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THE CONTEMPORARY FOREIGN BEHAVIOR OF THE U.S. AND U.S.S.R.: AN APPLICATION OF RUMMEL'S STATUS-FIELD THEORY

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13 ABSTRACT

This is a comparative study of the contemporary foreign behavior of the United States and the Soviet Union. The comparison is carried out first, by defining the patterns of behavior of the two super powers; and second, by comparing the similarities and differences between them. The theoretical basis for this research is R. J. Rummel's Status-Field Theory.

The major findings of the study are:

(1) American behavior toward other nations consists of five independent patterns: Status Behavior, Formal Diplomacy, Patronage, Indirect Aggression-I, and Indirect Aggression-II.

(2) Russian behavior toward other nations consists of five independent patterns: Status Behavior, Formal Diplomacy, Bloc Cooperation, Economic Penetration, and Indirect Aggression.

(3) Status-Field Theory was well confirmed with regard to the three propositions relating the behavior of the United States and the Soviet Union to their similarities and differences with other nations on economic development and power. The most powerful confirmation was that of the status behavior proposition which says that the status dependent dyadic, cooperative, and conflictful behavior of the United States and the Soviet Union is inversely related to their power differences.

In general, this study confirmed the validity of Status-Field Theory. The theory demonstrated sufficient power to explain and predict the foreign behavior of the United States and the Soviet Union.

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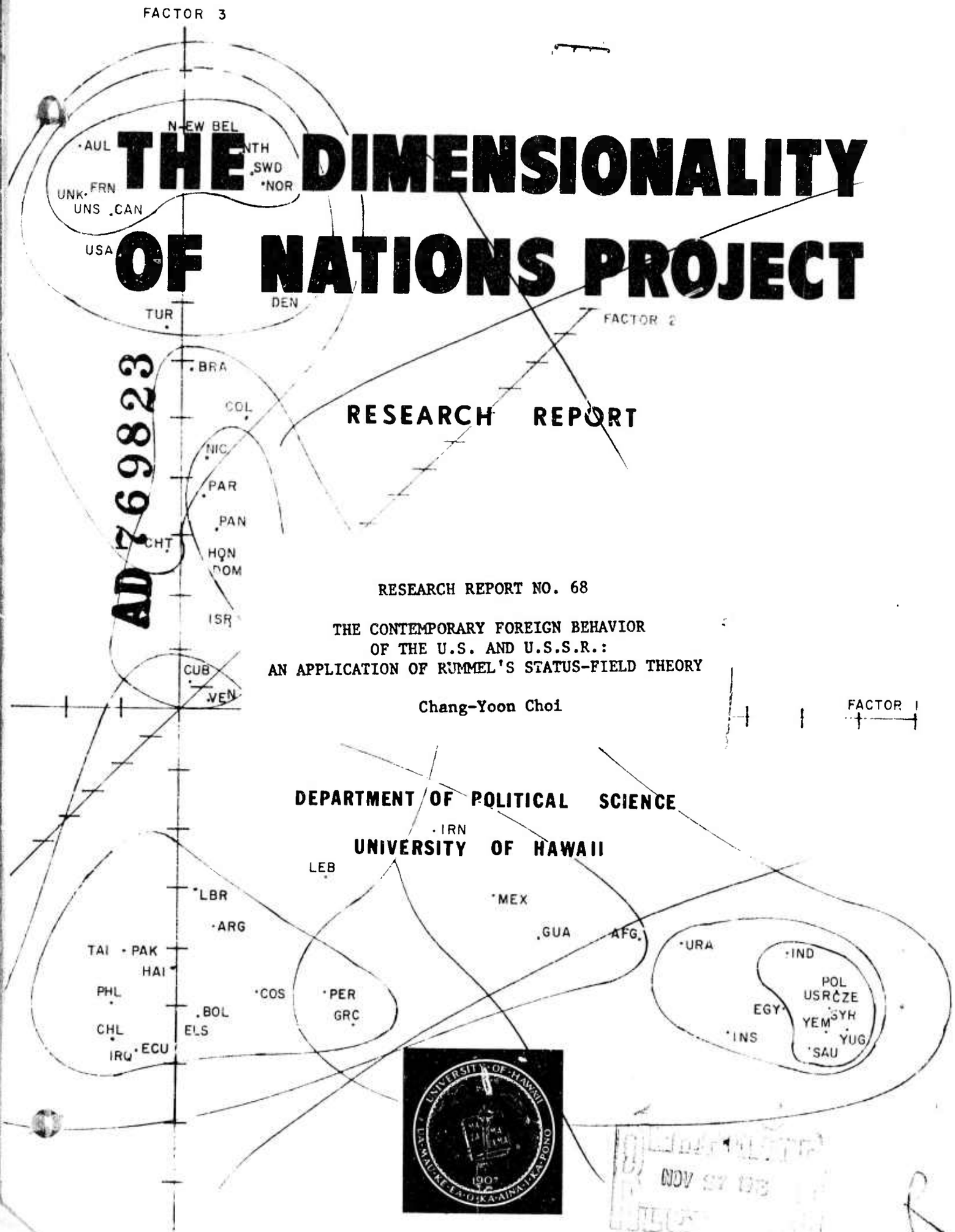

THE DIMENSIONALITY OF NATIONS PROJECT

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THE DIMENSIONALITY OF NATIONS PROJECT
Department of Political Science
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This paper is a dissertation submitted to the Graduate School of the University of Hawaii in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

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ERRATA

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	Page	Line	Error	Correction
1	41	4th fr. bot.	nation-statewithin	nation-state within
2	50	1	α_{ii}	α_{il}
3	50	9	$\alpha^*_{ii}\ d_{i-j,l}$	$\alpha^*_{il}\ d_{i-j,l}$
4	50	12	$-\alpha_{ii}$	$-\alpha_{il}$
5	55	14	α^*_{ii}	α^*_{il}
6	70	23	Energy Production Population	Energy Production x Population
7	75	13	energy production population	energy production x population
8	217	7	d.f. $\_30$	d.f. ≥ 30
9	217	20	Economic Penetration	1 Economic Penetration

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By Chang-Yoon Choi

A Dissertation Submitted to the Graduate Division of the University of Hawaii in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

ABSTRACT

This is a comparative study of the contemporary foreign behavior of the United States and the Soviet Union. The comparison is carried out first, by defining the patterns of behavior of the two super powers; and second, by comparing the similarities and differences between them. The theoretical basis for this research is R. J. Rummel's Status-Field Theory.

Status-Field Theory postulates that all nations strive to improve their economic development and power, and at the same time maintain a balance between the two. These upward mobility and equilibrium desires generate a status oriented motivation for a nation. Hence, status inconsistency, when perceived by the decision-elites of a nation, produce cognitive dissonance and stress. Attempts to reduce the dissonance generate behavioral forces for a nation. The theory is given an empirically testable mathematical structure through

Rummel's postulate that "the behavior of one nation toward another is a linear transformation of their differences from each other on their attributes."

Data were collected on forty-six attribute variables for eighty-three nations and on twenty-eight variables which measure each of the two super powers' behavior vis-a-vis the other eighty-two nations. The data years are 1960 and 1965. The major techniques employed for this study are image factor analysis, which delineates the basis dimensions of attribute and behavioral spaces; and canonical regression analysis, which generates a set of distinct linear patterns.

The major findings of the study are:

(1) American behavior toward other nations consists of five independent patterns: Status Behavior, Formal Diplomacy, Patronage, Indirect Aggression-I, and Indirect Aggression-II.

(2) Russian behavior toward other nations consists of five independent patterns: Status Behavior, Formal Diplomacy, Bloc Cooperation, Economic Penetration, and Indirect Aggression.

(3) Status-Field Theory was well confirmed with regard to the three propositions relating the behavior of the United States and the Soviet Union to their similarities and differences with other nations on economic development and power. The most powerful confirmation was that of the status behavior proposition which says that the status dependent dyadic, cooperative, and conflictful behavior of the United States and the Soviet Union is inversely related to their power differences.

(4) Confidence in the validity of Social Field Theory was

strengthened further in that linear linkages between attribute distances from the United States and the Soviet Union and their behaviors toward those nations were again confirmed.

(5) The major similarities in behavior between the two super powers reside in the status behavior and formal diplomacy patterns. That is, deterrence is the major concern for both countries as far as their status behaviors are concerned. And, formal diplomacy behavior is the major mechanism for maintaining the status-quo of the two.

(6) The major differences between the two countries are:

a. For the overall Soviet behavior patterns the object nation's political orientation is as important as its power and population. On the other hand, for the United States, the power of the object nation plays the most important role among all the attribute dimensions.

b. The nations in the Communist bloc are both allies and satellites of the Soviet Union. On the other hand, countries which are friendly to the United States are bifurcated, that is, one group of nations exists as allies and another group exists as clients of the United States.

c. Russian indirect aggression is anti-status quo oriented, while American indirect aggression is status-quo oriented.

In general, this study confirmed the validity of Status-Field Theory. The theory demonstrated sufficient power to explain and predict the foreign behavior of the United States and the Soviet Union.

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CHAPTER I

INTRODUCTION

The study of the foreign behavior of the United States and the Soviet Union in contemporary world politics is of special importance to the study of international relations. The two countries have been recognized as world super powers since the end of World War II.[1] Both possess a new class of power, superior to those of the traditional European great powers, and capable of undertaking the central, managerial role in international politics. Both countries have possessed status higher than any other nation in the international system in terms of power potentialities and economic development. The super powers have a leading voice in the resolution of major international issues even though these issues may not be of immediate concern to them. Terms like "mutual deterrence," "spheres of influence," super power "condominium" imply that the super powers possess special rights and duties for maintaining international order and justice. At the same time, they are sometimes the chief sources of international disorder and injustice. In the post-World War II years, it has often been contended that the United States and the Soviet Union were wholly responsible for the Cold War, the

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[1] The term "super power" may be traced back at least as far as 1944, when William R. R. Fox applied it to Britain as well as the United States and the Soviet Union. See Fox, The Super Powers: The United States, Britain, and the Soviet Union - Their Responsibility for Peace (New York: Harcourt, Brace, 1944).

arms race, and international conflict at all levels. Due to their tremendous influence on the international system, we can say little about world politics or world peace without systematic knowledge of the foreign behavior of the two super powers.

For this purpose, the aim of this study is to define the patterns of contemporary foreign behavior of the United States and the Soviet Union and to compare the similarities and differences between them. R. J. Rummel's Status-Field Theory is used as the theoretical basis for this research.

Status-Field Theory is the most general scientific theory in international relations. It provides an empirically testable mathematical structure by using standard social science techniques such as correlations, regression analysis, factor analysis, and canonical regression. It integrates the theories presented in the field of international relations such as Field Theory, Status Theory, cognitive dissonance theory, and other structural theories. Status-Field Theory postulates that nations strive to improve and equilibrate their wealth and power. These upward mobility and equilibrium desires generate a status oriented motivation for a nation. Hence, status disequilibrium within a nation and incongruence between nations,[2] when perceived by the decision-elites of a nation, are cognitively dissonant and stressful. Attempts to reduce

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[2] The terms of status theories used in this study perhaps need some clarification. Hereafter, status disequilibrium refers to the unbalanced configuration between power and economic development within a nation, and status incongruence refers to the disparity of statuses between nations. Both status disequilibrium and incongruence together are termed status inconsistency.

the dissonance generate behavioral force for a nation.

The whole theoretical structure and its operationalization are grounded on the analytical structure of Rummel's Social Field Theory.[3] Field Theory postulates a linear linkage between the behavior of social units and the attribute differences between them. Field Theory posits a field of social reality with an analytical distinction between the attributes of social units and their dyadic interactions. Attribute (A) and behavior (B) are defined within a Euclidean space. Distance vectors between social units on the dimensions of A space are seen as social forces determining the location of the social units on the dimensions of B space. The field is applicable to all social units and their behaviors. When the nation-state is taken to be the social unit, the theory then is applied to dyadic international behavior.

However, Field Theory itself lacks a concrete theoretical argument about a nation's behavior. But the explicit axiomatic and mathematical structure provides a theoretical apparatus into which various concepts and constructs may be fitted for rigorous deduction. Accordingly, Rummel developed Status-Field Theory by subsuming the valid concepts, assumptions, and propositions of status theory within the analytical framework of Field Theory.

A major task of this study is to help determine the empirical validity of Status Field Theory. In doing this, I utilize the Popperian

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[3] Chapter IV deals with Social Field Theory in detail. If not specified otherwise, the term Field Theory will hereafter refer to Rummel's Social Field Theory.

"criterion of demarcation" and emphasis upon deductive falsifiability.[4] That is, when a deductive theory is proposed, it should be tested as severely as possible by subjecting it to a series of varied and sincere attempts to falsify it. The results of such tests must be both reproducible and intersubjectively testable. So long as these attempts at falsification fail, we are justified in tentatively retaining the theory.[5]

Aside from corroborating Status-Field Theory, I also will investigate the empirical patterns in the foreign behavior of the United States and the Soviet Union. That is, (1) what are the empirically applicable general behavior patterns of the United States and the Soviet Union? and (2) what are the similarities and differences between them? By empirically applicable general behavior patterns I mean those behavior pattern models derivable from the Status-Field Theory, in which all the properties are

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4 Karl Popper, The Logic of Scientific Discovery (New York: Basic Books, 1959), pp. 32-42.

5 Field Theory has already been subjected to many empirical tests which have tended to support the theory. For example, with Model II of Field Theory (see Chapter IV for detailed explanation) using data from 1955, an average of 57 percent of the variation in international behavior was accounted for by distances on attributes. See R. J. Rummel, "Field Theory and Indicators of International Behavior," Dimensionality of Nations Project, Research Report No. 29 (University of Hawaii, 1969). From 1955 data with 81 dyads of the United States, nearly 50 percent of the variation in behavior was accounted for by the attribute distances. See Rummel, "U.S. Foreign Relations: Conflict, Cooperation, and Attribute Distances," in Bruce Russett, ed., Peace, War, and Numbers (Beverly Hills: Sage, 1972). Also Sang-Woo Rhee's study on Chinese foreign behavior with data from 1955 and 1965 revealed 55 percent and 52 percent, respectively. See Sang-Woo Rhee, "Communist China's Foreign Behavior: An Application of Field Theory Model II," DON Research Report No. 57 (University of Hawaii, 1971). For additional information on the test results of Field Theory, see Table 21 (p.135).

specific enough to explain as well as predict the foreign behaviors of the United States and the Soviet Union.

Data were collected on forty-six attribute variables for eighty-three nations and on twenty-eight variables which measure each of the two super powers' behavior vis-a-vis the other eighty-two nations. The data years are 1960 and 1965.[6] The major techniques employed for this study are image factor analysis, which delineates the basis dimensions of attribute and behavioral spaces; and canonical regression analysis, which generates a set of distinct linear patterns.

The actual analysis invokes two major steps: (1) Status-Field Theory is tested against data for 1960 and (2) the models of Status-Field Theory obtained from the above test are compared to the 1965 data to test their predictability.

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[6] In selecting the data years, one important assumption is the stability of the international system. That is, a stable international system enables us to assume that the perspectives of the United States and the Soviet Union toward all other nations -- the context of behavior -- were unaltered. The values of "the social space-time parameters" for the two actors should be stable in order to use Status-Field Theory for explanatory and predictive purposes. As a result of this rationale, this study used 1960 and 1965 for data bases. In effect, in the late 1940's and most of the 1950's there was an outbreak of open hostilities between the Eastenn and the Western Bloc. However, in the early 1960's the Cold War gradually changed into what the Americans usually called a "detente" and the Russians "peaceful coexistence." In this sense, the generalizibility of Status -Field Theory is somewhat limited. For further explanation concerning the system stability and stable "social space-time parameters," see Rummel, "Social Time and International Relations," General Systems, XVII (1972), 156-157.

CHAPTER II

METHODOLOGICAL FOUNDATIONS OF THE RESEARCH

Status-Field Theory utilizes a scientific form of inquiry into the study of international relations. Recognizing severe criticisms concerning the application of the scientific method to social phenomena, this chapter attempts to clarify the potentialities and limitations of the methods employed, and the general philosophical principles underlying this research.

Status-Field Theory, as proposed by R. J. Rummel, begins deliberately with the subjective or cognitive aspect of human behavior. The theory does not seek to explain human behavior in terms of observations of externals only. Rummel rejects positivism as inappropriate to the study of human behavior and appeals instead to a Kantian version of the phenomenological tradition. Kant makes a distinction between the phenomenon or appearance of reality in consciousness, and the noumenon or being of reality in itself. His Critique of Pure Reason recognizes scientific knowledge only of phenomena and not at all of noumena. This sort of epistemological position is both against the rationalism of Descartes, which seeks a rational knowledge of all reality, and against the empiricism of Hume which accepts no scientific knowledge at all except that of

mathematics.[1]

Concerning the two opposing views of reality, determinism and free will, this research takes a middle view which synthesizes elements from both without the dogmatic commitment to either position. Nevertheless, this research emphasizes that individuals are free to choose among alternative courses of behavior but their choice is usually circumscribed by contextual variables which can be known empirically. In a practical sense then, given a set of value priorities and a degree of rationality on the part of the decision-makers of any state, the measurable reality external to the decision-makers narrow the alternatives available. For example, even though the Soviet Union may wish to subjugate China, the decision-makers of the Soviet Union are frequently frustrated by conditions beyond their control despite the fact that they "choose" such a goal. They have to consider the relative military strength and power capabilities, the world political situation in general, and various domestic political situations, and so on. In short, the will or choice between alternative courses of action is clearly circumscribed by variables, many of which theoretically and empirically can be known. In this sense, the scientific approach has

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[1] For Kant's distinction between phenomenon and noumenon, see Immanuel Kant, The Critique of Pure Reason (Chicago: Encyclopedia Britannica, 1952), and George Schrader, "The Thing in Itself in Kantian Philosophy," in Robert Paul Wolff, ed., Kant: A Collection of Critical Essays (New York: Doubleday, 1967), pp. 172-188. For an overview and evaluation of Descartes' metaphysics and epistemology, see Alexander Sesonske, eds., Meta-Meditations: Studies in Descartes (Belmont, Calif.: Wadsworth, 1965). For Hume, see David Hume, An Inquiry Concerning Human Understanding (New York: Bobbs-Merrill, 1955).

the power to predict a nation's foreign behavior with a frequency or success considerably above chance.

Another obvious criticism against scientific inquiry points to the "uniqueness" of social phenomena; uniqueness of man, of events, and of culture in contrast to the generalizations that science wishes to impose upon them. The basic misunderstanding underlying this line of criticism concerns the nature of scientific generalizations. Though every particular studied in physical or biological science is undeniably unique, phenomena have some properties in common without being identical in all respects. Thus the scientist seeks not to deny uniqueness but to incorporate the unique cases (on the basis of a similarity or commonness, not on the basis of identity) into a classification and look for laws that control the different unique cases in a collective sense.[2] The generalizations in human affairs follow the same logic as in the natural sciences.

Another argument against the possibility of a scientific inquiry into social phenomena concerns the complexity of social reality. That is, the number of concepts, variables, and their possible relationships is so astronomical that many writers regard it as inherently not susceptible to scientific treatment. We can provide two replies

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[2] See i) Richard Rudner, Philosophy of Social Science (Englewood Cliffs, N. J.: Prentice-Hall, 1966), p. 68; ii) Hans Reichenbach, The Rise of Scientific Philosophy (Berkeley:University of California Press, 1968), p. 309; iii) Abraham Kaplan, The Conduct of Inquiry (Scranton: Chandler, 1964), p. 117; iv) Ernest Nagel rightly comments by saying, "... we cannot predict with great accuracy where a fallen leaf will be carried by the wind in minutes because ... we do not have the requisite knowledge of the relevant initial conditions. It is clear, therefore, that inability to forecast the indefinite future is not unique to the study of human affairs." See Nagel, "Problems of Concept and the Theory Formation in the Social Sciences," in M. Natanson, ed., Philosophy of the Social Sciences: A Reader (New York: Random House, 1963), p. 208.

to this argument. First, as Alan C. Isaak pointed out, the degree of complexity of social phenomena compared to natural phenomena is an "empirical, not a logical question."[3] It is illogical to say that scientific inquiry is impossible in the social sciences because social phenomena are more complex than natural phenomena. Second, the complexity argument breaks down when we consider that the analytical power of mathematics and logic has successfully untangled complex physical phenomena, and the cumulative achievement of scientific inquiry in physics and chemistry. Even though the beginning is modest and progress is slow, it is necessary to construct a theory with precise mathematical relationships as isomorphic as possible to complex reality. Great progress has been made in scientific theory building only when men were willing to formulate theories whose structures are explicit enough to enable checks on logical consistency, deduction, and predictions. To some extent the progress of science can be measured by the number of theories that are disproved. Therefore, the more complex the reality, the more we need precise mathematical theories.

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[3] Alan C. Isaak, Scope and Methods of Political Science Homewood, Ill.: Dorsey, 1969), p. 47.

CHAPTER III

APPROACHES ON THE FORCES OF NATIONAL FOREIGN BEHAVIOR

There has been a tremendous amount of literature on the forces of national foreign behavior in general and on the analysis of the foreign behavior of the United States and the Soviet Union in particular. However, as Harold Guetzkow once commented, no theory has been developed to integrate systematically these "islands" of theories and approaches in the literature in a certain logical manner. This chapter attempts to examine ways in which Field Theory may serve to incorporate aspects of these competing approaches or theories. For this purpose, we will review the assumptions, theories, and empirical implications of these major international relations approaches. While many other approaches might be mentioned, only six have been selected. They deal with power, national political system, geography, value-ideology, international system, and decision-making.

3.1. Power Approach. Traditionally, power played the role as a centralizing and organizing concept in the study of international relations. The assumption of this approach is that the configuration of power among nations determines their policy and behavior. Although there is no consensus on the definition of power, it is usually conceived as the ability of a state to: (1) achieve its objectives, (2) compel its adversaries to do what they would not

otherwise do, (3) prevail in conflict, or (4) influence the behavior of others in accordance with one's own ends. The main task of this approach is to identify and categorize the elements of national power and to link theoretically the elements to national foreign behavior.[1]

One of the most popular theories of power is "balance of power." It assumes that the international scene is the struggle for self-preservation in the Hebbesian state of nature and, therefore, each state is constantly aware of and concerned with its power positions vis-a-vis actual or potential opponents. Each state seeks to prevent another state or group of states from becoming so powerful as to threaten one's own security. Therefore, statesmen of each state consistantly attempt to take countervailing actions against the power positions of other states by establishing either a fairly equal power distribution with them or a situation

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[1] There is no consensus on the "elements," "factors," or "ingredients" of national power. They were defined by each of the students of international relations according to the "construct" by which he builds theoretical propositions. According to Hans Morgenthau, national character, national morale, quality of government, industrial capacity, and quality of diplomacy are the salient elements of power. According to A. F. K. Organski, they are geography, resources, economic development, population size, national morale, and political development. Quincy Wright identified them as armaments in being, military potential, national morale, and international reputation. i) Hans Morgenthau, Politics Among Nations (New York: Walker, 1964), pp. 110-149; ii) A. F. K. Organski, World Politics (New York: Alfred A. Knopf, 1968), p. 124; iii) Quincy Wright, The Study of International Relations (New York: Appleton Century, 1955), pp. 138-139.

of preponderance[2] by employing a variety of methods, some of which are "alliances," "counteralliances," "establishments of buffer zones," "arms race," or "intervention." Most of the studies on deterrence, alliances, bipolarity-multipolarity, arms race, intervention concerning the foreign policies of the United States and the Soviet Union since 1945 are based on these balance of power theories.

A. F. K. Organski's "power transition" notion is another explicit power approach. He argues that nations are ranked in a power pyramid and that the international order is shaped by one nation at the top and many at the bottom. A large power discrepancy between the dominant nation and those below it ensures the security of the leader and the stability of the international order as a whole. On the other hand, international conflict is most likely when there is an approaching balance of power between the dominant nation and a major challenger. In short, a large power imbalance promotes peace; power parity promotes war; and the dominant nation is a secure and peace-loving nation.[3] Based on this "power transition" ideas, Robert North and Nazli Choucri suggest that drastic changes in relative power

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[2] Fundamentally, there are two alternatives of balance of power theory: balance which means equilibrium and balance which means preponderance. However, given the concept of power which is difficult, even impossible to measure with precision, and the psychological satisfaction of statesmen who seek national security of having "a surplus of power," the latter has stronger position among the students of balance of power theory. For criticisms of equilibrium concept, see Nicholas J. Spykman, American Strategy and World Politics (New York: Harcourt, 1942), pp. 21-22; Morgenthau, op. cit., Chapter 14.

[3] A. F. K. Organski, World Politics, pp. 338-376.

capabilities lead to dissatisfaction and instability if the dominant power perceives itself as being challenged, or threatened by another power.[4] In short, the power approach explains national foreign behavior as a function of the power configuration among nations.

3.2. Domestic Political System Approach. In this approach, the domestic structural variables of a nation are crucial sources for an understanding of foreign policy decision-making. This approach, therefore, tends to hold constant the individual decision-maker's role and puts major emphasis on the structural forces of the domestic policy influence system. For example, William D. Coplin identified four major types of domestic political influence systems for a nation's foreign behavior: bureaucracy, party system, interest groups, and the public.[5] The major achievement of this approach is the development of a conceptual framework for analyzing the role of and interrelationships among these different types with regard to the process and output of foreign policy decision-making.

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[4] Robert North and Nazli Choucri, "Background Conditions to the Outbreak of the First World War," Peace Research Papers, IX (1968), 125-137.

[5] William D. Coplin and Charles W. Kegley, Jr., A Multi-Method Introduction to International Politics (Chicago: Markham, 1971), pp. 77-82. These four types are similar to Gabriel Almond's fourfold categorization of political elites: political elites, which include elected officials and party members; administrative or bureaucratic elites; interest elites; and communication elites. See Gabriel Almond, The American People and Foreign Policy (New York: Praeger, 1962), pp. 139-140.

Roger Hilsman discusses American foreign policy making in terms of the "consensus-building process" versus "rational decision-making"[6] and Berhard Cohen sees American foreign policy as the result of an inordinately complex "pattern of influence."[7] Samuel P. Huntington's intensive study on the structure of civil-military relations in American defense policy making[8] and Burton M. Sapin's study on the functional and organizational role of the military in American foreign policy making[9] are two of the good examples of the bureaucratic emphasis. Cecil V. Crabb has dealt with partisan influence on American foreign policy,[10] and Lester W. Milbrath has clarified well the role of interest groups in foreign policy formulation of the United States.[11]

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6 Roger Hilsman, "Congressional-Executive Relations and the Foreign Policy Consensus," American Political Science Review, LII (Sept., 1958), 725-745.

7 Berhard Cohen, The Political Process and Foreign Policy (Princeton: 1957), p. 285.

8 Samuel P. Huntington, The Common Defense (New York: Columbia University Press, 1961).

9 Burton M. Sapin, "The Politico-Military Approach to American Foreign Policy," James Rosenau, Vincent Davis, and Maurice A. East, eds., The Analysis of International Politics (New York: Free Press, 1972), pp. 320-341.

10 Cecil V. Crabb, Bipartisan Foreign Policy: Myth or Reality? (Evanston, Ill.: Row Peterson, 1957).

11 Lester W. Milbrath, "Interest Groups and Foreign Policy," in Domestic Sources of Foreign Policy ed. by James Rosenau (New York: Free Press, 1967), pp. 231-251.

Some work utilizing the Soviet model also have been done. The impact of the Communist party on Soviet foreign policy was studied by Jan F. Triska and David D. Finley.[12] Peter Meyer's study on the relationship between the Soviet bureaucracy and totalitarian expansionist foreign policy is also worth noting. According to Meyer, Soviet imperialism is motivated neither by the interests of the Russian nation nor by the interests of international communism. Its driving force is the interests of the Soviet bureaucratic regime. For this reason, the mere expansion of Russia's power and influence is not sufficient--its peculiar social order must be imposed everywhere, replacing previous social forms. Only this can satisfy the needs of the Soviet bureaucracy.[13] In a nutshell, this approach assumes the structural variables of the domestic political system as forces of national foreign behavior.

3.3. Geographical Approach. The role of geography in international relations is an age-old concern. Some students have stressed the importance of geographical factors such as territorial size, geographical locations of and distances between nations as determinants, or at least, conditions of national foreign behavior.

The United States and the Soviet Union have been accounted the world's great powers because of their geographical advantages of size and strategic locations. It was these advantages that, a

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[12] Jan F. Triska and David D. Finley, Soviet Foreign Policy (London: Macmillan, 1968).

[13] Peter Meyer, "The Driving Force Behind Soviet Imperialism," Commentary (March, 1952), 209-217.

century ago, Alexis de Tocqueville evoked in a prophetic observation that both Russia and America would one day hold within their hands "the destinies of half of the globe."[14] Referring to European geopolitical theories explicitly or implicitly, American writers such as Alfred Thayer Mahan, Nicholas J. Spykman and Stephen B. Jones probed the implications of American geographical factors concerning her international behavior. Mahan concentrated on the impact of naval power upon national power potential. His geopolitical theory contributed to America's manifest destiny across the seas.[15] Spykman and Jones suggested that the "rimland" of Eurasia might prove strategically more important than the "heartland" if new centers of industrial power and communications were created along the circumference of the Eurasian land mass. The "rimland" hypothesis laid the theoretical foundations of George F. Kennan's proposal for a "policy of containment."[16]

Although most Marxists emphatically deny that the geographical position of a country may have a determining effect on its foreign policy, many scholars held the view that this is more clearly the case with Russia than with many other countries. That is, Russian foreign

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[14] Alexis de Tocqueville, Democracy in America (New York: Mentor, 1956), pp. 19-20.

[15] Alfred Thayer Mahan, The Influence of Seapower upon History (New York: Hill and Wang, 1957).

[16] Nicholas J. Spykman, The Geography of the Peace (New York: Harcourt, Brace, 1944), p. 43; Stephen B. Jones, "Global Strategic Views," Geographical Review, XLV (Oct., 1955), 492-508; George F. Kennan, "The Sources of Soviet Conduct," Foreign Affairs, XXV (July, 1947), 566-582.

policy is dictated primarily by long-range strategic interests deriving from its position as a great land-mass power, and its contemporary political aspiration in different areas in the world reflect the historic drives of Russian geopolitics. One of the most popular propositions says that maritime factors most conspicuously and most consistently influence the goals and tactics of Soviet foreign behavior. In short, the Russian specific territorial objectives are sea-outlets, ice-free ports, the subject of the historical drives towards the Straits, towards the Persian Gulf, and towards the Yellow Sea.[17] Another important proposition is that because of the "open space" and energy resources of Siberia, Russian expansionism will strongly be oriented toward Asia.[18] Geography is also considered to be a virtual veto power on the growth of Russian national power. From the standpoint of geography, George Cressey contends that it is very unlikely that the Soviet Union will ever overtake North America.[19] In short, all of these approaches assumes geographical factors such as location, territorial size, distance as forces determining, or at least conditioning, national foreign behavior.

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[17] George B. Cressey, Land of the 500 Million (New York: McGraw-Hill, 1955), pp. 30-32; Joseph Frankel, International Relations (London: Oxford University Press, 1969), pp. 58-59.

[18] David J. M. Hooson, A New Soviet Heartland? (New York: Van Nostrand, 1964).

[19] George B. Cressey, Soviet Potentials (Syracuse: Syracuse University Press, 1962).

3.4. Ideology-Value Approach. All countries are governed by certain systems of values and beliefs which we now call ideologies. Especially, the analysis of Soviet and American foreign policies must inevitably include a discussion of ideology.

The ideological approach to Russian foreign behavior assumes that the Marxist-Leninist political theory is the progenitor of all Soviet goals, expectations, and formulations of action. Particular attention emerged after 1945 when the world began to be under the vortex of anti-colonialism, anti-imperialism, and the spread of international communism. This approach searches the basic motivation of the Soviet foreign policies from the communist ideologies. It views all Russian foreign behaviors as part of the strategy of communist world revolution and tends to link revolutionary wars in Asia, Africa, and Latin America since 1945 to the communist theory and practice of wars of national liberation.[20] A typical expression about the communist ideology can be found from the passage of Gerhart Niemeyer and John S. Resheter, Jr.:

> The conviction of a Communist outcome of history renders the Soviet elite somewhat impervious to contradictions between their policies and experiences, even experience relating to their own objectives.... Since the basis frame of Soviet reference is a future believed to be exclusively Communist, combined with a totalitarian regime supposed to be the present earnest of the future, Communists live in a world which they will essentially be hostile to the rest of the

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[20] From the experience of Indochina and Algeria, especially the French doctrine developed revolutionary war as an indirect aggression of Russian or Chinese communism. See Samuel P. Huntington, ed., Changing Patterns of Military Politics (New York: Free Press, 1962), pp. 40-44. Official pronouncements from the Soviet Union supporting national liberation war was made by Khrushchev's speech of Jan. 6, 1961.

> world. Consequently, Soviet rationality differs radically from that of the West, and bars any mutual intercourse. The relation between the two worlds is irrational, since premises are neither shared nor compared nor considered relevant to each other, but are conceived in mutual exclusiveness and hostility.[21]

While the Soviet Communist ideology was imposed upon the country in 1917, the American version was developed within her political and social traditions. In denouncing the American diplomatic past, George Kennan assessed United States foreign policy from the mid-nineteenth century to 1945 in terms of "legalistic-moralistic" orientation. According to Kennan, Americans, especially in the second half of the nineteenth century, cultivated a spirit of romanticism about world peace and international conflict.[22] Even after the Second World War many writers on American foreign policy maintained that an American ideology was one of the primary factors for explaining its foreign behavior. Arthur Schlesinger, Jr., suggested three factors in an ideology of American foreign behavior: "Stimsonianism," "Global New Dealism" or "Liberal evangelism," and "anti-Communism.[23] In more

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[21] Gerhart Niemeyer and John S. Reshetar, Jr., An Inquiry into Soviet Mentality (London: Atlantic Press, 1956), pp. 39, 49-50.

[22] George Kennan, American Diplomacy 1900-1950 (New York: Mentor, 1957), p. 13, 16.

[23] According to Schlesinger, Jr., "Stimsonianism" is the view that "an orderly world requires a single durable structure of world security, which must everywhere be protected against aggression: if aggression were permitted to go unpunished in one place, this by infection would lead to a general destruction of the system of world order." Schlesinger calls this Stimsonianism because he defines it as the basis of Secretary of State Henry Stimson's reaction to the Japanese incursion into Manchuria. By "global New Dealism" or "liberal evangelism" he means that the United States has a saving mission to the world. His last factor, "anti-Communism" is based on the American belief that communism is aggressive and militant and therefore a threat to the peace. See Richard Pfeffer, ed., No More Vietnam? (New York: Harper, 1968), pp. 7-9.

or less realistic terms, Philip C. Jessup talks about American ideology not on the basis of pure moralistic terms but as a means to achieve real American national interest. Jessup believes that a positive American interest is the fruitful development of free institutions in other countries and permitting American society to benefit from the healthy interchange of ideas, peoples, and values with those societies.[24] Robert Edler believes that the ideology-value orientation is inevitable because the democratic process of American foreign policy formulation necessarily results in a "lack of pragmatism." The policies which American decision makers recommend must be modified to stay within the limits of change possible in American public opinion. American public opinion is based, in some measure, on emotional rather than on rational grounds, and American foreign policy incorporates moral or other highly subjective considerations into her international behavior.[25]

Of course, this consistent stress on an ideology-value approach is not immune to criticisms. As one of the realist counterparts, William Welch asserts all ideological manifests in Soviet foreign

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[24] Jessup points out six objectives of American foreign policy: (1) security, (2) economic prosperity, (3) opportunity for self-improvement, (4) an environment conducive to freedom, (5) prestige and influence, and (6) satisfying a sense of justice. The description introduced here is based on his point (4) and (6). See Philip C. Jessup, "Ends and Means of American Foreign Policy," in David S. McLellan, eds., The Theory and Practice of International Relations (Englewood Cliffs, N.J.: Prentice-Hall, 1962), pp. 197-200.

[25] Robert Edler, "Factor Affecting Stability of the Balance of Power," in ibid., pp. 234-235.

policy as only a "post-factor rationalizer." Welch states that "the security and aggrandizement of the Soviet state constitute the prime motor and ultimate goal.[26] Unimpressed by the ideological approach, Hans Morgenthau defines Soviet ideological drives as camouflage and disingenuous rationalization of the long tradition of Russian imperialism.[27] With theoretical and empirical fruitfulness, Werner Levi tries to answer the issue by casting it in terms of a hypothetical contrast between "ideology" and "national interest." Starting with the assumption that the influence of ideology and national interest on foreign policy is not necessarily mutually exclusive, Levi attempts to discover the relative weight of the influence of each, either singly or in mutual interaction, upon the formulation of foreign policy. After a thoroughgoing examination of the nature of an ideology, the national interest at stake in foreign policy, the international political system, and the process of policy-making itself, he concludes with the superior influence of national interests in every instance.[28]

In spite of these assertions, some analysts could not accept these realistic appraisals of ideology. For realism, though logically overwhelming, excludes something which appears to be essential to all

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[26] William Welch, "The Sources of Soviet Conduct: A Note on Method," Background, VI (Winter, 1963), 17-27.

[27] Hans Morgenthau, In Defense of the National Interest (New York: Alfred A. Knopf, 1951). See especially p. 80.

[28] Werner Levi, "Ideology, Interest, and Foreign Policy," International Studies Quarterly, XIV (March, 1970), 1-31.

effective political thoughts: a final goal and an emotional appeal. Successful political thinking should consciously or unconsciously posit a finite goal and provide emotional appeal in the form of a myth, which facilitates the accomplishment of its objective. In fact, Marx promised a classless society as the absolute goal where the dialectic no longer operates and communism provided a "myth" in terms of a proletariat world revolution. As Harold Laski put it, "communism has made its way by its idealism, and not by its realism, by its spiritual promise, not by its materialistic prospects."[29]

In short, the review of the ideology-value approach leads us to suggest the following three propositions. First, ideology and value form belief systems which influence the decision-makers in terms of perception and action. By perception I mean the decision-makers' subjective interpretation of surroundings and by action I mean the behavior that is consciously directed toward achieving certain previously defined objectives. Second, ideology and value are instruments of foreign policy in that they provide justification for actions. Finally, ideology and value provide emotional appeal in the form of a myth not only to decision-makers themselves but also to the population concerned.

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[29] Harold Laski, Communism (New York: Holt, 1927), p. 250. Karl Mannheim's definition of ideology is similar to Laski's. According to Mannheim, ideology postulates belief in a set of symbols which, even though they may be false objectively, still characterize the total myth system of social groups and are essential to the spiritual cohesion of a ruling group which would lose its sense of control if it were conscious of the real state of affairs. See Karl Mannheim, "Ideology and the Sociology of Knowledge," in May Brodbeck, ed., Readings in the Philosophy of the Social Science (London: Macmillan, 1968), pp. 114-123.

3.5. International Systems Approach. Systems approach, a generic and inclusive metatheory, examines the structure and function of the international system as a whole with the expectation that propositions confirmed in biological and physical systems can be confirmed in social systems. The most common use of the term deals with the nature of the international system, the mechanisms by which it is maintained, and the processes by which it is transformed. Since Gabriel Almond, David Easton, Morton Kaplan, and others called attention to the relevance of the systems concept for political analysis, this approach has gained wide acceptance as a central device for organizing and analyzing data for international relations.

The systems approach produced many derivatives with its framework for organizing data, integrating variables, and introducing materials from other disciplines. One of them is input-output analysis. Warren Phillips utilized this simple model to examine international conflict. Based on his "behavior begets behavior" theory, Phillips established a direct linkage between conflict behavior which a nation sends to and receives from the international conflict system. He made a heuristic contribution to the international systems approach in terms of methods and useful propositions.[30] The structural-functional analysis is another major derivative. George Modelski, employing this approach, posits that international systems are social systems consisting of sets of objects with relationships among themselves; that all inter-

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[30] Warren R. Phillips, "The Conflict Environment of Nations: A Study of Conflict Inputs To Nations in 1963," in Jonathan Wilkenfeld, ed., Conflict Behavior and Linkage Politics (New York: David McKay, 1973), pp. 124-147.

national systems have structures, or relatively stable system responses to the need to satisfy functional requirements; and that the same functional requirements are satisfied in all international systems, namely, resource allocation, authority, solidarity, and culture.[31] In short, the systems approach in international relations assumes that the structural and functional variables are forces of a nation's foreign behavior.

3.6. Decision-Making Approach. Another popular way of looking at the sources of a nation's foreign behavior is to focus on the behavior of certain individuals who are responsible for making the foreign policies of their state. For the purpose of discussion, this approach can be divided into two categories: micro-level view of decision-making which focuses on the individual-psychological aspect; and macro-level view with emphasis on looking at the wider social-organizational environment within which political decision-makers act.

The major assumptions of the micro-level individual-psychological approach are: all foreign policy behavior is the behavior of the leaders; decision-makers are usually irrational problem solvers[32]

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31 George Modelski, "Agraria and Industria: Two Models of the International System," in Klaus Knorr, eds., The International System: Theoretical Essays (Princeton: Princeton University Press, 1961), pp. 118-143.

32 For discussion of rationality and irrationality of foreign policy decision-making, see William A. Scott, "Rationality and Non-Rationality of International Attitudes," Journal of Conflict Resolution, II (March, 1958), 8-16; Sidney Verba, "Assumptions of Rationality and Non-Rationality in Models of the International System," World Politics, XIV (Oct., 1961), 93-117.

whose behaviors are subject to individual psychological factors. This approach, therefore, explains a nation's foreign behavior in terms of personality, value orientation, cognitive condition, and images of decision-makers. Charles Prince's psychological study of Joseph Stalin is one good example. Prince contends that the domestic and foreign policies of the Soviet Union have been projections of the basic attitudes and drives characterizing the leader.[33] Ole R. Holsti, in his study on the personality of John F. Dulles, found that beliefs and images of the Secretary of State had an important effect on the formulation of the general direction of United States policy toward the Soviet Union in the 1950's Holsti argues that Dulles would reject for one reason or another any "information that might challenge the inherent-bad-faith model of the Soviet Union" that Dulles held.[34]

In order to make individual-psychological variables more predictive some analysts pursue a more systematic analysis of the images, values, or motives of individual decision-makers with reference to a broad social and cultural context. Herbert C. Kelman suggests a conceptual scheme for this approach by distinguishing four major sources of the images, motives, and values that a decision-maker brings to any given situation: (1) the "role" that he is enacting

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33 Charles Prince, "A Psychological Study of Stalin," Journal of Social Psychology, XX (Nov., 1945), 138.

34 Ole R. Holsti, "Cognitive Dynamics and Images of the Enemy," Journal of International Affairs, XXI (1967), 16-40.

within his decisional unit within the larger structure of which this unit is a part, (2) norms and values of his particular "society" and "culture," (3) norms and values of the "subgroups" from which the decision-makers are recruited, and (4) his "personality."[35]

However, the macro-level decision-making approach views that individual decision-makers provide an incomplete picture of state action. The "individual variable"--to use James Rosenau's term--is an important but nonetheless partial determinant of foreign policy decisions. The decision-makers make their decisions within a total environment or milieu which includes not only domestic factors such as public-social pressures and bureaucratic-organizational processes but also various transnational factors operating in the international system. Glenn D. Paige's case study on the United States' decision to intervene in the Korean War in 1950 and its comparative study with American decision in the Cuban missile crisis in 1962 is an explicit application of this macro-level decision-making approach.[36] Jan Triska and David Finley also examined both the organizational setting and psychological predispositions of foreign policy makers in the Soviet Union.[37] In short, this approach seeks the forces of national foreign

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35 Herbert C. Kelman, ed., International Behavior (New York: Rinehart and Winston, 1965), pp. 588-589.

36 Glenn D. Paige, The Korean Decision: June 24-30, 1950 (New York: Free Press, 1968). See also Paige, "Comparative Case Analysis of Crisis Decisions: Korea and Cuba," in Charles F. Hermann, ed., International Crises: Insights from Behavioral Research (New York: Free Press, 1972), pp. 41-55.

37 Jan F. Triska and David D. Finley, Soviet Foreign Policy (London: Macmillan, 1968).

behavior from decision-makers, decision processes, and total environment within which decisions are made.

In conclusion, none of these approaches and theories are without merit. However, none provides any rigorous general theory of international relations whose structure is explicit enough to enable checks on logical consistency, deduction, and predictions. They can present, at best, a series of propositions or loose conglomeration of hypotheses. However, international relations cannot be explained by any of these single perspectives or loose constructs such as power, interest groups, or geography. A variety of perspectives must be interrelated and combined in a logical manner. That is, a nation's foreign behavior is subject to a set of interacting forces. When the forces are combined, some forces cancel each other, while others reinforce each other in generating the particular behaviors of a nation. Therefore, the natural and fundamental question is how these forces are combined. Field Theory allows for such combinational possibilities.

CHAPTER IV

FIELD THEORY OF INTERNATIONAL RELATIONS

The concept of "field" was introduced as an analytic organizing scheme in the study of international relations by Quincy Wright in 1955.[1] However, it was not a pure invention. Similar conceptual aspects could be found in field theories in physics as early as the eighteenth century.[2] In psychology Kurt Lewin generalized the notion of "field" in the early twentieth century when he tried to apply Gestalt structure to social relations.[3]

However, both Lewin's and Wright's field theories are short of being rigorous. Their works lack an adequate structure that is explicit enough to make the logic of the theory clear and that embodies methods by which implications or deductions are to be drawn and tested by experience. Though Lewin borrowed extensively from topology and vector analysis, these were not combined in a formal

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[1] Quincy Wright, The Study of International Relations, pp. 531-569.

