the BAM typology, I noted that some countries can be identified as cluster members, while some others are probably only secondary or affiliated members, and still others, are most likely to be outliers. My initial examination of the scores suggests that we can probably identify clearer rules of proximity by which to define cultural clusters.

A cube scaled from 1 to 100 defines a space of 100^3 or one million points. The maximum distance between two points $A^2 + B^2 + C^2 = D^2 = 173$ (A^2, B^2 and C^2 are each 10,000; therefore D is $\sqrt{30,000} = 173$. One million points can be divided into nine equal cubic sections of about 111,111 points or 48.1 points per side. The maximum distance in each section is about 83.

I want to conduct research that identifies the distance that defines members of a cluster from non-members. Initial indications are that the number may be between 20 and 25 points, but much more work needs to be done. There are also several conditions that might define secondary cluster membership or remote members. This should be studied further. I believe the ability to define cluster membership in this way could be potentially significant to all levels of culture.

8.C.3. Predicting Dimensional Scores Based on Profile Score Ranges

My initial observation of the data for Hofstede's three factors (dimensions), is that the scores for each binary type fall within a specific range of scores. These score ranges can be defined generally as being: (a) relatively close to the axis line; (b) a moderate distance from the axis line; and (c) relatively far from the axis line.

This line of inquiry is worth pursuing for two reasons. First, it could reveal something fundamental about cultures and how they are related in 3-D space. And second, we might be able to predict the score range of one dimension when the scores for the other two dimensions are known, with a high degree of accuracy.

Based on an initial examination of the 53 country scores, I hypothesize that the primary cluster for each binary type is contained within a specific score range or spatial domain. Further analysis should yield clearer information about the way cultures are defined, and therefore about the predictability of basic cultural types.

8.C.4. Additional Research on the Tilted Axis Theory

I introduced the theory of tilted axis lines when using three dimensions of culture (Chapter 7.C). My proposal was that three eidetic cultural dimensions are no longer perpendicular to the primary scales on which they are measured. I suggest that in 3-D cultural space, three dimensions exert an influence on each other in a way that tilts the axes about 12-15 degrees. Based on the fact that the countries in each binary profile group become organized into distinct sections when the axes are tilted, this makes it compelling to conduct further research to establish this as a general principle.

8.C.5. Expand Profiles to Include Internal and External Culture

From my analysis of culture and cultural dimensions, I hypothesize that culture is optimally composed of an internal culture and an external culture. The internal profile identifies attitudes, relationships, and, identity among members of the same culture. It is a "within-culture" or intra-cultural condition. In an organizational culture, for example, this would include identities and relationships among, between, and within administration, employees, and board members.

The external culture identifies how members of the culture deal with those who are not members of the culture. In an organization, for example, this would include, suppliers, customers, agencies, the public, and consultants. I think that Hofstede's data captures one or the other, or some interesting and perhaps useful blend of the two. I suggest that, the internal and external profiles are different cultural contexts, defined by the same three dimensions.

Japanese companies created the *keiretsu* that gave preferential treatment to some outside relationships with certain suppliers. These suppliers were treated in effect as if they were internal to the organization, and thus part of the internal culture. Companies often grossly overpaid such suppliers, in part because they considered the relationship to be an internal one.

8.C.6. Developing an Instrument for Typing Cultural Collaboration

Lastly, I intend to develop an instrument that can work directly with the BAM typology. One goal is to create something that organizations can use fairly easily with prospective collaborative partners. This is not simply to help them determine whether or not they are compatible, or the degree of compatibility, but to

assist them to jointly understand, evaluate, and anticipate potential problems or areas of conflict, and to turn differences between them into assets.

Within this, the BAM typology can be developed to help parties negotiate and define the kind of organizational culture they would prefer from the outset, rather than have the culture develop by accident or default. When this occurs, the culture is usually detrimental to one of the parties, and as a result, detrimental to the collaboration. A negotiated culture could be critical to the venture's success.

8.C.7. Comparing the BAM Clusters to Ronen and Shenkar's Clusters

Ronen and Shenkar (1985), present a particularly insightful and valuable examination of Hofstede's survey. They evaluate research conducted by five primary researchers between 1966 and 1980 that organize countries into national clusters. "Eight cluster studies emerged from the literature search. These included Haire, Giselli, & Porter (1966); Sirota and Greenwood (1971); Ronen and Kraut (1977); Hofstede (1976): Griggith, Hom, Denisi, and Kirchner (1980); Hofstede (1980); Redding (1976); and Badawy (1979)" (Ronen and Shenkar (1985:435).

To better understand and collectively represent the findings, Ronen and Shenkar adopt three underlying and closely intertwined dimensions: geography, language, and religion (1985:444), and then consolidate the countries from all eight studies into a single pie chart map (Ronen and Shenkar (1985:449) (Figure 8.1).

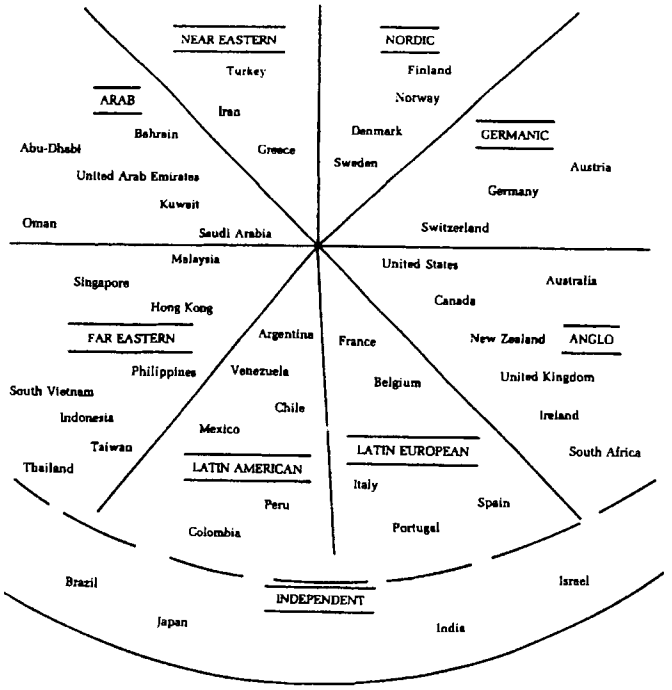


Figure 8.2 Synthesis of country clusters (Ronen and Shenkar, 1985:449)
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8.D. Caveats and Disclaimers

The first disclaimer is the pejorative use of culture. There is always the danger that the concept of culture as well as cultural categories can be used to justify discriminatory actions against people so classified (Willinsky, 2001:83-120). This is a legitimate concern but totally at odds with the aim of developing a model of universal cultural domains that draws upon shared or common conditions that identify human-defining values, and therefore serves as a uniting principle.

I suggest that the various levels of culture are defined by pairs of the eight archetypal trigrams: one for the internal culture, and one for external culture. The very nature of the system with sixty-four basic combinations should mitigate against the tendency for one or two types being superior to the other types, because there is no absolute type. There is no logical justification or support for this.

My second disclaimer could be called enthusiastic overstated certainty. It is natural in the act of articulating and defending a thesis to state the argument in the strongest possible terms. In some cases this enthusiasm can lead to a choice of words which could be perceived as an overstatement of certainty. I do not exempt myself from this tendency.

My third and last disclaimer relates to possible problems in Hofstede's data. The mapping of the 53 countries I achieved, suggests that the respondents in a few countries may have interpreted key survey questions from a different perspective than the majority of the respondents from a majority of the countries surveyed. This would have skewed the dimensional scores. I believe the BAM model has the capacity to bring these to our attention and in some cases, to correct certain distortions in the data. However, overall, it would appear from all of the patterns that my interpretation of Hofstede's data supports the general validity of his theory and his approach, and the usefulness of his data and dimensional scores.

8.E. Concluding Remarks

I am satisfied that this thesis has achieved what I set out to research and accomplish. I look forward to seeing the BAM approach to cultural analysis and profiling used as a research tool in a primary study of culture. In this regard I plan to develop this further for use in research and consulting, and adapt a simplified version for use by parties in ascertaining their own cultural profiles. Finally, I would like to think that this model will facilitate the meaningful discussion of culture in a broad range of international and cross-cultural collaborative ventures and activities.

Appendix I

Review of Cultural Studies, Models, and Surveys

This appendix presents an overview of a number of studies on culture and cultural dimensions and domains developed over the past thirty years, drawing primarily from the organizational behavior and social psychology literature. There is a special focus on the many diagrams used to map cultural typology.

The material is generally organized by the number of domains: two, three, four, and more than four conditions or domains. The diversity of the models and their domain-based constructs speaks to the difficulty scholars are having in reaching agreement on what the basic domains might be, or whether they change with the application or problem being studied.

Scholars identify from two to twelve conditions depending on their goals or objectives. Some who want to measure the characteristics of organizational culture prefer larger numbers of dimensions for identifying useful and meaningful differences. Those who want to create clusters of optimum commonality or shared values usually prefer fewer numbers of domains.

The choice of using only a few over many distinguishes those who prefer to work with *genotypic* characteristics that reflect core-dynamics , from those who work with *phenotypic* traits, that are more superficial summaries of behavior devoid of causal or explanatory meaning (Miller, 1991:19). Moreover, some models are based on atheoretical factor analytic studies while others are based on conceptual invention. Miller (1991:22) cites several reputable sources that summarize

extensive research in the United States that seem to confirm that "the personality domain can be represented adequately by five robust factors." The British perspective on the same research concludes that one of the domains should be divided into two for a total of six domains or factors.

This approach is argued against by scholars who insist that research would be better served with models composed of thirteen to eighteen factors (Miller, 1991:23). The differences seem to reflect a conceptual gap that hinges on how the constructs are to be used, or the purpose to which they are being put to use. Somehow the discussions focus on the optimal number of dimensions or domains, rather than on the application or context: external and descriptive based on practices, versus internal and defining or informing, and based solely on values.

A. Cultural Typology

Some scholars employ binomial constructs that define mutually exclusive or categorically distinct conditions such as masculine-feminine, means-ends, and objective-subjective. Others describe conditions along a spectrum, such as Internal-External, Control-Flexible (Quinn & Rohrbaugh, 1983). Some models combine different construct types or categories into a single model. For example, Hofstede (1980), has Masculine-Feminine which are bipolar; Individualism-Collectivism which are complementary; and two other, Power Distance and Uncertainty Avoidance which are relative, and scaled from low to high.

In other models the domains or dimensional constructs are defined as general conditions or states measured in degree of relevance or applicability. One example is Payne (1996), with *pervasiveness of culture, psychological intensity*, and

strength of consensus. Another is Zhu's (1998) three Chinese constructs: *ren* (patterns of human relating), *shi* (ways of seeing or doing), and *wu* (objective existence, or structure & cognition). These provide general categories of comparison.

Scholars variously strive to identify the broad concepts underlying all systems (Boulding, 1985); discover the basic gestalts for experiencing life's situations (Zelger, 1996); define the basic forces of culture (Schein, 1985); and propose universal domains of culture (Schwartz, 1992).

Others do not allude to basic or universal domains but address primary conditions such as: salient factors (Osgood, Archer, & Miron, 1963); classes of independent variable (Aronoff, 1967); types of ideology (Harrison, 1975); and conceptual domains (Chen, Chen, & Meindl, 1998). Following the example Watson (1985/1993) and Dilworth (1989), who are able to profile all philosophical texts with their archic matrix, I propose a cultural matrix that is theoretically capable of rendering many diverse views and cultural models with a single typology.

A.1. How Many Universal Domains?

