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INTERNATIONAL BEHAVIOR ANALYSIS:

PRELIMINARY FINDINGS

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## SEMI-ANNUAL TECHNICAL REPORT

### INTERNATIONAL BEHAVIOR ANALYSIS: PRELIMINARY FINDINGS

This report covers the period February 1, 1976 through  
September 30, 1976

This report constitutes the final technical report of year two of the International Behavior Analysis (IBA) Project. The Project's basic goal is to provide a means for producing comparative, empirical generalizations about how, when, and why nations are likely to act, react, and interact.

Three distinct kinds of behavior are being analyzed. First, the identification of sources of national action is a central objective. Nations act externally in response to domestic and/or foreign stimuli. Three domestic (or internal) and two foreign (or external) sources of behavior have been identified. These components (or collections of source factors) include: (1) psychological; (2) political; (3) societal; (4) interstate; and (5) global clusters of determinants.

The second kind of behavior involves the processes of initiative decision-making. How does a nation initiate an external action? That is, after one or more conditions generate a decision occasion, how does the nation respond?

Similar in nature is responsive decision-making. These processes occur when the nation is acted upon. The action of the other nation -- the primary source -- provides the stimulus for a responsive action. The decision-making processes which characterize the formulation of a response constitute the scope of this form of behavior.

In order to explain and predict the sources and processes of international behavior, it is necessary to engage in comparative research. The IEA Project has consequently initiated the task of classifying nations and events.

Year two has been devoted to the task of operationalizing the framework which was constructed and refined during year one of research. The framework itself consists of source factors or components, initiative and responsive decision-making processes, and the nation and event classificatory schemes.

The classification of nations extends and refines prior efforts in the fields of comparative and international politics. The IEA nation attributes data set consists of 23 variables for the years from 1966 to 1970. Economic, capability, and governmental factors are all represented. Data were collected for the 56 states which fulfilled the criterion of having initiated 40 or more international events between 1966 and 1970.

Preliminary findings concerning the nation data set indicate that nations can be compared on the basis of four basic dimensions: economic; capability; governmental; and political stability. The 56 nations can be classified in five categories. The five groupings have been 1st World; West; East; Third World; Developing; and Poor. The findings have implications for social scientific and policy-relevant research. Further inquiry will be undertaken on the nation data set as well as the other elements of the framework.

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PART I

## A. INTRODUCTION

From the perspectives of knowledge and action, foreign policy analysis has been disappointing. As a scientific enterprise, foreign policy research has failed to produce reliable generalizations or satisfactory theories. Given the prevailing practice of testing ad hoc hypotheses, it is hardly surprising that cumulative knowledge has not been amassed.

Policy-makers have even more justification for expressing dissatisfaction with the results of foreign policy inquiry. A decade of sustained framework-construction and hypothesis-testing has failed to yield knowledge which can contribute to the policy process directly or indirectly.

Direct research -- or research which is of immediate relevance to the policy community -- is subsumed under the label of applied research. The Interstate Behavior Analysis (IBA) Project has been attempting to produce research which is indirectly relevant. Such research does not permit a direct application of knowledge to action. However, indirect policy research is of potential utility to policy-makers. The IBA framework is a basic social scientific tool which can be adapted for policy-relevant inquiry. A particular element of the framework -- the state classification scheme -- will be the focus here. States should be classified in order to realize the goal of acquiring valid, reliable (and scientific) knowledge. The process of grouping states also provides some assistance to those who must formulate and implement foreign policy.

B. A PRODUCTIVE CONCEPTUAL FRAMEWORK  
FOR FOREIGN POLICY ANALYSIS<sup>1</sup>

Prior to describing the state classification scheme and illuminating some of its scientific and policy-relevant features, the entire framework should be presented. The framework which we have constructed and refined simply organizes the disparate factors which prior research has singled out. The construction of the framework has not uncovered astonishing new facts and interrelationships. Nor has a genuine model been developed. The framework is offered as a device for imposing order on the real world of foreign policy. The total framework at least reminds the scholar or policy-analyst that his or her particular interests should be viewed within the context of the larger scope of foreign policy analysis.

One of the crucial distinctions in foreign policy analysis concerns the difference between source and process analysis. The focus in source analysis is on certain internal and/or external stimuli which generate foreign policy behavior. A more detailed breakdown would include five clusters of determinants: individual; group; state; interstate; and global.

After a state decides to respond to a given set of stimuli, its decision-making machinery is activated. The decision-making process occurs when a state is initiating a foreign policy action or reacting to an action which had been received from another international actor. Thus, initiative and responsive decision-making inquiry exemplify the scope of process analysis.

Source factors, foreign policy behavior, and type of state comprise the three variable clusters for the framework which is a direct outgrowth of the preceding conceptualization. The framework consists of independent, intervening, and dependent variables.

1. Independent Variables: The Components

Source variables may be viewed as the determinants of foreign policy

behavior. Source factors include a variety of internal and external determinants. For purposes of analytical clarity, such factors may be grouped into variable realms or components. Components are vertically arranged sets of variables of the same type.

There are five variable areas or components within which researchers can identify specific variables, such as decision-maker values (psychological component), public opinion (political component), economic indicators (societal component), alliance ties (interstate component), and status-rank (global component). Eventually, foreign policy analysts should attempt to rank variables and components in the contexts of varying types of states and foreign policies. In addition to this assessment of relative explanatory power, the causal configurations which characterize the interrelationships of components should also be elucidated.

## 2. Intervening Variables: Type of State

We are positing that static state characteristics intervene between the source factors and the dependent variable cluster of foreign policy behavior. Generalizations about the behavior of all states would be of very limited value to either policy-makers or social scientists. States must be grouped; the state typing scheme represents a filtering screen which mediates between the source factors and foreign policy behavior.

State attributes may be divided into three distinct dimensions. The first dimension subsumes those factors related to a state's economic structure. Governmental structure comprises the second classificatory basis. State capabilities (size, military power, and resource base) constitute the third dimension.



