Best
Available
Copy

AD-A015 203

# QUANTITATIVE INDICATORS FOR DEFENSE ANALYSIS. VOLUME II. TECHNICAL REPORT

Bertram I. Spector, et al

CACI, Incorporated-Federal

Prepared for:

Advanced Research Projects Agency

June 1975

DISTRIBUTED BY:

NTIS

National Technical Information Service
U. S. DEPARTMENT OF COMMERCE

281096

AD A015203

DDC
RECEIVED
OCT 6 1975
C

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. Department of Commerce
Springfield, VA. 22151

FINAL REPORT

# QUANTITATIVE INDICATORS FOR DEFENSE ANALYSIS

Volume II

Technical Report

Sponsored by:

Defense Advanced Research Projects Agency

ARPA Order No. 2863

| | |
|---|---|
| ARPA Order Number | 2863 |
| Program Code Number | ---- |
| Contractor | CACI, Inc.<br>1815 North Fort Myer Drive<br>Arlington, Virginia 22209 |
| Effective Date of Contract | 21 August 1974 |
| Expiration Date of Contract | 30 June 1975 |
| Amount of Contract | $198,679 (less amendment $146,000) |
| Contract Number | MDA903-75-C-0013 |
| Principal Investigator | Mr. Bertram Spector<br>(703) 841-7800 |

The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Defense Advanced Research Projects Agency or the U.S. Government.

INC. HARRISBURG • LOS ANGELES • NEW YORK CITY • WASHINGTON, D.C. • THE HAGUE, NETHERLANDS

## PREFACE

This report describes research efforts undertaken by CACI, Inc., to develop and apply quantitative indicators to national security problems. This research was supported by the Defense Advanced Research Projects Agency, Contract No. MDA903-75-C-0013.

The report consists of two volumes. Volume I, the Executive Summary, is a non-technical review of the research accomplishments with special emphasis on their potential, immediate applications within the defense and intelligence communities. Volume II, the Technical Report, begins with an expanded, somewhat more technical, summary of the specific results of the fiscal 1975 research effort (Chapter 1). Chapters 2 through 9 review the research effort in detail. Volume III contains appendices to the Technical Report. Procedures and rationale for new indicators and methodologies for manipulation are described. These indicators and methodologies are then applied to research questions concerning the national security behavior of Japan and the results are reported and evaluated.

## PROJECT PARTICIPANTS

The final report was prepared by:

Bertram I. Spector, Principal Investigator
James R. Brownell, Jr.
Margaret Daly Hayes
Gary A. Keynon
James A. Moore

A large research undertaking such as this could not have been accomplished without the assistance and effort of many individuals. We especially thank Mr. Delford F. Furney, Jr. for his dedication and the long hours he spent ensuring its successful completion. We would also like to acknowledge the help, guidance, and suggestions received from Dr. Don R. Harris, Dr. Warren R. Phillips, Dr. Richard E. Hayes, and Mr. Jeffrey A. Krend of CACI. We are also grateful to Dr. Robert A. Young of the Defense Advanced Research Projects Agency for his valuable comments during the formative stages of this effort. We also extend our thanks to Ms. Glennie Hollady, Mr. Andrew W. Spisak, and Ms. Teresa E. Spisak for their contributions to the analyses. The study team is indebted to Ms. Nancy Anderson, Ms. Suzanne Litzinger, and Ms. Ruth Osborne for their attentive and efficient coding of the data. Finally, we wish to thank Ms. Carol Franco for editing the report, and Ms. Nancy Streeter, Ms. Kathy Harris, Ms. Patricia White, and Ms. Ann Yamat for typing it.

TABLE OF CONTENTS

VOLUME II

Technical Report


| | | Page |
|---|---|---|
| PREFACE | | i |
| PROJECT PARTICIPANTS | | ii |
| CHAPTER 1. | GENERAL OVERVIEW OF RESEARCH ACCOMPLISHED | 1 |
| CHAPTER 2. | DATA BASE DESCRIPTION | 13 |
| A. | Japanese International Behavior | 14 |
| B. | Data Collection and Preparation | 19 |
| CHAPTER 3. | NEW INDICATOR DEVELOPMENT | 23 |
| A. | Issue Indicators | 24 |
| B. | Behavioral Tone Index | 37 |
| C. | Dyadic Intensity Index | 43 |
| D. | Power Strategy Indicators | 48 |
| E. | Internal Political Indicators | 63 |
| F. | Economic Indicators | 89 |
| CHAPTER 4. | NEW INDICATOR METHODOLOGIES DEVELOPED | 93 |
| A. | Event Patterning for Decision Analysis | 94 |
| B. | Power Strategy Impact Analysis | 110 |
| CHAPTER 5. | ISSUE PREDICTION MODELS OF JAPANESE INTERNATIONAL BEHAVIOR | 125 |
| A. | Issue Area and Dyadic Dimensions of Japanese International Behavior | 126 |
| B. | The Importance of Issues and Context in Predicting Japanese International Behavior | 141 |
| CHAPTER 6. | APPLICATION OF EVENT PATTERNING FOR DECISION ANALYSIS | 157 |
| CHAPTER 7. | APPLICATION OF POWER STRATEGY IMPACT ANALYSIS | 202 |
| CHAPTER 8. | INTERNAL PREDICTION MODELS OF JAPANESE INTERNATIONAL BEHAVIOR | 221 |
| CHAPTER 9. | ECONOMIC PREDICTION MODELS OF JAPANESE INTERNATIONAL BEHAVIOR | 238 |

LIST OF TABLES


CHAPTER 1 — Page

1. Summary of Major Accomplishments and Products..... 3

CHAPTER 3

1. Generic Subjective Code Aggregations for Japanese Issue Areas..... 34
2. Event Frequency Totals in Issue Areas for International and Domestic Directed Dyads: Japan 1972-1974..... 36
3. Adjusted Expected Weekly Frequencies for Overall Behavior, 1972-1974..... 45
4. Adjusted Expected Weekly Frequencies for Issue Area Behavior, 1972-1974..... 46
5. Typology of Power Statement Types..... 50
6. Typology of Power Deed Types..... 53
7. Event Code Aggregations for Power Statement Types..... 58
8. Event Code Aggregations for Power Deed Types..... 60
9. Event Code Aggregations for Non-Power Types..... 62
10. Party Voter Support in General Elections and Parliamentary Seats Allocated to Parties, 1955-1972..... 75
11. JIJI Public Opinion Polls Survey 231..... 81
12. Domestic Event Aggregation and Weights..... 84
13. Distribution of Domestic Events by Dyad and Issue Area..... 87
14. Economic Variables..... 91

CHAPTER 5

1. Variables with Factor Loadings $\geq$ .50 in Factor Analyses of Dyad-Issue Subsets..... 128
2. Japan's Behavior Toward Three Countries Regressed on the Countries' Behavior Toward Japan in the Same Issue Areas... 144
3. Average Slope in Four Issue Areas..... 146
4. Simple and Multiple Correlations to Examine Contextual Effects..... 152
5. Simple Correlations of Japanese Diplomatic Behavior Toward the Soviet Union with Soviet Behavior Toward Japan in Three Issue Areas..... 153

CHAPTER 5 (Cont'd) Page

6. Simple Squared Correlations Between Dependent Variables and Third Country Variables for Hypotheses 6 and 7..... 154

CHAPTER 6

1. Density of Japan→U.S. Interactions - All Issues..... 162
2. Density of U.S.→Japan Interactions - All Issues..... 162
3. Density of Japan→USSR Interactions - All Issues..... 165
4. Density of USSR→Japan Interactions - All Issues..... 165
5. Japan→U.S. Vector Patterns, Overall Behavior..... 169
6. U.S.→Japan Vector Patterns, Overall Behavior..... 170
7. Comparison of Vector Patterns Across Dyads: Japan and United States..... 175
8. Japan→USSR Vector Patterns, Overall Behavior..... 177
9. USSR→Japan Vector Patterns, Overall Behavior..... 180
10. Comparison of Vector Patterns Across Dyads: Japan and the Soviet Union..... 182
11. Density of Japan→U.S. Interactions Political-Military Security Issue..... 186
12. Density of U.S.→Japan Interactions Political-Military Security Issue..... 186
13. Density of Japan→USSR Interactions Political-Military Security Issue..... 190
14. Density of USSR→Japan Interactions Political-Military Security Issue..... 190
15. Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the Japan→U.S. Dyad..... 191
16. Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the U.S.→Japan Dyad..... 191

CHAPTER 6 (Cont'd) Page

17. Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the Japan→USSR Dyad..... 194

18. Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the USSR→Japan Dyad..... 19

19. Japan→U.S. Vector Patterns, Political-Military Behavior..... 198

20. U.S.→Japan Vector Patterns, Political-Military Behavior..... 199

21. Japan→USSR Vector Patterns, Political-Military Behavior..... 200

22. USSR→Japan Vector Patterns, Political-Military Behavior..... 201

CHAPTER 7

1. Power Strategy Variables..... 204

2. Power Strategy Impact Analysis: The Effects of U.S. Power Strategies in All Issue Areas on Japan's Responses to the U.S..... 208

3. Power Strategy Impact Analysis: The Effects of U.S. Power Strategies in the Trade Issue Area on Japan's Responses to the U.S..... 210

4. Power Strategy Impact Analysis: The Effects of U.S. Power Strategies in the Political-Military Security Issue Area on Japan's Responses to the U.S..... 211

5. Power Strategy Impact Analysis: The Effects of Japanese Power Strategies in All Issue Areas on Asia's Responses to Japan..... 215

6. Power Strategy Impact Analysis: The Effects of Japanese Power Strategies in the Resource Dependence Issue Area on Asia's Responses to Japan..... 217

7. Power Strategy Impact Analysis: The Effects on Japanese Power Strategies in the Trade Issue Area on Asia's Responses to Japan..... 218

LIST OF TABLES (Cont'd)

CHAPTER 8


| | | Page |
|---|---|---|
| 1. | The Impact of Domestic Public Opinion on International Tone Behavior | 224 |
| 2. | Correlations Between Domestic Dyadic Actor Interaction Indicators for Aggregate and Issue Area Tone | 228 |
| 3. | Correlations of Domestic Actor Tone Indicators and International Tone Indicators | 230 |
| 4. | Analysis of the Impact of Domestic Dyadic Actor Interaction on International Behavior | 233 |


CHAPTER 9


| | | |
|---|---|---|
| 1. | Japanese Behavior to the U.S., Estimated Equations | 242 |
| 2. | Japanese Behavior to the USSR, Estimated Equations | 243 |
| 3. | Japanese Behavior to the People's Republic of China, Estimated Equations | 245 |
| 4. | Japanese Behavior to Asia, Estimated Equations | 247 |
| 5. | Japanese Behavior to the World, Estimated Equations | 248 |

LIST OF FIGURES

CHAPTER 3


| | | Page |
|---|---|---|
| 1. | The Interrelationships of Domestic and International Environments | 65 |
| 2. | Decision-maker Accountability | 67 |
| 3. | A Model of Domestic Influences on International Decisions | 71 |
| 4. | Popular Support for Incumbent Cabinet | 76 |


CHAPTER 4


| | | |
|---|---|---|
| 1. | Conceptual Areas and Dimensions of International Dyadic Behavior | 96 |
| 2a. | Stable Relations | 99 |
| b. | Excursion from and Return to Start Point | 101 |
| c. | Excursions from and Return to Stable Base Posture | 103 |
| d. | Movement from an Area of Stable Relations to a Different Area of Stable Base Posture | 105 |
| e. | Movement from Alliance to War | 106 |
| 3. | Power-Response Interaction Structure | 116 |
| 4. | Power-Response Interaction | 118 |


CHAPTER 6


| | | |
|---|---|---|
| 1. | Event Patterning of Japan→U.S. (All Issues), 1972-1974 | 161 |
| 2. | Event Patterning of U.S.→Japan (All Issues), 1972-1974 | 163 |
| 3. | Event Patterning of Japan→USSR (All Issues), 1972-1974 | 164 |
| 4. | Event Patterning of USSR→Japan (All Issues), 1972-1974 | 167 |
| 5. | Event Patterning of Japan→U.S. (Political-Military Security Issue), 1972-1974 | 184 |

CHAPTER 6 (Cont'd)

Page

6. Event Patterning of U.S.→Japan (Political-Military Security Issue), 1972-1974..... 185
7. Event Patterning of Japan→USSR (Political-Military Security Issue), 1972-1974..... 188
3. Event Patterning of USSR→Japan (Political-Military Security Issue), 1972-1974..... 189

# CHAPTER 1

# GENERAL OVERVIEW OF RESEARCH ACCOMPLISHED

## GENERAL OVERVIEW OF RESEARCH ACCOMPLISHED

### GENERAL OBJECTIVES

This final report describes research efforts undertaken by CACI, Inc., to develop and apply quantitative indicators to national security problems. The overall objective is to demonstrate the value of quantitative indicator technology in assisting the defense and intelligence communities in predicting future international trends with greater accuracy. Toward this end, priority is given to the development of new indicators of potential use to intelligence analysts and national security policy-makers, especially in the areas of international issues, economic policy, and international/internal event linkages; new "barometer" and probability measures that forecast shifts in future international behavior; and new methods and techniques for predicting the probability of future international interaction. These technical advancements are applied to an area of national security interest, Japan, to assess their potential contributions to policy planning.

### SUMMARY OF RESEARCH ACCOMPLISHMENTS, PRODUCTS, AND FINDINGS

The accomplishment of these research objectives has yielded several advances in the development and use of quantitative indicators. A summary list of these accomplishments is presented in Table 1.

Three generic types of indicators were created to enhance the analysts' abilities to estimate future international interaction trends: international, internal, and economic indicators. New international indicators were designed to measure:

- The issue content of international behavior,
- The average tone of international signals,

TABLE 1

Summary of Major Accomplishments and Products

A. New Indicators Developed

1. International Indicators
   a. Issue Area Indicators
   b. Behavioral Tone Index
   c. Dyadic Intensity Index
   d. Power Strategy Indicators

2. Internal Indicators
   a. Domestic Issue Area Indicators
   b. Behavioral Tone Index (for various government and non-government dyads)
   c. Public Approval/Disapproval Indicators

3. Economic Indicators
   a. Indicators of International Economic Position
   b. Indicators of Current Economic Conditions
   c. Leading Economic Indicators

B. New Indicator Methodologies Developed

1. Event Patterning for Decision Analysis
2. Power Strategy Impact Analysis

C. Data Collected

1. International and Internal Event Data on Japan, January 1972-July 1974
2. Japanese Public Opinion Poll Data, May 1970-December 1974
3. Japanese Economic Data, July 1971-July 1974

D. Data Management System Developed

1. PULSE System

E. Prediction Models Applied

1. Issue Area Prediction Models
2. Event Patterning Models
3. Power Strategy Impact Models
4. Internal Prediction Models
5. Economic Prediction Models

F. Research Findings Disseminated

1. Paper on Event Patterning for Decision Analysis presented at the Annual Meeting of the Peace Science Society (International), Southern Section, April 4, 1975.
2. Incorporation of Event Patterning Methodologies in an ARPA-Supported Project on Soviet Perceptions at CACI.

- The intensity of participation in dyadic interaction in relation to an expected normal frequency level, and
- The intention of nations to influence the goals and behavior of other nations by the use of power strategies.

Internal indicators were constructed to measure:

- Domestic issue content of events,
- The behavioral tone of bureaucratic, intra-governmental forces, as well as political parties and economic interest groups, and
- Popular approval and disapproval of government positions and performance.

Also, a set of relevant economic indicators were formulated that tap concurrent and leading international and internal economic phenomena:

- Indicators of international economic position,
- Indicators of current economic conditions, and
- Leading economic indicators.

Two innovative methodologies were devised to help the policy analyst track the flow of international dyadic interaction and forecast the probability of future interaction potentials. The first, Event Patterning for Decision Analysis, is a highly visual as well as statistically oriented technique that facilitates analytic identification, interpretation, and prediction of behavioral trends and changes in trends by combining the attributes of interactive tone, intensity, and time. This methodology was introduced to the research community in a paper, "The Effects of Issue Area on Dyadic Interaction: An Application to Japan, 1972-74," presented at the annual meeting of the Peace Science Society (International), Southern Section, on April 4, 1975. It has also been incorporated in the analysis of a current CACI project on Soviet perceptions under contract with ARPA.

The second methodology, a Power Strategy Impact Analysis, provides a quasi-experimental action-reaction structure for the predictive analysis of international response patterns. Both of these techniques can yield barometer and probability measures of potential shifts in dyadic behavior trends.

The final aspect of the research effort coordinated the newly developed indicators and indicator methodologies in several applications to assess their utility to the defense and intelligence communities. Event data were collected on Japanese international and internal interactions for the period 1972 to 1974, and non-event data were collected from public opinion and economic sources for the same period to enable these advancements to be tested in an area of national security interest. In addition, an integrated system of computer programs, the PULSE system, that can manipulate the data to form several indicators was developed.

Two types of findings resulted from these applications, the first concerning the value of the new indicators and indicator methodologies to aid the national security policy decision process, and the second concerning the interactive area of focus--Japan's international behavior. The most important of these findings are as follows:

Major Findings Concerning New Indicator Technology

- Increased descriptive subtlety, analytical interpretation, and predictive accuracy can be obtained by monitoring the issue content of international trends instead of employing flows of overall behavior. (Chapter 5)

- Issue area monitors of behavior received are useful predictors of reciprocated behavior sent in the same issue area. (Chapter 5)

- Event patterning techniques provide the policy analyst with effective and efficient methods for predicting the probability that future international dyadic behavior will fall in the normal range of relations, will be part of an issue-specific critical pattern away from the norm of relations, and will be characterized by particular behavioral traits such as direction and extent. (Chapter 6)

- Event patterning analyses also provide a useful framework for predicting reciprocal behavioral trends between nation pairs with and without a response lag. (Chapter 6)

- Power strategy indicators and Power Strategy Impact Analyses assist the defense and intelligence communities in identifying power strategies that have been successful and unsuccessful for a nation attempting to influence the behavior and goals of another nation. They also provide probabilities of future strategy effectiveness in causing certain types of response behaviors by other nations along various issue areas. (Chapter 7)

- Internal behavior indicators monitored by issue content and domestic actor-target dyads provide greater predictive capability of international behavior trends than measures of overall internal behavior. (Chapter 8)

- Economic indicators are powerful short-term predictors of international behavior on economic and non-economic issue areas, usually with a lead factor of four to six months. (Chapter 9)

Major Findings Concerning the Prediction of Japan's International Behavior

- Japan's behavior toward the United States during the time period examined is slightly more conflictual than its interactions with the Soviet Union, the People's Republic of China, or the aggregate of Asian nations. (Chapter 5)

- Japan's international interaction with particular nations on economic issue areas such as trade and resource dependence is much more predictable than its behavior on other issues, although they are all tangentially affected by Japanese economic objectives. Japan tends to respond to friendly behavior on economic issue areas with even more intensely cooperative behaviors. Japanese responses to all other international issues are less intense, though cooperative. This tends to affirm Japan's concerted international policy of maintaining a low and non-intense posture on diplomatic and military concerns, while aggressively pursuing economic and commercial ties. (Chapter 5)

- When issues become salient, particularly those dealing with political-military security, Japanese international behavior appears to be a good predictor of the target's responsiveness. Thus Japan's initiatives toward the United States on political-military security issues tends to lead U.S. responses by one to four weeks and predicts fairly well the tone and intensity of the U.S. response. (Chapter 6)

- Third party interactions between the United States and Japan predict the emergence of political-military dialogue between the Soviet Union and Japan. When problems arise in the U.S. - Japanese alliance, the Soviets tend to increase their cooperative strategies toward Japan. (Chapter 6)

- Promise and material support strategies exercised by the United States predict increases in Japanese cooperation toward the United States. However, the use of punitive power strategies by the United States results in high probabilities of hostile responses by Japan. These findings, especially concerning trade interactions, suggest the gradual disappearance of U.S. hegemony over Japanese policy-making. Given these results, two potential paths for maximizing U.S. national security interests in Japan are presented. (Chapter 7)

- Japan's dominance over policy-making in Asian nations is affirmed by the Power Strategy Impact Analysis. Asia's subordination to Japanese national interests is emphasized by the high probability of favorable response that is elicited regardless of whether rewarding or punitive power strategies are initiated by Japan and targeted at Asia. However, there appear to be trends visible in the analysis that indicate growing Asian resistance in response to fears that Japanese economic leadership in Asia might again lead to political and military domination. (Chapter 7)

- Japanese international behavior can be better predicted by the institutionalized influences of political parties and government bureaucracy than by changes in public opinion patterns. The salient internal issues that exert the most influence on shifts in Japanese international interaction relate to economic questions. (Chapter 8)

- Decreases in Japanese cooperation toward the United States can be predicted in part by increases in exports to the Soviet Union. Normalization of relations with the Soviets appears to have negative impacts on Japanese-U.S. relations, especially on political-military security issues. (Chapter 9)

## PROJECT TASKS

The tasks performed by CACI in this study are as follows:

### A. UTILITY OF NEW INDICATORS

Task 1A. The Contractor, in agreement with the Technical Monitor, shall determine geographic areas of focus--single countries, dyads, or regions--to provide the basis for data collection for the new indicators.

Task 2A. The Contractor shall develop additions or modifications to the current event-coding system in order to provide bases for the several new indicators.

> Subtask A. The Contractor shall develop statements of important issues for government(s) in the area of focus.
>
> Subtask B. The Contractor shall review economic event and non-event elements of the current coding system to determine if any modifications or additions are required.
>
> Subtask C. The Contractor shall review the internal event coding system to determine if any modifications or additions are required.

Task 3A. The Contractor shall code event data for a selected area by the coding system determined in Tasks 1 and 2 above, and enter the data into computer files.

Task 4A. The Contractor shall develop issue, internal, and economic indicators that shall be used in subsequent analyses to determine whether these indicators can predict other nations' behavior. (This task should take into account the initial efforts in these three fields undertaken by CACI in FY 74.)

Task 5A. The Contractor shall develop programs for manipulating event data to produce the new indicators.

Task 6A. The Contractor shall analyze the predictive contribution of the new indicators in the following subtasks:

> Subtask A. Test for differences in model structures and parameters across issues and issue areas.

Subtask B. Test for the contribution to prediction made by internal indicators in several models, especially seeking causal linkages between internal and international events and trends.

Subtask C. Formulate and test a model of economic linkages to the foreign policy and behavior of Japan.

Task 7A. The Contractor shall include in the final contract report a description of the several indicators used and a discussion of their values.

B. DECISION ANALYSIS

Task 1B. The Contractor, in agreement with the Technical Monitor, shall select two dyadic relations on which to focus analysis. After selecting the dyadic focus, the Contractor shall review and assemble indicator data from existing CACI data files.

Task 2B. The Contractor shall attempt to restructure the policy style indicator so that it becomes a "barometer" of shifts in future dyadic relations.

Task 3B. The Contractor shall construct probability measures suitable for forecasting changes in behavior.

Task 4B. The Contractor shall carry out a test of the probability measure in each of the dyads under analysis.

Task 5B. The Contractor shall include in the final contract report a presentation of the findings accomplished in Task B.

C. UTILIZATION

Task 1C. The Contractor shall encourage the dissemination of its own and other research findings in the field of quantitative indicators and decision analysis by means of meetings, seminars, and circulation of publications.

## ACCOMPLISHMENT OF TASKS

Each of these tasks has been addressed and accomplished in the following manner.

Task 1A. In agreement with the Technical Monitor, Japan was chosen as the geographical area of focus.

Task 2A. Current event and non-event coding systems were reviewed, and additions and modifications were made to increase the sensitivity of the resultant data bases.

Task 3A. Event and non-event data on Japan were collected for the period January 1972 to July 1974. Computerized data files were created for easy access.

Task 4A. Four types of international indicators including issue indicators, three types of internal indicators, and three types of economic indicators were developed as the basic set of quantitative measures for use in subsequent analyses.

Task 5A. A system of computer programs, the PULSE system, was devised to manipulate event data to produce several indicators.

Task 6A. CACI performed six separate analyses to evaluate the predictive capabilities of the new indicators and indicator methodologies developed.

Task 7A. Descriptions of the indicators, methodologies, and applications performed in Tasks 1A-6A are included in the various chapters of the final report that follows.

Task 1B. In accordance with Modification Number P00001 of this contract, which reduced the amount of effort programmed for decision analysis, this task was not accomplished.

Tasks 2B and 3B. The Event Patterning for Decision Analysis methodology was developed as a "barometer" measure of shifts in dyadic interaction. The Power Strategy Impact Analysis also provides a methodology that yields probability measures to aid in the prediction of behavioral changes. With reference to Modification Number P00001 of this contract, full accomplishment of these tasks was not achieved.

Task 4B. In accordance with Modification Number P00001 of this contract, which reduced the amount of effort programmed for decision analysis, this task was not accomplished.

Task 5B. The results accomplished in Tasks 2B and 3B are presented in various chapters of the final report that follows.

Task 1C. A paper entitled, "The Effects of Issue Area on Dyadic Interaction: An Application to Japan, 1972-74," was presented at the annual meeting of the Peace Science Society (International), Southern Section, on April 4, 1975, in order to disseminate research developments in quantitative indicators. The Event Patterning for Decision Analysis methodology is currently being incorporated in an ARPA-supported project on Soviet Perceptions being conducted by CACI. In addition, a top secret document entitled, "Working Papers on Crisis Management" (CACI DC-227) was written and delivered to Dr. R. A. Young on April 22, 1975, in fulfillment of this task.

## ORGANIZATION OF THIS REPORT

This final report is organized into nine chapters plus an appendix. The following list of chapters coordinates the sections of this report with the fulfillment of the various tasks in the contract.

| Chapter Description | Task Fulfilled |
|---|---|
| 1. General Assessment of Research Accomplished | 7A, 5B, 1C |
| 2. Data Base Description | |
| a. Japanese International Behavior | 1A |
| b. Data Collection and Preparation | 2A, 3A, 5A |
| 3. New Indicator Development | |
| a. Issue Indicators | 4A |
| b. Behavioral Tone Index | 4A, 2B |
| c. Dyadic Intensity Index | 4A, 2B |
| d. Power Strategy Indicators | 4A, 2B |
| e. Internal Political Indicators | 4A |
| f. Economic Indicators | 4A |
| 4. New Indicator Methodologies Developed | |
| a. Event Patterning for Decision Analysis | 6A (Subtask A), 2B, 3B |
| b. Power Strategy Impact Analysis | 6A (Subtask A), 2B, 3B |
| 5. Issue Prediction Models of Japanese International Behavior | |
| a. Issue Area and Dyadic Dimensions of Japanese International Behavior | 6A (Subtask A) |
| b. The Importance of Issues and Context in Predicting Japanese International Behavior | 6A (Subtask A) |
| 6. Application of Event Patterning for Decision Analysis | 6A (Subtask A) |
| 7. Application of Power Strategy Impact Analysis | 6A (Subtask A) |
| 8. Internal Prediction Models of Japanese International Behavior | 6A (Subtask B) |
| 9. Economic Prediction Models of Japanese International Behavior | 6A (Subtask C) |
| Appendix | |
| a. Codebook | 2A |
| b. Statements of Important Issues for Japan | 2A |
| c. PULSE User's Manual | 5A |
| d. Factor Matrices of Japanese Issue Area and International Dyadic Interaction | 6A (Subtask A) |

# CHAPTER 2
# DATA BASE DESCRIPTION

## Japanese International Behavior
## Data Collection and Preparation

The primary characteristics of the dyads that are the focus of this study are conditioned by the status of Japan as a generally low profile participant on the international scene. These dyads thus tend to provide a basis for analyzing "moderation in relations," to the extent that such a generic condition exists. Students of Japanese behavior frequently characterize Japan as having a very pragmatic international style. Because of its unique position as an insular, industrial nation, Japan must import nearly all of its raw materials. To maintain present levels of economic growth and standard of living, Japan must assure itself of a constant and even increasing supply of raw materials. In turn, it relies on exports for foreign exchange with which to pay for these. Among the manifestations of Japan's fundamental resource dependency is that in the past, it has pursued almost exclusively only those external goals

> ...that are susceptible to the kind of rational calculation of rewards commonly associated with economic problems. Even on issues such as recognition of China, where the Japanese could have exercised political initiatives without seriously jeopardizing their basic alliance with the West, nothing was done. Yet, Japan is not just conducting a calculated pursuit of limited goals. Having abandoned the military dimension of diplomacy, whenever possible, it has made a further effort to separate politics from economics. By restricting activities and defining aims in narrowly economic terms, the Japanese have not only minimized the risks inherent in international political actions, they have also developed a foreign policy more like that of a trading company than a nation. Undeniable benefits have resulted from this highly prudential, essentially non-political posture, but this very success will hinder the realistic acceptance of Japan's inevitably expanding role. Perhaps the most damaging legacy is the persistent illusion that the economic, political, and military dimensions of foreign policy are not interdependent and can be dealt with in discrete fashion (Hellmann, 1972: 8).

Another commentator has noted that Japan's external behavior may be characterized as "the pursuit of a diplomatic policy of being friendly with everybody, or at least not making serious enemies anywhere" (Okita, 1974: 723). As a consequence, Japanese international interactions are (1) extensive, covering nearly all nations of the globe, (2) intensive at certain times, particularly when important markets or supplies are threatened (as when the United States sought restrictions on Japanese cotton goods imports or imposed an embargo on soybean exports, or when the Arab oil embargo threatened Japan's industry), and (3) infrequently, extreme in tone. In addition, most scholars concur in the assessment that Japanese policy, since the World War II period, has been largely reactive, rather than active (Tsurutani, 1974). That is, Japan has responded to events or initiatives of other nations, rather than pursuing its own, independently defined approach.

This pattern may still be the dominant characteristic of Japanese interactions. However, there are several indications that, in response to the changing world economic and political balance, recent Japanese governments have sought to identify and act upon a set of goals that make explicit both what has been implicit policy to date and new, more active independent policies for the future. Among the important issues which Japanese policymakers are considering are: the redefinition of Japan's relations to the Soviet Union, the two Koreas, and the two Chinas; the modification of political, economic, and military relations with the United States; and a more active role for Japan in the effort to develop Third World resources and markets in general, and particularly in Southeast Asia (Wakaizuma, 1974). The primary underlying concern in each of the policy areas is economic. Japan is seeking to redefine relations with other nations in directions which will guarantee an uninterrupted flow of resources to the home economy.

These economic efforts have important implications for Japan in other issue areas and make it probable that future Japanese behavior will be a considerably more complex mixture of political, military, and economic interests than has been the case in the past. One of the first manifestations of Japan's new efforts has been the change in relations with the United States.

Efforts to achieve rapprochement with the Soviet Union and China have meant that Japan has had to move out from under the U.S. political and military umbrella and assume a more independent and non-aligned political posture. This projected, increasingly active role in Southeast Asia, especially should U.S. interest in the area decline, implies to many that Japan will have to reevaluate its own military role and capabilities (Hellmann, 1972).

The Japanese are conscious of the fact that their efforts to move out of the shadow of the United States can have far-reaching implications for relations with other partners. The success of Japan's moves on the economic front is in part dependent upon the maintenance of the politico-military status quo in Asia. A warming of Sino-Soviet relations might cause Japan to think more seriously about rearmament, or closer military relations with the United States. Either alternative would inhibit Japan's efforts to become economically involved in Siberian or Chinese development and would close Soviet and Chinese markets to Japanese products.

Similarly, a substantial lessening of U.S. interests in Southeast Asia would leave Japan as the sole economic power in Asia. Japan's efforts to expand activity in Asia have been very cautious. A major trading partner of most Asian countries, Japan has been careful to dissociate political interests from economic ventures. The expansion of Japanese economic penetration in Asia has, nevertheless, been regarded with hostility by the less economically powerful countries there. They frequently equate Japanese economic power with Japanese military domination before and during World War II, as the Japanese were sharply reminded when Prime Minister Tanaka was greeted by demonstrating mobs during recent visits to Southeast Asian capitals.

In addition to these international economic and political considerations, the domestic political environment provides a certain impetus for policy changes toward Japan's traditional friends and enemies. Vocal Socialist and Communist parties within Japan have long argued for a diminution of economic and political ties with the United States and for rapprochement with China and the Soviet Union. Recent events closely tied to global

economic trends have made these opposition arguments more palatable to the Japanese leadership. Moreover, these same events have reduced overall popular support for the traditional ruling Liberal-Democratic party, with the result that opposition forces have greater voice in the Japanese Parliament, and prime ministers now must be more responsive to public and party opinion. Both domestic economic conditions and domestic political forces are more likely to influence Japan's international behavior now than ever before.

In spite of political changes occurring within Japan, it must be remembered that the bureaucracy and ruling conservative coalition remain the most important forces in Japanese international policy decisions. There may be dialogue between government and opposition forces, but government positions are likely to prevail in final decisions. These decisions are likely to be conservative, even when they represent change, and heavily biased toward maintenance of status quo relations.

Because Japan has very clear interests in its relations with the United States, the Soviet Union, China, and Asia, we have chosen to concentrate on these dyads. This brief introduction barely does justice to the highly complex subject of Japanese relations with these countries. Hopefully, however, it indicates some of the dimensions along which Japanese interactions can be expected to move.

A number of characteristic behavior patterns that are reflected in the literature on Japanese interactions with the United States, the Soviet Union, the People's Republic of China, and the Asian bloc of nations may be summarized as follows:

1. Japanese efforts to move out from the U.S. politico-military umbrella should be manifested by (a) greater Japanese activity toward other actors, and (b) cooling of the quality of relations with the United States. The major bone of contention between the United States and Japan should be the issues of trade and U.S. military presence in Japan.