[2] Field theories of nature originated in eighteenth century physics and were first developed for continuous material media, such as fluids and heat conduction in solids. Attempts were made to apply such a field approach to gravitation, electricity, and magneticism. Especially, Ruggiero Boscovich, Michael Faraday, and J. Clerk Maxwell played an ancestrial role in this field. For further detail, see Mary Hesse, Forces and Fields (Totowa, N. J.: Littlefield, Adams, 1965).

[3] Kurt Lewin, Field Theory in Social Science (New York: Harper & Row, 1964).

mathematical structure. Lewin also did not clarify all the epistemological questions involved in the transition from subjective psychological fields to fields of social relations, groups, or behavior of groups.[4] Compared to Lewin, Wright's field theory has some advantages because he developed the coordinate system--coordinate axes of a multidimensional Euclidean space within which "systems of action" are located--and vector notions. However, Wright did not suggest any generalizable lawlike proposition in the form of a mathematical function concerning the relationships between the behavior of nations and the structural dimensions of the field. In addition, Wright presupposed no dynamic elements, no forces in operation, no generators of behavior as a necessary part of the field. In brief, Wright's field theory is methodologically unsophisticated and theoretically inefficacious.

Ten years after Wright, R. J. Rummel systematized a "Social Field Theory" using a linear algebraic model, which postulates that the behavior of social units towards each other is a result of their differences and similarities in attributes. The field of social reality is conceived as a dynamic one within which forces and tensions appear anywhere, energy is generated by human needs, continuous energy systems spread throughout various spaces of the field such as psycho-

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[4] Lewin himself thought also that his field theory was more a heuristic than a research program. He said, "... field theory can hardly be called a theory in the usual sense. Field theory is probably best characterized as a method; namely, a method of analyzing causal relations and building scientific constructs." See ibid., p. 45.

logical, ecological, cultural, or social.[5] The whole ideas of spaces and field are well incorporated into a rigorous formal structure whose deductions and implications are to be validated by empirical tests.

Rummel's Field Theory is based on five metasociological assumptions, which define the epistemological relationships among the properties of the field such as vectors, forces, tension, or energy to the subject of international relations.

First, international behavior and attributes form a social space--a field of complex and changing inter-relationships between nations, their characteristics, and their behavior. Concentrating on a particular variable or construct, as shown in most of the studies of international relations, is necessary but not sufficient to understand a nation's behavior. Rather, the whole field must be specified to provide the context and inter-dependent causal mechanism of interaction.

Second, a nation's attributes and behavior cannot be explained in isolation. They become relevant not in an absolute sense but only in relation to attributes and behaviors of other states. This assumption, which is incorporated into the dyadic distance concept of Field Theory, deserves particular attention in the sense that few students of international relations deny the validity of this "relativity" notion

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[5] According to Rummel, field can mean two things: a region of space (psychological, social, cultural, etc.) within which things can be located as a function of space-time coordinates and field of forces. The latter presupposes the former and adds to it the notion of forces spread continuously through the region.

but little effort has been displayed to incorporate the assumption into a rigorous theory.

Third, the past is presumed to operate through behavior and attributes currently coexisting in the field. The determinants of behavior at a given time are the properties of the field at that time. This assumption asserts that the field endures through time, is modified by events and feedback, and is a product of history and learning. All the past forces are already presumed to operate through behaviors and attributes of nations currently coexisting in the field.

Fourth, social time is assumed to be part of the international relations social space--the field. Time is not a fixed concept like calendar time but relative to the observers. Time is also a vector in the field, having relationships with other properties of the field. Nation behavior and attributes have extensional and durational relationships; the passage of time is relative to the nation and the context.[6]

Last, nation attribute similarities and differences are field forces creating social-time space motion: attribute distances between nations cause international behavior. "Field" encompasses a social actor with all his needs and dispositions. The dispositions and needs are defined in reference to attributes or characteristics within the various spaces of the field, which are biological, psycho-

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[6] For a detailed discussion of social time, see Rummel, "Social Time and International Relations," General Systems, XVII(1972), 145-157.

logical, ecological, social, or cultural. The mere presence of a social actor with his needs and dispositions does not generate behavioral forces. In order to make the situation dynamic, the accessibility, which depends upon distance or proximity, and the will of the actor must be taken into account. Here arises the force of an actor to act. In short, attribute distance is the latent source for a behavioral force.

Based on these five metasociological assumptions, Rummel formulated the structure of Field Theory which has three basic axioms.[7]

Axiom 1: International relations is a field consisting of all nation attributes and interactions and their complex inter-relationships through time.

Attributes are defined as any description of a nation that is capable of differentiating it from another nation. Interaction is defined as any behavioral act which couples two nations together. This locates the behavioral act between the actor nation and the object nation in terms of "dyad."

Axiom 2: The international field comprises a Euclidean attribute space defining all nation attributes and a Euclidean behavior space defining all nation dyadic interaction.

This axiom limits the whole theory, permitting it to be operation-

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[7] Field Theory originally had seven axioms. But empirical and theoretical work revealed some redundancy. Therefore, the seven were reformulated into three new axioms. The reason for this will sppear in the subsequent discussion.

alized with Euclidean mathematical properties. Euclidean space is included within a larger vector space but it is the vector space of real numbers in which only Euclidean axioms and theorems are acceptable. For example, imaginary quantities which are meaningful in a vector space are not acceptable in Euclidean space. As far as vector space is concerned, the term linear space is used as a syuonym and the study of certain mappings of such spaces is called linear algebra. Therefore, such linear algebraic concepts as vector, dimension, basis, or transformation can be utilized for further structuring the theory. Moreover, and most importantly, since multivariate techniques such as multiple regression, canonical analysis, and factor analysis can be developed through linear algebra, the axiom provides a bridge over which the implications and deductions of Field Theory can be operationalized and tested.

Axiom 3: The attribute distances between nations in attribute space at a particular time are social forces determining the location of dyads in behavior space at that time.

This axiom postulates the fundamental linear linkage equation between attribute distances and behavior in the following formula:

$$W_{i\rightarrow j,\ k,\ t} = \sum_{\ell=1}^{P} \alpha_{\ell}\, d_{\ell,\ i\rightarrow j,\ t}$$

where W_k is the k-th dimension of behavior (B) space, $i \rightarrow j$ is a particular dyad with nation i acting toward nation j, $d_{\ell,\ i\rightarrow j}$ is the distance vector between nations i and j on the ℓ-th dimension in attribute (A) space. This axiom is the core of Field Theory. That is,

relative dyadic behavior of nation i to j is a resolution of the weighted attribute distance vectors; attribute distances are forces determining the behavior of nations toward each other. This axiom contains an empirically testable statement which makes the whole theory falsifiable.[8]

From this axiomatic system, so far two basic models of Field Theory, Model I and Model II, have been derived as a logical consequence of the axioms.

Field Theory Model I

Model I is a direct interpretation of axiom 3. The fundamental linkage of the axiom $\left(W_{i \to j,\, k,\, t} = \sum_{\ell=1}^{P} \alpha_{\ell}\, d_{\ell\,,\, i \to j,\, t} \right)$ implies that the distances between nation attributes are forces affecting the behavior of nations. A parameter weight for each distance dimension can be obtained by separately regressing the dimensions of behavior on the distance vectors. Parameter weights are generally applicable to all nations regardless of each nation's

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[8] These three axioms make four of the original seven axioms of Field Theory redundant. The original axiom 2 said "the international field can be analytically divided into attribute, A, and behavior, B, spaces into which attributes and interactions are projected, respectively, as vectors." This is redundant because the new axiom 2 postulates the international field as Euclidean space which means a vector space of real numbers. The original axiom 3 which said "the attribute and behavioral spaces are generated by *n* finite set of linearly independent dimensions" is also a repetition of the properties of linear algebra. That is, since each space is defined as vector space of real numbers and therefore can be mathematically structured by using linear algebra, if the number of nations are finite, then each space is generated by a finite set of linearly independent dimensions. The original axiom 4 stating "nations are located as vectors in attribute space and coupled into dyads in behavior space" is logically and mathematically subsumed by the new axiom 2 and 3. The original axiom 7 which stated "B space is a subspace of A space" is already assumed in the construction of the new axiom 3.

unique cultural, historical, and institutional characteristics. In other words, a nation's response to the various kinds of distances are the same across all other nations. This equation was named "Model I" by Rummel.

However, Model I contains some counterintuitive points. It conceives that each nation's "belief systems," "world view," or "definitions of situation," elements which have shown to influence decision-makers' perception and interpretation of distance vectors, should be the same for all nations. Model I was kept as the basic model of Field Theory only until empirical tests, in conjunction with the counterintuitive aspects, led to the development of an alternative model.

Field Theory Model II

In Model II the parameters are unique to each actor nation i. The mathematical expression of this model is,

$$W_{i \to j,\, k,\, t} = \sum_{\ell=1}^{P} \alpha_{i\ell}\, d_{\ell}\,, \quad i \to j,\, t$$

where k is a dimension of behavior space and $W_{i \to j}$ a projection on this dimension, t is a particular calendar time, d is the distance vector between i and j on the ℓ-th attribute dimension, and α_i is a space time parameter for a specific actor i which represents nation i's unique perception of distances on nation attributes at that time.

In matrix form, the equation is

$$W_{mxq} = D_{mxq} P_{pxq}$$

where m is the number of dyads, q is the dimensionality of B space, P_{pxq} is the unique weighting parameters.

This is the Multiple Regression Model which relates the resolution vector of A space to the k-th dimensional vector of B space. In order to apply the model to actual data, each of the B space vector will be regressed on all vectors of D employing the least-squares estimation technique, a standard solution within the multiple regression model. In each case the coefficient of multiple determination (R^2) will measure the proportion of the variation in the k-th behavior dimension which can be explained by the variation in the p number of distance vectors. In assessing the overall fit between A and B spaces, we measure the proportion in B space accounted for by A space. That is, we check the square of the trace correlation between the total predicted values from the Multiple Regression Model of Field Theory ($\hat{W}=DP$) and the observed value (W). The equation for the squared trace correlation, which shows the empirical fit of B to A space is:

$$\bar{r}^2 = \frac{1}{q} \sum_{k=1}^{q} \left(\frac{1}{m} W^k \hat{W}^k\right)^2 = \frac{1}{qm} \text{tr} \left\{ (W'\hat{W})' W'\hat{W} \right\}$$

where "tr" is the sign for summation of the diagonal elements of the matrix, and W^k is assumed standardized.

However, this multiple regression model does not assure us of finding the W^k which can be best accounted for by the distances of attributes. W^k is a basis dimension which constitutes a linear combination of dyadic behavior vectors. A basis is not unique to a vector space. That is, theoretically there may be an infinite numbers of bases of W, all of which (the coordinates of the space) can be rotated using any transformation matrix without altering the inner structure of the space. Therefore, while any dimension that is a linear combination of behavior will yield the same trace correlation between spaces, the distribution and magnitude of correlations between specific dimensions of behavior and distances will vary. As a result, it is highly desirable to transform W together with D to get the best fit between the two spaces. The canonical model of Field Theory provides the solution for this problem.[9]

The Canonical Model of Field Theory has many virtues compared to the Multiple Regression Model. It assesses not only the maximum fit between A and B spaces but also the relative importance of the distance vectors of A space in connection with the interrelationships among the behavioral dimensions. The canonical regression model is shown to be the most appropriate interpretation of Field Theory through theoretical and empirical works.

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[9] For a detailed discussion, see Rummel, "Field Theory and Indicators of International Behavior," DON Research Report No. 29 (University of Hawaii, 1969), pp. 21-24.

The mathematical equation of the model is:

$$\sum_{k=1}^{q} \beta_{ik,t} W_{i \to j,k,t} = \sum_{\ell=1}^{p} \alpha_{i\ell} d_{\ell,i \to j,t}$$

where is the weighting parameter of the k-th behavioral dimension of W. The matrix form of the equation, which gives solution for is:

$$W_{mxq} Q_{qxq} = D_{mxq} P_{pxq}$$

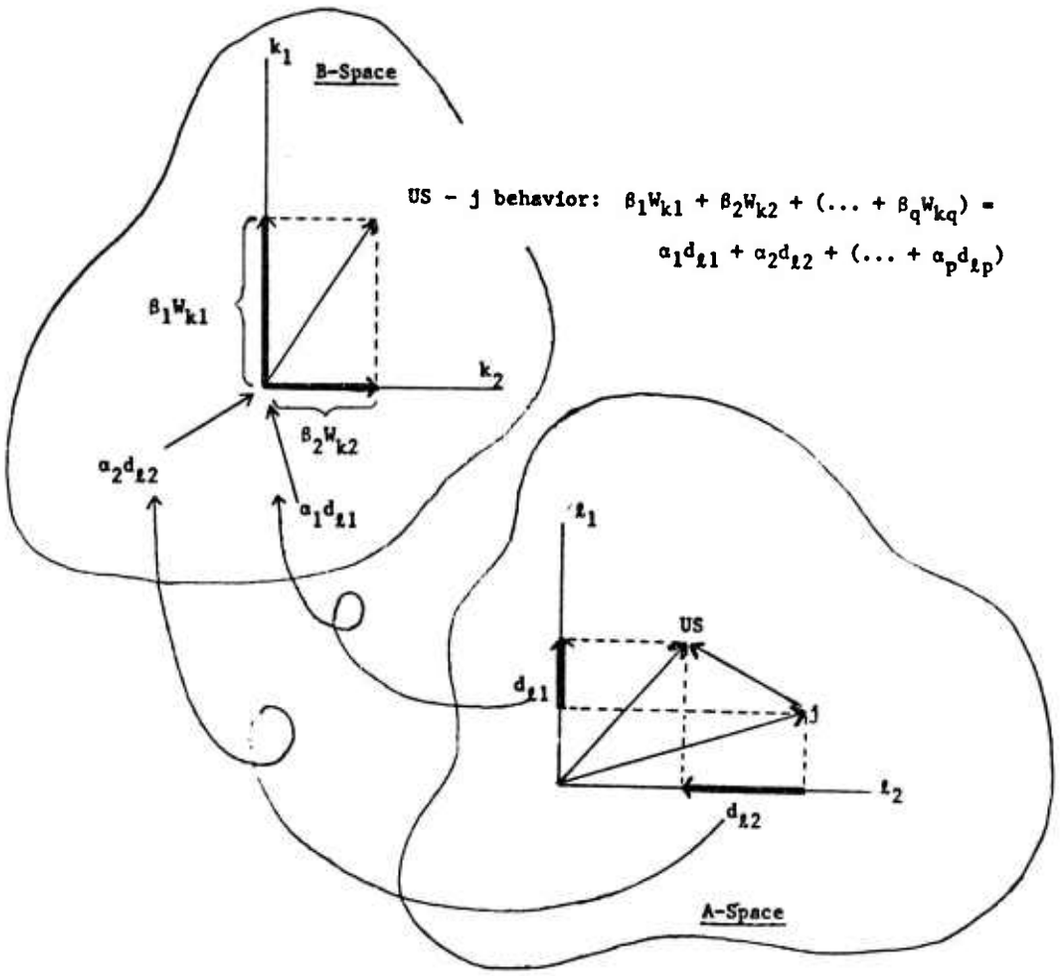
where Q is the matrix of parameters for all q dimensions. Theoretically, the parameters of P are the actor's unique perceptual frame of referrence in assessing attribute distances and the parameters of Q are the unique behavioral framework which gives different emphasis on each behavior in a given situation. Figure 1 may help to make the whole linkage clear.

In contrasts to most international relations theories, the fundamental relationship between behavior and attribute distances is established by a precise mathematical relationship. The deducations and implications of the theory are testable and falsifiable. However, as the basic equation indicates, Field Theory itself lacks a concrete theoretical argument about a nation's behavior. As pointed out by Rummel, Field Theory appears "a mathematical skeleton, some-

FIGURE 1

CANONICAL REGRESSION MODEL

OF FIELD THEORY



what barren of substantive meaning and implication."[10] But the explicit axiomatic and mathematical structure does provide the foundation upon which other theoretical structures might be built, and from which rigorous deduction can be obtained when substantial meanings are added. In short, Field Theory is "a logical superhighway by which highways and subhighways may be linked easily with it which allows us to systematically explore the resources of new land, build small paths." For example, in an attempt to explain conflict and cooperation between nations in terms of international stratifications, Rummel applied the concept "status" to the Field Theory framework and developed Status-Field Theory which is "substantially rich in application."

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[10] R. J. Rummel, "A Status-Field Theory of International Relations," DON Research Report No. 50 (University of Hawaii, 1971), p. 2.

CHAPTER V

STATUS-FIELD THEORY OF INTERNATIONAL RELATIONS

A derivative of Field Theory is Status-Field Theory which resulted by subsuming the valid concepts, assumptions, and propositions of status theory within the theoretical framework of Field Theory. Combining the strength and supplementing the weakness of both theories, the development of a synthetic theory is one step towards a rigorous general theory of international relations.

Since the ancient times, many political and sociological studies have explicitly and implicitly illuminated and employed various levels of social stratification theory.[1] Some general features of social

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[1] Gerhard Lenski identifies the major theories of social stratification as functionalist theories and conflict theories. Functionalist theories reflect the conservative belief that the existing system of social inequality is basically just. Conflict theories have their roots in the radical tradition that the status quo is basically unjust. According to Lenski's classification, Talcott Parsons and Kingsley Davis are conservative, while Karl Marx, Ludwig Gumplowicz and Gustav Ratenhofer are radical. See Gerhard Lenski, Power and Privilege (New York: McGraw-Hill, 1966), pp. 14-22. The idea of social stratification, however, is not the monopoly of sociological studies. Plato's Republic, Aristotle's Politics, Machiavelli's notion of "open society," Hobbes' theory of "social contract," Rosseau's dissertation on human inequality, all were aware that the emergence of social strata or classes, based on either inherent differences, acquired differences, or a combination of both, might present urgent problems, and each developed his own theory as to what structure of government would deal most effectively with such difficulties. However, these earlier studies deal only with two levels of social units: individual and groups. Therefore, transfering of concepts, assumptions, and theories from these levels to the nation-state level in international relations assumes a basic isomorphism across different levels of social units, because all levels place man at the center of behavior. In this study of nation-state behavior, the basic unit of analysis is the decision-maker, who makes decisions under the name of nation-statewithin the context of the international system. The "isomorphism" assumption can be validated by checking the conclusions derived from the assumption against the reality of nation-state behavior in international relations.

stratification are in little dispute among these studies and three are incorporated into Status-Field Theory. First, any social system is stratified. Stratification is an ordering of social units such as individuals, groups, or nations along some esteemed and desirable characteristics, i.e. wealth, power, and prestige. Second, man strives to improve his power, wealth, or prestige (which are general social values), and in such a way that they equilibrate upwards. This upward mobility and equilibration assumes a status oriented motivation. Finally, status disequilibrium, when perceived, is cognitively dissonant and stressful.[2] Attempts to reduce the dissonance generate behavioral force for a social unit.

These assumptions and propositions derived from them have been utilized widely in many theoretical and empirical studies in sociology. However, Gustavo Lagos and Johan Galtung took a theoretical departure in work on international relations. In an attempt to build a grand design for modernization of underdeveloped countries, Lagos states:

> ... we shall assume that the nations of the world can be considered a great social system composed of different groups interacting and that these national groups occupy various positions within the social systems. These positions can be ranked in terms of economic stature, power, and prestige, and they constitute the status of a nation.[3]

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[2] For psychological tension arising from status disequilibrium and cognitive dissonance, see James A. Geschwender, "Continuities in Theories of Status Consistency and Cognitive Dissonance," Social Forces (December, 1967), 160-171. For the relationship between psychological symptom of stress and status disequilibrium, see Eltom Jackson, "Status Consistency and Symptoms of Stress," American Sociological Review, XXVII (Aug., 1962), 469-480.

[3] Gustavo Lagos, International Stratification and Underdeveloped Countries (Chapel Hill: University of North Carolina Press, 1963), pp.6-8.

Lagos stressed the idea that the basic problem of inequality is embedded primarily in terms of nations rather than in terms of classes. Therefore, social stratification should be a thoretical basis for the modernization of underdeveloped nations, resolution of conflict between underdeveloped nations and the industrialized nations, and international solidarity. Johan Galtung also carried out a number of studies using the general idea of status in international relations. The most fruitful in attracting applications and tests of hypotheses is his structural theory of aggression.[4] Galtung assumes that the international system is a multidimensional stratification system and nations are profiled on the various status dimensions. His basic proposition is that rank disequilibrium powers or motivates aggressive actions undertaken by nations in interaction. However, Galtung's assumptions and propositions are not articulated within a mathematical system; the functional relationship between status measures and interactions are not given. In short, no attempt has been made to integrate those widely ranging status theories into a single, more general, and formally structured theory until Rummel's Status-Field Theory.

Rummel integrated within the analytical framework of Field Theory those "islands" of assumptions and propositions of the status theories into a formally structured single theory. One such island is cognitive dissonance theory which plays a major role in establishing a

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[4] Johan Galtung, "A Structural Theory of Aggression," Journal of Peace Research, II (1964), 15-38.

linkage between status configuration and behavior. This theory was inspired by Kurt Lewin's psychological field theory and elaborated further by status theorists such as James A. Geschwender and Edward Sampson.[5] The construct status, in short, is a psychological variable dealing with human motivation. For Rummel, as for Sampson and Geschwender, any behavioral consequencies of status configuration is a function of a cognitive condition, which is the cognition of one's objective statuses, of the expected relationship between statuses, and of any deviation from that expectation. Cognitive dissonance theory itself entails reference group theory: the individual's perception of his status within the social field is a function of the values or norms of the groups to which he relates himself, that is, his reference group. In short, the need for status for an individual, group, or nation is an outward concern with the ranking that one has in his reference group.

In sum, Status-Field Theory postulates that nation's behavioral force is generated from perceived dissonances of status inconsistency both within and between nations. Two main propositions relating status inconsistency to behavior are "status disequilibrium" and "status incongruence." Rummel summarized the general theoretical

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[5] For the relation between Lewin's field theory and cognitive dissonance theory, see Marvin Shaw and Phillip Costanzo, "Field Theories in Social Psychology," Ch. 5, 6 in Marvin Shaw and Phillip Costanzo, Theories of Social Psychology (New York: McGraw-Hill, 1970). See also Edward E. Sampson, "Status Congruence and Cognitive Consistency," Sociometry, XXVI (June, 1963), 142-162.

implications of the two propositions:

> (Status disequilibrium proposition) is that status disequilibrated individuals or nations -- those high on same statuses and low on others -- will be frustrated and under stress, potentially leading to internal or external conflict. The group of disequilibrated individuals is a pool of potential suicides, radicals, aggressors, or innovators.
>
> (Status incongruence proposition) is that individual or nation interactions increase as a positive function of their rank. High status individuals or nations and low status individuals or nations direct behavior upward in the status hierarchy.[6]

In Status-Field Theory, however, the monadic concept of "status disequilibrium" was extended dyadically. That is, while disequilibrium usually defines the actor's status imbalance and its effect on the actor's behavior to other nation, "status incongruence," the dyadic difference in status profile and status magnitudes, is stressed in Status-Field Theory.

Another unique position of Rummel's Status-Field Theory is the definition of the status dimensions. That is, status dimensions in Status-Field Theory are two: economic development and power. These two are theoretically relevant and empirically supported. Status should invoke consensus about what is esteemed or desirable. In international relations, only economic development and power have these qualities. Since other important cross-national attribute dimensions such as ideology or culture invoke no consensus about what is esteemed or respected, these dimensions are not statuses. At the same time various cross-national studies by different

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6. R. J. Rummel, "Status-Field Theory of International Relations," DON Research Report No. 50 (University of Hawaii, 1971), p. 7.

investigators using different nation samples, and different variables for different time periods have consistently delineated economic development and power.[7]

As far as the economic development and the power of nations are concerned, the traditional distinction made in sociology between "achieved" and "ascribed" is acceptable. That is, the power of a nation is conceived to be unchangeable within one or two generations, while economic development "can be changed significantly within one generation." Therefore, power is an ascribed status and economic development is an achieved status.

Rummel's position on the two status dimensions is different from much of the status literature which take three dimensions of stratification (wealth, power, and prestige) to be the international analogues of Weber's class, status, and party (or power).[8] Rummel does not define prestige as a status dimension, but merely as a status variable. Prestige is understood as a function of power and economic development.[9] Therefore, a nation's combined economic development and power measure its total status (rank) in the international system.

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[7] R. J. Rummel, The Dimensions of Nations, pp. 217-253.

[8] Weber's concept of stratification identifies classes with the economic order, status (or prestige) groups with the social order, and parties with the power order. See Bendix and Lipset, eds., Class, Status, and Power, (New York: Free Press, 1966), Introduction.

[9] Rummel's position is especially different from Maurice A. East, David Singer, and Melvin Small. According to East, the number of embassies (or embassies plus legations) in the capital city of a country was used as an indicator of prestige of a country. The idea came from a study by Singer and Small who used a weighted frequency count of diplomatic mission in a capital city as a measure of prestige in the

In short, the international system is stratified along the two status dimensions: economic development and power. An individual nation's position along the status dimensions determines his status. Status disequilibrium and incongruence create cognitive dissonance for the decision elites and generate behavioral forces on national policies. Under all of these status assumptions, the principle of upward status equilibration operates. That is, nations strive to upward statuses and equilibrate statuses without reducing any statuses.

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international system for the period from 1815 to 1945. See J. David Singer and Melvin Small, "The Composition and Status Ordering of the International System: 1815-1940," World Politics, XVIII (Jan., 1966), 236-282; Maurice A. East, "Status Discrepancy and Violence in the International System: An Empirical Analysis," in James N. Rosenau, Vincent Davis, and Maurice A. East, eds., The Analysis of International Politics (New York: Free Press, 1972), pp. 299-319. However, many status theorists cast doubt about the validity of prestige as a status dimension. With respect to prestige of individuals, groups, or roles in sociological studies, many people hold much the same position as Rummel. For example, W. Lloyd Warner, who has done the most extensive studies of prestige of individuals and families in the United States, has suggested that the prestige hierarchy represents the synthesis of all other stratification variables. See Joseph A. Kahl, The American Class Structure (New York: Rinehart, 1959), pp. 21-25. Gerhard Lenski also suggests much the same conclusion. See Lenski, Power and Privilege: A Theory of Social Stratification, pp. 430-431. For empirical evidences for prestige as a function of power and economic development, see Simon Schwartzman and Manuel Mora Y. Araujo, "The Images of International Stratification in Latin America," Peace Research Journal, No. 3 (1966), 225-243; Norman Z. Alcock and Alan G. Newcombe, "The Perception of National Power," Journal of Conflict Resolution, XIV (Sept., 1970), 335-343; Michiya Shimbori, "Measuring a Nation's Prestige," American Journal of Sociology, XLIV (July, 1963), 63-68.

These major assumptions and propositions of status theory were reorganized and incorporated into Field Theory to produce the following nine axioms of Status-Field Theory:

Axiom 1: International relations is a field consisting of all nations, their attributes and interactions, and their complex interrelationships through time.

Axiom 2: The international field is a Euclidean attribute space defining all the attributes of nations and a Euclidean behavior space defining all nation dyadic interactions.

Axiom 3: International relations is a stratified social system.

Axiom 4: Between nation attribute distances at a particular time are social forces determining dyadic behavior at that time.

Axiom 5: Some behavior dimensions are linearly dependent on statuses.

Axiom 6: Status behavior is directed toward higher ranking nations and the greater a nation's rank the more its status behavior.

Axiom 7: High rank nations support the current international order.

Axiom 8: Nations emphasize their dominant status and the other's subordinant statuses in interaction.

Axiom 9: The more similar in economic development status, the more nations are mutually cooperative.

These nine axioms become more substantial for Status-Field Theory with the aid of the following seven corollaries:

Corollary 1: Status is a continuous variable.

Corollary 2: An attribute space position defines a nation's relative status.

Corollary 3: A nation's elite identify with their rank and status configuration.

Corollary 4: Status incongruence between nations i and j is the distance vector between their status vectors on a status dimensions.

Corollary 5: Status disequilibrium causes cognitive dissonance.

Corollary 6: Common statuses between nations provide them with similar interests and a communication bridge.

Corollary 7: The more two nations are status incongruent, the more their relationships are uncertain and the more incongruent their expectations of each other's behavior.

Based on the nine axioms and seven additional corollaries, Rummel deduced thirteen theorems to explain status dependent cooperation and conflict behavior between nations.

Theorem 1 (Finite Dimensionality Theorem): The international field comprises a Euclidean attribute space defining all the attributes of nations and a Euclidean behavior space defining all nation dyadic interactions.

Theorem 2 (Status Theorem): Status dimensions are a subset of attribute space dimensions.

Theorem 3 (Position Theorem): Nations are located as vectors in attribute space and as vectors of nation dyads in behavior space.

Theorem 4 (Mobility Theorem): Nations desire upward mobility.

Theorem 5 (Equilibration Theorem): Nations having unbalanced statuses desire to balance them.

Theorem 6 (Cooperation Theorem): The higher the joint rank of nations i and j, the more cooperative their behavior.

That is, $CO_{i \to j} = \alpha_{ii} d_{i-j,1} - \alpha_{i2} d_{i-j,2}$ where $CO_{i \to j}$ is a behavior space cluster of highly intercorrelated cooperation vectors.[10]

Theorem 7 (Conflict Theorem): Two nations' status incongruence is correlated with their mutual status dependent conflict behavior.

Theorem 8 (Economically Developed Conflict Theorem): For economically developed actors, status dependent conflict behavior $CF_{i \to j} = \alpha^*_{ii} d_{i-j,1} - \alpha^*_{i2} d_{i-j,2}$[11]

Theorem 9 (Economically Underdeveloped Conflict Theorem): For economically underdeveloped actors, status dependent conflict behavior $CF_{i \to j} = -\alpha_{ii} d_{i-j,1} + \alpha_{i2} d_{i-j,2}$

Theorem 10 (Economically Developed Status Behavior Theorem): The status dependent cooperation and conflict behavior of high economically developed nations to others is a function of their power incongruence, that is, $CO_{i \to j} + CF_{i \to j} = -\gamma_2 d_2$

Theorem 11 (Economically Underdeveloped Status Behavior Theorem): The status dependent cooperation and conflict behavior of economically underdeveloped nations to others is a function of their economic development incongruence, that is, $CO_{i \to j} + CF_{i \to j} = -\gamma_1 d_1$

Theorem 12 (Status Time Theorem): The status dependent behavior of nation i and j at time t is linearly dependent on their status distance vectors at time t.

Theorem 13 (Behavior Dependence Theorem): Behavior space is a subspace of attribute space.

Among the thirteen only five are directly confirmable against empirical data: theorems 6, 8, 9, 10 and 11. However, considering

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[10] $d_{i-j}=S_i-S_j$ where S_i and S_j are statuses of economic development and power, respectively. The α's are positive parameters.

[11] The asterisks on the parameters distinguish them from those of the Cooperation Theorem.

considering the United States and the Soviet Union as two of the world's economic powers, we will deal only with theorems 6, 8 and 10 in this study. The following chapter will deal with how the three theorems can be tested against the real data of dyadic conflict and cooperation behavior of the United States and the Soviet Union.

CHAPTER VI

SOME PROPOSITIONS OF STATUS-FIELD THEORY

In the previous chapter we discussed the analytical and theoretical aspects of Status-Field Theory. This chapter deals with the empirical implications of the theory with particular emphasis on the three theorems (theorems 6, 8 and 10) which are directly testable with regard to the U. S. and U.S.S.R. dyadic international behavior.[1]

Before going into a detailed discussion, we need a clear understanding of the conflict and cooperation behavior defined in Status-Field Theory. According to Rummel, cooperation and conflict are not antipodes--opposite ends of a continuum--but are two clusters of highly interrelated behavior variables (vectors), and not single variables in themselves. Both conflict and cooperation can comprise different behavioral factors. Among these, some cooperation and conflict factors are dependent on status. In Status-Field Theory

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[1] Cooperation is any associative dyadic behavior. It includes "such private international behavior as tourists, student movements, migration, mail, exports, telegrams, and telephone calls; and such public international relations as treaties, economic and military aid, state visits, international conferences, international organization memberships, extensions of diplomatic recognition, and exchange of ambassadors." See R. J. Rummel, "A Status-Field Theory of International Relations," op. cit., p. 55. Likewise, conflict is also another associative dyadic behavior including negative sanctions, negative communications, military actions, etc.

only the status-dependent cooperation and conflict behaviors are to be explained by status incongruence.

Now, a cluster of interrelated dyadic actions which comprises either cooperation or conflict behaviors may not be a separate behavioral dimension. Both cooperation and conflict (as clusters of variables) may have high positive projections on the same hypothetical behavior dimension. Let us call such a dimension the "status behavior" of a nation.

With these concepts in mind, the three theorems and their implications with regard to the dyadic foreign behavior of the United States and the Soviet Union will be discussed in detail.

Cooperation Theorem

The cooperation theorem (Theorem 6) says: "The higher the joint rank of nations i and j, the more cooperative their behavior." In mathematical expression,

$$CO_{i \rightarrow j} = -\alpha_{i1}\, d_{i-j,1} - \alpha_{i2}\, d_{i-j,2}$$

where $CO_{i \rightarrow j}$ is any behavior space cluster of highly intercorrelated cooperation vectors; subscripts 1 and 2 denote the two status dimensions, economic development and power; d is the distance between i and j on the status dimensions; and α's are positive parameters.

The linear linkage of this theorem was provided by Axiom 5. The overall formulation was derived from Axioms 6, 7 and 9. Axiom 6

(Rank Behavior Axiom) says: "Status behavior is directed toward higher ranking nations and the greater a nation's rank the more its status behavior." Axiom 7 (Status-Quo Axiom) says: "High rank nations support the current international order." As we assumed earlier, every nation desires an upward change in her status, and once achieving it, wants to maintain it. If the existing international system provides a nation with a high status, then it is natural for that nation to attempt to maintain the status-quo which sustains her vested interest. For high ranking nations, therefore, more cooperative-type behavior is necessary to maintain the current international system.

Axiom 9 (Economic Development Status Axiom) says: "The more similar in economic development status, the more nations are mutually cooperative." Economic development is an achievable dimension. It serves as a communication bridge between nations and fulfills conflict-binding function.[2] Mutual economic development is a cooperative coupling of nations.

If we restate this cooperation theorem in propositional form with respect to the cooperative dyadic behavior of the United States and the Soviet Union, we have the following:[3]

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[2] Galtung adds an important caveat to this axiom by saying that even if nations rise together on a dimension of economic development there is one aspect of this dimension that will remain competitive forever: not absolute economic development, but relative prosperity. One nation's gain of the number one position, regardless of the absolute value, is another nation's loss. However, Galtung mentions that it provokes competition, not conflict. See Galtung, "A Structural Theory of Aggression," p. 102.

[3] The two propositions described are identical in nature. However, in the more substantive level of the canonical equation result, it can be expected that the two countries may reveal different behavioral structure with different factors involved, different weighting parameters and different trace correlations. This is why a separate statement is preferred.

Proposition 1 - 1: The more economically developed and the more powerful the object nation, the more U.S. status-dependent cooperation behavior toward her.

Proposition 1 -2: The more economically developed and the more powerful the object nation, the more USSR status-dependent cooperation behavior toward her.

Economically Developed Conflict Theorem

The conflict theorem applicable to the economically developed U.S. and U.S.S.R. says that the larger the economic development distance and the smaller the power distance, the more status dependent conflict behavior. In mathematical form,

$$CF_{i \to j} = \alpha^*_{i1}\, d_{i-j,\,1} - \alpha^*_{i2}\, d_{i-j,\,2}$$

where $CF_{i \to j}$ is nation i's status dependent conflict behavior directed toward nation j. The asterisks on the parameters distinguish them from those of the cooperation theorem.

This theorem is derived from Axioms 7, 8 and 9. Axiom 8 says: "Nations emphasize their dominant status and other's subordinant status in interaction." As a corollary, status incongruence between nations feeds incongruence in expectations and an uncertain structure of expectations about mutual international behavior. That is, "the more two nations are status incongruent, the more their relationships are uncertain and the more incongruent their expectations of each other's behavior" (Corollary 6). Therefore, if there is any subjectively perceived status incongruence, it is cognitively dissonant and stressful

inducing conflictful behavioral attempts to reduce the dissonance. In short, "two nations' status incongruence is correlated with their mutual status dependent conflict behavior." (Theorem 7)

On the other hand, congruent statuses between natinns provide them with similar interests and a communication bridge (Corollary 6). Economic development plays the most important role for this assumption, since common achievement in economic development is a strong link in international relations. "The more similar in economic development, the more nations are mutually cooperative" (Axiom 9).[5]

Certainly, similar power status provides an interest and some basis for understanding and communication, for cooperative ties such as alliances, diplomatic relations, and the like. However, if we hold the cooperative ties constant, the closer two nations are in their power, the more likely is conflict. The power of other states is always a threat to the security and survival of a state. If another's power status is closer to her own, a nation tends to be insecure. On the other hand, a nation with a power status higher than others has the ability to achieve its objectives, force its adversaries to do what they would not otherwise do,

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[5] This relationship is assumed to be J-shaped. For example, the U.S. status link tends to be low with low economic development countries and then rise quickly for highly developed countries.

prevail in conflicts, and influence the behavior of others in accordance with her own ends. In contrast, the weak nation tends to orient her conflict behavior towards "withdrawal" or "avoidance."

Compared to economic development, power is an ascribed status. One nation can hardly increase or decrease its power within a generation. Since power is relative, increasing one's power status implies weakening that of some other. That is, one nation's gain in power status by acquiring "territory" is one or more other nations' loss.

Concerning both the economic development and power statuses, then, the larger the economic development status distance and the smaller the power status distance, the more status dependent conflict behavior. Based on this conflict theorem, we can establish the following propositions with regard to America's and Russia's foreign conflict behavior.

Proposition 2 - 1: The more powerful and the less economically developed the object nation, the more U.S. status dependent conflict behavior toward her.

Proposition 2 - 2: The more powerful and the less economically developed the object nation, the more Russian status dependent conflict behavior toward her.

Economically Developed Status Behavior Theorem

The two theorems discussed above were derived separately for cooperation and conflict behavior. But considering that the effects of conflict and cooperation do not exist alternatively, but simultaneously in the linear world of behavior space, we can build a

behavioral theorem combining both. That is, the status-dependent behavior theorem (Theorem 10) is the linear sum of the cooperation and the conflict equations.

$$CO_{i \to j} = -\alpha_{i1}\, d_{i-j,1} - \alpha_{i2}\, d_{i-j,2}$$

$$+) \quad CF_{i \to j} = \alpha^*_{i1}\, d_{i-j,1} - \alpha^*_{i2}\, d_{i-j,2}$$

$$CO_{i \to j} + CF_{i \to j} = (\alpha^*_{i1} - \alpha_{i1})\, d_1 - (\alpha^*_{i2} + \alpha_{i2})\, d_2$$

If we denote $(\alpha^*_{i1} - \alpha_{i1})$ as γ_1 and $(\alpha^*_{i2} + \alpha_{i2})$ as γ_2, then the equation will be

$$CO + CF = \gamma_1\, d_1 - \gamma_2\, d_2$$

If we assume that d_1 and d_2 are sufficiently close to orthogonality and CO, CF, d_1 and d_2 are in standard scores, then both the α's and the α^*'s are product moment correlations of CO and CF with the two status distances. Then, the correlation will vary between 0 and 1.00 because the α's and the α^*'s are all positive parameters. Moreover, since the previous discussion about theorem 6 and theorem 8 explained that these weights do not differ greatly, the correlations must be fairly close in value. Thus $(\alpha^*_1 - \alpha_1)$ should be near zero while $(\alpha^*_2 + \alpha_2)$ is near unity. For practical purpose, the equation may be written as the following:

$$CO_{i \to j} + CF_{i \to j} = -\gamma_2\, d_2$$

This means that almost all the CO + CF variance must be explained by the power incongruence (d_2) alone. This is the economically developed status behavior theorem (Theorem 10) which says "the status-dependent cooperation and conflict behavior of highly economically developed nations to others is a function of their power incongruence." This can be restated in terms of the following propositions.

Proposition 3 - 1: U.S. status dependent cooperation and conflict behavior toward an object nation is a function of the power incongruence with her.

Proposition 3 - 2: U.S.S.R. status dependent cooperation and conflict behavior toward an object nation is a function of the power incongruence with her.

In conclusion, these three sets of propositions were deduced from the analytic and theoretical structure of Status-Field Theory. Therefore, the empirical fit of the theory can be evaluated by testing these propositions against data on nations and looking at the degree of overall fit between A and B spaces.

CHAPTER VII

RESEARCH DESIGN

As discussed so far, the purpose of this study is to test Status-Field Theory and thereby to define and compare the patterns of contemporary foreign behavior of the United States and the Soviet Union. This will be done by employing two levels of tests: (1) Status-Field Theory will be tested against data of 1960 to check its explanatory power; (2) if the theory is confirmed by the test, then the models of Status-Field Theory obtained from the 1960 data will be tested against 1965 data. The following sections are the detailed procedures of this analysis, which are demonstrated in Figure 2.

7.1. Dimensions of A and B Spaces. Field Theory postulates a finite number of social space-time basis dimensions of A and B spaces. Therefore, in order to work with Status Theory,[1] we need for each space an approximate set of basis dimensions which can represent all the meaningful variability of the variables contained in the space. Accordingly, A and B space basis dimensions will be obtained employing image factor analysis[2] and rotating orthogonally using the varimax

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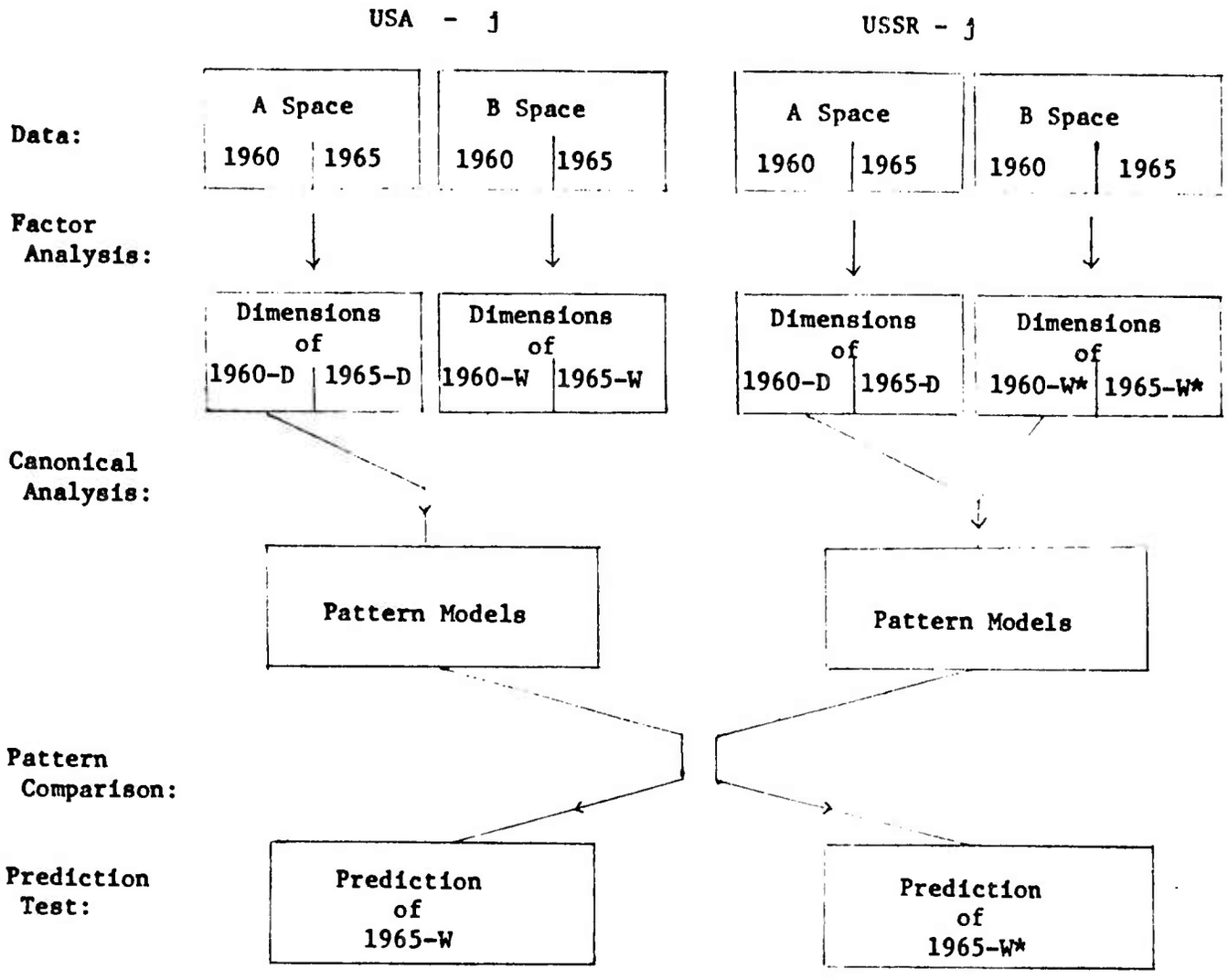
[1] We noted earlier that Status-Field Theory is operationizable within the formal structure of Field Theory Model II.

[2] Image factor analysis is concerned with the dimensions of the common vector space of the data concerned. It has a basic definition for the common parts of the data that enables the common space to be precisely delineated. That is, the common parts of the data are defined as the regression estimates of each variable regressed on all the others. The unique parts are then the regression residuals--that

FIGURE 2

ANALYSIS DESIGN FLOWCHART



i) The asterisk distinguishes them from those of the USA.

criterion.[3] More specifically, this study first will define the dimensions of A space comprising the attributes of all nations in the international system, and second B space will be separately factor analyzed for the United States and the Soviet Union to define the in unique behavioral dimensions.