### 3. Dependent Variables: Type of Foreign Policy

It is a truism that classification precedes explanation in scientific inquiry. References to the general behavior of all states would not be very helpful; similarly, generalizations about "foreign policy" as an undifferentiated phenomenon serve only to obfuscate analysis. Without coherent, reliable classifications, we would be forced to conclude that "states in general generally act."

The empirical study of a state's behavior requires that the action element of foreign policy behavior be given sufficient emphasis (Andriole, Wilkenfeld, and Hopple, 1975b: 35). In operational terms, actions may be equated with events; an event is a discrete portion of reality (Riker, 1957: 58-59). Any foreign policy event is comprised of at least six dimensions: (1) spatial; (2) temporal; (3) relational; (4) situational; (5) substantial; and (6) behavioral. Operationally, foreign policy behaviors may be classified in terms of the question "who does what to whom, where, when, over what, and in what immediate context?"

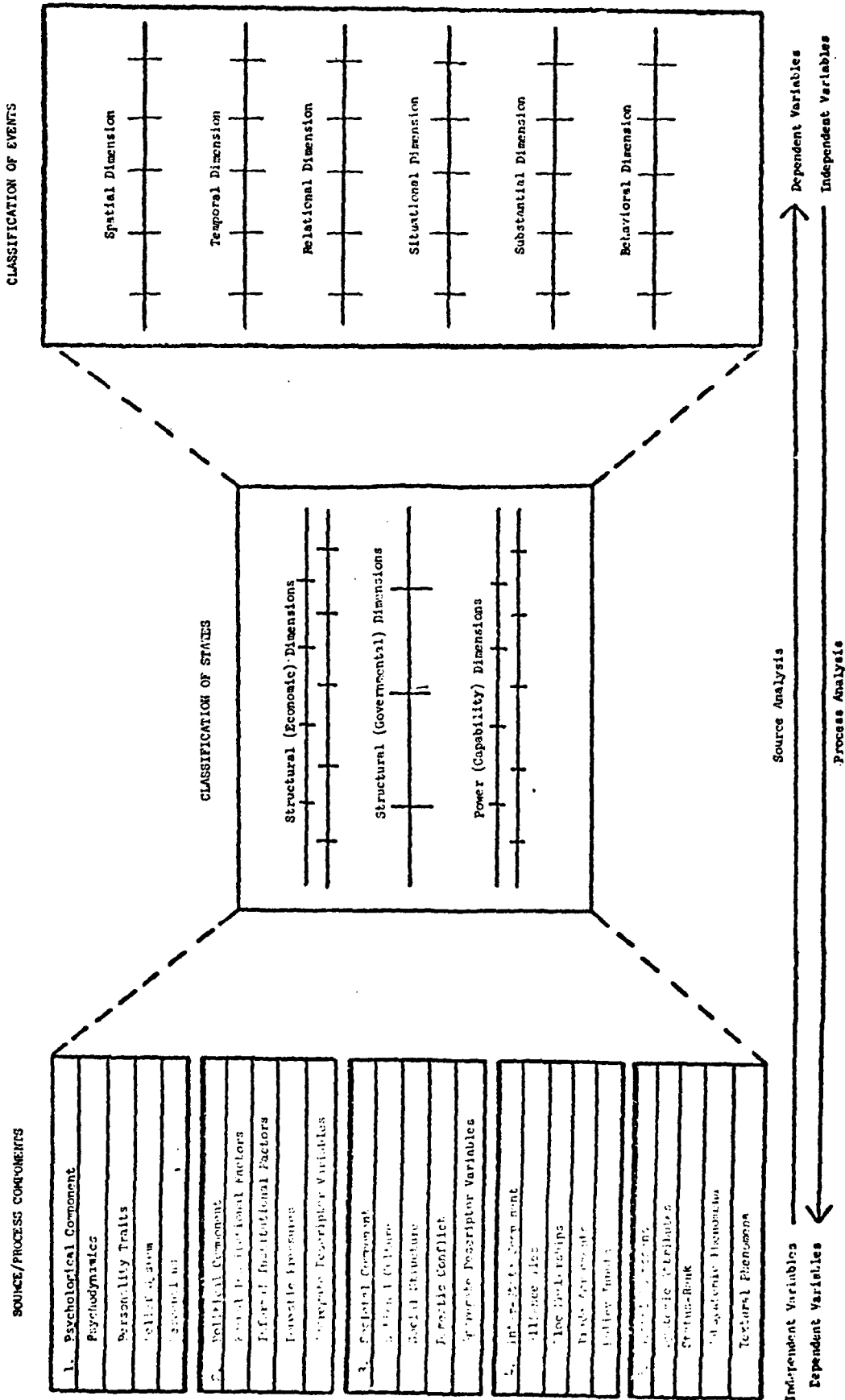
### 4. The Framework-Variable Interrelationships

A framework is defined as a set of variables and a specification of their expected interrelationships. The concepts of components, component variables, state classificatory scheme, event or foreign policy classificatory scheme, source analysis, and process analysis have now been introduced and explicated. These concepts are the building blocks for the framework, which is presented in Figure 1.

As the figure indicates, the framework consists of three clusters of variables. For source analysis, the independent variables are derived from one or more of the five components. Type of foreign policy is obviously

FIGURE 1

INTERSTATE BEHAVIOR ANALYSIS PROJECT FRAMEWORK



the dependent variable. Type of state is posited to be intervening in an analytical sense. Source factors and foreign policy behavior will be expected to exhibit varying types of relationships as the structural characteristics of different groups of states are considered.

A single analytical framework can accommodate both source and process analyses by simply reversing the postulated causal chain. Responsive decision-making or process analysis views foreign policy behavior as the independent variable. Component factors become dependent variables rather than sources or determinants. A classic example of responsive process analysis is the case study of the United States decision to intervene in the Korean War (Paige, 1968). Another state's action (the perceived stimulus and independent variable) provoked changes in such component variables as elite attitudes and public opinion. In responsive process analysis, the type of state cluster continues to function in an intervening fashion.