2. Japanese international behavior will mainly involve economic questions. It is anticipated that Japanese diplomatic activities will concentrate in areas where Japan has economic interests.

3. Domestic economic conditions are likely to have a sharp impact on the quality of Japan's relations with other countries causing it to be more positive with countries that have natural resources and untapped markets and more negative with countries that are perceived to be responsible for domestic economic hardship.

4. Japanese international behavior is largely pragmatic in tone. Japan's habit of "seeking friends anywhere" will mute its responses to political rebuffs from other nations. Japan may retire from the arena of interaction, or respond with brief, intense activity designed to moderate a critical situation; but rarely would it respond with hostility.

5. Japanese international behavior is likely to be dominated by conservative, bureaucratic concern. The major actors influencing international policy should be the government bureaucracy and ruling Liberal-Democratic party leaders. The major themes of domestic dialogue on international policy are likely to be economic conditions and opposition programs for greater political interaction with China and the Soviet Union.

6. Japan is a power of substantial economic and political importance to Asian countries and the People's Republic of China. The relationship between these actors (except the PRC) is one of dependence, with Japan the dominant power. Japan is an important power to the Soviet Union because of its economic and technological capabilities and because of its relations both to China and the United States. In spite of the power differential between these two countries, the Japanese-Soviet relationship is not necessarily one of dependence, because of the balancing of U.S. guarantees of military security to Japan and Japan's potential for contributing to Soviet development. Japan is clearly the subordinate power in the U.S.-Japan relationship. being dependent both upon U.S. military guarantees and U.S. trade. Japan is uncomfortable in this dependency relationship and has made several cautious efforts to alter it. These "counterdependent" (Singer, 1972) efforts may be manifested in sporadic negative behavior toward the United States. Japan's relations with the United States are mirrored by Asia's relationship to Japan; thus counterdependent negative behavior by Asian countries is an hypothesized pattern.

Japanese interactions with other nations define the geographic areas of focus in this study. Only the most active dyadic pairs were analyzed. They include Japan's interactions with:

1. The United States
2. The Soviet Union
3. The People's Republic of China
4. Asian Countries (all nations excluding the PRC)

In addition, behavior sent and received by Japan to and from all other nations taken as an aggregate was examined.

## EVENT DATA COLLECTION

Behavior is defined in terms of events which have the following characteristics: "on a specific date a specific actor directs an activity toward a specific target regarding an issue of mutual concern" (Azar, 1972). International event data on behavior received and sent by Japan between January 1972 and July 1974 were collected. Domestic event data were also collected for the same time period. A single source was used for this collection process, the Foreign Broadcast Information Service (FBIS) Daily Report for Asia and the Pacific, which yielded 6940 discrete international events and 3668 discrete internal events.

The events were classified according to the categories of the Defense Events Coding Scheme (DECS). An evaluation of the existing system was undertaken and as a result certain modifications were made in the DECS codes to enable more sensitive categorization of behavioral events. All of these changes have been footnoted in the revised codebook that appears in the Appendix.

## Modifications to the International Actor/Target Codes

Particular non-governmental actors and targets were added to enable classification of particularly important Japanese interactions. The Khmer Rouge and multinational corporations were among these new categories.

## Modifications to the Subnational Actor/Target Codes

Political party factions play a large role in Japanese domestic politics. However the DECS system did not provide for their coding. New classifications for left and right party factions were added to capture this information.

## Modifications for the Event Codes

A new class of events were collected and coded based on an addition to the DECS event character code. Coding of data through December 1973 includes only events that actually occurred. Data from January 1974 on, however, include events that were mentioned or announced in FBIS reports but which had not yet actually occurred. This new class of "rumored" events is a verbal category for domestic and international activity. They are coded identically to actual events, but receive a different "character" code. Rumored events can be considered potentially important predictors of upcoming actual events; they are comparable to "leading indicators" in economics. Often they serve as the catalysts or molders of actual events in the future.[1]

Several new event activity codes were added to the DECS system to differentiate between the positive, negative, and neutral intentions of particular actions. Also, several new domestic actions were included.

---

[1] None of the rumored events coded were included in the analyses that follow in this report because of the limited time span for which the data were collected.

### Modifications to Issue Codes

The issue codes established in 1974 for Japan were judged to be inefficient in capturing the substantive content of events. Only about one-third of all events could be coded into an existing issue category, fundamentally because they are phrased in excessively specific language. Such specific issues are temporal and do not reveal the overall bureaucratic task dimensions with which issues are concerned. Thus new issue codes were not developed, although the old codes were maintained. Instead, the generic subject categories were employed to code issue area classifications. A discussion of issue area indicator development can be found in Chapter 3. Statements of important issues for Japan during the time span analyzed are presented in the Appendix.

## NON-EVENT DATA COLLECTION

### Opinion Data

The results of JIJI Press monthly public opinion polls were translated from Japanese and made machine-readable to enable analysis of the effects of public opinion on international behavior patterns. These polls were conducted on a stratified random sample of the Japanese population. They include questions concerning party voting habits, support for the incumbent government, preferred countries, alignment preferences, opinions on current economic conditions, and topical issues.

Monthly poll data were collected and coded for the 56 months between May 1970 and December 1974. The specific questions coded from the surveys are listed in Chapter 3.

### Economic Data

Data on 18 economic indicators were collected for the period July 1971 through July 1974. The data were drawn from publications of the

Organization for Economic Cooperation and Development: Main Economic Indicators and Trade Statistics, Series A, and International Financial Statistics published by the International Monetary Fund. These data are described in depth in Chapter 3.

## DATA PREPARATION

All of the coded data were placed in computer files for easy access. In its basic form, the data file is composed of 135 observations that consist of consecutive seven-day aggregates between January 1972 and July 1974. All of the analyses that follow in this report employ these seven-day (weekly) periods as the unit of observation, or they use some aggregate of these seven-day units (for example, seven-day periods are used in Chapters 5 and 8, 13-week moving averages are used in Chapter 6, 28-day units are used in Chapter 7, and approximations of calendar months based on 28- or 35-day periods are used in Chapter 9).

A system of computer programs, the PULSE System, that can manipulate the data to form several indicators has been developed on the General Electric Mark III Timesharing Network. It permits flexible retrieval and display of event data as well as providing computational and display options for various interaction indicators. In addition to analytical retrieval, the PULSE system allows retrieval of descriptive text for each event in the FBIS data file from January 1971 to December 1973. The "PULSE User's Manual" is presented in the Appendix.

# CHAPTER 3

# NEW INDICATOR DEVELOPMENT

Issue Indicators

Behavioral Tone Index

Dyadic Intensity Index

Power Strategy Indicators

Internal Political Indicators

Economic Indicators

## ISSUE INDICATORS

### CONCEPTUAL FRAMEWORK AND BACKGROUND

In this section a set of event-based indicators is developed that monitors the issue content of international behavior. By subsetting a nation's overall behavior into issue samples it is hypothesized that the ability to predict international trends will be enhanced. There are reasons to suspect that the relationship between incoming and outgoing behavior may not be the same across different types of issues. Consider, for example, an issue area breakdown into economic, military, and political categories. Differences in response patterns could be expected either from a strategic or organizational point of view. Strategically, similar responses may carry greater or lesser risks depending on the type of issue involved, and these different risks could result in different response patterns. For example, Arab threats to reduce oil supplies (an economic issue) may call for more conciliatory responses than threats to regain occupied territory from Israel (a political/military issue). Organizationally, different bureaucratic subunits responsible for particular issue types may respond to the external environment using different approaches.

If response patterns do differ across issues, then the accuracy of response predictors may improve by taking account of issue types. In this section, various advantages and problems in developing issue indicators are discussed and a country-specific issue typology is constructed for Japan. The operational issue indicators that result are based on the content of international and internal events and can be employed to subset overall behavioral interactions into content-specific samples of behavioral flows. The value of using these issue indicators rather than analyzing overall behavior in which all issues are combined is empirically elaborated in Chapter 5. Based on these tests the issue indicators are employed in other empirical analyses in Chapters 6, 7, 8, and 9.

## Issues Defined

Issues identify the substance of international behavior over which there may be contention and controversy. Contested values and goals motivate specific sets of decision-makers and elicit certain types of response patterns (Rosenau, 1967). Robert Dahl's study of New Haven, for instance, attests to the fact that there is little decision-maker overlap between issues; decision-making actors, processes, and outcomes vary significantly between issues (Dahl, 1961). In the international context, Coplin (1971: 82-86) contends that the values and goals with which issues are concerned activate particular policy-makers as well as particular sub-national interest groups, and their joint interaction culminates in policy strategies that vary from issue to issue. In a case study of Japanese policy-making, Haruhiro Fukui (1974) analyzes the various ad hoc decision-making groups that participate in different issues and points to the importance of issues in accounting for policy variation. Thus, issues provide a situational element to the analysis of national policy that can be employed to explain variation in policy output.

Rosenau (1966) develops a typology that classifies international behavior by the controversial values, interests, and goals with which it is concerned. He elaborates four issue categories: territorial, status, human resources, and non-human resources. Another approach to issue value typologies is suggested by Andriole, et al. (1975) who conceptualize military, economic, territorial, scientific, cultural, organizational, and legal breakdowns. Charles Hermann (1969) has constructed an issue-process typology that deals with the dynamics through which value contests are conducted. He employs the concepts of threat, decision time, and anticipation to distinguish between various types of international situations: crisis, reflexive, innovative, deliberative, administrative, inertia, circumstantial, and routinized decision-making situations. In an empirical test of the utility of Hermann's scheme, Brewer (1973) found that issue types based on threat, decision time, and anticipation strongly affect the nature of decisional behavior. Other researchers (in Wilkenfeld,

1973) have utilized an issue-unit typology in their conceptualization of the internal-external behavioral linkage and its influence on policy output. Unit typologies define issues with respect to the spatial dimensions involved in a controversy, in this case domestic and international political and military behavior.

Levels of Issue Specificity

A major problem of issue research is the definition of a level of issue specificity proper to the research task to be undertaken.[1] There appear to be three levels of issue specificity, each appropriate to different research considerations. The most elemental level, the specific issue level, concerns contested values over rather unambiguous decisional sequences. (For example, Japan should or should not establish diplomatic relations with North Korea, or Japan should or should not take an active role in seeking a Middle East peace settlement.) A middle range level, issue areas, considers clusters of specific issues that involve similar value contexts (for example, the normalization of diplomatic relations or resource dependence). The third, more general issue arena level groups together basic categories of issues which are not in any way geographically specific (for example, issues grouped into economic, political, military, and technological categories, or issues grouped into territorial, human resources, non-human resources, and status categories).[2]

Each of these levels provides an issue context within which the type of actors, their motivation, and their behavior may differ; each distinguishes between various values, interests, and goals which underlie decision-making processes. Which level of issue specificity is appropriate depends on

---

[1] Rosenau (1966, 1967) deals in part with this question.

[2] Jargon in issue research can be confusing. What Rosenau (1966, 1967) refers to as "issue areas" corresponds to our issue arena level. Lowi (in Rosenau, 1967) uses the term "arena" as we do here. Dahl (1961) refers to specific issues as "decisions."

the type of decision-making analysis one desires. We should aim for a level that distinguishes between different decision-making tasks within the bureaucratic organization. To do this the chosen level must be able to tap a particular set of players who are activated by similar motives and who interact along similar behavior patterns (Rosenau, 1967).

There are certain costs and benefits associated with each level of issue specificity. The specific issue level is potentially useful in analytical problems concerned with the resolution of particular controversies. The analyst could plot the goals and behavior of one nation on any salient specific issues against the goals and behavior of another nation on the same issue and measure the degree of conflict reduction and escalation over time. There are, however, certain empirical and theoretical problems connected with using the specific issue level. Many specific issues are concerned with values and interests that are relevant for relatively short time spans. Thus long-term analysis of many specific issues is practically a contradiction in terms. Another empirical problem deals with the historical nature of specific issues. Since specific issues cannot be identified until they have reached saliency, a list of specific issues can only be assembled a posteriori and analysis can only be conducted to postdict already defined issue conflicts.

The issue area level allows the analyst to generalize about the policy-making process by assuming that a range of related specific issues are dealt with by the decision-making apparatus along similar patterns by similar groupings of decision-makers. If the same motives, roles, and behavior are evoked by particular clusters of specific issues, then it appears reasonable to analyze them at that higher level of aggregation. Thus, the level of issue area appears to be an appropriate level to research decision-making on an organizational task basis; it is believed that specific sets of decision-makers will be activated depending on the issue area. Issue areas are sufficiently abstract to allow for the construction of fairly stable categorizations of value controversies which will be valid over time. Because of this, the problem of a posteriori

identification of specific issues is basically eliminated at the issue area level. Decisional processes on issue areas are continual and ongoing, even though conflict over specific issues may have terminated.

However, operational and conceptual problems do arise at this level. Whereas specific issues are relatively easy to identify in terms of the particular value conflicts involved, and while typologies of issue arenas are also identifiable, aggregating up to the issue area level is problematic. There are an infinite number of alternative typologies. Many assumptions must be made in order to "properly" cluster specific issues within boundaries which presumably mirror decision-making tasks. Such issue area clusters would almost definitely vary from country to country. Task structure and thus issue areas would also change gradually with time within one nation.

The grossest level of issue aggregation is the issue arena level. Groupings of value conflicts at this level appear to be too abstract to provide meaningful compartmentalization of the decision-making process. If the scope of the issue arena is too large, the workings of the decisional process may become blurred. Although bureaucracies may be broken down into large functional divisions, increasing specialization within them usually results in islands of decisional actors who are motivated by fairly concrete and limited value controversies. To replicate the specificity of decision-making tasks, we must choose the level of issue specificity which best measures the degree of role participation. If the issue categories are too large we are likely to pull together various decision-making groups which are functionally separate and therefore lose information about the process we wish to understand more fully.

The level of issue specificity chosen depends on the nature of the research task. It appears as if the middle range issue area level would be appropriate to many analytic situations, even though the construction of an acceptable typology for this level is probably the most difficult.

Issue clustering at this level can approximate closely the division of functional tasks among policy-makers. Furthermore, country-specific issue area typologies can be developed to accommodate the important value controversies facing the decision-making elite of particular nations.

## OPERATIONALIZATION

A scheme to operationalize the issue content of international and domestic events must relate directly to the realities and foci of the national actors it attempts to monitor. For example, the behavior of petroleum-exporting countries certainly revolves much more around oil issues than the international behavior of Japan that centers on economic and diplomatic issues. In the present study of Japan, an issue typology is developed that is value-oriented, aggregated at an issue area level, and country-specific. This typology is then operationalized using event properties collected by the Defense Events Coding Scheme (DECS). A value-oriented issue typology pays specific attention to the goals and interests over which Japan is concerned, rather than the means with which it handles them (process-oriented typologies) or the spatial and geographic regions affected by them (unit-oriented typologies). Since we are trying to tap the actual substance of Japanese behavior in order to be able to predict it more accurately, it appears more direct and fundamental to focus on issue values than on the means or spatial units affected by issues. The issue area level is the appropriate degree of issue specificity with respect to tracking sustained behavioral content over time and Japanese policy-making on a bureaucratic task basis (Fukui, 1974). Finally, a country-specific typology accommodates Japan's particular policy perspective. The content of Japan's international and domestic interactions exhibits a limited number of areas of considerable saliency. The construction of an issue area typology appropriate to Japanese interests and goals should enable a more refined and subtle framework from which to predict Japanese actions.

Five issue areas have been identified as particularly suited to Japanese international behavior during the time period under examination, 1972-74. They are as follows:

1. Political-military security
2. Diplomatic relations
3. Resource dependency
4. Domestic economy
5. International trade

A search of the scholarly literature on Japanese international and internal interactions, positions, and goals between 1970 and 1974 yielded a list of salient specific and general issues that demanded the attention of Japanese experts and policy-makers. (See the Appendix for this list.) These issues were carefully grouped into several categories in an attempt to develop mutually exclusive sets. The five issue areas listed above are the outcome of this procedure. In addition to this historical approach to typology construction, an empirical technique was employed with limited success. The FBIS Japanese data were sorted by generic subject code at an issue arena level to determine the occurrence and saliency of behavior content. Each event in the data set possesses from one to three subject codes that indicate whether behavior is concerned with political, economic, social, military, or scientific-cultural subjects, or some combination of these subjects. The tabulated results were rank-ordered in terms of degree of subject frequency as follows:

1. Political issues
2. Economic issues
3. Political-economic issues
4. Political-social issues
5. Social issues
6. Military issues
7. Political-military issues

These general issue arenas are an indication of the importance of certain broad interests to Japanese policy-makers, which is reflected in the five issue area types listed previously. While the empirical results tend to confirm contentions in the literature of Japan's particularly intense focus on political, diplomatic, and economic areas, the extreme generality of the issue arena types was judged to be more broad-stroked than was desirable for analytic purposes. Thus, the five issue area types developed from the literature were maintained.

A brief description of the content of each of the five issue areas for Japan between 1972 and 1974 follows.

Political-Military Security Issue Area

Concern over the future of Japan's military capabilities -- rearmament questions and further expenditures to develop its self-defense forces, the status of U.S. bases in Japan, and the U.S.-Japanese Mutual Security Treaty -- are particularly salient issue areas for Japan. Especially because of the proximity of two potential military adversaries, the Soviet Union and the People's Republic of China, and the fear of becoming implicated militarily in the conflicts of Southeast Asia, Japan's interests in this area are intense. Ambivalence over questions on nuclear armament and maintenance of a nuclear-free mainland as well as territorial disputes with the Soviets over four northern islands were secondary though important during this time period.

Diplomatic Relations Issue Area

Japan's promotion of a well-balanced and increasingly independent international diplomacy is described by this issue area. A large part of Japan's interaction with other nations concerns establishment of an international political role commensurate with its already active economic role. Closer relations and cooperation with the Soviet Union, the People's Republic of China, the European Economic Community, Southeast Asia, and developing nations have already been pursued.

Resource Dependency Issue Area

Japan's high degree of dependence on external sources for food, energy needs, and raw materials has become extremely salient. Its dependent status in this regard has created the necessity to cooperate with other nations to develop their resources. This has taken the form of Japanese technical and financial aid and investment abroad, particularly in the less developed countries and the Soviet Union. Technological developments in extracting energy and natural resources are included in this issue area as well.

Domestic Economy Issue Area

Fluctuation in Japan's domestic economic trends during this time period has caused increasing concern and interaction, particularly in the domestic political domain. Domestic inflation, currency revaluation, environmental decay, the proposed restructuring of the domestic economy, establishment of an export tax, and energy conservation were especially in the limelight.

International Trade Issue Area

In response to international economic problems, Japan has sought to liberalize its trade and capital flows. It has encouraged spending and investment abroad, lowered tariffs and non-tariff barriers, and made motions to reduce its excessive trade surplus.

Event-based indicators are developed to monitor each of these issue areas based on the generic subject codes assigned to each event. In the DECS coding scheme, up to three 3-digit subject codes can be specified for each event. The 125 available subject categories identify the value content of behavior (see "Codebook" in the Appendix). These subject categories were grouped together into five mutually exclusive sets to

approximate closely the descriptions of the five issue areas. Thus, events in each issue area can be identified by selecting the proper subject codes. Forty subject categories did not fit satisfactorily into any of the issue clusters; these basically consisted of non-political, scientific, and societal categories. Since DECS events possess up to three subject codes, each event can potentially be included in up to three different issue areas. However, despite this multiple coding, each event is counted only once within each issue area in which it falls. Table 1 lists the generic subject code aggregations for each issue area. These aggregations represent issue indicators that peg events into issue areas and that can be employed to subsample and control for issue content. Table 2 presents the frequency of occurrence of events in each of these issue areas for international and domestic dyads. Note that some events may be counted in more than one issue area because of multiple coding, and some may not be included in any issue area because of the 40 excluded subject codes.

TABLE 1

Generic Subject Code Aggregations for Japanese Issue Areas

1. Political Military Security Issue Area

315 Formal alliances, political, military, economic
316 General reduction of violence
318 Border disputes
319 Territorial waters
320 Airspace
321 Military conflict
322 Territorial affairs
452 Nuclear weapons research
500 Military: Strategic Nuclear Forces
501 Force levels
502 Procurement of weapons expenditures
505 Deployment, transit, base rights
510 Training and readiness
549 Other
550 Military: General Purpose Forces
551 Force levels
552 Procurement, expenditures
553 Mobilizations, deployment
555 Transit, locations, base rights
560 Training, readiness
570 International military aid
571 Military sales transfers
599 Other

2. Diplomatic Relations Issue Area

212 Unofficial visits
213 Cultural relations
311 International laws, treaties, negotiations
312 General relations between states
313 Diplomatic and consular affairs
314 International organizations, memberships, and activities

3. Resource Dependency Issue Area

130 International investment
131 Business investment
132 Government investment
133 Economic aid
134 Technical aid
139 Other investment
140 Energy (international)

141 Business
142 Government
143 Other
148 Development of international resources
155 Energy (internal)
412 Science and technology: international agriculture, fisheries
413 Natural resources
417 International nuclear development
482 Non-military nuclear reactors
484 Science and technology: internal agriculture, fisheries
485 Natural resources

4. Domestic Economy Issue Area

150 Growth and development of internal economy
151 GNP, national income
152 Investment
153 Production
154 Industrialization, growth of technology
155 Energy
156 Development of resources
160 Manpower
161 Craft and trade unions
169 Other
170 Problems
171 Inflation, price levels, wage rates
172 Unemployment and underemployment
173 Regional problems
179 Other
180 Governmental policies
181 Fiscal, budget
182 Monetary, banking, federal reserve
214 International ecology, pollution
257 Internal ecology, pollution
258 Social welfare, quality of life

5. International Trade Issue Area

100 International trade
110 Trade agreements
111 Amount and directions, trends, composition
112 Quotas
113 Tariffs
119 Other
120 International finance
121 Balance of payments
122 Exchange rates, policies, mechanisms, and institutions for adjustment
129 Other

TABLE 2

Event Frequency Totals in Issue Areas for International and Domestic Directed Dyads: Japan 1972-1974

| Dyads | All Events | Issue Areas: Political-Military Security | Diplomatic Relations | Resource Dependency | Domestic Economy | International Trade |
|---|---|---|---|---|---|---|
| International Dyads: | | | | | | |
| Japan → World | 4120 | 744 | 2541 | 912 | -[a] | 901 |
| World → Japan | 2820 | 399 | 1763 | 658 | - | 681 |
| Japan → US | 746 | 341 | 340 | 87 | - | 166 |
| US → Japan | 241 | 71 | 112 | 54 | - | 79 |
| Japan → USSR | 465 | 116 | 276 | 153 | - | 67 |
| USSR → Japan | 454 | 108 | 290 | 132 | - | 75 |
| Japan → PRC | 673 | 24 | 466 | 79 | - | 211 |
| PRC → Japan | 574 | 42 | 360 | 55 | - | 202 |
| Japan → Asia | 996 | 77 | 697 | 219 | - | 136 |
| Asia → Japan | 936 | 123 | 662 | 167 | - | 131 |
| Domestic Dyads: All Domestic | 3668 | 734 | 1044 | 660 | 1101 | 379 |
| Government → Non-government | 1254 | 232 | 334 | 244 | 464 | 168 |
| Non-government → Government | 795 | 243 | 230 | 94 | 205 | 52 |
| Government → Government | 1142 | 182 | 404 | 254 | 346 | 126 |

[a] There was minimal discussion of Japan's domestic economic issues between international actors.

## BACKGROUND AND CONCEPT

In several analyses in this report, two indices are used--a behavioral tone index and a frequency (intensity) index. This section develops the behavioral tone index, providing the background and concept for the index and then operationalizing it.

The concept of a behavioral tone index has been basic to CACI's work on quantitative indicators over the past several years (CACI, 1972 and CACI, 1974). A behavioral tone index in this context is a weighted or unweighted combination of categories of event data that reflects the relative degree of friendliness and hostility implied by the events. A number of other researchers have been active in the development of tone indices (Phillips, 1973 and Phillips and Crain, 1974 using the CREON project data; Burrowes, et al., 1970; Corson, 1970; Azar, 1970; Moses, et al., 1967; Rubin and Hill, 1973). This research has included some inquiry into weighting the components of behavioral tone indices and categorizing certain types of events as positive, negative, or neutral (CACI, 1973 and Rubin and Hill, 1973). However, no fully satisfactory combination of conceptually and empirically based weighting schemes has emerged from that research; consequently it was necessary to address the problem of developing an event data weighting scheme for behavioral tone.[3] This scheme should possess both apparent face validity and a degree of analytic support.

[3] One cannot avoid the problem of event category weighting: the failure to develop differential category weights automatically constitutes a decision to weight all categories equally. Making the assumption that coercive acts are equivalent to protest statements, or that acts of yielding are equivalent to acts of communicating or supporting, has little face validity. Especially in index construction, in which various behavioral types are combined in some fashion, a convincing weighting scheme is essential to differentiate extreme from moderate behaviors and to attempt to capture the reality of the situation.

The system used to code the Japanese data in this study is a variant of the WEIS scheme--DECS (Defense Events Coding Scheme)--which includes 22 genotypic behavioral classifications. The need to aggregate these categories in developing a weighting scheme was generated by three factors: (1) low frequencies in many categories, (2) the possibility of a high degree of correlation between categories, and (3) the need for various analytic purposes for one or relatively few behavioral tone categories. To obtain face validity, the WEIS categories were grouped and ranked into category aggregations by evident category meaning (considering category definitions and usage by various researchers). To obtain a degree of analytic validity for the weighting scheme, Guttman scaling and factor analysis procedures were employed.[4] The hypothesis underlying the Guttman scaling was that more intensely positive or negative categories of behaviors would normally be initiated only after less intense ones had been tried. Factor analysis was used to explore the dimensionality of the category aggregations and to define the placement of so-called neutral events on a positive/negative continuum.

## OPERATIONALIZATION

The WEIS system classifies international behavior into 12 negative and 10 positive or neutral categories, some of which appear more intense than others. Seven aggregated categories were developed from these 22 that were heuristically satisfying and could be conceptually ordered from most positive to most negative. These are:

1. Yield
2. Give
3. Support
4. Communicate
5. Protest
6. Threaten
7. Coerce

[4] For an explanation of Guttman scaling, see Stouffer, et al. (1950); for an explanation of factor analysis, see Rummel (1970).

Conceptually, distribution of the 22 WEIS categories among the seven new classifications was not always self-evident. Some WEIS event categories fit into these aggregated categories with little question--for example, both force and seize are unmistakably coercive acts. Others are not as unambiguous--for example, the WEIS category expel might be included in either the protest or threaten aggregated categories. To determine empirically which aggregations of the 22 original categories provide the best fit into the seven aggregated variables, several variant configurations of the component WEIS categories were tested using Guttman scaling and factor analysis. New York Times event data were aggregated into these alternative event groupings for 116 high frequency directed dyads, all of which contained 50 or more events for the period 1966 to 1974.[5] The aggregation of WEIS classifications that resulted in the best Guttman scaling follows:

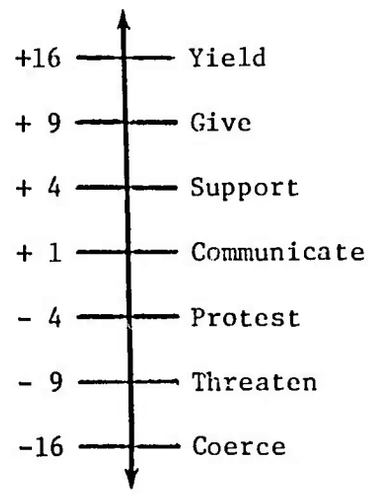
| New Aggregated Categories | Original WEIS Categories |
|---|---|
| 1. Yield | Yield |
| 2. Give | Reward, Agree |
| 3. Support | Approve, Grant, Promise, Propose |
| 4. Communicate | Comment, Consult, Request |
| 5. Protest | Reject, Accuse, Deny, Protest, Demonstrate[6] |
| 6. Threaten | Demand, Expel, Reduce, Threaten, Warn |
| 7. Coerce | Force, Seize |

Scaling positive and negative categories together, the coefficient of reproducibility was equal to .95, and the coefficient of scalability was equal to .61. Scaling positive and negative categories separately raised the coefficient of reproducibility to .98, and the coefficient of scalability to

[5] Cross-sectional Guttman scaling could not be conducted on the Japanese data base due to lack of a sufficient number of significant dyads.

[6] In the case of Japan, demonstrate includes essentially non-military demonstrations that accuse or protest the actions of another nation.

.88--for both positive and negative events.[7] The Guttman scaling differentiated the yield and coerce aggregated categories very strongly from the rest. The factor analysis of these seven categories indicated that when unrotated, all variables except these two extreme categories loaded highly on the first factor. With rotated factor matrices (squared multiple correlations were placed in the diagonal), positive and negative variables clustered together on separate dimensions (again with the extremes not loading highly) while the so-called neutral category (communicate) loaded very highly (.96) with the positive events. Based on the strong differentiation of the extreme categories (yield and coerce) and the association of the so-called neutral category (communicate) with positive events, the following weighting factors were adopted for the aggregated categories:[8]




[7] To explore transferability of these category aggregations to different data bases, this same set of aggregations was Guttman-scaled using Times of London data for the same dyads. The data were considerably less rich, as they covered only 1971-1974. This Guttman scaling gave the same ordering of categories and was still meaningful, with coefficients as follows: for positive and negative categories combined, the coefficient of reproducibility was .88, and scalability was .51. For positive and negative categories separately, the coefficients of reproducibility were .91 and .90 respectively; and coefficients of scalability were .47 and .73 respectively.

[8] In view of the results of the Guttman scaling, it appeared that the seven aggregated categories listed earlier should not be equally weighted in constructing an overall tone index. In the absence of a method for otherwise developing such a weighting scale, simple equal-interval scaling (+1, +2, etc., for positive and negative tone) would be appropriate. The marked differentiation of the extremes shown in the Guttman scaling indicates, however, the desirability of weighting the extremes more intensely than would be the case using equal intervals. Squaring the values in an equal interval scale accomplishes this. The result (with allowance for communicate as a positive category of minimal intensity) produced the weighting factors.

These weighted categories were then consolidated into a single behavioral tone index by using the following formula:

$$I_t = \frac{\text{sum of weighted frequencies}}{16 \times \text{sum of unweighted frequencies}}$$

The use of unweighted scores in the denominator of this index represents a departure from the approach used by other researchers (Kohler, 1975). To calculate their tone indices, many analysts divide the sum of the weighted conflict scores by the sum of the weighted cooperation and conflict scores. Thus, their quotients measure only the degree of hostile behavior out of total interaction. Kohler (1975) has argued that the use of unweighted scores in the denominator yields an illogical measure of tone, For instance, the occurrence of a mix of high and low intensity cooperative behaviors in any one time period will yield a smaller index value than if only high intensity cooperative behaviors occurred. He suggests that just the opposite result would be expected logically.

To this argument, two responses may be made that support the use of unweighted (or uniformly weighted) scores in the denominator of a behavioral tone index.

- In Kohler's example, the addition of one more cooperative event should not <u>per se</u> affect behavioral tone. However, we can argue that the degree of positiveness or negativeness of the added event does affect average behavioral tone. A behavioral tone index should be designed to measure <u>average</u> behavioral tone in a given time period depending upon the weights of event components. This becomes more apparent by using an example similar to Kohler's, one which indicates more clearly the desirability of diluting the intensity of the tone index when less intense items are added. Assume a three point negative scale ranging from highly negative to moderately negative to slightly negative. Three highly negative events alone would indicate very strained, possibly ruptured relations. Three highly negative events, with 4 or 5 moderately negative events, and 25 or 30 mildly negative events, would indicate an overall climate of mild disagreement with relatively few exceptions. Yet a quotient using a weighted denominator would result in the same index value for both cases: for the three highly negative events alone, and the aggregation of mild, moderate, and negative events.

- A more dramatic example is the following: using weighted frequencies in the denominator, three highly hostile events (alone) would provide index values exactly the same as three mildly hostile events (alone). Using unweighted frequencies in the denominator (the approach of this study), the three highly hostile events would scale as highly hostile, the three mildly hostile events as mildly hostile. If highly hostile events carry a weight of -3, and mildly hostile events a weight of -1, then for 3 similar events:

| Hostility Quotient Methods would produce the following index numbers: | | Unweighted Denominator Methods would produce the following index numbers: | |
|---|---|---|---|
| Highly Hostile Events | Mildly Hostile Events | Highly Hostile Events | Mildly Hostile Events |
| $\frac{3(-3)}{3(-3)} = -1$ | $\frac{3(-1)}{3(-1)} = -1$ | $\frac{3(-3)}{3} = -3$ | $\frac{3(-1)}{3} = -1$ |

Based on these considerations, the index formula for behavioral tone that uses unweighted frequency values in the denominator was considered preferable.

## SUMMARY

A behavioral tone index has been constructed that possesses the following characteristics:

- It is a weighted combination of the 22 elements of the WEIS international event categorization system.
- It has face validity in that the category aggregations considered for weighting purposes were initially selected based on meaning and normal usage of category designations.
- It has analytic support in that the results of Guttman scaling and factor analysis aided in selecting, ordering, and weighting this aggregation of categories.
- It has demonstrated a satisfactory degree of transferability between data bases possessing similar event coding schemes. Index aggregations and component rankings were developed using a New York Times data base and were replicated satisfactorily on a London Times data base.

## DYADIC INTENSITY INDEX

The objective of this section is to develop a measure of participation in international dyadic behavior. The resultant intensity or frequency index will enable comparison of the extent of behavioral interaction between dyads. Together with the international behavioral tone index described in the previous section, the intensity index provides another dimension of international actions that can be quantitatively monitored and predicted.