Some of the models derive their domains theoretically, some with atheoretical structural analysis, and others by observation and interpretation. This section presents a brief overview of material that follows and discusses the subject

A.1.a. Two domains

If we can consider domains as dividing or organizing a 'whole' culture into meaningful explainable categories, then two domains provide the first level of interaction between categories. As such, truly basic conditions must encompass the broadest and most general explanatory meaning. A few that occur more than once

in two-domain models are: task-people (Likert, 1967; Harrison, 1975; Kilman & Saxton, 1983; Cooke & Lafferty, 1986; Trompenaars, 1993; Ashkanasy, Broadfoot & Falkus, 2000); internal-external (Quinn & Rohrbaugh, 1983; Cameron & Freeman, 1988); power-role (or one of its variations) (Likert, 1967; Harrison, 1975; Quinn & Rohrbaugh, 1983; Trompenaars, 1993); and risk related (Deal & Kennedy, 1982; Kilman & Saxton, 1983; Cooke & Lafferty, 1986; Cameron & Freeman (1988; Ashkanasy, Broadfoot & Falkus, 2000).

When these broad categories are expressed in binomial or bipolar terms they can be expressed by a 2x2 matrix with four quadrants that define four types. This is a simple model that does not provide much differentiation, so the usefulness of two domains can be quite limited. The *I Ching*, from which I draw much inspiration, defines two basic levels of classification in the *yin-yang* system as: a) yielding - firm; and b) expanding - contracting.

The domains proposed by Kolb (1984) contrast 'the form of knowing' (which ranges from abstract to concrete), with the 'process of acquiring knowledge' (which ranges from active to reflective). The domains proposed by Cameron & Freeman (1988), contrast 'positioning' (which is external or internal), with 'processes' (which range from mechanistic to organic). Maruyama (1981) proposes a highly intuitive model whose domains can be expressed as 'form' and 'content.'

A.1.b Three domains

According to Miller (1991:24), a model should include all the important aspects without being either too simple or too complex. Based on historical

precedent and empirical findings in psychology, his conclusion is that the ideal number of domains is three.

A few examples of models consisting of three conditions or domains are: authority, control, and structure (Pugh, 1976); external-internal, means-ends, and structural-flexibility (Quinn & Rohrbaugh, 1983); social organization, purposeful human action, and preconscious notions or basic assumptions (Schein, 1985); and cognition or intellectual style (analytic-holistic), affection or emotional disposition (stability-instability), conation or volitional motivation (objective-subjective) (Miller, 1991).

A.1.c. Four domains or diminsions

The potential benefit of four domains is that they can provide added and potentially valuable descriptive differentiation, both between cultures or cultural types, and within a culture. A four-domain model requires a sixteen-cell typology. However it becomes difficult to graphically depict four domains in a dimensionally meaningful manner. A 4x4 matrix composed of two sets of two domains sets fails to represent the proximity of all the cells to each other or convey the dimensionality of the model.

Hofstede (1980) identified four dimensions: individualism-collectivism, power distance, masculine-feminine, and uncertainty avoidance. These were based on three primary factors that were defined by his factor analysis, from which he divided one of the factors into two dimensions. Essentially he has treated the sub-factors as co-equal with the other two original factors. This fact is easily overlooked by referring to the two factors and two sub-factors as dimensions.

Hofstede later adopted (or imported) a fifth dimension (long term-short term orientation) from the *Chinese Value Survey* (CVS) (Hofstede & Bond, 1988). That is, he incorporated a condition from a study that used his dimensions, but which operated outside the parameters of his own research, and was therefore unrelated to his own integrated findings. This is evidenced by the fact that the CVS found nothing related to Uncertainty Avoidance, one of Hofstede's three original factors. Although it did identify Long term - Short term orientation. What is most intriguing and not adequately addressed, is the possible relationship between or similarity of Uncertainty Avoidance and Long term - Short term Orientation.

Another example of four domains is McGuire's (1985) model. These are: Cognitive - Affective (consistent meaning - tension reduction); Being - Becoming (stability - change); Internal - External (self centered - other centered), and Active - Reactive (personal needs - environmental needs). A comparison with Miller's (1991) three-domain model is useful here for illustration purposes.

Miller's cognition or intellectual style is an analytic-holistic domain that is related to McGuire's Cognition-Affective. Miller's affection or emotional disposition is a stability-instability domain that can be related to McGuire's Being-Becoming. Miller's conation or volitional motivation is an objective-subjective domain that seems related to McGuire's Active-Reactive. If these three domains are essentially the same then they belong to either a three-domain model or a four-domain model. I suggest, they cannot belong to both models. This is typical of the kind of issues that face those who are dealing with cultural universals and core domains or dimensions.

A number of models seem to identify or represent conditions as domains that may be explained more accurately as interaction between domains or interaction effects. The problem of confusing Interaction Effects with domains, leads to inadvertently misrepresenting one for the other. Additional confusion could arise when a model consists of a combination of domains and interaction effects, but in which they are all represented as domains.

A.1.d. Binary Opposition

According to Kluckhohn (1959), there may be justification in assuming the existence of binary opposition to define "the different systems of values in different cultures" (Triandis, 1972:16). The approach consists of basic oppositions: a) human to nature; b) human to human; and c) an integration in which both categories can be examined by emphasizing their quantity or quality, and generality or uniqueness. From the context, I interpret the notion of 'both categories' as referring to the two categories (a and b), combined in some form of interaction.

Triandis considers this to be is a very high level of abstraction. I see a strong level of conceptual agreement between Kluckhohn's three primary groupings and the notion of heaven, man, and earth in the *I Ching* cosmology, making t possible to translate Kluckhohn according to the BAM typology.

A.2. Two-Domain Models

The review of cultural models and theories with two domains reveals a few different modeling approaches. Some generalize culture at the highest level of abstraction or generalization, while others employ descriptive terms with polar values that can measure culture. These only capture a narrow scope and therefore

miss the larger context. Other models characterize culture with four categories that imply a 2 x 2 matrix, but do not characterize the two domains that generate these.

Some models are conceptual or theoretical, while others are operational and meant to be applied. Overall, two domain models are useful for generating a broad conceptual picture or understanding, but they are inadequate for distinguishing organizational types, except in the most basic of ways.

The main concerns are: a) whether one is working with basic descriptive conditions that authentically represent or depict culture at the primary level; whether they are inclusive or exhaustive for the number of domains being used; b) whether the conditions operate on equivalent levels of meaning; that is, are they equivalent to basic domains or attributions, or do they include sub-domains and/or interaction effects; c) whether two-domain concepts are employed in a three or four-domain model, or conversely, three-domain conditions are used in a two-domain cultural model or context; and d) whether the domains are appropriate to and consistent with the conceptual and theoretical framework. Some of these are outlined next.

A two-domain model distinguishes four types. This can be shown using two bipolar domains, X and Y on a 2 x 2 matrix (Figure A.2). The X axis divides slowing down (0) from speeding up (1). Y axis divides expanding (0) from contracting (1); The four types are 00 (slowing and expanding); 01 (slowing and contracting); 10 (speeding up and expanding); and 11 (speeding up and contracting). These two domains and four general types or categories can be used to initiate a discussion of culture, and increase cultural awareness.

Deal & Kennedy (1982) consider two domains sufficient to assist managers in developing an understanding of the nature of their organizations: time to receive feedback, which is fast or slow; and the level of risk which is high or low (Virtanen, 2000). In spite of the high degree of descriptive generality or abstraction expressed by two domains they are extremely useful in helping managers to understand culture (Peterson & Smith, 2000).

A.2.a. Power-Role and Task-People

Harrison (1975), developed an instrument as a measure of organizational ideology or orientation in order to understand the systems of thought that form the central determinants of an organization's character. According to Harrison, the four types: power, role, task, and self, are neither pure nor mutually exclusive. This model was developed further by Handy (1979), "who conceptualized (them) as elements of organizational culture" (Ashkanasy, Broadfoot, & Falkus, 2000:137).

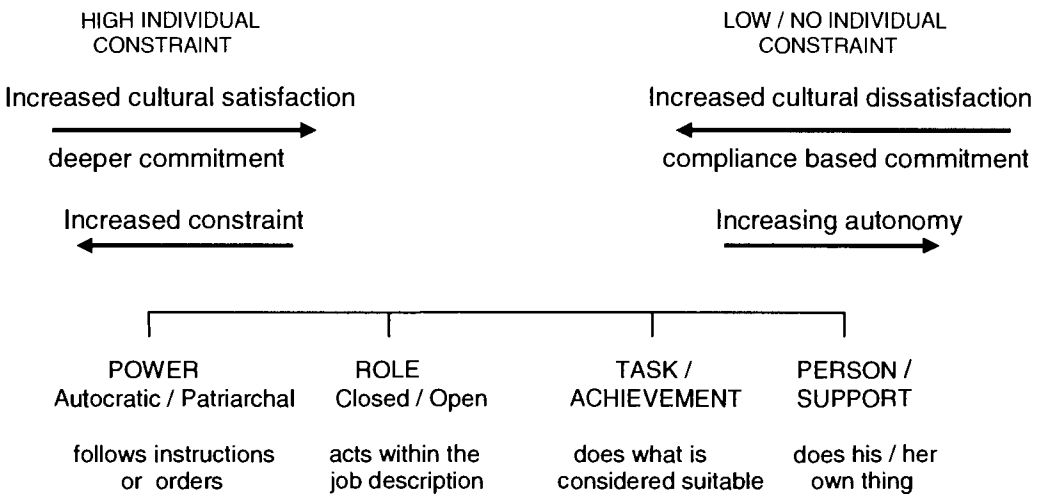

Figure A.1 Relationships between cultural types and degrees of constraint (Cartwright & Cooper, 1993:63). Reprinted by permission of the authors.

Power is autocratic, centralized and swift to react, based on status, with loyalty to a person in power. Role is bureaucratic, with formal, efficient procedures, impersonal, standardized, and highly predictable. Task emphasizes achievement based on flexibility, tailored products, and team commitment to a mission that can be rewarding but exhausting. Person is egalitarian, supportive, nurturing, and encourages the personal growth and development (Cartwright & Cooper, 1993:62). The authors model the relationship between cultural types and implications for cultural change One question is whether these four types can be defined by two domains, or whether they represent the polar ends of two domains.

Research by Kilman and Saxton (1983), and by Cooke and Lafferty, (1986) suggest that Harrison's four types form two-domain measures. Both groups developed questionnaire instruments using the same bipolar domains to measure organizational behavior and validated 'task - people' as a polar domain.

The second factor or domain in both their models is related to uncertainty, and represents what Rousseau (1990) calls the "degree to which people are encouraged to avoid conflict and protect themselves, versus being innovative and risk-taking" (Ashkenasy, Broadfoot & Falkus, 2000:137). For Kilman and Saxton this is 'short-term versus long term focus,' while for Cooke and Lafferty (1986), it is 'security versus satisfaction.

I interpret Morgan's Assertive - Unassertive as a Power - Role domain, and his Uncooperative - Cooperative as a Task - Person domain (Morgan, 1988). This yields a matrix with four quadrants which could be related to Trompenaars' model (Figure A.4), plus and a useful Compromising sphere in the center.