Initiative process analysis refers to those occasions when a state is involved in the formulation of a foreign policy action. The factor(s) which give rise to a "decision occasion" (i.e., source factors from the components) have already set the stage for a series of decisional phases. In this case, the state is not responding to an input from another actor but is involved in the process of formulating its own output. Component factors may be both independent and dependent in initiative process analysis.

The framework which is described above is obviously indebted to its predecessors in the comparative study of foreign policy behavior. At the same time, several innovations distinguish the framework from earlier formulations. One is the explicit distinctions among source analysis, initiative process analysis, and responsive process analysis. Foreign policy analysts have amassed empirical data and tested hypotheses without attempting to demarcate the subfield's scope of inquiry. Our initial

conceptualizing convinced us of the need to distinguish consistently and unambiguously between the sources of foreign policy behavior and the processes of foreign policy-making and policy-implementation.

A second innovation is the clustering of static state characteristics into a separate and intervening variable realm. It is our contention that standard attributes such as size and development do not directly determine or "cause" foreign policy behavior. A state's foreign policy behavior is the product of immediate and more dynamic factors. Long-term structural characteristics should be used to classify states; a comprehensive typology of foreign policy actors can be employed as a "filter" between genuine independent variables from the five components and the dependent variable of foreign policy.<sup>2</sup>

### A CLASSIFICATORY SCHEME FOR FOREIGN POLICY ACTORS<sup>3</sup>

The careful construction of classificatory schemes is an important step in the development of knowledge, whether this be in the physical, biological, or social sciences. The act of classification allows one to differentiate among the conditions which give rise to specific phenomena. Failure to classify forces analysts to formulate vague generalizations about the entire universe of cases or to focus on idiosyncratic features of particular units.

As the logical step which precedes the formulation of general propositions, a classification scheme should perform two functions:

- (1) It should facilitate comparison among different types and aid in the discovery of significant characteristics that are logically independent of the criteria defining the types but empirically associated with the different types:

- (9) It should also facilitate comparisons within each type, with the attributes held in common by all of the systems within the type serving as the control variables, or parameters (Lijphart, 1968:7).<sup>4</sup>

Most classificatory work in political science has focused upon the type of political structure (see, for example, Blondel, 1972; Almond and Powell, 1966; Lijphart, 1968; Dahl, 1970; Cutright, 1963). The degree of stability of the political system has also been a major concern (Lipset, 1959; Starr, 1970; Neustein, 1962). The level of military capability, and the extent to which it strengthens a regime and affects decision-making, has also been viewed as an important basis of classification (Blondel, 1972).

Paralleling these efforts has been a second major thrust. Emanating from the literature on interstate politics, this research has focused on the development of empirically derived classificatory schemes. These efforts, relying heavily upon factor analyses of large sets of cross-national aggregate data, have demonstrated the centrality of such factors as size, economic development, and political structure as overarching classificatory variable clusters (Rummel, 1969, 1971; Russett, 1964, 1967; Sawyer, 1967; Banks and Gregg, 1965).

While classificatory schemes have proliferated in the political science literature, it is only recently that their importance has been recognized in foreign policy research. Indeed, James H. Rosenau's (1966) prototypical scheme represents one of the few which explicitly deals with foreign policy concerns. Reliance on Rosenau's classificatory variables of size, economic development, and political accountability has been quite extensive (Rosenau and Hogura, 1974; Rummel and Russett, 1975; Salmons and Hermann, 1969; Hooge, 1974; Salmons, 1977; East and Hermann, 1974). While theoretically rather than empirically derived, the Rosenau classificatory categories closely match those derived by Rummel, Sawyer, and Russett.

Two methodological issues must be addressed in connection with the type of classificatory scheme to be developed here. First, when referring to states, it is critical to distinguish between the structural attributes of a society, on the one hand, and its level of performance in various spheres, on the other. The level of performance, or the degree to which the society is satisfying basic economic, political, and social needs, has been incorporated into the component portion of the framework. Structural characteristics, which pertain primarily to the economic and political system, will be viewed as important classificatory variables.

Another way of viewing this distinction is to contrast attributes which are relatively stable over time (structural) with factors which are more dynamic in nature and are subject to short run fluctuations (performance). Performance characteristics may have a short term effect upon the formulation of foreign policy within a state, while the structural characteristics may be viewed as the context within which foreign policy decisions are made. While it is conceded that it may not always be possible to maintain a rigid distinction between structure and performance, we will attempt to be as clear as possible on this point.

A second issue pertains to the type of index which will be generated by the classificatory scheme. Prior research has failed to incorporate a sufficiently large sample of relevant variables. In fact, empirical work in foreign policy analysis has traditionally involved the use of only one variable for each classificatory dimension. The political dimension is frequently reduced to an accountability measure which is indexed by freedom of the press. Total gross national product is used to represent the size factor. The economic dimension is often equated with economic development; gross national product per capita is then employed to operationalize development. A multiple indicator strategy is empirically more

realistic and theoretically more productive.

The assumption is that the structural attributes of states constitute the context in which foreign policy actions are taken. The attributes may be derived from three general areas: economic structure; capability (size, military power, resource base); and governmental structure (political development, structure, stability). In contrast to the single indicator approach, we operationalize the structural attribute domain with 23 specific variables.

#### 1. Economic Structure Dimension

Both the theoretical and empirical work in foreign policy analysis have identified economic structure--usually in the form of economic development--as a key factor in both source and process analysis. The research of Rocenau (1966, 1967), Casanova (1966), O'Leary (1969), and Butwell (1969) attests to the presumed impact of economic variables on foreign policy behavior. In addition, empirical work by East (1973), Kean and McGowan (1973), East and Hermann (1974), Salmore and Hermann (1969) and Salmore (1972) identifies economic development as one of several structural factors which plays a crucial role in determining differences in the foreign policy behavior of states.