### BACKGROUND

Frequency of interaction has often been used to describe trends in event data. Some examples using the WEIS coding system include McClelland and Hoggard (1969: 723) who use it for trend analysis of crises involving Berlin access, Quemoy and Tachens, and the Middle East; Hoggard (1969) who establishes "performance characteristics" based on the mean of a nation's prior monthly event output; Moore and Young (1969) who use regression techniques to predict intensity of behavior based on the median frequency of events from the immediately preceding three-month period; and Harris, et al. (CACI, 1974) who array the frequency of issue-specific events over time to evaluate the relative saliency of different issues in the international domain.

In the present study an index of event frequency is sought that enables valid comparisons of dyads, even those that exhibit widely discrepant interaction frequencies. We are not interested in the raw level of interaction but in a comparable level between dyads based on deviations from the norm of interaction intensity. To provide a standardized base line for comparing dyadic event frequencies, a normal or expected value of interaction between dyad members is developed. Such an expected value suggests the level of interaction that should characterize "normal"

relations between dyad members (Azar, 1972). Theoretically, normal relation intensities are different for each dyad. The degree of deviation above or below this expected value of interaction intensity can be measured over time to form an intensity index.

## OPERATIONALIZATION

The search for an analytical standardizing factor -- an expected frequency for each dyad -- led to an exploration of the characteristics of several variables. It was alternately hypothesized that "normal" interaction between nations depends on (a) the interaction (multiplication) of their gross national products, (b) geographical proximity, or (3) directed imports and exports as a percentage of total world trade for the dyad. Regression techniques were employed to estimate the degree to which any of these factors separately or in combination could predict "normal" interaction, and thus yield an equation to calculate the expected frequency values for any pair of nations.

To operationalize "normal" interaction, international dyads characterized as experiencing "normal" relations were chosen. "Normal" dyads represent the residual set of nation pairs after warring dyads and reciprocal superpower dyads are eliminated. Thus, 47 out of 116 high frequency directed dyads (each containing 50 or more events over the period 1966 to 1974) in the New York Times event data set were earmarked to form this "normal" sample.

The event frequency variable for each normal dyad was regressed on the three predictor variables, individually and in combination. In order to normalize the sample distribution of the frequency variable, it was log transformed (base 10) and a new set of regression equations were calculated. The product of dyad partner GNPs yielded the best prediction of normal dyadic frequency (log transformed), $r^2 = .43$. The

resultant regression equation is:

$$\text{Logged Normal Dyadic Frequency}_{A \text{ or } B} = 1.95872 + .25404(GNP_A \times GNP_B),$$

where A and B are dyad members. The analyst can use this equation to derive the "expected" normal dyadic frequency for any pair of nations by substituting the product of the countries' GNPs.[9]

Since the equation's parameters are based on dyad frequencies from the New York Times data collection and subsequent analyses for this report are performed on data collected from FBIS Daily Reports, a transformation ratio had to be developed to adjust for the difference in data yields of the two sources. The total number of international events collected from FBIS on all Japanese dyads between January 1972 and July 1974 (6,940 events) was divided by the total number of events in the New York Times data set that involved Japan as actor or target during the same time period (903 events). The resulting transformation function, 7.6855, was used to adjust the expected frequency values to FBIS data densities. The adjusted expected weekly frequencies for each of the Japanese dyads to be analyzed in this report are presented in Table 3 along with the mean frequency values for these dyads.

TABLE 3

Adjusted Expected Weekly Frequencies
for Overall Behavior, 1972-1974
(based on FBIS data densities)

| Dyad[a] | Expected Frequency/Week | Mean Frequency/Week Japan → X | Mean Frequency/Week X → Japan |
|---|---|---|---|
| Japan↔U.S. | 4.58 | 5.53 | 1.79 |
| Japan↔USSR | 2.76 | 3.44 | 3.36 |
| Japan↔PRC | 1.74 | 4.99 | 4.25 |
| Japan↔Asia | 1.97 | 7.38 | 6.93 |

[a] Expected value is identical in either direction.

[9] Because the product of a dyad's GNPs is invariant despite which member of the dyad is considered the actor or target, the resultant expected frequency is the same for both halves of a reciprocal dyad.

Any difference between expected frequency and mean frequency suggests an empirically observed above or below level intensity of concern between nation pairs. For instance, on the average, Japan's interest in the United States appears to be slightly higher than what would be expected, but Japan is of relatively low salience to U.S. policy-makers as compared to what might be expected.

To calculate the expected frequency for dyads that are analyzed on issue area behavior, a further transformation function is required to adjust for the degree to which issue frequencies are sampled from a dyad's overall behavior. The transformation ratio is

$$TR_{\text{issue area}} = \frac{\text{Frequency of Reciprocal Dyad-Issue Area}}{\text{Frequency of Reciprocal Dyad (all issues)}}$$

The expected frequencies for overall behavior in Table 3 can be multiplied by this transformation ratio to adjust for issue area sampling. Table 4 presents the adjusted expected weekly frequencies for each of the dyad-issues examined in this report.

TABLE 4

Adjusted Expected Weekly Frequencies
for Issue Area Behavior, 1972-1974
(based on FBIS data densities)

| Dyad-Issue Area[a] | Expected Frequency/Week |
|---|---|
| Japan↔U.S. (political-military security) | 1.91 |
| Japan↔U.S. (diplomatic relations) | 2.10 |
| Japan↔U.S. (trade) | 1.14 |
| Japan↔USSR (political-military security) | .67 |

[a] Expected value is identical in either direction.

Once an expected value for frequency was obtained, an index to measure the degree to which observed frequencies varied above or below expected

frequencies was developed. Several alternatives were considered.[10] The one chosen computes the deviation of observed frequencies from the expected level of interaction by using the formula,

$$I_i = \frac{f_o}{f_e} - 1,$$

where $I_i$ is the intensity index, $f_o$ the observed frequency, and $f_e$ the expected frequency. This produces an index which is bounded at the lower limit by -1.0 and is theoretically unbounded at the upper limit. Empirically, the upper limit is bounded by the total number of events reported per unit of time in the data source. The index enables undistorted examination of extreme interaction intensities. Furthermore, because it is based on a standardizing factor it enables valid comparisons of interaction intensity between manifestly different dyads.

---

[10] Some of the alternatives rejected involved the use of probability measures developed by computing standard deviations or Poisson probability distributions (Hayes, 1973). These and other measures that were considered were inadequately discriminatory in regions distant from the expected value, regions in which a number of meaningful variations in dyadic interaction frequencies could be expected to occur.

## POWER STRATEGY INDICATORS

### CONCEPTUAL FRAMEWORK AND BACKGROUND

The objective of this section is to develop a set of event-based indicators that measure the use of power strategies in the international system. Power strategies used by international actors have important impacts on national security policy-making. They constitute fundamental behavioral and verbal signals sent and received by international actors that can aid in predicting future interactive trends between dyadic partners. By observing the effects of the use of power strategies over time in particular dyads and issue areas -- taking account of the credibility and persuasiveness of these strategies, and the types of responsive behaviors they elicit and with what probability -- it may be possible to employ indicators of power strategy occurrence as barometers to measure potential shifts in future dyadic relations. Event-based indicators of several types of power strategies are developed in this section. They may be used to measure the degree of power strategy exercise in overall behavior or issue-specific behavior. A methodological discussion of a power strategy impact analysis that creates the framework for measuring the probability of future international interaction appears in Chapter 4. An empirical test of the indicators and this type of analysis using Japanese overall and issue-specific international behavior as a substantive focus is presented in Chapter 7.

These strategies, defined behaviorally as attempts to influence the actions of another nation in an intended direction, are behavioral, persuasive, purposeful, and relational actions that can elicit certain types of responses from the target nation. Each exercise of a power strategy is an attempt to modify the target's goal structure and behavior pattern in a direction advantageous to the initiating nation. If power strategies employed by particular nations are consistently effective in achieving

the desired change in the target country, then power strategy usage could be a potentially important predictor of the target's reactive behavior. Thus, the ability to monitor power strategy inputs in international interaction should assist in the calculation of probability projections of particular response modes for the target nation.

The scholarly literature has dealt with two aspects of power strategies: power statements and power deeds. The former focus on verbal and conditional means of influence and persuasion; the latter involve the actual use of resources to change another's behavior. Power statements and power deeds are both attempts to alter another's behavior; the degree to which these attempts are actually successful is a matter of empirical identification. Thus, as they are operationalized, power statements and deeds are international stimuli that potentially elicit responsive behavior. Typologies of both kinds of power strategies are developed below to enable meaningful categorization of events into power strategy indicators.

## A Typology of Power Statements

Power is used to persuade another nation to change its behavior and goal orientations to conform to the initiator's goals. An important feature of power statements which distinguishes them from other types of behavior is, in Schelling's words, their "exploitation of potential force" or potential reward (1960: 5, emphasis ours). Schelling views power statements as integral elements of international interchanges that motivate modification of position and behavior by employing persuasive signals and that imply the potential application of resources in the future. The power initiator verbally commits himself to use certain resources at some future time if the contingencies of his strategy are not fulfilled by the target nation. The resources represent potential positive and negative sanctions which, even if not realized, may persuade the target to alter its present goal orientations and behaviors aimed at achieving its objectives.

The works of Schelling (1960), Ikle (1964), and Zartman (1971) yield a coherent ty >logy of power statements in international politics. Table 5 presents this typology.

TABLE 5

Typology of Power Statement Types

| Volitional | Non-Volitional |
|---|---|
| Promise | Prediction |
| Threat | Warning |
| Commitment | |
| Obligation | |
| Fait Accompli | |
| Simple Incapacity | |

All of these statement types are verbal strategies that inform another nation of the probability of future occurrences under certain conditions. Statements in the first column refer to strategies of volition; the power initiator himself has control over the likelihood of the future occurrences (for example, instituting blockades or bombing raids). Non-volitional strategies refer to those power initiatives in which control over the likelihood of future occurrences is totally out of the hands of the initiator; the occurrences predicted are usually natural or inevitable happenings (for example, nuclear fallout, famine, or public opinion). Descriptions of these power statement types follow:

A promise involves a potential reward to the target nation (allocated by the initiator) if it complies with the desires of the power initiator.

A threat involves some future initiator-allocated costs imposed on the target if it does not comply.

A commitment is the assurance the influencing nation gives to the other nation that it will take some specific future action if its needs are not met. The influencer must convince the other in a credible way that it has burned the bridges behind it and therefore will have no other choice but to make good on its commitment if its desires are not satisfied.

An obligation involves persuasion of the target nation that its own hands are tied and that it is obliged to satisfy the initiator's desires.

A fait accompli strategy indicates to the target that particular circumstances cannot be undone, that the state of things is irrevocable. This is so because of some action already taken by the influencer.

A simple incapacity strategy states that things simply cannot be done. The influencer attempts to convince the other nation of its inability to fulfill certain promises or act in a certain way.

A prediction augurs a future beneficial occurrence, which is beyond the initiator's control, if a contingency favoring the influencer is met.

A warning informs the target of inevitable costs (beyond the initiator's control) certainly to be incurred if compliance with the influencer's desires is not forthcoming.

These power statements share two properties common to all power strategies: intention and contingency. A crucial feature that differentiates power statements from other verbal behavior is the intended effect of each attempt; power is purposeful, there is some motive activating each attempt.[11] The intention or motivation behind specific power statements might possibly be indicated in terms of national objectives or the goals of individual national policy-makers. While all power statements attempt to elicit movement and change in another nation, it is often difficult to specify empirically the exact intention associated with each. The problem of intention arises because of the psychological inference that must be made of behavioral manifestations. Some national goals are not made

---

[11] Whether intended effects are reflected in the outcome, that is, whether power attempts are successful in achieving their goals, is not relevant to the question at hand. We are only interested in identifying statements that possess the potential to influence other nations. The impact of the attempts on actors in the environment is a matter for empirical analysis.

explicit; the motivation of individual policy-makers may not even be obvious or conscious to the policy-makers themselves and, in either case, it would be difficult to match specific intentions with particular statements on a one-to-one basis. Perhaps the only way to handle empirically the concept of intention is to require that the power initiator possess at least a long-term "favorable attitude" in the general direction of the consequences created by his power strategies (White, 1971).

Contingency characteristics identify those aspects of power strategies that make them potentially effective in motivating the target nation to alter its goals and actions. Power attempts are formally stated in contingency language: if you do (or do not do) x, I will (or will not) do y. They specify the sanctions that may be forthcoming depending upon whether or not there is compliance with the power initiator's desires. It is these sanctions, the expectation of benefits to be gained or costs to be imposed, that cause movement in the target's goal structure and behavior patterns. These costs and benefits are often explicitly stated or implicitly obvious to the target nation's policy-makers.

A Typology of Power Deeds

In addition to conceptualizing power as verbal signals that indicate the potential use of resources, Schelling (1971) delineates another form of power in terms of the actual allocation of resources in international politics. The manifest use of a nation's capabilities represents an attempt to influence the actions of another country in an intended direction. As with power statements, power deeds possess the properties of intention and contingency.

Power deeds may be employed for various purposes in different circumstances. First, they may represent behavioral manifestations of a nation's commitment to its power statements. In order to emphasize to the target nation one's dedication to a strategy and one's credibility to follow through on the stated sanctions if there is no compliance, a nation may resort

to the actual use of power resources. For instance, the naval quarantine of Cuba in 1962 used military force to support our threats against the installation of weapons in Cuba. U.S. threats were made more credible by employing power deeds. Second, the use of power deeds by a nation may represent its response to another nation's power attempt. A reaction to a power attempt may take the form of compliance or noncompliance with the initiator's intent; but in either case the behavior of the target may require the positive or negative allocation of its resources. Thus, in an interactive international environment one power attempt may be reciprocated by another power attempt. Third, a nation's decision-makers may choose to bypass verbal interactions and attempt to influence other nations by initiating harmful or rewarding measures. By either severe physical force or large amounts of tangible support and aid, nations sometimes can be made to bend their positions and values.

Table 6 lists power deed categories that were suggested by the international relations literature.

TABLE 6

Typology of Power Deed Types

| Allocation of Benefits | Allocation of Costs |
|---|---|
| Reconciliation | Diplomatic Hostility |
| Diplomatic Support | Physical Conflict |
| Material Support | |

There are two basic types of resources that can be allocated to influence another nation: those that immediately benefit or those that cost the target nation.

A reconciliation strategy involves yielding to the actions and desires of another nation. In one sense, a nation that employs reconciliation strategies appears to retreat from its present position by actually giving up material wealth, property, territory, or persons. On the other hand, an adept practitioner of this strategy may be capable of yielding that

which is trivial or insignificant to him but is valued by the target. For instance, U.S. policy-makers discussed the possibility of removing our Jupiter missiles in Turkey in return for removal of Soviet missiles in Cuba in 1962 (Abel, 1968). They reasoned that such a trade-off would appear to be a concession to the Soviets, would not hinder U.S. defenses, and would enhance the U.S. ability to influence Soviet behavior toward removing the Cuban missiles.

A diplomatic support strategy involves the use of diplomatic resources to indicate one nation's support of another. A large degree of diplomatic attention and aid may help influence a target country's international perspective and actions. (Witness the gradual effects of U.S. diplomatic overtures to the People's Republic of China.)

A material support strategy represents substantive assistance provided another nation. Plying others with gifts and material aid may often be a successful method of co-opting former enemy or neutral nations to a desired behavior pattern.

A diplomatic hostility strategy includes various negative sanctions that can be taken short of the use of military force to convince a nation to conform to a desired mode of behavior.

A physical conflict strategy involves the actual use of force and violence to influence a target to mend its ways or suffer further punishment.

## OPERATIONALIZATION

Most event coding systems attempt to classify every discrete form of behavior into separate categories. The power strategy categories discussed above, since they involve either verbal or nonverbal communications, can be captured by these coding schemes; powerful events constitute a subset of all observable behavior.[12] While a listing of all events

[12] The power strategy typology presented here has been operationalized elsewhere (Spector, 1975) in the context of negotiation experiments.

during a given time period merely recounts the flow of behavior between nations, an inspection of power strategy events alone should provide insight into the motivation of behavior by targeted parties. The event classifications in the Defense Events Coding Scheme (DECS), similar to the World Event/Interaction Survey (WEIS), can be used to capture the essence of these different forms of power strategies. By clustering together relevant event codes it is possible to identify over time the utilization of these power categories by different countries toward other countries. The power strategy indicators developed by this method measure the frequency of occurrence of the categories discussed earlier. Operationalization requires the performance of two tasks: (a) distinguish event categories that represent power signals from those that do not, and (b) aggregate the power event categories along the lines of the power statement and power deed typologies. The categories to be operationalized follow:

| Power Statements | Power Deeds |
|---|---|
| Promise | Reconciliation |
| Threat | Diplomatic Support |
| Commitment (positive and negative intent) | Material Support |
| Obligation | Diplomatic Hostility |
| Fait Accompli | Physical Conflict |
| Simple Incapacity | |
| Prediction | |
| Warning | |

Problems arise in specifying codes that explicitly and unambiguously fit into each power strategy category. The DECS scheme was intended to serve as a general coding system of manifest behavioral events, while the present task calls for a coding system that not only distinguishes between different types of behavior manifestations but also between various types of intention and contingency. Intention is largely a perceptual and motivational concept that is beyond the scope of the DECS coding procedures and therefore beyond our ability to deal with it in the present effort.

To a certain extent, the coding system does identify contingency statements. However, there is a large group of verbal event codes that remains ambiguous as to the predicted positive or negative sanctions that may be employed. Given knowledge of the coding system and the source material that is coded, it is possible to devise two sets of event code aggregations for each power statement type: an explicit and implicit set. (Power deed categories are all operationalized fairly explicitly.) Codes that clearly fit into one or another power statement category are classified in the explicit set. Event types that are ambiguous but whose content leans in the general direction of a particular power statement category are added to the explicit set to form a combined implicit set of power statement types. Even allowing for these two sets of aggregations, three power statement categories -- prediction, warning, and fait accompli -- cannot be operationalized given the present DECS codes. Either these power strategies are so infrequently used that separate event categories for them would prove trivial or, more likely, behaviors that capture the essence of these power strategies are distributed and buried among various event codes, and, therefore, evade the power strategy classification. A third possibility is that data sources do not report these behaviors clearly.

These difficulties cannot be resolved satisfactorily in this study because of data and coding limitations. However, future attempts to operationalize power strategy types might ameliorate these problems by developing new and more subjective variables to the event coding system. WEIS and DECS collect "hard" data on events that answer the question, Who Said or Did What to Whom, About Whom, and Concerning What? The CREON project (Salmore and Brady, 1972), on the other hand, codes variables on event contingency, initiation, elicitation, evaluation, and intent, and therefore includes information on the perceptual and motivational properties of events. Similar kinds of data are important in enabling proper classification of power strategies.

The final power strategy aggregations for this study are listed in Tables 7 and 8. Only the explicit sets of aggregations were employed in the analyses in Chapter 7. Table 9 includes the residual DECS event categories that were not classified as explicit or implicit power statements or power deeds. These "non-power" types are not used in the power strategy analyses.

TABLE 7

Event Code Aggregations for Power Statement Types

(Note: Codes developed for 1974 data only are in parentheses)

| Explicit set | Implicit set |
|---|---|
| 1. Promise: | 1. Promise: |
| 051 Promise own policy support<br>052 Promise material support<br>053 Promise other future support action<br>054 Assure; reassure<br>055 Promise information to<br>082 Agree to future action or procedure; agree to meet, to negotiate; accept state invitation | Same as explicit set |
| 2. Prediction: | 2. Prediction: |
| No codes applicable | No codes applicable |
| 3. Threat: | 3. Threat: |
| 074 Give non-threatening (friendly) notice of impending or possible harm to<br>(075) Give friendly warning; implicit warning that other party ought to do something<br>150 Issue order or command; insist; demand compliance<br>160 Give warning*<br>(162) Give hostile warning of necessary policy change*<br>171 Threaten without specific negative sanction<br>172 Threaten with specific non-military negative sanction<br>173 Threaten with force specified<br>174 Threaten with negative sanctions and time limit specified; ultimatum | Same as explicit set, plus:<br>121 Charge; criticize; blame; disapprove<br>131 Make complaint (not formal)<br>132 Make formal complaint or protest |
| 4. Warning: | 4. Warning: |
| No codes applicable | No codes applicable |

* According to descriptions of these categories in DECS coding manuals, they conform more to the power strategy definition of threats than warnings.

TABLE 7 (Cont'd)

Event Code Aggregations for Power Statement Types

(Note: Codes developed for 1974 data only are in parentheses)

| Explicit set | Implicit set |
|---|---|
| 5. Commitment (Positive Intent): | 5. Commitment (Positive Intent): |
| (026) Positive comment on situation; statement implies positive position or satisfaction with present policy | Same as explicit set, plus: |
| 042 Endorse other's policy or position; give verbal support | 025 Explain policy or future position |
| 102 Urge or suggest policy or action | 041 Praise; hail; applaud |
| | 101 Offer proposal |
| 6. Commitment (Negative Intent): | 6. Commitment (Negative Intent): |
| (027) Negative comment on situation implying negative position | Same as explicit set |
| 111 Turn down proposal; reject protest | |
| 112 Refuse; oppose; refuse to allow; exclude | |
| 113 Refuse to give information | |
| 114 Refuse to give certain rights and privileges to | |
| 115 Refuse to give or accept material support | |
| 7. Obligation: | 7. Obligation: |
| No codes applicable | 091 Ask for information |
| | 092 Ask for policy assistance; seek help |
| | 093 Ask for material assistance |
| | 094 Request action; call for; ask for asylum |
| | 095 Entreat; plead for; emotional appeal to |
| | 096 Request granting of rights and/or privileges |
| 8. Fait accompli: | 8. Fait accompli: |
| No codes applicable | No codes applicable |
| 9. Simple incapacity: | 9. Simple incapacity: |
| No codes applicable | 061 Express regret |
| | 141 Deny an accusation, attributed policy, action, role or position |

TABLE 8

Event Code Aggregations for Power Deed Types

A. Allocation of Benefits

1. Reconciliation:

011 Surrender; yield to order; submit to arrest

012 Yield position; retreat; evacuate; surrender positions

013 Admit wrongdoing

014 Apologize

015 Yield to pressure or demands

065 Suspend negative sanctions; truce; cease-fire

066 Release and/or return persons or property

2. Diplomatic Support:

043 Physically demonstrate in support of

062 Give state invitation

063 Grant asylum

064 Grant privilege, diplomatic recognition, de facto relations; send ambassador to unoccupied post

067 Increase number of consulates in

068 Establish legation in

069 Open an embassy in; increase embassy personnel

083 For an agreement to go into effect

3. Material Support:

071 Extend economic aid (gift and/or loan)

072 Extend military assistance; joint military exercise

073 Give other assistance

081 Make substantive agreement

TABLE 8 (Cont'd)

Event Code Aggregations for Power Deed Types

B. Allocation of Costs

1. Diplomatic Hostility:

084 For an agreement to expire

181 Non-military demonstration; walk-out; boycott

191 Cancel or postpone planned event; withdraw offer

192 Reduce routine international activity; recall officials

193 Reduce or suspend aid or assistance

194 Halt negotiations

195 Break diplomatic relations

196 Increase number or severity of legal barriers

197 Decrease the number of consulates in

199 Expressly terminate an agreement with

201 Order personnel out of country; deport

202 Expel organization or group

2. Physical Conflict:

182 Armed force mobilization, exercise and/or display; blockade

183 Attempt to cause physical destruction

211 Seize position or possessions

212 Detain or arrest persons

213 Intrude upon the property or territory of

221 Non-military destructive act

222 Military injury, destruction; bomb

223 Military engagement

TABLE 9

Event Code Aggregations for Non-Power Types

A. Participation Behavior

1. Diplomatic Acknowledgment:

021 Explicit decline to comment

023 Neutral comment or comment on situation

2. Diplomatic Exchange:

031 Meet with at neutral site; send note

032 Visit; go to

033 Receive visit; host

3. Organizational Affairs:

231 Establish new organization

232 Abolish old organization

233 Reorganize or alter existing organization

234 Join

235 Withdraw from membership in

236 Revoke or suspend membership of; expel

# INTERNAL POLITICAL INDICATORS

## CONCEPTUAL FRAMEWORK AND BACKGROUND

This section discusses the relationship between a nation's internal political environment and its international behavior. A generalized conceptual framework is developed that suggests a variety of potential direct and indirect linkages between internal structural and behavioral factors and international behavior. The Japanese domestic political environment is then discussed and a set of variables identified that are likely to influence Japanese international behavior and may therefore be useful in predicting that behavior. Indicators of domestic opinion on both political and economic issues are derived from the results of opinion polls conducted in Japan, and event-based indicators of interactions between actors representing the government and opposition positions on different issues -- political-military, diplomatic, resource dependency, domestic economic performance, and international trade -- are developed for use in subsequent analyses. These indicators are designed to permit comparison of the relative influence of popular opinion, bureaucratic forces, and rival political forces on international behavior.

### Theoretical Context

International policy decisions are made by an elite whose range of options is determined by a variety of factors. These include the nature of the political system within which decisions are made, the urgency of particular issues on which decisions must be made, and ongoing social and economic conditions which may be influenced by the decisions. In spite of the fact that a given decision may be made in response to external stimuli, national decision-makers will be strongly influenced by domestic and other national/international concerns.

Figure 1 provides a highly generalized graphic description of the decision-making environment as it is influenced by both domestic and international factors. It can be assumed that national decision-makers will, at all times, attempt to maximize broadly defined goals such as (1) national security -- that is, military defensive position and political integrity, (2) national economic well-being -- that is, sufficient supplies of food, raw materials, and manufactured goods to maintain or increase standards of living, and (3) international political stability -- that is, low levels of internal conflict and the security of the incumbent government. The ability to achieve these goals depends, in part, upon levels of productive capacity and social stability within the economy and society. The national political system is seen as reflecting these internal conditions and channeling influences from these sectors to the decision-making elite, or government (solid lines). At the same time, factors from the international environment have continuous influences in the domestic economic, social, and political subsystems (dashed lines) via contacts generated through international trading patterns, international political and economic organizations, and international contacts between firms, political parties, and so forth. Since internal economic well-being, political stability, and the security of an incumbent government may depend on the maintenance of favorable relations both among domestic factors and between domestic and international factors, decisions on essentially international issues will be, in part, a result of evaluations of the impact of these on the domestic environment.

To understand the range of decision options that a government may have to respond to any given issue, it is necessary to understand the complex set of interdependent relationships within the domestic environment and between the domestic and international environments which weigh upon decision-making. The accurate prediction of decision options and outcomes requires a close monitoring of internal political processes, including patterns and channels of subsystem influence on decision-makers and of bureaucratic processing of these domestic and other international influences.

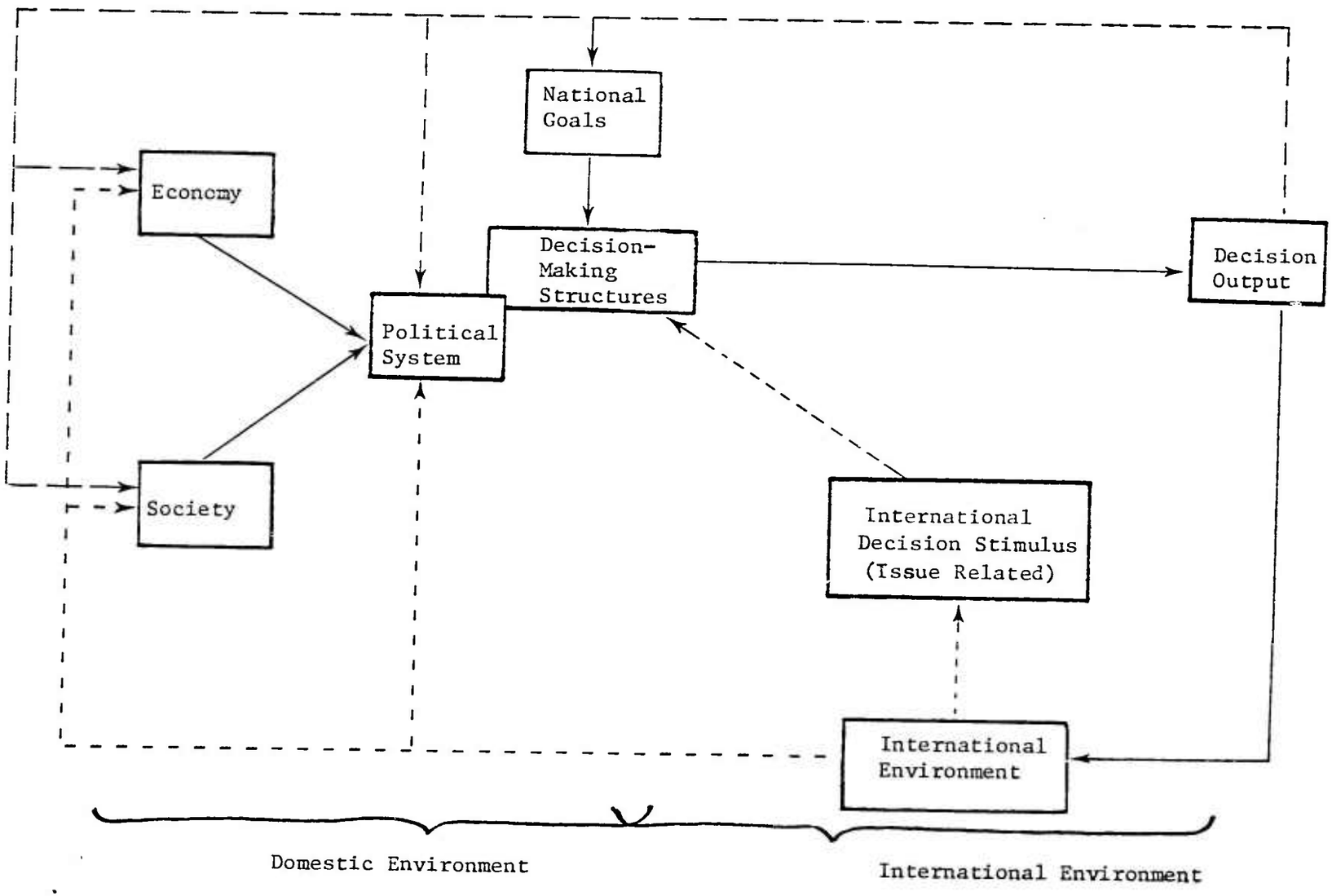
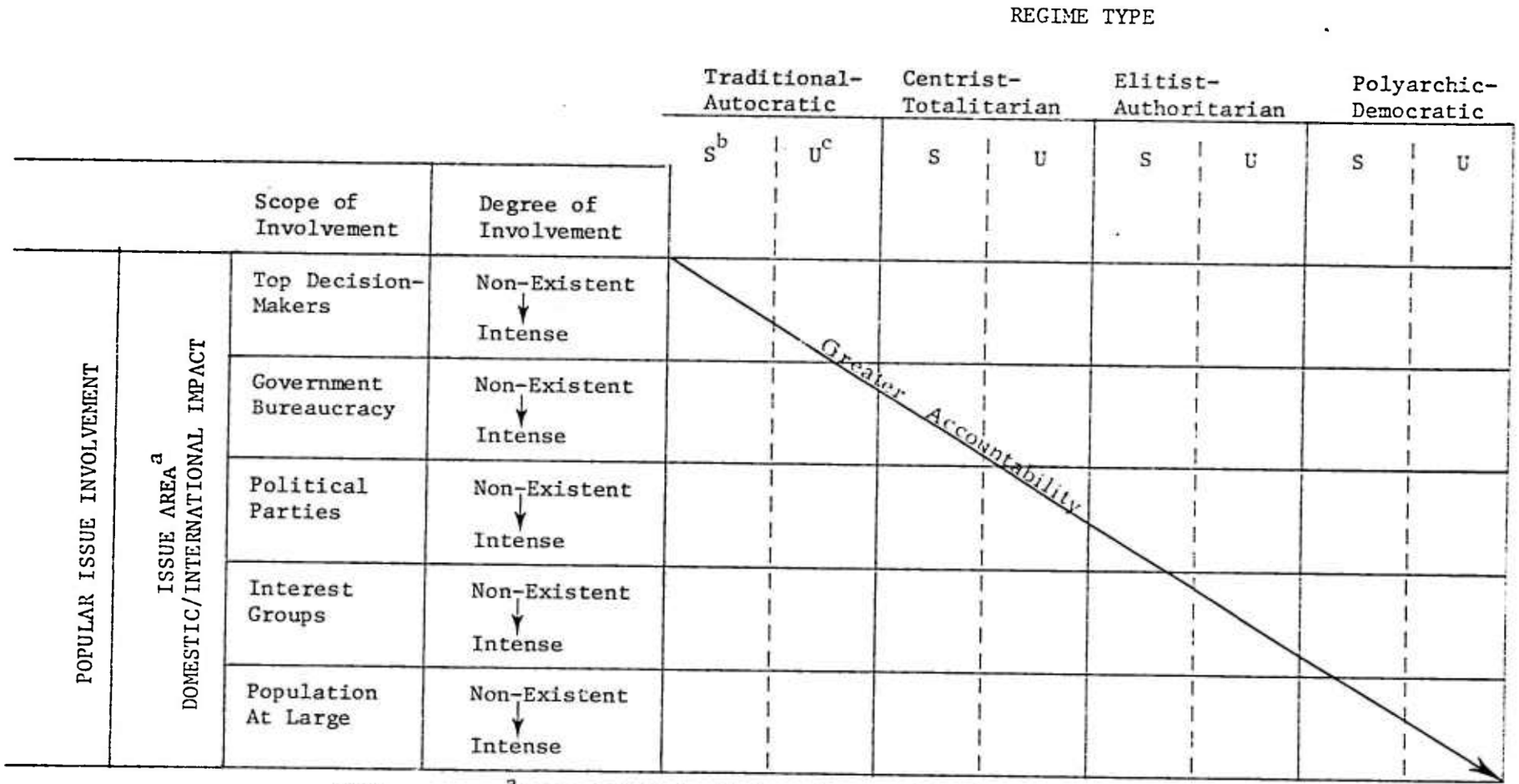



Figure 1. The Interrelationship of Domestic and International Environments
--- international influence on domestic environment
___ domestic influences on international environment

Since environmental characteristics vary from country to country depending on levels of social and economic development, geographic location, regime type, international involvement, and other attributes, and since salient issues change over time, the task of predicting the range of decision options available to a given country at a particular point in time and in a specific issue area is quite complex. In particular, the set of domestic political, economic, and social variables which influence decision-making, and the weight of any one variable within the set, will vary across different polities.