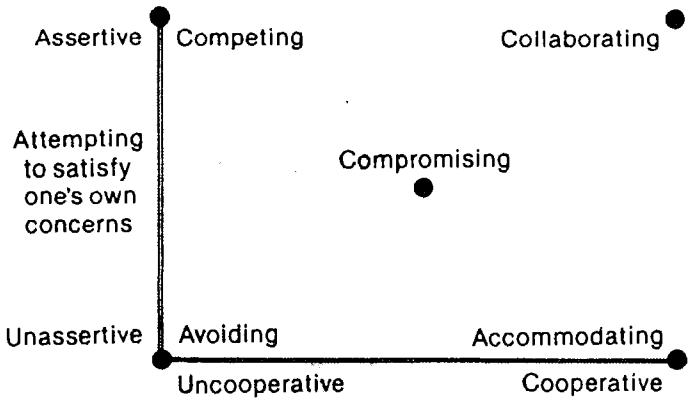

Figure A.2 Two modes of reaching goals (Morgan, 1988). Reprinted by permission of author.

A.2.b. The Organizational Cultural Inventory (OCI)

The Organizational Culture Inventory measure developed by Cooke and Lafferty (1987), assesses norms that describe the kinds of thinking and behavior styles required for people to fit into an organization or one of its sub-units. It employs two constructs: Needs (satisfaction - security), which distinguishes higher order satisfaction, from lower order security needs; and Orientation (task – people)., that contrast concern for task to concern for people.

The OCI "measures twelve sets of behavioral norms associated with three types of organizational culture: Constructive, Passive/ Defensive, and Aggressive / Defensive" (Cooke & Szumal, 2000:147). According to the authors, their model of how culture works is based largely on "findings reported in previous studies (that indicate how the norms that were measured) are related to individual, group, and system-level criteria of effectiveness" (Cookde & Szumal, 2000:147-150).

I find this innovative model of interest because it generates three cultural types from two domains. The model completely bypasses the notion of clusters,

expressing some formal interaction between domains, and not simply a subjective depiction.

The model "proposes a relation between culture and outcomes (suggesting that) a number of other factors are causally related to outcomes (that) can suppress or counteract the effects of cultural norms" (Cooke & Szumal, 2000:152). This means that the 12 norms and 3 types on the framework would be subject to a number of unspecified external conditions, which in turn leaves the model and all it represents, resting on what could be rather unstable ground.

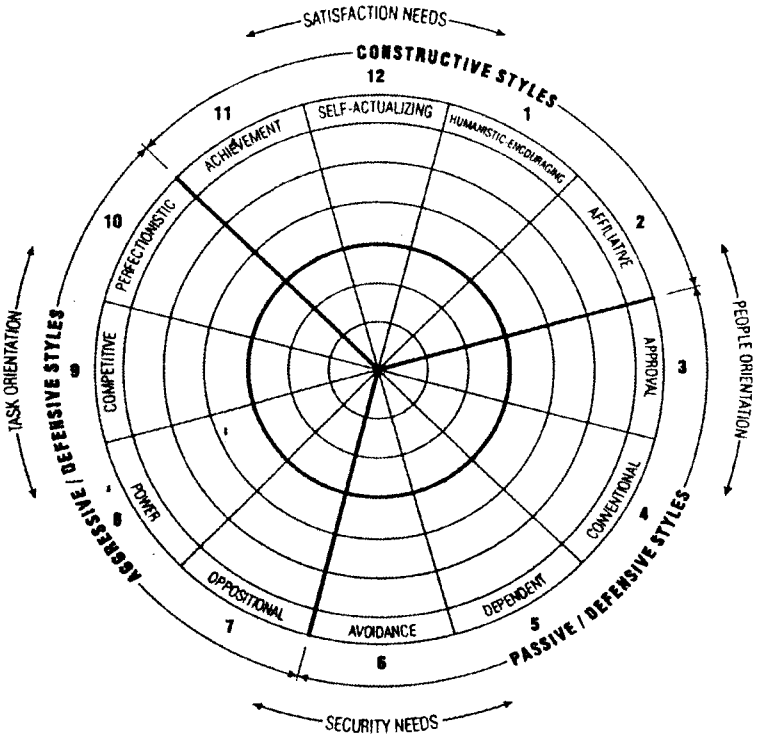

Figure A.3 The OCI Circumplex (Cooke & Lafferty, 1987)

Trompenaars (1993), developed a two-factor model that is very similar to the four types identified by Harrison. His hierarchical–egalitarian domain reflects a central - decentral condition, and corresponds to power-role in Harrison's schema.

Both models identify the second domain as task–people. However, Trompenaars treats this as a measure of formal – informal, while for Harrison the measures appear to be mutually exclusive.

Trompenaars (1993:161) arranges his domains on a basic 2 x 2 matrix (Figure A.2), whose four quadrants represents four ideal types. These serve as metaphors that identify corporate cultures, inasmuch as they "illustrate the relationship of employees to their notion of the organization" (Trompenaars, 1993:139). Guided Missile is project-oriented (decentral-egalitarian / formal-task); Incubator is fulfillment-oriented (decentral-egalitarianl / informal-person); Family is power-oriented (central-hierarchical / informal-person); and Eifel Tower is role-oriented (central- hierarchical / formal-task).

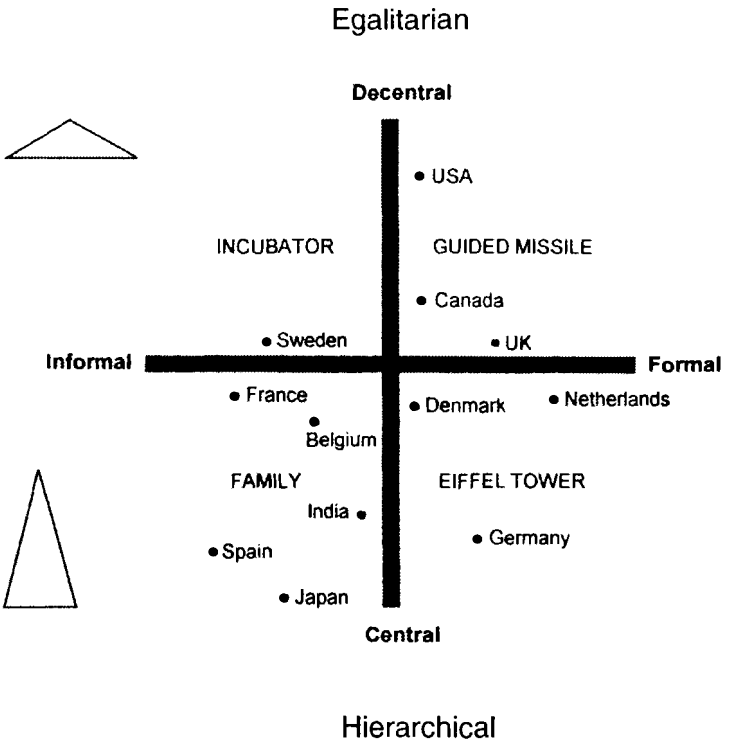

Figure A.4 Four national patterns of corporate culture (Trompenaars, 1993:161)

A.2.c. External versus Internal

One highly regarded cultural typology that emerged from research on organizational effectiveness was the Competing Values Model (CVM) by Quinn and Rohrbaugh (1983). Their work initially identified three orthogonal domains that they believe achieves the best descriptive fit for typing organizations: Focus (external - internal); Structure (control - flexibility); and Means - Ends. However they determined that the means – ends domain was embedded in the other two domains, and chose to confine the characterization of organizations to the first two (Howard, 1998).

Their observation is consistent with the BAM typology. In an authentic three-domain cultural model, the third domain is necessarily embedded in the first two domains, prior to establishing the third domain. However, the very fact or act of defining or creating the third domain fundamentally alters the two original domains from conceptual to cognitive conditions. Therefore, they no longer exist in their original form.

Both Quinn & Rohrbaugh make the observation of a fundamental principle of cultural modeling but they failed to recognize key subsequent implications. Nevertheless, their model and domains are in accord with the underlying theory presented in this dissertation: that an authentic third domain is embedded in the other two domains. But by dropping the third domain, they (unwittingly) altered the context and substance of the other two domains. Only by keeping the third (Means-Ends) domain, do the first two remain intact.

In the CVM, Internal - External represents the focus of attention and setting of objectives. It is primarily a passive mental function. Control - Flexibility represents the process for achieving those objectives. These two domains form a matrix with four quadrants that express four distinctive organizational approaches: the Human Relations Approach, which has a flexible, internal focus that develops group cohesion; the Open Systems Approach with a flexible external focus that can accomplish growth; the Rational Goal Culture which applies control to an external focus for enhancing productivity; and the Internal Process Approach which employs control to achieve stability.

Cameron & Freeman (1988) created a typology of organizational cultures that describes international joint venture (IJV) activity in terms of two bipolar values: Positioning, which is passive, and described along an external-internal continuum; and Process, which is active, and described on an organic-mechanistic continuum. External is expressed as competition and differentiation, while internal includes maintaining integration and smooth activities or harmony.

As an example of the kind of confusion that can arise, the external-internal condition seems close to Hofstede's (1980) the masculine-feminine dimension; Schwartz's (1995) mastery-harmony; and competitive-cooperative in this dissertation's *Binary Archic Matrix.*

When Position and Process are placed on a matrix the quadrants define four categories: Market, which is goal and decisive (external/mechanistic); Adhocracy, which is entrepreneurial (external/ organic); Hierarchy, which employs orders and rules (internal/mechanistic); and Clan, which is cohesive (internal/organic).

Cameron & Freeman's model has some similarity to Quinn & Rohrbaugh's CVM (1983). They explain the External - Internal domain as encompassing competitive position versus maintaining social system. The Control - Flexible domain addresses the processes that move toward either centralization and integration on one side, or decentralization and differentiation on the other. Their characterization leads me to conclude that they have combined elements of two domain modeling with three domain modeling. Position and Process are conceptual and belong in the two domain realm, while the attributes they relate to these; integration-competition and flexibility-stability correspond to two of the three domains in the Binary Culture Model.

The Internal-External designation has different meanings in different models. Quinn and Rohrbaugh, as well as Cameron and Freeman use it in a way that approximates my competitive-cooperative domain, while Zelger (1996) gives it a meaning that is closer to my systematic-spontaneous domain.

This example underscores the complex nature the two domain model because it has a high level of abstraction and/or generalization.

A.2.d. Other Issues Related to Two Domains

Deal and Kennedy (1982), who were mentioned at the start of this section, reviewed hundreds of companies, and determined that organizations fall into four categories, described by the interaction between two factors. These were: the Time taken to receive feedback related to success, ranging from Slow to Fast; and the Level of Risk, ranging from High to Low. Their work initiated a discussion of

culture based on organizational roles that departed from previous theorists. (Ashkanasy, Broadfoot, & Falkus, 2000:137).

Low risk and slow time define a 'process' culture type, while high risk and fast time define a 'bet your company' culture type. It does not require much imagination to correlate this to Trompenaars' model. Process requires a structure and relates to Family, whereas 'bet your company' relates to Guided Missile. This suggests a close relationship between Fast - Slow and Egalitarian - Hierarchical; and between Level of Risk and Task- person.

For Leung (1988), one of the most influential persons to contribute to the study of values was Rokeach (1973). His psychology-based theoretical and empirical framework integrated 'instrumental values' (concerning means or modes of conduct), with 'terminal values (concerning goals or end states of existence). These terminal values are "taken for-granted assumptions which shape responses to the rest of life's experiences" (Ashkanasy, Wilderom, & Peterson, 2000:11).

Pusic (1976), created a matrix of Environmental Categories with two polar values: Internally Willed Action on the horizontal axis, Human Cooperative Action on the vertical axis. Internally willed action ranges from an 'emphasis on objective structures' that are external to the individual, such as meanings of words and basic conditions of societal dependence, to activities where the primary accent is internal, such as will and human decision. Cooperative action ranges from the mental make-up of the members, to the various forms of institutionally stabilized behavior. These concerns appear related to Zelger's (1996) three domains.