It should be pointed out that the literature just cited has not distinguished carefully between the structural and performance aspects of the economic factor. There has also been some confusion over the concepts of economic development, modernization, and national development in general. Furthermore, much of the literature fails to deal with the distinction between level of economic development and type of economic system, a more politically related concept. Finally, there is a lack of consensus over the general question of what constitute the most useful indicators of level of economic development.

In conformity with the general strategy of a multiple indicator approach, the project finally centered its attention on six variables which tapped the economic structural characteristics that are expected to exert an impact on foreign policy behavior. These variables are:

- (1) Gross national product per capita;
- (2) Percent of gross domestic product originating in agriculture;
- (3) Percent of gross domestic product originating in industry;
- (4) Energy consumption per capita;
- (5) Percent of total economically active male population engaged in agricultural occupations;
- (6) Percent of total economically active male population engaged in professional and technical occupations.

## 2. Capability Dimension

The term "capability" is used to signify the incorporation of those attributes which have traditionally been viewed as the primary determinants of interstate behavior. This complex of attributes has often been referred to in the literature as "power." The capability dimension yields three distinct groupings of structural attributes: size; military power; and resource base.

While each of these groupings concerns a different aspect of capability and power potential, there has been a general lack of clarity in the literature concerning the role which each plays in the foreign policy process. Much of the literature focuses on one of these three factors. For example, the Rosenau (1966) scheme utilizes size, usually operationalized as population, in combination with level of economic development and political accountability in order to classify foreign policy actors. Similarly, the importance of resource base as a factor in foreign policy behavior has been emphasized (Sprock and Sprock, 1971). The evolution of the recent



energy crisis highlights the fact that those states which are relatively weak in terms of size and military capability but possess a vital natural resource such as oil can play a profound role in the international arena.

The variables chosen to index the capability dimension are subdivided into three subgroups:

Size

- (7) Total area;
- (8) Total population;
- (9) Gross national product;

Military Power

- (10) Total military manpower;
- (11) Total defense expenditure;
- (12) Defense expenditures per capita;

Resource Base

- (13) Percent of energy consumed domestically produced.

### 3. Governmental Structure Dimension

Scholars of comparative and interstate politics agree that type of political structure represents an important factor for classifying states. In fact, it is perhaps the only dimension which is emphasized both by those concerned with classifying domestic systems and by those concerned with foreign policy analysis.

The most widely used distinction with regard to governmental structure is the extent to which the political system is open or closed (Farrell, 1966). In this regard, it is important to emphasize the very important distinctions among the notions of democratization, political development, and political stability. Gillespie deals with this distinction as follows:

In measuring political development we look for such political indicators as the size of the governmental bureaucracy, the proportion of the governmental budget provided for administrative personnel, the number of governmental agencies, the specialization of tasks assigned to governmental employees, and so on. In measuring democracy and democratization, such indicators as the degree of competitiveness in elections and in the legislature, the extent of suffrage, and the degree of censorship are used (1971: 376-377).

Furthermore, as Gillespie (1971:377) again points out, while there is empirical evidence which suggests that stability is necessary for the maintenance of democracy, it is not automatically the case that there is a perfect relationship between political stability and democracy.

There has been considerable confusion concerning these distinctions, as well as over the closely related difference between structure and performance. Thus, Snow (1971), building upon the work of Banks and Textor (1963), develops a scale of political development which incorporates structural variables, such as the representative character of the regime, freedom of group opposition, type of political leadership, current electoral system, and freedom of the press, as well as performance variables such as government stability, stability of the party system, and the current status of the legislature and executive. Similarly, Gregg and Banks (1965), in their factor analysis of the Cross-Polity Survey variables, isolate two--which is a structural factor--and differentiation and consensus--which are clearly performance factors.

Empirical research has clearly established the importance of governmental structure as a factor in explaining foreign policy behavior. Studies by Salmore (1972), Salmore and Hermann (1969), East and Hermann (1974), Moore (1974), Rosenau and Hoggard (1974), Rosenau and Ramsey (1975), Feierabend and Feierabend (1969), and Phillips and Hall (1970) have all

attempted to assess the potency of political structure relative to other societal variables in explaining foreign policy behavior. We intend to continue these efforts by supplementing the open versus closed categories with a wide range of political structure variables.

While the variables which comprise the economic and capability dimensions were identified and measured without too much difficulty, measures for the governmental dimension were considerably more elusive. We were aided by recognizing the distinctions among political development, political structure, and political stability. Data on the stability indices were collected for the period 1946-1965, with an expected value calculated based on the probability of an event of a certain type occurring during the period in question. The reasoning for this procedure is derived from the assumption that the average stability score for a state during the immediately preceding period provides the context in which other short term instability events may occur. Once again, then, we highlight the distinction between structure and performance. The following variables were incorporated:

Political Development

- (14) Number of political parties;
- (15) Horizontal power distribution;
- (16) Local government autonomy;

Structure

- (17) Selection of effective executive;
- (18) Legislative effectiveness;
- (19) Legislative selection;

Stability

- (20) Average number of coups per year, 1946-1965 (Data appropriately standardized for states with less than 20 years of data);

- (21) Average number of constitutional changes per year, 1946-1965 (Data appropriately standardized for states with less than 20 years of data);
- (22) Average number of major cabinet changes, 1946-1965 (Data appropriately standardized for states with less than 20 years of data);
- (23) Average number of changes in effective executive, 1946-1965 (Data appropriately standardized for states with less than 20 years of data).

#### D. INITIAL ANALYTIC RESULTS

The IBA Project has already initiated the analysis phase of research. Data were collected for the first 19 variables for the five year period between 1966 and 1970. Data on the 4 stability variables were collected for the period between 1946 and 1965. Data were collected for a total of 56 states which fulfilled the criterion of having initiated 40 or more events during the five year period under investigation.<sup>5</sup> Table 1 lists the states in the IBA data set.