7.2. Canonical Regression Analysis. A canonical analysis defines the maximum interrelationships between two sets of data, as well as the independent relationships between specific combinations of variables in both sets of data. Therefore, analysis is the main mathematical technique to test the maximum fit between the

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portion of the variance unrelated to the other variables. What is factor analyzed is the covariance matrix of the regression estimates. This image factor analysis is employed in this study because the rationale fits the metholological assumption of the scientific inquiry into social phenomena, which seeks generalizations through common properties of individual cases. See Chapter II for further discussion concerning uniqueness versus commonness. For a detailed discussion of image factor analysis and its relationships with other methods of factor analysis, see R.J. Rummel, Applied Factor Analysis (Evanston: Northwestern University Press, 1970), pp. 101-121.

[3] Status-Field Theory does not require orthogonality among the basis dimensions. It only requires linear independency among the dimensions. Therefore, with the approximate basis of the unrotated results or obliquely rotated dimensions, we can work with the theory using canonical regression analysis. However, to eliminate the interaction effects among the basis dimensions in canonical analysis it is better to use orthogonal dimension. Interrelated dimensions will mix the contribution of each dimension to the canonical variate scores with the joint effect of the correlated dimensions. For details of canonical analysis and the varimax criterion, see ibid., pp. 121-125, 391-393.

dimensions of A and B space of Field Theory.[4]

The canonical analysis gives us two kinds of matrices. One matrix gives the canonical (regression) coefficients between the two sets of data. This is the matrix usually interpreted in canonical analysis.

Another matrix obtainable from the canonical analysis, however, is a canonical loading matrix, which contains correlation coefficients between the canonical variates and their respective variables. Utilizing the knowledge of the contribution of individual variables (dimensions) in constituting canonical variates, we can build a pattern structure equation

$$b_{1h}W^1 + b_{2h}W^2 + \ldots + b_{kh}W^k + \ldots + b_{qh}W^q$$

$$\doteqdot a_{1g}D^1 + a_{2g}D^2 + \ldots + a_{\ell g}D^\ell + \ldots + a_{pg}D^p$$

where b_{kh} is correlation of W^k with Y_h, $a_{\ell g}$ is correlation of D on V_g, and $g=h$. The " $\doteqdot$ " means approximate equality between the two combinations. Each of these equations will tell us which attribute distances are important in explaining a specific combinations of behaviors. This structure equation is preferred in this study for testing Status-Field Theory because the canonical coefficient is

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[4] For a detailed discussion on the mathematical structure of canonical regression analysis and its relationships with Field Theory, see Rummel, "Field Theory and Indicators of International Behavior," pp. 18-25. For Field Theory models generated by using the canonical analysis, see Rhee, "Communist China's Foreign Behavior: An Application of Field Theory Model II."

difficult to interpret when the set of variables is not independent of each other, as these coefficients measure the interaction effects of the several variables taken together and their direct effects.

In measuring the degree of fit between A and B spaces of Field Theory and testing the Status-Field Theory propositions the following four statistics will be utilized.

7.2.1. Canonical Correlation. This is the correlation between corresponding canonical variates (Y_h and V_g), where h = g. There will be q number of canonical correlations, assuming that q (the dimensionality of W) is less than p (the dimensionality of D). The canonical correlation, when squared, tells us the proportion of the total variance accounted for by a particular canonical structure equation. It will measure the salience of the Status-Field Theory propositions as well as other distinct non-status behavior patterns.

7.2.2. Trace Correlation Squared ($\bar{r}^2$). A trace correlation squared is the mean of all q number of squared canonical correlations. That is,

$$\text{Trace } (\bar{r}^2) = \frac{1}{q} \sum_{h=1}^{q} r_h^2$$

where r_h is the h^{th} canonical correlation between Y_h and V_g. The $\bar{r}^2$ gives the proportion of overall variance in W accounted for by D. This statistic is an adequate evaluation of the overall fit between A and B spaces of Field Theory.

7.2.3. Differences between Canonical Variate Scores. The canonical variate is obtained from all the variables (dimensions) weighted by their respective parameters. If A and B space variables

fit perfectly, the two canonical variates must be equal ($Y_h = V_g$). Therefore, the degree of discrepancy between the two canonical variates ($Y_h - V_g$) will give us another good indicator for checking the degree of fit of the proposed theory.

7.2.4. Communality Estimate (H-SQ). This is the proportion of a variable's (dimension's) total variation involved in the q number of variates. That is,

$$H_1^2 = \sum_{j=1}^{q} r_{ij}^2$$

where H_1^2 is the communality of a variable (dimension) i, r_{ij}^2 is the squared correlation of a variable i on variate j, and q is the number of variates. The communality can show which variables (dimensions) of A space are important ones in the relationship between attributes and behavior.[5]

7.3. Predictability Test. There are two basic assumptions for carrying out this predictability test. First, the decision-making belief systems of the United States and the Soviet Union have remained unchanged between 1960 and 1965.[6] Second, there were no systematic structural changes in the international system between 1960 and 1965.

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5 The communality estimate of behavioral variables (dimensions) will always be 1.00 because B space is smaller than A in dimensionality. Therefore, only the H-SQ of A space distances is meaningful for interpretations.

6 By the decision-making belief system I mean a system of empirical and normative ideas about perceiving the relative importance of the various attribute dimensions, and the behavioral action system, a system of choosing ends and means in a given situation.

In other words, the pattern structure of A and B space of 1965 data should be fairly similar to that of 1960, though not identical. This stability test, which has to precede the predictation test, can be performed by a visual investigation of the factor structures and by using Ahmavaara's factor comparison technique.[7]

With regard to the prediction test of Status-Field Theory two major questions will be investigated. First, how well do the empirical models of Status-Field Theory (based on the canonical regression analysis of 1960 data) predict the foreign behavior of the United States and the Soviet Union for 1965? Second, how well do the parameters of A and B spaces for 1960 fit 1965's attribute distances and behaviors? The latter question is actually the test of the invariant nature of the foreign policy belief systems between 1960 and 1965. The detailed procedures are presented in Chapter XX.

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[7] For Ahmavaara's factor comparison technique, see Rummel, Applied Factor Analysis, pp. 463-471.

CHAPTER VIII

POPULATION, VARIABLES AND DATA

8.1. Population. A total of 83 nations which were independent and whose populations were over 500,000 in both 1960 and 1965 were selected.[1] Therefore, the United States and the Soviet Union each has a total of 82 dyads in B space. The nations are listed in Table 1.

8.2. Variables. Since we cannot collect data for a large number of variables of A and B spaces, only 46 variables for A space and 28 variables for B space were selected according to the following four criteria.

First, most of Rummel's indicator variables[2] are included to provide a broad and general set of attribute and behavior variables. Second, most if not all, of the concepts which appear frequently in the literature concerned with the foreign behavior of the United States and the Soviet Union and the forces of national foreign

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[1] Many African countries, which were independent in 1960 and whose populations were over 500,000 such as Cameroon, Central African Republic, Chad, Cong (Brazzaville), Congo (Leopoldville), Dahomey, Gabon, Chana, Guinea, Ivory Coast, Mali, Mauritania, Niger, Nigeria, Sudan and Togo are not included in this study because most of the attribute data of these countries are unavailable.

[2] R.J. Rummel, "Indicators of Cross-National and International Patterns," American Political Science Review, LXIII (March, 1969), 131-134.

TABLE 1

LIST OF NATIONS (N=83)

I.D. No.	Name of Nations	Code	I.D. No.	Name of Nations	Code
1.	Afghanistan	AFG	43.	Japan	JAP
2.	Albania	ALB	44.	Jordan	JOR
3.	Argentina	ARG	45.	Korea (North)	KON
4.	Australia	AUL	46.	Korea (South)	KOS
5.	Austria	AUS	47.	Laos	LAO
6.	Belgium	BEL	48.	Lebanon	LEB
7.	Bolivia	BOL	49.	Liberia	LIB
8.	Brazil	BRA	50.	Libya	LBY
9.	Bulgaria	BUL	51.	Malaysia	MAL
10.	Burma	BUR	52.	Mexico	MEX
11.	Cambodia	CAM	53.	Nepal	NEP
12.	Canada	CAN	54.	Netherlands	NTH
13.	Ceylon	CEY	55.	New Zealand	NEZ
14.	Chile	CHL	56.	Nicaragua	NIC
15.	China	CHN	57.	Norway	NOR
16.	China (Taiwan)	CHT	58.	Outer Mongolia	OUT
17.	Colombia	COL	59.	Pakistan	PAK
18.	Costa Rica	COS	60.	Panama	PAN
19.	Cuba	CUB	61.	Paraguay	PAR
20.	Czechoslavakia	CZE	62.	Peru	PER
21.	Denmark	DEN	63.	Philippines	PHL
22.	Dominican Republic	DOM	64.	Poland	POL
23.	Ecuador	ECU	65.	Portugal	POR
24.	Egypt	EGY	66.	Rumania	RUM
25.	El Salvador	ELS	67.	Saudi Arabia	SAU
26.	Ethiopia	ETH	68.	Spain	SPN
27.	Finland	FIN	69.	Sweden	SWD
28.	France	FRN	70.	Switzerland	SWT
29.	Germany (East)	GME	71.	Syria	SYR
30.	Germany (West)	GMW	72.	Thailand	TAI
31.	Greece	GRC	73.	Turkey	TUR
32.	Guatemala	GUA	74.	Union of S. Africa	UNS
33.	Haiti	HAI	75.	USSR	USR
34.	Honduras	HON	76.	United Kingdom	UNK
35.	Hungary	HUN	77.	USA	USA
36.	India	IND	78.	Uruguay	URG
37.	Indonesia	INS	79.	Venezuela	VEN
38.	Iran	IRN	80.	Vietnam (North)	VTN
39.	Iraq	IRQ	81.	Vietnam (South)	VTS
40.	Ireland	IRE	82.	Yemen	YEM
41.	Israel	ISR	83.	Yugoslavia	YUG
42.	Italy	ITA			

behavior illustrated in Chapter III were transformed into variables with appropriate operational definitions. Then the result of this study can be compared with those studies and approaches. Third, the variables should possess equivalent conceptual and empirical definitions across all nations. Last, there should be sufficient variance to be analyzed. The list of variables thus selected are given in Table 2 (A space) and Table 3 (B space). The definitions of the variables are given in Appendix I.

8.3. Data Sources. The major data source for attribute variables is Sang-Woo Rhee, George Omen and R. J. Rummel, "Attributes of Nations: Data and Codes 1950-1965," DON Research Report No. 65 (University of Hawaii, 1973). Data which were not available from this were collected from: Charles L. Taylor and Michael C. Hudson, Handbook of Political and Social Indicators (New Haven: Yale University Press, 1972); Statistical Yearbook (UN); Demographic Yearbook (UN); The Worldmark Encyclopedia of the Nations; and Statesman's Yearbook.

For the U.S. dyadic conflict and cooperation behavior variables, data were mainly collected from The New York Times. Data for the U.S.S.R. dyadic behaviors were mainly collected from The Current Digest of the Soviet Press which covers the contents of Pravda and Izvestia. Some of the cooperative behavior variables, whose data were not available from these two sources, were collected by referring to the data and their sources in Sang-Woo Rhee, George Omen and R. J. Rummel, "Behavior of Nation-Dyads: Data and Codes 1950-1965," DON Research Report No. 67 (University of Hawaii, 1973).

TABLE 2

LIST OF ATTRIBUTE SPACE VARIABLES

Variable Number	Variable Name	Code
1	Population	POPULAT
2	National Area	NALAREA
3	National Income	NINCOME
4	Steel Production	STEELPR
5	GNP/Population	GNPCAPT
6	Illiterates/Population	ILLITER
7	Telephones/Population	TELEPHN
8	Physicians/Population	PHYSICN
9	Energy Consumption/Population	ENG-CON
10	Enrollment in Higher Education/Population	EDUCATN
11	Urbanization	URBANIZ
12	Density	DENSITY
13	Arable Land/Total Land Area	%-ARABL
14	Agricultural Population/Population	AGRICUL
15	Size of Armed Forces	ARMEDFC
16	Nuclear Capability	NUCLEAR
17	Defense Expenditure	DEF-EXP
18	Military Alliances	MILALLI
19	Energy Production Population	ENG-POP
20	Bureaucracy	BUREACR
21	Censorship Score	CENSORS
22	Constitutional Status	CONSTIT
23	Electoral System	ELECTOR
24	Freedom of Group Opposition	GROUPOP
25	Killed in Foreign Conflict	KILL-FC
26	Killed in Domestic Violence	KILL-DV
27	Armed Attacks	ARMEDAT
28	Governmental Sanctions	GOV-SAN
29	Roman Catholics/Population	CATHOLI
30	Protestants/Population	PROTEST
31	Moslems/Population	MOSLEMS
32	Buddhists/Population	BUDDHIS
33	Air Distance from U.S.	AIR-USA
34	Air Distance from U.S.S.R.	AIR-USR
35	Air Fares from New York	FARE-US
36	Air Fares from Moscow	FARE-UR
37	Communist Party Membership/Population	COMMUNT
38	Bloc Membership	BLOCMEM
39	Arts and Culture NGO	ART-NGO
40	NGO	NGO
41	IGO	IGO
42	Legations	LEGATIO
43	Exports/GNP	EXP-GNP
44	Imports/TRA	IMP-TRA
45	Trade/GNP	TRADE-%
46	Ethnic-Linguistic Diversity	ETH-LIN

TABLE 3

LIST OF BEHAVIOR SPACE VARIABLES

Variable Number	Variable Name	Code
1	Strengthening of Forces	STFORCE
2	Support to Subversive or Rebellious Group	SUPREBL
3	Support to Object's Violent Enemy	SUPVIOL
4	Threat	THREAT
5	Protest	PROTEST
6	Accusations	ACCUSAT
7	Official Negative Behavior	NEG-BEH
8	Export to the Object	EXPORT
9	Import from the Object*	IMPORT
10	Treaties Effective	TREATY
11	Military Alliance	MIL-ALN
12	Military Aid	MIL-AID
13	Diplomatic Relations	DIP-REL
14	Co-Membership in IGO	COM-IGO
15	Co-Membership in NGO	COM-NGO
16	Official Political Visit to the Object	POLVIST
17	Economic Visit to the Object	ECOVIST
18	Tourists to the Object	TOURIST
19	Economic Aid to the Object	ECO-AID
20	Economic Conference	ECOCONF
21	Political Conference	POLCONF
22	Economic Agreement	ECOAGRE
23	Political Agreement	POLAGRE
24	Reconciliatory Action	RECNACT
25	Cooperative Comment	COP-COM
26	Promise	PROMISE
27	Cultural Interaction	CUL-INT
28	Philanthropic Assistance	PHILANT

* The direction of this behavior is not from i to j. However, the decision of a nation i to import a certain amount from another nation j is considered to be nation i's behavior to j.

8.4. Missing Data Estimation. Since this study uses a large number of cross-national statistical data, missing data for certain variables may cause severe problems. As a solution, the Missing Data Estimation Program developed by Charles Wall and Rummel is used.[3] With this method, the available data for each variable are regressed on the available data for the other variables. Therefore, we have a number of regression equations which equals the number of variables with missing data. And from the best fitted regression equations we can determine the regression estimates for all missing data.

[3] Charles Wall and R. J. Rummel, "Missing Data Estimation," DON Research Report No. 20 (University of Hawaii, 1969).

CHAPTER IX

DIMENSIONS OF ATTRIBUTE SPACE

The image factor analysis of 46 A space variables of 1960 delineated eleven distinct and mutually independent dimensions. These eleven dimensions account for 75 percent of the total variance of the attribute space. The rotated factor loadings are presented in Table 4.[1]

The first and the largest factor is highly loaded with variables such as: GNP per Capita (.89), agricultural population/population (-.86), telephones/population (.83), energy consumption/population (.81), illiterates/population (-.79), bureaucracy (.78), physicians/population (.77), protestants/population (.73), urbanization (.71), NGO (.71) and enrollment in higher education (.67). All of these variables undoubtedly imply the state of economic development of a nation. Three noticeable variables are energy consumption/population, protestants/population and bureaucracy. That is, W. W. Rostow has theorized that "high mass consumption" is the last of the five stages of economic development.[2]

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[1] There are several criteria by which the factors are rotated. One common way is to rotate the factors whose eigenvalues are over 1.00. In this study, however, eleven factors whose total variance is over at least 75 percent of the whole variance of A space are rotated. For principles and techniques of rotation, see R. J. Rummel, Applied Factor Analysis, pp. 372-374.

[2] W. W. Rostow, The Stage of Economic Growth (New York: Cambridge University Press, 1960), p. 4.

TABLE 4

FACTOR LOADINGS OF 46 A SPACE VARIABLES

ON ELEVEN BASIS DIMENSIONS

(1960)

Variables	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	h^2
1 POPULAT		.59						-.70				.93
2 NALAREA		.74										.72
3 NINCOME		.90										.94
4 STEELPR		.91										.94
5 GNPCAPT	.89											.95
6 ILLITER	-.79											.82
7 TELEPHN	.83											.88
8 PHYSICN	.77											.79
9 ENG-CON	.81	.40										.87
10 EDUCATN	.67											.63
11 URBANIZ	.71											.83
12 DENSITY						.65						.63
13 %-ARABL						.75						.66
14 AGRICUL												.83
15 ARMEDPC		.91										.93
16 NUCLEAR		.69										.82
17 DEF-EXP		.91										.95
18 MILALLI												.68
19 ENG-POP		.89										.95
20 BUREACR	.78											.76
21 CENSORS	.42		-.72									.76
22 CONSTIT			-.89									.88
23 ELECTOR	.43		-.77									.84
24 GROUPOP			-.81									.84
25 KILL-FC											(-.37)	.19
26 KILL-DV							.40					.28
27 ARMEDAT							.71					.58
28 GOV-SAN							.63					.53
29 CATHOLI				.83								.82
30 PROTEST	.73											.76
31 MOSLEMS	-.41			-.55								.80
32 BUDDHIS									-.47			.73
33 AIR-USA				-.74	-.48				.73			.69
34 AIR-USR				.55								.83
35 FARE-US				-.70								.87
36 FARE-UR						-.51						.84
37 COMMUNT			.74									.68
38 BLOCMEM			-.79									.82
39 ART-NGO				.41								.41
40 NGO	.71				.46							.93
41 IGO	.54		-.45		.47							.91
42 LEGATIO	.52					.52						.88
43 EXP-GNP					.73							.65
44 IMP-TRA												.36
45 TRADE-%					.71							.59
46 ETH-LIN										-.52		.51
% of Total Variance	19.35	14.05	10.83	7.07	4.15	5.75	3.24	2.88	3.60	2.10	1.87	74.9

i) Image factor analysis with orthogonal rotation.

ii) Loadings $\geq$ .40 are presented.

iii) The highest loading of each factor is underlined.

iv) Factor Names:

I : Economic Development
II : Power Base
III : Political Orientation
IV : Catholic Culture
V : Trader
VI : Density
VII : Instability
VIII : Population
IX : Oriental Culture
X : Diversity
XI : Unnamed

Protestantism is asserted to have been intimately connected with the rise of capitalism and economic development of a nation by Max Weber and R. H. Tawney.[3] According to Organski, the governmental bureaucracy, in the stage of industrialization, has a crucial role in modernizing the economy.[4] This factor is labeled economic development.

The second largest factor, which is independent of the above, consists of highly loaded variables such as: defense expenditure (.91), size of armed forces (.91), steel production (.91), national income (.90), energy productionxpopulation (.89), national area (.74), nuclear capability (.69), and population (.59). Most of the "elements," "factors," or "ingredients" defining national power appear among the highly loaded variables. Quincy Wright's energy production population and Organski's national income are two good examples.[5] This factor implies power as a capability concept rather than behavioral or relational term. This factor is labeled power base(or power).

Economic development and power base are the two largest factors among the eleven factors. They account for 19.35 percent and 14.05 percent, respectively, of the total variance, the sum of which is more than one third of the whole variance of attribute space. These two

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[3] Max Weber, The Protestant Ethic and the Spirit of Capitalism (London: George Allen and Unwin, 1930); R. H. Tawney, Religion and the Rise of Capitalism (New York: Mentor Books, 1950).

[4] Organski, World Politics, Ch. 3.

[5] Energy productionxpopulation has been used as an indicator for measuring the military strength of a nation by Quincy Wright. See Wright, The Study of International Relations, p. 599. National income is used by Organski as an index of national power. See, Organski, World Politics, pp. 207-215.

are also the two status dimensions of Status-Field Theory. They have been consistently found by various cross-national studies by different investigators using different nation samples and different variables for different time periods.[6]

Looking at the factor score matrix in Appendix III, the nations with the ten highest scores on economic development are: Sweden, Australia, New Zealand, Canada, Switzerland, the United States, Finland, Denmark and the United Kingdom On the power factor, the United States, the Soviet Union, China, the United Kingdom, India, West Germany, Japan, France, Canada and Egypt are the ten highest scoring nations.

The third cluster of variables deals with political systems or ideological orientation. Highly loaded variables on this factor are constitutional status (-.89), freedom of group opposition (-.81), bloc membership (-.79), electoral system (-.77), Communist part membership (.74), and censorship score (-.72). This clustering means that the nations with low scores on liberal democratic political system and high scores on communism have high scores on this dimension. The association between the communist political system and an authoritarian conservative political system or imposed constitutional system is illustrated well in the literature dealing with political development.[7] Therefore, this factor is labeled political orientation.

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[6] Rummel, The Dimensions of Nations (Beverly Hills: Sage, 1972), pp. 244-259.

[7] Jean Blondel, Comparing Political Systems (New York, Praeger, 1972), Ch. 11.

Variables which are highly loaded on the fourth factor are Roman Catholics/population (.83), air distance from U.S. (-.74), air fares from New York (-.70), Moslems/population (-.55) and air distance from U.S.S.R. (.55). This clustering of variables indicates that the factor should represent countries with large Catholic population and geographical proximity to the United States, but are far from the Soviet Union and Moslem culture. Most Latin American countries scored high on this factor. This factor is labeled Catholic culture.

The fifth factor is highly loaded with only two variables: arable land/total land area (.75) and density (.65). Other variables which are moderately loaded on this factor are: legations (.52), air fares from Moscow (-.51), air distance from U.S.S.R. (-.48), IGO (.47), and NGO (.46). This factor should represent countries which are densely populated with a large percentage of arable land, close to the Soviet Union and actively participating in inter-governmental and non-governmental international organizations. Countries which scored high are Belgium, Italy, Netherlands, India, France, West Germany, United Kingdom, Japan, Portugal, Denmark, etc. Density might be a proper name for this factor.

The sixth factor consists of two highly loaded variables. They are exports/GNP (.73) and trade/GNP (.71). These variables point to the dependency of a national economy on international trade. This factor is labeled trader.

The seventh factor is Oriental culture. Highly loaded variables on this factor are Buddhists/population (.73) and Moslems/population (-.47). Most Asian countries which have a large percentage of

Buddhist population scored high on this dimension.

The eighth factor is highly loaded with variables such as armed attacks (.71), governmental sanctions (.63), and killed in domestic violence (.40). These variables imply that countries with high scores on this dimension have instable domestic political systems. This factor, therefore, is labeled instability.

The nineth factor is population. Only the population variable is highly loaded on this factor.[8] The tenth factor is labeled diversity because only ethnic-linguistic diversity is loaded on this dimension (-.57). The last factor is left unnamed.[9] Although killed in foreign conflict has a loading of -.37 on this dimension, the loading is not sufficient for this factor to be named foreign conflict.

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[8] The outcome of population as an independent factor is significant considering that most of the international relations literature consistently treat population as an element of the national power base. Nevertheless, Lagos suggested a careful approach to that tendency by saying that: "If a country is already developed, the population factor is one of the bases of national power." On the other hand, "If the country is underdeveloped, a great and rapidly growing population can be a source of weakness instead of being a source of power." See Lagos, op. cit., p. 14. Similarly, A. F. K. Organski warns us to carefully define the meaning of population by arguing the different implication between "total population size" and "effective population." See Organski, "The Effective Population in International Politics," Richard L. Clinton, William S. Flash and R. Kenneth Godwin, ed., Political Science in Population Studies (Toronto: Lexington Books, 1972), pp. 79-100.

[9] The last factor could be eliminated by rotating only ten factors. However, the factor analysis of 1965 data produced a diversity factor on the eleventh, and left the tenth factor unnamed. For the purpose of comparison between 1960 and 1965 factors, I decided to rotate all eleven factors of both years. In the actual analysis, however, only ten factors are used leaving out the unnamed factor from 1960 and 1965, respectively.

CHAPTER X

STABILITY OF ATTRIBUTE SPACE DIMENSIONS

If Field Theory is valid, the proposed linear linkage between A and B space basis dimensions should be unchanged across time unless there was a significant "system change" in international relations. As a corollary, this study requires the same (at least similar) pattern structure of A space across 1960 and 1965.

For 1965 A space, the same factor analysis as done for 1960 delineated all eleven basis dimensions which account for over 76 percent of the whole variance of the space. The rotated factor loading matrix is presented in Table 5. The naming of factors and their highly loaded variables are given on the right side of Table 6. By visual investigation, we can identify easily the overall similarity of factor structure between 1960 and 1965. Except the unnamed tenth factor of 1965 and the eleventh of 1960, the similarity of factors is clear.

In order to see the overall factor structure similarity more systematically, we can employ the factor comparison method using Ahmavaara's transformation technique. This involves rotating the results of 1960 ($\hat{F}_2$) to a least square fit with those of 1965 (F_2). When this is done the product-moment correlation between $\hat{F}_2$ and F_2 is .96, indicating a high similarity of factor structure between the

TABLE 5

FACTOR LOADINGS OF 46 A SPACE VARIABLES

ON ELEVEN BASIS DIMENSIONS

(1965)

Variables	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	h^2
1 POPULAT		.59							.65			.84
2 NALAREA		.76										.74
3 NINCOME		.87										.93
4 STEELPR		.90										.94
5 GNPCAPT	.91											.96
6 ILLITER	-.78											.83
7 TELEPHN	.83											.88
8 PHYSICN	.79											.82
9 ENG-CON	.86											.89
10 EDUCATN	.69	.42										.75
11 URBANIZ	.68											.78
12 DENSITY							.68					.59
13 %-ARABL							[illegible]					.58
14 AGRICUL	-.85											.82
15 ARMEDFC		.93										.95
16 NUCLEAR		.67										.78
17 DEF-EXP		.92										.94
18 MILALLI						.45						.67
19 ENG-POP		.72										.62
20 BUREACR	.78											.73
21 CENSORS			-.77									.79
22 CONSFIT			-.87									.83
23 ELECTOR			-.81									.82
24 GROUPGP			-.76									.76
25 KILL-FC					.67							.60
26 KILL-DV					.80							.79
27 ARMEDAT					.83							.75
28 GOV-SAN					.78							.81
29 CATHOLI				.80								.79
30 PROTEST	.73											.73
31 MOSLEMS				-.58		.46						.79
32 BUDDHIS						-.73						.74
33 AIR-USA				-.76								.71
34 AIR-USR				.57			-.49					.84
35 FARE-US				-.68		-.40						.89
36 FARE-UR							-.48			-.44		.83
37 COMMUNT			.76									.72
38 BLOCMEM			-.75									.70
39 ART-NGO												.47
40 NGO	.64						.53					.91
41 IGO	.51		-.42				.52					.90
42 LEGATIO	.50	.46					.52					.89
43 EXP-GNP								.82				.73
44 IMP-TRA								-.43				.50
45 TRADE-%								.75				.68
46 ETH-LIN											.50	.38
% of Total Variance	19.15	13.82	10.98	6.51	5.84	3.87	5.95	4.07	2.58	2.18	1.95	76.9

i) Image factor analysis with orthogonal rotation.

ii) Loadings $\geq .40$ are presented.

iii) The highest loading of each factor is underlined.

iv) Factor Names:

I	: Economic Development	VII	: Density
II	: Power base	VIII	: Trader
III	: Political Orientation	IX	: Population
IV	: Catholic Culture	X	: Unnamed
V	: Instability	XI	: Diversity
VI	: Oriental Culture		

TABLE 5

FACTOR LOADINGS OF 46 A SPACE VARIABLES

ON ELEVEN BASIS DIMENSIONS

(1965)

Variables	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	h^2
1 POPULAT		.59							.65			.84
2 NALAREA		.76										.74
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4 STEELPR		.90										.94
5 GNPCAPT	.91											.96
6 ILLITER	-.78											.83
7 TELEPHN	.83											.88
8 PHYSICN	.79											.82
9 ENC-CON	.86											.89
10 EDUCATN	.69	.42										.75
11 URBANIZ	.68											.78
12 DENSITY							.68					.59
13 %-ARABL							.69					.58
14 AGRICUL	-.85											.82
15 ARMEDFC		.93										.95
16 NUCLEAR		.67										.78
17 DEF-EXP		.92										.94
18 MILALLI						.45						.67
19 ENG-POP		.72										.62
20 BUREACR	.78											.73
21 CENSORS			-.77									.79
22 CONSTIT			-.87									.83
23 ELECTOR			-.81									.82
24 GROUPOP			-.76									.76
25 KILL-FC					.67							.60
26 KILL-DV					.80							.79
27 ARMEDAT					.83							.75
28 GOV-SAN					.78							.81
29 CATHOLI				.80								.79
30 PROTEST	.73											.73
31 MOSLEMS				-.58		.46						.79
32 BUDDHIS						-.73						.74
33 AIR-USA				-.76								.71
34 AIR-USR				.57			-.49					.84
35 FARE-US				-.68		-.40						.89
36 FARE-UR							-.48			-.44		.83
37 COMMUNT			.76									.72
38 BLOCMEM			-.75									.70
39 ART-NGO												.47
40 NGO	.64						.53					.91
41 IGO	.51		-.42				.52					.90
42 LEGATIO	.50	.46					.52					.89
43 EXP-GNP								.82				.73
44 IMP-TRA								-.43				.50
45 TRADE-%								.75				.68
46 ETH-LIN											.50	.38
% of Total Variance	19.15	13.82	10.98	6.51	5.84	3.87	5.95	4.07	2.58	2.18	1.95	76.9

i) Image factor analysis with orthogonal rotation.

ii) Loadings $\geq .40$ are presented.

iii) The highest loading of each factor is underlined.

iv) Factor Names:

I : Economic Developaent
II : Power base
III : Political Orientation
IV : Catholic Culture
V : Instability
VI : Oriental Culture
VII : Density
VIII : Trader
IX : Population
X : Unnaaed
XI : Diversity

TABLE 6

DIMENSIONS OF ATTRIBUTE SPACE*
(1960 and 1965)

1960				1965		
No.	Factors	Loading	Variables	Loading	Factors	No.
1	Economic Development	.89	GNP per Capita	.91	Economic Development	1
		-.86	Agricultural Population	-.85		
		.83	Telephones	.83		
		.81	Energy Consumption	.86		
		-.79	Illiteracy	-.78		
		.78	Bureaucracy	.78		
		.77	Physicians	.79		
		.73	Protestants	.73		
		.71	Urbanization	.68		
		.71	NGO	.64		
		.67	Higher Education	.69		
		.54	IGO	.51		
2	Power Base	.91	Defense Expenditure	.92	Power Base	2
		.91	Size of Armed Forces	.93		
		.91	Steel Production	.90		
		.90	National Income	.87		
		.89	Energy Production	.72		
		.74	National Area	.76		
		.69	Nuclear Capability	.67		
		.59	Population	.59		
3	Political Orientation	-.89	Constitutional Status	-.87	Political Orientation	3
		-.81	Group Opposition	-.76		
		-.79	Bloc Membership	-.75		
		-.77	Electoral System	-.81		
		.74	Communist Party Membership	.76		
		-.72	Censorship Score	-.77		
4	Catholic Culture	.83	Roman Catholics	.83	Catholic Culture	4
		-.74	Air Distance from U.S.	-.76		
		-.70	Air Fares from New York	-.68		
		-.55	Moslems	-.58		
5	Trader	.73	Exports/GNP	.82	Trader	8
		.71	Trade/GNP	.75		
6	Density	.75	% of Arable Land	.69	Density	7
		.65	Density	.68		
		.52	Legations	.52		
		-.51	Air Fares from Moscow	-.48		
		.46	NGO	.53		
7	Instability	.71	Armed Attacks	.83	Instability	5
		.63	Governmental Sanctions	.78		
		.40	Killed in Domestic Violence	.80		
		---	Killed in Foreign Conflict	.67		
8	Population	- 70	Population	.65	Population	9
9	Oriental Culture	.73	Buddhists	-.73	Oriental Culture	6
		-.47	Moslems	.46		
10	Diversity	-.57	Ethnic-Linguistic Diversity	.50	Diversity	11
11	Unnamed	---	--------	---	Unnamed	10
Factor Comparison between 1960 and 1965: r=.96						

* Image factor analysis with orthogonal rotation.

TABLE 7

RUMMEL'S ORTHOGONAL ROTATED DIMENSIONS
FOR 236 VARIABLES

No.	Dimensions	Variables (loadings)
I.	Economic Development	** telephones/population (.95) ** agricultural population/population (-.92) radio receivers/population (.91) ** GNP/population (.91) ** energy consumption/population (.90) newsprint consumption/population (.89) population/hospital beds (-.89) employed in manufacturing/population (.89)
II.	Political Orientation	English titles translated/total translation (1.10) English titles translated/Russian and English titles translated (1.07) ** bloc membership (.86) GNP data error measure (-.86) demographic error dimension (-.85) Russian titles translated/total translation (-.83) U.S. aid/U.S. and U.S.S.R. aid (.74) U.S. economic aid received (.74) ** freedom of opposition (.71)
III.	Size	** population (.91) ** population x energy production (.91) ** national income (.90) national and territorial population (.90) GNP (.88) total energy production (.84) ** defense expenditure (.83) total energy resources potentially available (.81)
IV.	Catholic Culture	** Roman Catholics/population (-.73) ** air distance from U.S. (.71) air distance from U.S./air distance from U.S. and U.S.S.R. (.64)
V.	Foreign Conflict Behavior	threats (.85) accusations (.83) ** killed in foreign conflict (.76) military action (.74) protests (.68) troop movements (.65) wars (.63)
VI.	Density	** population/national land area (.90) ** arable land/total land area (.73)
VII.	Oriental Culture	religious groups > 1 % population (.65) mongolians/population (.60)
VIII.	Domestic Conflict Behavior	general strikes (-.69) ** killed in domestic violence (-.69) anti-governmental demonstrations (-.65)
XI.	Traders	** exports/gross national product (.70) ** trade/gross national product (.64)
XII.	Diversity	** language groups > 1 % population (.69)

i) The loadings are from the rotated matrix of the orthogonal (varimax) simple structure solution applied to the principal components of the 236 variables for 82 nations in 1955.

ii) Only ten dimensions among the fifteen are presented here because these are the most important dimensions of Rummel's study and are comparable to the results of the current study.

iii) The double asterisks (**) indicate that these variables are also highly loaded on the dimensions of the current study.

iv) "No." means the original factor number in Rummel's study.

two attribute spaces. The result also shows that the factors found for 1960 are fundamental basis dimensions of nations's attributes and that there was no systemic change in international system between 1960 and 1965.

Our confidence in the dimensions of attribute space uncovered here should be based not only on their stability but also on their reproducibility. That is, the dimensions should be reproducible by others analyzing similar variables for different time periods. In order to check their reproducibility, the results of this study were compared to the DON major dimensions delineated from 236 variables for 82 nations in 1955.[1] Table 7 presents ten among Rummel's fifteen orthogonal rotated dimensions. The remaining five dimensions are not introduced here because they are either minor or unnamed.

Only a visual comparison with these is carried out here, leaving other systematic comparisons for a later work. One noticeable difference between the two studies is that Rummel's does not include population factor; the population variable instead highly loaded on the size factor. The reason for this may be explained by the difference in data bases. Rummel's is for 1955; mine is for 1960 and 1965. Since many African and third world countries became independent and joined the family of nations in the late 1950's, the distribution of nations on population has shifted between the different periods. Beside this one difference, the ten factors of Rummel's study correspond well to

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[1] Rummel, The Dimensions of Nations, pp. 217-242, Appendix III.

the results of this study.[2] This similarity increases our confidence in the dimensions found from the analysis of 1960 and 1965.

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[2] Note that Rummel names the third factor as "size" instead of "power base." He did, however, use "power bases" as an alternative label. See ibid., p. 225.

CHAPTER XI

DIMENSIONS OF U.S.A. BEHAVIOR SPACE

The 28 U.S.A. dyadic actions of 1960 clustered into seven distinct and independent factors,[1] which account for about 71 percent of the total variance of the U.S.A. behavior space. The factors and their characteristics are discussed in detail in the following. The rotated factor loadings are presented in Table 8 and the factor score matrix is given in Appendix IV.

I. Alliance: The first factor is a cluster of U.S. cooperative behavior towards other nations, with highly loaded variables such as: political conference (.82), political agreement (.80), promise (.72), cooperative comment (.62), political visit (.59), treaties effective (.58), and military alliance (.58). As the second largest behavior factor, this accounts for almost 15 percent of the total variance of B space. The clustering of these variables obviously indicates U.S. cooperative interaction directed toward her allies. As we can see from the factor score matrix in Appendix IV, the highest scoring object nations on this factor are: the United Kingdom, France, West Germany,

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[1] In deciding the number of factors to be rotated, this study considered a number of ways which were already mentioned in Chapter IX. However, considering that this study needs stable factor structures across 1960 and 1965 for both the United States and the Soviet Union, and the purpose is to compare the behavior patterns of the two nations, seven factors were considered optimal for B space.

TABLE 8

FACTOR LOADINGS FOR SEVEN BASIS DIMENSIONS

OF U.S.A. B SPACE (1960)

Variables	I	II	III	IV	V	VI	VII	h^2
1 STFORCE		.89						.93
2 SUPREBL					.82			.72
3 SUPVIOL					.76			.65
4 THREAT		.91						.90
5 PROTEST		.60			.58			.75
6 ACCUSAT		.95						.95
7 NEG-BEH		.97						.95
8 EXPORT				-.88				.93
9 IMPORT				-.89				.91
10 TREATY	.58			-.50			-.47	.77
11 MIL-ALN	.58						-.69	.64
12 MIL-AID								.65
13 DIP-REL						.61		.55
14 COM-IGO	.47					.53		.71
15 COM-NGO	.48					.61		.68
16 POLVIST	.59							.44
17 ECOVIST			-.80					.68
18 TOURIST				-.92				.86
19 ECO-AID			-.62					.41
20 ECOCONF			-.72					.66
21 POLCONF	.82							.84
22 ECOAGRE			-.84					.79
23 POLAGRE	.80							.74
24 RECNACT		.76						.66
25 COP-COM	.62							.48
26 PROMISE	.72							.57
27 CUL-INT		.53		-.54				.65
28 PHILANT			-.49					.38
% of Total Variance	14.88	17.68	9.86	12.01	7.34	4.59	4.49	70.9

i) Image factor analysis with orthogonal rotation.
ii) Loadings $\geq$.40 are presented.
iii) The highest loading of each factor is underlined.
iv) Factor Names:

I : Alliance
II : Deterrence
III : Economic Penetration
IV : Transaction
V : Indirect Aggression
VI : Diplomacy
VII : Patronage

Brazil, Philippines, Argentina, Turkey, Japan, Portugal and Thailand.[2] Among the lowest scoring object nations are many of the Latin American countries and neutral countries along with the Communist bloc countries such as Cuba, Rumania, Czechoslovakia, and Bulgaria. The inclusion of the Latin American countries among the lowest implies that the American cooperative behavior directed toward those countries, which are heavily dependent on the United States in terms of political-military-economic aspects, constitutes something other than cooperation among allies.[3]

II. Deterrence: A second cluster of U.S. actions, independent of the first and the largest of the seven factors, is conflictful in nature. This factor accounts for almost 18 percent of the total variance of B space, and consists of: U.S. official negative behavior (.97), accusation (.95), threat (.91), strengthening of forces (.89), reconciliatory action (.79), and protest (.69). Cultural interaction is also moderately loaded on this factor (.53). In the later period of the Cold War, the United States with global interests and concerns employed this behavior as a way of defending its status-quo, responding to the challenge by the Soviet Union and its allies without invoking direct military confrontation, and communicating its expectations to other nations. Obviously, the major recipient countries of this behavior from the United States are the Soviet Union, Cuba, Rumania, Hungary, and China, with the Soviet Union as the dominant

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[2] The countries are in descending order from high to low.

[3] For the implication of this statement, see Factor VII, Patronage.

recipient.

The high loadings of two cooperative type variables, reconciliatory action and cultural interaction, on this factor are worth mentioning. Reconciliatory action was defined to be a cooperative behavior. However, the finding in this study indicates that reconciliatory actions taken by the United States toward the Soviet Union and its allies were to a large extent only a continuation of strategic and tactical maneuvering, which might be properly called a continuation of a "two steps forward, one step backward" strategy. No doubt cultural interaction was an important aspect of American psychological and propaganda warfare in the Cold War.[4] This meaning of reconciliatory action and cultural interaction in the deterrence context is not only true of the United States but also of the Soviet Union as well.[5]

III. Economic Penetration: The third factor is another U.S. cooperative behavior which is distinct from and independent of the alliance factor. Highly loaded variables on this factor are: economic agreement (.84), economic visit (.80), economic conference (.79), economic aid (.62), and philanthropic assistance (.49). The first

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[4] Both the United States and the Soviet Union made important efforts with regard to cultural interaction as a way of propaganda. For one example, commenting on the Soviet exhibition in New York and the American exhibition in Moscow of 1959, G. A. Zhukov, head of the Soviet State Committee for Cultural Relations with Foreign Nations, declared that the Soviet exhibition was worth "a billion dollars to Soviet propaganda." Also stressing the importance of cultural contacts with the Russians, William Benton said before the Senate Foreign Affairs Committee that it was "more important to get at the Russians than to hit the moon." Alexander Werth, Russia Under Khrushchev, (Greenwich, Conn.: Fawcett, 1961), pp. 230-231.

[5] However, this interpretation does not totally disregard that cultural interaction and reconciliatory action between the United

three economic variables represent more foreign aid concerns than trade or economic transactions.[6] Ever since the United States assumed the responsibility of a world super power in coping with the Soviet Union, foreign economic aid may have been a way of protecting the United States' political and economic interests, and securing its spheres of influence.[7] The highest scoring nations on this factor are: India, Egypt, Taiwan, Jordan, Indonesia, Peru, Brazil, Pakistan and Argentina.

IV. Transaction: The fourth cluster of U.S. dyadic actions is economic transaction. This factor comprises: tourist (.92), import (.89), and export (.83). Other moderately loaded variables on this factor are cultural interaction (.54) and treaties effective (.50). This factor implies cooperation of the United States mainly in terms of economic transactions. The highly scored nations on this factor are: Canada, Mexico, Venezuela, Japan, Italy, West Germany and the United Kingdom with Canada as the dominant nation.

States and the Soviet Bloc played important parts in reducing international tension.

6 It was attempted to make a distinction between economic activities (agreement, visit and conference) of transactions, and those of assistances. In the process of data collection, however, it turned out almost impossible to do that job with the available information in The New York Times and The Current Digest of the Soviet Press. Nevertheless, it can be assumed that most, if not all, of the American economic agreements, visits and conferences in this study were concerned with economic assistance to developing and underdeveloped countries.

7 For a detailed discussion about the rationale of American foreign aid, see Lloyd D. Black, The Strategy of Foreign Aid (Toronto: D. Van Nostrand, 1968), pp. 13-21.

V. Indirect Aggression: The fifth cluster of U.S. action consists of variables such as: support to rebellious group (.82), support to object's violent enemy (.76), and protest (.58). This factor is conflictful in nature, but is distinct from and independent of the deterrence factor mentioned above. As the nuclear weapons technology has increased the risk of all out war between the United States and the Soviet Union, the principle of avoiding direct military conflict with each other has been considered to be a much safer and profitable global strategy for both countries. As a result, the Communist bloc was thought to pursue a strategy of indirect challenge against the West by means of supporting national liberation movements in Asia, Africa and Latin America.[8] However, this strategy of indirect challenge was not the monopoly of the Communist bloc, but also appears as one of the fundamental behavior dimensions of the United States. The highest scoring nations on this factor are Cuba, China, North Korea, Indonesia and Egypt. Considering the significance of the highly loaded variables in the

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[8] Support to national liberation movements was the kind of communist tactic which Khrushchev officially validated in his January 6, 1961, speech on war: general war, nuclear or conventional, was too dangerous to be employed, and wars of national liberation represent the modern vehicle for communist expansion. Official pronouncements from Communist China do not indicate that their leadership fully appreciates the impact of thermonuclear weapons upon the East-West conflict, but it is frequently quoted that the Communist Party of China, in the leading article of the People's Daily (December 31, 1962), strongly endorsed full support for national liberation movements. However, the threat of an indirect aggression of Communism was fully acknowledged by the United States as early as in the mid-1950's. That is, the Manila Pact of September 1954 provided that the parties would cooperate not only "to resist armed aggression"but also "to prevent and counter subversive activities directed from without against their territorial integrity and political stability."

context of super power international politics and the countries which are the major recipients of this behavior, this pattern is labeled "aggression by proxy" or indirect aggression.

VI. Diplomacy: The sixth factor appears to be another cooperative type of behavior. Highly loaded variables on this factor are: diplomatic relations (.61), co-membership in NGO (.61), and co-membership in IGO (.53). These clustered variables represent U.S. cooperative behavior through legal and formal channels of international relations. Inter-governmental and non-governmental international organizations, two of the major twentieth century areas for the conduct of foreign policy, are the institutionalized diplomatic areas in which members practice open diplomacy. The major recipient countries of this behavior from the United States are: Austria, Sweden, Switzerland, Belgium,Netherlands, Finland, Italy, Denmark, Australia, Norway, Czechoslovakia and Mexico.