Hatch (1993), considers culture from two bipolar factors: Discourse and Theoretical Orientation. Discourse contrasts Activity, related to values, with Reflexivity, related to symbols. Theoretical Orientation contrasts Subjectivist assumptions, with Objectivist artifact producing. These generate four descriptive quadrants: Identity, which is manifested in subjectifying activity; Action, which is realized though objective activity; Meaning, which is implemented through subjective reflexivity; and Image, which is symbolized by objectifying reflexivity.

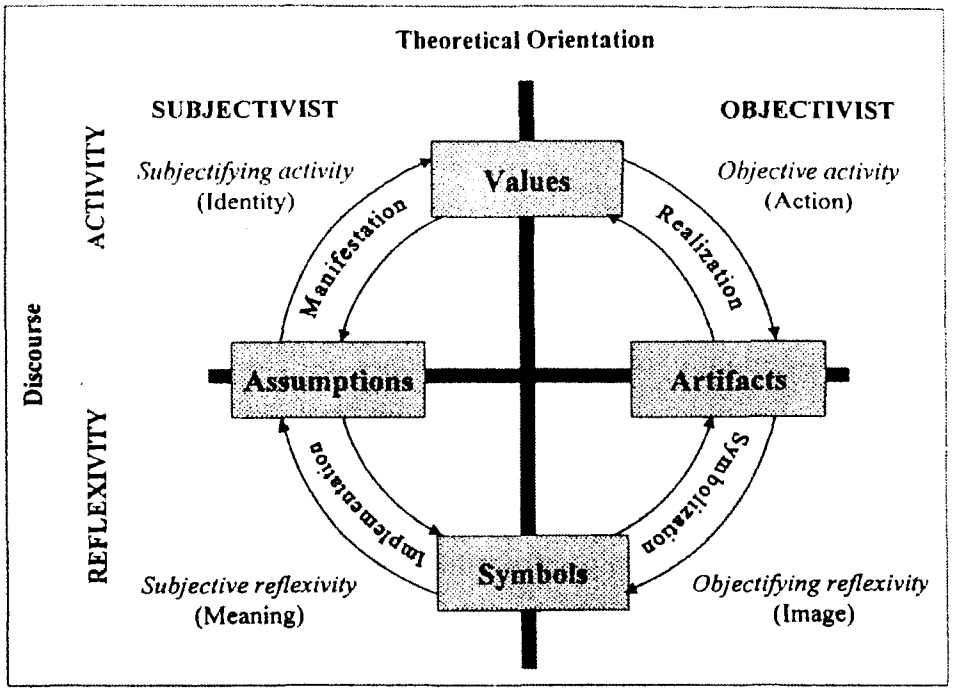

Figure A.5 Domain of cultural dynamics (Hatch, 1993) ∇
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Altman & Baruch, (1998) introduce a useful typographical model proposed by British social anthropologist Mary Douglas (1970, 1978), for comparing cultures and the forms of social organizations that support them. According to Douglas, the constraints that shape behavior and values can be represented by two domains or

dimensions: Group commitment and Grid control. During the past twenty years, this Group/Grid model has been successfully used for organizational analysis. The four quadrants of the models are: a) Competitive autonomy; b) Hierarchical formality; c) Bureaucratic with ascribed roles; d) Egalitarian participation.

Virtanen (2000), developed a two-domain model with 3 determinants related to commitment and organizational culture. Contemplation is rational - arational., and Affirmation is public - private. He describes a two-dimensional space with three determinants: norms, strategies, and desires, in an intriguing manner.

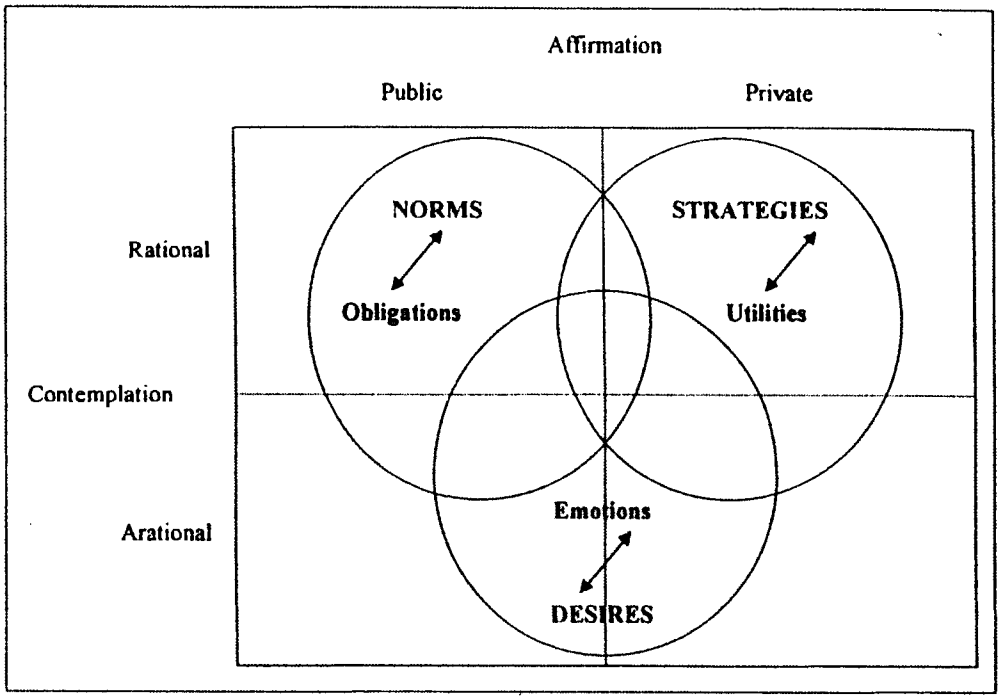

Figure A.6 Commitment & organizational culture (Virtanen, 2000) Reprinted by permission

Johnsen (1995), developed a two-domain model of strategic analysis and synthesis which defines the organization's culture (1995:13-15). He calls one domain, Action Context (Future - History), and the other, Passive Perspective

(Overview - Insight). According to the author, these are what constitute a system or organization. Using the letters F, H, O, I, he identifies the four quadrants of his matrix as: Coalition (HO) 'we are'; Vision (FO) 'we want'; Mission/capability (HI) 'we do'; and Action/concrete strategy (FI) 'we will'. He then uses this to explain a three-domain cultural model that defines basic types of strategic management.

Triandis (1972:30-31), comments on two-domains quoting Aronoff (1967), who noted that "motivational factors act independently of economic factors in influencing the formation of particular institutions. ... (This is) extremely important to an understanding of the relationship between culture and personality." This suggests that at a basic conceptual level, the same constructs could apply to both organizations and individuals, albeit it with a different emphasis.

A.2.e. Two Domains and Process Models

One of the more interesting and elusive models that fits a two-domain matrix is Maruyama's (1981; 1994) mindscape model, with four epistemological metatypes, which he denotes by the letters H, I, G, and S (Table A.1). Maruyama does not consider his model to be a typology with domains, constructs, and values. Rather he considers it a '*relationology,*' whose purpose lies in "interrelating seemingly separate aspects of human activities such as organizational structure, . . . decision process, (and) social interaction patterns" (Maruyama, 1995:223).

There are many different metatypes, of which these four are primary ones. Examples of each are: Newtonian astronomy (H); 19th century thermodynamics (I); the first cybernetics of homeostasis in the 1940s and 50s (S); and the second cybernetics of pattern-generating (G) (Maruyama, 1985:218). This is somewhat

similar to Watson's (1993) archic matrix with four pure modes and 252 mixed modes. The descriptive characteristics of each metatype are sufficiently robust to enable mapping them in a 2x2 matrix, and posit two underlying domains.

H-type	I-type	G-type	S-type
homogenist	heterogenist	heterogenist	heterogenist
hierarchical	isolationist	interactive	interactive
permanent	temporary	change	stability
competitive	laisser-faire	cogenerative	cooperative
classifying	randomizing	contextual	contextual
sequential	haphazard	simultaneous	simultaneous
one truth	subjective	many truths	many truths
zero-sum	negative-sum	positive-sum	positive-sum
no causal loops	random distribution	causal loops	causal loops
non-reciprocal	independent events	independent form	organic
equilibrium			
firm	decreasing	increasing	stable
homogeneity	homogeneity	heterogeneity	heterogeneity

Table A.1 *Mindscape Metatypes* (Maryuyama, 1981); (duplicated words are underlined)

Maruyama writes that "in each culture, firm, or social unit, some mindscape type becomes dominant, and ignores, suppresses, or makes us of other types. If non-dominant types are not fully utilized (which I take to mean organically integrated), the result is a waste for a country or for the firm" (Maruyama, 1985:241). What is notable here is that Maruyama can adapt the same types to national cultures, organizations, or other social units. That is, when the categories are eidetic and universal, they can be applied to various cultural categories by simply modifying the descriptive attributes to fit the situation or context. In many ways, this model may be conceptually closer to the *Binary Archic Matrix* than any other models.

A.3. Three-Domain Models

The constructs that inform the basis of most three-domain models seem to be cognitive. It is important to ask whether the constructs are basic domains that inform behavior, or something else mistaken for a domain. These would primarily be: sub-domains; interaction effects; or a behavior represented as a domain. Several of the models in the literature consist of three conditions that correspond to three basic domains. In many models, one or more of the conditions may be something other than a domain, that is mistaken for a domain.

A.3.a. Early Three-Domain Models

One of the early cultural models was proposed by Likert (1967), who is best known for devising the Likert measuring scale. He identified three fundamental variables in an effort to define the universal principles underlying organizational behavior and culture: (1) Causal, which is relational; (2) Intervening, which deals with motive and action; and (3) End-result, which is related to sales, costs and earnings.

The similarity of End-result to Means-ends (Quinn and Rohrbaugh, 1983), suggested looking for a possible link between these models for the other two domains. I see a general relatedness between Likert's Causal domain, and Quinn & Rohrbaugh's Focus (external - internal) domain. Without suggesting a causal connection, a case could be made for relating Likert's Intervening (motive and action) domain with Quinn & Rohrbaugh's Structure (control - flexibility).

Likert also distinguished the two primary contexts within which these conditions operate: (a) an environment of hierarchical pressure; or (b) according to

supportive relationships (Kassem, 1976). Since Likert established hierarchical pressure and supportive relationship as the alternative constants in which the domains function, we should ask ourselves if they form a separate bipolar condition that underlies or infuses the other three.

A.3.b. Cultural Models with Both Two and Three Domains

There are several models that consist of two sets of conditions; one related to two-domain modeling, and the other related the three-domain modeling. One example is provided by Harrison (1975), who suggested that much of the conflict related to organizational change is essentially an ideological struggle. To understand the nature of this struggle, he oriented his conceptual framework of 'self, task, power, and role,' (which I proposed in the previous section are two bipolar pairs: self-task and power-role) to three primary interests.

He identifies these interests as: a) Security versus Deprivation (political, economic, and psychological); b) the Opportunity for voluntary commitment to worthwhile goals; and c) Opportunity to pursue one's own growth independent of organizational goals (1975).

I already discussed Quinn and Rohrbaugh (1983) above, in the two-domain models, because although they originally identified three orthogonal domains for typing organizations: Focus (external - internal); Structure (control - flexibility); and Means – Ends, they dropped the third domain when they realized it was embedded in the other two. This raises issues and questions that have not previously been considered or examined with regard to their work.