The first step in research design must be to determine the set of variables that may be important factors influencing decisions within a given nation. Figure 2 provides a conceptual framework that can facilitate the identification of sets of variables for different polities and issue areas. In the figure, decision-maker accountability is used to refer to the relative sensitivity of decision-makers to influences from national economic, social, and political subsystems. Regime type and popular issue involvement are used as conceptual tools for isolating different polities on the dimension of decision-maker accountability. The diagonal line in Figure 2 describes the general prediction that accountability will be greater as regimes are more polyarchic-democratic. However, certain issues may mobilize greater popular involvement and more intense participation than would normally be characteristic for a given polity. Therefore if specific levels of decision-maker accountability in different issue areas can be determined on the basis of past behaviors, the analyst will be better able to assess likely domestic reactions to given issues and the potential impact which these reactions will have on decision-makers. He will be in a better position to monitor particularly important factors within the domestic environment which indicate the direction of specific policies and, given a finite range of decision options on any specific issue, he will be better able to predict decisions to be made.

Regime type may range from traditional-tribalist to personalist, centrist, elitist, or polyarchic (Wilkenfeld, 1973) or from autocratic to totalitarian




KEY:

[a] Issue areas include: international alliances, rearmament, resource development, foreign investment, trade expansion, tariff levies, energy, inflation, treaties, diplomatic exchange, etc.

[b] Stable, legitimate

[c] Unstable, illegitimate

Figure 2. Decision-Maker Accountability

authoritarian or democratic. Comparative government scholars traditionally associate these different regime types with distinctive bureaucratic structures and formal mechanisms linking the population at large to decision-makers and defining the range of participatory opportunities of the population. Different political variables may be appropriate for analyzing influence and decision processes within centrist-totalitarian, and polyarchic-democratic regime types, even though issues confronting these different polities may be quite similar. Thus, the isolation of a given polity within one regime type category suggests a range of indicators of political activity which must be monitored for that polity and others like it, but which might be ignored in a different polity. It is hypothesized that decision-makers will be more accountable the closer the regime type approaches the polyarchic or democratic end of the continuum. In addition, within each regime type, the incumbent government may be more or less stable (threatened) or regarded as more or less legitimate by its relevant constituencies or the population as a whole. The less stable or legitimate an incumbent government, the more sensitive or accountable it is likely to be to influences stemming from the domestic environment. That is, in unstable regimes decision-makers will be more concerned that decisions satisfy important political support groups than will stable regimes that already enjoy sufficient political support. Because political support is uncertain in unstable regimes, decisions there are also likely to be more erratic and therefore less predictable than in stable regimes.

Popular issue involvement depends on the issue area under analysis. Specific issue areas may be more salient for one country than another. For example, because of its high level of development, the United States, until recently, has been less concerned about international economic issues than about international political or military issues. Japan, in contrast, because of its resource dependency, is primarily concerned with international economic issues. By the same token, while Japan is more concerned about the availability of raw materials and foodstuffs,

Brazil is more concerned with the availability of investment capital. For any given issue area a variety of factors, immediate and historical, influence the intensity of involvement of subnational actors in attempts to influence decision outcomes. For example, issues regarding national security, particularly direct threats to national security, may well involve the population generally, while issues regarding specific armaments or military alliances will involve only certain interest groups. Such involvement may vary from country to country as a result of specific historical experiences. In Japan the nuclear question arouses broad popular concern, while in the United States popular concern on this question is quite low. Issues regarding tariffs may involve only those groups affected by the tariffs, while issues regarding availability of food supplies may involve the population generally. The recent soybean crisis in Japan is a case in point.

Depending on the salience level of the issue area in a given polity, the scope of popular involvement may include the population at large, specific interest groups, political party members, the government bureaucracy, or only top decision-makers. In addition, the intensity of involvement of any one of these sectors is likely to increase according to the degree to which the immediate interests of the sector are perceived to be affected by the decision outcome. Where decisions on specific issues have immediate perceivable costs or benefits, the intensity of participation will be greater than on issues where benefits and costs are less specific. Where greater numbers of the population participate, or where participation is particularly intense, decision-makers will be bound to take more account of domestic considerations in making decisions regarding international actors or issues (Rosenau, 1966).

The degree to which domestic factors will influence decision outcomes also varies according to the urgency of a given decision and to the scope of its potential impact on the national environment--its economic well-being and national security. For instance, the decision whether or not to support

the Arabs in the recent Middle East confrontation, given the threat of an oil embargo, was both urgent and likely to have a broad impact on both the society and economy. This impact, in turn, was likely to have direct consequences for the tenure in office of the government responsible for the decision.

The multiple factors that influence decision-maker accountability indicate that in monitoring domestic influences on the external policy-making process, it is necessary to focus particular attention on those structures and processes within the political system that communicate public approval or disapproval to decision-makers. The degree of autonomy of decision-making elites within the political system and the nature of pressures and operating strategies of pressure groups from sectors outside the political system can be assessed by examining several aspects of the political system including size of the attentive public, legitimacy of the government in power, and degree of autonomy of the government in power. Once these characteristics are determined, the pattern of linkages between the political system and the domestic economic and social systems and between the political system and the international system can be explored in a variety of issue areas. In this way, those linkages and those factors that operate most intensely and most persuasively in determining decisions in individual issue areas can be specified. If, in a variety of specific decisions in a given issue area, the same forces are seen to exercise considerable influence, it can be hypothesized that these forces will generally be salient in the issue area. On the basis of such "historical" analyses, probabilistic weights can be assigned to various linkages to predict future decision outcomes in the issue area. It should be noted, of course, that while the range of variables to be examined may be applicable on a global basis, the specific linkages may differ for a given country or issue area for reasons of environmental variability as described above.

Figure 3 is an expanded version of Figure 1 in which the components of the decision process are broken down into more specific sets of variables. The boldfaced headings indicate general categories of important components of

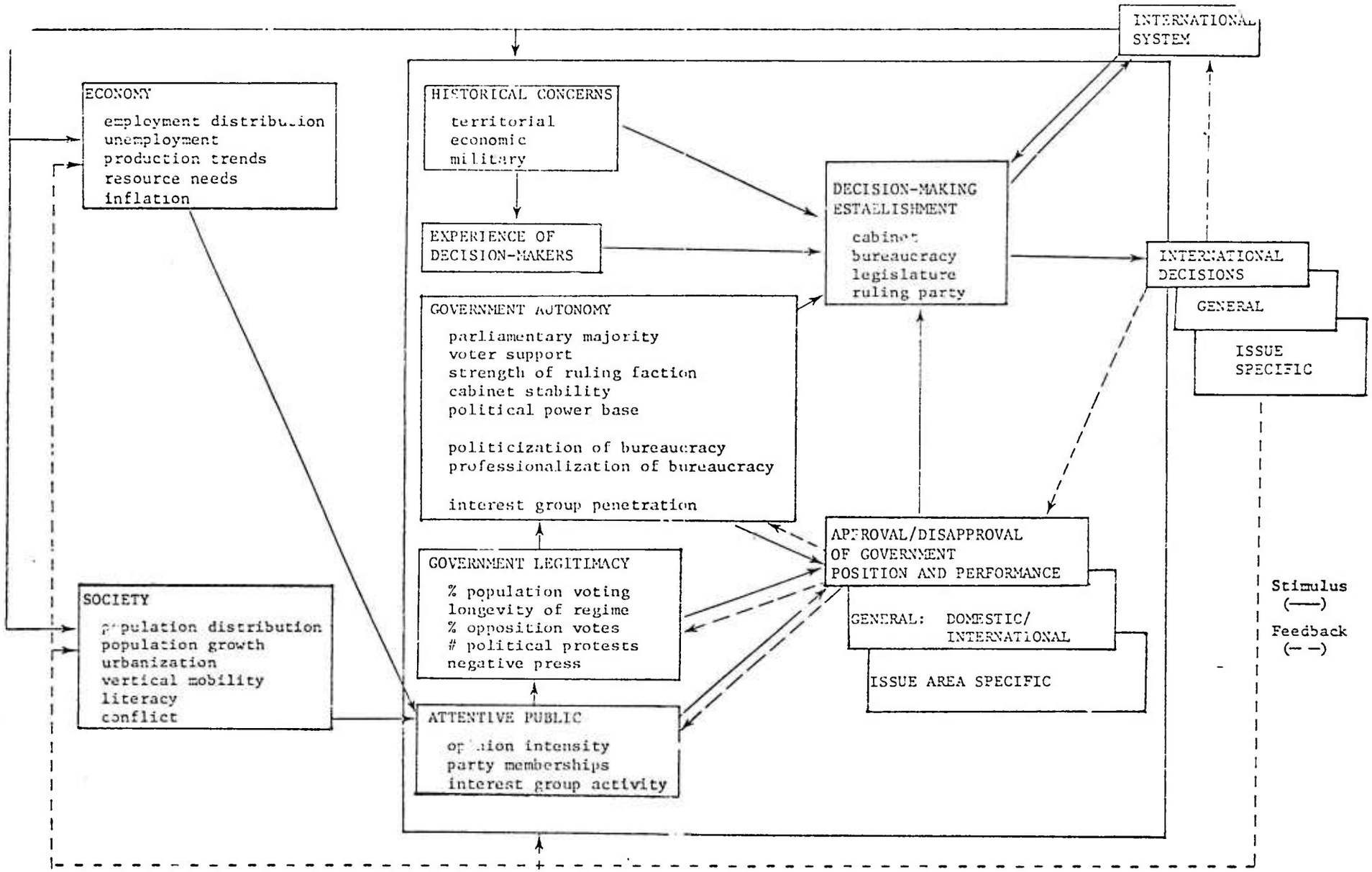



Figure 3. A Model of Domestic Influences on International Decisions

economic, social, and political subsystems which must be considered in analyzing decision-making in any polity type. Different, though conceptually parallel, operational indicators would be selected for many of the political subsystem components depending on the polity type of the country being studied. The indicators suggested under each heading in the figure would be appropriate for a polyarchic-democratic polity.

A fully operationalized version of Figure 3 would provide a highly sensitive mechanism for examining general or issue specific interactions between a given nation and the international system as a whole, or between dyads of nations. More usefully, it would provide a mechanism for testing the different impacts of change in the international system (for example, fuel or food shortage, military mobilization of a neighbor, or a new alignment pattern) or within the domestic environment (for example, rapid inflation, critical resource shortage, mobilization of a strong political opposition) on external decision outputs.

In Figure 3 the economy and society form the broad background from which messages are channeled through the political system to decision-makers, and which in turn receive the final impact of decision outcomes. Messages from this background are registered most often with the attentive public -- the most politically aware members of the population as a whole. Opinions within the attentive public determine government legitimacy, and participation by the attentive public determines government autonomy. Size of attentive public, government legitimacy and autonomy, and historical political concerns and experience provide a relatively stable set of messages which, when processed within the relevant decision-making establishment (cabinet, bureaucracy, legislature), determine general decision-making policy tone.

Specific domestic or international events may, at any time, result in a shift in the level of popular approval or disapproval of existing policy positions or performance. Such change in approval or disapproval may be

measured with public opinion records or with event records recording positions taken by important political, economic, or socio-cultural elites. When, at a given time, the domestic approval/disapproval indicator is seen to diverge sharply from its normal level, it can be expected that this divergence will result in an alteration in policy output or style. This will be more often the case the greater the impact of the shift in approval/disapproval is perceived to have on the durable features -- legitimacy and autonomy -- of the political system. Thus, approval/disapproval is closely related to popular issue involvement as described in Figure 2.

The Japanese Context

The concepts and variables in Figures 2 and 3 suggest areas which must be explored for indicators of domestic environment influences on the international behavior of Japan. Japan falls unquestionably into the polyarchic-democratic regime category in Figure 2. Decision-maker accountability and sensitivity to public opinion is therefore expected to be high on issues in which popular involvement is intense.

A variety of indicators, such as voter support for government, percent of opposition vote, strength of Parliamentary majority, opinion intensity, interest group activity, and level of approval or disapproval of government positions and performance, are suggested in Figure 3 as reflecting the sources of popular pressure on government decision-making. In selecting reliable and sensitive indicators from these, the specific conditions and time parameters of the research data base must be considered. In the present study, international event behavior data are available for the 31-month period between January 1972 through July 1974. This time span is not sufficiently long to warrant the use of many of the social, economic, and political indicators traditionally used in international relations research. For example, the current Liberal-Democratic Party (LDP) governing coalition has enjoyed a parliamentary majority in Japan throughout the post-World War II period. While

this has decreased slightly in recent years, as indicated in Table 10, the LDP capacity to govern remains intact and most observers consider it unlikely that the present distribution of party power will change substantially in the next decade. Because of the stability of the LDP vote and of LDP seats in the Japanese Diet, electoral statistics are inappropriate as monitors of domestic change factors for the present study.

Even though voter support for the ruling party coalition has remained constant over time, support for particular governments or party leaders (in the Japanese case, the Prime Minister) has varied. The "approval/disapproval of government position and performance" may therefore be a useful indicator of shifting domestic opinion. Both opinion poll data and event data recording positive and negative statements about government policy by domestic subgroups may be used to tap this concept. Figure 4 plots the degree of popular support for the incumbent cabinet from March 1970 through December 1974. Two government changes occurred in this period, the transfer from Sato to Tanaka in July 1972 and from Tanaka to Miki in December 1974. International issues were clearly operative in causing at least the first cabinet change. Sato "was compelled to retire in 1972 after his pro-Taipei, anti-Peking diplomacy (inherited from his predecessors who had opted for the path of following America's leadership) had suddenly been rendered untenable and controversial by the Nixon visit to Peking" (Tsurutani, 1974: 134).

It is also important to monitor the positions adopted by different political parties in assessing likely domestic influences on international behavior. In spite of the unlikelihood of a radical change in government, the Japanese opposition and factions within both the ruling and opposition parties have considerable opportunity to raise policy issues which may influence policy positions. Indeed, "internal political considerations...and international, not domestic policies, have been the main source of conflict between the ruling Liberal-Democratic party and the splintered, largely left-wing opposition parties" (Hellmann, 1972: 45).

TABLE 10

Party Voter Support in General Elections and Parliamentary Seats Allocated to Parties, 1955-1972 (in percentages)

| Party | February 1955 | | May 1958 | | November 1960 | | November 1963 | | January 1967 | | December 1969 | | December 1972 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vote | Seats | Vote | Seats | Vote | Seats | Vote | Seats | Vote | Seats | Vote | Seats | Vote | Seats |
| Conservative and Independent[a] | 66.8 | 65.1 | 64.5 | 67.8 | 60.8 | 64.9 | 59.6 | 63.0 | 54.4 | 58.8 | 53.1 | 62.4 | 51.7 | 58.3 |
| Komeito[b] | | | | | | | | | 5.4 | 5.3 | 10.9 | 9.7 | 8.4 | 5.9 |
| Reformist[c] | 32.1 | 34.7 | 35.5 | 35.7 | 39.3 | 35.3 | 40.4 | 37.0 | 40.1 | 36.2 | 35.9 | 28.2 | 39.0 | 35.6 |

[a] Category consists of Democrats and Liberals for 1955, Liberal-Democrats after 1955, and Independent and minor party representatives, most of whom affiliate with the Liberal-Democrats in Parliament.

[b] Clean Government Party (non-partisan)

[c] Left Socialist, Right Socialist Communist, and Farmer Labor Parties for 1955; Socialist and Communist for 1958; Communist, Social Democrat, and Democratic Socialist Parties, 1960-1972.

Sources: Hellmann, 1972: 47; Japan Statistical Yearbook, 1972: 596-7.

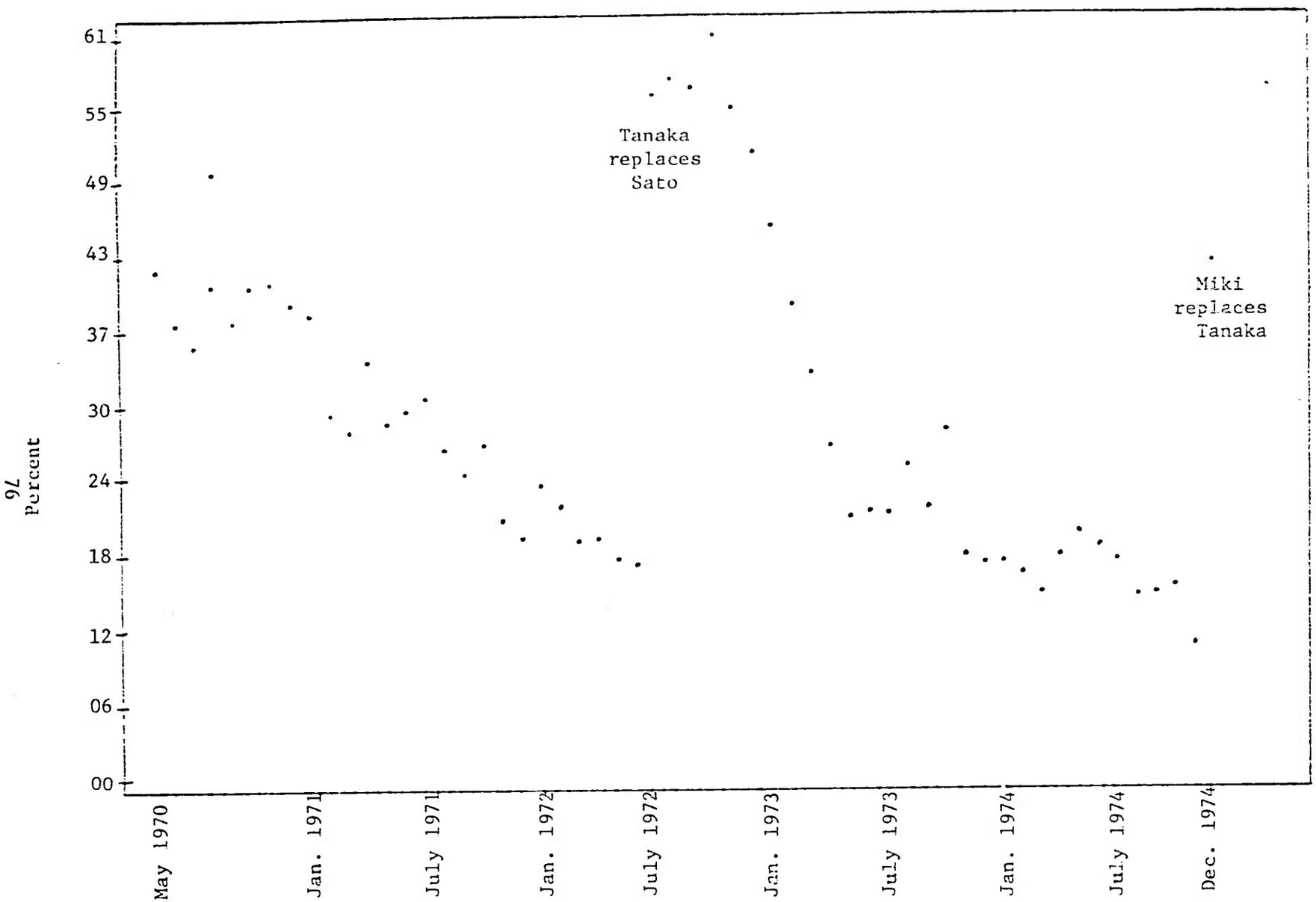



Figure 4. Popular Support for Incumbent Cabinet

Percent Positive Responses to the Question "Do you Support the (Prime Minister's Name) Cabinet?" - May 1970-December 1974. (Source: JIJI Press Monthly Polls)

This same author notes that public debate over alternative policy positions, as defined by government and opposition points of view, forces the ruling coalition to consider options not of its own choosing.

> [The] belief in consensus -- that the government in power has a special obligation to respect and seek accommodation with the views of those out of power -- has led the socialists to adopt rigid policy positions and gives special import to the huge gap between the conservatives and the opposition over the goals of international action....(T)his gap...has forced the Liberal-Democrats (despite their majority in the Diet) to consider scrupulously the socialist's position on major issues....(Hellmann, 1972: 49).

In addition, Hellmann notes that the opposition parties are almost completely preoccupied with international policy questions rather than domestic policy questions (Hellmann, 1972: 50). They frequently use confrontation tactics to emphasize their demands.

> In support of their causes, the socialists have frequently adopted tactics of extralegal direct action-disruptive public demonstrations (demos) and physical obstruction of Diet proceedings...Such incessant and open criticism exacerbates conflict over all international issues and correspondingly magnifies the importance of domestic political considerations in foreign policy decisions...This capacity to shape both the intensity and the substance of the political debate remains one of the most effective means of foreign policy influence for the Japanese oppositions generally and the left in particular (Hellmann, 1972: 50).

Despite the apparent openness of the Japanese political system, the makeup of the Japanese Government (the constraints of the parliamentary as opposed to Presidential system, and traditional consensus-seeking interaction processes) provides decision-makers with considerable insulation from forces pressing alternative policy positions. It is widely recognized that most policy formulation takes place within the government bureaucracy rather than at the cabinet level. Tsurutani notes that "Japanese foreign policy is in large measure shaped by the Foreign Ministry's intrabureaucratic style of operation, the chief feature of which is decision-making

by consensus....The governing party merely confirms the bureaucratic tendencies of the Ministry, allowing the Ministry the decisive role" (Tsurutani, 1974: 127).

This bureaucratic aspect of Japanese policy-making is important (1) because of the ministry's high level of insulation from the public as a whole (a consequence of the life tenure and seniority system); (2) the high degree of penetration of bureaucrats into the political parties, especially the ruling Liberal-Democratic party (Tsurutani, 1974): and (3) the close relations between important interest groups, especially economic interest groups (Yanaga, 1968). Tsurutani maintains that

> With the seniority rule in inexorable control, the Foreign Ministry today continues to hold the basic policy orientation and political attitude that was shaped and initially became dominant in the Ministry during the first part of the 1950's.
>
> Within the context of (the Japanese) institutional structure..., such basic orientation and attitudes are impervious to environmental pressure and change precisely because the latter cannot threaten the elaborately routinized pattern of personal tenure and rewards....There is a built-in bias against situational flexibility (1974: 129).

Tsurutani's assertion is contradicted by Reischauer, who argues that the bureaucracy is not all-powerful:

> Public opinion and the interests of pressure groups, such as...the big business community..., furnish other important ingredients, while consensus decision by the party in powers, and the majority votes in the Diet that these produce, are the decisive elements in critical governmental decisions (1974: 149).

The forces mentioned by these and other authors as having particular impact on government policies suggest that, in the Japanese context, overall public opinion, specific party positions, and government and interest group positions on different issues are all elements of potential influence on international behavior. Thus, if an incumbent

government is enjoying low prestige, or if the opposition is taking a particularly strong stand on a particular issue, decision-makers, seeking to build or regain consensus, may become more active in the contested policy area, or may modify the tone of their interaction with international partners involved in the policy area. If, in contrast, the government's position is firm and more strongly defended in public than opposition positions, either a continuation of past policies or a change in policy commensurate with the government position may be expected.

## OPERATIONALIZATION OF DOMESTIC POLITICAL INDICATORS

Both public opinion polls and statements or actions by different groups appear appropriate as indicators of shifting opinion within Japan and of different positions raised by government and opposition groups on specific policy issues. In this section the following indicators of popular opinion are operationalized: support for the governing party; support for the incumbent cabinet; attitudes about the quality of life, cost of living and relative prosperity; and attitudes toward selected other countries. In addition, event-based indicators of the tone of interaction between selected domestic actor dyads, representing government and opposition forces, are developed. These indicators include measures of both overall interactions and interaction on selected issues. These different indicators will permit the subsequent evaluation of the relative influences exercised by popular attitudes, bureaucratic forces, and organized political party forces on international behavior.

### Opinion Indicators

The Japanese press, government, and a large number of private institutions have conducted opinion research on a wide variety of issues in Japan (see Richardson, 1974). For our purposes it was necessary to find polls which tapped Japanese opinion on important domestic issues such as the state of the economy, satisfaction with existing government

and party preferences, as well as on international issues such as the U.S.-Japanese Mutual Security Treaty, Japanese rearmament, and Japanese alignment with the free world or neutralist or Socialist blocs. In addition, it was necessary that the polls be conducted with sufficient regularity that they would provide sensitive indicators of shifting preferences and opinions for the period covered by the international event data set recorded from FBIS, 1972-74.

After considering a variety of different polling sources, the JIJI Press polls, a regular monthly survey conducted on a stratified random sample of the Japanese population, were determined to be the best for our requirements (see JIJI Public Opinion Polls, Survey 231 in Zenkoku Yoron Chora No Genkyo). The JIJI polls ask a basic set of questions in each survey, in addition to topical questions. Those questions judged to be of potential use as indicators of domestic opinion include ones probing party voting habits, support for the incumbent government, preferred countries, alignment preferences, and opinion on current economic conditions and the quality of life. Questions were translated from the Japanese and selected responses were recorded in machine-readable form for use in the analysis. Table 11 lists the questions, responses, and dates covered for the opinion indicators coded from the JIJI polls and used in the subsequent analysis. It will be noted that two categories of opinion indicators are available, (1) political opinion indicators, and (2) economic opinion indicators.

Domestic Tone Indicators

To tap the strength and focus of activity, as opposed to opinion, of different domestic groups, event data were used as a behavioral indicator of policy preferences and positions within Japan. Domestic event data were collected from the same source (FBIS) as international event data, using the DECS domestic coding system. Over 200 subnational (domestic) actor codes were used in preparing the domestic event data. Events themselves included categories for government structural change, government policies toward the population (sanctions and relaxation of sanctions) and statements by various actors about specific issues or

TABLE 11

JIJI Public Opinion Polls Survey 231

I. Political Opinion Indicators

Poll Question 1:

Which political party do you support?

a. Liberal Democratic Party (LDP)
b. Socialist Party
c. Komeito (Clean Government Party)
d. Japan Democratic Socialist Party (DSP)
e. Communist Party
f. Other Political Parties
g. Between Conservative and Liberal, Choose a Conservative Party
h. Between Conservative and Liberal, Choose a Liberal Party
i. Support No Political Party
j. Do Not Know

Poll Question 4:

Do you support the Sato Cabinet?

(Note: July 1972, Tanaka replaces Sato. December 1974, name of Premier excluded.)

a. Support
b. Do Not Support
c. Do Not Know

Poll Question 7:

Do you think Japan at present should side with free world?

a. Free World
b. Neutral
c. Communist Nations
d. Do Not Know

Poll Question 8:

List up to three countries you like.

a. United States
b. Soviet Union
c. Great Britain
d. France
e. West Germany
f. Switzerland
g. India

h. Communist China
i. Korea
j. North Korea
k. None

Poll Question 9:

List up to three countries you dislike.

(same as above)

II. Economic Opinion Indicators

Poll Question 44:

Cost of living -- Do you think the price of commodities is leveling off? Do you think it will still go up? Or do you think it will come down?

a. Leveling Off
b. Will Go Up
c. Will Come Down
d. Do Not Know

Poll Question 45:

Prosperity -- How do you view the prosperity of the people in general? Do you think it is about same as the last month? Do you think it has become worse? Or do you think it has improved?

a. Has Definitely Improved
b. Has Slightly Improved
c. No Change
d. Has Slightly Worsened
e. Has Definitely Worsened
f. Do Not Know

Poll Question 46:

Living -- How is your standard of living compared with this time last year? Has it become easier? Or has it become more difficult?

a. Has Become Much Easier
b. Has Become Slightly Easier
c. No Change
d. Has Become Slightly More Difficult
e. Has Become Very Difficult
f. Do Not Know

policies. Due to the infrequency of occurrence of important structural changes or of government actions toward the population, only the category of statements and actions about policy and issues was used for analysis of the relation between domestic events and international behaviors.

The coding scheme for this category was closely parallel to that used for international events and the indicators developed from it were purposely tailored to parallel those used for international tone indicators (see "The Development of the International Behavioral Tone Index," in this chapter). Aggregations of domestic behavior categories were developed such that they would parallel those used for the international domain and would be comparable to the scalar values used in the computation of the tone indicator

$$I_t = \frac{\text{Sum of weighted frequencies}}{\text{Sum of unweighted frequencies}}$$

In this way, statements and actions by domestic actors as they discuss or debate among themselves on issues with potential international importance may be assessed for their impact on policy positions taken by Japan in dealing with other nations.

The final aggregation of domestic event codes, consisting of four positive and three negative categories, is presented in Table 12. A comparison of this coding scheme with that for the international events reveals several necessary differences. These are due both to differences in the original DECS coding format and to the different political context which the final aggregations are meant to reflect. For example, "demonstrate" is coded as a protest activity in the international scheme because in the Japanese case demonstrations about other nations' behavior are largely non-military, symbolic expressions. A demonstration in the domestic context, in contrast, is an activity that directly threatens the legitimacy of an incumbent government or current policy. In the Japanese case this is particularly so since demonstrations are most often led by opposition parties and are a major artifact of the opposition strategy

TABLE 12

Domestic Event Aggregation and Weights

| | Weight for Tone Scale | Aggregate Behavior Type | Components |
|---|---|---|---|
| Most Positive | +16 | Agree | Agree, make formal agreement, reward, grant |
| | +9 | Support | Approve, promise, request |
| | +4 | Propose | Propose, urge policy |
| Neutral | +1 | Communicate | Meet with, comment, refuse comment |
| | -4 | Protest | Friendly warning, reject, accuse, protest, deny |
| | -9 | Threaten | Demand, warn, threaten, reduce relations |
| Most Negative | -16 | Physical demonstration | Physical demonstration of protest |

of promoting issues within the framework of Japanese consensus decision-making. Demonstrate was therefore regarded as the most negative of domestic behaviors and was given a weight of -16 in the aggregate scale.

One of the most frequently recorded behaviors for domestic actors proved to be that of proposing, urging, or implementing policy. Because of the importance of public debate over alternative policy positions in assuring government accountability to major forces within the population, and because of the function which this debate has in maintaining government legitimacy, a separate category for the issue-raising activity of proposing or urging policy (propose) was maintained in the domestic data aggregations, whereas in the international aggregations the activity was included in the "support" category.

Given the non-commital tendency of the Japanese policy-making process -- recall the remark "the government has made major political decisions... only when it was no longer possible to avoid them" (Hellmann, 1972: 44) -- the adoption of a clear positive position on a policy question, for example, support for a policy, was accorded a higher weight (+9) in the domestic context than in the international (+4). The most positive behavior in the domestic context was agree, since activities such as yield, used in the international coding, were inappropriate for describing Japanese domestic behaviors.

The above discussion indicates that the aggregations of domestic behavior have scalar values, at least at the ordinal level, in terms of most negative to most positive behaviors. They therefore satisfy the criterion of face validity. To test the empirical reliability of the hypothesized scale, a Guttman scalogram analysis was performed which produced a coefficient of reproducibility of .90 and a coefficient of scalability of .50 for the overall aggregation.[13] As in the case of the international behavior categories, this test reinforces our confidence that the aggregate categories can be weighted in accordance with the scale, and can be combined to form a useful index of the tone of domestic activities.

Domestic Dyad Indicators

Each of the domestic events recorded was coded to reflect the domestic actor responsible for the action or statement and the domestic target of the action or statement. Over 200 actor/target categories were available in the coding scheme (see the Codebook in the Appendix). The low frequency of use of many of these categories and the need for a parsimonious set of actor/targets for the final analysis required the clustering of actor/target categories.

---

[13] A coefficient of scalability below .6 is generally considered unacceptable. However, the coefficients for the separate positive and negative aggregations were acceptable. For the positive scale, the coefficient of reproducibility was .97, and of scalability was .79. For the negative scale, the coefficient of reproducibility was .97, and of scalability was .65.

A preliminary aggregation of major actors, as suggested by both literature on Japanese domestic politics and the research questions posed for analysis, was developed. The list included actors both in and out of government as follows:

| Government Actors | Non-Government Actors |
|---|---|
| National Executive | Opposition Parties and Leaderships |
| Cabinet Ministers | Economic Organizations and Interest Groups |
| Foreign Ministry | Other Organizations and Interest Groups |
| Trade and Finance Ministries | Sub-National Governments |
| Defense Ministries | |
| Other Domestic Ministries | |
| Government-Owned Industries | |
| Ruling Party Leadership | |
| Legislature | |

The research design required that domestic behavior trends within Japan be emphasized to predict a set of international behavior trends. In order to describe the domestic trends, actor/target dyads were developed which reflect the source and direction of internal debate over policies. Five dyads were computed from the above aggregations of major actors. These are:

1. Government actors' statements and actions toward non-government targets;
2. Non-government actors' statements and actions toward government targets;
3. Government actors' statements and actions toward other government targets;
4. Non-government actors' statements and actions toward other non-government targets.