VII. Patronage: The last cluster of U.S. dyadic actions involves military aid (.69), and military alliance (.47). These are specific kinds of American foreign behavior, which are distinct from other cooperative behavior factors. The highest scoring object nations, in descending order, are: Taiwan, Guatemala, Bolivia, Dominican Republic, Honduras, Nicaragua, Ecuador, Argentina, Columbia, Peru, Haiti, Paraguay, Cuba, Chile, Mexico, Jordan, El Salvador, Turkey, Uruguay, Costa Rica, Venezuela, Panama, Spain, Pakistan, South Vietnam, South Korea, Saudi Arabia, Laos, Greece and Cambodia. The military aid oriented relationships between the United States and these countries are to a large extent a patron-client relationship rather than alliance between equal partners.

CHAPTER XII

DIMENSIONS OF U.S.S.R. BEHAVIOR SPACE

The 28 U.S.S.R. dyadic actions of 1960 were again found to cluster into seven distinct and independent factors. These seven factors, which account for about 74 percent of the total variance of U.S.S.R. behavior space, consist of two conflictful type behaviors, deterrence and indirect aggression, and five cooperative type behaviors, alliance, proselytizing, diplomacy, economic penetration, and patronage. The rotated factor loadings are presented in Table 9. The factor scores which show the values for each U.S.S.R. behavior factor are given in Appendix V. The following is a detailed discussion about the factors and their characteristics.

I. Deterrence: The first factor is a cluster of the U.S.S.R.'s conflictful dyadic actions such as : threat (.95), accusations (.94), reconciliatory action (.93), protest (.91), strengthening of forces (.88), official negative behavior (.87), cultural interaction (.62), and support to rebellious group (.60). This is also the largest among the seven Soviet behavior factors, which accounts for almost a quarter of the total variance of the behavior space. The highest scoring object nations on this factor are: the United States, the United Kingdom, West Germany, France, Japan, South Korea, Israel, and Belgium, with the United States as the dominant nation. Ever since Khrushchev's reformulation of Soviet foreign policy in 1956, the new

TABLE 9

FACTOR LOADINGS FOR SEVEN BASIS DIMENSIONS

OF U.S.S.R. B SPACE (1960)

Variables	I	II	III	IV	V	VI	VII	h^2
1 STFORCE	.88							.86
2 SUPREBL	.60						-.40	.81
3 SUPVIOL	.64						-.42	.77
4 THREAT	.95							.80
5 PROTEST	.91							.73
6 ACCUSAT	.94							.91
7 NEG-BEH	.87							.83
8 EXPORT		-.85			.41			.95
9 IMPORT		-.81			.46			.93
10 TREATY		-.71				.45		.75
11 MIL-ALN		-.65				.51		.69
12 MIL-AID		-.41				.54		.66
13 DIP-REL				-.51				.38
14 COM-IGO				-.57				.82
15 COM-NGO				-.61				.74
16 POLVIST				-.67				.63
17 ECOVIST					.54			.69
18 TOURIST		-.81						.90
19 ECO-AID					.79			.61
20 ECOCONF						.79		.90
21 POLCONF			.67	-.57				.80
22 ECOAGRE						.77		.86
23 POLAGRE			.84					.58
24 RECNACT	.93							.76
25 COP-COM			.51		.42			.59
26 PROMISE			.65					.71
27 CUL-INT	.62							.74
28 PHILANT			.61					.39
% of Total Variance	23.55	13.13	10.77	7.87	6.08	8.84	3.31	73.6

i) Image factor analysis with orthogonal rotation.
ii) Loadings $\geq .40$ are presented.
iii) The highest loading of each factor is underlined.
iv) Factor names:

I : Deterrence
II : Alliance
III : Proselytizing
IV : Diplomacy
V : Economic Penetration
VI : Patronage
VII : Indirect Aggression

theory of "peaceful coexistence" shifted Soviet attention from the military to more flexible political and economic means for pursuing foreign policy goals. Nevertheless, various issues directly confronting the Western and Communist bloc still existed in 1960. Some of the major issues were the U-2 spy plane incident, the U.S.-Japan security treaty, the abortive Paris Summit, the Berlin situation, the Congo civil war, and the equipping of NATO forces with nuclear weapons. Facing these problems, the Soviet Union utilized various types of strategic and tactical conflictful behaviors to discourage its counterpart countries to move to higher levels of action, to reduce the likelihood of invoking direct military confrontation with the West, and to build credibility of deterrence even in the cases of lower levels of conflictful issues. Therefore, this factor is called deterrence behavior of the Soviet Union directed toward the United States and its allies.

II. Alliance: A second cluster of U.S.S.R. dyadic actions is cooperative in nature. Highly loaded variables on this factor are: export (.85), tourist (.81), import(.81), treaties effective (.71), and military alliance (.65). Military aid is also moderately loaded on this factor (.41). The fact that these economic, political, and military variables are all highly correlated with this factor deserves special attention because these variables imply major properties of the Communist Party-states' alliance system. Since 1945, the Soviet Union put great efforts to achieve and maintain an integrated hegemony over the Communist Party-states. It was one of the major foreign

policy goals of the Soviet Union to create an integrated communist system of economic and political interpendence. These efforts were exemplified by creating the Council of Mutual Economic Assistance (COMECON) and the Warsaw Treaty Organization. By implication, this factor might then be properly called alliance, or the Soviet bloc cooperation.

The major recipient countries of this behavior from the Soviet Union are: East Germany, Poland, Bulgaria, Rumania, Finland, Czechoslovakia, Albania, China, Yugoslavia, Syria, Hungary and Yemen. Most of these countries are, as expected, in the Communist bloc, except for Syria and Yemen.[1]

III. Proselytizing: The third factor is highly loaded with variables such as: political agreement (.84), political conference (.67), promise (.65), philanthropic assistance (.60), military aid (.54), cooperative comment (.51), and economic visit (.51). The major recipient countries of these actions from the Soviet Union are: India, Cambodia, Indonesia, Cuba, Iran, Afghanistan, Burma, North Vietnam, Pakistan, Yemen, Egypt, and Ethiopia. Most of these countries were in 1960 in "gray" areas between the Soviet and the Western spheres of influence--the neutralist countries of Asia, the Middle East, Africa and Latin America. Under the banner of peaceful

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[1] The appearance of Syria and Yemen on this factor as highly scored object nations is not surprising. Yemen, for example, attracted great Soviet attention because of her strategic location between the Middle East and Africa. Syria, because of her geopolitical role in the Middle East with regard to the Soviet-American balance of power structure, has pulled attention from the Soviet Union.

coexistence, the Soviet Union led by Khrushchev undertook a proselytizing offensive spreading the quasi-religious ideas and sentiments of communist ideology by political, economic, and cultural ways.

IV. Diplomacy: Highly loaded variables on this fourth factor are: political visit (.67), co-membership in NGO (.61), co-membership in IGO (.57), and political conference (.57). Diplomatic relations is also moderately loaded on this factor (.51). The clustering of these variables implies the Soviet cooperative behavior through institutionalized diplomatic channels in which the Soviet Union practices a traditional type of diplomacy. Major recipient countries of this behavior from the Soviet Union are: Norway, Finland, India, France, Denmark, Canada, Austria, Italy, the Netherlands, Czechoslovakia, Switzerland, Argentina, Sweden, the United Kingdom, Mexico and Indonesia. Most of these countries are either economically developed or have high international prestige.

V. Economic Penetration: The fifth factor is another U.S.S.R. cooperative behavior which is distinct from and independent of the three cooperative behavior factors mentioned so far. This factor consists of highly loaded Soviet actions such as: economic aid (.79), economic visit (.54), import (.46), cooperative comment (.42), and export (.41). This clustering implies that economic aid from the Soviet Union concurrently embraces a variety of trade arrangements. The Soviet viewpoint on the relationship between aid and trade is expressed succinctly by A. Kedachenko, who stresses,

> The credits granted by the Soviet Union under the terms of its trade and aid agreements with the underdeveloped nations serve as a potent stimulus for Soviet exports to these states. Not only do these credits, as noted in the UN World Economy survey of 1958, create conditions favorable for continuous exchange of raw materials against manufactured goods supplied by countries operating under a centrally planned economy, but they may have an important effect on future exports to these underdeveloped nations.[2]

The major recipient countries of this behavior from the Soviet Union are: China, India, Libya, North Vietnam and Czechoslovakia.

VI. Patronage: The sixth cluster of U.S.S.R. dyadic actions is again cooperative in nature. Highly loaded variables on this factor are: economic conference (.79), economic agreement (.77), military aid (.54), military alliance (.51), and treaties effective (.45). As was the case of the United States, the first two economic variables can be assumed to represent largely aid, rather than trade or transaction concerns. Therefore, the joint clustering of these economic and military support variables on this factor forms another distinct cooperative pattern, which is independent of alliance or economic penetration factors. The countries which score highly on this behavior of the Soviet Union are: Outer Mongolia, Czechoslovakia, North Korea, Hungary, Egypt, Cuba, Poland, Iraq, Afghanistan, North Vietname and Albania. The dyadic relationship of the Soviet Union with these countries in terms of economic aid and military support might be properly interpreted as a patron-client relationship. Therefore, this factor is labeled patronage or satellite.

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[2] Kurt Muller, The Foreign Aid Programs of the Soviet Bloc and Communist China (New York: Walker, 1964), p. 193.

VII. Indirect Aggression: The last cluster of U.S.S.R. dyadic actions involves support to rebellious group (.40), and support to object's violent enemy (.42). Official negative behavior is slightly loaded (.36). This is another conflict behavior of the Soviet Union which is distinct from the deterrence factor. Since the Soviet acquisition of atomic weapons created a "balance of terror" in international relations, the principle of avoiding direct military confrontation with the United States became the Communist's global strategy. The Russians never used their troops except within their immediate spheres of influence. Direct or indirect support to militant national liberation movements in Asia and Africa was rapidly becoming a Communist strategy best designed to skirt the trip wires of a major nuclear conflict. This Soviet indirect aggression was directed mostly towards: France, the United Kingdom, West Germany, South Vietnam, Belgium, Israel, Cambodia, South Korea, Taiwan, Turkey, China, Laos and Portugal. The high scores on this factor of the United Kingdom, France, and Belgium are related to the former colonial powers' imperialist stance against the anti-imperialism movements in the Congo and Algeria. West Germany is related to the divided German problems, and Israel can be related to the overall Middle East situation.

CHAPTER XII

STABILITY OF BEHAVIOR SPACE DIMENSIONS

As mentioned in Chapter X, the usefulness of any scientific finding resides in their stability and reproducibility. Therefore, again in this chapter, the stability and reproducibility checks will be carried out with regard to the seven behavior space dimensions of the United States and the Soviet Union, respectively. The following is the detailed procedure.

1. The seven dimensions for the U.S.A. behavior space of 1960 will be compared to those of 1965 employing a visual investigation and the factor comparison method.
2. The seven dimensions for the U.S.S.R. behavior space of 1960 will be compared to those of 1965 employing a visual investigation and the factor comparison method.
3. The seven dimensions of the U.S.A. B space will be compared to those of the U.S.S.R.
4. The seven behavior dimensions for the U.S.A. in this study will be compared to the six behavior dimensions for the U.S.A. found by R. J. Rummel.[1]

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[1] Rummel, "U.S. Foreign Relations: Conflict, Cooperation, and Attribute Distances," in Bruce Russett, ed., Peace, War, and Numbers (Beverly Hills; Sage, 1972), pp. 71-113.

5. The seven behavior dimensions for the U.S.A. and the U.S.S.R. will be compared to the eight behavior dimensions for China found by Sang-Woo Rhee.[2]

The cross-studies comparison of 4 and 5 are more difficult than the others, because the year chosen, number of dyads selected, number of variables used, and analysis techniques employed in each study are different. Table 10 gives the main differences among the three studies.

TABLE 10

DIFFERENCES AMONG STUDIES

Rummel's Study on U.S.A.:

1955
81 dyads
19 variables
6 dimensions
Component factor analysis with orthogonal rotation

Rhee's Study on China:

1950 - 1965
78 dyads
17 variables
9 dimensions
Super-P component factor analysis with orthogonal rotation

Choi's Study on U.S.A. & U.S.S.R.:

1960, 1965
82 dyads
28 variables
7 dimensions
Image factor analysis with orthogonal rotation

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[2] Rhee, "China's Cooperation, Conflict, and Interaction Behavior: Viewed from Rummel's Field Theoretic Perspective," DON Research Report

5. The seven behavior dimensions for the U.S.A. and the U.S.S.R. will be compared to the eight behavior dimensions for China found by Sang-Woo Rhee.[2]

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Super-P component factor analysis with orthogonal rotation

Choi's Study on U.S.A. & U.S.S.R.:

1960, 1965
82 dyads
28 variables
7 dimensions
Image factor analysis with orthogonal rotation

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[2] Rhee, "China's Cooperation, Conflict, and Interaction Behavior: Viewed from Rummel's Field Theoretic Perspective," DON Research Report

13.1. Stability of U.S.A. Behavior Dimensions. For the 1965 B space of the United States, factor analysis was done using the principal component technique and the image factor model. To get the simple structure, seven factors were rotated orthogonally using the varimax criteria. The seven factors account for almost 75 percent of the total variance of B space. The factors and their loadings are presented in Table 11. Table 12 also presents the names of factors and their highly loaded variables in comparison with those of 1960. As can be seen from Table 11, the factor structures of 1960 and 1965 are fairly stable. In order to evaluate more systematically the stability of the seven dimensions, the dimensions of 1960 again were transformed to a best (least square) fit with those of 1965. As a result, a product-moment correlation of .88 between the two sets of dimensions was found. This is sufficient to say that the factor structures are fairly stable across 1960 and 1965 for the United States, that the seven factors constitute the fundamental basis dimensions for the United States' behavior space.

13.2. Stability of U.S.S.R. Behavior Dimensions. Table 13 presents the factor loadings for the seven basis dimensions found for the 1965 U.S.S.R. behavior space. These seven factors account for more than 70 percent of the total variance of B space. Table 14 presents the factor names and highly loaded variables for both 1960

No. 64 (University of Hawaii, 1973). Rhee originally found nine basis dimensions including "Time." However, "Time" is excluded in this comparison because its inclusion as a behavior variable is considered irrelevant to our analysis.

TABLE 11

FACTOR LOADINGS FOR SEVEN BASIS DIMENSIONS

OF U.S.A. B SPACE (1965)

Variables	I	II	III	IV	V	VI	VII	h^2
1 STFORCE				-.89				.86
2 SUPREBL				-.89				.81
3 SUPVIOL				-.87				.77
4 THREAT		.68			.46			.80
5 PROTEST		.84						.73
6 ACCUSAT		.81		-.50				.91
7 NEG-BEH		.80		-.41				.83
8 EXPORT			.92					.95
9 IMPORT			.91					.93
10 TREATY			.61				.42	.75
11 MIL-ALN							.77	.69
12 MIL-AID					.40		.64	.66
13 DIP-REL				.41				.38
14 COM-IGO						-.69		.82
15 COM-NGO						-.76		.74
16 POLVIST	.46						.48	.63
17 ECOVIST	.58							.69
18 TOURIST			.95					.90
19 ECO-AID	.74							.61
20 ECOCONF	.88							.90
21 POLCONF							.64	.80
22 ECOAGRE	.84							.86
23 POLAGRE		.63						.80
24 RECNACT		.87						.76
25 COP-COM	.45						.41	.59
26 PROMISE					.83			.71
27 CUL-INT		.70						.74
28 PHILANT	.54							.39
% of Total Variance	11.80	16.70	13.35	11.50	5.36	6.76	8.76	74.2

i) Image factor analysis with orthogonal rotation.
ii) Loadings $\geq$ .40 are presented.
iii) The highest loading of each factor is underlined.
iv) Factor Names:

I : Economic Penetration
II : Deterrence
III : Transaction
IV : Indirect Aggression
V : Patronage
VI : Diplomacy
VII : Alliance

TABLE 12

DIMENSIONS OF U.S.A. BEHAVIOR SPACE*

(1960 and 1965)

1960				1965		
No.	Factors	Loading	Variables	Loading	Factors	No.
1	Alliance	.82	Political Conference	.64	Alliance	7
		.80	Political Agreement	---		
		.72	Promise	---		
		.62	Cooperative Comment	.41		
		.59	Political Visit	.48		
		.58	Treaties Effective	.42		
		.58	Military Alliance	.77		
		.48	Co-membership in NGO	---		
		.47	Co-membership in NGO	.27		
2	Deterrence	.97	Negative Behavior	.80	Deterrence	2
		.95	Accusation	.81		
		.91	Threat	.68		
		.89	Strengthening of Forces	.24		
		.76	Reconciliatory Action	.87		
		.60	Protest	.84		
		.53	Cultural Interaction	.70		
3	Economic Penetration	-.84	Economic Agreement	.84	Economic Penetration	1
		-.80	Economic Visit	.58		
		-.79	Economic Conference	.88		
		-.62	Economic Aid	.74		
		-.49	Philanthropic Assistance	.54		
4	Transaction	-.92	Tourist	.95	Transaction	3
		-.89	Import	.91		
		-.88	Export	.92		
		-.54	Cultural Interaction	---		
		-.50	Treaties Effective	.61		
5	Indirect Aggression	.82	Support to Rebellious Group	-.89	Indirect Aggression	4
		.76	Support to Violent Enemy	-.87		
		.58	Protest	---		
		.35	Strengthening of Forces	-.89		
6	Diplomacy	.61	Diplomatic Relations	---	Diplomacy	6
		.61	Co-membership in ICO	-.69		
		.53	Co-membership in NGO	-.76		
7	Patronage	-.69	Military Aid	.40	Patronage	5
		-.47	Military Alliance	---		
		---	Promise	.83		
		---	Threat	.46		
Factor Comparison between 1960 and 1965: r=.88						

*Image factor analysis with orthogonal rotation.

TABLE 13

FACTOR LOADINGS FOR SEVEN BASIS DIMENSIONS

OF U.S.S.R. B SPACE (1965)

Variables	I	II	III	IV	V	VI	VII	h^2
1 STFORCE		.45			.49			.62
2 SUPREBL					.67			.56
3 SUPVIOL		.41			.61			.59
4 THREAT		.97						.95
5 PROTEST		.95						.95
6 ACCUSAT		.95						.97
7 NEG-BEH		.98						.98
8 EXPORT	-.93							.91
9 IMPORT	-.93							.93
10 TREATY	-.73							.73
11 MIL-ALN	-.67							.75
12 MIL-AID	-.50							.62
13 DIP-REL								.40
14 COM-IGO			-.90					.89
15 COM-NGO			-.90					.88
16 POLVIST	-.53			-.46			.48	.78
17 ECOVIST							.57	.40
18 TOURIST	-.69							.56
19 ECO-AID	-.45					.45		.54
20 ECOCONF	-.52					.73		.85
21 POLCONF	-.50			-.45				.84
22 ECOAGRE						.79		.80
23 POLAGRE				-.65				.55
24 RECNACT		.93					.42	.91
25 COP-COM							.65	.49
26 PROMISE								.47
27 CUL-INT								.46
28 PHILANT								.39
% of Total Variance	16.98	19.10	8.16	6.19	4.84	8.30	7.00	70.6

i) Image factor analysis with orthogonal rotation.
ii) Loadings $\geq$ .40 are presented.
iii) The highest loading of each factor is underlined.
iv) Factor Names:

I : Alliance
II : Deterrence
III : Diplomacy
IV : Proselytizing
V : Indirect Aggression
VI : Economic Penetration
VII : Patronage

TABLE 14

DIMENSIONS OF U.S.S.R. BEHAVIOR SPACE*

(1960 and 1965)

1960				1965		
No.	Factors	Loading	Variables	Loading	Factors	No.
1	Deterrence	.95	Threat	.97	Deterrence	
		.94	Accusations	.95		
		.93	Reconciliatory Action	.93		
		.91	Protest	.95		
		.88	Strengthening of Forces	.45		2
		.87	Negative Behavior	.98		
		.64	Support to Violent Enemy	.41		
		.62	Cultural Interaction	---		
		.60	Support to Rebellious Group	---		
2	Alliance	-.85	Export	-.93	Alliance	
		-.81	Import	-.93		
		-.81	Tourists	-.69		
		-.71	Treaties Effective	-.73		1
		-.65	Military Alliance	-.67		
		-.41	Military Aid	-.50		
3	Proselytizing	.84	Political Agreement	-.65	Proselytizing	
		.67	Political Conference	-.45		
		.65	Promise	---		
		.60	Philanthropic Assistance	-.37		4
		.54	Military Aid	---		
		.51	Cooperative Comment	---		
		.38	Political Visit	-.46		
4	Diplomacy	-.67	Political Visit	---	Diplomacy	
		-.61	Co-membership in NGO	-.90		
		-.57	Co-membership in IGO	-.90		3
		-.57	Political Conference	---		
		-.51	Diplomatic Relations	---		
5	Economic Penetration	.79	Economic Aid	.45	Economic Penetration	
		.54	Economic Visit	---		
		.46	Import	---		6
		---	Economic Agreement	.79		
		---	Economic Conference	.73		
6	Patronage	.79	Economic Conference	---	Patronage	
		.77	Economic Agreement	---		
		.54	Military Aid	.30		
		.51	Military Alliance	.31		7
		.26	Promise	.65		
		---	Economic Visit	.57		
7	Indirect Aggression	-.42	Support to Violent Enemy	.61	Indirect Aggression	5
		-.40	Support to Rebellious Group	.67		
Factor Comparison between 1960 and 1965: r= .93						

* Image Factor analysis with orthogonal rotation.

and 1965 together. A visual investigation shows us that there is an overall similarity of factors and their compositions across 1960 and 1965. The result of the factor comparison is also high, with a correlation of .93 between factors. This is certainly high enough to say that the factor structures are stable between the two years and that the seven factors discussed in Chapter XIIare the fundamental basis dimensions for the Soviet Union's behavior space.

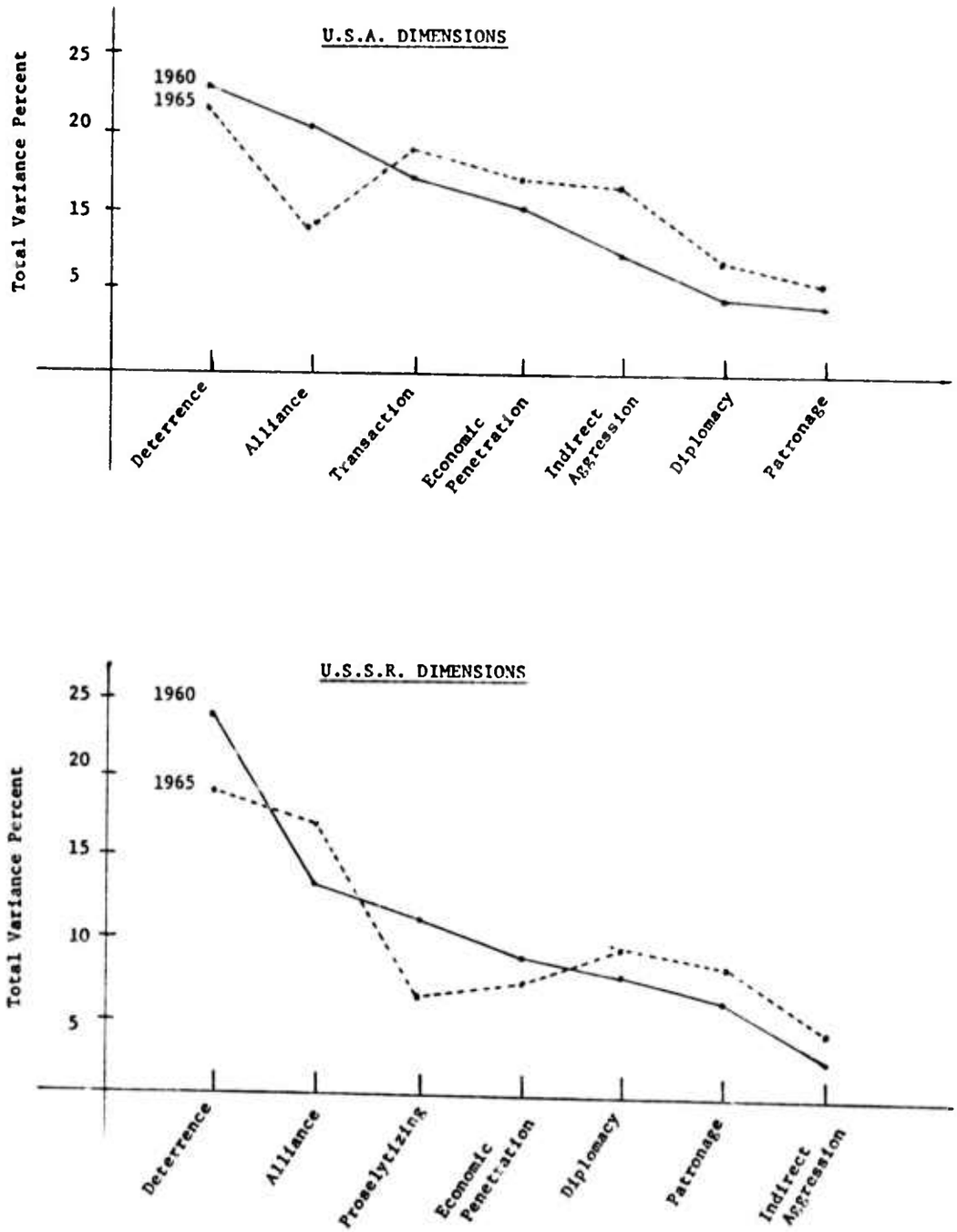
13.3. Changing Behavioral Strength. Between 1960 and 1965, the structure of behavioral dimensions of the two super powers remained fairly stable, if not identical. However, this does not mean that the relative strength of each factor in terms of its dominance in the whole behavior space also remained unchanged. In effect, the proportion of total variance extracted by each factor appears substantially changed. These changes mean that there was some shifting of behavioral strength from 1960 to 1965 and, therefore, the degree of variables' clustering around certain factors. In this sense, a general overview of the proportion of total variance accounted for by each factor across 1960 and 1965 will show the inner operation of variables within the stable behavioral structure. Figure 3 presents the overall configuration of the proportion of total variance accounted for by each factor.

In the case of the United States, the percentage of total variance of the deterrence and alliance factors dropped in 1965 compared to 1960. On the other hand, the other five factors, transaction, economic penetration, indirect aggression, diplomacy, and patronage account for more variance in 1965. In the case of the Soviet Union,

FIGURE 3

THE PERCENT OF TOTAL VARIANCE OF

EACH BEHAVIORAL FACTOR: 1960 VS. 1965



deterrence, proselytizing, and economic penetration factors fell in their percentages of total variance in 1965, while the alliance, diplomacy, patronage, and indirect aggression dimensions showed an increase.

First of all, the decrease in the proportion of variance of deterrence for both countries seems to reflect what actually happened in international relations between 1960 and 1965. In the late 1940's and most of the 1950's, there was open hostility between the Eastern and the Western blocs. In the earlier 1960's, however, a certain harmony of interest between the two super powers was becoming apparent and tension between the two blocs was relaxing. Terms like "detente" or a "condominium" of super powers were frequently used to describe the state of the U.S.-Soviet relations. There is much evidence for this accommodation. During the winter of 1962-1963, high-level bilateral talks between the two super powers resulted in the establishment of the so-called hot line and the multilateral limited Test-Ban Treaty of 1963.[3] Later in 1963, arrangements were made for the sale of large quantities of American wheat to the Soviet Nation. In 1964, the two nations signed their first bilateral treaty since the Tsarist days for establishing consular facilities in each other's major cities.[4] All these effects must have influenced the

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[3] The treaty, signed by the United States, the Soviet Union and Great Britain in Moscow on August 5, 1963, required its adherents to refrain from testing nuclear weapons in the air or under the water.

[4] The ratification of this treaty, however, was held up for four years. The reason for this delay was the situation in Vietnam, which has made a considerable impact upon the process of U.S.-U.S.S.R. detente.

decrease in the deterrence factor's percentage of total variance for both countries.

Concerning the alliance factor, the shift in strength is reverse between the two countries. While the percentage dropped for the United States, it increased for the Soviet Union. Why this should be so for the United States is understandable. American alliance relations with other states were to a very large extent a reflection of their relations with the communist powers. Since 1960, the diplomatic offensive of the Soviet Union under the banner of peaceful coexistence and the tension arising between the United States and France surely have weakened American influence in Western Europe. NATO lost much of its urgency of purpose and proved incapable of resolving several serious problems of cooperation between 1960 and 1965.

On the other hand, while experiencing the break up of the alliance system with China, the Soviet Union increased its export, import, tourist, and treaties in Eastern Europe as well as in Asia along the Chinese periphery.[5] This and other such substantive cooperation within the so-called Communist bloc may account for the increase in the strength of the alliance factor.

As for the other dimensions, *the United* States was shown to have increased the volume of transaction, economic penetration, indirect aggression, diplomacy, and patronage from 1960 to 1965. The increase of indirect aggression in 1965 compared to 1960 might be associated

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[5] Remember that the highly loading variables on the Soviet alliance dimension are those listed here.

with the fact that the spheres of influence of the United States was more threatened by means of insurgent movements and revolutionary warfare in the third world. That American intervention in Indochina was a turning point in 1965 is a good example. With regard to the increase in the patronage factor, it can be explained by America's strenuous efforts to strengthen its political-military posture in Latin America after the Cuban Missile Crisis in October, 1962, and to consolidate its Asian clients in connection with the Vietnam War efforts. Other dimensions might be attributed to the growth of American transaction, foreign aid, and formal-legal participation in various international organizations during the five years between 1960 and 1965.

In the case of the Soviet Union, proselytizing and economic penetration factors dropped in 1965, while diplomacy, patronage, and indirect aggression increased. The decrease in proselytizing is understandable considering that in 1960 the Soviet leaders, led by Khrushchev, made numerous pilgrimages abroad to spread the image of peaceful coexistence and to promote all varieties of penetration into influential neutralist countries. But there was no match for this in 1965. As for economic penetration, there was a peak in foreign aid commitments by the Soviet Union amounting to $1,154.5 million during 1960 (which in terms of the Soviet GNP matched the U.S. foreign aid commitment). In 1961 and 1962 the totals dropped precipitously (to $171.4 million in 1962). In 1964 the Soviet Union again announced extensions of $890 million, but in 1965 dropped again to $655 million,

which was far below that of 1960.[6]

The increase in diplomacy, patronage, and indirect aggression in Soviet behavior is all associated with the actual phases of Soviet foreign policy deployed during 1960-1965. The increase in diplomacy seems to be related to the fact that the Soviet Union took a more active and cooperative role in international organizations in 1965 than in 1960. In 1965, the Soviet Union was a member of nearly all the organizations dealing with health, of almost one-third of the arts and science organizations, of the Red Cross, of institutions dealing with either communications and transit, and so on. All in all, it was participating in over one hundred and fifty international organizations.[7] The increase in patronage seems to be related to the Sino-Soviet conflict and strenuous Russian efforts to strengthen its influence and power within the Communist bloc and among the countries along China's periphery. The increase in the indirect aggression factor seems to be associated with the widespread insurgent movements and revolutionary wars among the third world countries and increased American intervention in these areas in 1965.

In short, within the stable structure of behavioral dimensions, both the United States and the Soviet Union emphasize or de-emphasize each factor across 1960 and 1965 according to various conditions influencing the decision-makers.

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[6] U.S. Department of State, Bureau of Intelligence and Research, RSB-50 (June 17, 1960) and RSB-65 (August 4, 1965) (Washington, D.C.: Government Printing Office).

[7] Triska and Finley, Soviet Foreign Policy, pp. 371-373.

13.4. Comparison between U.S.A. and U.S.S.R. Behavior Dimensions.

Among the seven basis dimensions of both countries' behavior spaces, six factors, deterrence, alliance, economic penetration, patronage, diplomacy, and indirect aggression, appear substantially similar to each other in terms of factor structure and composition. These six, therefore, can be interpreted as the common parts of the behavioral dimensions which are equally shared by the United States and the Soviet Union. However, with regard to the proselytizing factor of the Soviet Union and the transaction factor of the United States, there is no common basis between the two countries.

The nonexistence of the transaction factor on the part of the Soviet Union implies the centralized character of Soviet foreign policy operations. Since the entire state structure is organized to carry out a single, unified policy, there is allegedly no place for the extension of visions or behaviors at variance with governmental directions. Therefore, more or less non-politically oriented behaviors such as export, import, and tourist are all involved in the alliance factor of the Soviet Union without forming an independent clustering called transaction as in the case of the United States.

On the other hand, the proselytizing factor, which is the third largest factor for the Soviet Union, does not exist in the United States' behavior space. Most of the literature on Soviet foreign policy during the late 1950's and the decade of 1960's supports the possibility of this proselytizing factor being unique to the Soviet Union. The major development in Soviet foreign policy since the mid-1950's is the change in strategy from a continental to a global

orientation.[8] Nowhere has this change unfolded more drastically than in the neutralist countries of southern Asia, the Middle East, Africa, and Latin America. Under the banner of peaceful coexistence and with the quasi-religious ideas of communism, the Soviet Union undertook broad political, economic, and cultural offensives. The importance of this proselytizing offensive for the Soviet Union was the weakening of the United States alliance system and thereby spheres of influence while enhancing the Soviet spheres of influence and opportunities for further political and economic penetration.

As mentioned in the previous chapter,[9] the prime target for Soviet proselytizing behavior in 1960 is India. India, one of the most populous nations, strategically located, and by virtue of its leading role among other neutralist, was obviously important. India would serve the Soviet Union well its drive for the spheres of influence among neutralist countries. India would demonstrate to the Afro-Asians that closer relations with the Soviet bloc could bring them tangible economic, military, and political dividends. Successful penetration into India would encourage her to pursue its policy of non-alignment, thus forestalling the formation of a united anti-communist coalition in Asia. And, India would serve as a long-term strategic hedge against Chinese expansionism.

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[8] Thomas W. Wolfe, "Evolution of Soviet Military Policy," in John W. Strong, ed., The Soviet Union under Brezhnev and Kosygin (New York: D. Van Nostrand, 1971), pp. 75-92.

[9] The major recipient countries of proselytizing behavior from the Soviet Union are India, Cambodia, Indonesia, Cuba, Iraq, Afghanistan, Burma, North Vietnam, Pakistan, Yemen, Egypt, Ethiopia, and Finland. Of course, not all of these countries were neutral. For example, Ethiopia was allied with the West, and Cuba was also allied with the West at least until the mid-1960.

In short, among the seven fundamental basis dimensions of behavior for the United States and the Soviet Union, six are commonly shared by the two nations in terms of the structure and its composition. However, while the proselytizing factor is specific to the Soviet Union, the transaction factor exists only for the United States. These differences may be attributed to specific contexts given to the attributes and behaviors of each country at a certain time.

13.5. Comparison with Rummel's Six Dimensions of U.S.A. B Space. It is difficult to systematically compare the seven behavior dimensions of the U.S.A. in my study with Rummel's six U.S.A. dimensions because of the many differences described in Table 10. Nevertheless, the two findings are comparable to a certain extent, for both attempt to define general behavior patterns for the United States. Table 15 presents Rummel's six dimensions of U.S. dyadic foreign behavior.

As shown in Table 15, some of Rummel's dimensions correspond to my dimensions found from the analysis of U.S. dyadic behavior in 1960, in terms of the highly loaded variables and partially of the highest scoring nations on those dimensions.[10] First of all, Rummel's first factor, Western European cooperation, comprises the movement of American students and emigrants to other nations, treaties with those nations, military aid to them, and conferences involving them. The nature of these variables is very similar to political conference,

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[10] The similarity of the high scoring object nations only partially supports the stability of a dimension.

TABLE 15

RUMMEL'S SIX DIMENSIONS OF USA BEHAVIOR SPACE*

No.	Dimensions	Variables (loadings)
I.	Western European Cooperation:	students (.84) conferences (.75) emigrants (.71) military aid (.66) treaties (.63)
II.	Anglo-American Cooperation:	export books (-.99) tourists (-.97) investment (-.96) exports (-.93) emigrants (-.55)
III.	Deterrence:	military violence (-.94) negative communication (-.90)
IV.	Cold War:	co-membership in IGO (-.84) military commitment (-.76) embassies and legations (-.69) UN voting (-.59)
V.	Negative Sanctions:	negative sanctions (.81) military personnel stationed (.66)
VI.	Aid:	economic aid (.91)

* 1955
81 dyads
19 variables
Component factor analysis with orthogonal rotation

political agreement, political visit, treaties effective, and military alliance which together delineate the alliance dimension in my study. In addition, the highest scoring object nations on both dimensions are most of the developed Western European countries.[11]

Second, Rummel's Anglo-American cooperation dimension corresponds to my transaction dimension. On both dimensions, export and tourists variables are salient. On both, Canada appears as the dominant recipient. Third, the similarity in the deterrence dimensions across the two studies is clearer than the above two cases. Both studies delineated similar conflictful dimensions. Both involve U.S. dyadic actions concerning military violence and negative communications, and both place the Soviet Union and China as two of the major recipient countries. Another similarity is found between Rummel's aid dimension and the economic penetration dimension found here. Though the factor names are different, the highly loaded variables are all related to economic aid in both studies.

However, there were significant differences between the two studies. For example, Rummel's cold war and negative sanctions have no counterparts in the present analysis. The nonexistence of the negative sanction dimension in my study might be explained by the fact that the two variables highly loaded on that dimension (negative sanctions and military personnel stationed) are not used in my

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11 The nations scoring high on Rummel's dimension are: Belgium, France, West Germany, Italy, the Netherlands, Switzerland, and the United Kingdom. Those on my alliance dimension are: the United Kingdom, France, West Germany, Brazil, etc.

study.[12] The non-existence of the cold war dimension in my study might be explained by the different variables and years used, and differences in technique between component and image factor analysis. In addition, we can also suggest an explanation by assuming that the international system experienced a systemic change in terms of the Cold War between 1955 and 1960's. In effect, 1955 was still the period of East-West Cold War confrontation. However, by 1960 the United States and the Soviet Union had already entered into the state of "peaceful coexistence" or "detente."

On the other hand, the current analysis has three dimensions, patronage, indirect aggression, and formal diplomacy, which are not found in Rummel's study. The indirect aggression dimension cannot appear in Rummel's study because it does not include variables representing support to rebellious group or object's violent enemy. The nonexistence of the other two dimensions in Rummel's study might also be attributed to different variables used, different analysis techniques employed, and the partial transformation of the international system between 1955 and 1960.

In short, four of Rummel's dimensions are quite similar to mine. Considering the original differences between the two studies as presented in Table 10, the degree of similarity still buttresses the confidence in the reproducibility of the seven dimensions in my study. In order to increase this confidence I will compare it next with

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12 Behaviors implying U.S. negative sanctions to other countries are included in the official negative behavior variable in my study, which is one of the highest loading variables on my deterrence dimension.

Rhee's eight dimensions of China's behavior space.

13.6. Comparison with Rhee's Eight Dimensions of China's B Space. Rhee's eight dimensions are presented in Table 16. In general, his study shows greater similarity to mine than does Rummel's. Rhee's formal diplomacy corresponds to the diplomacy dimension in both the U.S. and U.S.S.R. behavior spaces in my study. His penetration dimension corresponds to the economic penetration dimension, his substantial cooperation corresponds to my transaction dimension, and the people's liberation war corresponds to the indirect aggression dimension. The alliance dimensions in the two studies are the same in terms of the highly loaded variables and the definition of the dimension. And the formal conflict dimension corresponds to the deterrence dimension in my study.

All six dimensions in Rhee's study have counterparts in the dimensions of the United States and the Soviet Union. However, the patronage dimension which is common to both the United States and the Soviet Union does not exist in Rhee's study, and the proselytizing dimension which is specific to the Soviet Union does not appear in China's behavior space, either. All in all, these differences might be explained by the unique parts of Chinese foreign behavior, different variables and analysis techniques employed, and so on.

In conclusion, despite the various differences involved, we still have among the three studies considerable similarity, which strongly supports the view that there are fundamental basis dimensions

TABLE 16

RHEE'S NINE DIMENSIONS OF CHINA'S BEHAVIOR SPACE*

No.	Dimensions	Variables (loadings)
I.	Penetration	economic aid (.86) treaties aid (.80) official political visits (.61)
II.	Formal Diplomacy	diplomatic relations (.79) treaties of cultural cooperation (.73) non-political visits (.55) total number of bilateral treaties (.50) official political visits (.46)
III.	Substantial Cooperation	exports (.88) positive communications (.67) non-political visits (.55) degree of concern (.50)
IV.	Alliance	treaties of friendship and foreign alignment (.91) official visits (.36)
V.	Administrative Cooperation	treaties of economic Cooperation (.82)
VI.	Communication Network	treaties of postal service and transportation (.94)
VII.	People's Liberation War	verbal support for anti-government elements (.83) rebel support (.91)
VIII.	Formal Conflict	negative communication (.97) degree of concern (.68)
(IX)	(Time)	(time) (.99)

* 1950 - 1965
78 dyads
17 variables
Super-P component factor analysis with orthogonal rotation

in nation's behavioral space. And the seven dimensions found in this study possess sufficient stability and reproducibility across-time as well as across-studies.

CHAPTER XIV

STRATIFICATION OF NATIONS IN THE INTERNATIONAL SYSTEM

Status-Field Theory defines status as the location of a nation along a status dimension and total rank as a specified composite for a nation's statuses on the economic development and power dimensions. That is, according to Rank Definition (Definition 2), the rank of a nation i is $\alpha_1 S_{i1} + \alpha_2 S_{i2}$, where α_1 and α_2 are positive parameters and S_{i1} and S_{i2} are nation i's scores on economic development and power, respectively. Since we have the two statuses scores of each nation from the factor analysis result of the attribute space, it is now possible to calculate the total rank score of each nation if we hold the parameters constant for all nations.[1] The rank score of each nation was calculated by summing the factor scores of the economic development and the power dimensions. The scores and their orderings are presented in Table 17 (for 1960) and Table 18 (for 1965). In this chapter, I will investigate the overall distribution of nations

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[1] Equal weighting of the parameters ($\alpha_1 = \alpha_2 = 1.0$) is not provided by Status-Field Theory's rank definition. However, for convenient operationalization of the total rank scores of nations, this study assumed that the parameters are equally 1.0 for all nations. See Rummel, "A Status-Field Theory of International Relations," pp. 39-42.

in the stratified international system and any possible classification of nations in terms of rank positions.

As one scrutinizes the rank scores and rank orderings of nations in Table 17 and 18, four major impressions emerge. The first is that the United States and the Soviet Union occupy a predominant position in terms of both rank scores and rank ordering. No other nations in the international system during 1960 and 1965 attained the high scores of these two. Among the countries whose rank scores are above the mean, there is a marked stability of rank ordering except in the case of Japan whose score increased from fifteenth in 1960 to tenth in 1965. This might be explained by Japan's drastically expanded economic development and defense capability in the early 1960's.

The second impression is that most Asian, African, and Latin American, the so-called Third World, countries continue in their low rank positions for the two time periods, except for China, Japan, Argentina, the Union of South Africa, Venezuela, and to a lesser extent, Brazil. Though there is some shifting of rank orderings among the Third World countries, it is only among themselves and none is sufficient to trespass the established Western dominated international status order.