Did the authors question the essential difference between constructs in two domains, and those in three domains? Or the possibility that domains cannot be added or subtracted arbitrarily? Or that there is a fundamental qualitative change from two domains to three, or visa versa? Did they understand the conceptual implication, that by dropping the Means-Ends domain, that it was necessarily (re)absorbed into the other two constructs, so that Focus and Structure "with Means-Ends" were different that Focus and Structure without it.

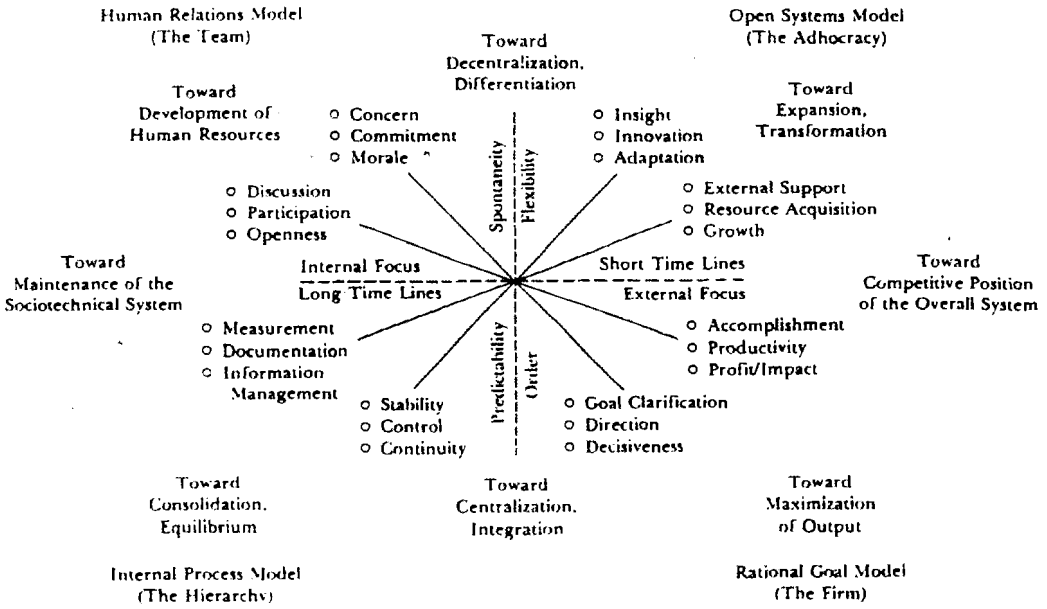

Figure A.7 Competing values framework for culture (Quinn, 1983)
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Obviously, the constructs termed Focus and Structure have one persona when they are part of a three-domain model with Means-Ends as a separate construct; and another very different persona when Focus and Structure are embedded with the conditions that compose or account for Means-Ends. This would indicate that the authors may not have realized the more robust descriptive

potential of the three-domain model, or the different meaning and applications available to two and three domains.

Given that Focus and Structure are fundamentally different conditions when they form the whole of a two-domain model (with Means-ends embedded) than they are in a three-domain model, it might be more useful to adopt different terms for them in their two-domain application than in their three domain application. This could avoid misunderstandings of meaning.

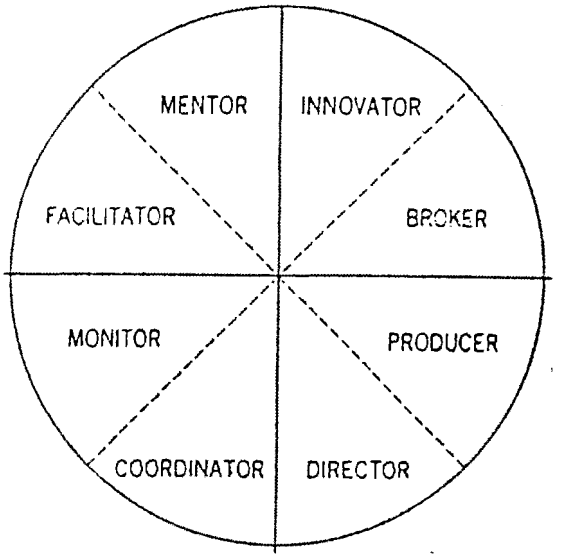

Figure A.8 Eight organizational competencies and leadership roles (Quinn, 1988)
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Johnsen (1995) also has a model that functions in two different domain modes. He starts with two domains based on two forms of activity: Synthesis related activity for context, and Analytical activity for perspective. The first is active and doing, while the second is passive and thinking. He then proposes three domains of strategic management: Project Organization, Creation of Energy, and Direction of Change. He also defines three types of organization: a) single project;

b) a series of unconnected projects; and c) a sequence of connected projects; plus three forms for Direction of Change: concentration; adjustment; and expansion.

Trompenaars (1993:29), initially defined organizations according to two domains: people-task and hierarchical-egalitarian. He then developed a three domain model, identifying three sources of organizational challenge: a) relationships with others; b) the external nature of the world; and c) managing time and aging. He subsequently identified three domains of organizational culture: a) Independence - Communitarian (autonomous actions and individual benefits versus embeddedness or social group action based on shared goals; b) Commitment to organization - Commitment to friends; and c) Analyzing - Integrating (efficiency and segmenting phenomena versus dealing with patterns or relationships (Trompenaars & Hampden-Turner, 1998:429-433; Figure A.4)

Schwartz (1992), was apparently cognizant of the fundamental difference between two and three domains. He identified one set of conceptual terms for his two construct model, and another set of descriptive terms for his three construct model. However, he may not have taken full advantage of the dimensional potential of three constructs for identifying organizational types, groups, or clusters.

Schwartz created the Structure of Values survey and arranged ten values in a circular pie chart (Figure A.9). At the same time he located his two bipolar domains on the pie chart, with Openness to Change – Conservatism on the vertical axis, and Self-enhancement – Self–transcendence on the horizontal axis (Schwartz, 1992:45). He later oriented these two domains to an Individualistic - Collectivistic domain, essentially generating a three domain model.

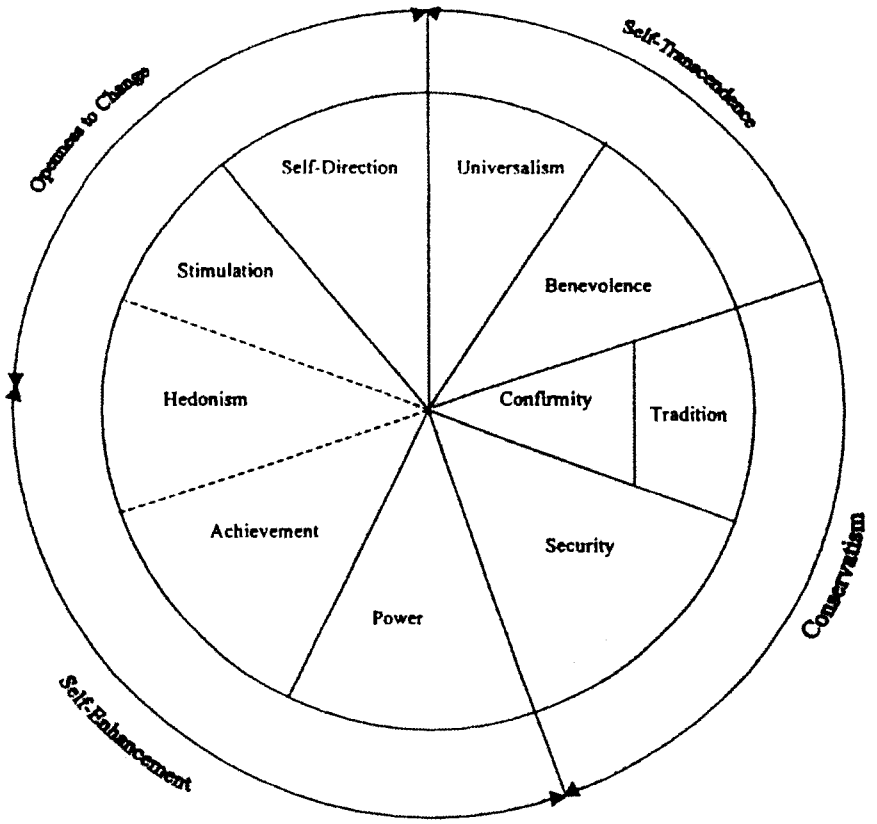

Figure A.9 Structure of value system with 10 values (Schwartz, 1992)
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A.3.c. Innovative Models with Three Cultural Domains

Schwartz developed a second model consisting of three bipolar domains that address culture at the level of basic societal problems. Egalitarian - Hierarchy is the need to "guarantee social behavior that preserves the social fabric" Autonomy - Embeddedness is the "nature of the relation or the boundaries between individuals and the group;" and Mastery - Harmony relates to regulating "the relation of humankind to the natural and social world" (Sagiv & Schwartz, 2000:419-420).

In spite of his analytical insights, Schwartz took a similar approach to bifurcating a domain as Inkeles & Levinson, and also Hofstede. He divided one

Autonomy into two forms: *intellectual*, which encourages individuals to pursue independent intellectual and creative directions; and *affective*, which encourages individuals to pursue positive pleasure seeking experiences for themselves.

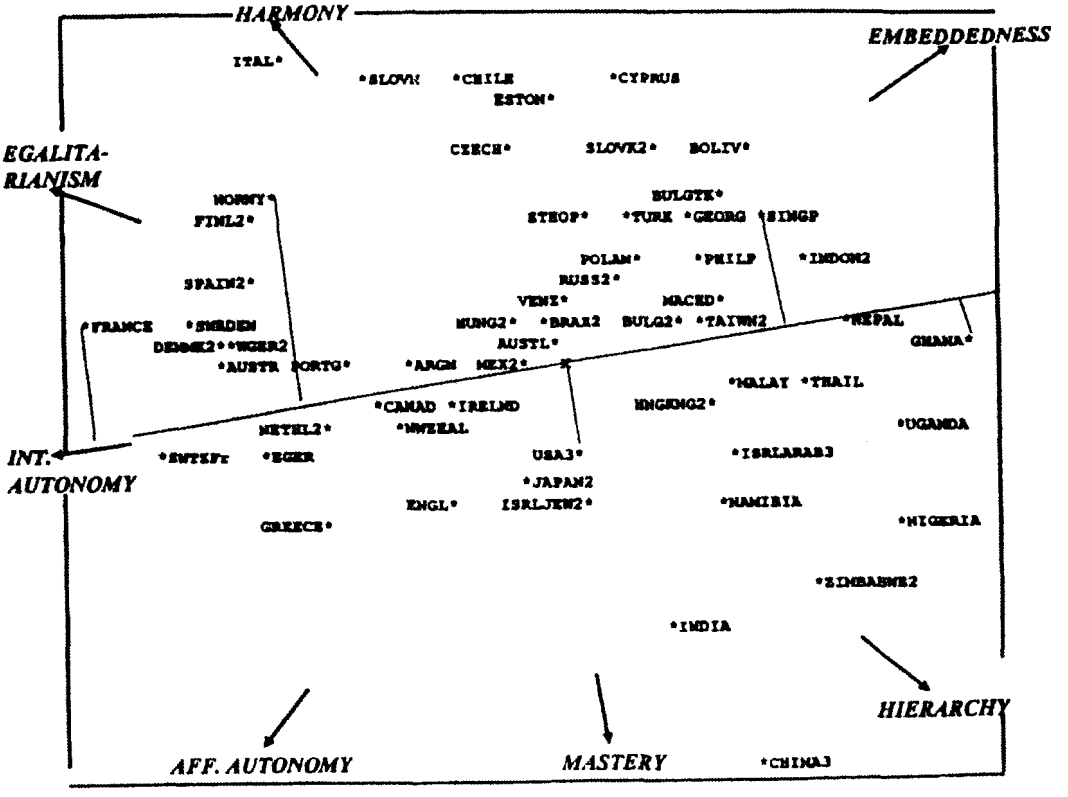

Figure A.10 Co-plot of 57 cultures with seven values (Sagiv & Schwartz, 2000)
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Schwartz relates his Egalitarian - hierarchy to Hofstede's Power distance, and his Autonomy- embeddedness to Hofstede's Individualism – collectivism. Schwartz then divides Autonomy (half of one domain) into two categories without indicating how they correlate to one category of Individualism, or if indeed they do. He overlaps the Mastery part of his Mastery – harmony domain with Masculinity in Hofstede's Masculine – Feminine dimension; and the relates Harmony with

Uncertainty avoidance (Sagiv & Schwartz, 2000). The result is an asymmetrical model with seven values.