The fifth dyad, reflecting the sum of all domestic actions and statements, was also computed to provide a single indicator of domestic behavior which could be associated directly with the international behaviors adopted by Japan in its relations with other countries.

## Domestic Issue Area Indicators

The same set of issue-subject codes used in coding international events was used to code the substantive content of domestic actions (see "The Development of Issue Indicators" in this chapter). Five major issue areas reflecting domestic concerns with potential impact on international behavior were identified through substantive analysis of current literature on Japan. Four of these are repeated from the international issue areas: political-military security, diplomatic relations, resource dependency, and international trade. The fifth, domestic economic conditions, is of particular importance in the analysis of the impact of domestic conditions on international behavior. Table 13 gives the number of events recorded for each of these five issue areas and for all issues and events in each domestic dyad used in the analysis.

TABLE 13

Distribution of Domestic Events by Dyad[a] and Issue Area
(Percents in Parentheses)

| | All | Pol-Mil Security | Diplomatic Relations | Resource Dependency | Domestic Economy | International Trade |
|---|---|---|---|---|---|---|
| Government→ Non-Government | 1254 | 232 (18.5) | 334 (26.6) | 244 (19) | 464 (37) | 168 (13.4) |
| Non-Government→ Government | 795 | 243 (30.6) | 230 (28.9) | 94 (11.8) | 205 (25.8) | 52 (6.5) |
| Government→ Government | 1142 | 182 (15.9) | 404 (35.4) | 254 (22.2) | 346 (30.3) | 126 (11) |
| Aggregate Domestic | 3668 | 734 (21.8) | 1044 (28.5) | 660 (17.9) | 1101 (30) | 379 (10.3) |

[a] The non-government/non-government dyad is eliminated here as it is assumed not to be of direct relevance to international behaviors.

The domestic dyad interactions are expected to reflect different positions on different international issues. These positions are determined by the role which the dyad actors play in Japanese domestic political life.

Government and opposition (non-government) statements are expected to reflect the different political postures assumed by these groups. As has been noted in the discussion above, the opposition is expected to be concerned with political military questions, especially rapprochement with the People's Republic of China and with the Soviet Union and disengagement from the U.S. alliance. As a consequence it is also expected to favor improved diplomatic relations with the People's Republic of China and the Soviet Union, and be hostile toward the United States. The government as the mainstay of the status quo would be expected to adopt the opposite position on these issues. However, recent government searches for a new role for Japan in the international sphere indicate that the government might also favor, at least mildly, some of the same political-military and diplomatic positions as the opposition. The government should be more concerned with economic questions, since, in part, its support within the population is based on its successful management of both domestic and international economic questions. Inter-governmental dialogue is expected to reflect more mundane bureaucratic and political concerns such as diplomatic relations and economic performance.

It is interesting to note the reflection of these roles in the different emphases which emerge in the dyadic relations presented in the table. The political-military security issue is a major topic of non-government→government interaction, while diplomatic and economic issues are more frequent in inter-governmental dialogue and in government statements as a whole. The most important issues in within-government dialogue and in government statements to the population are those relating to the domestic economy and to diplomatic relations. The high frequency of the latter category is to be expected, given the heavily bureaucratized nature of Japanese international relations, and the low-key and pragmatic approach which Japan has adopted to pursue its international goals.

## CONCEPTUAL FRAMEWORK

The predictive value of economic trends in the analysis of international interaction is especially crucial when the country under scrutiny is as economically oriented as Japan. If a nation's aims are defined largely in economic terms, it is likely to formulate its international behavior toward other nations to maximize these objectives. Thus, external and internal economic factors may weigh heavily on national goal formation and interactive patterns. Changes in the economic environment may have important implications for predicting the probability of a nation's behavioral direction on many diverse international issues, political and military as well as economic. In this section a set of economic predictor variables of international interaction is presented. They are employed in an empirical analysis of Japanese international behavior in Chapter 9.

The initial problem confronting the effort to relate economic trends to quantitative indicators of international behavior is the selection of a set of economic variables. The chosen variables must meet three substantive and one "practical" criteria. The practical criterion proved to be as difficult to satisfy as any of the others. Very simply, the data on any selected variable must be available prior to the time period of international behavior it is to predict. Examples of economic variables that are available only after a substantial lag are legion. Gross national product, the most widely employed measure of economic performance, is report d quarterly and usually two months following the close of the calendar quarter.

By restricting attention to those economic variables reported without undue delay, the first substantive criterion may be considered. Given

a choice of two possible variables, the one reported for the smallest time interval is to be preferred; that is, if variable A is reported on a quarterly basis while variable B is reported monthly, variable B is to be preferred. The justification for this criterion is straightforward. The forecasting problem is admittedly difficult. The indicators of international interaction can be constructed for any time period of one day or more. In practice, one week is commonly the time interval. If exceptionally longer time periods must be employed to insure consistency with the time period of the economic data, information is lost. Giving up information essential to any estimation is simply foolhardy.

The second substantive criterion requires that the chosen economic variables provide a "reasonable" description of the performance of the Japanese economy. "Reasonable" is of course determined by judgment based on experience. Literally thousands of economic variables describing the Japanese economy are available. Clearly it is impossible to consider them all, yet it is necessary to cover the main features of the Japanese economy.

The final criterion is that the chosen variables must reflect both international economic conditions as they are related to the Japanese economy and domestic economic conditions. This requirement is particularly important for Japan. The Japanese have long been characterized as "aggressive exporters," and are significant participants in world markets.

## OPERATIONALIZATION

Following these criteria, a set of 18 economic variables to be employed as potential predictors were identified. The variables are listed in Table 14 and are all available in a variety of sources. They were drawn from publications of the Organization for Economic Cooperation and Development: Main Economic Indicators and Trade Statistics, Series A. The data were checked for consistency and agreement with the data reported

TABLE 14

Economic Variables

Indicators of International Economic Position:

| | |
|---|---|
| M | Total Japanese imports, measured in millions of $US, monthly |
| X | Total Japanese exports, measured in millions of $US, monthly |
| $M_{US}$ | Japanese imports from the United States, measured in millions of $US, monthly |
| $X_{US}$ | Japanese exports to the United States, measured in millions of $US, monthly |
| $M_{EEC}$ | Japanese imports from member countries of the European Common Market, measured in millions of $US, monthly |
| $X_{EEC}$ | Japanese exports to EEC member countries, measured in millions of $US, monthly |
| $M_{USSR}$ | Japanese imports from the USSR, measured in millions of $US, monthly |
| $X_{USSR}$ | Japanese exports to the USSR, measured in millions of $US, monthly |
| R | International reserves, measured in millions of $US, monthly |

Indicators of Current Economic Conditions:

| | |
|---|---|
| CPI | Consumer price index, 1970=100, monthly |
| PI | Production index, 1970=100, monthly |
| CU | Capacity utilization rate, monthly |
| W | Index of monthly wage earnings, 1970=100, monthly |

Leading Economic Indicators:

| | |
|---|---|
| NO | New orders for machinery (excluding ships), measured in billions of yen, monthly |
| WPI | Wholesale price index, 1970=100, monthly |

Other Relevant Economic Indicators (insufficient data available):

| | |
|---|---|
| PPI | Petroleum products price index, 1970=100, monthly |
| GRC | Growth rate of Japanese economy in current prices, quarterly |
| GRR | Growth rate of Japanese economy in real terms (1965 prices), quarterly |

by the Japanese Government in Japan Statistical Yearbook. Finally, the data for international reserves (R) were obtained from International Financial Statistics published by the International Monetary Fund.

Most of the variables in Table 14 are familiar and do not require explanation. Brief remarks describing four may be required. CU, the capacity utilization rate, is a measure of the percentage of plant capacity actually used during a month. It serves as an indicator of the economy's current performance in terms of existing capability. W, the wage earnings index, represents the best available representation of consumer welfare, recognizing that consumption figures are available only after a substantial delay. R, international reserves, includes the Japanese government's holdings of foreign exchange (currencies of other countries) and its SDR (Special Drawing Rights) position at the IMF. R represents the country's ability to withstand a "run" on its currency or a temporary trade imbalance without devaluing its currency. NO, new orders, is included because it is a principal indicator of future economic activity.

Except for the last three variables in Table 14, data were collected monthly for the period January 1972 through July 1974. A consistent series for PPI, petroleum product price index, could not be found. A substantial break in the series required that it be deleted from the final estimating equations reported below. Growth rates, GRC and GRR, were initially included even though the data are available only on a quarterly basis. Several attempts were made to employ these variables in estimating equations but the nonconformity of observations forced their eventual exclusion. In most cases, NO values (prior in time to growth rates) were able to account adequately for the expected predictive ability of growth rates.

# CHAPTER 4

## New Indicator Methodologies Developed

Event Patterning for Decision Analysis

Power Strategy Impact Analysis

## EVENT PATTERNING FOR DECISION ANALYSIS

In this section a method for describing and predicting international dyadic interaction is developed. This method provides the policy analyst with a highly visual means of tracking behavioral trends over time as well as forecasting possible future patterns. In addition, this event patterning technique is amenable to several statistical forms of analysis that potentially enable the development of probability and "barometer" measures of shifts in future dyadic relations.

### THEORETICAL CONCEPT

Much effort has gone into collecting and coding event data. An equal amount of effort has also gone into interpretation of event data patterns. Generally, research efforts that have analyzed dyadic interactions over time have observed fluctuation in the tone of policy -- the relative cooperative or conflictual nature of events between nations -- or they have been based on frequencies of all or of selected types of events plotted over time as indicators of change in dyadic relations.[1]

The relationship between tone and frequency has meaning in dyadic interactions. A pattern of events in which frequency tends to increase as tone becomes more positive and to decrease as tone becomes more negative can describe, for instance, a situation in which one country is trying to minimize the negative implications of certain aspects of policy toward another. The converse might also be true; increased frequency with increased intensity of negative signals toward a country may be used to indicate displeasure. In both cases the interactions described may represent ongoing behavioral trends or shifts from previous behavior modes. To facilitate

[1] See, for example, Azar (1970), Burrowes and Spector (1970), McClelland and Young (1970), Corson (1971), CACI (1974). See also the sections of Chapter 3 discussing the tone and frequency indices.

observation and analysis of such patterns, it is useful to examine dyadic interactions in terms of frequency and tone over time. The pattern analysis technique described in this section is designed to incorporate these three dimensions into a single indicator or monitor of interactive behavior.

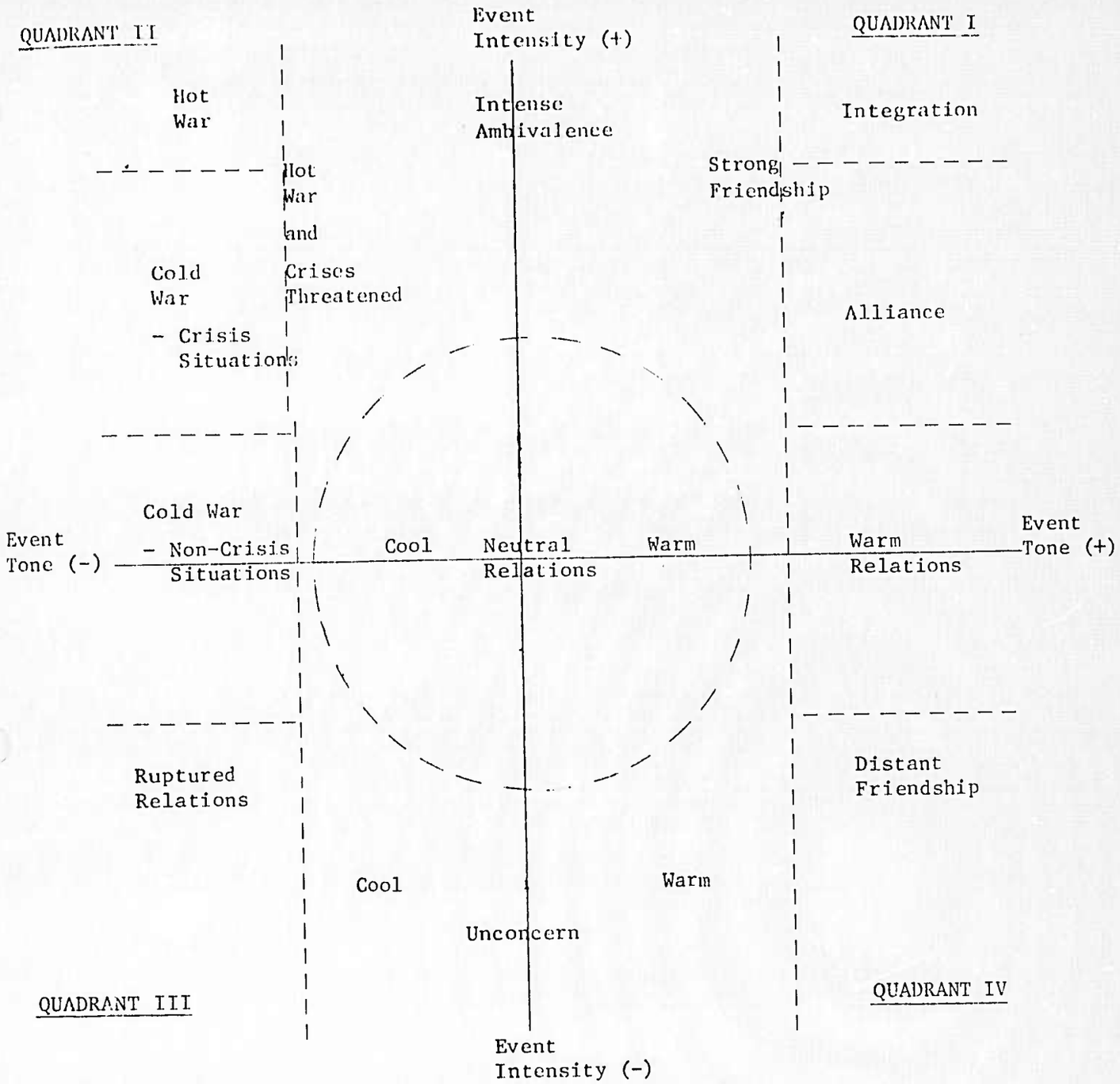
The basic technique behind the pattern analysis is the plotting of policy tone against frequency of event interactions over time on the dimensions illustrated in Figure 1.[2] Index values (described earlier in Chapter 3) are used on the horizontal and vertical axes to measure the behavioral tone and frequency characteristics of dyadic interactions respectively. When data points representing time series observations are plotted on the axes, these values form patterns which can be associated with various areas in the four quadrants of the graph. Each area characterizes particular behavior dimensions. Based on the attributes of frequency and tone, each area can be conceptualized in a preliminary fashion. Hostile relations are represented on the left side of Figure 1, ranging in event intensity from hot war (high intensity) to cold war to ruptured relations (low intensity). Somewhat comparable typologies are represented in the center (more or less ambivalent relations) and on the right side (friendly relations) of Figure 1. These conceptual definitions and boundaries of quadrant areas can be improved by empirical event interaction studies applied to a large cross section of international dyads.

## OPERATIONALIZATION PROCEDURES: DATA PREPARATION

The development of the event patterning analysis went through several phases in which various alternative data preparation approaches were considered. Several of these approaches are discussed below.

---

[2] Gernot Kohler (1975) has independently developed a similar three-dimensional approach to event patterning. Kohler's work is based on Deutsch's conceptual writing on the covariance of rewards or interests between countries, in which he plots mutual relevance (share in each actor's transaction flows or interaction frequencies) against covariance of rewards or interests (positive vs. negative) (Deutsch, 1966). Deutsch (1968) also suggests graphing of frequency against intensity (percent hostility). While conceptually similar, Kohler's approach differs technically in several ways. See the discussion on the international tone index (Chapter 3) for further elaboration.




Key:

Event Intensity = Deviation from normal (expected) frequency of event interaction, using the intensity index developed in Chapter 3

Event Tone = Positive or negative behavioral tone, using the international behavioral tone index developed in Chapter 3.

Figure 1. Conceptual Areas and Dimensions of International Dyadic Behavior

The first approach examined was a simple plot of all the data points for the period of the FBIS data (January 1972 through July 1974) aggregated by one- and five-week intervals. These data plots provided some information for analysis: data point centroid locations; overall data point patterns -- circular, elliptical, or otherwise; major axis slopes for patterns with unequal axis lengths; direction (angle) from the centroid; distance from the centroid; location in the various quadrants. These gave a significant amount of overall information, but were not amenable to longitudinal analysis because of the highly erratic variation of weekly tone and frequency values. Spectral analysis indicated that there were significant pattern tendencies in the data, warranting investigation of smoothing techniques to facilitate longitudinal pattern analysis.

The approach used for smoothing the data was the computation of moving averages. Moving averages were calculated for 5-, 9-, 13-, and 26-week periods. The 13-week moving averages appeared to give the best results in terms of limiting random erratic behavior while avoiding excessive loss in patterned variation. This development of 13-week moving averages appears compatible with the results of Moore and Young (1969) who found that the best predictions of behavior using median frequencies occurred when using the immediately preceding three-month period (they had also tested 3-, 6-, and 12-month time lag intervals). The variations in 13-week moving averages reflect only the difference between the index values for a given week and the thirteenth preceding week.[3] The values of

---

[3] This may be explained as follows: If the moving average associated with week n is $m_n$, and the index value associated with a given week is $i_n$, then:

$$m_n = \frac{\Sigma(i_{n-12} + i_{n-11} \cdots i_{n-1} + i_n)}{13}$$

$$m_{n+1} = \frac{\Sigma(i_{n-11} + i_{n-10} \cdots i_n + i_{n+1})}{13}$$

$$\text{and } m_{n+1} - m_n = \frac{i_{n+1} - i_{n-12}}{13}$$

the 13-week moving averages reflect the influence of all 13 weeks. The plots of 13-week moving averages will moderate erratic week-to-week fluctuations in index values, and will produce patterns to the extent that weekly variations in the 13-week moving averages show a tendency to cumulate in one direction or another, rather than fluctuate randomly. In the case of the U.S.-Japanese reciprocal dyad, both tone and frequency plots against time are highly patterned. The degree of curve smoothing accomplished by the 13-week moving averages is attested to by the fact that curves can be fitted with quartic parabolas to explain a high degree of the variance in values, particularly in the first 80 weeks of the period examined.[4] Thus the 13-week moving averages produce smooth patterns compared to the erratic nature of 1-week averages; yet, the 13-week moving averages are sufficiently responsive to the underlying data variations to produce clear, definitive patterns of change over time.

To summarize, the preparation of data for use in the pattern analysis procedures consists of computing 13-week moving averages for the tone and intensity indices described in Chapter 3, and of plotting the resultant time-sequenced values on the tone and intensity axes.

## OPERATIONALIZATION PROCEDURES: PATTERN DEVELOPMENT AND ANALYSIS

There are many different types of patterns that can result from the time-sequenced plots on the frequency and tone axes. Various pattern types are illustrated in Figure 2 and are discussed below in terms of interpretable pattern characteristics.

Figure 2a illustrates the pattern characteristics of stable relations -- a tightly clustered distribution of data points within a relatively

---

[4] Three quartic parabolas (for overlapping sequential time periods) explain over 90 percent of the variance in U.S.-Japanese event frequency over the first 80 weeks of the 123 examined by 13-week moving averages. One quartic parabola explained 74 percent of the variance in the pattern including the remaining weeks. In U.S.-Japanese event tone, two quartic parabolas explain over 77 percent of the variance in the first 80 weeks, and one quartic parabola explained 43 percent of the variance in the pattern including the remaining weeks.

Figure 2. Illustrative Time-Sequenced Data Patterns

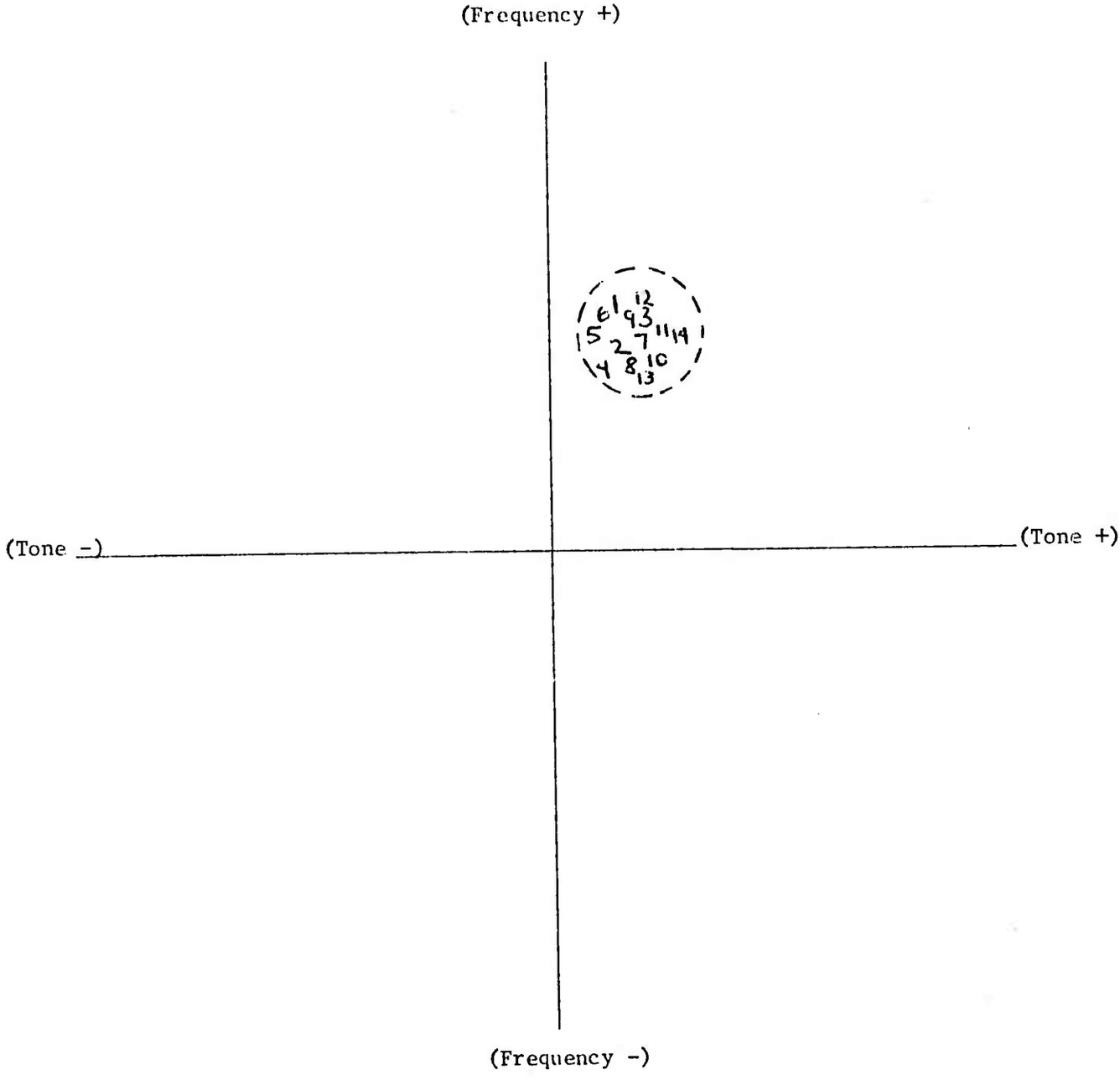



Figure 2a. Stable Relations

Legend: Throughout Figure 2 data points are indicated by a number representing the week which represents a 13-week moving average (for that week and the 12 preceding weeks). In Figures 2c through 2e only every third week is shown to avoid clutter.

confined area. This area may reflect either the overall range of normal relations[5] for a given country in interaction with another, or a temporary, stable period within an otherwise deviant behavior pattern. Interpretable characteristics of such a data pattern include:

- The location of the centroid of the data. This location defines the quadrant and area within the quadrant (see Figure 1) that characterize the dyadic relations for the period involved.
- The standard deviation of the data points from the centroid. This standard deviation provides a measure of the degree of stability of relations for the dyad during the period involved.

Figure 2b illustrates the pattern characteristics of a perturbation in relations such that they change from an original condition, then return to that condition.[6] Interpretable characteristics of such a data pattern include:

- The time-bound regression line for the data points of a pattern.[7] This regression line or vector can

---

[5] This concept is identified by Azar (1972: 184): "Over a period of time any two nations establish between them an interaction range which they perceive as "normal." This normal relations range (NRR) is an interaction range (on a scale from very friendly to very hostile) which tends to incorporate most of the signals exchanged between that pair..."

[6] The illustration and discussion which follow are given for a relatively straight line movement of the data. A similar, though more complex, illustration and discussion could be developed for curvilinear movement.

[7] A pattern is defined for these purposes as either a clustering of points such as described in conjunction with Figure 2a, or a collection of points describable by a single regression line with unidirectional time-sequencing of points. Thus, Figure 2b has two patterns: one including data points 1 through 12, and another including data points 12 through 20. Essentially, regression techniques are employed here solely to define the degree to which a time-bound set of data points form a unidirectional straight line pattern. $R^2$ is referred to not as a predictive statistic, but as an indicator of the extent of deviation from a straight line pattern. As Tufte (1975) points out, regression may successfully be used with relatively small numbers of data points (he uses it for 8) if patterns are not sufficiently

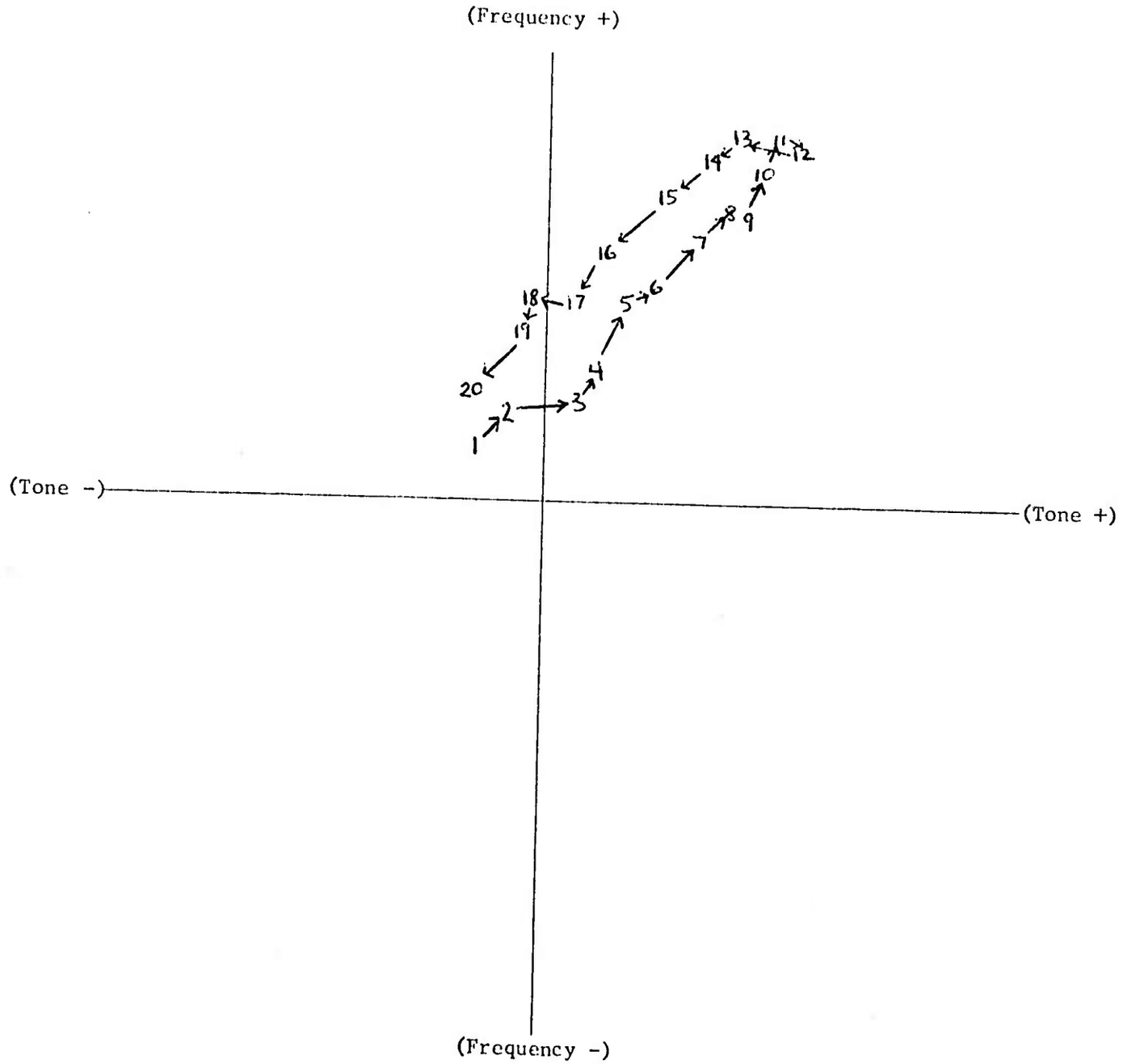



Figure 2b. Excursion from and Return to Start Point

be described in terms of the angle it forms with the horizontal (tone) axis;[8]

- The location of the midpoint (median) of the vector pattern[9] with respect to the different quadrants and areas therein;

- The locations of the endpoints of the vector pattern with respect to the different quadrants and areas therein;

- The rate and direction of movement along the vector (rate of movement = density of points in the pattern).

Figure 2c illustrates multiple excursions from and returns to a stable base posture. In Figure 2c the dotted circle encompasses an area including the start and finish points of the three vector pairs illustrated. This is an empirically based normal relations area. The three pairs of patterned deviations are describable by the angle of the regression line, the location of midpoints and/or endpoints of the pattern vector, and the rate of movement in the pattern. Note that for pattern pairs of this type, regression line angles and midpoints and endpoints will be very similar, but the rate of movement in the patterns may be quite different, and the directions of movement will be opposite.

---

deviant to cause significant variations in the regression equation when each outlier is successively omitted from the computations. This is a judgmental matter involving the degree of accuracy imputed to regression-derived parameters in interpreting the patterns.

[8] The use of this angle was found preferable to the use of the slope of the regression line (from which it is computed), particularly for angles in the vicinity of 0, 90, and 180 degrees, where slope values vary drastically for small angle changes.

[9] The median was preferred over the mean as more characteristic of the total path over which the data points move. The mean would be more characteristic of the time spent traversing various portions of that path.

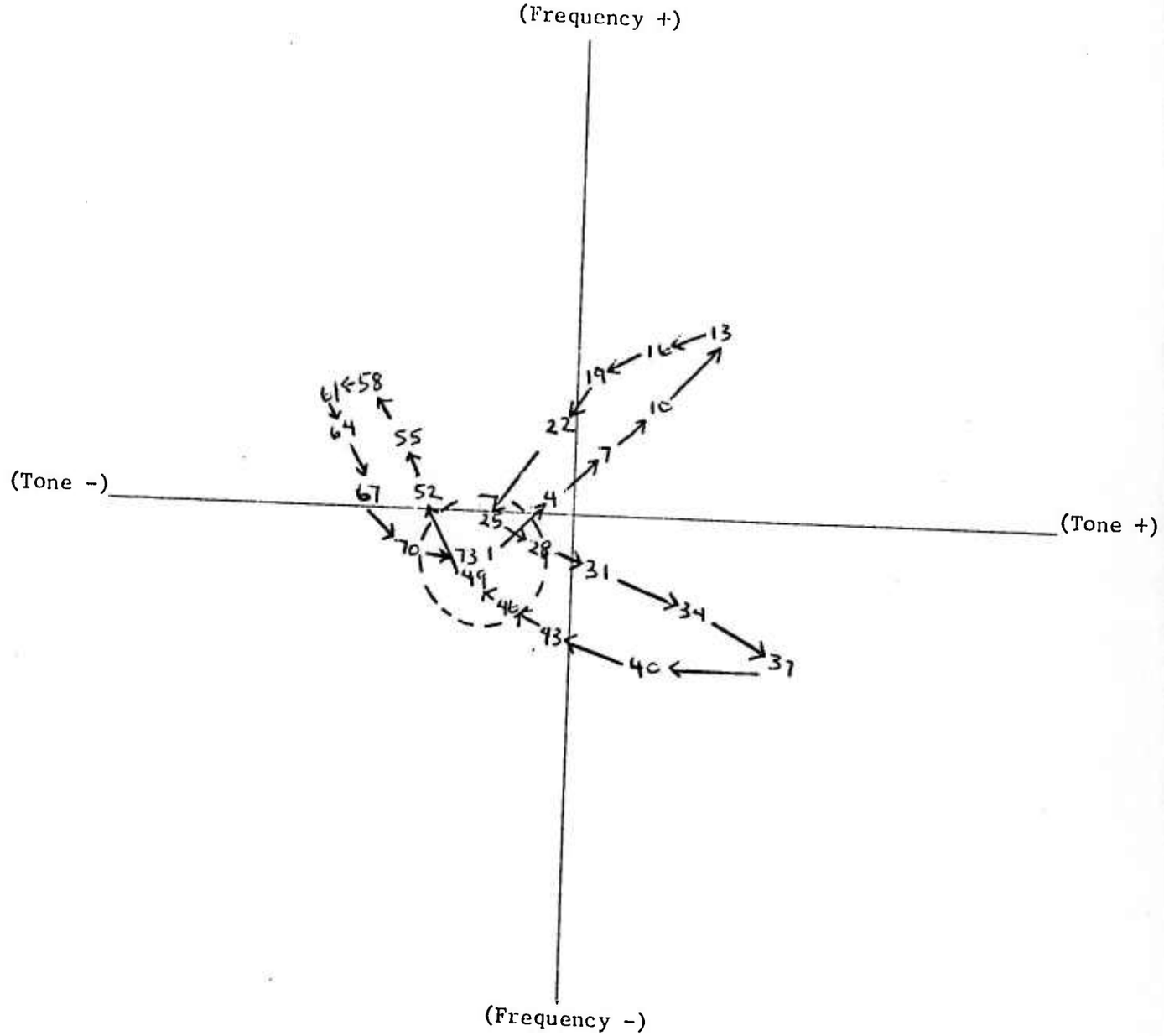



Figure 2c. Excursions from and Returns to Stable Base Posture

Figure 2d illustrates movement from an area of normal relations to a newly established area of normal relations with excursion patterns. Note that this movement involves a single movement pattern, describable in the same terms as the individual patterns of the excursion pairs.