The third impression is that the distribution of nations along the rank scores shows more positive skewness and a wider range in 1965 than in 1960. This can be explained by two trends in the international system especially noticeable at this time. First, as the newly independent underdeveloped Third World countries joined the family of nations, the distance between the high and low rank nations naturally increased. Second, because of the accumulated disadvantages of the

TABLE 17

STRATIFICATION OF NATIONS IN 1960

Rank	Nations	Score	Rank	Nations	Score
1	United States	8.1782	43	Egypt	-0.5052
2	Soviet Union	4.9020	44	Uruguay	-0.5126
3	United Kingdom	2.4761	45	Mexico	-0.5235
4	Canada	2.3940	46	Philippines	-0.5376
5	Australia	2.1799	47	Panama	-0.5467
6	West Germany	2.0109	48	Colombia	-0.6289
7	Sweden	1.9321	49	Iraq	-0.6349
8	New Zealand	1.4899	50	Costa Rica	-0.6770
9	Switzerland	1.3775	51	Syria	-0.7075
10	China	1.3725	52	Peru	-0.7243
11	East Germany	1.2461	53	Turkey	-0.7305
12	France	1.2006	54	Libya	-0.7327
13	Norway	1.1944	55	Albania	-0.7380
14	Denmark	1.1153	56	Iran	-0.7865
15	Japan	0.9738	57	Portugal	-0.7923
16	Czechoslovakia	0.9530	58	Jordan	-0.7944
17	Finland	0.9346	59	North Vietnam	-0.8146
18	Israel	0.8546	60	Ceylon	-0.8161
19	Netherlands	0.7012	61	Paraguay	-0.8295
20	Austria	0.5710	62	Ecuador	-0.8911
21	Belgium	0.5680	63	Saudi Arabia	-0.9033
22	Argentina	0.5050	64	Burma	-0.9208
23	Hungary	0.3925	65	Thailand	-0.9317
24	Union of S.Africa	0.2826	66	Pakistan	-0.9373
25	Poland	0.2034	67	Indonesia	-0.9445
26	Venezuela	0.2158	68	South Vietnam	-0.9896
27	Italy	0.1535	69	Malaysia	-1.0046
28	Ireland	0.0189	70	Cambodia	-1.0347
29	Bulgaria	-0.0065	71	Nicaragua	-1.0357
30	North Korea	-0.0606	72	Dominican Rep.	-1.0500
31	Rumania	-0.0737	73	Liberia	-1.0590
32	Brazil	-0.1300	74	Honduras	-1.0881
33	Cuba	-0.1878	75	Laos	-1.1136
34	Yugoslavia	-0.1952	76	Guatemala	-1.1207
35	Greece	-0.2172	77	Yemen	-1.1325
36	Chile	-0.2529	78	Bolivia	-1.1645
37	Outer Mongolia	-0.2740	79	Ethiopia	-1.2005
38	Spain	-0.3204	80	El Salvador	-1.2213
39	South Korea	-0.3692	81	Afghanistan	-1.2986
40	India	-0.3977	82	Nepal	-1.3057
41	Taiwan	-0.4135	83	Haiti	-1.3519
42	Lebanon	-0.4720			

Mean: 0.004 Median: -0.4428
S.D.: 1.433 Skewness: 2.873 (p=.01)
Kurtosis: 11.941 (p=.01) Range: 9.5301

TABLE 18

STRATIFICATION OF NATIONS IN 1965

Rank	Nations	Score	Rank	Nations	Score
1	United States	9.0477	43	Panama	-0.4971
2	Soviet Union	5.4386	44	Spain	-0.5154
3	Canada	2.4531	45	Indonesia	-0.5264
4	United Kingdom	1.9225	46	Albania	-0.5402
5	Australia	1.9055	47	Malaysia	-0.5486
6	Sweden	1.8163	48	Egypt	-0.5686
7	West Germany	1.7685	49	Peru	-0.6105
8	New Zealand	1.6126	50	Iraq	-0.6258
9	China	1.4251	51	Mexico	-0.6297
10	Japan	1.2901	52	Costa Rica	-0.6604
11	East Germany	1.2479	53	Lebanon	-0.6914
12	France	1.1697	54	Chile	-0.7000
13	Czechoslovakia	1.1262	55	Colombia	-0.7314
14	Denmark	1.0878	56	North Vietnam	-0.7612
15	Switzerland	1.0737	57	Syria	-0.7691
16	Finland	1.0069	58	Ceylon	-0.7874
17	Norway	1.0047	59	Bolivia	-0.8108
18	Israel	0.8699	60	Turkey	-0.8917
19	Netherlands	0.7647	61	Iran	-0.8077
20	Belgium	0.6316	62	Ecuador	-0.8276
21	Argentina	0.3779	63	Portugal	-0.8770
22	Bulgaria	0.3607	64	Saudi Arabia	-0.8771
23	Austria	0.2954	65	Dominican Rep.	-0.9392
24	Italy	0.2656	66	Burma	-0.9642
25	Hungary	0.2449	67	Liberia	-0.9774
26	Poland	0.2256	68	Honduras	-0.9781
27	Union of S. Africa	0.2233	69	Nicaragua	-0.9884
28	Rumania	0.1264	70	Paraguay	-1.0072
29	Venezuela	0.0772	71	Jordan	-1.0214
30	Ireland	0.0476	72	Thailand	-1.0242
31	Brazil	0.0200	73	Pakistan	-1.0373
32	North Korea	-0.0160	74	Guatemala	-1.1336
33	Outer Mongolia	-0.0516	75	South Vietnam	-1.1336
34	Yugoslavia	-0.1389	76	Cambodia	-1.1469
35	India	-0.1851	77	Yemen	-1.1581
36	Greece	-0.2768	78	El Salvador	-1.1946
37	Taiwan	-0.3307	79	Nepal	-1.2245
38	Uruguay	-0.3680	80	Laos	-1.3863
39	Cuba	-0.3738	81	Ethiopia	-1.3982
40	Libya	-0.3951	82	Haiti	-1.4657
41	Philippines	-0.4209	83	Afghanistan	-1.4874
42	South Korea	-0.4267			

Mean: 0.012 Median: -0.4238 Kurtosis: 15.062(p=.01)
S.D.: 1.505 Skewness: 3.242 (p=.01) Range: 10.5351

past, poor countries lack the means of outstripping the growth rate of rich countries by the wide margins necessary to reduce the gaps between them even though the poor countries have continued to increase their wealth. Therefore, while the growth of the underdeveloped nations is evident, the higher growth of the developed nations continues to increase the range between them.[2] With this evidence from 1960 and 1965, we can establish the hypothesis that over time the international system becomes more stratified.

The last impression is derived from the factor scores of economic development and power presented in Appendices II and III, and the location of nations in the two dimensional status spaces shown in Figures 4 and 5. That is, the range of power (7.2303 for 1960 and 7.3724 for 1965) is almost twice the range of economic development (3.8194 for 1960 and 3.8710 for 1965). Figures 4 and 5 show that there exists a wide difference between groups of nations along the vertical axis (economic development) rather than the horizontal axis (power). That is, the United States, the Soviet Union, China, and the rest of the nations are wide apart along the power status but not along the economic development status. This means that the so-called super power status is based more on power than economic development. In short, this impression leads to another hypothesis that the international system is more stratified along the power status than the economic development status.

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[2] For the "immutable" hierarchy of development among nations, see Theodore Caplow, Foreign Policy, No. 3 (Summer, 1971), 90-107.

Next, the factor scores of each nation on economic development and power were plotted in this two dimensional status space to determine if they fell into natural status groupings. However, this was done visually without using any systematic or statistical method. Therefore, the findings described below are, a suggestive rather than a conclusive explanation. The rank position for each nation is represented as a point in the space. The vertical coordinate represents each nation's status on power, while the horizontal coordinate represents its status on economic development. The plots are presented in Figure 4 (for 1960) and Figure 5 (for 1965).

As befitting a super power, the United States and the Soviet Union are extreme outliers in the space. Since these two countries commanded technology, economy, and power capabilities in the post World War II years, it is natural that they are so far from all the others in the contemporary international system. Together, these two nations may be called properly the world top dogs.

The next significant group consists of the United Kingdom, West Germany, France, and Japan. These countries played a major role in the affairs of the two principal regions of world politics, Europe and Asia. They coincide closely with the traditional idea of the Great Powers. Even though these countries have interests that are world-wide in scope, their status positions are far below those of the United States and the Soviet Union. Thus not top dogs, they would of necessity be called Great Power middle dogs.

Third, China cannot be grouped together with either the top dogs or the Great Power middle dogs. She occupies a unique position

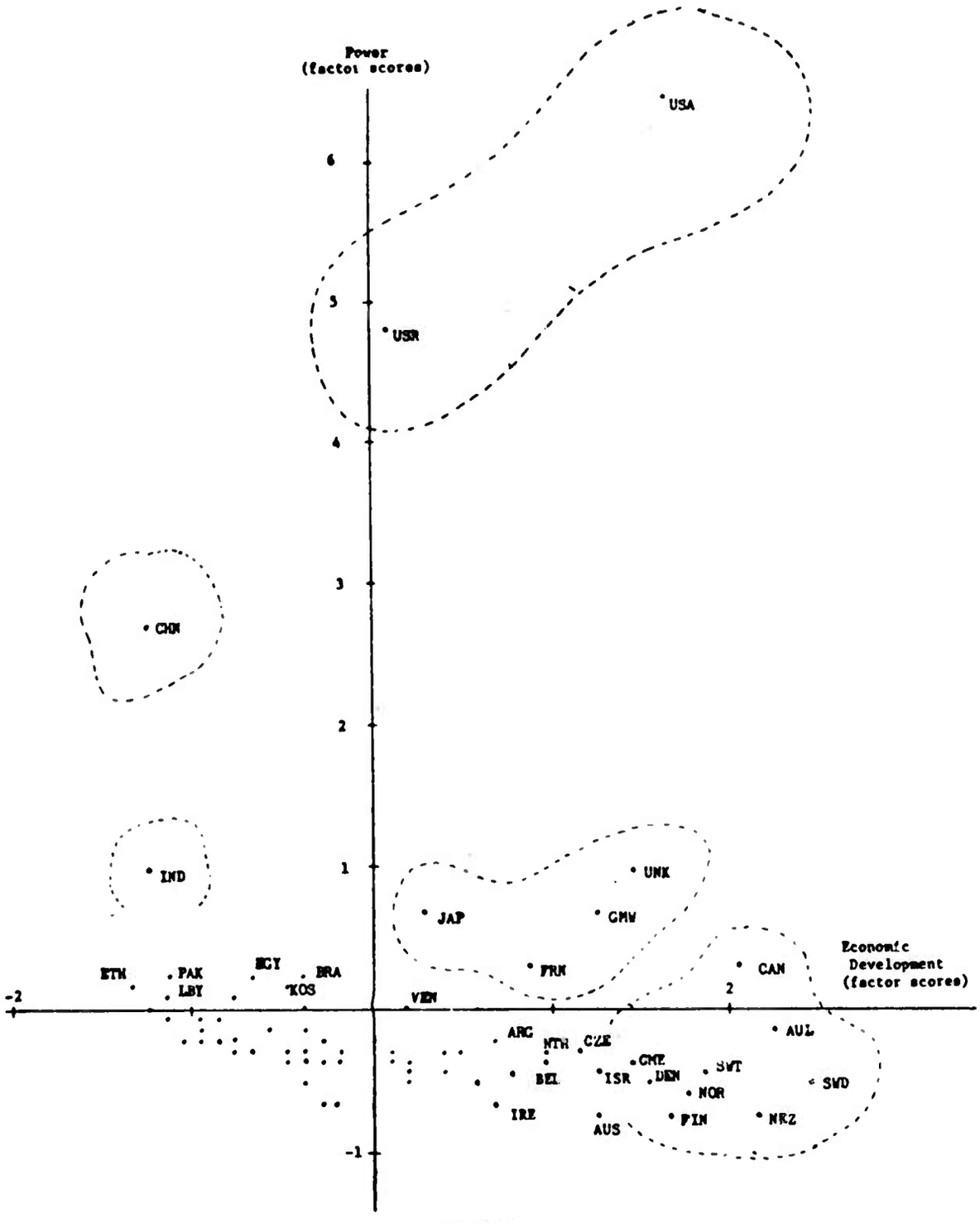

FIGURE 4

RANK DISTRIBUTION OF NATIONS IN 1960

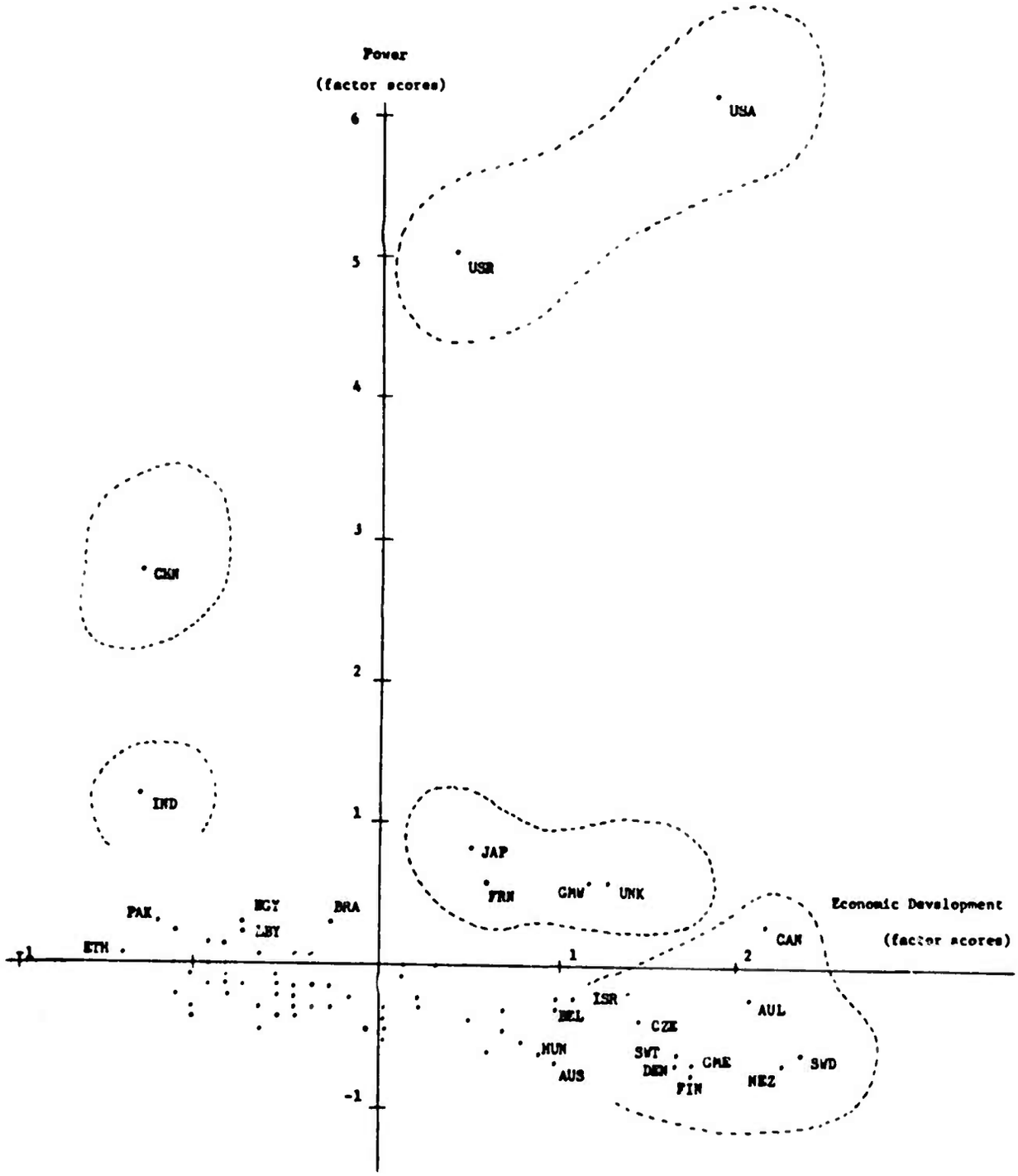

FIGURE 5

RANK DISTRIBUTION OF NATIONS IN 1965

almost independent of any other possible groupings. Nevertheless, China has a significantly high score on the power dimension which scribed. Therefore, as she increases along the achievement dimension of economic development, China can emerge as a super power or top dog country. China is a potential top dog.

India's rank position also is unique. In effect, India has lacked sufficient weight in the world's balance of power politics although she is the principal power in South Asia. However, since its power potentialities are high, achievement of economic development, or a nuclear and power oriented India may assume a middle dog or possibly a top dog position. Therefore, India may be called an underachieved middle dog.

The next grouping includes most of the European countries: Sweden, Switzerland, Norway, Denmark, Finland, Czechoslovakia, Israel, Austria, the Netherlands, Belgium, Australia, and New Zealand.[3] They are high on economic development but do not possess corresponding power statuses as do the great power middle dogs. Obviously, their status configurations are unbalanced. Hence, this group may be properly called the overachieved middle dogs.

Further visual grouping of the remaining countries is impossible because they are not patterned in any discernible way. For convenience, these remaining countries generally may be called the world underdog countries.

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[3] Geographically, New Zealand and Australia are not members of the Western community. However, Russett's multi-variable classification study classified these two nations into the Western community. See Bruce M. Russett, International Regions and the International System (Chicago: Rand McNally, 1967), pp. 14-35.

In conclusion, six different groups of nations in terms of their rank positions in the international system were identified visually. They are: the top dog, the potential top dog, the great power middle dog, the overachieved middle dog, the underachieved middle dog, and the under dog.[4]

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[4] i) This classification may be contrasted with that of a study sponsored by the Deutsche Gesellschaft für Auswärtige Politik, which distinguished between world powers (super powers), great powers (which exercise influence in some part of the world beyond their own region), and regional powers (which play a role in their own region). Present great powers include only China, Britain, and France; one aim of this study was to inquire which others might be expected to move into this category. Middle powers, defined in relation to all regions, were: Sweden, Italy, Poland, Yugoslavia, Israel, UAR, South Africa, India, Pakistan, Indonesia, Australia, Japan, Canada, Mexico, Brazil, West Germany. Japan and West Germany seem out of place in this list, even granted that the list is correct in terms of the defining characteristic (exercise of influence beyond one's region). See Mittlere Mächte in der Weltpolitik, Aktuelle Aussenpolitik, Schriftenreihe des Forschungsinstituts der Deutschen Gesellschaft für Auswärtige Politik (Opladen: C. W. Leske Verlag, 1969), p. 8. ii) J. L. Richardson's classification of nations into super powers and secondary powers is comparable to the findings of this study. His super powers are the United States and the Soviet Union, and secondary powers consist of four: Britain, France, West Germany, and Japan, which are all the great power middle dog countries in this study. India was excluded as a secondary power. However, he gave an independent title to China, "embryonic super power;" the implication of it corresponds to "potential top dog" in this study. See J. L. Richardson, "Super Powers and Secondary Powers: Western Europe and Japan," in Carsten Holbraad, ed., Super Powers and World Order (Canberra: Australian National University Press, 1971), pp. 90-104.

CHAPTER XV

RESULTS OF THE CANONICAL REGRESSION ANALYSIS

Status-Field *Theory* requires that the seven behavioral dimensions are canonically regressed upon the distances of the attribute space dimensions. Therefore, two sets of distance vectors are needed, one between the United States and its object nations, and the other between the Soviet Union and its object nations. The required attribute distance vectors are computed for the ten fundamental basis dimensions of attribute space.

A summary of the canonical regression results of the 1960 data is presented in Table 19 (for the U.S.A.) and Table 20 (for the U.S.S.R.). Since the number of behavioral dimensions is seven and smaller than that of the attribute distances, we have seven independent canonical structure equations, each of which represents the best possible linear pattern relationships between the seven behavioral dimensions and the ten attribute distance vectors.

The trace correlation which gives the overall fit between the attribute distances and behavior space is .68 for the United States and .72 for the Soviet Union. This means that about 46 percent ($.68^2 \times 100$) and 52 percent ($.72^2 \times 100$) of the variances in the seven U.S. and U.S.S.R. behavior dimensions respectively are accounted for by their ten attribute distance vectors. These trace correlations are sufficiently high for us to have confidence in Status-Field Theory.

TABLE 19

CANONICAL LOADING MATRIX FOR

SEVEN U.S.A. BEHAVIOR PATTERN EQUATIONS (1960)

			CANONICAL VARIATES						
			1	2	3	4	5	6	7
	CANONICAL CORRELATION:		0.923	0.865	0.814	0.689	0.562	0.341**	0.297**
	Z SCORE FOR d.f. ≥ 30:		16.831	12.910	9.541	6.043	3.413	1.755	1.025
	ATTRIBUTE DISTANCES	H-SQR							
1	Economic Development	0.846	-0.208	0.389	-0.572	-0.353	-0.266	0.177	0.312
2	Power	0.897	-0.789	-0.294	0.024	0.295	0.298	0.062	0.088
3	Political Orientation*	0.773	-0.018	0.761	0.344	0.082	0.154	-0.083	0.194
4	Catholic Culture	0.551	0.125	0.131	-0.417	0.063	0.565	0.012	-0.145
5	Trader	0.347	0.154	-0.048	-0.140	-0.378	-0.285	0.113	-0.255
6	Density	0.737	-0.055	0.392	-0.380	0.263	0.208	0.174	-0.542
7	Instability	0.775	-0.113	-0.019	-0.185	0.414	-0.615	-0.308	-0.288
8	Population*	0.794	-0.057	0.111	0.380	-0.409	0.054	0.117	-0.671
9	Oriental Culture	0.615	0.615	-0.130	-0.000	-0.006	-0.079	0.741	0.117
10	Diversity	0.589	0.002	0.080	0.193	0.429	-0.163	0.570	-0.096
	BEHAVIORAL FACTORS								
1	Alliance	1.000	0.377	-0.481	0.150	-0.403	-0.313	-0.563	-0.162
2	Deterrence	1.000	0.857	0.231	-0.041	-0.013	0.155	0.088	0.296
3	Economic Penetration*	1.000	0.037	-0.057	-0.114	-0.546	-0.406	0.714	-0.096
4	Transaction*	1.000	0.284	-0.130	-0.036	0.359	0.202	0.253	-0.817
5	Indirect Aggression	1.000	-0.154	0.142	0.271	-0.618	0.674	-0.048	-0.209
6	Diplomacy	1.000	0.039	-0.678	0.395	0.245	0.227	0.331	0.401
7	Patronage*	1.000	-0.019	-0.250	-0.928	-0.071	0.263	0.022	0.032

i) Trace Correlation = .68

ii) The determinant for the correlation matrix of attribute distances is .78; that for the correlation matrix of behavior factors is .94.

iii) Factors with one asterisk (*) indicate that the signs of the canonical loadings across all the seven canonical variates are reversed for the convenience of interpretation. Since the signs of factor loadings and scores, which determine the signs of the canonical results (coefficients and loadings), are only meaningful within a particular factor, the change of signs across canonical variates of a certain factor does not affect the overall structure.

iv) The double asterisks (**) indicate that these two canonical correlations are not significant even at $p = .10$ as a result of χ^2 test. All the others are significant at $p \leq .01$ (χ^2 test).

TABLE 20

CANONICAL LOADING MATRIX FOR

SEVEN U.S.S.R. BEHAVIOR PATTERN EQUATIONS (1960)

		CANONICAL VARIATES						
		1	2	3	4	5	6	7
CANONICAL CORRELATION:		0.960	0.897	0.851	0.749	0.578	0.498**	0.195**
Z SCORE FOR d.f. $\geq$30:		20.232	15.201	11.476	7.639	4.412	2.521	-0.268
ATTRIBUTE DISTANCES	H-SQR							
1 Economic Development	0.750	-0.174	0.764	-0.215	0.092	-0.040	-0.201	0.198
2 Power	0.976	-0.970	-0.127	0.133	0.006	0.009	-0.013	-0.047
3 Political Orientation	0.996	0.026	-0.210	-0.897	-0.329	0.180	-0.055	-0.052
4 Catholic Culture	0.327	-0.021	0.121	0.011	-0.057	-0.033	-0.544	0.106
5 Trader	0.371	-0.033	0.018	0.074	-0.078	0.160	-0.293	-0.496
6 Density	0.811	-0.065	0.336	-0.249	0.173	-0.477	0.342	-0.508
7 Instability	0.441	-0.048	-0.130	-0.037	-0.036	-0.250	0.513	0.305
8 Population*	0.986	-0.001	-0.250	-0.257	0.892	0.125	-0.178	0.043
9 Oriental Culture	0.555	-0.112	-0.239	0.092	-0.045	-0.282	-0.190	-0.600
10 Diversity	0.833	-0.020	-0.230	-0.092	-0.095	-0.735	-0.403	0.245
BEHAVIORAL FACTORS								
1 Deterrence	1.000	0.878	-0.223	-0.143	0.260	0.267	-0.123	0.072
2 Alliance*	1.000	0.095	-0.093	0.731	0.118	0.014	0.241	0.618
3 Proselytizing	1.000	0.060	0.405	0.071	-0.081	-0.158	-0.824	0.342
4 Diplomacy*	1.000	0.035	-0.736	0.098	-0.552	-0.317	-0.185	-0.090
5 Economic Penetration	1.000	0.389	0.521	0.097	-0.671	0.008	0.274	-0.206
6 Patronage	1.000	0.051	0.018	0.571	0.248	-0.018	-0.214	-0.750
7 Indirect Aggression*	1.000	-0.204	-0.062	0.100	-0.289	0.636	-0.274	0.033

i) Trace Correlation = .72

ii) The determinant for the correlation matrix of attribute distances is .94; that for the correlation matrix of behavior matrix is .97.

iii) Factors with one asterisk (*) indicate that the signs of the canonical loadings across all the seven canonical variates are reversed for the convenience of interpretation. Since the signs of factor loadings and scores, which determine the signs of the canonical results (coefficients and loadings), are only meaningful within a particular factor, the change of sings across canonical variates of a certain factor does not affect the overall structure.

iv) The double asterisks (**) indicate that these two canonical correlations are not significant even at p= .10 as a result of χ^2 test. All the others are significant at $p \leq .01$ (χ^2 test).

A second canonical regression analysis was done with 1965 data; the results are presented in Apendix VIII. The 1965 results indicate that more than 52 percent ($.72^2$ X 100) and 46 percent ($.68^2$ X 100) of the variances in the seven U.S. and U.S.S.R. behavior dimensions respectively are accounted for by their ten attribute distance vectors.

These results from 1960 and 1965 are comparable to the findings of the previous studies as shown in Table 21. Except for the results of Rhee's China study employing the super-p factor analysis using data of a cross-time variation from 1950 to 1965,[1] all the trace correlations are sufficiently high to confirm the linear relations between behavior space and attribute distance space as proposed by Status-Field Theory.

With regard to the canonical structure matrix of 1960 data,[2] the seven canonical correlations for the U.S. are .92, .86, .81, .69, .56, .34, and .30. Their corresponding Z transformation values, which refer to areas under the normal curve, are 16.83, 12.91, 9.54, 6.04, 3.41, 1.25, and 1.03. For the Soviet Union, the seven canonical correlations are .96, .90, .85, .75, .58, .50, and .19.

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[1] Rhee's study shows the lowest trace correlation. The low correlation, according to Rhee, is "due to cross-time variances" of the data as a result of using the super-p factor analysis. For a detailed argument for this, see Rhee, "China's Cooperation, Conflict, and Interaction Behavior; Viewed from Rummel's Field Theoretic Perspective," pp. 108-109.

[2] Remember that this study attempts to explain the foreign behavior of the United States and the Soviet Union based on the 1960 data, and predict it for 1965. Therefore, for the substantive behavior patterns, I rely on the 1960 test results in the following two chapters.

TABLE 21

CROSS-STUDIES COMPARISON OF

FIELD THEORY TESTS

Studies[a]	Trace Correlations	Canonical Correlations for Corresponding Canonical Variates							
		r_1	r_2	r_3	r_4	r_5	r_6	r_7	r_8
Rummel's USA for 1955[b]	.674	.91	.85	.80	.69	.45	.42	.36	---
Rhee's China for 1955[c]	.740	.99	.95	.87	.73	.58	.44	.37	---
Rhee's China for 1963[c]	.720	.97	.92	.86	.85	.45	.40	.37	---
Rhee's China for 1950-1965[d]	.476	.85	.76	.46	.38	.34	.18	.09	.04
Choi's USA for 1960	.682	.92	.86	.81	.69	.56	.34	.30	---
Choi's USA for 1965	.715	.94	.89	.86	.77	.69	.26	.15	---
Choi's USSR for 1960	.720	.96	.90	.85	.75	.58	.50	.19	---
Choi's USSR for 1965	.681	.97	.92	.83	.63	.55	.21	.12	---

a For fundamental differences among these studies in terms of variables, sample size, data year, and analysis techniques, see Table 10 (p.100).

b R. J. Rummel, "U.S. Foreign Relations: Conflict, Cooperation, and Attribute Distances," in Bruce M. Russett, ed., Peace, War, and Numbers (Beverly Hills: Sage, 1972).

c Sang-Woo Rhee, "Communist China's Foreign Behavior: An Application of Field Theory Model II," DON Research Report No. 57 (University of Hawaii, 1971).

d Sang-Woo Rhee, "China's Cooperation, Conflict and Interaction Behavior; Viewed from Rummel's Field Theoretic Perspective," DON Research Report No. 64 (University of Hawaii, 1973).

Their corresponding Z values are 20.23, 15.20, 11.48, 7.64, 4.41, 2.52, and -.27.

In terms of these two kinds of statistics given above, this study sets the following two criteria for eliminating relatively meaningless canonical equations:

1. The canonical correlation should be $\geq .50$, which means that with the equation more than one-quarter of the variance in behavioral dimensions is explained by the attribute distance vectors.
2. The canonical correlation should be significant at p less than or equal to .01, which means that the Z value under the normal curve for a two tailed test should be ≥ 2.58.

The following two chapters discuss the patterns of the U.S.A.'s and U.S.S.R.'s behavior delineated by the canonical analysis.

CHAPTER XVI

U.S.A. BEHAVIOR PATTERN MODELS

With the two criteria set above, we have selected all five canonical regression equations. We will have a close look at them.

I. U.S. Status Behavior Pattern:

$$.86\ (\text{Deterrence}) + .38\ (\text{Alliance}) \doteq -.79\ (\text{Power}) \quad (r=.92)$$ [1]

The first pattern is that the combined-weighted behavior of U.S. deterrence and alliance is explained mainly by power parity, by almost 85 percent ($.92^2 \times 100$) of the variance. In other words, the United States tends to pursue more conflictful deterrence and cooperative alliance behaviors if the object nation is closer to her in power. This is a strong confirmation of the status behavior theorem (theorem 10) of Status-Field Theory with regard to the foreign behavior of the United States. Therefore, we will name this pattern the U.S. Status Behavior Pattern. The implication of this finding with regard to the purpose of this study will be discussed in detail in Chapter XVIII.

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[1] Only those variables (dimensions) with weights (correlations) greater than an absolute value of .33 on the canonical variates are shown.

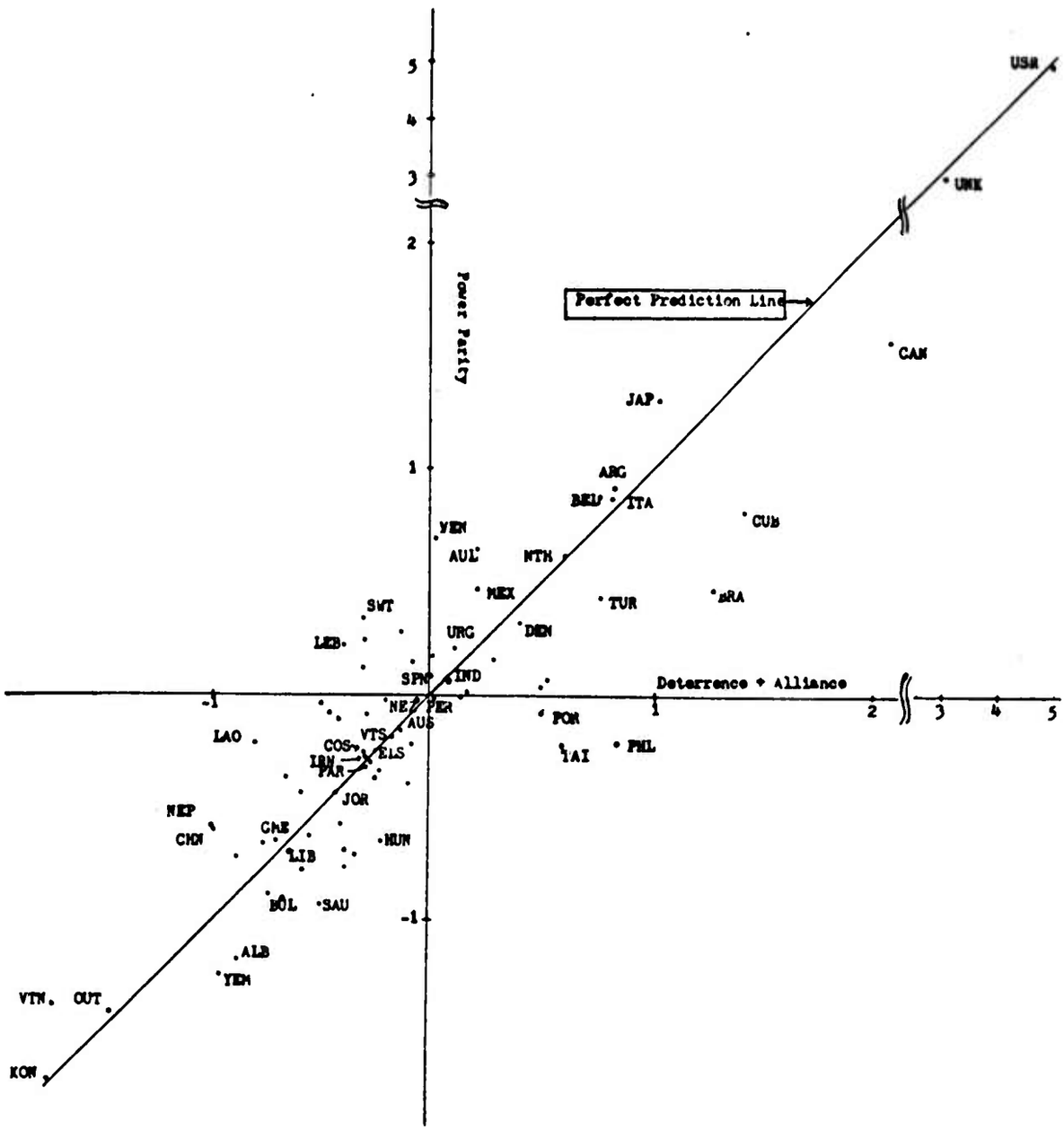
With the above canonical equation, we can estimate the combined deterrence and alliance behavior of the United States in 1960 from the power parity at that time. As shown in Figure 6, the U.S. dyads are represented as points (e.g., USR means USA - USR) in the two dimensional space. The horizontal coordinate represents the estimated canonical variate scores on deterrence and alliance for each U.S. dyad, and the vertical coordinate represents the estimated canonical variate score on power parity between the U.S. and the object nation. The dyads fairly well align themselves along the 45 degree perfect prediction line as to be expected from a canonical correlation of .92. Especially, the U.S. dyadic actions of deterrence against and alliance with Costa Rica, Austria, Argentina, Denmark, El Salvador, East Germany, Ireland, Italy, Iran, Jordan, Liberia, the Netherlands, Paraguay, Peru, Spain, the Soviet Union, Uruguay, Yugoslavia, India, North Korea, and South Vietnam are almost perfectly predicted from this status behavior pattern equation. Poorly predicted dyads are USA-the Philippines, USA-Thailand, and USA-Brazil to name only the extreme cases. These three countries are heavily dependent on the United States politically, militarily, and economically, and thus perhaps are skeptical regarding U.S. deterrence and alliance behaviors.

II. U.S. Formal Diplomacy Pattern:

$$\left.\begin{array}{l} .48\ \text{(Alliance)} \\ -.38\ \text{(Deterrence)} \\ +.68\ \text{(Diplomacy)} \end{array}\right\} \simeq \left\{\begin{array}{l} -.39\ \text{(Economic Development)} \\ -.76\ \text{(Political Orientation)} \\ -.39\ \text{(Density)} \end{array}\right. \quad (r=.86)$$

FIGURE 6

USA STATUS BEHAVIOR PATTERN (1960)

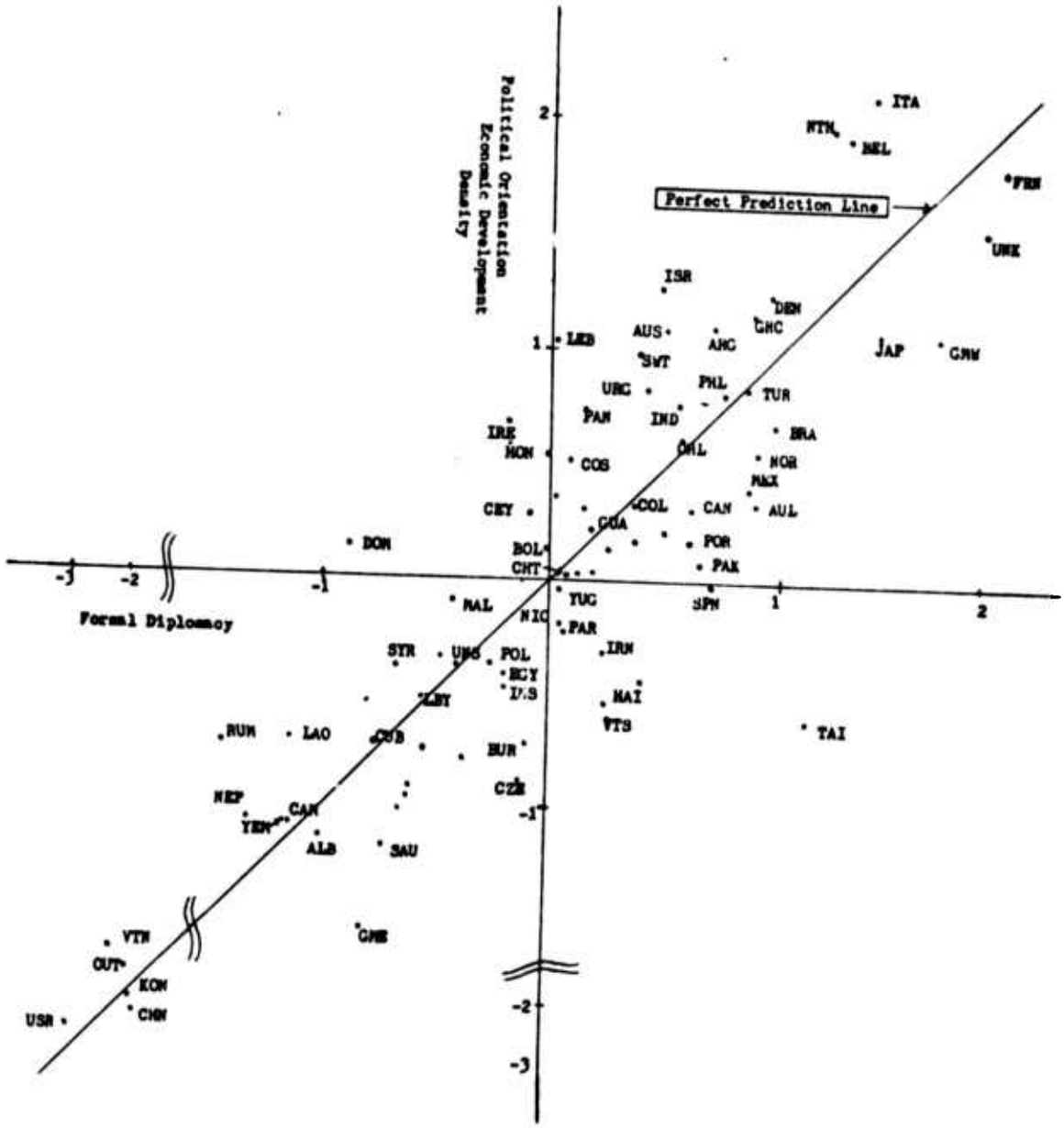


This second pattern explains that the closer the object nation is to the U.S. on economic development, political orientation, and density, then the less there is in U.S. deterrence behavior and the more there is in cooperation in terms of alliance and diplomacy. This pattern is again very significant, for about 74 percent of U.S. behavior on diplomacy, alliance, and deterrence is explained by the combination of the above three attribute distances. This pattern is cooperative in nature with particular emphasis on cooperation through formal international channels and alliance interactions. Therefore, this pattern is called U.S. formal diplomacy. Among the three attribute distance dimensions, political orientation is the highest among the three with a loading of .76. This means that as far as the U.S. formal diplomacy pattern is concerned, the similarity or dissimilarity in political orientation plays a leading role in directing U.S. alliance, deterrence, and diplomacy behaviors. This will be clarified in the plot given below.

With this canonical equation, we can again plot the positions of U.S. dyads in terms of their canonical variate scores. The overall configuration shows which countries are contributing most to the formulation of the U.S. formal diplomacy behavior pattern. The scores of each dyad on both canonical variates represent this. As shown in Figure 7, the countries close to the United States on economic development and density, and extremely close on political orientation, and thereby having high scores on alliance and diplomacy, and low scores on deterrence appear to be grouped at one edge of the space. They are, roughly, France, the United Kingdom, West Germany, Italy, Belgium,

FIGURE 7

USA FORMAL DIPLOMACY PATTERN (1960)



Japan, and the Netherlands. On the other hand, the countries far from the United States on economic development and density, and extremely far on political orientation, and thereby receiving a high volume of deterrence, and low alliance and diplomacy are also grouped together at the opposite edge. They are the Soviet Union, North Vietnam, Outer Mongolia, North Korea, and China. These extreme cases on both canonical variates play an important role in the U.S. formal diplomacy pattern. If we examine the positions of all U.S. dyads in terms of the estimated canonical variate scores for both the left and right hand equations, we find that this pattern explains well the dyadic behavior of the U.S. toward Chile, Colombia, Finland, Guatemala, Libya, Sweden, Turkey, Yemen, Taiwan, Indonesia, and the Philippines. However, the dyads such as USA-Dominican Republic, USA-Lebanon, USA-Thailand, and USA-North Vietnam are poorly explained by this pattern.

III. U.S. Patronage Pattern:

$$\left.\begin{array}{l} -.40 \text{ (Diplomacy)} \\ +.93 \text{ (Patronage)} \end{array}\right\} \fallingdotseq \left\{\begin{array}{l} +.57 \text{ (Economic Development)} \\ -.34 \text{ (Political Orientation)} \\ -.42 \text{ (Catholic Culture)} \\ +.38 \text{ (Density)} \\ +.38 \text{ (Population)} \end{array}\right.$$

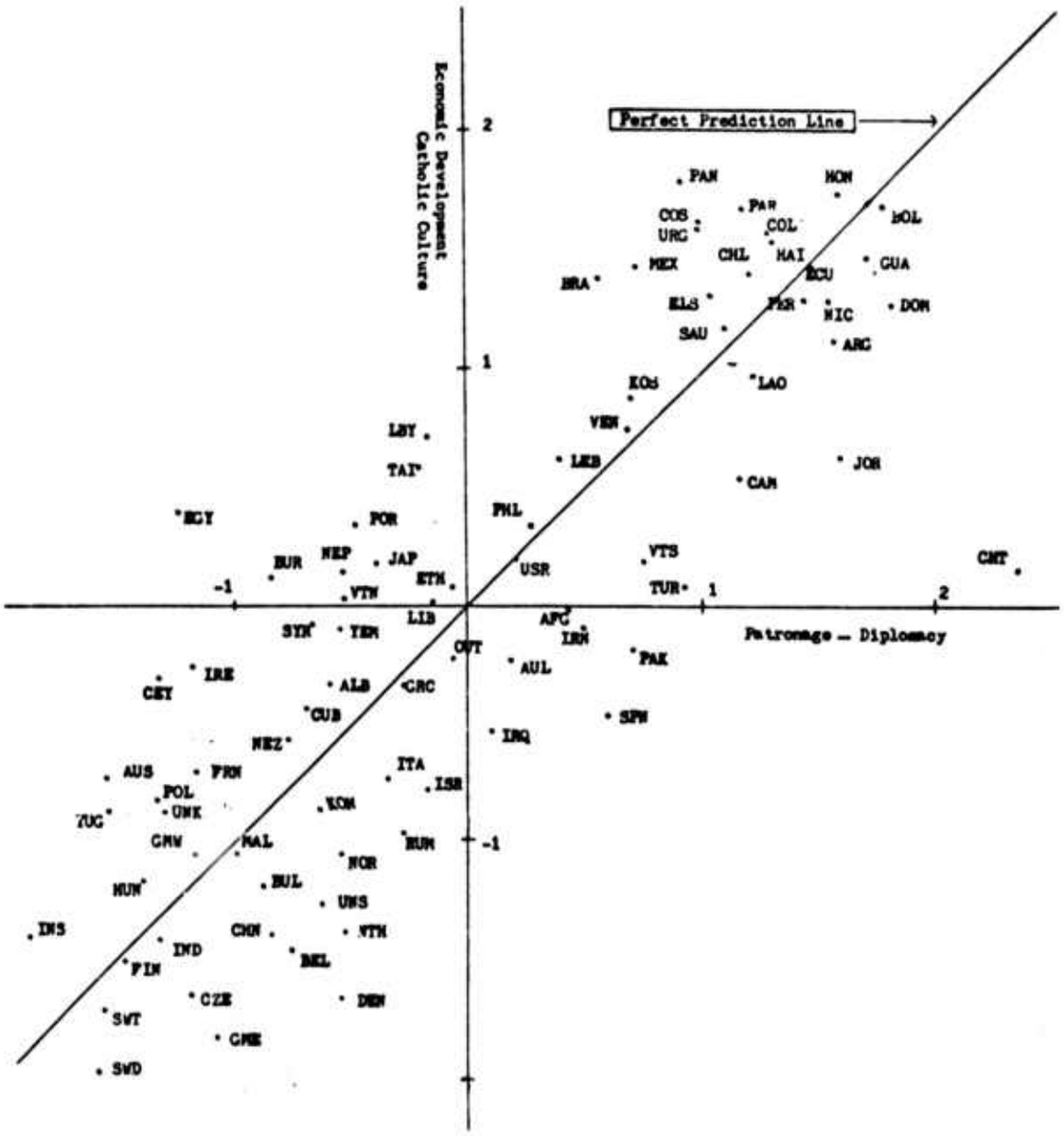
$$(r=.82)$$

The third U.S. behavioral pattern delineated by the canonical regression analysis indicates that the U.S. tends to emphasize more

cooperative actions in terms of patron-client relationships and de-emphasize diplomacy if the object nation is more economically underdeveloped, similar in political orientation, with more Catholic culture, less densely populated, and less in population size. About 65 percent of the variance in patronage and diplomacy behavior of the United States can be accounted for by the weighted combination of the five distance vectors. Considering the dominant position of the patronage dimension in terms of its loading vis-a-vis that of diplomacy, this cooperative behavior pattern of the United States is called patronage. The plot of the predictions of combined patronage and diplomacy behavior from these five attribute distance vectors is shown in Figure 8. The overall predictability is less than the above two patterns, as to be expected from the lower canonical correlation of .82. Nevertheless, U.S. dyadic behavior on patronage and diplomacy is fairly well explained toward Ecuador, Finland, the Soviet Union, Venezuela, and the Philippines, while revealing several poorly explained dyads such as USA-Egypt and USA-Taiwan. Again, the countries which receive a large volume of American patronage with a moderate level of diplomacy are grouped at one edge. As expected, most of them are Latin American countries with several Asian and Middle Eastern countries such as Taiwan, Laos, Cambodia, South Korea, South Vietnam, Jordan, Lebanon, and so on.