##### 1. Scientific Implications

As noted earlier, classification is a fundamental activity in any scientific field. Since the state data set consists of 23 discrete indicators, it was deemed necessary to classify these variables into a more parsimonious categorization scheme. The statistical technique of factor analysis was selected as a suitable method for consolidating the indicators into a smaller number of dimensions or factors.<sup>6</sup>

TABLE 1  
LIST OF STATES

State	$\frac{1}{1}$ Code	Letter Code*
Western Hemisphere:		
1. United States	002	USA
2. Canada	020	CAN
3. Cuba	040	CUB
4. Brazil	140	BRA
5. Chile	155	CHL
Europe:		
6. United Kingdom	200	UNK
7. Netherlands	210	NTH
8. Belgium	211	BEL
9. France	220	FRF
10. Spain	230	SPN
11. Portugal	235	POR
12. West Germany	255	GM.
13. East Germany	265	GM.
14. Poland	290	POL
15. Hungary	310	HUN
16. Czechoslovakia	315	CZE
17. Italy	325	ITA
18. Albania	339	ALB
19. Yugoslavia	345	YUG
20. Greece	350	GRC
21. Cyprus	352	CYP
22. Bulgaria	355	PUL
23. Rumania	360	RUM
24. USSR	365	USR
25. Sweden	380	SWD
26. Denmark	390	DEN
Africa:		
27. Ghana	452	GHA
28. Nigeria	475	NI
29. Zaire	490	CO
30. Kenya	501	KE
31. Ethiopia	530	EE
34. South Africa	560	SA

Middle East:

33.	Algeria	615	ALG
34.	Iran	630	IRN
35.	Turkey	640	TUR
36.	Iraq	645	IRQ
37.	United Arab Republic	651	UAR
38.	Syria	652	SYR
39.	Lebanon	660	LEB
40.	Jordan	663	JOR
41.	Israel	666	ISR
42.	Saudi Arabia	670	SAU
43.	Yemen	678	YEM

Asia:

44.	China	710	CIN
45.	South Korea	732	KOS
46.	Japan	740	JAP
47.	India	750	IND
48.	Pakistan	770	PAK
49.	Thailand	800	TAI
50.	Cambodia	811	CAM
51.	Laos	812	LAO
52.	South Vietnam	817	VTS
53.	Malaysia	820	MAL
54.	Philippines	840	PHI
55.	Indonesia	850	INS

Oceania:

56.	Australia	900	AUL
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\* Source: Russett, Singer, and Small (1966).

Tables 2 and 3 present the orthogonal rotations for 1966 and 1970. The 23 variables were clustered into four major dimensions. The four factors accounted for 72 to 74 percent of the total variance. Conceptual analysis posited that there are three major dimensions of interstate behavior: economic; capability; and governmental. The statistical analysis uncovered four dimensions, with the governmental domain split into governmental (political development and political structure) and political stability clusters.

The 56 states were assigned to types by conducting a Q-factor analysis.<sup>7</sup> This technique yields factors which consist of groupings of states. The loadings indicate the extent to which a particular state is associated with a particular grouping of states.

The Q-factor analysis results are presented in summary form in Figure 2.<sup>8</sup> Five factors (i.e., five distinct groupings of states) emerged. Among these groupings are: West (N=15); East (N=10); Third World (N=8); Developing (N=8); and Poor (N=9). These factors accounted for about 76 percent of the variance. Six states -- Thailand, Ghana, Kenya, Greece, Saudi Arabia, and Nigeria -- could not be classified.

From the vantage point of social scientific research, the factor analyses reported here represent a contribution to an extensive literature on state attributes. While previous inquiry has specified three basic dimensions of interstate variation -- the economic, capability, and political dimensions -- the initial factor analysis in this research yielded four dimensions. The stability of this four-factor solution and the implications of this discrepancy should be pursued in further research.

TABLE 2

FACTOR ANALYSIS OF STRUCTURAL ATTRIBUTE DATA--1966  
ORTHOGONAL ROTATION\*

	FACTOR I Economic	FACTOR II Governmental	FACTOR III Capability	FACTOR IV Instability	Communality
VAR. 1	(.81)	.38	.13	-.17	.85
VAR. 2	(-.82)	-.29	.11	-.08	.78
VAR. 3	(.72)	-.30	.26	-.16	.70
VAR. 4	(.80)	.27	.22	-.20	.81
VAR. 5	(-.84)	-.34	-.04	.16	.84
VAR. 6	(.88)	.30	-.10	-.15	.89
VAR. 7	-.14	.02	(.76)	.12	.62
VAR. 8	-.18	.19	(.93)	-.09	.95
VAR. 9	(.51)	.32	(.72)	-.23	.94
VAR. 10	.19	.07	(.82)	-.08	.72
VAR. 11	(.63)	.17	(.71)	-.17	.96
VAR. 12	(.93)	.04	.09	-.15	.91
VAR. 13	.17	-.13	(.61)	-.11	.44
VAR. 14	.15	(.82)	.12	-.01	.71
VAR. 15	.20	(.30)	.04	-.02	.69
VAR. 16	.24	(.64)	.02	-.06	.47
VAR. 17	.02	(.84)	-.06	.04	.71
VAR. 18	.30	(.82)	.11	-.27	.86
VAR. 19	.20	(.58)	.16	-.47	.62
VAR. 20	-.10	-.32	-.03	(.76)	.69
VAR. 21	-.37	-.03	.00	(.74)	.69
VAR. 22	-.04	-.11	-.16	(.71)	.55
VAR. 23	-.08	.21	-.01	(.77)	.64
% Total Variance	26.22%	19.13%	16.30%	12.22%	73.38%
% Common Variance	35.49%	25.89%	22.06%	16.54%	100.00%

\*Principal component analysis, communalities of 1.0 inserted as diagonal elements. Parentheses indicate loadings  $\geq \pm .50$ .