Figure 2e illustrates a hypothetical movement from a stable alliance pattern to a stable war pattern, moving through a stable base area with excursion patterns. With sufficient testing it is expected that an empirically verifiable typology of such overall movement patterns can be developed.

## ANALYTIC USES OF EVENT PATTERNING: THE TEXTURE OF INTERNATIONAL DYADIC INTERACTIONS

The patterns described above can be employed for a number of explanatory and descriptive purposes in the analysis of dyadic interactions. Vector patterns can be developed for specific issue areas as well as for overall relations. This will permit comparative analyses to ascertain which issues drive overall relations in a particular direction, to what extent issues have overall active significance, and which are passive or moderating in their effects. The patterns, overall and/or by issue area, can be compared between dyads -- not only between reciprocal dyads but also between non-reciprocal dyads.

The location of pattern vectors (starting points, midpoints, centroids, endpoints) in the four quadrants of the plots can be used to provide conceptual and empirical[10] contexts for the patterns. For example:

- A stable movement pattern may be entirely within the zone of normal relations -- or its centroid may be there, while portions of the pattern, or an outlier of it, may lie in another area.

---

[10] This is so particularly after the establishment of empirical boundaries of the areas described in Figure 1 is accomplished, as we discussed in the preceding section.

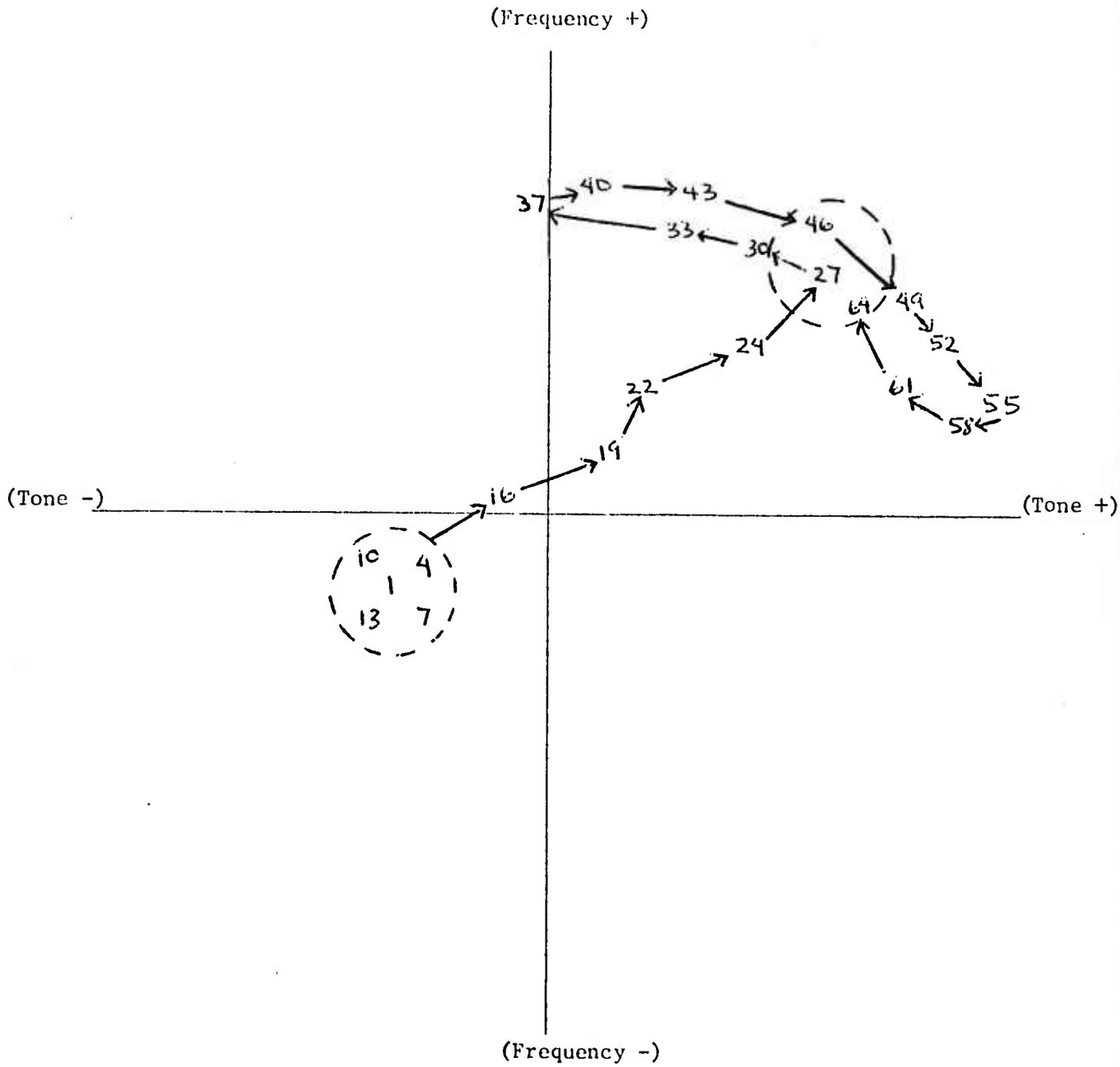



Figure 2d. Movement from an Area of Stable Relations to a Different Area of Stable Base Posture

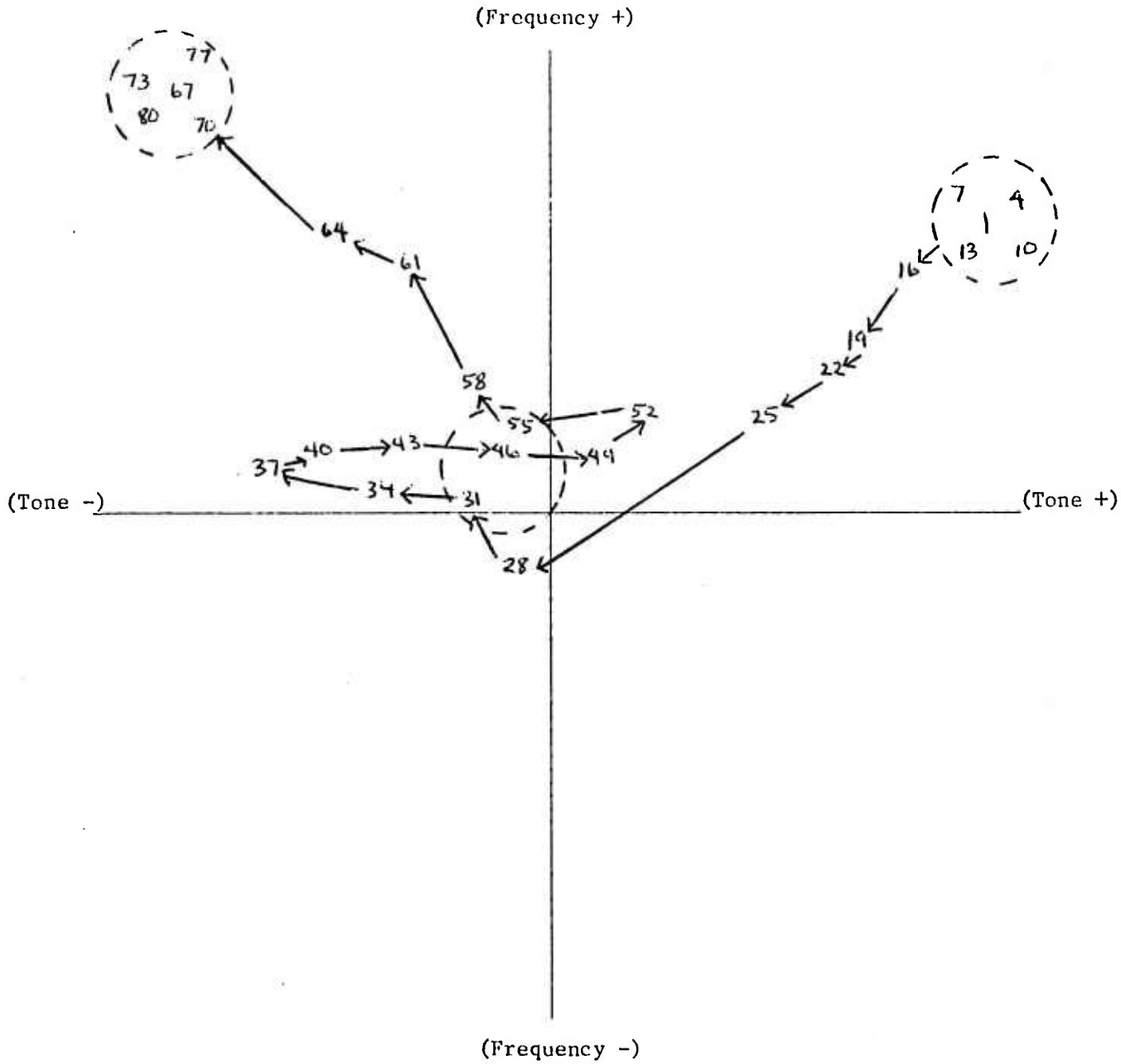



Figure 2e. Movement from Alliance to War

- A perturbation pattern may involve movement from a starting point in the normal relations zone to a point in the zone of cool unconcern, almost to a point of ruptured relations, then return. Empirical (historical) explanations of such deviations can be used to enrich explanatory and predictive capabilities of such patterns.

The direction of vector movement forecasts the nature of future relations unless the movement is altered. The pattern starting with time period 55 in Figure 2e moves from normal relations in the direction of war; the pattern starting with time point 16 moves from a strong alliance relationship toward normal relations. These two examples involve unidirectional movement patterns. The perturbation patterns, such as those of Figure 2c, indicate by their direction the general nature of the perturbation -- a temporarily warmed, intensified, cooled, or less intense relationship. Empirical development of perturbation patterns associated with different types of causative acts would considerably enhance predictive capabilities. Note that, in general, a vector direction associated with an angle between 0 and 45 degrees, or between 135 degrees and 180 degrees, is primarily associated with a shift of behavioral tone; a vector direction associated with an angle between 45 degrees and 135 degrees is primarily associated with a shift in behavioral intensity. With sufficient empirical exploration, descriptive, explanatory, and possibly predictive characteristics can be associated with various ranges of values for the angles characterizing movement patterns.

Locations of centroids, outliers, and endpoints, and angle directions of pattern vectors, of outliers from centroids, of centroids from the intersection of the frequency and tone axes, or other designated areas can be used for comparison of relations over time within dyads, as well as between dyads, to describe, explain, and possibly predict future trends.

## Hypothesis Development

The implicit capabilities of this approach to dyadic behavioral pattern analysis open the way to testing a variety of hypotheses. This study is concerned only with Japanese behavior from January 1972 to July 1974, which considerably limits the range of behavior that can be empirically tested. Yet there are a number of hypotheses that appear feasible for examination. These include:

- Perturbation patterns involving movement to and from a normal relations base area and some outlying position generally result from temporarily increased saliency and/or deviance of an individual issue area.
- In many cases, perturbation patterns from reciprocal dyadic partners will correspond significantly in direction, timing, and extent (thus implying interactive effects of reciprocal dyadic behavior).
- Where perturbation patterns for reciprocal dyadic partners correspond significantly, they reflect temporal dominance of the same issue for both dyads.
- Pattern vectors (or outliers) with directional angles rising between 0 and 90 degrees will tend to reflect a conciliatory disposition on the part of the dyadic actor; those vectors falling within this angle range will tend to reflect a diminution of conciliatory policies and a lapse into relative indifference.
- Pattern vectors (or outliers) with directional angles rising between 90 and 180 degrees will tend to reflect a negative or hostile disposition on the part of the dyadic actor; those falling within this angle range will tend to reflect a diminution of active hostility and a lapse into relative indifference.

## Prediction Potential

The patterns and pattern attributes identified by the methods described above may be subjected to further analysis for purposes of prediction and forecasting. Each vector pattern represents a potential case for analysis.

Within each pattern, critical decision points can be identified by substantive analysis of the pattern data points and related trends in the domestic, economic, and international environments. Experimental design techniques can then be used to predict and evaluate the impact of specific decisions in problem areas of concern to policy analysts. The types of responses evoked by specific decisions can be compared across issues and target countries and the most effective policy strategies for different country targets can be identified. Related pattern sequences of reciprocal dyad members and affected other parties may be subjected to regression analysis to determine the relative impact and predictive power of the actions of the reciprocal dyad partner or a third party on pattern development. Such analysis would suggest to decision analysts the extent to which unilateral policy shifts would be effective in improving relations with the target country.

The measurement and prediction of international dyadic interaction is a developing science. This section is an attempt to operationalize a long-standing theory in international relations that may help the policy analyst forecast the probability of international behavior with increased accuracy. This literature suggests that the structure and process and, most importantly, the outcome of international interactions is a function of the exercise of power strategies by international actors. By observing empirically the effects of these phenomena over time, behavioral patterns are derived that can be translated into probability indicators of future interaction response potentials. A technique is developed to analyze the impact of power strategies targeted by one nation at another, and to measure the probability of response direction, either in compliance or non-compliance with the power intention. The power strategy indicators that were operationalized in Chapter 3 are employed in an empirical test of this method in Chapter 7.

## TIME STRUCTURES OF INTERNATIONAL INTERACTION

Substantive concern over the way nations interact with each other has focused on the elements of power, reciprocity, perception, communication, uncertainty, goals, conflict, and decision-making. As international interaction is longitudinal, fluctuation in these elements has had to be analyzed over time to capture change induced by process.

The response structure of this interaction process, however, has not been sufficiently explored. Most analyses to date have arbitrarily employed equal standard time units (a week, month, year) in the study of salient elements in the interaction process. It has been generally assumed that actions occurring in one arbitrarily chosen time unit are responded to in the same time unit or in a subsequent period. However, there is no

theoretical or empirical basis for assuming that the structure of all international interactions operate in weekly units and that all response structures between different countries operate on the same time unit. For instance, a researcher may test a set of action-response hypotheses that contend that a nation's decision-making responses are a function of internal bureaucratic inertia under conditions of high relative information uncertainty, and reciprocity under conditions of low relative uncertainty (Phillips and Crain, 1974). There is no reason to believe that equal standard time units in the interaction process (say, weeks) provide the optimal overall time structure to study these propositions. In fact, intuition would immediately suggest that an equal standard time structure would probably only confound any serial relationships that do exist between these variables. One can argue that for different nations uncertainty must reach different thresholds before summoning a response characterized by inertia. This response may occur within the same seven-day period as the attainment of threshold, within eight or nine days, or longer. In the first case, if actions and responses occur in the same weekly units over time, then a high correlation is probable. But if responses consistently occur eight days subsequent to threshold attainment, then no correlation will result.

The structure of international signaling, upon which the concept of relative uncertainty is based, is not conducive to neat compartmentalization into equal time units. Aggregating signals emitted during an entire month, for instance, may obscure the specific intentions of the sender. While certain issues may achieve and lose their saliency within a matter of days, the intensity of those signals, although brief, may radically distort an index of signaling based on monthly aggregations. Likewise, the intent of the sender may be confused if a coordinated series of signals is artificially cut off in midstream by the beginning of a new month.

The concept of reciprocity may also be confounded by an equal time structure. Aggregating the many possible decisions made by a nation during

the span of a month will result in a gross average measure that may obscure and obfuscate specific responses that are meaningful individually though not when averaged together.

If the process of international interaction is not reliably reflected by an equal standard time structure, perhaps the structure needed should be concept-specific and thus theoretically meaningful. If reciprocity in international interaction is the focus of study, for instance, then analytic interaction can be structured in a quasi-experimental fashion to allow for the manifestation of reciprocity. This is not to say that the analytical system should be structured to prove one's hypothesis a priori but rather that to study conceptual relationships, those relationships must be subject to empirical observation. Thus, quasi-experimental controls can be instituted to enable the imposition of theoretically meaningful interaction structures to aid in the analysis of specific serial relationships.

## A POWER ORIENTATION TO THE STRUCTURE OF INTERNATIONAL INTERACTION

Although the detection of causality may be truly beyond the ken of human understanding, analysts of international politics usually concur that international behavior is generally responsive to the actions of other nations. Actions by one nation usually elicit reactions from the target nation. (See Phillips and Crain, 1974, for a review of this literature.)

But why is this the case? What is it about initiating actions that stimulates responses, in any form? Although a certain amount of compulsion may account for a need to respond, analysts generally attribute the action-reaction sequence in international politics to the use of power by the initiator. Behaviorally defined as the ability to influence the actions of another in an intended direction, power is a causative element that can help explain changes in international goals, positions, and actions (Dahl, 1969; Harsanyi, 1969).

Through power interactions with other units in the international system, nations attempt to persuade and, ultimately, modify the attitudes and behavior of friends, enemies, and neutrals to maximize self-interest. Of course, power attempts are not always initiated by one side alone, nor are they always successful. What makes international politics complex is the multitude of power attempts simultaneously initiated by and targeted at all the actors involved in any issue area. What motivates international politics are the resultant effects of these power attempts -- the degree to which influence, credibility, and commitment change the rates of demands and concessions, and the extent to which relevant issue areas are resolved.

How is power influential? There is basic consensus among the analysts of power that its effectiveness is grounded in the ability to alter the values or goals of the targeted party. Power causes a modification of the target nation's valence toward particular goals; the potential or actual positive and negative sanctions introduced by the power initiator affect the target's perceptions of his present and future position and capabilities. If the exercise of power is successful, the target's shifted perceptions will cause a modification in its values and finally compliance with the intent of the power strategy (March, 1969; Zartman, 1974; Ikle and Leites, 1962). The expectation of positive sanctions presents the target nation with actual or promised rewards for compliance, and negative sanctions confront the target with actual or threatened punishments for non-compliance.

Zartman (1974) proposes that the perception of these sanctions "adds value," positive or negative depending on the nature of the power strategy, to one's potential for goal achievement. Threats and warnings are negative values added to the goals of the target nation if it does not heed the demands of the persuader. Promises and predictions are inducements or positive value additions made to a target's goals if it accepts the demands. This perception of "added value" presents the target nation with new considerations with which to proceed or change its goals and

behavior patterns. If the added value (costs or benefits) presented by the power strategy is perceived to outweigh the benefits of continuing one's present strategy, then perceptions of one's own behavior and goals and the other side's motives and credibility may change in such a way as to cause a modification in behavioral response.

One conclusion to be drawn from this discussion is that the concept of power can be used to structure action and reaction sequences in international politics. If power is the prime motivation behind responses to international initiatives, then we can say that international interactions are structured in terms of "power-response" transactions. Paul Smoker's (1969) time concepts of "interaction" and "reaction" are similar to our structural components, although he does not cite power as a major influencing factor. Charles McClelland (1963) also addresses the structural sequence of international events by focusing on "transacts" (empirical units consisting of an opening action and the response to it). Elsewhere McClelland (1969) refers to this sequence more in terms of a power conceptualization, that is, in terms of "demands and responses." By charting these sequences during the Quemoy crisis of 1958 and the Berlin crisis of 1948-49 (including only physical acts and excluding diplomatic acts), he notes several phenomena of international interaction. There were three basic types of initiatives -- threatening actions, defensive actions, and yielding actions -- which elicited responses, although some events appeared to have no observable motivating antecedents. Some responses followed closely their initiating actions, while other responses did not correlate with their corresponding initiatives. Finally, he found that during different stages of crises, initiative-response patterns tended to shift.

Using quasi-experimental controls, a structure of international interaction based on power can be identified and observed. The "power-response" sequence suggested here structures empirical units that begin with the exercise of a power strategy by one nation and consist of all the subsequent responses to the target nation. The first power-response sequence ends and the second one begins when the first actor initiates a second

power attempt. Figure 3 visually represents the interaction between actors A and B from a power-response orientation.

In each sequence, the power attempt by actor A elicits one or more responses from actor B. These responses may take the form of direct compliance with or defiance of A's power strategy; B may ignore A's act and proceed as if A did not exercise power; B may respond by not acting at all; or B may attempt to exercise power over A. (The last three options may constitute defiant behavior by B depending on B's motivation.) The next power-response sequence begins when A again attempts to exercise power. However, this time the nature, strength, and direction of A's power attempt are themselves influenced by the actual and perceived alteration in the environment created by the preceding sequence. In other words, the transaction between A and B at time 1 will affect the initiation of power at time 2 (Spector, 1976).[11]

It will be noted that these power-response sequences have been structured to observe the effects of power attempts by one member of a dyad on the other member. However, for any dyad, the roles can be reversed and the two resulting analyses can be compared to study power strategy usage and effectiveness in international transactions. Spector (1976) uses a similar method of analysis to study the effects of U.S. power strategies on Egyptian perceptions and behavior immediately prior to the Suez crisis in 1956. His results indicate that neither U.S. nor Egyptian strategies targeted at the other were effective in modifying perceptions or behavior. Power did not achieve its intended effects because of a lack of credibility, appropriateness, strength, and adequate communication on the part of the strategies exercised.

---

[11] Inference of direct causality between action and reaction is not implied here. All that is suggested is that power strategies that intend to change the target in a certain direction alter the target's environment in such a way that it will be reflected in its immediate responses.

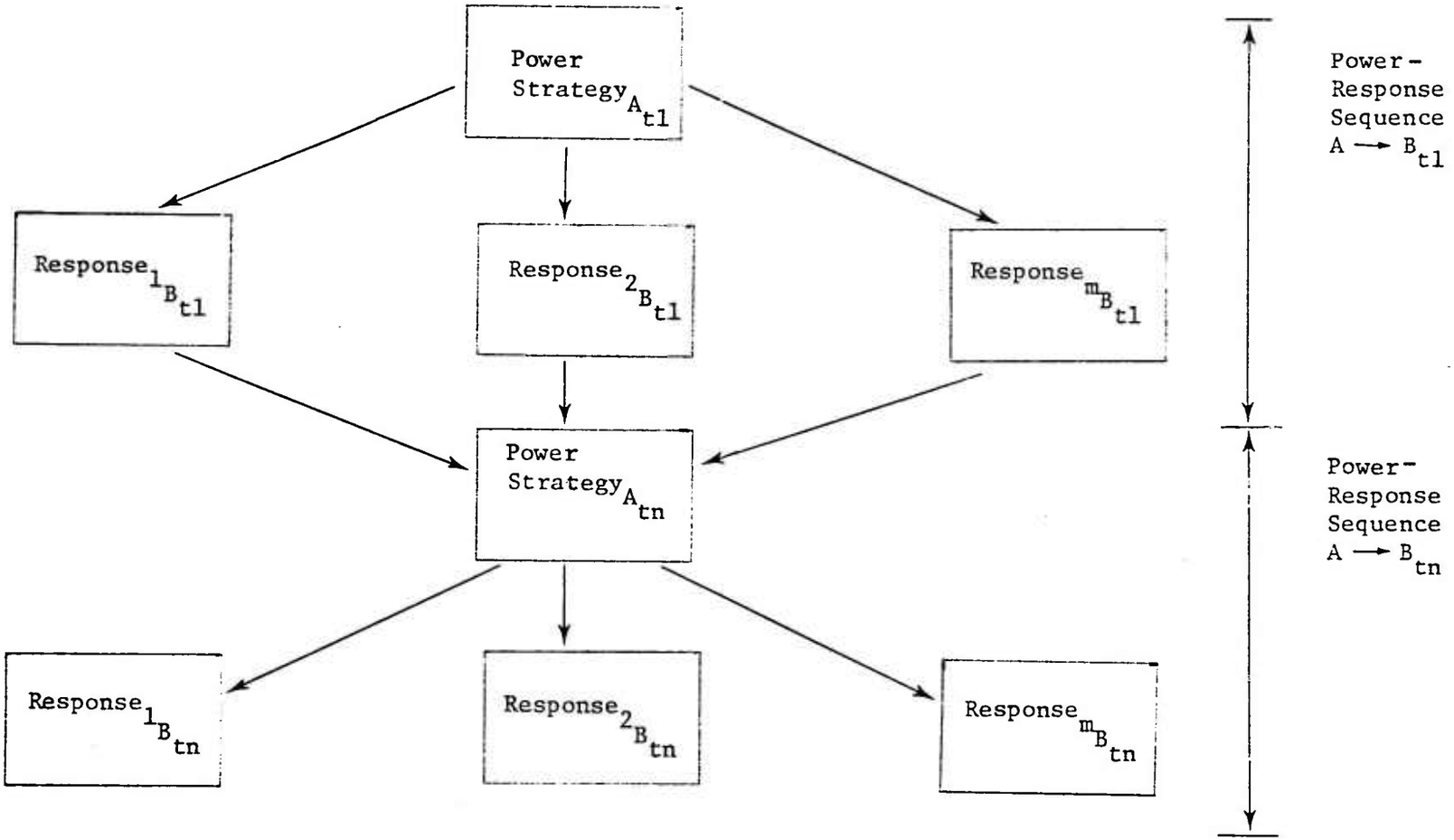



Figure 3. Power-Response Interaction Structure

Figure 4 illustrates the interactive nature of power strategy usage and response. The data are hypothetical. The upper portion of the graph indicates the flow of A's cooperative and conflictual responses in reaction to B's power strategies. The lower half charts B's responses to A's exercise of power. At different points in time, A and B will find it advantageous, toward achieving their own individual goals, to attempt to influence the behavior of the other. Their choices of power strategies and when to use them depend on the resources available, the projected risks and benefits, the actors' objectives, and the probability of compliance. The figure vividly indicates the effects of power. Similar power attempts will elicit both similar and different effects as a result of the perceived situation, initiator and target capabilities and goals, the subjective costs of compliance, and the target's perception of initiator credibility. Responses will be of different durations, intensities, and directions.

The quasi-experimental use of power-response structures can yield analyses of different styles of international interaction and how these different styles interrelate. It can provide insight into the responsiveness of international actors: the extent, duration, direction, and reliability of certain strategies in eliciting certain types of responses. In addition, these structures can be used to research how specific conflicts begin and escalate and how they are eventually resolved. By empirical observation of interactive dyads over long periods of time, probability functions of degree, type, and direction of response with respect to different types of power strategies can be calculated. These probabilities can be used to project future interaction and response patterns under particular circumstances.

Several methodological problems with this response structure must still concern us. Power attempts may not occur as discrete, easily identifiable behavioral acts. The exercise of power may become manifest as a policy that evolves as a series of acts over time. Likewise all responses are not neatly placed subsequent to their corresponding power attempts.

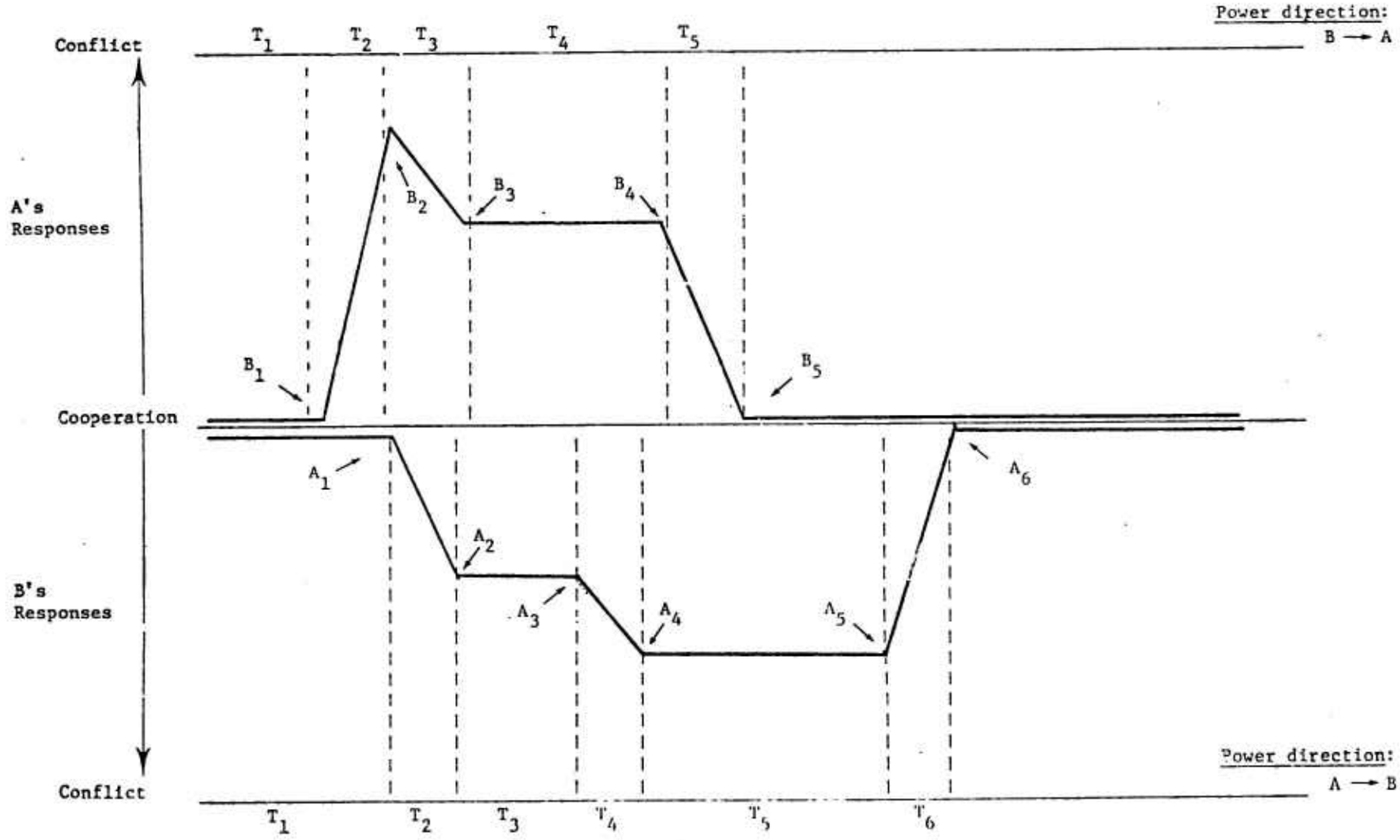



Figure 4. Power-Response Interaction
($A\overset{\rightarrow}{n}$ and $B\overset{\rightarrow}{n}$ represent the initiation of power strategies.)

Responses are interspersed over time and the time span over which they occur will not be constant in different instances. A further complication involves the overlapping of power initiatives by the same actor and other actors. When this occurs the identification of power attempts and corresponding response patterns becomes increasingly complex.

## OPERATIONALIZATION OF THE POWER STRATEGY IMPACT ANALYSIS

The operational framework required to incorporate power strategies into the empirical structure of international dyadic interactions is developed in this section. This framework enables identification of the impacts of power strategies on response patterns and the calculation of probabilities to predict future response potentials.

### Data Preparation

The methodology relies on the event-based power strategy indicators developed in Chapter 3, and event indicators of response behavior divided simply into cooperative and conflictual actions. For one member of an international dyad, power strategy indicators can be used to record the occurrence of initiated power attempts toward the other dyad member. These indicators can be based on the initiator's overall or issue-specific behaviors. The resultant measures are treated as dummy variables, where the exercise of power is assigned one, and the absence of power, zero. Indices of response behavior can be formed for the target nation by summing the frequency of all positive events and all negative events separately, and then computing a measure of their deviations about their mean frequency. Using cumulative Poisson distributions based on frequency mean as the expected value, deviation indices can be produced that indicate whether, during any given time period, there is a substantial increase, decrease, or no significant change from the mean of positive or negative events. Hayes (1973) assesses the utility of Poisson-based indices as devices for measuring change in event frequencies. By comparing observed frequencies of events to the Poisson distribution (which assumes that the occurrence of events is randomly distributed across time intervals) it is

possible to test the null hypothesis that there has been no increase (or decrease) in the frequency of positive or negative events from the mean frequency for each of these categories. If the cumulative Poisson probability is greater than .95, it is assumed that there has been a substantial decrease from the mean; if the probability is less than .05, it is understood that a substantial increase in frequency has occurred. Because of the requirements of the Poisson distribution (Hayes, 1973), response behavior must be measured in aggregates of at least 30 to 50 days.

Comparison of each power strategy indicator with the response deviation indices over all time periods yields results of the impact of power on response behavior.[2] Causality is inferred between power strategy exercise and response patterns. While all other power strategies are assumed to remain constant, each power strategy type is observed individually to determine its effects on response patterns, whether it has resulted in an increase, decrease, or no change. Depending on the power attempt under examination, an increase, decrease, or no change in the response deviation indices implies compliance or non-compliance with the power intention. The output of this analysis is a table of percentages that indicates, for each power strategy type, the percentage of substantial increases, decreases, or no changes (compliance and non-compliance) elicited. If this table covers a significantly long time period, the results of this analysis can be transformed into probabilities that suggest potential shifts in future response interactions given particular power strategy initiatives.