This is highly problematic, because he relates the two halves of one domain (mastery – harmony) to two of Hofstedes' dimension. This suggests that "mastery–harmony" is a kind of meta –domain, in which one side of equivalent to Hofstede's masculine-feminine, and the other side to low-high uncertainty avoidance. His correlation seems to ignore the feminine side of Hofstede's MAS dimension plus part of the uncertainty avoidance dimensions, making it the comparison less than convincing. Harmony would seem to co-relate better with Hofstede's feminine, but that would leave nothing in Schwartz's model to relate with uncertainty avoidance.

Schwartz maintained that his model had three bipolar domains (Sagiv & Schwartz, 2000:422), which supports my contention that his two Autonomy conditions are sub-domains. He arranges the seven values on a co-plot graph (Figure A.8) that locates 57 national cultures (ibid.:423). Generally his approach makes it difficult to conceptualize the data in a three dimension spatial model.

Smith and Bond (1993) proposed linking Schwartz's model to Hofstede's dimensions, relating Hierarchy (S) to High Power Distance (H); Egalitarian (S) to Low Power Distance (H); Conservatism (S) to Collectivism (H); Affective Autonomy (S) to Individualism (H); Mastery (S) to Masculinity (H); Harmony (S) to Femininity (H); and Intellectual Autonomy (S) to Low Uncertainty Avoidance (H). The only thing missing is high Uncertainty Avoidance, which according to the authors, seems to have no corresponding domain with Schwartz.

Schein (1985), proposed a broad model of culture composed of three successive rings: Basic Assumptions and Premises at the center reflect preconscious notions of the relationship between man and nature, oriented in time and space. Deep Values and Ideology in the middle ring reflect goals and paths of purposeful human action. Cultural Manifestations and Artifacts on the outside layer, reflect language and social organization.

Schein's ideas are expanded on by Beyer, Hannah, and Milton (2000), who explain domains as the basic forces that produce the direction in which culture evolved. Assumptions relate to fortuitous or serendipitous historical events; Values produce changes in the internal dynamics of the social system; and Artifacts address technological and physical change in the external environment.

A three-domain bipolar model of social interaction was developed by Adamopoulos (1984:493), who later wrote: "consideration of the processes that *generate* behavior patterns across cultures and time ... has been neglected ... despite its significance for the establishment of general theories of behavior" (Adamopoulos, 1988:197). His conclusion was that scholars from divergent theoretical backgrounds and research styles have found surprising agreement regarding the existence of three fundamental domains whose basic characteristics describe the underlying structure of behavior with three *universals* or hypothetical constructs called 'facets' (Figure A.11). This model was converted into a table by Adamopoulos and Bontempo (1986:175), (Table A.2).

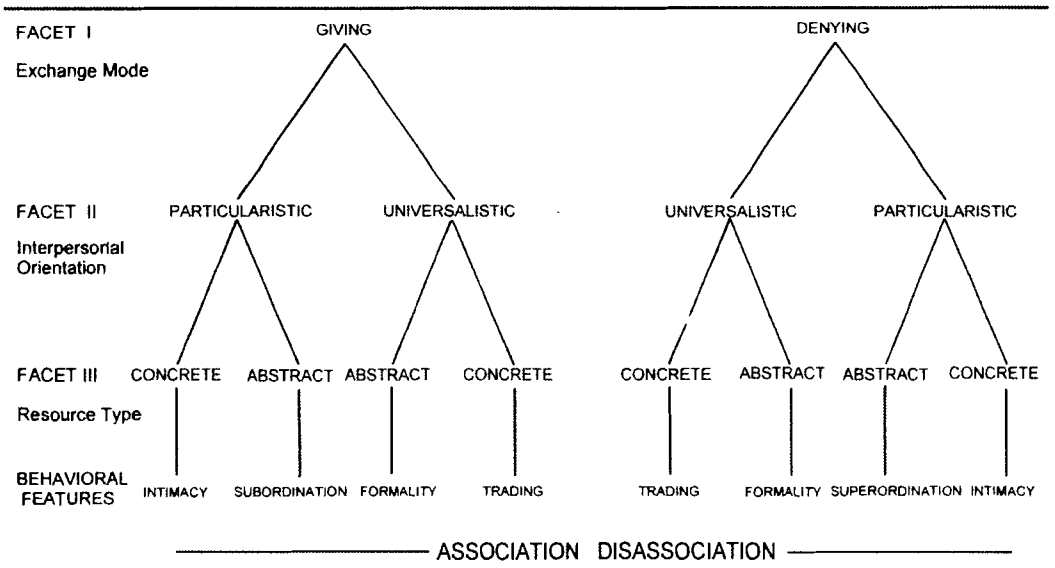

Figure A.11 Three facets in the differentiation of behavior (Adamopoulos, 1984)
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FACETS	ELEMENTS							
Exchange Mode	Give				Deny			
Interpersonal Orientation	Particularistic		Universalistic		Particularistic		Universalistic	
Resource Type	concrete	abstract	abstract	concrete	concrete	abstract	abstract	concrete
Behavioral Features	intimate	subor-dinate	formal	trading	trading	formal	super-ordniate	intimate
	ASSOCIATIVE				DISASSOCIATIVE			

Table A.2 Structural Differentiation of Social Behavior (Adamopoulos & Bontempo)
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The interactions of the three Facets distinguish eight types of interpersonal behavior, that correspond to a three-domain model. I suggest this can be mapped onto the binary matrix cube, and thereby related to the trigrams.

Pugh (1976), also represents culture with a three-dimensional cubic model, and then adopts three bipolar conditions for depicting organizational culture: Authority, which is concentrated – dispersed; Control, which is impersonal – line; and Structure, which structured – unstructured. He graphs these on a cube, and divides each dimensional continuum into thirds (Figure A.12). There are four "empty" sections in the cube: front-top-left; back- top-middle and right; and back-bottom-right. A question I have for this model is how are these sections defined?

With a little imagination one can correlate Pugh's dimensions with those by Adamopoulos and Bontempo. His control dimension, which is impersonal–line, relates to superordination-subordination; his structure domain, which is structured–unstructured, relates to formality–intimacy; and his authority domain, which is concentrated–dispersed, relates with affiliation, which is association-disassociation.

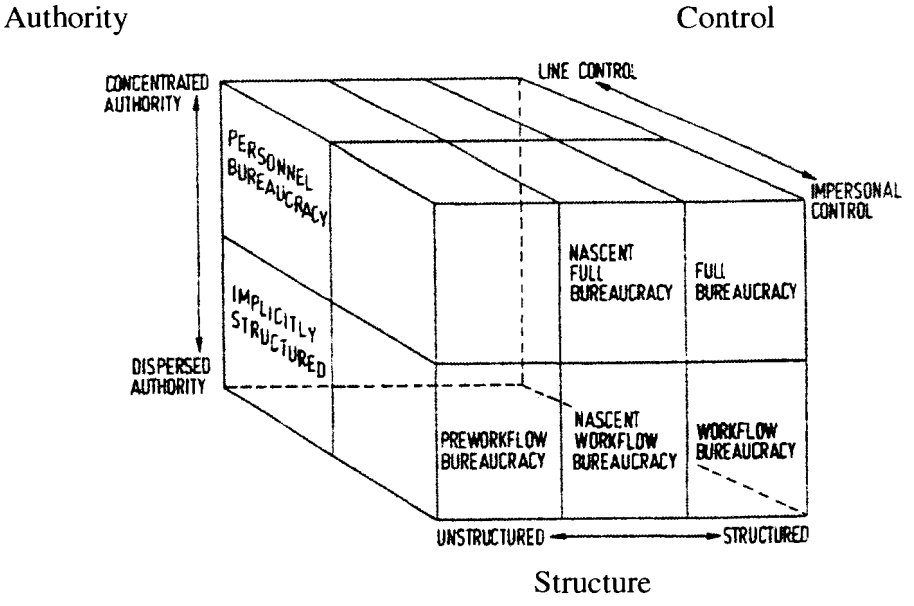

Figure A.12 Cube model with twelve sections (Pugh, 1976)
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Austrian social theorist, Josef Zelger, proposed a model that defines eight distinct types with three bipolar domains: internal-external, which contrasts subjective self-oriented behavior to objective other-oriented behavior; specific-general, which is concrete versus abstract; and particularistic-holistic. These domains form or disclose eight basic types: worldview; emotional; materialistic; economic; results; aims; subjective; and internal (Zelger, 1996:11).

Zelger does not specifically discuss his model as having three-domains, but he graphs the three sets of values and their eight resulting "spheres" in a way that clearly indicates a three-dimensional structure or model (Figure A.13).

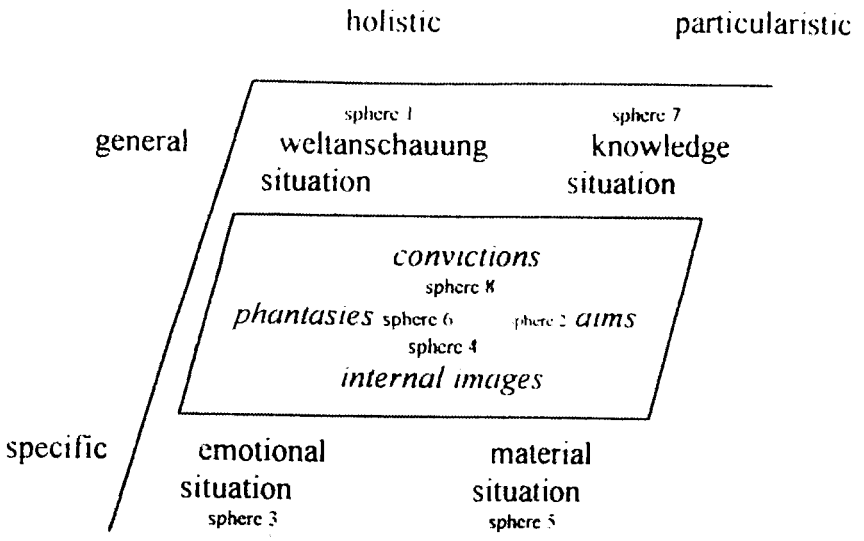

Figure A.13 Linguistic *gestalt* for processing knowledge (Zelger, 1996)
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Zhu (1999), develops a distinctly Chinese model for conceptualizing culture derived from traditional Chinese philosophy. He relates basic social constructs to the three Confucian notions of Wu, Shi, and Ren. (WSR)., terms that are not surprisingly compatible with the Daoist notions of Heaven, Man, and Earth.

Wu: Knowing is material technical. It relates to structure and objective existence.

Shi: Sensing, is psycho-cognitive. It is behavioral and relates to the way of doing.