TABLE 3

FACTOR ANALYSIS OF STRUCTURAL ATTRIBUTE DATA--1970  
ORTHOGONAL ROTATION\*

	FACTOR I Economic	FACTOR II Governmental	FACTOR III Capability	FACTOR IV Instability	Communality
VAR. 1	(.81)	.40	.11	-.20	.37
VAR. 2	(-.86)	-.20	.10	-.12	.80
VAR. 3	(.66)	-.37	.24	-.01	.63
VAR. 4	(.79)	.30	.19	-.24	.81
VAR. 5	(-.84)	-.34	-.05	.17	.85
VAR. 6	(.86)	.26	-.20	-.23	.39
VAR. 7	-.14	.04	(.76)	.08	.61
VAR. 8	-.19	.19	(.93)	-.11	.95
VAR. 9	(.53)	.30	(.72)	-.24	.94
VAR. 10	.12	.02	(.85)	-.15	.76
VAR. 11	(.60)	.12	(.74)	-.19	.95
VAR. 12	(.92)	-.02	.11	-.15	.38
VAR. 13	.20	-.32	(.59)	.12	.50
VAR. 14	.04	(.78)	.15	.03	.63
VAR. 15	.16	(.34)	.04	-.01	.73
VAR. 16	.22	(.71)	.01	-.11	.57
VAR. 17	-.04	(.79)	-.06	.09	.63
VAR. 18	.34	(.31)	.05	-.14	.79
VAR. 19	.18	.43	.04	-.13	.30
VAR. 20	-.17	-.17	-.01	(.73)	.50
VAR. 21	-.35	-.03	.01	(.77)	.72
VAR. 22	.00	-.15	-.15	(.72)	.56
VAR. 23	-.04	.14	-.03	(.78)	.63
% Total Variance	25.60%	18.48%	16.48%	11.61%	72.17%
% Common Variance	35.47%	25.61%	22.83%	16.09%	100.00%

\*Principal component analysis, communalities of 1.0 inserted as diagonal elements. Parentheses indicate loadings  $\geq \pm .50$ .

FIGURE 2  
GROUPINGS OF STATES \*

West		East	
Belgium	.83	United Kingdom	.73
Sweden	.80	Israel	.72
Denmark	.79	Japan	.70
West Germany	.77	France	.68
Netherlands	.77	Chile	.64
Canada	.76	USA	.61
Australia	.75	S. Africa	.52
Italy	.74		
Third World		Developing	
India	.83	Brazil	.67
Pakistan	.75	China	.65
Turkey	.72	Philippines	.62
Indonesia	.69	S. Korea	.57
		Syria	.76
		Iraq	.76
		Algeria	.75
		Zaire	.75
		Egypt	.60
		Iran	.59
		Cuba	.59
		S. Vietnam	.53
Poor			
Cyprus	.77	Laos	.60
Lebanon	.69	Malaysia	.59
Cambodia	.65	Yemen	.58
Jordan	.63	Ethiopia	.55
Albania	.61		

\* The scores are average loadings over the period from 1966 to 1979. Each state's loading on all five factors and communalities are provided in Wilkenfeld, Hopple, Andriole, and McCauley (1976).

The Q-analysis generated five groupings which clearly depict the East-West and developed-developing distinctions in international politics. The diversity of the developing or nonaligned domain is illustrated by its division into three distinct categories (Third World, Developing, and Poor). Comparison between this particular classification and earlier empirical state groupings would reveal a number of differences. For example, Banks and Gregg (1963) also employed Q-factor analysis and generated a tripartite grouping (personalist, centrist, and polyarchic types). Differences would be attributable to the inclusion of varying states, characteristics, and temporal spans. The effort to identify a satisfactory state classification scheme cannot experience progress until different samples of states, variables, and time periods have been considered.

#### C. Policy-Relevant Implications

Of what use are the findings in Tables 2 and 3 and Figure 2 to policy-makers? A foreign policy-maker must deal with specific situations and specific states. Can general factors and state groupings provide assistance to those who confront concrete problems and must make choices in the real world?

Social science research cannot demonstrate that policy x should be pursued in situation y. However, social scientific inquiry can identify patterns and provide guidelines about probable choices and outcomes. The factor analytic results which were discussed in a cursory fashion in the preceding section can be used to illustrate the potential relevance of basic research findings.

Policy-makers do not necessarily receive an understanding of such esoteric terms as communalities and loadings. It is, however, important to

realize that factor analysis as a technique reduces a matrix of correlations (relationships between variables) to a set of higher-order factors. In this instance, four factors can account for (i.e., explain 72 to 74 percent of the total variance in) 43 discrete variables. Factor analysis, a technique which is used for diverse purposes, has been employed here as a data-reduction tool. Instead of referring to four separate political stability indicators, we can simply consider the factor or dimension of political stability. The various other attributes of states can similarly be described in a coherent, parsimonious fashion.

The state groupings in Figure 2 provide an alternative to considering each state as a unique foreign policy actor. While states within groups are not identical, foreign policy behavior should exhibit patterns which correspond to the five clusters. Belgium and Italy should be more similar than Belgium and Brazil or Poland. Based on a group's usual pattern, it should be possible to offer generalizations about a state's pattern. The prediction would depend on the size of the state's location on that factor: the behavior of Syria, for example, should be more pro-Sovietically "developed" than the behavior of Cuba or South Vietnam.

This kind of policy research would require the delineation of patterns for the five groups. These patterns could then be utilized to explain or predict state-patterns. Five patterns would be based on individual state configurations. As the data are rather scant and not of identical reliability and validity, the data collected individually were crucial. Initial positions (explaining behavior and reactions) could be made here for subsequent predictions. Eventually, a coherent set of hypotheses/propositions might be assembled.

The process of grouping states prevents social scientists and policy-makers from relying on either vague generalizations about all states or idiosyncratic case studies of a single state. The classification scheme offers the possibility of developing predictive and explanatory generalizations about probable foreign policy behavior in similar contexts (within groups) and in varying contexts (between groups).

#### D. CONCLUSION

The focus here has been the domain of quantitative analysis. Future inquiry will examine the causal relationships among the type of state cluster and the nature of a state's foreign policy. A partial causal model is currently being tested by the CIA Research Center (see Hyman, Klantons, McCauley, and Tabor, 1974).