FIGURE 8

USA PATRONAGE PATTERN (1960)



IV. U.S. Indirect Aggression Pattern - I:

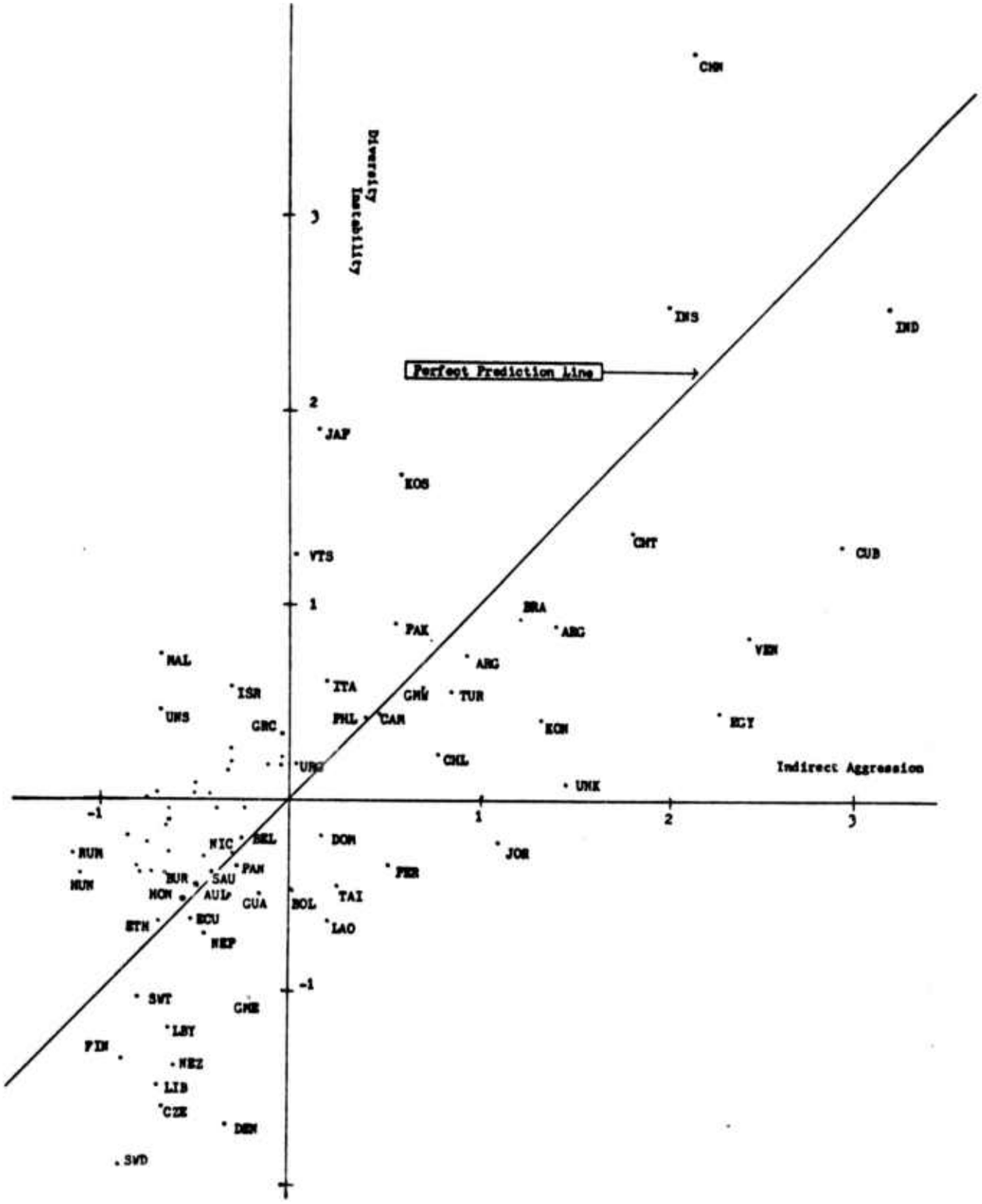
$$\left.\begin{array}{l} .40\ \text{(Alliance)} \\ +.55\ \text{(Economic Penetration)} \\ +.62\ \text{(Indirect Aggression)} \\ -.36\ \text{(Transaction)} \end{array}\right\} \doteqdot \left\{\begin{array}{l} .35\ \text{(Economic Development)} \\ +.38\ \text{(Trader)} \\ -.41\ \text{(Instability)} \\ -.41\ \text{(Population)} \\ -.43\ \text{(Diversity)} \end{array}\right.$$

$(r=.69)$

The fourth behavior pattern of the United States consists of a more or less complicated combination of both attribute distances and behavior dimensions. However, it gives us a clearly patterned U.S. dyadic behavior. That is, almost 49 percent of the variance of the weighted-combined U.S. behavior on alliance, economic penetration, indirect aggression, and transaction is explained by the combination of five attribute distances, economic development, trader, instability, population, and diversity. In other words, the U.S. tends to emphasize indirect aggression, economic penetration, and alliance, while de-emphasizing transaction, if the object nation is less in economic development and trader, and more in instability, population, and diversity. Among the behavioral canonical variate scores, India, Cuba, Venezuela, and Egypt are the highest. This means that the combined foreign behavior output of the United States is directed mainly toward these nations. Figure 9 shows the plot of this combined behavior predictions from the five distance vectors. The overall alignment with the perfect prediction line is not good. Nevertheless,

FIGURE 9

USA INDIRECT AGGRESSION PATTERN-I (1960)



this pattern explains well the combined dyadic actions of the United States toward Belgium, Ecuador, Ethiopia, Honduras, Nicaragua, Saudi Arabia, Australia, Burma, and the Philippines.

V. U.S. Indirect Aggression Pattern -II:

$$\left.\begin{matrix} .67 \text{ (Indirect Aggression)} \\ -.41 \text{ (Economic Penetration)} \end{matrix}\right\} \doteqdot \left\{\begin{matrix} -.57 \text{ (Catholic Culture)} \\ -.62 \text{ (Instability)} \end{matrix}\right.$$

(r=.58)

The fifth pattern is another U.S. indirect aggression pattern which is distinct *from* the fourth pattern and is applied to different spheres of U.S. international behavior. This pattern says that the greater the object nation's system instability and Catholic culture, then the greater the U.S. indirect aggression and the less economic penetration toward that nation. Countries which received this type of indirect aggression from the United States are Cuba, China, and North Vietnam.[3]

The meaning *and implication* of the two different patterns of indirect aggression of the United States (Pattern IV and Pattern V) deserve special consideration. Both represent patterned aspects of U.S. indirect aggression applied in different situations with different behavioral considerations. For example, the U.S. support of Pakistan against the national interest of India while continuing

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[3] The canonical variate score on the behavioral side places Cuba as highest, and China and North Vietnam are next.

economic support of India, and U.S. support of Indonesian rebellious groups while maintaining official economic relations with the Indonesian government are cases of Pattern IV. On the other hand, Pattern V is a more or less straightforward behavior for indirect aggression. The U.S. support of Taiwan against China and U.S. support of South Vietnam against North Vietnam are two good examples of Pattern V.

CHAPTER XVII

U.S.S.R. BEHAVIOR PATTERN MODELS

According to the criteria set before, the Soviet Union's behavior manifests five canonical relationships.

I. U.S.S.R. Status Behavior Pattern:

$$\left.\begin{matrix} .88\ \text{(Deterrence)} \\ +.39\ \text{(Economic Penetration)} \end{matrix}\right\} \doteqdot -.97\ \text{(Power)} \qquad (r=.92)$$

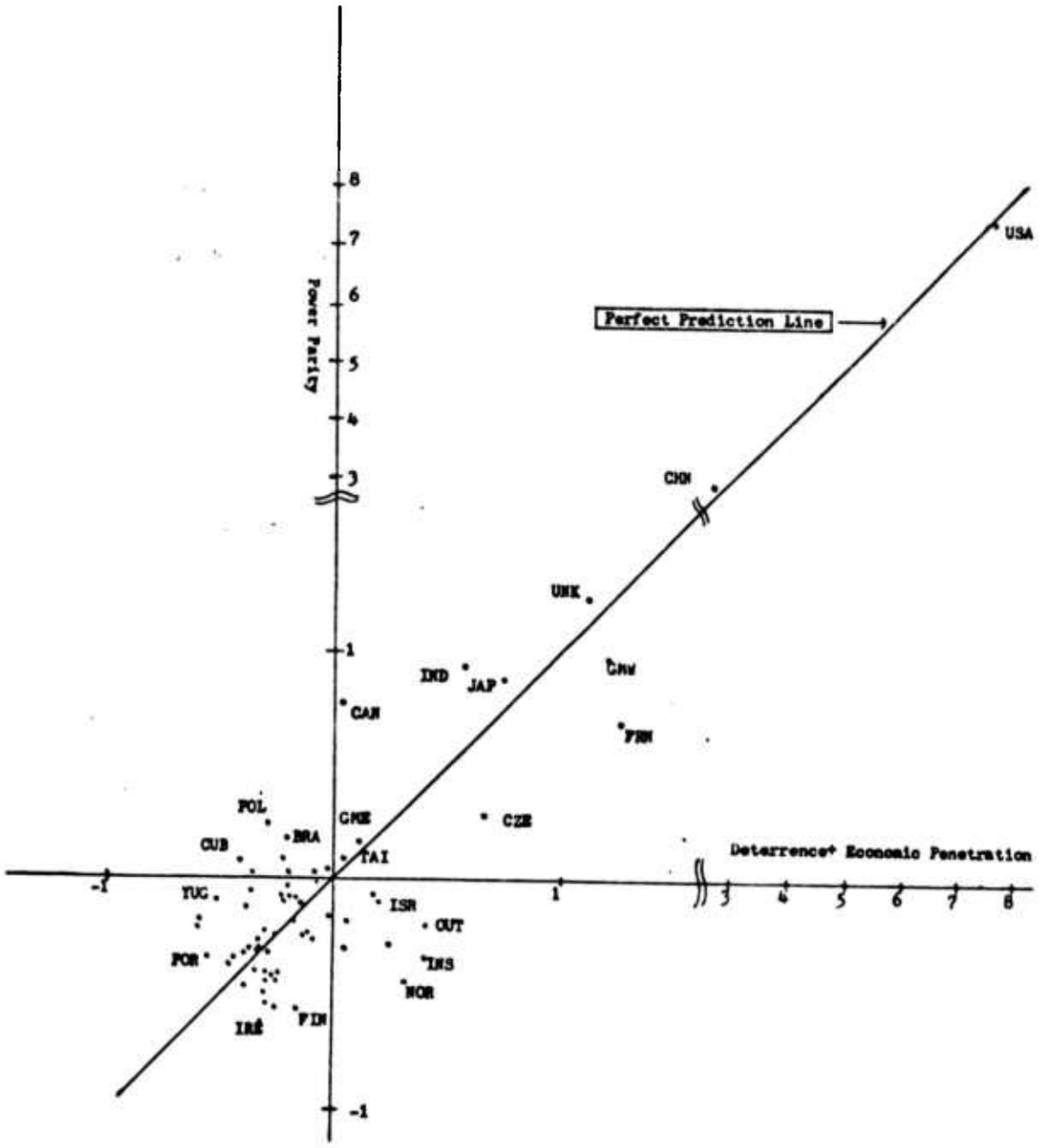
The first patterned relation between Soviet foreign behavior and her attribute distance from others is that almost 85 percent of the variance in the U.S.S.R.'s dyadic behavior on deterrence and economic penetration is explained mostly by power parity. To put it another way, Soviet deterrence behavior is greater with moderate emphasis on economic penetration if the object nation is closer in power to her. Deterrence dimension is conflictful in nature and economic penetration is a cooperative dimension with highly loaded variables such as economic aid, economic visit, import, cooperative comment, and export. Therefore, this is again a strong confirmation of the status behavior theorem of Status-Field Theory. Almost all the variance of the U.S.S.R.'s status dependent conflict and cooperation behaviors is explained by power parity alone.

The plot of the estimated combined behavior of deterrence and economic penetration of the Soviet Union in 1960 from the power distance with her at that time is shown in Figure 10. As to be expected from the high canonical correlation of .92, most of the dyads fairly well align themselves along the perfect prediction line. Especially, the U.S.S.R. dyadic deterrence and economic penetration toward Albania, Belgium, Chile, Colombia, Denmark, Dominican Republic, Ecuador, Ethiopia, East Germany, Guatemala, Haiti, Italy, Lebanon, Liberia, Panama, Peru, Portugal, Rumania, Saudi Arabia, Syria, the United States, the United Kingdom, Uruguay, Afghanistan, Burma, Japan, and South Korea are almost perfectly predicted. The poorly predicted dyads are USSR-Canada, USSR-France, USSR-Norway, USSR-Australia, and USSR-Indonesia. As shown in Figure 10, the U.S.S.R. manifested less deterrence and economic penetration behavior towards France, Norway, and Indonesia than was expected, while Australia and Canada received more than what was expected (on the basis of power parity). This may be explained by the fact that the frantic diplomatic offensive of the Soviet Union in 1960 under the banner of "peaceful coexistence" was positively applied to France, Norway, and Indonesia, while it had a much more negative implication for Canada and Australia, two stable American allies in 1960.

The positions of each dyad presented in Figure 11 also indicate that the countries toward which the U.S.S.R. exerted mostly status dependent conflict and cooperation behavior, are those of high total rank: the United States, China, the United Kingdom, West Germany, India, France, and so on. In short, together with the U.S. status

FIGURE 10

USSR STATUS BEHAVIOR PATTERN (1960)



behavior pattern, this result has further strengthened our confidence in Rummel's status behavior theorem. The importance of these results in connection with the confirmation of Status-Field Theory in general will be discussed in Chapter XVIII.

II. U.S.S.R. Formal Diplomacy Pattern:

$$\left.\begin{array}{l} -.41 \text{ (Proselytizing)} \\ +.74 \text{ (Diplomacy)} \\ -.52 \text{ (Economic Penetration)} \end{array}\right\} \doteqdot \left\{\begin{array}{l} -.76 \text{ (Economic Development)} \\ -.34 \text{ (Density)} \end{array}\right.$$

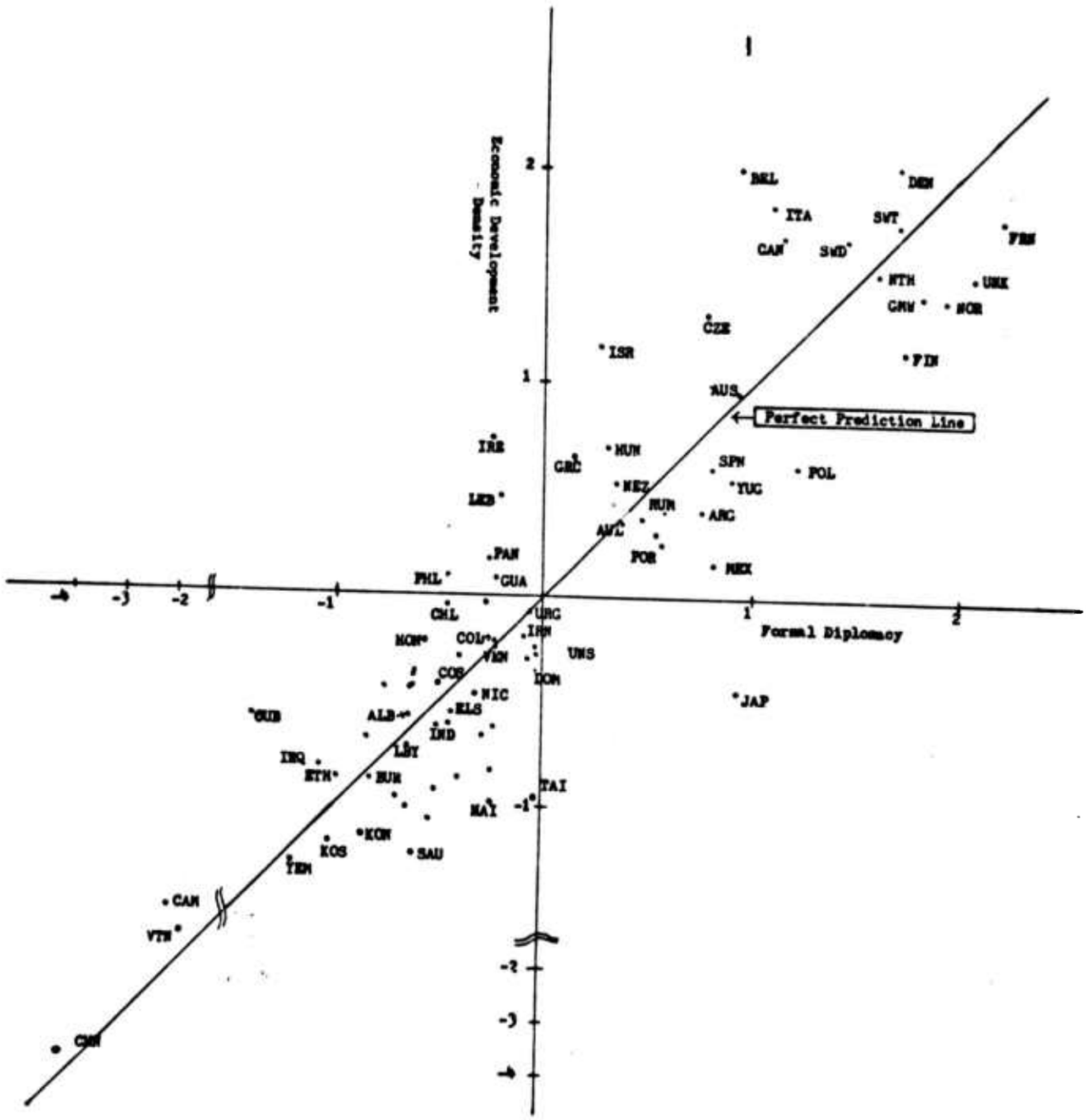
(r=.90)

The second pattern shows another patterned relation between the U.S.S.R.'s cooperative international behavior and her distance from others in the economic development and density dimensions. This model means that if the object nation is more economically developed and densely populated, then the U.S.S.R. tends to emphasize cooperation through institutionalized diplomatic channels while de-emphasizing proselytizing and economic penetration. With the high canonical correlation of .90, about 81 percent of the variance in Soviet cooperative behavior is explained by the two attribute distance vectors. Considering the dominant contribution of the diplomacy dimension on the left hand side of the equation, we will name this pattern the formal diplomacy of the Soviet Union.

Figure 11 shows a plot of each dyad's scores on the two canonical variates. Again, most of the dyads align themselves well along the

FIGURE 11

USSR FORMAL DIPLOMACY PATTERN (1960)



perfect line, with several exceptions such as USSR-Belgium, USSR-Ireland, USSR-Israel, USSR-Cambodia, and USSR-Japan.

Figure 12 also shows that most of the developed Western European countries such as France, the United Kingdom, Belgium, the Netherlands, Denmark, West Germany, Italy, Sweden, Switzerland, Norway, are grouped together at one edge. This means that their high scores on economic development and density are strongly related to a large volume of Soviet cooperative formal diplomacy behavior. She emphasizes diplomacy, and de-emphasizes proselytizing and economic penetration toward these nations. This pattern, therefore, can also be called as U.S.S.R. Western European cooperation behavior.

III. U.S.S.R. Bloc Cooperation Pattern:

$$\left.\begin{matrix} .73\ \text{(Alliance)} \\ +.57\ \text{(Patronage)} \end{matrix}\right\} \doteqdot -.90\ \text{(Political Orientation)} \qquad (r=.85)$$

The third pattern is another Soviet cooperative behavior pattern. It shows that the Soviet Union is more inclined to pursue alliance and patronage behavior the more similar the other nation is in Communist political orientation. This pattern is very salient because more than 82 percent of the variance of the Soviet combined cooperation behavior represented by the left hand side equation is accounted for by the similarity in political orientation alone.[1] This pattern is called

[1] Political orientation is not only dominant in this pattern but also the most important one among the ten distance vectors. That is, the proportion of variation of political orientation involved in all the seven patterns is .996 which is the highest among the communalities of the ten attribute distances vectors.

U.S.S.R. bloc cooperation.

The plot of this relationship of alliance and patronage behavior to political orientation similarity with the Soviet Union is presented in Figure 12. As to be expected from the canonical correlation of .85, many of the dyads fairly well align themselves along the perfect prediction line. Especially, USSR-West Germany, USSR-Mexico, USSR-Venezuela, USSR-Cambodia, and USSR-Pakistan behaviors are almost perfectly predicted by this patterned relationship. The poorly predicted dyads are USSR-Portugal, USSR-Spain, and USSR-North Korea.

Figure 12 also shows distinct group of Communist bloc countries which receives a large volume of Soviet alliance and patronage, with none of the neutralist and Western bloc countries included. It shows one aspect of the monolithic Communist Party-states' alliance system which existed in 1960.

IV. U.S.S.R. Economic Penetration Behavior:

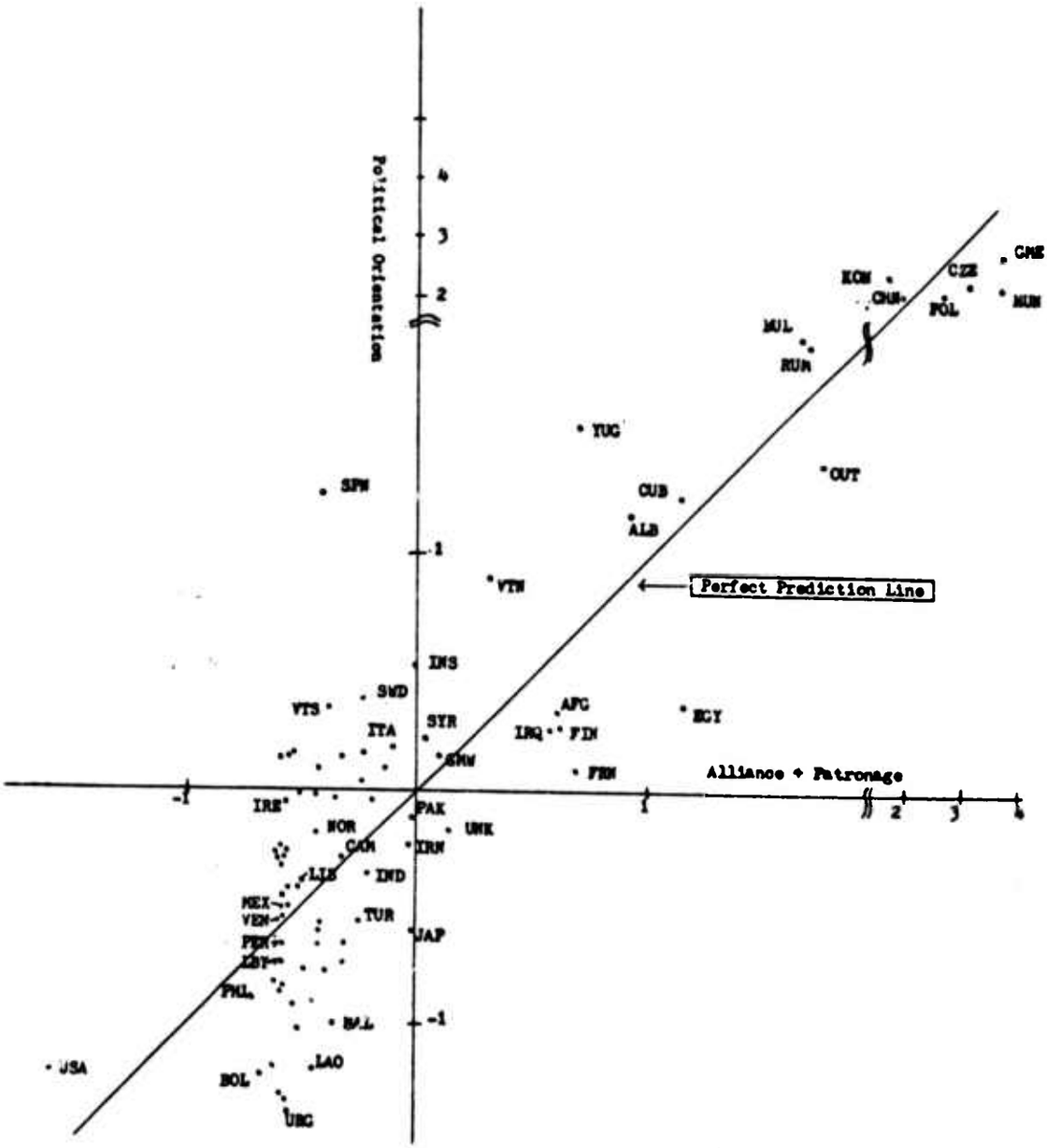
$$\left.\begin{array}{l} .55\ \text{(Diplomacy)} \\ +.67\ \text{(Economic Penetration)} \end{array}\right\} \doteqdot \left\{\begin{array}{l} -.90\ \text{(Population)} \\ +.33\ \text{(Political Orientation)} \end{array}\right.$$

$$(r=.75)$$

The fourth relevant finding is that 56 percent of the variance in the combined Russian behavior on diplomacy and economic penetration is explained by two distance vectors, population and political orientation. That is, the U.S.S.R. is more inclined to emphasize diplomacy and economic penetration if the other nation is closer in population

FIGURE 12

USSR BLOC COOPERATION PATTERN (1960)



to the Soviet Union although there is some distance along the communist ideology.

As shown in Figure 13, which plots the behavior predictions from these two attribute distance vectors, China and India occupy the dominant position as recipients of cooperative behavior comprised of diplomacy and economic penetration. The overall predictability is not so satisfactory as expected from the canonical correlation of .75. Nevertheless, U.S.S.R. dyadic actions to Bulgaria, Colombia, Greece, Rumania, Turkey, and Thailand are fairly well predicted.

V. U.S.S.R. Indirect Aggression Pattern:

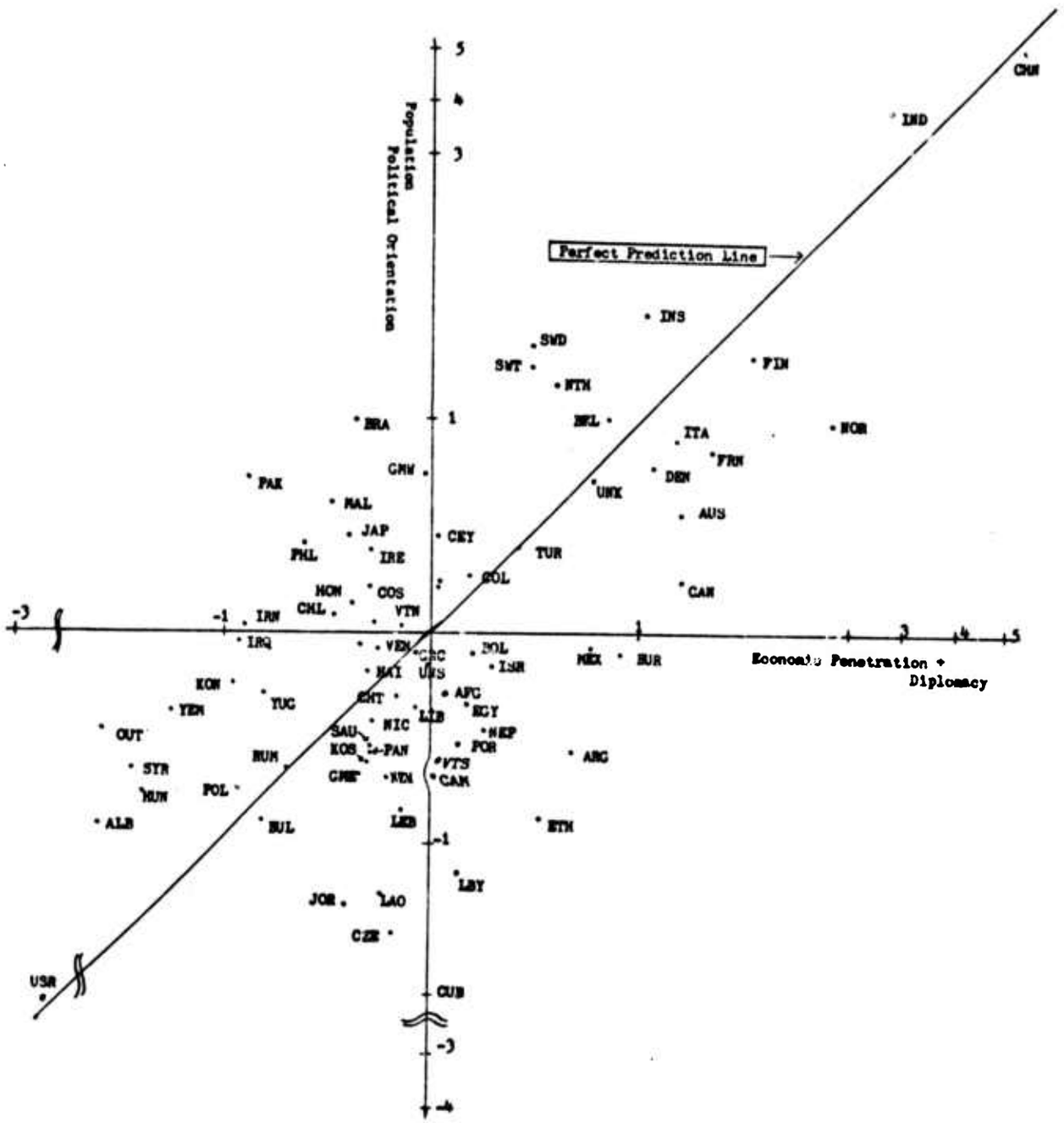
$$.89 \text{ (Indirect Aggression)} \quad \frac{1}{7} \begin{cases} -.48 \text{ (Density)} \\ -.74 \text{ (Diversity)} \end{cases}$$

$$(r=.58)$$

The fifth finding is that about 34 percent of the variation in U.S.S.R. indirect aggression is accounted for by distances in diversity and density. That is, the Soviet Union is more inclined to pursue indirect aggression if the object nation is more densely populated and more diverse in ethnic-linguistic social structure. As we can see from the equation, diversity dimension contributes almost 55 percent of the variance to the attribute variate. This implies that if any nation has ethnic-linguistic and socio-cultural

FIGURE 13

USSR ECONOMIC PENETRATION PATTERN (1960)



diversities, the Soviet Union is likely to pursue aggressive actions by means of supporting rebellious groups or a violent enemy. The density dimension is also moderately loaded (.48) on the right hand side of the equation. As already mentioned in Chapter IX, the density factor highly scores countries which are densely populated with a large percentage of arable land, for example, most of the developed Western European countries. In this sense, the density factor is believed to be loaded on this pattern in connection with the Soviet support to the rebellious groups in the Congo against the United Kingdom and Belgium, in Algeria against France, and support to East Germany against West Germany.

CHAPTER XVIII

ASSESSMENT OF THE TEST RESULT FROM STATUS-FIELD THEORY PERSPECTIVE

So far I have analyzed the general behavioral patterns delineated by this study in an attempt to confirm the validity of Status-Field Theory. The overall test result shows that Field Theory does explain the dyadic foreign behavior of the United States and the Soviet Union. The stability and reproducibility of dimensions found for both A and B spaces, the high trace correlation between the spaces, and the explanatory power demonstrated by each of the behavioral patterns, all strongly buttress our confidence in Field Theory.

It is now time to specifically examine whether the three Status-Field Theory propositions derived in Chapter VI can be confirmed against the reality of international behavior of the United States and the Soviet Union. The first proposition (Proposition 1-1, 1-2) is based on the cooperation theorem (Theorem 6) which says that "the higher the joint rank of nations i and j, the more cooperative their behavior." The second proposition (Proposition 2-1, 2-2) is formulated from the conflict theorem (Theorem 8) which says that "the larger the economic development status and the smaller the power status distance, the more status dependent conflict behavior." And the last proposition (Proposition 3-1, 3-2) is from the economically developed status behavior theorem (Theorem 10), which was derived from the linear summation of the above two theorems. That is, "the status dependent coopera-

tion and conflict behavior of high economically developed nations to other nations is a function of their power incongruence."

Among the five behavior patterns delineated for the United States and the Soviet Union, respectively, only the first pattern (Status Behavior Pattern) of each country directly corresponds to the theme and structure of theorem 10 (Proposition 3-1, 3-2). We can rewrite the pattern equation in the following manner:

$$\text{for U.S.:} \quad \left.\begin{matrix} .86\ \text{(Detterrence)} \\ +.38\ \text{(Alliance)} \end{matrix}\right\} \doteqdot -.79\ \text{(Power)} \qquad (r=.92)$$

$$\text{for U.S.S.R.:} \quad \left.\begin{matrix} .88\ \text{(Deterrence)} \\ +.39\ \text{(Economic Penetration)} \end{matrix}\right\} \doteqdot -.97\ \text{(Power)} \qquad (r=.92)$$

That is, the combined U.S. deterrence and alliance behavior toward other nations is a function of the power parity with them, and the combined U.S.S.R.'s deterrence and economic penetration behavior is also a function of power parity with other nations. The deterrence behavior factor is identified as the status-dependent conflict behavior for both the United States and the Soviet Union, while the alliance factor is identified as the U.S. status dependent cooperation behavior and economic penetration is identified as the Soviet status dependent cooperation behavior.

The canonical correlation, which explains the degree of association between the attribute distance (power) and behavioral dimensions (deterrence and alliance for the U.S.; deterrence and economic penetra-

tion for the U.S.S.R.), is equally high for both countries. That is, for both countries, more than 85 percent of the variance in the combined status dependent conflict and cooperation behavior is explained by power parity only. This is strong confirmation of theorem 10 of Status-Field Theory.

Let us compare the result to other studies. Rummel's canonical analysis of U.S. foreign relations used different techniques, time period, and variables,[1] it still had similar results. His status behavior pattern is:

$$.81\ (WE) + .66\ (DE) = -.81\ (Power) \qquad (r=.94)$$

where WE means Western European behavior, DE stands for the deterrence factor, and PO is the power distance vector. As mentioned already in Chapter XIII, Rummel's Western European cooperation corresponds to the alliance dimension in my study. As a result of our analysis and this comparison, the status behavior theorem has been highly corroborated by the empirical data.[2]

Turning to the other theorems, no behavioral patterns were found which directly correspond to theorem 6 (Proposition 1) and theorem 8

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[1] For the list of differences, see Chapter XIII, Table 10. For the behavior pattern introduced here, see Rummel, "U.S. Foreign Relations: Conflict, Cooperation, and Attribute Distances," p. 102.

[2] The differences in parameters between Rummel's and my study indicate that the context of behavior in which the decision-makers perceive the power distance with the other nations and choose the behavioral emphasis with regard to deterrence and alliance was changed between 1955 and 1960.

(Proposition 2). Therefore, all three propositions generated by Status-Field Theory are not confirmed by this study. However, one possible explanation for this is that the two theorems are only latent in the results described by theorem 10, considering that theorem 10 was derived from the linear summation of theorem 6 and 8.[3] Some auxiliary research techniques may manifest the two theorems into behavior patterns.

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[3] However, this does not argue that theorems 6 and 8 are indirectly confirmed. Such an argument would commit "the fallacy of affirming the consequent."

CHAPTER XIX

COMPARATIVE ASSESSMENT OF THE BEHAVIOR PATTERN

So far I have examined the statistical interpretation of each behavioral pattern for the United States and the Soviet Union. In this chapter, I will compare the more substantive implications underlying the behavioral patterns for the two countries. This exploration of these implications may generate some helpful propositions for further investigation of the foreign behavior of the United States and the Soviet Union.

The first pattern (status behavior pattern) suggests interesting similarities as well as differences between the two countries. As far as the U.S. status behavior is concerned, deterrence behavior is accompanied by alliance behavior. As far as the Soviet status behavior is concerned, deterrence behavior is accompanied by economic penetration behavior. From these patterns, we can infer three important implications concerning the two countries' status dependent conflict and cooperation behavior in international relations. First, as Status-Field Theory postulates, conflict and cooperation do not exist alternatively for the two countries but they exist simultaneously in each's behavior space. In order to preserve their highest rank positions in the international system, protect their vested interest, and build the structure of expectations vis-a-vis other nations, the two super powers

continuously display conflictful as well as cooperative behavior simultaneously toward other nations. Second, deterrence, which is the major behavioral variate for both countries, is the most important element of their status behaviors.[1] That is, the respective loadings of deterrence are .86 for the U.S. and .88 for the U.S.S.R. status behavior pattern. This means that 73 percent ($.86^2$ X 100) of the U.S. deterrence and 77 percent ($.88^2$ X 100) of the U.S.S.R. deterrence variances are involved in their respective left hand sides of the status behavior pattern equation.

In effect, a persistent problem for American and Russian foreign policy decision-makers has been the question of how to maintain the overall strategic balance, make credible various commitments to other areas outside their own territories, establish the credibility of one's threat, reduce the likelihood of invoking direct military confrontation with others, and build credibility of deterrence and defense with regard to all levels of conflictful issues. In short, deterrence and defense are the most important elements as far as the status behavior of the two super powers are concerned.

Third, American deterrence behavior is accompanied by cooperative alliance behavior, while the Russian deterrence behavior is accompanied by the economic penetration behavior. This indicates that while the Soviet Union is taking conflictful actions with deterrence behavior, it

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[1] The canonical loadings are Pearson product moment correlations between the original variables (dimensions) and the variate scores. However, since the correlations in the canonical structure matrix are almost the same as the coefficients in the canonical coefficients matrix (see Chapter VII) when all the variables are standardized and

does not refrain from taking maximum advantage of economic interaction and penetration with other nations. The high recipient countries of Russian status behavior are the United States, China, and, to a lesser extent, most of the developed Western European countries, what the communists usually call "imperialistic capitalist." Thus, a seemingly paradoxical or dualistic aspect of Soviet foreign behavior is revealed by this pattern.

The patterns of formal diplomacy (Pattern II) for the United States and the Soviet Union present another interesting implication. For the United States, similarity in political orientation plays an important role together with some consideration of the density and economic development of the object nation. On the other hand, the Soviet Union is shown to base its diplomatic and formal cooperation on economic development and density without much emphasis on the political orientation of the object nation. The contrasting role of political orientation between the two patterns becomes clear if we consider the major recipient countries of the combined behaviors involved in the pattern from the two countries. That is, as shown in Figures 7 and 12, the large volume of formal diplomatic behavior of the United States and the Soviet Union is equally directed toward most of the developed Western European countries, which scored high on the density and economic development.[2] The political orientation of

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mutually orthogonal, we can interpret the correlations as if they were coefficients. Here all the factor scores were standardized and the dimensions are almost orthogonal.

[2] See Appendix II.

those countries is similar to that of the United States. This is why political orientation plays a contrasting role for the formal diplomacy behavior pattern of the two countries As the respective patterns indicate, Soviet behavior comprises a high level of diplomacy, while de-emphasizing economic penetration and proselytizing, while the United States is involved in much diplomacy and alliance and little deterrent behavior with these nations.

The fact that both the United States and the Soviet Union are active in diplomatic relations and various levels of international organizations is significant considering that international law and organizations are to a large extent status quo preserving mechanisms of "international coexistence." That is, both super powers attempt to maintain their status quo in the international system through formal diplomacy behavior. Especially, the Soviet Union tends to pursue the status quo oriented cooperation behavior across ideological frontiers. In this sense, the two patterns also might be called the super powers' status quo maintenance behavior or Western European cooperation behavior.

The patronage behavior pattern of the United States (Pattern III) and the bloc cooperation behavior pattern of the Soviet Union (Pattern III) show another important comparison. The U.S. patronage behavior, which is inversely combined with diplomacy, is directed largely toward the American client countries, of which most are situated in Latin America (see Figure 8). On the other hand, the Soviet patronage behavior tends to accompany alliance behavior, and is associated with political orientation similarity. In other words, as far as Soviet foreign behavior is concerned, its allies and

clients are all within the Communist bloc. This indicates that the Soviet allies are at the same time its satellites. On the other hand, as far as the United States foreign behavior is concerned, there is one group of nations which are allies to the United States such as most of the Western European countries and another group of distinctively client countries such as most of the Latin American and some of the Asian countries.

The indirect aggression patterns for both countries provide other similar as well as contrasting aspects. Both U.S. patterns (Patterns IV and V) are associated with the diversity and instability of the object nation, elements considered as the causes of domestic insurgency and revolutionary wars. The Soviet Union indirect aggression pattern also includes the diversity factor of the object nation, but it is significant that the pattern also includes the density factor.[3] The density and diversity of the object nation are the most important correlates of Soviet indirect aggression behavior. As explained in Chapter XII (page 98), the highest scoring object nations on Soviet indirect behavior are both the developed Western European countries and the Third World countries. On the other hand, American indirect aggression is directed only toward the Third World countries such as Cuba, China, North Korea, Indonesia, and Egypt (see Chapter XI, page 90). These contrasting findings suggest that the Soviet indirect aggression pattern has two facets: one is to support the national liberation or independ-

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[3] Most of the developed Western European countries are highly scored on the density factor, see Appendix II.

ence movements in the Third World, and another is to challenge the status quo of the Western European countries with regard to their imperialistic stance in Africa and other areas of the world. On the other hand, the direction of United States' indirect aggression can be explained as American effort to maintain the status quo in those areas. In short, the comparison of the indirect patterns of the two countries provides a hypothesis that the indirect aggression of the Soviet Union is anti-status quo oriented, while that of the United States is status quo oriented.

Last but not least, a comparison of the communalities of attribute distance vectors should demonstrate the respective influence each factor has in constituting the overall behavioral patterns. It should be remembered that the communality is the proportion of a variable's (dimensions) total variation involved in the overall canonical structure. The communalities were presented in Table 19 (for the U.S.) and 20 (for the U.S.S.R.).

For the United States, the power distance vector contributes most to the formation of all seven behavioral patterns with its H-SQR of .90. It means that almost 81 percent of the variance of the power distance between the United States and other nations is associated with the overall canonical structure. After power distance follows economic development (.85), population (.79), and political orientation (.77). In short, the dominant position of the power distance vector supports the so-called realist approach to United States

foreign behavior.[4]

In the case of the Soviet Union, the political orientation distance vector occupies the dominant position with its H-SRQ of 1.00. It means that the 100 percent of the variance of the political orientation distance vector is involved in the seven Soviet behavior patterns. Then follows population (.99), power (.98), and so on. Since the differences in communalities among the above three distance vectors are almost insignificant, we can hardly say that the political orientation is the most important contributor to the overall Soviet foreign behavior formulation. Nevertheless, we can say that the political orientation, population, and power distance vectors play an almost equal and most important roles in formulating the overall Soviet foreign policy. Although some specific behavior patterns of the Soviet Union are formulated without involving the political orientation factor, this finding suggests that as far as the overall Soviet foreign policy is concerned, Marxist-Leninist ideology plays an equally important role with a realist view of international relations.

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[4] Among the many scholars, past and present, who have shaped the development of realist international relations theory, the representative figures are Reinhold Niebuhr, Nicholas J. Spykman, Frederick L. Schuman, Hans J. Morgenthau, George F. Kennan, Arnold Wolfers, and Robert Strausz-Hupe. For an excellent presentation of their theories, see James E. Dougherty, eds., Contending Theories of International Relations (New York: Lippincott, 1971), pp. 65-101.

CHAPTER XX

PREDICTABILITY OF STATUS-FIELD THEORY

The findings and discussions presented so far demonstrate the explanatory power of Status-Field Theory. However, a general theory of international relations also must demonstrate predictive power as well.[1] That is, we must determine whether the patterned relationships found for 1960 predict to a future time period. To do this, let us see how well we can thus predict the foreign behavior of the United States and the Soviet Union in 1965.

As previously mentioned, there are two basic assumptions for carrying out this predictability test. First, the decision-making belief systems of the United States and the Soviet Union have remained

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[1] Many scholars agree that explanatory and predictive powers are two criteria for accepting a scientific general theory. For example, Carl Hempel and Paul Oppenheim contend that "It is this potential predictive force which gives scientific explanation its importance: only to the extent that we are able to explain empirical facts can we attain the major objective of scientific research, namely not merely to record the phenomena of our experience, but to learn from them, by basing upon them theoretical generalizations which enable us to anticipate new occurrences and to control, at least to some extent, the changes in our environment." Hempel and Oppenheim, "The Logic of Explanation," in H. Feigel and M. Brodbeck, eds., Readings in the Philosophy of Science, (New York: Appleton-Century-Crofts, 1953). George Lundberg agrees with Hempel stating that "... the primary function of all science (is) to formulate the sequences that are observable in any phenomena in order to be able to predict their recurrence." See George A. Lundberg, "The Postulates of Science and Their Implications for Sociology," in M. Natanson, ed., Philosophy of the Social Sciences: A Reader, (New York: Random House, 1963), pp. 33-72.

unchanged between 1960 and 1965. That is, the P and Q (the matrices of parameters for A and B spaces) calculated from the canonical analysis of data of 1960 are assumed to be unchanged across the two time points. Second, there were no systematic changes in the international system between 1960 and 1965. The second assumption was already empirically ascertained in Chapter X and XIII. That is, the pattern structure of A and B spaces of 1965 was found to be similar to that of 1960, though not identical. The dimensions of conflict and cooperation found in 1960 are also found in 1965.

What I want to know here is how well the theory can predict the behavior of the United States and the Soviet Union in 1965 from what we know of the relationship of behavior to attribute distances in 1960 ($D^{60}_{mxp}\ P^{60}_{pxl} = W^{60}_{mxq}\ Q^{60}_{qxl}$). Now we already know the attribute distances in 1965 (D^{65}). Therefore, we can predict the canonical variates for A space of 1965 using the parameters for the 1960 attribute space (P^{60}_{pxl}). That is, the predicted attribute space canonical variate for a certain behavior pattern for 1965 is,

$$\hat{V}^{65}_{mxl} = D^{65}_{mxp}\ P^{60}_{pxl}$$

Then the degree of fit between this predicted variate $\hat{V}^{65}$ to the actual 1965 behavior space can be measured by regressing $\hat{V}^{65}$ upon the behavior space of 1965 (W^{65}_{mxq}). The multiple correlation coefficient tells how close the predicted and actual behavior space are. The mean value of the multiple R for all seven behavior patterns [2] gives the overall fit

[2] For the purpose of checking the overall fit this study deals with all seven canonical regression equations including the relatively meaningless ones.

between the predicted and the actual. This is the first design for checking the predictability of Status-Field Theory in this study.