Ren: Caring, is social-political. It covers the basic patterns of human relating.

Philosophy of WSR			
	Wu	**Shi**	**Ren**
Relations	Relations with the world	Relations with the mind	Relations with others
	Patterns of connection	Ways of seeing, thinking, doing	Principles of interaction
Model of the world	Objective existence	Subjective construction	Inter-subjective negotiation
Concept of man	Economic	Cognitive	Social
Ideal	Material	Emancipating	Harmony
System boundary	Physical	Conceptual	Ethical
Accountability	Goal-seeking	Epistemic empowering	Relationship-maintaining

Table A.3 a Chinese cultural model of integrated wholeness (adapted from Zhu, 1999)

Payne (1996) determined that dimensions were a starting place to consider how cultures differ in content, and shape the management of that content. He adapts organizational climate to culture, and uses a 'culture cube' to depict his domains as dimensions and locate organizational types. His model presents a valuable opportunity to look at dimensional inequality.

The model originally had two domains of culture: a) Strength of consensus; and b) Pervasiveness of culture. Pervasiveness covered the range of beliefs and behaviors a culture tries to define and control. But Payne recognized that Pervasiveness also included Psychological intensity, so he extracted this from Pervasiveness and created a third domain (Figure A.14).

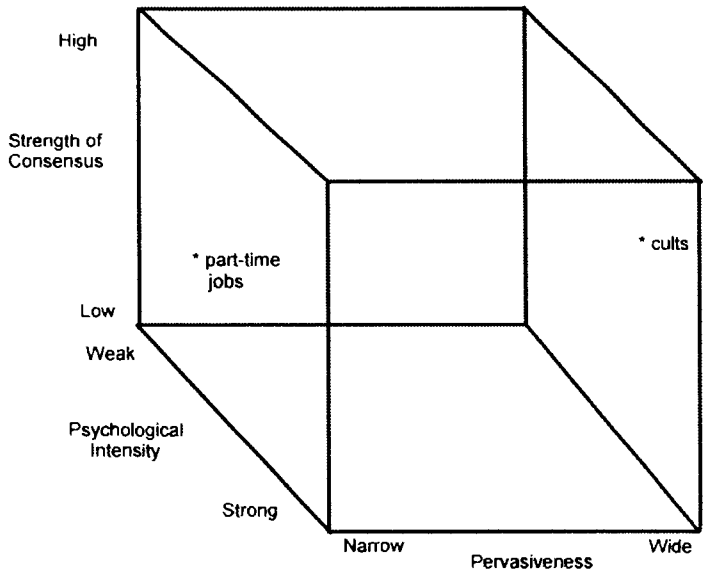

Figure A.14 3-D model of organizational culture (Payne, 2000:169) ∇
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We might be concerned about the fundamental nature of domains when a condition can be extracted from a bona fide domain and become an authentic domain on equal terms with the domain from which it was derived. Payne does not say anything about how his original Pervasiveness is altered when the Psychological intensity is separated from it. In principle, the notion of deriving fundamental domains in such an ad hoc manner is confusing and troubling. It leaves unanswered the question of the equivalence or equality of domains.

In his book, "The World as a Total System," Kenneth Boulding (1985:83), notes that social systems can be divided into "three large, overlapping, and interpenetrating subsystems, which are distinguished by different modes of interaction." The three broad concepts that underlie all systems are: physical integration, which is related to matter; action exchange, which is related to energy; and knowledge, which is related to information (Figure A.15).

Boulding calls these systems, integration, exchange, and threat. The key concept in integration is legitimacy, since without it, any system, person, or organization will find it virtually impossible to continue functioning. Exchange is the primary instrument of economic life. And threat comes down to "you do something I want, or I will do something you don't want" (Boulding, 1985:83).

This triangular model represents an imaginative approach to visually representing three conditions, but it is unable to capture their dimensionality. As for the various categories, they might just as easily identify various cultural entities or organizations.

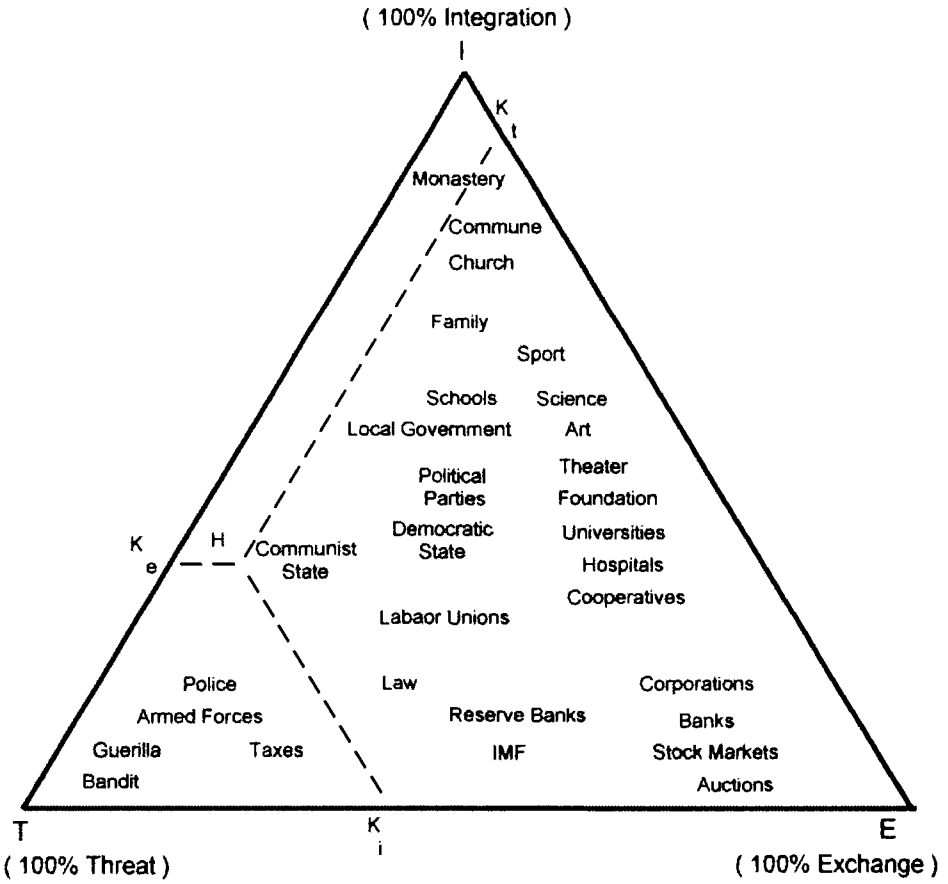

Figure A.15 Defining social systems with three sub-systems (Boulding, 1985)

A.4. Four-Domain Models

In this section I look at models that propose four domains of culture.

A.4.a Inkeles and Levinson

Inkeles and Levinson (1969) reviewed all the 20th century literature at that time in anthropology, comparative psychology, and comparative sociology, related to national culture, then referred to as "national character." From this composite of literature they specified three universal problems facing all societies: a) relations to authority; b) primary dilemmas or conflicts and ways of dealing with them; and c) conception of self. They divided the last one into two parts: c-i) the individual's place relative to society, and c-ii) the concept of masculinity and femininity. Their reasoning was that these two distinctions are consistent across cultural boundaries and thereby provide evidence of the psychic unity of mankind.

One problem not unique to this model, is when scholars determine according to some process or method the existence of two or three basic domains, and then divide one domain in two to create an extra domain. At the same time, Inkeles (1969), had developed a second model based on four values that he argued were consistent across cultural boundaries, suggesting "evidence of the psychic unity of mankind"

"Inkeles and Levinson provided the theoretical base for (Hofstede's) first four dimensions" (Hofstede & Peterson, 2000:403). Hofstede's analysis (1980), turned up three factors: Uncertainty Avoidance; Masculine-Feminine, and the one he divided into Power Distance and Individualism Given the influence of Inkeles & Levinson on his work, it should not be surprising if he was not already predisposed

to four dimensions, and to the four specific dimensions he proposed. Hofstede's model is analyzed in-depth in Chapter 8, but Include his six plot graphs (Figure A.14), as one example of how to model four cultural dimensions.

A comparison of Hofstedes's model with Inkeles & Levinson's, matches the four dimensions very well, but whereas Hofstede divided factor 1 into power distance and individualism, Inkeles and Levinson divided conception of self into masculine-feminine and individualism. This means that the two constructs that define individualism seem to emerge from different starting conditions. The first is based in sense of self, while the second (Hofstede's) is based in societal structure. In spite of the model's many inherent problems (House et al., 1997), and current battering (Chapter 2), Hofstede's dimensions have not only survived, but are in relatively good health. My in-depth analysis of Hofstede is in Chapter 8.

Inkeles & Levinson's domains	Hofstede's four dimensions	
relation to authority	power distance	Factor 1a
conception of self in society (2a)	individualism - collectivism	Factor 1b
conception of self masculine-fem (2b).	masculine-feminine	Factor 2
primary dilemma and conflict	uncertainty avoidance	Factor 3

Table A.4 Relating Inkeles and Levinson's domains to Hofstede's dimensions

A.4.b. Additional Four-Domain Models

Hofstede (1980 and 1991), has been discussed at length, but is mentioned briefly here because his four dimensions: Individualism-Collectivism. Power Distance, and Masculinity-Femininity, Uncertainty Avoidance, place his model in this section. The first two are derived from one of his three factors. I submit that his three Factors actually constitute core cultural domains

Watson (1985 /1993), developed a model for profiling philosophical texts with four archic variables based on Aristotle's four basic causes (chapter 2.C). Each variable is explained according to four elements drawn from four schools of Greek philosophy. Archic profiles are composed of one element for each variable.

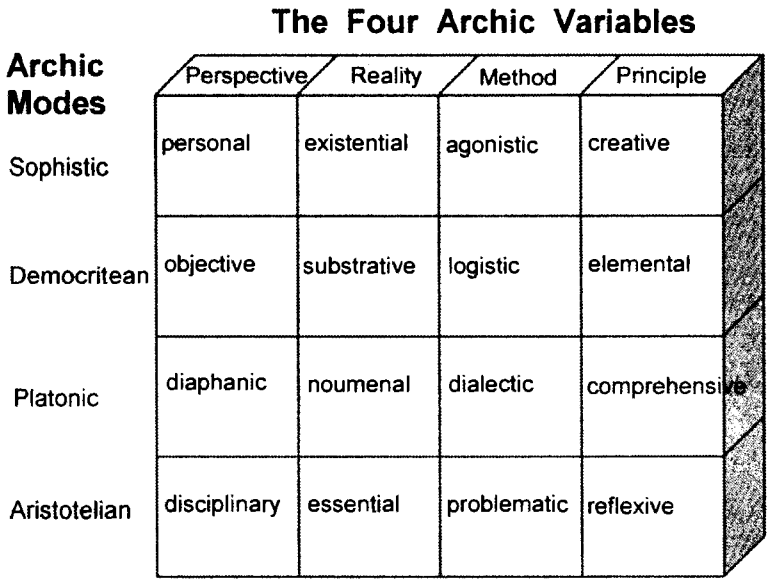

Figure A.16 Archic matrix (adapted from Watson, 1985/1993)

McGuire (1985:295), identified "the most abstract elements of social psychological theories involve four views of human nature:" being versus becoming (equilibrium and stability versus growth and change); active versus reactive (personal needs over environmental conditions); cognitive versus affective (consistency of meaning over self-esteem and tension reduction); and internal versus external (self-centered versus other centered) (Triandis, 1988:124). McGuire presents these in a 4x4 (16 cell) matrix which Triandis (1988:131), considers too abstract and missing the detail necessary for describing culture. This model has been included because I see in it a strong resemblance to Hofstede's dimensions.