Finally, it should be noted that the model presented here is only a preliminary one. The construction, refinement, and application of a causal model will require a great deal of empirical work. The model is merely a starting point for the development of a more sophisticated model. The model is merely a starting point for the development of a more sophisticated model. The model is merely a starting point for the development of a more sophisticated model.

NOTES

\* During the preceding phase of research, various individuals have provided valuable advice or assistance to the International Behavior Analysis Project. Dorette Feit, Robert McCauley, Paul Rossa, and Helene Rubinstein have competently performed a number of crucial data assembly and analysis tasks. Appreciation is also extended to Nancy Hett for typing the manuscript. Stephen J. Andriole, a former Principal Investigator, contributed immensely to the IEA Project and continues to offer insights and advice. Arthur Banks of the Center for Comparative Political Research at the State University of New York at Binghamton has kindly provided us with substantial amounts of data. Robert A. Young of the Advanced Research Projects Agency has been a continuing source of advice and encouragement.

<sup>1</sup>The framework is described in greater detail in Andriole, Wilkenfeld, and Hopple (1975a, 1975b).

<sup>2</sup>This perspective has received insufficient treatment in the scientific foreign policy literature; the viewpoint is explicitly recognized when Charles F. Hermann (1975:137) refers to "certain basic qualities of nations . . . which may serve as parameters affecting the potency of certain kinds of variables in explaining foreign policy actions." Generally, however, state attribute data are treated as independent or predictor variables; see the numerous empirical studies which are abstracted in Jones and Singer (1972).

<sup>3</sup>For a more extensive treatment of the classificatory scheme, see Wilkenfeld (1975) and Wilkenfeld and McCauley (1976).

<sup>4</sup>See also Kean and McGowan (1973) and Phillips and Hall (1970).

<sup>5</sup>The state and temporal samples are specified in detail in Hopple (1976:18-20).

<sup>6</sup>Principal component analysis was employed; separate solutions were computed for each of the five years from 1966 to 1970.

<sup>7</sup>The use of this technique in international politics has been rare. Russett (1967) and Banks and Gregg (1963) have grouped states according to their attributes with Q-factor analysis while Young (1974) has used the technique to group states according to behavioral characteristics.

<sup>8</sup>The Q-factor analysis was performed on a 56 by 56 correlation matrix, with five factors extracted on an orthogonal rotation (equimax). The Q-analysis was performed on a matrix of eta correlations, where each eta represented a pattern-magnitude measure of similarity between two states for 23 variables. See Rossa (1976) for further details.

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PART II

## II. PAPERS

### A. RESEARCH REPORTS

IBA Research Report #1: Stephen J. Andriole, Jonathan Wilkenfeld, and Gerald W. Hoppie, "A Framework for the Comparative Analysis of Foreign Policy Behavior," International Studies Quarterly, June, 1975.

IBA Research Report #2: Gerald W. Hoppie, "The Psychological Component and the Comparative Study of Foreign Policy Behavior: Issues, Strategies, and Problems of Operationalization."

IBA Research Report #3: Gerald W. Hoppie, "Internal Political Variables and the Comparative Study of Foreign Policy: A Framework for Research and Analysis."

IBA Research Report #4: "The Societal Component and the Comparative Study of Foreign Policy," Gerald W. Hoppie.

IBA Research Report #5: Stephen J. Andriole, "Interstate Realities and the Conduct of Foreign Policy."

IBA Research Report #6: Stephen J. Andriole, "Global Systemic Variables and the Comparative Study of Foreign Policy."

IBA Research Report #7: Jonathan Wilkenfeld, "Comparative Foreign Policy: A Typology of States," presented at the Southwestern Political Science Association Annual Meetings, San Antonio, Texas, March 26-29, 1975.

IBA Research Report #8: Stephen J. Andriole, "Conceptualizing the Dimensions of Interstate Behavior," presented at the Southwestern Political Science Association Annual Meetings, San Antonio, Texas, March 26-29, 1975.

IBA Research Report #9: Stephen J. Andriole, Jonathan Wilkenfeld, and Gerald W. Hoppie, "The Sources and Processes of Foreign Policy Behavior: A Panoramic Conceptualization," presented at the International Studies Association, Annual Meeting, Washington, D.C., February, 19-22, 1975.

IBA Research Report #10: Gerald W. Hoppie, "Public Opinion and the Comparative Study of Foreign Policy."

IBA Research Report #11: Gerald W. Hoppie, "Comparative Foreign Policy: Determinants of Action and Reaction," presented at the Southwestern Political Science Association Annual Meetings, San Antonio, Texas, March 26-29, 1975.

IBA Research Report #12: Stephen J. Andriole, "Foreign Policies of Scarcity: Some Implications for Research and Analysis," presented at the International Studies Association, Annual Meeting, Washington, D.C., February 19-22, 1975.

IBA Research Report #13: Gerald W. Hoppie, "The Comparative Study of Foreign Policy and the 'Data Gap' Problem: An Interim Report."

IBA Research Report #14: Stephen J. Andriole, "General Coding Instructions: Typology of States."

IBA Research Report #15: Stephen J. Andriole, "The Comparative Study of Foreign Policy: In Route to a Productive Conceptual Framework."

IBA Research Report #16: Gerald W. Hoppie, "Psychological Sources of Foreign Policy Behavior: The Belief Systems Approach and Content Analysis."

IBA Research Report #17: Jonathan Wilkenfeld and Robert N. McCauley, "A Preliminary Factor Analytic Exploration of the State Attribute Domain."

IBA Research Report #18: Gerald W. Hoppie, "Societal Factors in the Comparative Study of Interstate Behavior: An Operational Formulation."

IBA Research Report #19: Robert N. McCauley, "Analytic Strategies in the Comparative Study of Interstate Behavior: Some Preliminary Thoughts."

IBA Research Report #20: Gerald W. Hoppie, "International Behavior Analysis: The Interface Between the Conceptual and Operational Phases of Research."