Four types of probability indicators can be derived from this post-hoc analysis of power-response interactions. The Probability of Effectiveness (pEv) index measures the likelihood of power strategy success in effecting change in another nation's behavior. The following formula can be used

---

[2] For an example of this type of analysis in a different context, see Hayes (1974).

to compute pEv scores:

$$pEv = \frac{\text{Number of power strategy types that co-occur with each type of response condition (that is, increase, decrease, no change)}}{\text{Total number of time periods in each response condition}}$$

It indicates the degree to which certain types of response patterns are elicited by different types of power strategies, that is, the degree to which power strategies are effective in achieving certain impacts. An index value of .50 or greater indicates that a strategy is effective in achieving a particular kind of response with a probability of 50 percent or more.

The second indicator is an Efficiency Probability (pEc) index that measures the extent of overall strategy distribution among the possible categories of response change (that is, increase, decrease, or no change) based on the total number of times each strategy is employed by the initiating nation. pEc is represented by the following formula:

$$pEc = \frac{\text{Number of power strategy types that co-occur with each type of response condition}}{\text{Total usage of power strategy types by initiating nation}}$$

This index reflects the probability that a strategy is uni- or multi-directional in its effects on response behavior, and thus whether it is efficient or inefficient in achieving its intent. A value of .50 or greater indicates that a strategy's impact on response is moderate to high on efficiency. Thus, such a strategy tends to impact fairly highly on a single type of response condition (that is, increase, decrease, or no change).

The ultimate objective of the analysis is to identify those power strategies that have a high probability of impact and can be used efficiently by the initiating nation. Thus, a third summary index is developed, the Power Impact Rating (PIR), which is the product of the

effectiveness and efficiency probability indices:

$$PIR = pEv \times pEc$$

It indicates the relative degree of success of each power strategy with respect to effective and efficient impacts on another nation's response patterns. PIR varies from 0.0 to 1.0 depending on the level of strategy effectiveness and efficiency. A strategy that is high on both factors will have a high PIR value. These strategies should be good predictors of probable future power-response interaction patterns. A strategy that is low on both effectiveness and efficiency will yield a low PIR score. Since they do not achieve their desired objectives, it might be well for a nation to eliminate these power strategies from the active repertoire of its interaction techniques. A strategy that is high on effectiveness but low on efficiency will have a moderate PIR score. This condition indicates that while a strategy might be a highly effective international interaction technique of persuading a target nation to change its behavior, its overall usage by the initiating nation is not efficient: it achieves a wide distribution of effects. This may be the case because of inappropriate or excessive use of a strategy.

The analytic results here can be used prescriptively: time periods in the past in which these strategies were effective can be singled out for in-depth study so that more parsimonious and appropriate strategy usage can be planned for the future. A moderate PIR score is also attainable if efficiency is high but effectiveness is low. This result suggests that distribution of power strategy effects approaches unidirectionality but that these strategies account for a low percentage of response changes. One might infer that greater exercise of these strategies could result in greater effectiveness in modifying the target's behavior patterns.

If a strategy has a high PIR, it is important to note whether the impact achieved was in a direction favorable to the initiating country's interests, that is, whether the strategy had its <u>intended</u> effect. To measure

this phenomenon, a summary Probability of Strategy Success (pSS) index is calculated. It reflects the overall relative success of significant power impacts (as measured by PIR values) in obtaining favorable response patterns. It can be represented by the following formula:

$$pSS = \frac{\text{Number of significant power impacts with favorable response patterns toward the initiating nation}}{\text{Total number of significant power impacts}}$$

Favorable response patterns can be defined as those that exhibit increased or at least maintained levels of cooperation or decreased levels of conflict. Decreases in cooperative behavior or increases in conflictual behavior are considered to be unfavorable response patterns. Maintenance of mean levels of conflictual behavior is defined as an indifferent response pattern and is arbitrarily assigned a value of one-half of a favorable response. High pSS scores indicate high rates of compliance with the initiator's strategies; low pSS values suggest non-compliance or defiance of the initiator's power attempts.

It is to be expected that these index values may vary when the target nation or issue area focus is changed. Thus the findings of the analysis may indicate that, based on past interaction sequences, the most efficient and successful power strategies may differ depending upon the particular countries or issues involved.

Inferences of Compliance and Non-Compliance

Inferred compliance with a power strategy generally means that the initiating nation was successful in modifying the target's behavior in the intended direction. Inferred non-compliance can be explained by several substantive and methodological reasons. The initiating nation can lack credibility in the eyes of the target to follow through on its predicted sanctions. The sanctions predicted in the power strategies may not be strong enough to induce a modification of the target's behavior. There may have been insufficient communication of a power strategy; perhaps

certain strategies must be signalled more often than others (above a threshold level) to be believable to the other side. Methodologically, observed non-compliance may be an artifact of incomplete experimental control. While it is comparatively easy to control for the effects of each power strategy separately, it is difficult to take account of simultaneous exogenous power strategies. The mix of power strategies impacting on a target nation from the other dyad member, as well as from other countries, confounds the analysis of response behavior. If there is a mixture of power occurrences during a given time period, the target nation may have to decide internally which strategies are most crucial to its well-being and respond only to those. Hence, there may be difficulty in empirically isolating the effects of each power strategy, and non-compliance may appear more prominent as a response mode until more sophisticated controlling factors are instituted.

# CHAPTER 5

# ISSUE PREDICTION MODELS OF JAPANESE INTERNATIONAL BEHAVIOR

## Issue Area and Dyadic Dimensions of Japanese International Behavior

## The Importance of Issues and Context in Predicting Japanese International Behavior

## ISSUE AREA AND DYADIC DIMENSIONS OF JAPANESE INTERNATIONAL BEHAVIOR

### INTRODUCTION

This section explores the question of whether quantitative indicators of issue-specific international behavior are likely to yield more subtle and accurate monitoring of event patterns than indicators of overall international behavior. The consequences of monitoring international behavior that focuses on particular issue area or dyadic interaction are identified through factor analytic techniques. Each dimension derived from the factor analytic solutions represents a behavioral trend that characterizes one aspect of issue or dyadic international interaction. The dimensions of a nation's overall international behavior are compared to the dimensions derived when controlling for issue area and target. When these behavioral dimensions differ, one can observe that the event samples defining behavior along certain issue areas or toward certain international targets are substantially different in frequency and distribution than the population of events from which they were drawn. Identification of dimensional differences suggests that behavioral patterns are a function of issue area or target breakdown and that increased descriptive subtlety, interpretation, and predictive accuracy can be introduced by monitoring these aspects of behavior.

In addition to providing empirical evidence of differences between international behavior trends depending upon issue and dyadic focus, this analysis offers the policy analyst summary descriptions of the modes of behavior in these areas. These descriptions can help the analyst understand previous interaction patterns and place present and future interactions into proper perspective.

The Japanese international data used in this analysis, as described in Chapter 2, are composed of seven behavioral variables, and subsetted

into 10 directed dyads (2 of which represent all behavior by and toward Japan), and five issue areas (one category subsumes all behavior regardless of issue area).[1] The seven variables for each dyad-issue set (on 135 weekly observations from 1972 to 1974) were factor analyzed and rotated according to a varimax solution. (Squared multiple correlations were placed in the diagonals.) The rotated factor matrices are displayed in the Appendix ("Factor Matrices of Japanese Issue Area and International Dyadic Interaction"). Table 1 summarizes the results by listing the variables that loaded highly (above .50) on each factor. Each factor represents a different salient style or pattern of interaction that can be interpreted in terms of the behavioral categories that load highly on it.[2] The importance or prominence of each interactive pattern in explaining the totality of behavior is indicated by the percentage of variance explained by each factor (see Appendix). The factors within each cell in Table 1 are listed in order of the percentage of total variance explained.

The factor analytic results are analyzed in order to test the validity of four propositions listed below.

> Proposition I: Japanese international behavior patterns are likely to differ depending upon target focus (holding issue area constant).
>
> Proposition II: Japanese international behavior patterns are likely to differ depending upon issue area (holding target constant).

---

[1] Behavioral variables: yield, give, support, communicate, protest, threaten, coerce.
Directed dyads: Japan to United States, United States to Japan, Japan to Soviet Union, Soviet Union to Japan, Japan to People's Republic of China, People's Republic of China to Japan, Japan to Asia, Asia to Japan, Japan to World, World to Japan.
Issue Areas: Political/Military Security, Diplomatic Relations, Resource Dependence, International Trade, All.

[2] These factor analyses provide cross-sectional observations of interactive patterns controlling for issue area and dyadic focus. Patterns represented by each factor indicate general behavior configurations over the entire two and one half year period. More time-specific, longitudinal patterns are identified in Chapter 6.

TABLE 1

Variables with Factor Loadings ≥.50
in Factor Analyses of Dyad-Issue Subsets*

| ISSUE \ DYAD | A<br>J → W | B<br>W → J | C<br>J → US | D<br>US → J | E<br>J → USR | F<br>USR → J | G<br>J → PRC | H<br>PRC → J | I<br>J → ASIA | J<br>ASIA → J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 ALL | 1 Support, Communicate<br>2 ----<br>3 (Coerce) | 1 (Give), Support, Communicate<br>2 Protest | 1 (Communicate), Protest<br>2 Threat<br>3 Coerce | 1 Give, Support, Communicate<br>2 (Yield) | 1 Communicate<br>2 Give<br>3 (Protest) | 1 (Give), (Support), Communicate<br>2 Coerce<br>3 Yield | 1 Support Communicate | 1 (Give), Support, Communicate<br>2 Protest | 1 Support, Communicate<br>2 Threat<br>3 Yield | 1 Support, Communicate<br>2 Yield<br>3 Protest, Threat |
| 2 POLITICAL/ MILITARY SECURITY | 1 Communicate<br>2 Threat | 1 Support<br>2 (Coerce) | 1 Support<br>2 (Threat) | 1 Communicate<br>2 Threat | 1 Communicate<br>2 Protest<br>3 Threat | 1 (Support)<br>2 (Give)<br>3 Threat | | | | |
| 3 DIPLOMATIC RELATIONS | 1 Support, Communicate<br>2 Give<br>3 (Coerce) | 1 Support, Communicate<br>2 (Protest) | 1 Support, (Protest) | 1 Yield, Communicate<br>2 Support | 1 Give, (Support), Communicate<br>2 (Protest) | 1 Give, (Support), Communicate<br>2 Communicate<br>3 Yield | 1 Support, Communicate<br>2 (Give) | 1 (Give), Support, Communicate<br>2 Protest | 1 (Support), Communicate<br>2 Threat<br>3 Yield | 1 Support, Communicate |
| 4 RESOURCE DEPENDENCE | 1 (Support), Communicate<br>2 Give | 1 Support<br>2 (Threat) | | | 1 Communicate<br>2 (Support), Threat | 1 Give, Support<br>2 (Communicate) | | | 1 (Support), Communicate | 1 Support, Communicate |
| 5 INTERNATIONAL TRADE | 1 Support, (Communicate)<br>2 (Communicate) Protest | 1 Support<br>2 (Yield), Communicate | 1 Communicate, Protest<br>2 Give | 1 Give, (Support), (Protest)<br>2 Communicate | | | 1 Support, (Communicate) | 1 Communicate, Protest<br>2 Support | 1 Support, (Communicate)<br>2 (Threat) | 1 Support, Communicate |

* Variable names in parentheses have factor loadings between .50 and .60. Each factor is listed separately within each cell in order of percent of total variance explained. The omitted cells have low frequencies of interactions. The factor matrices are presented in the Appendix.

Key: J→W (Japan to World) J→US (Japan to United States) J→USR (Japan to Soviet Union) J→PRC (Japan to People's Republic of China)
W→J (World to Japan) US→J (United States to Japan) USR→J (Soviet Union to Japan) PRC→J (People's Republic of China to Japan)

J→Asia (Japan to Asia)
Asia→J (Asia to Japan)



Reproduced from best available copy.

Proposition III: Japanese overall behavior patterns toward specific target nations are likely to differ from behavior patterns derived when focusing on particular issue areas toward the same nations.

Proposition IV: Japanese interactive behavior patterns toward other nations are fairly similar to the interactive behavior patterns received over all issues.

To aid the reader in the following analysis of Table 1, note that:

Proposition I compares cells 1A, 1C, 1E, 1G, 1I.
Proposition II compares cells 1A, 2A, 3A, 4A, 5A.
Proposition III compares cells in columns A, C, E, G, I.
Proposition IV compares cells in columns A and B; C and D; E and F; G and H; I and J.

A. Proposition I: Comparing Japan's Behavior Toward Different Targets on All Issues

Japan's overall behavior toward all targets (cell 1A) can basically be described as diplomatic in style, characterized by supportive behavior and communication. This cooperative and diplomatic approach to the developing multipolar international system enables Japan to maintain a low military and political profile. Exercising its growing desire for political autonomy from the United States, Japan is attempting to expand its range of diplomatic activities to more nations while implementing a well-balanced policy between East and West (Wakaizumi, 1974). Japan's behavior as an international economic power continually in need of new markets and sources of raw materials further justifies Japan's particularly diplomatic international behavior. (The coercive factor turns out to be extremely trivial; most events classified as coercion refer to Japanese arrests of publicly disruptive American servicemen in Japan.)

Observation of Japan's overall policy toward the United States (cell 1C), however, provides the analyst with an essentially different viewpoint. Strains of conflict underlie the three dimensions of Japan's behavioral

patterns. The most salient pattern of Japanese-U.S. relations can be described as a verbal protest and communications dimension. Threats, a more intense form of conflictual interaction, depict Japanese policy to a lesser degree. To an even smaller extent coercion forms a separate policy dimension. Under the tutelage of the United States since World War II, Japan has endeavored in recent years to extricate itself from the role of supplicant, and in doing so, has become the initiator rather than the recipient of an increasingly larger set of political, military, and economic actions. To develop this "autonomous" diplomacy requires a political separation from the lead of American foreign policy, a separation that implies increased risk but potentially increased goal satisfaction for Japan (Scalapino, 1972). By claiming this independence, Japan does not totally reject American support and friendship but expresses its growing discontent with its dependent status by resorting to hostile reactions. Furthermore, economic competition is another source of friction between the two countries. The search for world markets and raw materials places the goals of both states in conflict, which becomes apparent in their international behaviors (Overholt, 1974).

Practically on the other extreme, Japan's overall policy toward the Soviet Union (cell 1E) is generally characterized by friendly relations. Although historically wary of Russian intentions, Japan's interaction with the Soviets since 1972 has primarily focused on diplomatic communication. Normalization of relations with Russia, part of Japan's independent policy, has involved talks over the peace treaty, the return of four northern islands, economic investment, and resource development (Pond, 1973). A secondary dimension of Japan's Soviet policy can be interpreted as the actualization of negotiation objectives. Japanese interest in increased trade, investment, and the development of and access to Soviet energy resources has resulted in several concrete agreements that will benefit both sides economically and improve relations. To a lesser degree, a third pattern, verbal protest and accusation, indicates an underlying Japanese fear and suspicion of the Soviets.

Japanese overall behavior toward China (cell 1G) has a much simpler structure, which is extremely close to Japan's overall policy toward all nations. A single factor describes Japan's move to normalize relations through friendly diplomatic support and communication. Since 1972, both sides have cautiously explored the attitudes and positions of the other in a generally cooperative atmosphere. Although normalization diplomacy describes Japan's explicit behavior pattern toward China, it overshadows implicit, underlying tensions between these nations concerning their ideological differences, influence over Asia, Chinese fears of renewed Japanese militarism, and Japanese complaints over Chinese interference in its domestic politics (Scalapino, 1972). The policy of rapprochement serves Japanese objectives of achieving an independent stance while seeking a potential alternative to the Mutual Security Treaty with the United States. By establishing normal and friendly relations with China and displaying its independence from American policy, Japan is developing a framework for direct negotiations with the Chinese to discuss security problems (Johnson, 1972).

As Japan occupies a subordinate position in relationship to the United States, Asia's status vis-a-vis Japan can also be viewed as subordinate (Singer, 1972). The multidimensional space derived from the factor analysis (cell 1I) suggests that Japan employs a diverse set of behavior patterns toward the countries of this region. The major dimension of Japanese behavior toward the nations of Asia is characterized by Japan's friendly and supportive diplomatic style. Japan is the economic leader in Asia; aid and technology received by these nations are repaid to Japan by the influx of raw materials, energy resources, and new markets. Underlying promotion of regional cooperation in the Asian context are Japanese desires for economic dominance. Especially as the United States reduces its commitments in the region, Japan has the very real option of competing with the Chinese and Soviets for economic and diplomatic leadership and dominance in Asia (Overholt, 1974). Secondary trends of threat and yield behaviors, in combination with this friendly dimension, suggest a mixed diplomacy toward Asia. Japan uses both the carrot and the stick in dealing with its Asian neighbors.

Comparison of the factor analytic solutions tends to bear out the contention of Proposition I, that Japanese behavior differs depending upon the target focus.

## B. Proposition II: Comparing Japan's Behavior to All Targets on Different Issue Areas

### 1. All Issue Areas

As described earlier, Japan's behavior to all nations regardless of issue area (cell 1A) forms one basic pattern that is interpreted as a friendly diplomatic pattern. If Japanese behavior toward all nations forms different patterns when focusing on particular issue areas, the contention that the issue area aspect is crucial in monitoring and predicting subtle changes in international behavior will be supported.

### 2. Political-Military Security Issue Area

Japan's behavior on political and military security issues (cell 2A) can be interpreted as verbal diplomacy (communication) and verbal conflict (threats). Actions taken on this issue concern the defense and security of Japan. Since Japan has assumed a basically non-militaristic and non-nuclear position in the international system, its security depends on maintaining the good favor of its friends, especially the United States, as well as its adversaries. Communications behavior, an essentially neutral and diplomatic category of participation and collaboration in international affairs, can help to stabilize and maintain friendly relations. But it appears that Japan is concerned that its diplomatic outreach on security matters not be mistaken for softness or lack of will to protect itself. While attempting to establish friendly and normal relations with even antagonistic nations, it seems that Japan feels the necessity to emphasize its ability and willingness to preserve its identity as a nation. It does so by using threat strategies, verbally committing itself to unfriendly actions if necessary.

3. Diplomatic Relations Issue Area

The diplomatic issue area includes interactions that depict "normal" relations between states (cell 3A). Considering the prominence among Japanese objectives of implementing an independent and multilateral diplomatic posture, the behavioral dimensions derived from data on this issue area are important in understanding the thrust of Japanese policy in general. Japanese behavior on this issue toward all nations forms three distinct patterns. The first pattern is similar to the policy dimension identified as friendly diplomatic relations (including support and communications). It describes Japan's overall behavior in keeping with its goal of autonomous diplomacy. The second pattern is an even more cooperative mode of international behavior, and is characterized by the formalization of agreements and the extension of aid and assistance. This pattern incorporates the signing of agreements and the granting of aid and material support. The final pattern of behavior is characterized as coercive. It is minimally used and fairly trivial in content.

4. Resource Dependence Issue Area

Japan's policy output on resource issues (cell 4A) comprises two patterns, both predictably cooperative in nature. About 40 percent of all Japanese actions on this issue are directed at Asian nations or the Soviet Union toward whom Japan looks for much of its resource and energy needs. To obtain these raw materials, friendly diplomatic relations must be developed and maintained, and technological and financial assistance must be rendered to physically extract the resources. The two policy dimensions derived from the factor analysis reflect these political needs; the first factor includes verbal support and communication behaviors and the second is composed of give behaviors.

5. Trade Issue Area

Considering Japan's high-level economic objectives, behavior on this issue area is of extreme salience (cell 5A). The need for external

outlets for Japanese manufactured goods as well as external sources of raw materials has required a supportive foreign policy; to maintain economic leadership, political relations with buyers and suppliers must remain friendly. The first policy dimension on this issue represents this cooperative mode. In the economic marketplace, however, Japan is often placed in direct competition with other economic powers, especially the United States (Haitani, 1973). Friction over needed markets has led to a second policy dimension characterized by verbal protest behavior.

The assumption of Proposition II is affirmed by the factor analytic results; issue area focus suggests different behavioral interactions and trends.

C. Proposition III: Comparing Issue Area Dimensions Within Dyads

Do policy patterns of specific dyads vary substantially when the issue area element is introduced? When comparing Japan's policy to all nations over all issues with Japan's behavior on specific issues (column A), the former yielded a diplomatic behavior pattern while the latter always formed several patterns and included cooperative as well as conflictual factors (except the resource dependence issue area which formed two cooperative policy dimensions).

Japan's behavior toward the United States over all issues forms three fairly conflictual patterns. Issue area breakdowns (column C) reduce the number of behavioral patterns and accentuate the mix of cooperative and conflictual relations. On political/military security and diplomatic issues, Japan has been closely aligned with the United States. However, recent Japanese concerns over the strength of the American defense commitment and Japanese initiatives to develop an autonomous diplomacy are responsible for its present approach-avoid behavioral patterns toward the United States (Scalapino, 1972). Patterns concerning trade are slightly more friendly considering that the United States is still the largest single market for Japanese exports.

Japanese overall behavior toward the Soviet Union is multidimensional but basically cooperative in tone. When broken down into issue areas (column E), political/military security concerns exhibit a complex and generally conflictual set of patterns. The proximity of Soviet military power to Japanese borders evokes fearful Japanese behaviors in the form of verbal protest and threats (Pond, 1973). On diplomatic and resource issues, however, Japan's interactions with the Soviets tend to form two basic patterns: one cooperative and one conflictual. These two factors exhibit Japan's desire to normalize relations with Russia while expressing wariness over Soviet intentions and continuing diplomatic problems.

Japanese relations toward China exhibit only minimal variation with the introduction of issue area breakdowns (column G). Sino-Japanese relations are still in their formative stages and Japan's policy toward China has been especially cautious and diplomatic in tone. On diplomatic and trade issues, Japanese policy still remains unidimensional and supportive.

Japanese behavior toward Asia is multidimensional and similar in composition over all issues and on diplomatic and trade issues in particular (column I). Japan has attempted to establish economic predominance over the region by exercising a cooperative and supportive style in some instances and a threatening style in others. Japan's interactions with Asian nations over resource problems, however, are dealt with solely through friendly diplomatic means.

In general it has been demonstrated that controlling for both issue area and dyadic focus results in more parsimonious and interpretable interaction dimensions. Proposition III is generally supported.

D. Proposition IV: Comparing Behavioral Dimensions Received and Sent

Over all issues and on issue breakdowns, the major policy dimensions both received and sent between Japan and all nations are generally supportive

and diplomatic in tone (columns A and B). In two cases, however, the secondary policy dimensions received by Japan tend to be more intensely negative than Japanese behavior sent. On political/military issues, the world is more coercive to Japan, and on resource issues, the world is more threatening.

On most issues American policy toward Japan exhibits less hostility and greater cooperation than Japanese policy to America (columns C and D). The United States, in its general behavior patterns, appears not to provide cause for Japanese hostility. Rather it can be inferred that the nature of Japan's policy output is a function of its own objectives for diplomatic and economic independence from the United States.

The Soviet Union is also more beneficent toward Japan than Japan is in return (columns E and F). On all issues, Japanese policy includes conflict dimensions while Soviet policy on two of three issues is totally cooperative. Although manifest Russian behavior cannot explain the tone of Japanese actions, it can be hypothesized that Japan's policy is a function of its past experiences with the Soviets. Japanese suspicion of the Soviets stems from the Russian refusal to sign a peace treaty, the treatment of World War II prisoners, and the protraction of the northern islands dispute (Scalapino, 1972). Japan's policy dimensions toward the Soviet Union appear to indicate a defensive formation against the expectation of future hostile relations.

While Japan targets only friendly diplomacy at China, Chinese policy toward Japan always includes an element of verbal protest (columns G and H). In their policies of rapprochement, China emphasizes the differences between Japan and itself, while Japan proceeds cautiously but always cooperatively. Although opening up to Japan both economically and diplomatically, China has continued to demand a one-China policy and to accuse Japan of militarism and neo-imperialism.

Japan's economic power over Asia is maintained basically through diplomatic as well as threatening policy dimensions. However, Asia's behavior toward Japan is generally characterized by friendly diplomatic factors (columns I and J). Thus the relationship is not reciprocal. Considering Asia's dependence on Japanese aid and investment, it has little bargaining leverage with which to challenge Japan's dominance.

Proposition IV is only partially supported by the comparison of policy factors. The behavioral trends received by Japan are not always apparent predictors of Japanese behavior sent.

## E. Conclusions

The factor analytic solutions have been useful in identifying prominent behavioral patterns in the dyadic and issue area subsets. Comparisons of the derived behavioral patterns suggest the following methodological conclusions concerning the four initial propositions about Japan, and the utility of issue area and dyadic elements in monitoring international behavior.

1. Japan's behavioral output over all issues varies substantially depending upon the national or regional target. While Japanese behavior to all nations describes the general thrust of its policy, the data subsets that focus on specifically targeted policy provide more accurate indication of Japanese relations. Moreover, interpretation of the factors for each dyad compares satisfactorily with qualitative literature on Japanese behavior. Thus, data that focus on dyadic interaction appear to provide quantitative monitors of behavioral patterns that are more subtle than indicators of overall behavior.

2. Japan's behavioral output to all nations varies substantially depending upon issue area focus. Behavior over all issues basically forms one behavioral pattern, but behavior on specific issues forms more complex, multidimensional spaces. On some issues policy tends to be friendly in

tone, while on other issues policy is a combination of conflictual and cooperative styles. Thus, the issue area samples are not homogeneous with respect to the behavioral population from which they were drawn. Increased pattern subtlety can be achieved, it appears, by monitoring the issue area focus of international behavior rather than ignoring the content of interaction.

3. Japan's behavior toward specific targets and on specific issue areas yields even more refined indicators of behavior. Whereas Japanese behavior toward specific targets (except China) on all issues formed three dimensions, generally fewer factors were needed to explain behavioral patterns when taking both specific issue areas and targets into account simultaneously. Without controls for issue area and target, policy patterns can become analytically confused and distinctions can become muddied. More parsimonious and less complex factor solutions that are more interpretable in terms of the literature can be obtained by employing data samples that control for issue area and target of interaction.

4. Attempts to interpret and relate policy dimensions received and sent by Japan were only moderately successful. In some cases, the relationship between explicit policy dimensions received by Japan from a certain actor and explicit dimensions sent by Japan was not clear or apparent. The addition of time lags and leads might aid in strengthening the hypothesized linkage. Certainly other causative elements such as economic trends and domestic behavior influence external behavior and can be taken into account. Finally, the relationship was analyzed here on a rather crude level and deserves the attention of more rigorous means of analysis. In the following section, quantitative monitors of international behavior are employed to analyze and predict dyadic behavioral trends on issues.

The factor analyses have also yielded substantive findings concerning Japanese international interaction patterns that are valid for the period under examination, 1972-74.

5. Japanese behavior trends toward the Soviet Union and the People's Republic of China tend to be friendlier than Japanese relations with the United States. To a large extent this phenomenon is a result of a concerted Japanese policy of rapprochement and normalization of relations with its two closest major power neighbors. It is also a function of Japanese desires for an autonomous international role and increasing economic competition with the United States over export markets and sources of raw materials.

6. Japanese behavior toward the developing nations of Asia appears to follow a dominant-submissive pattern. Long the major economic force in that region of the world, Japan tends to dominate Asia while remaining dependent on its neighbors for essential resources and markets for its manufactured products. As in most dominance relationships, Japan exercises both friendly and threatening strategies -- both the carrot and the stick -- in its policy toward Asia.

7. Japanese interaction patterns with the United States on particular issue areas offer a more precise indication of Japanese behavior. For instance, interaction on political-military security issues with the United States reflects a dual-headed policy. While Japanese actions are basically supportive -- Japan's security being largely dependent on the American military commitment -- there also exists an underlying dimension of threat concerning the presence of U.S. military and nuclear capability on Japanese soil and the questionable firmness of the U.S. commitment. Similarly, Japan's behavior patterns on international trade are a mixture of cooperative and conflictual actions. While Japan is tied to the United States as a market for its manufactured goods, it is also in competition with the United States for raw materials and world markets. These seemingly ambivalent modes of behavior toward the United States as derived from the factor analyses of issue areas can be interpreted as indicating Japan's growing desire to develop an autonomous, though friendly, diplomatic stance toward America.

8. Japan's international behavior toward the Soviet Union on particular issue areas also reveals an approach-avoid syndrome. While desirous of forming more friendly relations with the Soviets to ensure a flow of needed energy and food resources and to decrease the fear of Soviet military might, Japan still maintains a suspicion of Soviet motives and good will. Japanese behavior on political-military security, diplomatic, and trade issues all reflect these two distinct trends.

9. Not surprisingly, Japan's behavior toward China on diplomatic and trade issues is entirely cooperative in nature. The policy of rapprochement is still in its formative stages, so initiatives tend to be supportive but cautious.

10. Japanese behavior toward Asia on particular issue areas is indicative of the interdependent nature of their relationship. On diplomatic and trade issues, Japan uses both friendly and conflictual behavior patterns to establish diplomatic and economic leadership over Asia. On resource issues, however, Japan is entirely cooperative, denoting its high dependency on its developing neighbors for raw materials.

## THE IMPORTANCE OF ISSUES AND CONTEXT IN PREDICTING JAPANESE INTERNATIONAL BEHAVIOR

### OBJECTIVES

A major goal of the current project on Japan's international behavior is to design and test means of improving the prediction of that behavior. The objectives of the research reported in this section are to examine whether predictions can be improved by (1) analyzing behavior on the issue area level rather than on an aggregate level that encompasses all issue areas, and (2) taking into account the effects--if any--of contextual factors surrounding Japan's behavior in specific issue areas. These two objectives represent departures from the bulk of prior systematic event-based research. Much prior research has dealt with the effects of "received" behavior on "sent" behavior according to the simple stimulus-response paradigm, where received behavior consists of the actions directed toward a given nation, and sent behavior consists of actions initiated by the nation (Hoggard, 1970; Azar, 1972; Smoker, 1969; Phillips and Crain, 1974; Tanter, 1974; several studies by Stanford University researchers summarized in Zinnes, 1972). With few exceptions (see, for example, Brewer, 1973; Ward, et al., 1975), indicators of received and sent actions have measured the overall behavior of the nations studied, and in predicting A → B behavior, only the effects of B → A actions have been considered, to the exclusion of the activity of third countries (that is, C → A, D → A). Furthermore, the utilization of aggregate measures of all behavior has precluded an examination of how received behavior in one issue area affects sent behavior in other issue areas.

This prior research has failed to exploit several opportunities for potentially enhancing the predictability of a nation's international behavior. One opportunity exists in the possibility that in different

issue areas, sent behavior has a different relationship to received behavior. If these relationships differ across issue areas, then the attempt to fit a single general relationship results in a loss of information that could be used to enhance predictive capabilities. Another opportunity exists in the possibility that sent behavior toward a nation in one issue area is affected by two types of contextual factors: received behavior from the nation in other issue areas, and received behavior from third countries. In other words, part of the context of Japan's interaction with one nation on a given issue is its interaction with the same nation on other issues and its interaction with other nations. The objectives of the research reported in this section are to examine whether in fact different relationships exist between Japan's received and sent behavior in different issue areas, and whether the contextual factors have an effect on Japan's behavior. To the extent that the results are positive (that is, different relationships and contextual effects are found), it can be concluded that the predictability of Japan's behavior can be enhanced by utilizing an issue area level of analysis and contextual predictors.

## THE IMPORTANCE OF THE ISSUE AREA LEVEL: THEORY AND SUBSTANTIVE BACKGROUND

There are good reasons to suspect some differences across issue areas in the relationship between Japan's received and sent international behavior. Rosenau presents a general theoretical argument that results in the proposition that the "functioning of any type of political system can vary significantly from one type of issue-area to another" (1960). His argument is that issue areas involve different goals and means, and that these differences give rise to different patterns of behavior. Coplin (1971) argues from an organizational perspective that different issues activate different organizational components and interest groups whose styles and motivations culminate in strategies that vary from issue to issue.

The substantive background of Japan's international behavior seems to support the applicability of the general issue area proposition to the Japanese case. In this regard, Fukui (1974) finds that different ad hoc decision-making groups tend to be involved in different issues, and he notes the implication of this for variation in Japan's policies across issues. Hellmann (1972) suggests that Japan's tendency to deal separately with different types of issues has roots in the country's extreme dependence on foreign sources for raw materials. Japan's need to pursue economic and resource needs has inclined the country toward a policy of "being friendly with everybody, or at least not making serious enemies anywhere" (Okita, 1974:723), and toward dealing with various issue areas "in a discrete fashion" (Hellmann, 1972: 8).

Historical analyses of Japan's approach toward other nations suggest, then, that Japan's behavior patterns may vary across issue areas. The country's particular sensitivity to economic (trade and resource) issues suggests that its pattern of responding to external inputs in economic areas should be more intense than in other areas.

## HYPOTHESES AND DESIGN FOR ISSUE AREA DIFFERENCES

Two hypotheses are suggested by the theoretical and substantive considerations relating to the issue area level in Japan's international behavior:

H1: Differences across issue areas exist in Japan's pattern of responding to behavioral inputs from other countries.

H2: In particular, Japan's response patterns in economic issue areas are more intense than in other issue areas.

Response patterns are measured in the analyses by regression slopes in regressions of Japan's behavior toward another country on the country's

behavior toward Japan. Adequate data exist for eight tests of these hypotheses. In each case "behavior" is measured by the previously described behavioral tone index across 135 weekly units (January 1972-July 1974). In each case Japan's behavior toward a given country in a given issue area is the dependent variable, and the behavior of the country acting toward Japan in the same issue area is the independent variable. The eight regressions and the results of the analysis are shown in the following section.