Schwaninger (1997), created Integrative Systems Methodology (ISM) (Figure A.17), to help actors achieve requisite variety in dealing with complex issues. He identifies four categories: a) worldview, b) approach, c) modeling, and d) rationality. He then defines each in terms of two complementary polar pairs that he calls the Eight Polarities Framework: a) worldview is Objectivist - Subjectivist; b) approach is Structuralist - Discursive; c) modeling is Quantitative - Qualitative; and d) rationality is Conceptual - Communicational.

Although Schwaninger presents the Eight Polarities as four pairs of domains, it is possible that this framework may not identify four bipolar domains, but eight categories or types in a three-domain model. If this assessment is correct then the Polarities could be related to the eight types in the BAM model, and thus to the eight trigrams.

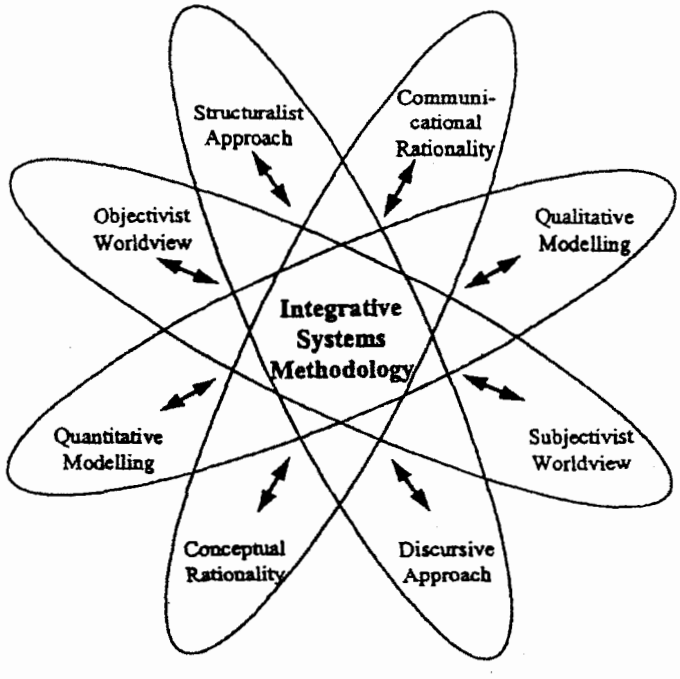

Figure A.17 Eight polarities for dealing with complex issues (Schwaninger, 1997)
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A.5. Larger Models

I find that models with more than four domains generally include or borrow or adapt at least two domains from models with a fewer number of domains. These models are related to studies or surveys that strive to provide greater descriptive detail and a more thorough explanation of cultural behavior.

I suggest that most of the domains referred to in these larger models can be explained as sub-domains and interaction effects. The authors tend to generate considerable statistical support for their models. They provides a micro and analytical approach that accounts for cultural behavior, as distinct from three-domain models which tend to be macro, contextual, and useful in explaining

Hampden-Turner & Trompenaars (1993), identify seven bipolar dimensions: Individual- Collective; Universal - Particular (rules versus relationships); Internal-External; Affective - Affective neutral (the range of feelings and emotions); Specific-Diffuse (range of involvement); Achievement-Ascription (how status is accorded); and Time Perspective, which is short or long.

Robert House has developed a model with nine bipolar dimensions for dealing with organizational culture: Individual- Collective; Organizational Collectivism; Power Distance; Future Orientation (close or far); Humane Organization; Gender Egalitarianism; Commitment; Uncertainty Avoidance; and Performance Orientation, which was determined to be less significant than the others (Dickson, Aditya, & Chhokar, 2000:449). The authors "do *not* argue note that these dimensions span the entire constructual domain of organizational culture, but (they are) . . . meaningful" (ibid.:454).

Ashkanasy, Broadfoot, and Falkus (2000:141) provide a comprehensive review of questionnaire measures to identify 10 dimensions for an organizational cultural profile: leadership; structure; innovation; job performance; planning; communication; environment; humanistic workplace; development of the individual; and socialization on entry into the organization.

According to Weber, given "the subjective perceptual nature of culture, there may be an infinite variety of cultural dimensions" (Weber, 2000:316). He assembled eight measures of culture that he says were used successfully in other studies to capture the essential characteristics of culture: top management contact; integration-lateral interdependence; autonomy and decision making; performance orientation (which House discarded from his GLOBE model); reward orientation; innovation; risk taking; and action orientation.

Obviously, the notion of these constructs as dimensions is considerably different from what the authors of models with a few domains had in mind. So it becomes confusing to use the same term for two different things. The many approaches and models used by social scientists and psychologists for describing culture point to the need for clearly defining cultural terms and distinguishing measures and values from dimensions and domains. However "no one has yet systematically drawn from (the) categories ... to construct value dimensions for analyzing organizational culture" (Ashkanasy, Wilderom, & Peterson, 2000:10)

A.6. Synopsis of Cultural Models

Tables A.5 to A.8 organize most of the above studies according to the number of their domains or variables, making them easier to compare.

MODELS OF CULTURE EXPRESSED WITH TWO DOMAINS

Authors	Domain 1	Domain 2
Aronoff (1967)	motivational factors	economic factors
Likert (1967)	supportive relationships	hierarchical pressure
Rokeach (1973)	instrumental values	terminal values
Harrison (1975)	people - task	power - role
Pusic (1976)	cooperative action	internally willed action
Maruyama (1981)	content (S & I - G & H) quantity: single - multiple changeable - stable	form (G & S - H & I) positive sum & interactive vs zero/neg. sum & non interactive
Deal & Kennedy (1982)	time to receive feedback fast - slow	level of Risk high - low
Quinn & Rohrbaugh (1983)	external versus internal competitive position vs maintain social system	control versus flexibility centralization & integration vs decentralization & differentiation
Kilman & Saxton (1983)	people - task	long term - short term
Kolb (1984)	forms of knowing abstract - concrete experience	process of acquiring knowledge reflective - active engagement
Cooke & Lafferty (1986)	people - task	satisfaction - security
Cameron & Freeman (1988)	positioning external - internal	processes organic - mechanistic
Cameron & Freeman (1988)	integration & harmony versus competition & differentiation	flexibility & innovation versus stability & order
Virtanen (2000)	contemplation arational- rational	affirmation public - private
Hatch (1993)	subjective - objective assumptions - artifact	reflexivity - activity symbols - values
Johnsen (1995)	analytical activity (perspective) insight - overview	synthesis activity (context) history - future / goal
Trompenaars (1993)	people - task informal - formal	hierarchical - egalitarian central - decentral
Ashkanasy, Broadfoot & Falkus (2000)	people - task	risk taking & innovative vs conflict avoiding & protection

Table A.5 Models composed of two domains

Table A.6 Models composed of three domains (1/2)

Chart of Models with Three Dimensions

Cognitive & Conceptual ***Author(s)*** *Models*	*#1*	*#2*	*#3*
Barry Child, & Bacon (1959)	Individualistic - Conscientious	Assertive - Compliant	Conservative - Venturesome
Likert (1967)	Causal (relational)	End-result (costs & earnings)	Intervening (motive & action)
Kelly (1967)	Consensus	Distinctiveness	Consistency
Harrison (1975)	Personal growth apart from organizational goals.	Voluntary commitment to worthwhile goals	Security - Deprivation (economic & political)
Deutsch (1975)	Equality enhances social relations	Equity enhances productivity	Need fosters personal development
Pugh (1976)	Authority concentrated - dispersed	Control line - impersonal	Structure structured - unstructured
Quinn & Rohrbaugh (1983)	External - Internal	Means - Ends	Structural - Flexibility
Schein (1985)	Cultural artifacts social organization	Ideology & deep values purposeful human action	Basic Assumptions preconscious notions
Adamopolous (1988)	Dominance Subordination resource type concrete-abstract	Formality - Intimacy resource exchange mode giving-denying	Particularistic-Universalistic interpersonal orientation positive social interaction

Table A.6 (cont.) Models composed of three domains (2/2)

Schwartz (1992)	Individualistic - Collectivistic	Self-enhancement - Self–transcendence	Conservatism - Openness to Change
Schwartz (1995 p11)	Egalitarian - Hierarchy	Mastery - Harmony	Autonomy - Embeddedness
Trompenaars (1993)	External nature of the world	Relationships with others	Managing time and aging
Hampden-Turner & Trompenaars (1998)	Independence - Communitarian autonomous actions - embeddedness & shared goals	Form of Commitment duty to friends - duty to organization	Analyzing - Integrating efficiency & segmenting - patterns & relationships
Xavier & Roger (1994)	Organizational Attachment	Organizational Effort	Conflictual Intensity
Johnsen (1995)	Project Organization one project - a sequence of ..	Creation of Energy	Direction of Change concentration - expansion
Zelger (1996)	Specific - General	Internal – External	Particularistic - Holistic
Payne (1996)	Strength of consensus	Psychological intensity	Pervasiveness of culture
Zhu (1998)	Ren (humanism) patterns of human relating	Shi (behavior) way of seeing or doing	Wu (structure & cognition) objective existence
Brugha (1998)	putting versus planning	in place versus with people	using position versus person
Chen et al (1998)	Cultural Values & Goals psychological motives personal - common	Goal Relations objective social reality as competitive - interdependent	Behavioral approach coordination of individual personal actions
Beyer et al (2000)	Symbols & Behaviors	Affective/Cognitive processes	Social Interactions

Table A.7 Models composed of four domains

Chart of Models with Four Dimensions

Author(s) Dimensions	*#1*	*#2*	*#3*	*#4*
Inkeles and Levinson (1969)	Relation to Authority	Conception of Self #1 masculine-feminine	Primary Conflicts.	Conception of Self #2 person's place in so:ie
Hofstede (1980)	Power Distance	Masculine-Feminine	Uncertainty Avoidance	Individualism-Collectivi
Schwaninger (1997)	Modeling quantitative - qualitative	Approach structural - discursive	Worldview subjective - objective	Rationality conceptual - communicational
McGuire (1988)	Cognitive - Affective consistent meaning - tension reduction	Internal - External self centered - other centered	Being - Becoming equilibrium - growth stability - change	Active - Reactive personal needs - environmental needs
Harrison (1975)	Person	Role	Task	People
Watson (1983)	Perspective	Reality	Method	Principle

Models Identifying More than Four Domains

The following models identify from seven to ten dimensions.

Ashkanasy, Broadfoot, and Falkus (2000:141)

10 dimensions for an organizational cultural profile:

planning
humanistic workplace
job performance
socialization on entry into the organization
development of the individual
innovation
environment
communication
structure
leadership

Weber (2000:316)

eight measures that successfully capture the essential characteristics of culture:

innovation
top management contact q
autonomy and decision making
integration-lateral interdependence
reward orientation
action orientation.
performance orientation
risk taking

GLOBE Project (Dickson et al, 2000)

nine bipolar dimensions for dealing with organizational culture:

individual-collective
power distance
gender egalitarianism
uncertainty avoidance
future orientation (close or far)
organizational collectivism
commitment
humane organization
performance orientation

Hampden-Turner & Trompenaars (1993)

seven bipolar dimensions:

specific - diffuse (range of involvement)
time prspective, which is short or long.
achievement - ascription (how status is accorded)
universal - particular (rules versus relationships)
affective - affective neutral (range of feelings and emotions)
internal - external
individual - collective

Table A.8 Models composed of multiple dimensions (more than four domains)

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