IBA Research Report #21: Gerald W. Hoppie, "Foreign Policy, Public Opinion, Social Science, and Policy-Relevance: Exploring the Linkages."

IBA Research Report #22: Gerald W. Hoppie, "Events Data, the Bureaucratic Politics Perspective, and the Political Component."

IBA Research Report #23: Jonathan Wilkenfeld, Gerald W. Hoppie, Stephen J. Andriole, and Robert N. McCauley, "Profiling States for Foreign Policy Analysis: Preliminary Findings," presented at the American Political Science Association, Annual Meeting, Chicago, September, 1970.

IBA Research Report #24: Paul J. Rosen, "A Q-Factor Analysis of the State Attribute Domain."

#### B. WORKING PAPERS

IBA Working Paper #1: Stephen J. Andriole, "International Behavior Analysis and the Perennial Problems of Political Inquiry."

IBA Working Paper #2: Gerald W. Hoppie, "The Psychological Component and the Comparative Study of Foreign Policy: The 'Relative Irrelevance' of Two Types of Sources."

IBA Working Paper #3: Stephen J. Andriole, "The Definition, Conceptualization, and Classification of Foreign Policy: Pacifying a Few Exasperating Analytical Issues."

IBA Working Paper #4: Gerald W. Hopple, "The Sources and Processes of International Behavior: An Explicit Conceptualization With a View Toward Analysis."

IBA Working Paper #5: Stephen J. Andriole, "The Informational Needs of Foreign Policy-Makers and the IBA Project: Some First Thoughts."

IBA Working Paper #6: Paul J. Rossa, "Typologizing: A Research Memorandum."

PART III



### III. REPORT SUMMARY

#### A. Technical Problems

The International Behavior Analysis (IBA) Project is a long range research project which is designed to produce explanations and predictions about the actions and interactions of nations. Since prior research has failed to provide adequate explanations of international behavior, it was decided to construct an overarching analytical framework.

During the second contract year, the major task has been operationalization. Specifically, data have been assembled for the three major areas of the framework: component variables; type of nation; and type of foreign policy.

#### B. General Methodology

The methodological orientation of the IBA Project is intentionally eclectic. Various types of data have been assembled. The acquisition, assembly, and refinement of available data sets have been important tasks during this contract period. Some new data (primarily psychological in nature) will also be generated. Events data, content analytic data, and aggregate data will be employed during the analytic phase of research.

#### C. Technical Results

The first year of research involved the construction and refinement of the overarching framework for analysis. Five source-process and two classificatory schemes (nations and international actions) were conceptualized (see PART I, Section I-1). Basic variable interrelationships were also specified (see PART I, Section I-1-1).

The second contract year has involved the tasks of operationalization and data assembly. The nation sample and temporal parameters (50 nations, 1966 to 1970) were selected. The conceptual scheme for classifying nations was developed and refined. An extensive literature review yielded three distinct dimensions for classifying nations: economic structure; capability; and governmental structure (see PART I, Section I-2). Preliminary analysis of the nation classification scheme has already been initiated (see PART I, Section I-2).

Each element of the framework has now been specified, refined, and defined operationally. The ultimate value of the framework can be assessed after the completion of the analytical tasks which will comprise the third year of research.

#### D. Implications for Future Research

The IBA Project has already constructed an analytical framework which represents a superior vehicle when it is compared with correlative frameworks. Furthermore, the framework has been designed to be more than an abstract conceptual exercise. Unlike most frameworks, then, the source-process

component framework will be operationalized and tested. Operationalization and data assembly have been the primary tasks of the second year. These tasks consisted of the following subsidiary endeavors:

(1) Operationalized definitions have been assigned to variable components, the typology of nations, and the typology of events. Each component had previously been delineated exhaustively and specific variables had been identified. During the second year, each of these variables was defined operationally. The two typologies have been converted from conceptual to measurable phenomena.

(2) Previously collected data have been assembled.

(3) Data assembly operations are being completed. Some new data, primarily psychological in nature, will be generated.

(4) The final task of the second year has been the designing and testing of data handling computer programs. This is an obvious precondition for the hypothesis testing which will be the focus of the third year of research activity.

The framework has proved to be conceptually stimulating and empirically productive. A key implication for future research is the versatility of the framework. The framework can be employed for a diverse array of scientific and policy-relevant purposes. Among these are the functions of directing inquiry, organizing previous research, and suggesting future research. The framework can also be adapted for research with direct relevance to the policy community. An example is the potential applicability to inquiry on various crisis situations.

Analysis is the final goal of the IBA Project. Strategies are already being devised for the implementation of this task. The specific objectives of the third year are listed below.

Primary and Subsidiary Tasks of Year 3: Analysis

- (1) Cross-national hypothesis testing.
- (2) Case-study hypothesis testing.
- (3) Dissemination of results.

A comprehensive framework for describing and analyzing international behavior has been constructed and refined. Interrelationships between certain factors have been posited within two contexts: international source and decision-making behavior, and different situations and nations.

Each factor has been converted into an actual variable. Data have been assembled for the various factors which pertain to source analysis and process analysis: (1) psychological; (2) political; (3) societal; (4) interstate; and (5) global. Nations have been classified on the basis of three dimensions: (1) economic; (2) governmental; and (3) capability. Data have already been assembled for 56 nations for the period from 1966 to 1970. The ARPA-supported World Event Interaction Survey comprises the events data set.

Year Three will be devoted to analysis. Preliminary analysis of the nation data set has already been initiated. This analysis will be extended and the other factors will be incorporated during the third year.

While the IBA Project will complete the construction, refinement, and analysis of the framework, other researchers can employ the framework for both basic research (e.g., theoretical inquiry) and policy-relevant research (e.g., crisis analysis).

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The <u>objective</u> of the International Behavior Analysis (IBA) Project is to construct and implement an analytical framework capable of providing insight into the actions and interactions of certain states in certain situations. The Project's emphasis is comparative and in this connection will involve the construction and implementation of a typology of nations and a typology of international events.		

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