A second question is how well does the predicted attribute space variate ($\hat{V}^{65}$) *fit the* behavioral combinations predicted by the 1960 results? First, the canonical variate scores for the weighted behavioral combinations for 1960 are

$$\underset{mx1}{Y^{60}} = \underset{mxq}{W^{60}} \; \underset{qx1}{Q^{60}}$$

Second, the predicted canonical variate for 1965 behavior space is

$$\underset{mx1}{\hat{Y}^{65}} = \underset{mxq}{W^{65}} \; \underset{qx1}{Q^{60}}$$

Then, the product moment correlation between $\hat{Y}^{65}$ and $\hat{V}^{65}$, or

$$r = (\hat{Y}^{65})' \; (\hat{V}^{65}),$$

will assess how close these two predictions are, that is, the degree of fit of each canonical equation to the data. In one sense, <u>the correlation is the predicted canonical correlation</u>. It tells the proportion of total variance accounted for by a canonical equation consisting of P^{60} and Q^{60} together with D^{65} and W^{65}. The mean value of the squared correlations of all the seven canonical equations (predicted trace correlation) gives the overall fit. The predicted trace correlation is then compared to the actual trace correlation

empirically determined by the canonical regression analysis of 1965 data.

Table 22 presents the results of regressing the estimated attribute space canonical variate for 1965 ($\hat{V}^{65}$) upon 1965 behavior space (W^{65}). For the United States, the status behavior pattern has the highest multiple correlation at .87; formal diplomacy, patronage, and indirect aggression-I have the next highest coefficients. The remaining three are shown to have poor multiple R's, insignificant even at a .05 level. In general, the percent of total variance extracted for the overall behavioral space of 1965 is 44.9.

For the Soviet Union, the highest multiple correlation coefficient is at .85 for the bloc cooperation pattern. Then follows the formal diplomacy, status behavior, and economic penetration patterns. For the remaining three, as for the United States, the multiple R's are low and not significant even at a .05 level. The percent of total variance extracted for the Soviet behavior space of 1965 is a modest 40.0.

In general, the degree to which all the predicted attribute space canonical variates account for the variation in the overall behavior space of 1965 is encouraging. Especially, the first four behavior patterns for both the United States and the Soviet Union provide sufficient predictive power. In other words, the 1965 attribute space variate, which was predicted from what we already know of 1960, is significantly related to all the seven behavior dimensions of 1965. This result buttresses the predictive power of certain important behavior patterns, though not all.

TABLE 22

REGRESSION OF PREDICTED ATTRIBUTE VARIATE ($\hat{V}^{65}$) UPON BEHAVIOR SPACE OF 1965 (W^{65})

U.S.A.

	Behavior Patterns	Multiple R
I.	Status Behavior Pattern	.87
II.	Formal Diplomacy Pattern	.85
III.	Patronage Pattern	.74
IV.	Indirect Aggression Pattern-I	.74
V.	Indirect Aggression Pattern-II	.41*
VI.	.....	.35*
VII.	.....	.15*

% Total Variance (R/7): 44.9

U.S.S.R.

	Behavior Patterns	Multiple R
I.	Status Behavior Pattern	.76
II.	Formal Diplomacy Pattern	.83
III.	Bloc Cooperation Pattern	.85
IV.	Economic Penetration Pattern	.64
V.	Indirect Aggression Pattern	.43*
VI.	.....	.45*
VII.	.....	.14*

% Total Variance (R/7): 40.0

*These correlations are not significant even at .05. All others are significant at .001.

Next, the product-moment correlations between corresponding predicted canonical variates of A ($\hat{V}^{65} = D^{65}\ p^{60}$) and B ($\hat{Y}^{65} = W^{65}\ Q^{60}$) spaces are presented in Table 23. In order to see the differences in correlations among those of the original 1960, those of the predicted 1965, and those of 1965 which were determined by the canonical regression analysis of 1965 data ($D^{65}\ p^{65} = W^{65}\ Q^{65}$), correlations for all these categories are presented.

The predicted canonical correlations in general are shown to be the same as those actually found for the 1960 data, and some specific behavior patterns still maintain high predictability. For the U.S., status behavior and formal diplomacy patterns account for more than 50 percent of variation contained in 1965 B space, and patronage and indirect aggression pattern-I show accountability close to 50 percent. For the U.S.S.R. status behavior and bloc cooperation patterns account more than 50 percent of the variation of B space of 1965, and formal diplomacy pattern displays close to 50 percent.

In conclusion, across the two different levels of checking the predictability of the empirical models based on Status-Field Theory, some behavior patterns demonstrated high predictive power. For the United States, they are status behavior, formal diplomacy, patronage, and indirect aggression-I. For the Soviet Union they are status behavior, formal diplomacy, and bloc cooperation. The salience of these patterns for explaining the foreign behavior of the United States and the Soviet Union was already discussed in detail in Chapter XVI and XVII. In short, these seven patterns showed not only explanatory power but also predictive power as well.

TABLE 23

CANONICAL CORRELATIONS FOR 1960, 1965, AND PREDICTED FOR 1965

U.S.A.

	Behavior Patterns	$\hat{r}$ for 1965[a]	r for 1965[b]	r for 1960
I.	Status Behavior Pattern	.74	.94	.92
II.	Formal Diplomacy Pattern	.80	.89	.86
III.	Patronage Pattern	.66	,86	.81
IV.	Indirect Aggression Pattern-I	.69	.77	.69
V.	Indirect Aggression Pattern-II	.01	.69	.56
VI.	.....	.18	.26	.34
VII.	.....	.04	.15	.30
	Trace Correlation:	.45	.71	.68

U.S.S.R.

	Behavior Patterns	$\hat{r}$ for 1965	r for 1965	r for 1960
I.	Status Behavior Pattern	.77	.97	.96
II.	Formal Diplomacy Pattern	.65	.92	.90
III.	Bloc Cooperation Pattern	.71	.83	.85
IV.	Economic Penetration Pattern	.47	.63	.75
V.	Indirect Aggression Pattern	.29	.55	.58
VI.	.....	.33	.21	.50
VII.	.....	.07	.12	.19
	Trace Correlation:	.47	.68	.72

[a] $\hat{r}$ means the product-moment correlation between $\hat{V}^{65}$ and $\hat{Y}^{65}$.

[b] Since the behavior patterns empirically determined from the canonical regression analysis of 1965 data are slightly different from those of 1960, the correlations given in this column are for those 1965 patterns given in Appendix IV, not for the patterns listed here. These are presented here only for comparison purpose.

CHAPTER XXI

REVIEW AND CONCLUSION

In this study Field Theory has been found to be a general scientific theory for explaining a considerable portion of the U.S. and U.S.S.R. dyadic foreign behavior. The dimensions of attribute and behavior spaces are stable and reproducible across time as well as across the studies that have been done. As a whole, about 50 percent of the total variance in American and Russian behavior can be explained by the delineated linear patterns. When the valid concepts, assumptions, and propositions of status theory are subsumed within the framework of Field Theory, the status dependent conflict and cooperation of the two super powers also are explained well by the configuration of th two status dimensions: economic development and power. The proposition formally derived from a set of assumptions and axioms of Status-Field is validated against the reality of foreign behavior of the United States and the Soviet Union in 1960. All in all, the findings of this study strongly support the validity of Status-Field Theory. The following is a summary of the major findings presented.

1. The high canonical trace correlations for both the United States and the Soviet Union strongly support the validity of Rummel's Social Field Theory. The trace correlation for the United States is .68 and for the Soviet Union is .72. This means that about 46 percent and 52 percent of the variance in U.S. and U.S.S.R. behavior are respectively accounted for by the ten attribute distance vectors.

2. The status behavior theorem which says that "The status dependent cooperation and conflict behavior of high economically developed nations is a function of their power incongruence" is confirmed with the high canonical correlation of .92 for both the United States and the Soviet Union.

3. The predictive power of Status-Field Theory is encouraging. The empirical models derived from the 1960 data demonstrated not only their explanatory but also their predictive power as well. Therefore, insofar as these empirical results are concerned, it is possible to accept the theory as a general theory of international relations.

4. Some dimensions of behavior space are commonly shared by both the United States and the Soviet Union, such as deterrence, alliance, indirect aggression, patronage, and economic penetration. On the other hand, some behavior dimensions are unique to each nation. For example, the transaction dimension consisting of imports, exports, and tourists is unique to the United States, while the proselytizing dimension consisting of variables representing Russian economic and propaganda offensives is unique to the Soviet Union.

5. As far as the overall Soviet behavior patterns are concerned, similarity or dissimilarity in political orientation is as important as the power and population of the object nation. As far as the U.S. foreign behavior is concerned, however, the power factor occupies the most important position among the ten attribute distance vectors. This finding implies that a realist perspective underlies the international behavior of the United States, while for the Soviet Union

ideology is as important.

6. Both the United States and the Soviet Union have allies on the one hand, and clients or satellites on the other. However, for the Soviet Union alliance behavior is accompanied by a patronage behavior which is absent in the U.S. patronage pattern. This implies that the nations in the Communist bloc are both allies and satellites at the same time. However, with respect to U.S. foreign behavior, the countries which are friendly to the United States are bifurcated into allies (most of the Western European countries) and clients (most of the Latin American countries and some of the Asian countries).

7. Both the United States and the Soviet Union use a formal diplomacy pattern for status quo maintenance.

8. The Soviet Union's indirect aggression pattern is anti-status quo oriented, while the U.S. indirect aggression pattern is status-quo oriented.

9. As far as the status dependent conflict and cooperation behaviors of the two super powers are concerned, deterrence is the major concern among all the behavioral elements comprising the status behavior pattern.

In conclusion, the behavior patterns generated from Field Theory in general and Status-Field Theory in particular well define the behavior of the United States and the Soviet Union in the contemporary world. However, as illustrated in Chapter II, the theorems governing this behavior were derived only by dealing with the world of "phenomena," not of "noumena," and were imposed upon the uniqueness of man, events, and

culture in a collective sense. Therefore, the actual manifestation of a nation's behavior may deviate from the theoretically expected course. Nevertheless, this study indicates that the measurable reality external to the will, choice, or uniqueness of a nation's decision-makers can be theoretically and empirically known, and that a scientific theory can explain and predict a nation's foreign behavior with a frequency of success considerably above chance.

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APPENDIX I-A

Variables and Definitions: A Space

1. Population: Total number of population. Population figures--both census and estimates--are, in so far as possible, "modified present-in-area-counts."

2. National Area: "Total area of the specified geographical units, including inland water as well as such uninhabited for uninhabitable stretches of land as may lie within their mainland boundaries."

3. National Income: "National income is the sum of the incomes accruing within a year to the factors of production supplied by the normal residents of a country, before deduction of direct taxation, and equals the sum of compensation of employees, income from unincorporated enterprises, rent, interest and dividends accruing to households, saving of corporations, direct taxes on corporations and general government income."

4. Steel Production: The total production of crude steel, both ingotes and steel for castings, whether obtained from pig-iron or scrap.

5. GNP/Population: Cross national product is defined as the "total value of goods and services produced in a country in a year's time..."

6. Illiterates/Population: Literacy is defined as "the ability to read and write." 10 years of age or older are considered.

7. Telephones/Population: Telephone refers to the "number of public and private telephones installed which can be connected to a central exchange."

8. Physicians/Population: Physicians refer to all persons fully qualified or certified from a medical school.

9. Energy Consumption/Population: Energy includes solid fuels, liquid fuels, natural and imported gas, and hydro and imported electricity.

10. Enrollment in Higher Education/Population: Total number of students enrolled in schools above high school divided by population

11. Urbanization: Urbanization is measured by percentage of population living in cities of 100,000 or more.

12. Density: Total number of population divided by national area.

13. Arable Land/Total Land Area: Arable land refers to "land planted to crops ... land temporarily fallow, temporary meadows for mowing or pasture, garden land, and area under fruit trees, vines, fruitbearing shrubs, and rubber plantation."

14. Agricultural Population/Population: Agricultural population is defined as "all persons who depend upon agriculture for a livelihood, that is to say, persons actively engaged in agriculture and their non-working dependents."

15. Size of Armed Forces: Number of military personnel. Civilians employed by the armed services are excluded.

16. Nuclear Capability: Countries are ranked according to their nuclear capabilities on a four point scale: 0=no known nuclear potential; 1= country is in possession of a nuclear reactor; 2= country is creating or has an option on a nuclear weapon program; 3=engaged in a nuclear weapons program, both radiological and explosion objectives; and 4=nuclear weapons are deployed both for defensive and offensive purposes.

17. Defense Expenditure: Defense expenditure includes total current and capital outlays.

18. Military Alliances: Total number of effective dyadic military alliances.

19. Energy ProductionXPopulation: Energy production includes the primary sources of energy: coal and lignite, crude petroleum, natural gas and hydro electricity.

20. Bureaucracy: Rating: 0 = traditional or postcolonial; 1 = semi-modern; and 2 = modern.

21. Censorship Score: Rating: 0 = complete or fairly complete censorship of news; 1 = some censorship of the news; 2 = no censorship, other than usual laws about libel and the controlling of news of a national security nature.

22. Constitutional Status: Rating: 0 = totalitarian; 1 = authoritarian; and 2 = constitutional.

23. Electoral System: Rating: 0 = non-competitive; 1 = partially competitive; and 2 = competitive.

24. Freedom of Group Opposition: Rating: 0 = political opposition not permitted (groups not allowed to organize for political action, e.g., interest groups, political parties); 1 = restricted political opposition allowed (groups free to organize in politics, but

oppositional role limited and they may not campaign for control of government); 2 = political opposition mostly unrestricted (groups can organize for political action and may campaign for control of government).

25. Killed in Foreign Conflict: Total number of deaths resulting directly from any violent interchange between countries.

26. Killed in Domestic Violence: Total number of deaths that are direct consequences of any domestic intergroup violence in the nature of strikes, riots, coups, banditry, etc. This excludes murders, executions, and suicides.

27. Armed Attacks: "An armed attack is an act of violent political conflict carried out by an organized group with the object of weakening or destroying the power exercised by another organized group."

28. Governmental Sanctions: "A governmental sanction is an action taken by the authorities to neutralize, suppress, or eliminate a perceived threat to the security of the government, the regime, or the state itself.

29. Roman Catholics/Population: Total number of Roman Catholic population divided by population.

30. Protestants/Population: Total number of Protestant population divided by population.

31. Moslems/Population: Total number of Moslem population divided by population.

32. Buddhists/population: Total number of Buddhists divided by population.

33. Air Distance from U.S.: Air distance is the shortest distance between national borders as directly measured from a 24" globe.

34. Air Distance from U.S.S.R.: Same as variable 33.

35. Air Fares from New York: The cost of a round-trip economy class international air ticket from New York to each nation's capital city.

36. Air Fares from Moscow: The cost of a round-trip economy class international air ticket from Moscow to each nation's capital city.

37. Communist Party Membership/Population: Communist party membership divided by population.

38. Bloc Membership: Rating: 0 = Communist bloc membership; 1 = neutral bloc; and 2 = Western bloc. Communist and Western bloc memberships are determined by military treaties or alliances with the Soviet Union or the United States. The neutral bloc, a residual category, consists of those nations with no military treaties or alliances with either of the aforementioned bloc.

39. Arts and Culture NGO: Total of all arts and culture international non-governmental organization memberships for each nation.

40. NGO: Total of non-governmental organization memberships for each nation.

41. IGO: Total of inter-governmental organization membership for each nation.

42. Legations: Total number of embassies established in other countries.

43. Exports/GNP: Total exports f.o.b. divided by Gross National Product.

44. Imports/Trade: Trade includes imports c.i.f. and exports f.o.b. Data for most countries exclude goods imported into the customs are and re-exported without being cleared for domestic consumption. Goods passing through a country only for the purpose of transport are excluded from all figures.

45. Trade/GNP: Total amount of trade divided by GNP.

46. Ethnic-Linguistic Diversity:[1] Number of languages with membership exceeding one percent of the population.

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[1] In terms of internal communication, and preserving and developing cultures, language is considered an indicator of ethnic-linguistic diversity in this study.

APPENDIX I-B

Variables and Definitions: B Space

1. Strengthening of Forces: Reinforcement or strengthening of military forces (planes, ships, or troops) or bases in a conflict situation, or large-scale military movements directed at an object nation within the context of a developing conflict situation.

2. Support to Subversive or Rebellious Group: Event frequency weighted by rating: 1 = verbal support only; 2 = material or personnel support; and 3 = military intervention.

3. Support to Object's Violent Enemy: Event frequency weighted by rating: 1 = verbal support only; 2 = material or personnel support; and 3 = military intervention.

4. Threat: Event frequency weighted by rating: 1 = non-specific, non-military threat; 2 = force specified threat. Threat is any official diplomatic communication or governmental statement by the executive leaders or a country which states or implies that a particular country (or groups of countries) will incur certain negative sanctions if it acts in a certain way.

5. Protest: Any official diplomatic communication or governmental statement, the purpose of which is to complain about or object to the policies of another country.

6. Accusations: Any official diplomatic or governmental statement involving charges and allegations of a derogatory nature against another country.

7. Official Negative Behavior: Any acts or actions that reflect strained, tense, unfriendly, or hostile feeling or relations between nations such as discontinue negotiations, cancel official visit or planned policies, conference or international organization walk out, reject or oppose proposal or policies, arrest or expell foreign officials or civilians.

8. Export to the object: Total value of exports f.o.b. A - B.

9. Import from the object: Total value of import c.i.f. B - A.

10. Treaties Effective: Total number of bilateral or multilateral treaties or agreements existing between A and B filed with the Secretary-General of the UN. Accessions, supplementary agreements, and exchange of notes constituting an agreement are counted along with formal treaties and agreements.

11. Military Alliance: Rating: 0 = no defense cooperation; 1 = support of military supplies, services, and military advisers; 2 = regular forces stationed; 3 = co-participation in domestic or foreign conflict.

12. Military Aid:[2] Rating: 0 = no military aid; 1 = military aid. includes loans, grants, and supply of military equipments or weapons.

13. Diplomatic Relations: Rating: 0 = no relations; 1 = diplomatic representatives lower than consul; 2 = consul; 3 = ambassador.

14. Co-membership in IGO: Total number of co-participated IGO.

15. Co-membership in NGO: Total number of co-participated NGO.

16. Official Political Visit to the Object: Total number of visits by head of government, cabinet members, and key governmental officials.

17. Economic Visit to the Object: Total number of visits, the declared purpose of which is economic-trade conferences negotiations, market survey, etc.

18. Tourists to the Object: Total number of tourists. Tourist is defined as any person travelling for a period of twenty-four hours or more in a country other than that in which he usually resides. All non-political, non-economic visits by the citizens or group of citizens are included.

19. Economic Aid to the Object: The amount of economic aid that A has given to B. Data for economic aid includes amounts expended in grants or long term loans in cash and in kind, including within the latter category the provision of services as well as of commodities. (U.S. dollars)

20. Economic Conference: All forms of conferences between governmental officials and civilians with regard to economic aid, trade, negotiations, etc.

21. Political Conference: All forms of conferences between governmental officials with regard to treaties, diplomatic negotiations, summit talks, etc.

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[2] The exact amount of military aid by the United States and the Soviet Union was not available because some of the aid data is classified. Therefore, rating was preferred to raw data in this study.

22. Economic Agreement: Agreements concerning aid, trade, economic cooperation, etc.

23. Political Agreement: Agreements concerning treaties, friendship and cooperation, etc. A joint communique announced by governments' official representatives are also considered an agreement.

24. Reconciliatory Action: Actions which suspend negative sanctions, withdraw or retreat from conflict situation, or yield positions.

25. Cooperative Comment: All verbal cooperative communications which praise or hail actions or policies of the object.

26. Promise: Event frequency weighted by rating: 1 = promise policy support, but without mentioning any specific method; 2 = promise material or personnel support; 3 = promise support of all possible means.

27. Cultural Interaction: All kinds of cultural visit, conference, or agreement.

28. Philanthropic Assistance: Help to other countries through disaster relief, missionary programs, and numerous other activities showing non-governmental level friendship.

APPENDIX II

FACTOR SCORES FOR ATTRIBUTE SPACE DIMENSIONS

FOR 1960

EXPLANATIONS:

Sample Size : N = 83

Number of Variables Used: 46

Factor Technique *Employed*: Image Factor Analysis

Rotation Criterion : Varimax

Factor Names :

I : Economic Development
II : Power
III : Political Orientation
IV : Catholic Culture
V : Trader
VI : Density
VII : Instability
VIII : Population
IX : Oriental Culture
X : Diversity
XI : Unnamed

APPENDIX II (continued)

NATIONS	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
01 AFG	-1.1084	-0.1902	0.6665	-1.1868	-0.9037	-0.3004	-0.6273	0.2545	-1.1882	-1.5169	-1.0412
02 ALB	-0.3932	-0.3448	1.5513	-0.6581	-0.0488	-0.1700	-0.5118	0.4317	-0.7422	-0.1175	0.4473
03 ARG	0.7384	-0.2333	-1.0188	0.3322	-1.5572	-0.9151	1.1572	0.9453	-0.8356	1.5530	1.1317
04 AUL	2.2999	-0.1200	-0.7509	-1.3049	-1.0395	-2.673[illegible]	0.1006	-0.2293	0.2555	1.3383	-0.2442
05 AUS-	1.3374	-0.7664	-0.3735	-0.0198	-0.7496	0.0568	-0.1622	-0.2064	-0.9339	-0.4317	1.3409
06 BEL	0.9723	-0.4043	-0.9249	0.5463	1.1603	2.6182	0.3320	-0.2527	0.3335	-0.5995	0.2836
07 BOL	-0.9092	-0.2556	-0.8903	1.1704	-0.3400	-0.9797	0.0613	0.1884	-0.4885	-1.3190	0.1804
08 BRA	-0.3606	0.2306	-1.2191	0.9362	-1.4975	-0.9077	-0.4432	-0.8916	-1.1158	0.3554	0.0810
09 BUL	0.4344	-0.4409	2.0314	-0.1308	0.1536	1.0021	-0.2355	0.5120	-0.1454	0.1785	1.5014
10 BUR	-0.8572	-0.0636	-0.0589	-0.5485	0.0960	0.1718	-0.5857	0.1285	2.5609	-1.2572	0.1132
11 CAM	-0.9803	-0.0539	0.3455	-0.4843	-0.0623	-0.1664	-0.7416	0.5145	2.7164	-0.3333	-0.6612
12 CAN	2.1099	0.2850	-0.4282	0.5754	-0.3072	-1.7536	-0.6957	-0.1839	-0.5689	-2.0421	-0.0146
13 CEY	-0.5495	-0.2666	-0.9862	-0.8792	1.2302	0.8635	-0.0097	-0.0884	2.5928	-0.4718	1.1113
14 CHL	0.2129	-0.4658	-0.8115	1.1643	-0.9775	-1.2504	-0.1608	-0.0988	-0.2389	0.7873	0.0143
15 CHN	-1.3365	2.7090	0.9887	-0.0707	-0.1613	-0.2416	-0.5763	-6.5810	0.4453	2.0827	0.9315
16 CHT	-0.4488	0.0353	0.0634	-0.5890	-0.2252	0.8971	0.1930	0.3678	1.4480	2.1959	-0.8223
17 COL	-0.4483	-0.1806	-0.6827	1.2551	-0.3769	-0.9115	-0.3245	0.2545	-0.4939	0.3856	0.0074
18 COS	-0.2974	-0.3796	-0.7539	1.7913	0.1856	-0.7055	-0.6879	-0.3737	0.2839	0.9906	0.5905
19 CUB	0.1085	-0.2363	1.5636	1.5474	1.3197	0.3492	5.5236	0.9906	-0.0542	1.2396	0.3930
20 CZE	1.2438	-0.2908	2.5052	0.4532	-0.0246	0.9967	0.2170	1.0753	-0.0580	-1.4774	1.3529
21 DEN	1.6147	-0.4994	-0.5497	-0.3730	1.7713	1.1264	-1.1913	-0.3309	0.3988	-0.8231	-0.3194
22 DOM	-0.8563	-0.1997	-0.4489	2.0619	1.3110	-0.2517	-0.0086	-0.5447	-0.1775	-0.0235	-0.2407
23 ECU	-0.6286	-0.2625	-1.0950	1.3788	0.1229	-0.5338	0.0887	0.2780	-0.0311	-1.1186	0.9940
24 EGY	-0.7416	0.2364	0.3803	-0.9578	0.2905	-0.4236	-0.6312	0.1541	-2.2906	1.4139	-1.7661
25 ELS	-0.9900	-0.2313	-0.0620	2.1479	1.1027	0.3247	-0.5149	-0.3081	0.6451	0.5648	-0.6020
26 ETH	-1.3854	0.1849	0.2911	-0.9159	0.0504	-0.5863	-0.4072	0.8353	-0.8001	-1.1524	-0.5860
27 FIN	1.7032	-0.7686	-0.0899	-0.4429	0.5053	-0.8379	-1.1269	-1.4743	0.0919	-1.2698	-0.0068
28 FRN	0.8704	0.3302	-0.9409	0.5314	-1.3998	1.9753	0.9205	0.0187	-1.4222	-0.4607	-2.8667
29 GME	1.5972	-0.3511	2.9247	0.4863	1.1005	-0 0873	-0.2048	-0.4330	0.9034	0.6439	-0.4345
30 GMW	1.3197	0.6912	-0.8014	-0.0454	0.4015	1.7920	0.3479	-0.1767	-0.2268	1.2751	-1.4602
31 GRC	0.0160	-0.2332	-0.9935	-0.8174	-1.2462	0.7292	-0.7434	0.9353	-0.4034	0.4791	1.0646
32 GUA	-0.8418	-0.2739	-0.6136	1.8229	-0.4185	-0.3987	-0.2316	-0.0045	-0.1750	-1.5174	-0.1072

APPENDIX II (continued)

NATIONS	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
33 HAI	-1.2442	-0.1077	0.4679	2.1127	0.6865	-0.1850	-0.6908	-0.4101	0.0496	0.7171	-2.1732
34 HON	-0.8262	-0.2619	-0.9753	1.6445	0.0573	-0.6513	-0.6260	-0.0724	0.0105	-0.6576	0.5713
35 HUN	0.6264	-0.5027	2.0886	0.5335	0.0871	1.2969	-0.3604	0.3556	0.0417	0.2443	0.8644
36 IND	-1.3463	0.9486	-1.5233	-0.8443	-0.8084	2.3729	0.6364	-2.9032	0.1273	-1.8841	1.7238
37 INS	-0.3854	-0.5591	0.0877	-1.4358	-2.1634	-1.0071	4.0826	-1.7064	-2.2496	-1.7275	-2.2797
38 IRN	-0.8808	0.0943	-0.1257	-1.3038	-0.1130	-0.0245	-0.3828	0.2036	-1.3526	-1.2367	-0.5280
39 IRQ	-0.6496	0.0147	0.4671	-1.0235	2.5293	-0.3166	0.5010	-0.3811	-1.0011	0.7523	-0.2177
40 IRE	0.6747	-0.6558	-0.3125	0.4779	0.5140	0.1362	-0.3714	-0.3205	0.0939	0.1410	2.0413
41 ISR	1.3236	-0.4688	-0.5918	-1.6665	-1.5268	0.4071	0.1891	0.8320	-0.7114	1.1727	1.9418
42 ITA	0.4303	-0.2768	-0.7766	0.6931	-0.8403	2.6898	-0.1763	0.0015	-0.7997	-0.4717	0.5808
43 JAP	0.3127	0.6611	-1.2416	-0.7093	-0.7244	1.1837	0.2118	0.0641	2.2423	3.0460	-0.2452
44 JOR	-0.7510	-0.0334	0.0844	-1.7676	-0.2293	-0.4177	-0.5824	1.5288	-1.4096	0.5994	0.4494
45 KON	0.4202	-0.4809	2.5889	0.1142	-0.8695	-0.9267	-0.1175	-0.9461	1.0201	0.6899	0.3160
46 KOS	-0.4947	0.1255	-0.3617	-0.8172	-0.9237	0.4723	-0.1856	0.7405	1.8863	3.1069	-0.2753
47 LAO	-1.1563	0.0427	-0.4362	-1.2357	-1.0428	-0.3447	-0.1463	1.6510	2.2606	-1.3832	0.4388
48 LEB	-0.4863	0.0143	-1.0406	-1.2666	0.1387	0.9771	-0.6767	1.6697	-0.7457	1.1106	1.7169
49 LIB	-1.1684	0.1115	0.2056	-0.0683	3.2402	-0.1768	-0.1560	-0.0315	0.1633	-1.1243	0.3039
50 LBY	-1.2279	0.4952	-0.1673	-1.4956	3.7191	-0.3010	-0.9724	1.2102	-1.2565	1.7220	0.9868
51 MAL	-0.6176	-0.3870	-0.9589	-1.0673	2.1883	0.1196	4.2550	-0.5531	1.1706	-1.2994	2.1571
52 MEX	-0.4654	-0.0581	-0.4471	1.6249	-0.8157	-0.2136	-0.6562	0.1727	-0.4987	-0.3872	-0.3858
53 NEP	-1.2725	-0.0332	0.3884	-0.4990	-0.3356	0.4467	-0.4062	0.5239	2.2319	-2.2851	-0.5893
54 NTH	1.0313	-0.3301	-0.9965	0.0837	2.0813	2.4022	-0.3577	-0.6238	0.5666	1.3080	-0.4586
55 NEZ	2.2298	-0.7399	-0.5986	-1.2872	0.3113	-2.6799	-0.0199	-0.2275	0.9141	0.4423	0.2473
56 NIC	-0.7246	-0.3111	0.0293	1.3503	0.8371	-0.5653	-0.3612	0.0928	-0.2203	0.5671	-0.3389
57 NOR	1.7708	-0.5764	-0.4321	-0.3140	1.1223	-0.9748	-1.6237	-0.9967	-0.0808	-0.7867	-0.8289
58 OUT	0.2263	-0.4973	1.8113	-0.0982	-1.4331	-1.3410	-0.5334	-0.2994	0.1132	-0.3474	0.5609
59 PAK	-1.1708	0.2335	-0.4005	-1.1599	-0.7112	0.8796	-0.3494	-0.3734	-1.0066	-0.6834	-1.2635
60 PAN	-0.2874	-0.2595	-1.1444	0.8075	-0.8169	-0.7392	-0.4861	0.9463	-0.2281	0.1800	1.0146
61 PAR	-0.4531	-0.3764	0.0170	1.1676	-0.6355	-1.3026	-0.2502	0.3523	-0.3466	0.8911	-0.2709
62 PER	-0.4422	-0.2821	-0.4260	1.5469	-0.0367	-0.9030	0.0853	-0.1185	-0.0914	-0.5195	0.0064
63 PHL	-0.1687	-0.3689	-1.1281	-0.1684	-0.9988	0.2528	0.1868	0.0993	0.7563	-0.4278	1.5770
64 POL	0.5077	-0.3043	1.9627	0.8408	-0.7355	1.3148	0.0565	0.4615	-0.3599	0.4037	0.4468

APPENDIX II (continued)

NATIONS	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
65 POR	-0.4304	-0.3619	0.7553	1.1320	0.0468	1.2541	-0.9965	0.4394	-0.4283	0.7896	-0.9031
66 RUM	0.3112	-0.3849	1.9424	0.2476	-0.5689	0.9738	-0.3296	0.3082	-0.0973	-0.2766	0.9335
67 SAU	-1.0782	0.1749	0.6539	-1.2704	1.7316	-0.9276	-0.5033	0.0225	-1.3083	0.6126	-0.6952
68 SPN	0.0607	-0.3811	1.0817	0.9299	-1.0817	1.1550	0.2383	0.1713	-0.6625	-0.9881	-0.5881
69 SWD	2.4731	-0.5410	-0.1140	-0.6439	0.7998	-1.0246	-1.2509	-1.5548	-0.0967	-1.3605	-1.1829
70 SWT	1.8569	-0.4794	-0.4627	-0.4433	0.2682	0.2074	-0.3661	-0.9029	-0.1923	-1.2934	-0.1496
71 SYR	-0.5826	-0.1246	0.3818	-1.2630	0.6824	0.0541	-0.2844	0.6174	-0.9808	0.7490	0.2872
72 TAI	-1.0139	0.0822	-0.2469	-0.2784	0.0584	0.2838	-0.6243	0.4851	2.9883	-0.9247	-0.7549
73 TUR	-0.8195	0.0890	-0.9332	-0.8825	-0.7194	0.9424	-0.0423	0.2978	-1.8531	-0.7017	-0.4605
74 UNS	0.7536	-0.4710	0.0708	-0.9426	0.1797	-1.0114	3.9845	-0.0591	0.1634	-0.8936	-0.1577
75 USR	0.0833	4.8177	1.6875	0.0140	-1.4084	-0.6389	-0.0800	0.2490	-0.9666	-0.7805	2.1424
76 UNK	1.5251	0.9511	-1.0418	-0.3888	0.3669	1.2961	-0.3362	-0.0772	-0.3333	1.2456	-2.1247
77 USA	1.7165	6.4617	-0.5341	0.7783	1.0158	-0.5272	0.4307	2.7052	0.9605	-0.9240	-0.5959
78 URG	-0.2480	-0.2646	-1.2797	0.0278	-0.7943	-0.6718	0.0152	1.1408	-0.0214	1.0275	1.1634
79 VEN	0.2133	0.0025	-0.4747	1.6934	1.4699	-0.8923	1.7325	-0.3618	-0.1023	0.8541	0.1888
80 VTN	-0.4120	-0.4026	1.1591	-0.0557	-1.0347	-0.7274	-0.6241	-0.7290	1.6235	0.8827	-0.9557
81 VTS	-0.3434	-0.6462	0.5540	-0.7525	-1.9321	-0.4442	1.0904	0.5178	1.0834	0.6692	-3.8042
82 YEM	-1.0061	-0.1264	0.4868	-1.6619	0.9362	-1.0146	-0.2656	-0.0061	-1.0074	0.6845	-0.5786
83 YUG	0.2003	-0.3955	1.3819	0.2140	-1.1358	1.0253	0.0361	0.1884	-0.5729	-0.8082	0.1784

APPENDIX III

FACTOR SCORES FOR ATTRIBUTE SPACE DIMENSIONS

FOR 1965

EXPLANATIONS:

Sample Size : 83

Number of Variables : 46

Factor Technique Employed : Image Factor Analysis

Rotation Criterion : Varimax

Factor Names:

I : Economic Development
II : Power
III : Political Orientation
IV : Catholic Culture
V : Instability
VI : Oriental Culture
VII : Density
VIII : Trader
IX : Population
X : Unnamed
XI : Diversity

APPENDIX III (continued)

NATIONS	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
01 AFG	-1.0880	-0.3994	0.8329	-1.4105	-0.6916	1.9751	-0.6153	-2.0515	-0.6907	1.4092	1.5686
02 ALB	-0.2605	-0.3097	1.5080	-0.6948	-0.4029	0.7144	-0.3271	-0.4122	-0.2760	0.3656	-1.0950
03 ARG	0.5420	-0.1641	-0.9643	0.5499	-0.3465	0.8506	-0.7797	-1.0546	0.0709	-2.3031	0.2620
04 AUL	2.1063	-0.2008	-0.8521	-1.0992	-0.3025	-0.2129	-2.3017	-1.1092	0.6950	-1.5733	0.1608
05 AUS	1.0063	-0.7109	-0.4863	-0.0245	-0.2242	0.4352	0.7619	-0.4784	0.3794	0.2368	-0.6248
06 BEL	0.9679	-0.3363	-0.7430	0.5374	-0.0065	-0.7495	2.6563	1.9947	0.3164	-0.4311	0.8881
07 BOL	-0.6019	-0.2089	-0.5959	1.1717	0.1031	0.0952	-1.1940	0.0864	-0.2869	-0.2333	0.9385
08 BRA	-0.2917	0.3117	-1.1006	1.1780	-0.2727	0.9630	-1.0092	-0.9937	1.5127	-0.3020	0.5944
09 BUL	0.6625	-0.3018	2.1673	-0.3788	-0.2412	0.3107	0.7719	0.7529	-0.3808	-0.6826	-0.8798
10 BUR	-0.8552	-0.1090	0.4721	-0.2841	-0.5399	-2.7600	0.2084	-0.2342	-0.5251	0.5480	1.4521
11 CAM	-1.0770	-0.0699	0.4666	-0.2111	-0.6313	-3.0136	0.0242	-0.0349	-0.7598	0.5855	1.2836
12 CAN	2.1650	0.2881	-0.4786	0.6954	-0.2226	0.0829	-1.8392	-0.2060	0.1840	1.1941	1.3100
13 CEY	-0.4742	-0.3132	-0.3979	-0.6569	-0.5311	-2.4945	0.7898	1.0969	0.1127	-0.9544	0.6896
14 CFA	0.5018	-1.2018	-0.5124	0.6299	-0.2185	0.6111	-1.1849	-0.6328	-0.4218	-2.2111	-0.1823
15 CHN	-1.3645	2.7896	0.9940	0.0813	-0.5996	-0.4854	-0.2490	-0.1023	6.3163	0.3803	-0.9201
16 CHI	-0.4280	0.0973	-0.1548	-0.7594	-0.1993	-1.2619	1.0389	0.3164	-0.4549	-2.0640	-0.8687
17 COL	-0.5184	-0.2130	-0.7264	1.6238	-0.1387	0.4584	-0.7897	-0.3312	0.3663	-0.1477	-0.3455
18 COS	-0.3809	-0.2798	-0.8318	1.2334	-0.2595	0.1447	-0.6846	0.0838	-0.2353	-0.0268	-1.4365
19 CUB	0.0482	-0.4220	1.5246	1.8040	0.2553	0.1379	-0.1489	0.3954	0.0623	-0.2307	-0.1337
20 CZE	1.5136	-0.3874	2.7918	0.5151	-0.1433	-0.0633	0.8133	0.3607	-0.4333	-0.4029	0.3305
21 DEN	1.7597	-0.6719	-0.4976	-0.3002	0.0749	-0.1460	0.7253	0.5836	-0.1267	2.1270	-0.4377
22 DOM	-0.7797	-0.1595	-0.4648	1.9237	1.4309	-0.0584	-0.3579	0.5827	0.2369	0.5846	-1.2745
23 ECU	-0.5914	-0.2362	-0.8945	1.5477	-0.2365	-0.0436	-0.7307	0.1087	0.1867	-0.2700	0.3302
24 EGY	-0.8031	0.2345	-0.0357	-1.3777	-0.2303	2.6967	-0.1021	-0.5501	-0.8035	-0.0923	-0.3763
25 ELS	-1.0199	-0.1747	-0.0477	1.8970	-0.1203	-0.3569	0.3741	0.9933	-0.3429	0.2762	-0.4579
26 ETH	-1.4594	0.0612	0.1336	-0.9786	-0.5783	1.0199	-0.6579	-0.6440	-1.2129	0.7182	1.1783
27 FIN	1.7636	-0.7567	-0.0759	-0.5058	-0.1252	-0.2601	-1.1097	-0.0517	1.3185	2.5436	-0.5224
28 FRN	0.5930	0.5767	-1.1785	0.5863	-0.3254	0.8851	2.3032	-0.5581	0.3185	-0.2072	1.4245
29 GME	1.8510	-0.6031	2.8968	0.2827	0.4091	-0.0959	-0.1784	0.1100	-0.1382	0.5691	-0.3505
30 GMW	1.1807	0.5873	-1.0296	-0.0931	-0.0488	0.1716	2.0420	0.2542	0.0965	-0.2420	0.2838
31 GRC	0.0057	-0.2825	-1.0089	-0.8878	-0.1863	0.7872	0.6164	-1.5840	-0.7256	0.0007	-1.2589
32 GUA	-0.8918	-0.2404	0.2980	2.0000	-0.1012	0.0149	-0.3792	-0.2440	-0.5100	0.8093	1.1239

APPENDIX III (continued)

NATIONS	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
33 HAI	-1.2170	-0 2487	0.8534	2.1387	-0.1414	0.5691	-0.0113	-0.4286	-0.6704	0.9251	0.3216
34 HON	-0.8621	-0.1160	-0.7021	1.4827	-0.2333	-0.2430	-0.7980	0.9590	0.1570	0.6949	-0.7820
35 HUN	0.8586	-0.6137	2.2626	0.4900	-0.0698	0.3814	1.1867	0.1356	-0.1864	-0.1725	-0.2850
36 IND	-1.3846	1.1995	-1.2475	-0.6278	1.1785	-0.4200	1.7317	-0.8712	3.2760	1.6735	-0.5290
37 INS	0.0188	-0.5452	0.7878	-0.9320	4.1498	1.3896	-0.4622	0.1336	1.7274	-2.7512	4.9543
38 IRN	-0.9227	0.1150	-0.2664	-1.3313	-0.5763	1.0379	-0.0955	0.2432	0.2308	0.6066	1.6727
39 IRQ	-0.7043	0.0785	0.2222	-1.4720	-0.0372	1.0680	-0.3880	2.3427	0.1216	-0.2575	0.2876
40 IRE	0.6120	-0.5644	-0.2894	0.3414	-0.1414	-0.1481	-0.2359	0.4941	0.4099	0.3676	-1.7985
41 ISR	1.0905	-0.2206	-0.8494	-1.6918	-0.3700	0.5065	0.5606	-0.8910	-0.2644	-1.7892	-1.2156
42 ITA	0.2931	-0.0295	-0.7575	0.6663	-0.2669	0.4899	2.6447	-0.2037	0.3314	-0.3677	-0.0388
43 JAP	0.4827	0.8074	-1.0701	-0.4261	-0.6045	-1.8536	1.3565	-0.5006	0.0013	-2.3552	-0.1908
44 JOR	-0.8669	-0.1545	-0.2678	-1.7796	-0.2613	0.8964	-0.5086	-0.6996	-1.0415	0.9483	-1.6069
45 KON	0.0918	-0.1078	2.4554	0.0981	-0.4737	-1.5466	-0.2638	0.2907	1.0272	-1.4542	-0.6378
46 KOS	-0.4935	0.0668	-0.4058	-0.3824	0.4537	-1.5600	0.7649	-0.7456	-0.5363	-1.4511	-1.5046
47 LAO	-1.0505	-0.3358	-0.2814	-0.6654	-0.4932	-2.2731	-0.6476	-2.3385	-1.4758	1.3735	0.8558
48 LEB	-0.6422	-0.0493	-1.2747	-1.2996	-0.2951	0.9317	1.0598	-0.4474	-1.6875	-0.2289	-2.4992
49 LIB	-1.1843	0.2069	-0.1847	-0.1972	-0.0340	-0.4221	0.1055	4.1439	-0.5412	0.5772	0.5514
50 LBY	-0.8050	0.4099	0.2175	-0.8012	0.0058	1.0805	-0.3[illegible]	5.2407	-0.2860	-0.2868	-0.4289
51 MAL	-0.3608	-0.1801	-0.5923	-1.1594	-0.0320	-1.1781	-0.6684	2.0294	0.6512	-0.8846	0.2071
52 MEX	-0.5181	-0.1116	-0.9159	1.7220	-0.4134	0.5332	-0.2999	-1.2081	0.2557	0.8761	0.1031
53 MEP	-1.2007	-0.0238	0.1582	-0.4673	-0.8100	-2.6430	-0.1220	-0.5703	-0.4206	1.0348	1.7870
54 NTH	1.0068	-0.2422	-1.0130	0.0172	0.0737	-0.3827	2.5100	1.7878	0.0810	-0.0307	-0.5104
55 NEZ	2.3110	-0.6984	-0.7782	-1.5403	-0.0628	-0.8070	-2.5499	-0.0684	-0.2313	-1.2447	-0.6395
56 NIC	-0.6697	-0.3187	-0.5375	0.9404	-0.2396	0.3318	-0.7029	0.6647	-0.3042	-0.0453	-0.4480
57 NOR	1.6866	-0.6819	-0.6850	-0.2759	0.0283	-0.0125	-0.9985	0.2749	0.5187	2.9369	-0.6121
58 OUT	0.2053	-0.2569	1.6405	-0.4523	-0.4787	-0.3200	-1.1793	-1.1386	-0.0235	-0.1744	-0.7221
59 PAK	-1.3305	0.2932	-0.6556	-1.4744	0.1930	0.8964	0.8095	-1.1566	0.0767	0.8856	0.1457
60 PAN	-0.2489	-0.2482	-1.0014	1.0214	-0.1071	0.0838	-0.9113	-0.3825	-0.5756	0.1429	-1.0877
61 PAR	-0.6157	-0.3915	0.1109	1.3139	-0.3105	0.3536	-1.0915	-0.2615	-0.0103	-0.6386	0.1992
62 PER	-0.4606	-0.1499	-0.5755	1.3997	0.0363	0.1921	-0.9148	-0.1093	0.0351	-0.3947	0.5694
63 PHL	-0.2547	-0.1662	-0.8128	-0.2075	-0.4508	-0.5616	0.0862	-0.4033	-0.0524	-1.0902	0.0105
64 POL	0.6631	-0.4375	1.9453	0.7463	-0.2689	0.7222	1.2263	-0.7172	-0.0429	-0.3854	-0.2508

APPENDIX III (continued)

NATIONS	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
65 POR	-0.4861	-0.3909	0.8729	1.1916	0.0835	0.7574	1.5084	-0.2233	-0.9504	0.3396	0.1585
66 RUM	0.5127	-0.3863	2.2331	0.1013	-0.3645	0.3495	0.7507	-0.3599	-0.0303	-0.2446	-0.4525
67 SAU	-0.8566	-0.0205	0.7769	-1.2800	-0.4681	1.5318	-0.8716	1.4579	-0.0425	0.0057	0.7996
68 SPN	-0.0620	-0.4534	0.7161	0.9970	0.0085	0.5736	1.4568	-1.4608	-0.8489	0.3711	1.0436
69 SWD	2.4116	-0.5953	-0.4415	-0.5790	0.0260	-0.3009	-1.0777	0.0860	1.0964	2.9014	0.3206
70 SWT	1.7345	-0.6608	-0.6205	-0.2385	-0.1287	-0.2573	0.3628	0.1901	0.9307	1.3710	1.1585
71 SYR	-0.6371	-0.1320	0.1568	-1.4443	-0.2663	1.0220	-0.1054	-0.0060	-0.6370	-0.0707	-0.4592
72 TAI	-1.0385	0.0143	-0.0946	-0.1389	-0.5422	-2.8210	0.5327	-0.0876	-1.0190	0.1574	1.7960
73 TUR	-1.0343	0.1426	-1.0515	-1.2644	-0.6561	1.8088	0.6160	-1.1090	-0.0488	0.7898	0.0003
74 UNS	0.7536	-0.5303	-0.0692	-1.1511	0.5088	-0.4084	-1.2251	-0.0642	0.2972	-0.7888	1.7216
75 USR	0.3802	5.0584	1.8495	-0.0566	-0.9330	0.6671	-0.9422	-0.6880	0.5320	-0.8729	-0.6321
76 UNK	1.3198	0.6027	-1.1671	-0.1832	-0.1637	0.5709	1.7437	-0.2136	-0.0501	-0.1640	1.0137
77 USA	1.8771	6.1706	-0.6497	0.6999	1.4833	-0.3799	-0.1306	0.4353	-3.7676	0.8484	0.5506
78 URG	0.0293	-0.3973	-0.4690	0.5508	-0.2776	0.5684	-0.9485	-0.3346	0.2576	-2.2252	-0.7109
79 VEN	0.1147	-0.0375	-0.6394	1.5772	0.0884	0.1266	-0.7439	1.5762	0.6294	-0.7152	-0.1576
80 VTN	-0.7658	0.0046	0.9836	-0.7139	1.0854	-2.0889	-0.1900	-0.5274	-0.0586	0.4933	-2.7972
81 VTS	-0.6602	-0.4734	0.0715	-0.2397	7.6221	-0.5234	0.1689	-0.7115	-0.5894	0.8228	-2.2048
82 YEM	-1.0549	-0.1032	0.1503	-1.9239	0.0576	0.9245	-0.6991	0.7999	0.0727	0.0919	-0.8498
83 YUG	0.1525	-0.2904	1.1927	0.1063	-0.4593	0.4537	1.0061	-0.8048	-0.1729	-0.1310	1.0693

APPENDIX IV

FACTOR SCORES FOR U.S.A. BEHAVIOR SPACE

DIMENSIONS FOR 1960

EXPLANATIONS:

Number of Dyads : 82

Number of Variables : 28

Factor Technique Employed : Image Factor Analysis

Rotation Criterion : Varimax

Factor Names :

I : Alliance
II : Deterrence
III : Economic Penetration
IV : Transaction
V : Indirect Aggression
VI : Diplomacy
VII : Patronage

APPENDIX IV (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
01 AFG	-0.9309	-0.0931	0.4711	0.1886	-0.4847	-0.4309	-0.2120
02 ALB	-0.6965	-0.1420	0.5608	0.2627	-0.5328	-0.5774	1.2566
03 ARG	1.3244	0.1005	-0.6074	0.4801	-0.5298	-0.7432	-1.6697
04 AUL	-0.3450	-0.2005	0.1318	-0.2186	-0.0370	1.3010	-0.7345
05 AUS	-0.8354	0.0919	0.7768	0.2038	0.4376	2.3667	1.1731
06 BEL	0.9798	-0.1689	0.8900	0.1693	0.0330	1.5212	0.3218
07 BOL	-0.5160	-0.0719	-0.3334	0.0988	-0.4887	-0.6957	-1.9489
08 BRA	1.9650	-0.0030	-1.0986	-0.0921	-0.1898	-0.4330	-0.6635
09 BUL	-0.7607	-0.0784	0.6373	0.2834	-0.1482	0.2997	1.1710
10 BUR	-0.2292	-0.1909	0.5558	0.4875	-0.3200	0.5126	1.0362
11 CAM	0.2045	-0.3862	0.4402	0.2234	0.1304	-2.7386	-0.6719
12 CAN	-0.6485	-0.0016	-0.1323	-8.9632	-0.3666	-0.6118	0.0669
13 CZY	-0.6680	-0.2327	0.1098	0.2693	-0.2068	1.0111	1.5461
14 CHL	0.9312	-0.0949	-0.6712	0.3306	-0.3610	-0.5662	-1.3445
15 CHN	0.5247	0.2203	0.5702	0.1752	3.4628	-2.8880	1.0928
16 CMT	-0.0269	-0.0318	-3.2522	0.1817	-0.4842	-1.3647	-2.3529
17 COL	-0.4038	-0.1415	-0.0390	-0.3035	-0.2855	-0.0484	-1.6136
18 COS	-0.7437	-0.0996	0.2696	0.0144	-0.3814	0.0440	-1.1926
19 CUB	-1.3447	3.0199	0.6678	-0.1593	6.7949	3.3650	-1.3970
20 CZE	-0.8018	-0.0208	0.7168	0.3167	0.2283	1.1286	1.1774
21 DEN	0.5500	-0.2057	0.8037	0.2935	-0.0120	1.3017	0.1872
22 DOM	-0.4177	0.4555	0.5481	-0.1481	0.3603	-1.8639	-1.8950
23 ECU	-0.8401	-0.0710	0.2429	-0.1557	-0.4344	-0.3233	-1.7131
24 EGY	-0.5217	-0.4524	-4.1818	0.0343	1.0260	0.2915	1.5621
25 ELS	-0.6398	-0.1055	0.2522	0.2655	-0.3693	0.0131	-1.2587
26 ETH	-0.5443	-0.1617	0.5501	0.1866	-0.5241	-0.5391	0.4543
27 FIN	-0.5815	-0.2063	0.6450	0.3110	-0.1717	1.4363	1.5343
28 FRN	3.6819	-0.4151	0.0810	0.2722	0.4036	0.7319	0.8623
29 GME	-0.4037	-0.0382	0.6151	0.3724	0.4095	-0.2363	1.4333
30 GMW	2.9869	-0.3764	0.4426	-0.4199	0.3452	0.7048	0.8943
31 GRC	0.1595	-0.2641	0.0414	0.0271	-0.0151	0.8770	-0.6999
32 GUA	-0.6520	-0.0597	-0.2826	0.0046	-0.4392	-0.3024	-2.0258
33 HAI	-0.5609	-0.0263	-0.2437	0.0043	-0.3686	-0.0689	-1.5547
34 HON	-0.7533	-0.0872	0.2627	-0.2317	-0.4399	-0.4306	-1.8232
35 HUN	-0.3713	0.5338	0.5996	0.5215	-1.1032	0.3021	2.1352
36 IND	0.1881	-0.6687	-6.2033	0.3430	0.4790	0.8291	1.7208
37 INS	0.2433	0.0628	-1.8680	0.3929	1.9197	0.5055	1.9064
38 IRN	-0.6906	-0.1585	0.4811	0.1345	-0.3115	0.4865	-0.7416
39 IRQ	-0.7324	-0.0960	0.5040	0.2686	-0.4022	-0.0522	0.0198
40 IRE	-0.7027	-0.3181	0.1200	0.2310	-0.2407	0.8369	1.4336
41 ISR	-0.0540	-0.2571	0.4986	0.4579	-0.1505	0.8098	-0.0414

APPENDIX IV (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
42 ITA	0.8147	-0.3688	-0.2805	-0.4587	0.1890	1.3252	-0.1718
43 JAP	1.2468	-0.3863	0.0779	-0.7195	0.2421	1.0565	-0.1119
44 JOR	-0.5848	-0.1406	-2.4289	0.2120	-0.4568	-1.3472	-1.3335
45 KON	-0.0601	-0.6432	0.3273	0.1331	2.2338	-3.0981	1.2925
46 KOS	0.8771	0.2563	0.0087	0.8567	-0.2461	-0.2032	-0.8364
47 LAO	-0.0606	-0.2307	0.3250	0.2562	-0.1402	-2.3609	-0.7771
48 LEB	-0.6763	-0.1382	0.5530	0.2760	-0.3769	0.2955	-0.4998
49 LIB	-0.5222	-0.1718	0.5586	0.1794	-0.5027	-0.4368	0.5366
50 LBY	-0.3859	-0.1572	0.5924	0.1955	-0.5018	-0.5088	0.5719
51 MAL	-0.2100	-0.0962	0.6157	0.2768	-0.4231	0.1469	1.4621
52 MEX	-0.7228	-0.2000	0.2399	-0.9282	-0.0582	1.0679	-1.3390
53 MEP	-0.3823	-0.2280	0.5129	0.2388	-0.3269	-1.3706	1.3409
54 MTH	0.5432	-0.2935	0.5728	-0.2938	0.1331	1.4936	0.0331
55 MEZ	-0.0059	-0.2018	0.6834	0.1090	-0.2066	0.7752	0.7820
56 NIC	-0.7179	-0.0680	-0.0198	-0.0150	-0.4471	-0.3344	-1.7811
57 NOR	0.5029	-0.2372	0.3025	0.3095	0.0104	1.2148	0.2477
58 OUT	-0.2023	-0.3801	0.5061	0.1322	-0.0452	-3.2003	1.2270
59 PAK	0.2094	-0.2663	-0.6952	0.4515	-0.1080	0.3389	-1.0239
60 PAN	-0.4418	-0.0537	0.0420	0.1069	-0.4181	-0.0042	-1.0801
61 PAR	-0.7314	-0.0578	0.2798	-0.0141	-0.4063	-0.0662	-1.3988
62 PER	-0.5943	-0.0172	-1.6680	-0.1880	-0.3883	-0.2737	-1.5793
63 PHL	1.7490	-0.1427	0.4595	0.2599	-0.2485	-0.3266	-0.3885
64 POL	-0.3688	-0.2326	-0.3191	0.1379	-0.2058	0.5562	1.7022
65 POR	1.2032	-0.1443	0.7974	0.4325	-0.2141	0.3341	0.4506
66 RUM	-1.2103	0.5701	0.0221	0.3000	-1.4510	-0.7089	1.1965
67 SAU	-0.3631	-0.0054	0.4834	0.2431	-0.6891	-1.3144	-0.7841
68 SPN	-0.3930	-0.2284	0.2330	0.1705	-0.1818	0.9002	-1.0720
69 SWD	-0.5041	-0.2491	0.6303	0.0760	-0.0635	1.7486	1.5189
70 SWT	-0.7504	-0.2695	0.1596	-0.1549	-0.0627	1.6546	1.5141
71 SYR	-0.8853	-0.2192	-0.4679	0.1007	-0.3562	-0.0679	1.1551
72 TAI	1.1814	-0.2921	0.4048	0.7427	-0.0052	0.9257	-0.1697
73 TUR	1.3167	-0.0878	-0.3888	0.4080	-0.1785	-0.2301	-1.2257
74 UNS	-0.4611	-0.2229	0.6490	0.1481	-0.2321	0.0591	0.9061
75 USR	0.7406	8.4285	-0.5871	0.0973	-2.5343	-1.0629	1.1735
76 UNK	5.8826	-0.0866	1.0355	-0.3423	0.0314	-0.8086	1.4396
77 URG	0.1487	-0.1209	0.1103	0.2513	-0.3481	-0.0777	-1.2039
78 VEN	-0.7003	-0.2143	0.2717	-0.8526	-0.1196	0.5365	-1.1107
79 VTN	0.1062	-0.4909	0.2655	0.0092	3.8921	-3.4505	0.7563
80 VTS	-0.0769	-0.2522	0.0328	0.5757	-0.2917	0.0191	-0.9350
81 YEM	-0.6956	-0.1413	0.5381	0.2618	-0.5785	-0.8540	1.2853
82 YUG	-0.1375	-0.1769	-0.0082	0.3446	-0.1505	0.9962	1.7992

APPENDIX V

FACTOR SCORES FOR U.S.A. BEHAVIOR SPACE DIMENSIONS FOR 1965

EXPLANATIONS:

Number of dyads : 82

Number of Variables : 28

Factor Technique Employed : Image Factor Analysis

Rotation Criterion : Varimax

Factor Names :

I : Economic Penetration
II : Deterrence
III : Transaction
IV : Indirect Aggression
V : Patronage
VI : Diplomacy
VII : Alliance

APPENDIX V (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
01 AFG	0.4288	-0.2072	-0.0871	0.3811	-0.7601	0.9446	-1.0829
02 ALB	-0.3731	-0.1801	-0.1994	0.1227	-0.8111	0.8948	-1.0896
03 ARG	-0.3602	0.3160	0.0077	0.3691	1.9381	-0.9132	0.3698
04 AUL	-0.7340	-0.3162	-0.1693	-0.0406	-1.4170	-1.3890	1.1521
05 AUS	-0.6172	-0.3560	-0.4367	0.3774	-0.5395	-1.5441	-1.3386
06 BEL	0.5782	-0.6574	0.2311	0.2084	-0.4815	-1.1205	0.2664
07 BOL	-0.6308	-0.1379	-0 1469	0.2936	1.9440	0.1750	0.1532
08 BRA	3.6087	-0.3520	-0.3532	-0.0375	1.5121	-1.6899	-0.1900
09 BUL	-0.4166	-0.2535	-0.3913	0.1171	-0.6969	0.1185	-1.2661
10 BUR	-0.4367	-0.0787	0.3529	0.3789	-0.8218	0.3568	-0.5608
11 CAM	0.0622	-0.3754	-0.1551	-2.1883	-0.6084	0.7955	-0.4460
12 CAN	-0.0397	0.1524	8.6480	0.1609	0.0104	1.4750	-1.1405
13 CEY	-0.4225	-0.1788	-0.3924	0.0312	-0.8780	0.0607	-0.7993
14 CHL	-0.4611	-0.1661	-0.2606	0.2167	0.3635	-0.5384	0.5617
15 CHN	-0.5975	0.0006	-0.0468	-5.5430	0.0437	-0.5188	-0.0024
16 CHT	0.2873	0.1790	0.2949	0.4022	-1.0932	2.1072	1.7806
17 COL	-0.3628	-0.0730	-0.0332	0.2177	2.8713	-0.2259	-0.0033
18 COS	-0.6233	-0.1408	-0.1439	0.2939	1.9800	0.1468	0.1409
19 CUB	-0.6271	0.9625	0.3538	-0.5230	0.2617	0.3162	-1.2154
20 CZE	-0.4356	-0.2000	-0.3919	0.0589	-0.6203	-0.5285	-1.4125
21 DEN	-0.0931	-0.4667	-0.1411	0.2166	-0.5852	-1.5550	-0.5621
22 DOM	1.2352	0.2639	-0.3441	0.1398	1.5929	1.0107	-0.1223
23 ECU	-0.6010	-0.1766	-0.1908	0.2918	2.1307	-0.2111	0.0435
24 EGY	0.7161	0.8623	-0.5924	0.4294	-0.6675	-0.2731	-1.5022
25 ELS	-0.6056	-0.1254	-0.1263	0.2937	1.9339	0.3338	0.1854
26 ETH	0.2289	-0.3143	-0.0302	0.3989	-0.4749	1.3951	0.1782
27 FIN	-0.5792	-0.3257	-0.4853	0.3807	-0.5597	-1.2615	-1.2604
28 FRN	-1.5051	-0.0082	0.5048	0.1080	-0.9136	-2.3040	2.0800
29 GME	0.4100	0.3924	-0.1808	0.0201	-0.8189	0.8623	-1.6508
30 GMW	0.8314	0.3618	1.0350	-0.2002	-1.8025	-2.2382	1.7139
31 GRC	-0.9150	-0.3652	0.0349	0.2310	-0.1155	-0.3538	0.8349
32 GUA	-0.6758	-0.1656	-0.0895	0.2866	2.1342	-0.0242	0.1534
33 HAI	-0.5855	0.0009	-0.1176	-0.0485	0.1874	-0.0808	-1.1169
34 HON	-0.3761	-0.1398	0.0160	0.2967	2.2520	0.8180	0.3672
35 HUN	-0.4175	0.2276	-0.4040	0.2888	-0.6827	-0.1061	-1.4752
36 IND	6.1867	-0.4548	-0.6976	0.0341	0.6951	0.2714	-0.8434
37 INS	-0.1986	1.6966	-0.5182	0.4587	-0.5809	0.8114	0.1813
38 IRN	0.3096	-0.4007	-0.1735	0.3222	-0.4131	0.3999	0.1014
39 IRQ	-0.1355	-0.2048	-0.2500	0.1028	-0.4273	1.5655	0.0718
40 IRE	-0.4418	-0.2894	-0.3107	0.1083	-0.7164	-0.2029	-1.3311
41 ISR	-0.1198	-0.3939	-0.4925	0.2393	-0.5555	-0.2652	0.4836

APPENDIX V (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
42 ITA	-0.1247	-0.3534	0.4559	0.1721	-0.6094	-1.1904	0.7776
43 JAP	2.4922	0.5874	0.9104	-0.0883	-0.6458	-3.0752	0.0324
44 JOR	-0.2250	0.1300	0.1368	0.5930	-0.2719	2.1844	0.6094
45 KON	-0.3007	-0.2911	-0.1664	-1.1224	-0.3990	0.7512	-1.0992
46 KOS	0.9880	-0.0996	-0.5912	-0.0887	-1.8353	0.5765	2.6853
47 LAO	0.6592	-0.4305	-0.2370	-0.5056	-0.8613	1.9343	1.8065
48 LEB	-0.2852	-0.3024	-0.2811	0.4341	-0.2303	0.2939	0.2692
49 LIB	-0.4965	-0.2309	-0.1157	0.3436	-0.6900	0.8783	-0.1703
50 LBY	-0.6168	-0.2286	-0.0651	0.4129	-0.4505	1.3920	0.4783
51 MAL	0.1375	0.0463	0.2305	0.5728	-0.5183	1.4079	0.1320
52 MEX	1.9927	0.1205	1.0848	0.4453	2.7122	-0.4652	-1.6079
53 MEP	-0.3959	-0.3022	-0.1315	0.0814	-0.9942	1.2210	-0.7953
54 MTH	-1.1266	-0.4533	0.3145	0.1393	-0.2306	-1.3463	0.9939
55 NEZ	0.0889	-0.2442	-0.0823	0.2638	-0.5603	-0.5988	-0.6066
56 NIC	-0.5877	-0.1230	-0.1292	0.2956	1.9813	0.3555	0.1828
57 NOR	-0.8615	-0.4021	-0.2629	0.2187	-0.3420	-1.1382	0.5766
58 OUT	-0.3701	-0.1713	-0.1801	0.1209	-0.8723	1.0143	-1.0570
59 PAK	1.1106	-0.5139	-0.3376	-1.0160	-0.3702	-0.0190	0.8030
60 PAN	-0.5083	-0.1378	-0.2885	0.2366	1.8098	-0.1250	0.1822
61 PAR	-0.6353	-0.1377	-0.1885	0.3004	2.0178	0.1049	0.1306
62 PER	-0.5657	-0.1242	-0.0991	0.1714	1.7012	-0.4108	0.5903
63 PHL	-0.1019	0.0814	0.6227	0.3624	-0.5909	1.1502	1.8593
64 POL	0.5223	0.0257	-0.4846	0.4030	-0.3501	-1.3661	-1.8135
65 POR	-0.8690	-0.3574	-0.1520	0.2912	-0.2016	-0.4757	0.5483
66 RUM	0.5659	-0.1028	-0.4453	0.4256	-0.3756	-0.8629	-1.8848
67 SAU	-0.2442	-0.2373	-0.1253	0.4352	-0.2896	1.6290	0.4225
68 SPN	-0.5962	-0.4454	-0.2538	0.3215	-0.4436	-0.7268	0.7666
69 SWD	-0.6108	-0.2472	-0.2763	0.3062	-0.6590	-1.4580	-1.3107
70 SWT	-0.6641	-0.3774	-0.1532	0.3524	-0.6199	-1.6615	-1.3751
71 SYR	-0.4799	-0.1936	-0.1577	0.3916	-0.7066	0.4663	-0.8837
72 TAI	0.4790	0.0553	0.0806	0.4016	-0.7881	1.7608	2.1657
73 TUR	0.2529	-0.4530	-0.0455	0.2505	0.4341	0.8035	0.8617
74 UNS	-0.2931	-0.0519	-0.1979	0.2072	-0.7642	0.0015	-0.0737
75 USR	-0.2859	8.7539	-0.3165	0.4044	-0.2122	-0.0976	0.2342
76 UNK	-0.1936	-0.1012	1.1199	-0.3729	-1.1458	-2.3759	3.3241
77 URG	-0.6026	-0.0833	-0.3220	0.2022	1.5740	-0.3729	0.5625
78 VEN	-0.5376	-0.1438	0.1763	0.2215	1.6631	-0.5254	0.1982
79 VTN	-0.0598	0.0784	-0.0978	-6.6827	0.6988	0.2032	-0.2846
80 YTS	1.8613	0.1819	-0.7339	-0.0039	0.3840	1.9344	2.7189
81 YEM	-0.4320	-0.2387	-0.1893	-0.1419	-0.8046	0.8979	-0.7151
82 YUG	0.6334	-0.2094	-0.5362	0.2473	-0.9528	-0.8141	-0.6394

APPENDIX VI

FACTOR SCORES FOR U.S.S.R. BEHAVIOR SPACE

DIMENSIONS FOR 1960

EXPLANATION:

Number of Dyads : 82

Number of Variables : 28

Factor Technique Employed : Image Factor Analysis

Rotation Criterion : Varimax

Factor Names :

I : Deterrence
II : Alliance
III : Proselytizing
IV : Diplomacy
V : Economic Penetration
VI : Patronage
VII : Indirect Aggression

APPENDIX VI (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
01 AFG	-0.4308	0.2590	2.1925	-0.3097	-0.1744	1.0566	0.1520
02 ALB	-0.1821	-1.0467	0.6660	1.1633	-1.2531	0.7773	0.5355
03 ARG	-0.4795	0.7608	-0.4501	-1.4022	0.1100	0.0613	0.9303
04 AUL	-0.3565	0.3011	-0.7603	-0.2452	-0.2017	-0.3156	0.3230
05 AUS	-0.6013	0.4988	-0.1055	-1.8823	0.2294	-0.3881	0.6468
06 BEL	0.2096	-0.0603	-0.3604	-0.6314	-0.2205	-0.7235	-2.2435
07 BOL	-0.3832	0.3350	-0.2050	-0.1197	0.0363	-0.8106	0.7671
08 BRA	-0.1926	0.3721	-0.7831	0.4123	-0.0848	-0.0784	0.5667
09 BUL	-0.1113	-2.2408	-0.6120	0.2235	-0.5151	0.4597	0.6211
10 BUR	-0.3369	0.3970	1.7393	-0.0702	0.4886	-1.0764	-0.3123
11 CAM	-0.0403	-0.1809	4.1236	1.5895	-0.2152	-1.2599	-1.3772
12 CAN	-0.4296	1.1303	-0.7794	-2.1558	0.5156	0.1390	1.1732
13 CEY	-0.2249	0.1791	0.2385	0.8283	0.2468	-0.6959	-0.0851
14 CHL	-0.1956	0.2772	0.1681	0.8110	-0.3878	-0.3499	-0.0371
15 CHN	-0.4436	-1.0438	-0.6981	0.6793	9.2489	0.2563	-1.0418
16 CHT	0.1961	0.0575	0.0702	1.5843	0.3053	-0.8302	-1.2805
17 COL	-0.2647	0.3220	-0.4769	0.6106	0.0192	-0.5177	0.2638
18 COS	-0.2764	0.3336	-0.4662	0.6973	0.0119	-0.4683	0.4224
19 CUB	-0.2866	0.4109	2.4416	0.8205	0.1685	2.0435	-2.1770
20 CZE	-0.1661	-1.3168	-1.4092	-1.4383	0.7437	3.9126	1.1673
21 DEN	-0.4549	0.4691	-0.7411	-2.1725	-0.3620	-0.4862	0.1120
22 DOM	-0.0249	0.1256	-0.4320	0.4733	-0.0869	-0.5760	-0.9903
23 ECU	-0.2863	0.2537	-0.5393	0.5428	-0.0733	-0.4987	0.4269
24 EGY	-0.5289	0.5416	1.3513	-0.6208	0.0020	2.3379	-0.6688
25 ELS	-0.2508	0.2582	-0.4757	0.8067	-0.0242	-0.5714	0.4068
26 ETH	-0.3524	0.6590	1.2380	-0.6369	0.0706	-0.4871	0.7812
27 FIN	-0.4040	-1.9100	0.4220	-2.5690	-0.3462	-1.8637	0.2923
28 FRN	2.2761	0.5533	0.2885	-2.2008	-0.0129	1.4606	-4.5585
29 GME	-0.0487	-6.7208	0.7040	0.0812	-0.7621	-2.0015	-0.2365
30 GMW	2.3137	-0.3559	-0.7204	-0.6260	-0.7001	0.0325	-2.7744
31 GRC	0.0072	0.1078	-0.1398	0.0288	-0.2377	-0.5045	0.1350
32 GUA	-0.2675	0.2700	-0.5215	0.5922	-0.0537	-0.4945	0.4423
33 HAI	-0.2630	0.1678	-0.5599	0.6168	-0.1176	-0.5936	0.3941
34 HON	-0.2425	0.2333	-0.4281	0.9376	0.0186	-0.5852	0.4458
35 HUN	-0.2335	-2.2169	-0.8781	0.2721	-0.5701	2.4648	0.9300
36 IND	-0.3569	0.3533	4.2800	-2.4817	1.0918	-1.2270	0.6368
37 INS	-0.2855	0.4223	2.8358	-1.2089	0.5614	-0.1512	1.1534
38 IRN	0.0635	0.0416	0.4508	0.4702	-0.9013	0.3225	0.2877
39 IRQ	-0.0511	0.1142	2.2998	0.7893	-0.7176	1.1992	0.1586
40 IRE	-0.2618	0.2228	-0.5428	0.6336	-0.0883	-0.5648	0.3660
41 ISR	0.3985	0.1399	-0.3248	0.3196	-0.0475	-0.5122	-1.9740

APPENDIX VI (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
42 ITA	-0.3447	0.3543	-0.3900	-1.7574	0.2770	-0.1466	0.0040
43 JAP	1.0679	0.6492	-0.7127	-0.5310	-0.3170	1.1584	-0.2995
44 JOR	-0.2371	0.2285	-0.3990	1.0074	0.0432	-0.5944	0.4557
45 KON	-0.1835	0.5161	-0.2758	0.7887	0.4289	2.6656	0.9183
46 KOS	0.4328	0.0974	0.0822	1.7239	-0.2711	-0.7735	-1.3304
47 LAO	0.0331	0.3058	-0.2676	1.2131	0.1885	-0.3149	-0.9207
48 LEB	-0.3132	0.3189	-0.4836	0.3895	0.0111	-0.4211	0.3781
49 LIB	-0.3604	0.0762	-0.2144	0.2556	0.0705	-0.7233	0.9775
50 LEY	-0.2755	0.8834	-0.6575	0.3193	0.9443	0.1197	1.1437
51 MAL	-0.2728	0.7097	-0.7183	0.8240	0.1361	0.4885	0.3330
52 MEX	-0.5000	0.5336	-0.4373	-1.2878	-0.0490	-0.5319	0.4567
53 NEP	-0.3992	0.8604	0.6433	-0.1837	0.2064	-0.0131	0.6285
54 NTH	-0.3560	0.4789	-1.1810	-1.5561	-0.5700	-0.0983	-0.2603
55 NEZ	-0.3738	0.7540	-0.9060	-0.2557	-0.1007	0.4616	0.2572
56 NIC	-0.2657	0.2932	-0.5070	0.6191	-0.0351	-0.4841	0.4366
57 NOR	-0.4213	1.0037	-0.5582	-3.5792	0.5453	-0.0142	1.9899
58 OUT	-0.4700	1.2039	-0.1348	0.9476	-0.1613	4.9275	-0.1158
59 PAK	0.1229	-0.0678	1.3575	0.8442	-0.8520	0.0202	0.0643
60 PAN	-0.2625	0.2269	-0.5458	0.6234	-0.0915	-0.5619	0.3626
61 PAR	-0.2504	0.2672	-0.4680	0.8119	-0.0107	-0.5560	0.3919
62 PER	-0.2790	0.2674	-0.6351	0.3609	-0.1648	-0.5175	0.2672
63 PHL	0.0731	0.1768	-0.4981	0.9817	-0.0671	-0.6292	0.7488
64 POL	-0.2211	-3.0855	-0.1669	-0.7604	-1.3524	1.2664	0.4894
65 POR	-0.1371	0.2370	-0.7861	-0.1699	-0.3394	-0.4704	-0.6462
66 RUM	-0.2743	-2.0685	-0.2671	-0.2749	-0.7604	0.6343	0.7484
67 SAU	-0.2669	0.3126	-0.3506	0.8719	0.1449	-0.5026	0.4346
68 SPN	0.0818	0.1502	-0.9062	-0.3413	-0.5059	-0.4199	-0.2961
69 SWD	-0.4034	0.1238	-1.1095	-1.3533	-0.6033	-0.3371	-0.1374
70 SWT	-0.2821	-0.1001	-0.9631	-1.4991	-0.8998	-0.5361	-0.2291
71 SYR	-0.1203	-0.5489	0.0228	1.5075	-0.9515	-0.0751	0.6052
72 TAI	0.0792	0.5616	-0.6753	0.4262	-0.0609	0.3810	0.0164
73 TUR	0.0342	0.6454	-0.2944	-0.4644	-0.0121	0.2241	-1.0641
74 UNS	-0.1407	0.3074	-0.6035	0.2673	-0.1547	-0.4685	-0.5876
75 UNK	2.3861	-0.2406	0.0876	-1.3176	-0.5106	-0.1520	-3.9392
76 USA	7.7777	0.1107	0.2858	0.5964	0.7150	-0.3021	4.4417
77 URG	-0.3051	0.3856	-0.5605	0.2668	-0.0339	-0.4114	0.2276
78 VEN	-0.2708	0.3174	-0.5132	0.5150	-0.0154	-0.5121	0.2400
79 VTN	-0.0396	0.4876	1.7106	1.3673	0.8761	0.9137	-0.3470
80 VTS	0.5995	-0.1058	0.0875	1.3806	0.1496	-0.8789	-2.7603
81 YEM	-0.3891	-0.4900	1.3271	1.6567	-0.8630	-0.4964	0.5809
82 YUG	-0.3226	-0.5924	-0.5182	-0.4470	-1.2409	0.8199	0.5542

APPENDIX VII

FACTOR SCORES FOR U.S.S.R. BEHAVIOR SPACE DIMENSIONS FOR 1965

EXPLANATIONS :

Number of Dyads : 82

Number of Variables : 28

Factor Technique Employed : Image Factor Analysis

Rotation Criterion : Varimax

Factor Names :

I : Alliance
II : Deterrence
III : Diplomacy
IV : Proselytizing
V : Indirect Aggression
VI : Economic Penetration
VII : Patronage

APPENDIX VII (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
01 AFG	0.0986	-0.0551	1.8710	-2.1436	-0.6899	0.5020	0.8156
02 ALB	0.0028	-0.0579	0.3525	0.1527	-0.4889	-0.5094	-0.1796
03 ARG	0.5305	-0.2191	-1.3819	0.8819	-0.5728	-0.4516	0.6281
04 AUL	0.5325	-0.0480	-0.9157	0.5450	-0.6873	0.2758	-0.4986
05 AUS	0.5292	-0.1154	-1.4044	0.1674	-0.6974	0.6266	-0.1832
06 BEL	0.4656	-0.2255	-1.7750	0.5779	-0.6413	-0.5250	0.0350
07 BOL	0.2329	-0.1694	0.6459	0.1008	0.5926	-0.6829	-0.3719
08 BRA	0.2032	-0.2269	-0.7462	0.8331	-0.1526	-0.3641	-0.4365
09 BUL	-2.8422	-0.1740	-0.8912	3.6438	0.7100	3.1467	0.8537
10 BUR	0.6019	-0.1244	0.9344	-0.8955	-0.6346	-0.1036	0.0401
11 CAM	0.3130	0.0529	1.2433	-0.4024	-0.8032	0.4321	0.0483
12 CAN	0.4194	-0.2126	-1.2408	0.4583	-0.4882	0.2571	-0.3887
13 CEY	0.5559	-0.0732	0.7651	-0.3486	-0.7108	-0.0354	-0.4550
14 CHL	0.6837	-0.1156	0.1092	-0.8104	-0.9976	-0.4432	0.0684
15 CHN	-0.0478	0.2533	0.3477	-1.0791	0.4959	2.8291	-1.2574
16 CKT	0.1068	-0.1053	1.2832	1.0318	1.1991	-0.0824	-0.4460
17 COL	0.3942	-0.1270	0.3209	0.2182	-0.3671	-0.5405	-0.4201
18 COS	0.3131	-0.1063	0.5384	0.3902	-0.3103	-0.5151	-0.5091
19 CUB	-0.6690	-0.0663	0.9835	-0.0998	-0.3827	2.6395	-1.1166
20 CZE	-3.5323	-0.2589	-1.0124	-0.3307	-0.0154	-0.1565	-1.3645
21 DEN	0.5585	-0.3694	-1.6821	-0.1956	-0.3740	-0.8184	0.8120
22 DOM	0.2835	-0.2629	0.3603	0.2553	0.5968	-0.6333	-0.3714
23 ECU	0.3289	-0.1000	0.3460	0.4441	-0.3181	-0.5105	-0.4795
24 EGY	-0.3106	-0.2025	-0.0922	1.2122	-0.1034	1.7867	0.9558
25 ELS	0.2363	-0.1145	0.7210	0.4612	-0.1587	-0.5797	-0.5603
26 ETH	-0.2528	-0.0209	1.0063	-0.2073	-0.5547	-0.7106	0.1449
27 FIN	-0.6551	-0.1131	-1.6102	0.7206	-0.7706	1.0737	-0.7476
28 FRN	0.9251	-1.1158	-1.9416	-5.8436	3.5051	0.6025	-0.6447
29 GME	-5.3617	0.0057	1.3056	-1.5692	0.0274	-2.2256	-0.5295
30 GMW	-0.0426	0.8699	-0.9909	-1.4233	5.1774	-0.1577	-1.2819
31 GRC	0.5462	-0.1165	-0.7498	0.2700	-0.7157	-0.4426	0.9340
32 GUA	0.3332	-0.1270	0.3166	0.4450	-0.3166	-0.5131	-0.4689
33 HAI	0.2403	-0.1188	0.6717	0.4751	-0.1615	-0.5756	-0.5549
34 HON	0.2220	-0.0999	0.8750	0.4243	-0.1553	-0.5786	-0.5907
35 HUN	-3.7259	-0.1090	-1.6674	0.4126	-0.8513	-2.1331	3.1070
36 IND	0.4486	0.2134	-0.4349	-1.5184	-1.8129	1.2606	1.6753
37 INS	-0.0432	-0.2131	0.4657	-1.7206	0.2211	-0.0614	1.7837
38 IRN	0.0826	-0.1915	0.2999	0.3758	-0.0647	1.5636	0.5693
39 IRQ	0.3103	0.0643	0.7446	0.1675	-0.8681	0.0300	-0.3191
40 IRE	0.3679	-0.1628	-0.0529	0.5294	-0.3213	-0.5252	-0.3873
41 ISR	0.4073	-0.5474	-0.9012	-0.1291	2.0982	-0.8317	0.2032

APPENDIX VII (continued)

OBJECT NATIONS	I	II	III	IV	V	VI	VII
42 ITA	0.2361	-0.1657	-2.8415	0.6704	-0.6518	-0.6320	-0.1460
43 JAP	1.1791	0.8968	-1.3876	-0.3373	-1.5821	3.2504	-0.6398
44 JOR	-0.0003	-0.0564	1.0370	0.1644	-0.4088	-0.6477	-0.5307
45 KON	-0.1676	-0.3765	1.0132	-1.3637	0.2922	0.2858	1.6663
46 KOS	-0.0011	-0.2155	0.8286	1.1781	3.6374	-0.2411	0.0408
47 LAO	0.2553	-0.1382	1.5223	-0.1757	0.7458	0.1913	-0.3614
48 LEB	0.1016	-0.1038	0.2605	0.2373	-0.5741	-0.6071	-0.3716
49 LIB	0.2095	-0.0871	1.0105	0.3914	-0.1520	-0.5784	-0.6167
50 LEY	0.4119	-0.0376	0.7157	0.1224	-0.6047	-0.3738	-0.5254
51 MAL	0.0778	-0.0919	0.8887	0.6616	0.4095	-0.2163	-0.6199
52 MEX	0.5843	-0.1830	-0.8401	0.4350	-0.6122	-0.3589	0.1395
53 NEP	0.6799	-0.0121	1.3821	-0.8313	-0.9116	0.0591	-0.5004
54 NTH	0.4628	-0.1992	-1.6935	0.5471	-0.6435	-0.2608	-0.1529
55 NEZ	0.4931	-0.0027	-0.1785	0.6522	0.0060	0.0119	-0.2201
56 NIC	0.2894	-0.0892	0.7117	0.3518	-0.3082	-0.5098	-0.5543
57 NOR	0.5180	-0.0625	-1.3471	-0.5836	-0.7910	-0.4770	0.2381
58 OUT	-0.3[illegible]	-0.1512	1.4069	0.1874	0.3253	3.2101	-0.5056
59 PAK	1.0662	-0.1754	-0.0573	-0.2988	-0.6241	1.5852	1.0671
60 PAN	0.2500	-0.1285	0.5731	0.4968	-0.1621	-0.5804	-0.5313
61 PAR	0.2003	-0.0818	0.8617	0.3366	-0.1676	-0.6191	-0.5382
62 PER	0.3029	-0.1825	0.0064	0.6307	-0.1730	-0.5890	-0.4151
63 PHL	0.1720	-0.1936	0.5356	1.5964	1.8879	0.5818	-0.3773
64 POL	-3.3330	-0.3893	-0.7504	0.4285	0.4822	0.2211	-0.6309
65 POR	0.3377	-0.1219	-0.8451	0.7793	-0.2174	-0.6204	-0.2363
66 RUM	-0.7707	0.0424	0.2521	-1.1741	-0.9319	3.9806	-0.8862
67 SAU	0.2830	-0.0759	0.8526	0.3179	-0.3059	-0.5061	-0.5779
68 SPN	0.3289	-0.2819	-1.5031	1.0608	0.6474	-0.8747	0.7674
69 SWD	0.3801	-0.2344	-1.5128	-0.8729	-0.6343	-0.8923	0.3946
70 SWT	0.1243	-0.2343	-1.5633	0.7152	-0.7520	-0.8549	-0.0915
71 SYR	0.0133	0.0369	1.2450	0.0743	-0.7061	0.5342	-0.6260
72 TAI	0.2445	-0.1488	0.4657	0.8807	1.7241	-0.0901	-0.1305
73 TUR	0.6140	-0.4521	-0.4553	-2.2666	0.5208	-0.6844	1.6625
74 UNS	0.2966	-0.0518	-0.1365	0.6550	-0.1827	-0.5951	-0.4088
75 UNK	0.0163	1.1803	-1.6405	-2.4278	0.1600	-0.7741	-0.9723
76 USA	-0.0155	8.7652	-0.0514	0.3883	-0.0425	-0.2518	0.8396
77 URG	0.4154	-0.1064	0.0161	-0.0419	-0.6246	-0.5719	-0.1093
78 VEN	0.3155	-0.0065	-0.1018	0.6810	-0.2608	-0.6035	-0.3965
79 VTN	0.0831	-0.5527	1.9741	-0.6326	0.6028	-0.9275	7.0050
80 VTS	-0.0319	-0.2888	0.9269	0.9832	4.4741	-0.3574	0.2555
81 YEM	0.2480	0.0560	1.6387	-0.6609	-0.8491	-0.2150	-0.2703
82 YUG	-0.3746	-0.2923	-1.2363	-0.4740	-0.4781	0.2802	1.1344

APPENDIX VIII

RESULTS OF CANONICAL REGRESSION ANALYSIS FOR 1965:

CANONICAL LOADING MATRIX FOR U.S.A.

			CANONICAL VARIATES						
			1	2	3	4	5	6	7
	CANONICAL CORRELATION:		0.939	0.893	0.860	0.767	0.690	0.262**	0.153**
	Z SCORE FOR d.f. _30 :		19.494	15.482	11.942	8.000	4.481	-0.640	-0.792
	ATTRIBUTE DISTANCES	H-SQR							
1	Economic Development	0.763	-0.467	0.523	0.355	0.307	0.159	0.159	0.012
2	Power	0.853	-0.033	-0.571	0.685	0.188	0.096	0.014	0.107
3	Political Orientation*	0.832	-0.529	-0.097	-0.109	-0.633	-0.204	0.291	-0.054
4	Catholic Cultura	0.724	-0.539	-0.343	-0.418	0.160	0.315	-0.028	0.123
5	Instability	0.340	0.146	-0.278	0.028	-0.344	-0.135	-0.281	-0.157
6	Oriental Cultura*	0.756	0.270	-0.020	0.137	-0.243	0.135	0.763	0.065
7	Density	0.754	-0.078	0.302	0.374	-0.442	0.076	-0.373	0.417
8	Trader	0.304	0.100	0.096	-0.194	0.203	-0.206	0.272	0.299
9	Population	0.751	0.011	-0.163	0.192	-0.066	0.750	0.058	-0.340
10	Diversity	0.710	-0.153	0.197	0.104	0.065	-0.271	0.013	-0.748
	BEHAVIORAL FACTORS								
	Economic Penetration	1.000	-0.114	0.223	-0.205	0.564	-0.214	0.383	0.621
2	Deterrence	1.000	0.036	0.557	-0.568	-0.535	0.127	0.252	-0.025
3	Transaction	1.000	0.364	0.005	-0.136	-0.167	0.105	-0.680	0.590
4	Indirect Aggression*	1.000	-0.377	0.264	-0.181	0.123	-0.658	-0.500	-0.241
5	Patronage	1.000	0.389	0.614	0.649	-0.025	-0.212	0.067	0.019
6	Diplomacy*	1.000	0.667	-0.324	-0.297	0.045	-0.520	0.193	-0.229
7	Alliance	1.000	0.216	0.286	-0.250	0.587	0.497	-0.253	-0.392

i) Trace Correlation = .71

ii) The determinant for the correlation matrix of attribute distances is .75; that for the correlation matrix of behavior matrix is .99.

iii) Factors with one asterisk (*) indicate that the signs of the canonical loadings across all the seven canonical variates are reversed for the convenience of interpretation. Since the signs of factor loadings and scores, which determine the signs of the canonical results (coefficients and loadings), are only meaningful within a particular factor, the change of signs across canonical variates of a certain factor does not affect the overall structure.

iv) The double asterisks (**) indicate that these two canonical correlations are not significant even at p=.10 as a result of χ^2 test. All others are significant at $p \leq .01$ (χ^2 test).

APPENDIX VIII (continued)

RESULTS OF CANONICAL REGRESSION ANALYSIS FOR 1965:

CANONICAL LOADING MATRIX FOR U.S.S.R.

			CANONICAL VARIATES					
		1	2	3	4	5	6	7
CANONICAL CORRELATION:		0.970	0.924	0.828	0.628	0.555	0.215**	0.213**
Z SCORE FOR d.f. ≥30 :		19.789	13.875	8.585	4.246	2.104	-1.333	-1.145
ATTRIBUTE DISTANCES	H-SQR							
1 Economic Development	0.769	-0.520	0.535	-0.086	0.310	-0.040	0.233	-0.231
2 Power	0.971	-0.761	-0.472	0.024	-0.239	0.241	0.066	0.219
3 Political Orientation	0.996	0.137	-0.038	-0.951	0.176	0.081	-0.167	0.075
4 Catholic Culture	0.594	-0.094	0.130	0.155	0.498	-0.056	-0.152	0.519
5 Instability	0.697	-0.137	-0.194	-0.072	-0.099	-0.744	-0.261	0.056
6 Oriental Culture*	0.343	0.047	-0.266	0.031	-0.097	-0.144	0.130	0.471
7 Density	0.577	-0.247	0.429	-0.119	-0.289	-0.300	-0.130	0.356
8 Trader	0.445	0.037	-0.100	0.099	0.441	0.177	-0.034	0.445
9 Population	0.686	0.196	0.380	-0.049	-0.458	0.289	0.169	0.423
10 Diversity	0.911	-0.111	0.108	0.119	-0.109	0.366	-0.851	-0.054
BEHAVIORAL FACTORS								
1 Alliance *	1.000	0.081	-0.172	-0.172	-0.417	0.055	0.098	-0.089
2 Deterrence	1.000	0.841	0.493	0.493	-0.127	-0.161	-0.036	0.071
3 Diplomacy *	1.000	0.467	-0.827	-0.827	-0.037	0.055	-0.226	0.108
4 Proselytizing *	1.000	0.135	-0.186	-0.186	0.552	-0.232	0.763	0.067
5 Indirect Aggression	1.000	0.154	0.047	0.047	0.217	0.755	0.218	-0.556
6 Economic Penetration	1.000	0.036	0.045	0.045	0.591	-0.386	-0.523	-0.376
7 Patronage	1.000	0.001	0.105	0.105	0.317	0.420	-0.076	0.789

i) Trace Correlation = .68

ii) The determinant for the correlation matrix of attribute distances is .94; that for the correlation matrix of behavior matrix is also .94.

iii) Factors with one asterisk (*) indicate that the signs of the canonical loadings across all the seven canonical variates are reversed for the convenience of interpretation.

iv) The double asterisks (**) indicate that these canonical correlations are not significant even at p>.10 as a result of χ^2 test. All others are significant at $p \leq .01$ (χ^2 test).