## RESULTS OF ANALYSIS OF ISSUE AREA DIFFERENCE

Table 2 presents the results of regressions performed to test hypotheses 1 and 2.

TABLE 2

Japan's Behavior Toward Three Countries Regressed on the Countries' Behavior Toward Japan in the Same Issue Areas

| | Correlation | $r^2$ | Slope |
|---|---|---|---|
| JAP → USA/USA → JAP | | | |
| Political-Military | +.14 | .02 | +.09 |
| Diplomatic | +.48 | .23 | +.47 |
| Trade | +.50 | .25 | +.42 |
| JAP → USR/USR → JAP | | | |
| Political-Military | +.18 | .03 | +.06 |
| Diplomatic | +.29 | .08 | +.20 |
| Resource Dependence | +.67 | .45 | +.64 |
| JAP → PRC/PRC → JAP | | | |
| Diplomatic | +.64 | .41 | +.68 |
| Trade | +.87 | .76 | +.91 |

The first three regressions reported in Table 2 involve Japan's (JAP) behavior toward the United States (USA) as the dependent variable and U.S. behavior toward Japan as the independent variable. Three regressions

were performed for this dyad. The first regression involves the countries' behavior in the Political-Military issue area; the second is for their behavior in the Diplomatic issue area; the third is for their behavior in the Trade area. The next three regressions have Japan's behavior toward the Soviet Union (USR) as the dependent variable and Soviet behavior toward Japan as the independent variable in the identified issue areas. The last two regressions involve Japan's behavior toward the People's Republic of China (PRC) as the dependent variable and the behavior of the PRC toward Japan as the independent variable in the identified issue areas.

The substantive interpretation of the slopes is very straightforward since the independent and dependent variables are measured on the same tone scale. A slope of 1.0 would indicate that on the average Japan responds with the same tone as is received.[3] In other words, a slope of 1.0 reflects a "tit-for-tat" response pattern. A slope of less than 1.0 reflects a pattern of "under-response," where on the average Japan responds with a tone that is less intense than received tone. The greater the slope, the more intense is Japan's response pattern. The slope is comparable across all the dyads.

The results shown in Table 2 provide support for hypotheses 1 and 2. There is considerable variation in the slopes of the regressions as well as in the correlations between received and sent behavior.[4] Thus,

---

[3] This description of substantive meaning assumes that the regression intercept--Japan's tone when a neutral tone is received--is zero or near zero. In fact, all regression intercepts were near zero.

[4] Correlations also were computed between the <u>total</u> behavior (tone) received and sent by Japan to the three countries in Table 1. The correlations are as follows: For Japan's interaction with the United States, +.35; for its interaction with the Soviet Union, +.37; for its interaction with the PRC, +.70. Note that issue area-specific correlations are less or greater than the correlation for overall behavior in a dyad. The low overall correlations in the Japan-US and Japan-USSR dyads obscure stronger relationships in specific issue areas.

Japan has a tendency to respond more intensely to inputs in some issue areas and less intensely in others. Japan's behavior is more predictable from inputs in some issue areas than in others. For example, in the Japan-USSR dyad Japan's behavior in the Political-Military issue area is less predictable from Soviet inputs ($r^2$=.03) than is its behavior in the Resource Dependence issue area ($r^2$=.45). Slopes sometimes differ across issue areas where Japan's behavior is at least moderately predictable from received behavior. In particular, note the slope differences in the two issue areas for the Japan-PRC dyads.[5]

Variation across issue areas in response patterns thus is found, providing support for hypothesis 1. Hypothesis 2 also is supported in general. Table 3 shows the average slope found in the four issue areas included in the analysis. Table 3 reveals that, on the average, slopes are greater

TABLE 3

Average Slope in Four Issue Areas

| Issue Area | Political-Military | Diplomatic | Trade | Resource Dependence |
|---|---|---|---|---|
| Average Slope | .075 | .45 | .665 | .64 |

in the two economic issue areas--Trade and Resource Dependence. Thus it appears that Japan's response patterns are in general more intense in economic issue areas as envisioned by hypothesis 2. In other words, for a given received tone, Japan responds with a more intense tone in economic issue areas than in other issue areas. On a dyad-specific

[5] These judgments as to the predictability of Japan's behavior in different dyad issue areas are of course technique-dependent and measure dependent. Linear regression across all cases using the tone measure is but one of several possible technique-measure combinations that could be used to examine the predictability of Japan's behavior from external inputs. Findings subsequently reported in this section are likewise dependent on the technique and measure used.

basis hypothesis 2 clearly is supported in the Japan-PRC and Japan-Soviet cases, but not in the Japan-U.S. case. Japan's response pattern to the United States in the Trade issue area is the least intense pattern of the three dyads in the Trade area. Perhaps this is a reflection of the fact that Japan's economic dependency relationship with the United States is stronger than with either the Soviet Union or China. According to Pond (1973: 152) the Japanese "do not hope or expect that economic ties with either (China or Russia) will assume large proportions relative to Japan's steadily expanding links to the United States." Japan's "'low posture' diplomacy (is) designed to avert major offense to anyone with whom Japan has commercial relations" (Nickel, 1974: 161). One may then expect to find Japan's tendency toward even lower postures with the United States, since commercial relations are stronger with the United States and the Japanese expect they will remain so. One aspect of "low posture" is a muted response pattern. Thus, Japan's relatively non-intense reaction pattern vis-a-vis the United States in the Trade issue area may reflect an especially low posture in its interaction with the United States, especially because of the relatively extensive economic links between the two countries. It is also interesting to note that while all of the slopes in Table 2 are positive, none is 1.0 or greater. This means that Japan does not follow a "tit-for-tat" response pattern in any of the identified issue areas and is inclined toward "under-response" in each issue area. Japan appears, then, to be a cautious international actor: Japan generally responds to a friendly tone with a friendly tone--but sends a response more muted than that received; and Japan generally responds to a hostile tone with a hostile tone--but sends a response less hostile than that received.

Summarizing the results above, Japan responds in different ways to inputs in different issue areas. In some issue areas, the country's behavior does not appear to be even moderately predictable from inputs from the target of its behavior, while in other issue areas Japan is fairly predictable from a simple reciprocal response model. Thus, Japan's behavior patterns are quite different across issue areas.

These results support the idea that the prediction of Japan's behavior can be enhanced by focusing analysis on the issue area level. Different mathematical relationships specific to issue areas can be identified and utilized for predictive purposes. There is, in summary, a loss of useful information when aggregate measures of behavior encompassing all issue areas are employed for predictive purposes.

## THE IMPORTANCE OF CONTEXT: THEORY AND SUBSTANTIVE BACKGROUND

Brewer (1973) cites the failure of much research to consider the effects of context on national security behavior. He alleges that the tendency to "isolate particular events or cases in the policy process and treat them as more or less discrete phenomena without reference to other occurrences" ignores the fact that "there are a multitude of problems being dealt with at any time" and that "the response to any particular problem often depends on concurrent problems" (1973: 96).

In the present context, Brewer's ideas can be taken to mean that Japan's behavior toward a given country in a given issue area may be affected by "contextual" variables in addition to being affected by the country's behavior toward Japan in the same issue area. In this regard, the substantive literature on Japan suggests two potentially important types of contextual factors that are international in character.[6]

---

[6] The importance of domestic contextual factors is considered in another section of this report. The two selected factors are behavioral, involving the behavior of third countries toward Japan and the behavior of countries toward Japan in issue areas other than those on which Japan is acting. A very large number of other contextual factors, ranging from systemic to perceptual levels (e.g., system polarity, perception of threat) are potentially relevant, but their treatment is beyond the scope of the present work.

A contextual factor ("other issue area" effects) suggested by the literature is the effect of a country's behavior toward Japan in one issue area on Japan's behavior toward that country in a different issue area. In this regard, Tsurutani notes that Japan's recognition of its need for a continuous flow of raw materials affects every other aspect of its international policy (1974: 140). Thus, it is quite possible that a country's behavior toward Japan in the Resource and Trade areas affects Japan's behavior toward the country in all other areas. Other such contextual effects suggested in the literature are that China's behavior toward Japan on Trade issues affects Japan's behavior toward China on Diplomatic issues (Scalapino, 1972), and that Soviet behavior toward Japan on Political issues affects Japan's behavior toward the Soviets on Resource Dependence issues (Pond, 1973). Scalapino (1972) notes that China demands certain diplomatic concessions from Japan in return for better trade relations (in particular, recognition that there is only "one China"), while Pond (1973) contends that Japan has linked its actions regarding joint Japan-Soviet resource development to Soviet policy on the political status of contested territory.

The second type of contextual effect ("third country effects") suggested in the substantive literature is the effect of a third country's behavior on Japan's actions toward a given partner. In this regard, Johnson contends that "China is not likely to accept a 'normalization' of relations with Japan until Japan has met China's political requirements" (1972: 718). One of those requirements is that Japan "end her alliance with the United States" (Johnson, 1972: 719). Thus, relations between China and Japan are likely to be affected by Japanese-U.S. relations in the Political-Military issue area. This effect would be evidenced in a relationship between U.S behavior toward Japan on Political-Military issues and Japan's behavior toward China in all issue areas. Another such contextual relationship is suggested by both Scalapino (1972) and Pond (1973). Both authors suggest that Japan is concerned not to go too far in its economic activity with China lest it elicit hostile

political-military responses from the Soviet Union. Thus, Japan's behavior toward China in the Trade issue area may be affected by the level of friendliness or hostility in Soviet Political-Military actions toward Japan.

## HYPOTHESES AND DESIGN FOR CONTEXTUAL ANALYSIS

The literature surveyed above suggests several hypotheses regarding the effects of contextual factors on Japan's behavior. These are listed below.

### Other Issue Area Hypotheses

H3: The behavior of any country toward Japan in Trade and Resource Dependence issue areas affects Japan's behavior toward the country in every other issue area.

H4: PRC behavior toward Japan in the Trade issue area affects Japan's behavior toward the PRC in the Diplomatic issue area.

H5: Soviet behavior toward Japan in the Political-Military issue area affects Japan's behavior toward the Soviet Union in the Resource Dependence issue area.

### Third Country Hypotheses

H6: U.S. behavior toward Japan in the Political-Military issue area affects Japan's behavior toward China in each other area.

H7: Soviet behavior toward Japan in the Political-Military issue area affects Japan's behavior toward China in the Trade issue area.

The design for testing these hypotheses is influenced by the practical concern underlying the analysis: to evaluate whether the inclusion of

contextual variables can enhance the predictability of Japan's behavior over and above the prediction possible from a simple reciprocal response approach.[7] Thus we are concerned less with the simple correlation between the the dependent and independent variables (as demonstrated under hypotheses 1 and 2 above) than with the degree to which the explained variance in the dependent variable increases beyond the explained variance due to reciprocal variables when the effects of contextual variables are added.[8] The independent and additional contribution of contextual variables to the explained variance of the dependent variable is measured by the increase in $R^2$ when the contextual variables are added to a multiple regression into which the reciprocal variable has already been entered. The reciprocal predictor of Japan → X behavior in an issue area is always X → Japan behavior in the same issue area. Again, all variables are measured by the tone index across 135 periods.

## RESULTS OF ANALYSIS OF CONTEXTUAL EFFECTS

### Other Issue Area Hypotheses (3-5)

Table 4 gives the simple correlation between input to and output from Japan on the eight dyad issue area combinations, the multiple correlations when all significant[9] contextual predictors are introduced into the equation, and the increase in the squared correlation (from simple to multiple) that results. For example, the first line in Table 4 shows

---

[7] The reciprocal predictor of Japan's behavior toward a country in a given issue area is the country's behavior toward Japan in the same issue area.

[8] The simple squared correlation between a contextual predictor and the dependent variable would equal the enhancement in $R^2$ if the non-contextual and contextual predictors were truly independent (non-multicollinear). In actuality, "independent" variables rarely are completely unrelated.

[9] That is, in some cases additional variables did not make it past the F criterion ($p<.01$) into the multiple regressions.

TABLE 4

Simple and Multiple Correlations to Examine Contextual Effects

| Dependent Variable | Simple r (independent variable is X → JAP in same issue area) | $r^2$ | Multiple R (independent variables are X → JAP in all issue areas) | $R^2$ | Increase from $r^2$ to $R^2$ |
|---|---|---|---|---|---|
| JAP → USA | | | | | |
| Political-Military | +.14 | .02 | +.20 | .04 | +.02 |
| Diplomatic | +.48 | .23 | +.48 | .23 | .00 |
| Trade | +.50 | .25 | +.51 | .26 | +.01 |
| JAP → USR | | | | | |
| Political-Military | +.18 | .03 | +.21 | .04 | +.01 |
| Diplomatic | +.29 | .08 | +.42 | .18 | +.10 |
| Resource Dependence | +.67 | .45 | +.68 | .48 | +.01 |
| JAP → PRC | | | | | |
| Diplomatic | +.64 | .41 | +.64 | .41 | .00 |
| Trade | +.87 | .76 | +.87 | .76 | .00 |

the correlation and $r^2$ between JAP → USA Political-Military and USA → JAP Political-Military; then the multiple correlation and $R^2$ between JAP → USA Political-Military (the dependent variable) and all three independent variables USA → JAP Political-Military, Diplomatic, Trade; then the difference between the simple and multiple squared correlations. The increase from $r^2$ to $R^2$ shown is a measure of the extent to which prediction is improved by including the contextual variables.

Reviewing the above table, one finds that in only one out of eight possible instances (JAP → USR Diplomatic) does the inclusion of contextual variables enhance the predictability of a variable to any considerable degree. Table 5 provides more detail on this one case.

TABLE 5

Simple Correlations of Japanese Diplomatic Behavior
Toward the Soviet Union with Soviet Behavior
Toward Japan in Three Issue Areas

| Independent Variable | Correlation |
|---|---|
| USR → JAP Diplomatic | +.29 |
| USR → JAP Resource Dependence | +.32 |
| USR → JAP Political-Military | +.04 |

From Table 5 it can be concluded that Soviet behavior toward Japan in the Resource Dependence issue area is the contextual factor responsible for the enhanced predictability of Japan's Diplomatic behavior toward the Soviet Union. In other words, Soviet behavior toward Japan regarding Resource issues appears to have some independent contextual effect on Japanese Diplomatic behavior toward the Soviet Union. This result provides some support for hypothesis 3, which anticipates that Japan's received behavior in economic issues affects the behavior Japan sends in every other issue area. But that hypothesis also anticipates several other contextual effects that are not observed in the results. Specifically, effects of the Trade issue in U.S.-Japanese and PRC-Japanese relations on other issue areas are not observed. Thus, hypothesis 3 receives support in only one out of several possible cases. In substantive terms, whether Japan receives hostile or friendly behavior from a country in economic areas has little apparent effect on Japan's Diplomatic or Political-Military behavior toward the country.[10] Hypotheses 4 and 5 are not supported by the results in Table 4. PRC behavior toward Japan in the Trade issue area has no apparent independent effect on Japan's behavior toward the PRC in the Diplomatic issue area. Thus, Japan apparently has not responded strongly in the Diplomatic area to China's initiatives on Trade. Soviet behavior toward Japan in the Political-Military area has no apparent independent effect on Japan's behavior toward the Soviet Union in the Resource Dependence area.

[10]Possible reasons for the rejection of this and other contextual hypotheses are presented under "Summary and Discussion" at the end of this section.

Thus, there is no evidence that Japan has tied its Japanese-Soviet resource development activity to Soviet behavior regarding political and military issues salient to Japan, such as the political status of contested territory.

Third Country Hypotheses (6 and 7)

Evidence from simple correlations showed that analyses to determine the degree of enhancement in predictability by including third country variables were not warranted. The added predictability from including the third country variables would be miniscule at best, for none of the simple squared correlations between the dependent variable in hypotheses 6 and 7 and the third country variables was greater than .01. Table 6 shows the simple $r^2$'s between the dependent variables and the third country variables.

TABLE 6

Simple Squared Correlations between Dependent Variables and Third Country Variables for Hypotheses 6 and 7

| Hypothesis | Dependent Variable | Third Country Variable | $r^2$ |
|---|---|---|---|
| 6 | JAP → PRC Diplomatic | USA → JAP Political-Military | .01 |
| 6 | JAP → PRC Trade | USA → JAP Political-Military | .003 |
| 7 | JAP → PRC Trade | USR → JAP Political-Military | .01 |

SUMMARY AND DISCUSSION

The objective of this section has been to determine whether and to what extent an issue area level of analysis and the consideration of contextual effects can enhance the predictability of a country's international behavior. In the case of Japan we found evidence that an issue area focus could enhance the prediction of behavior, but that the contribution of nearly all contextual effects considered is either very small or nonexistent.

Thus, the findings and suggestions of Fukui (1974) and Hellmann (1972) to the effect that Japan deals with various issue areas in discrete and particular fashions are supported by the analyses above. Rosenau's (1960) more general statements regarding the potential variation of behavior patterns across issue areas are also supported. Japan often responds dissimilarly to similar external inputs in different issue areas. Japanese responses tend to be more intense in economic issue areas than in other issue areas.

Contextual factors, on the other hand, are found to have little influence on Japan's behavior and therefore to contribute little to the prediction of that behavior. We are inclined to regard the rejection of contextual hypotheses tentatively and suggest that our findings may be a result of an inappropriate testing method. It is very possible that contextual effects take longer to manifest themselves than non-contextual effects. That is, while Japan may respond to a nation fairly immediatel following an input from that nation, the effects of that input on Japan's behavior toward <u>other</u> countries may occur over a longer period of time. Thus, contextual effects may occur, but with a lag. All analyses reported above involved simultaneous relationships between independent and dependent variables. It is also possible that the effects of context may be different at different points in time. If this is so, then more positive results would be found by testing the contextual hypotheses in several different subsets of time domains. All analyses reported above were done across the entire history of our data. Thus, the results from tne above contextual analyses must not be regarded as having shown definitively that contextual factors have no effects on Japan's international behavior.

While the negative contextual results may be due to the use of inappropriate techniques, the results are not entirely inconsistent with certain relevant indications in the substantive literature on Japan. Parts of that literature indicate that there is no necessary relationship among issue areas in Japan's international behavior, and that a general tendency exists for the Japanese to treat matters on a "case-by-case" basis rather than

in an integrated way. With regard to the absence of a necessary relationship among issue areas, Overholt stresses that the international economic and political affairs of Japan may develop independently over time. "The connection between economic and political relationships is not so tight" as has often been thought, Overholt writes (1974: 2). Japan's economic relationships with other countries are determined primarily by the mutual advantages to be gained from trade, rather than by political considerations. Thus, for example, a decline in U.S.-Japanese political relations need not cause a souring of economic relations between the two countries (Overholt, 1974: 2), and enhanced economic relations between Japan and the Soviet Union do not "automatically imply political kinship" between them (Overholt, 1974: 3).

If inter-issue area effects are apparent, the Japanese tendency to treat international affairs issues on a "case-by-case" basis makes such effects even less likely. While scholars have conflicting views on why a case-by-case tendency is exhibited in Japan's international behavior, they agree that the tendency does exist. Tsurutani (1974: 14) attributes this characteristic to the formal and informal structures in Japan's policy-making bureaucracy, while Reischauer (1974: 150-151) believes that the tendency results from a conscious long-range policy decision to separate economic affairs from other considerations. No matter the reason, the tendency to allow different issue areas to proceed relatively unaffected by other issue areas has been noted.

# CHAPTER 6

# APPLICATION OF EVENT PATTERNING FOR DECISION ANALYSIS

# APPLICATION OF EVENT PATTERNING FOR DECISION ANALYSIS

## INTRODUCTION

The purpose of this chapter is to demonstrate the application of the event patterning concepts discussed in Chapter 4 (Event Patterning for Decision Analysis) to two directed dyad pairs, Japan→United States and United States→Japan, and Japan→Soviet Union and Soviet Union→Japan. Both overall behavior between dyad partners and behavior in selected issue areas are explored for the period January 1972 to July 1974.

The analysis indicates that the event patterning approach successfully identifies both a normal range of interactions between dyadic partners and deviant patterns of behavior associated with development and resolution of different salient international issues. Dyadic partners and affected third parties are shown to have similar response patterns within the same issue area, and these are explored in detail for the political-military security issue of Japanese-U.S. and Japanese-Soviet interactions.

It will be recalled that the event patterning concept uses three indicators of interactive behavior:

(1) Tone, a summary weighted scalar index of quality of interaction based on a 22-category event coding scheme.

(2) Intensity, a deviation index of frequency of interaction from expected levels determined by the regression of frequency of dyadic interactions on a size indicator (GNP).

(3) Movement, tone and intensity coordinates over time; in this case, the temporal coordinates represent 13-week moving averages of weekly interaction values.

The plot of points on the intensity and tone axes of the event patterning diagram permits the analyst to describe the overall range of normal behaviors

which characterize a given country's interaction with a second country. It also permits the discovery of patterns of salient issue development and resolution, where salient issues are identified by deviations from the range of normal behaviors. The pattern of issue development and resolution may be described in terms of:

(1) Vectors - the length of the unidirectional line connecting the temporal data points from the beginning of a salient issue area to the maximum deviant point achieved as it develops, and from this point back to the normal interaction range.

(2) Angles describing the direction of vector deviation from the horizontal tone axis,

(3) Duration of salient issue periods in terms of number of weeks for which the deviant pattern is observed,

(4) Rate of change of behavior during salient issue periods.

Moreover, the comparison of the patterns of directed dyad partners permits the analyst to evaluate (a) the similarity or dissimilarity of partner behavior over time and in specific issue areas, and (b) the quality, intensity and lead or lag time of actions and reactions between partners.

## IDENTIFICATION OF AREAS OF NORMAL DYADIC INTERACTIONS

The density of data point clusters may be used to define the normal interaction range for each dyadic partner. It is hypothesized that in the absence of disturbance, behavior tends to assume the values associated with the normal range, and that this range may be used to characterize the quality of interactions of a given directed dyad. The normal interaction ranges may differ for different dyad partners, and a variety of factors, such as latent hostilities on the part of one actor or superpower indifference to weak powers, may explain why normal behaviors may not coincide or why they may change over extended periods of time. Nevertheless, the normal range may serve as the base from which to measure deviant behaviors and as such it serves as a directed dyad-specific indicator of the amount and quality of disturbance present in the international relations of given nations.

Figure 1 presents the event patterning diagram of overall Japanese behavior toward the United States for the period January 1972 to July 1974. It can be seen that the tone and intensity of Japan's interactions with the United States vary considerably over time. The range of normal interaction can be identified visually on the figure by the crescent-shaped cluster of data points moving approximately from data point 30 in quadrant II down through quadrant III and terminating in quadrant IV in the area between data points 82 and 104. This crescent pattern is indicated again in Table 1 which details the density of interactions in various segments of the pattern quadrants. Together, the density table and the event patterning diagram indicate that overall Japan's interactions with the United States tend to be mildly negative in tone (range: -.06 to +.03) and only slightly deviant from the expected frequency of interactions (range: +.33 to -.33).

In comparison with Japan's behavior toward the United States, U.S. behavior overall toward Japan, graphed in Figure 2, varies less, is less frequent in intensity, and more positive in tone. The U.S.→Japan interaction densities in Table 2 indicate that U.S.→Japan behavior is concentrated within a narrow box defined by neutral, but slightly positive, tone (range: 0 to .09) and a frequency between 50 and 100 percent lower than expected. A comparison of the density tables for the two directed dyads, Japan→U.S. and U.S.→Japan, indicates that the normal interaction ranges of the two countries do not overlap at all. U.S. interactions are contained entirely within quadrant IV while Japanese interactions cover all four quadrants.

Japanese-Soviet interactions tend to be more similar in tone and intensity than do Japan-U.S. interactions. Figure 3 represents the patterning of Japanese interactions with the Soviet Union for the entire time period. The clustering of data points indicates that Japan's interactions with the Soviet Union are close to expected values in intensity (0 percent deviation) and considerably more positive in tone than Japan→U.S. interactions. They all fall in the positive zone of quadrants I and IV. They also demonstrate greater concentration over time. Nearly 50 percent of Japan's initiatives toward the Soviet Union are concentrated in the range of normal interactions, as indicated in the density in Table 3.

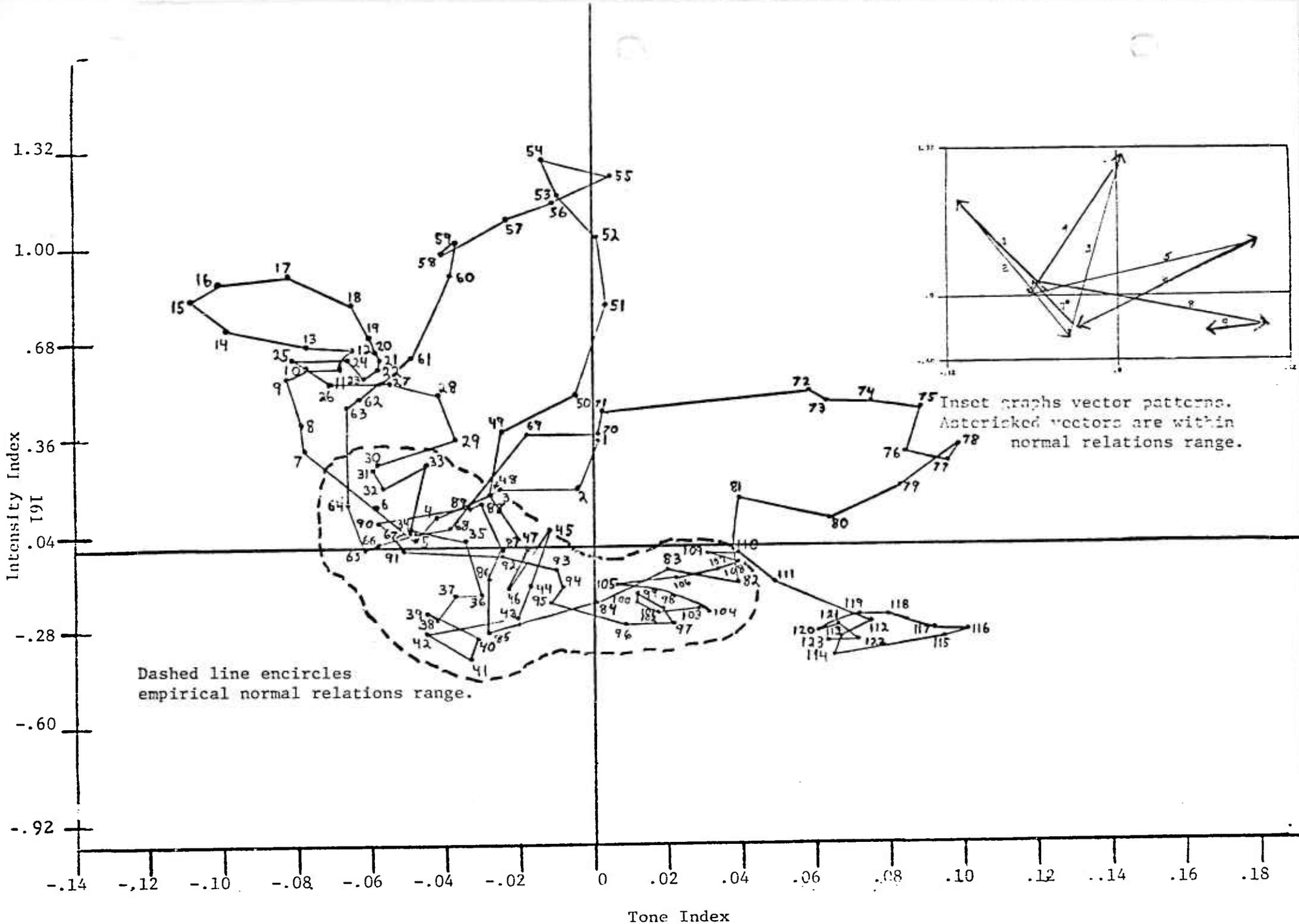



Figure 1. Event Patterning of Japan → U.S. (All Issues), 1972-1974

TABLE 1

Density of Japan → U.S. Interactions - All Issues

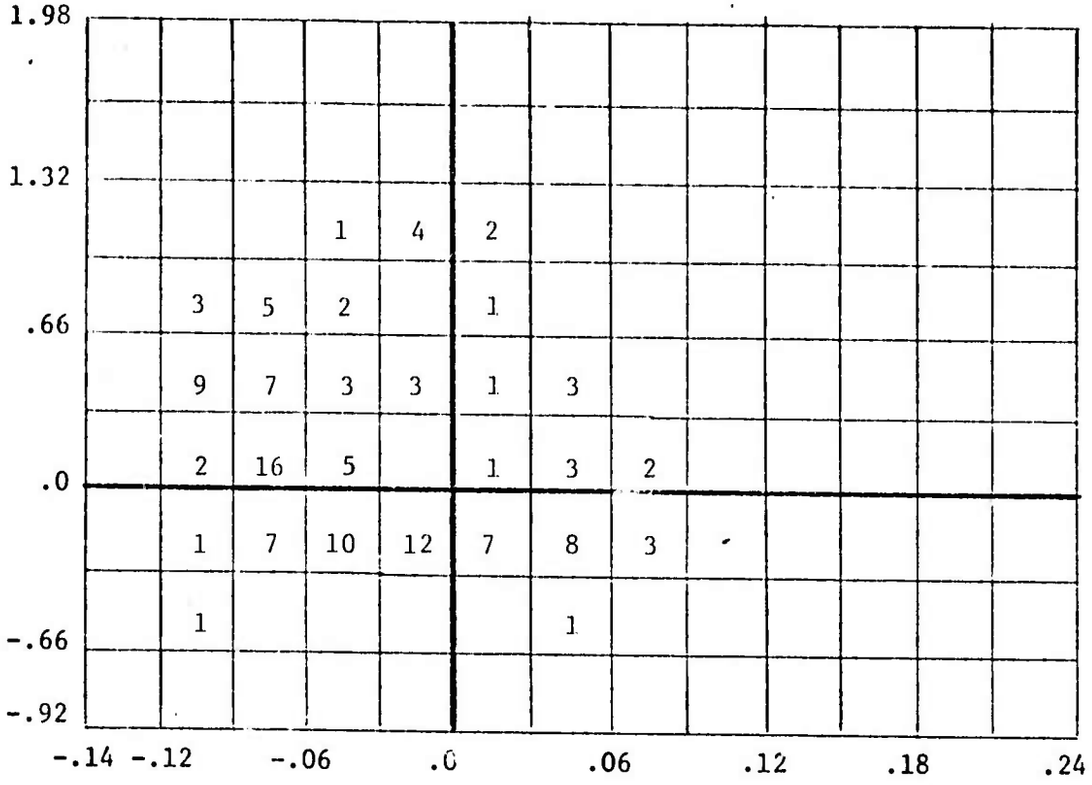
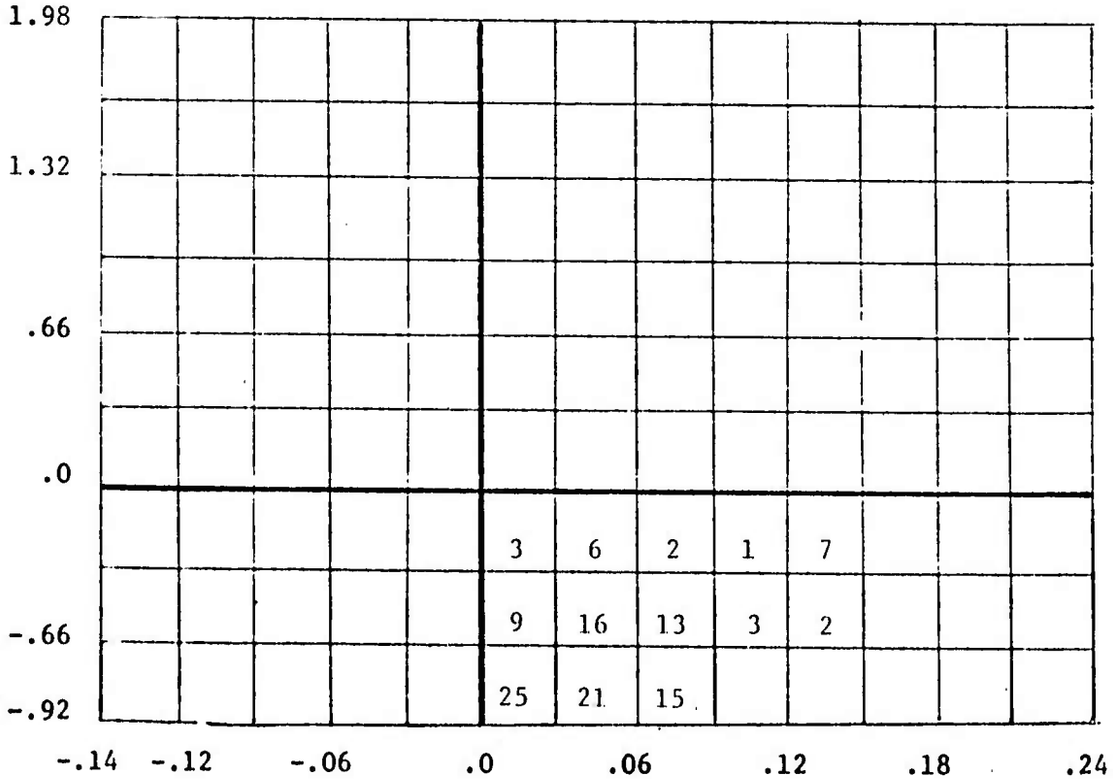



TABLE 2

Density of U.S. → Japan Interactions - All Issues



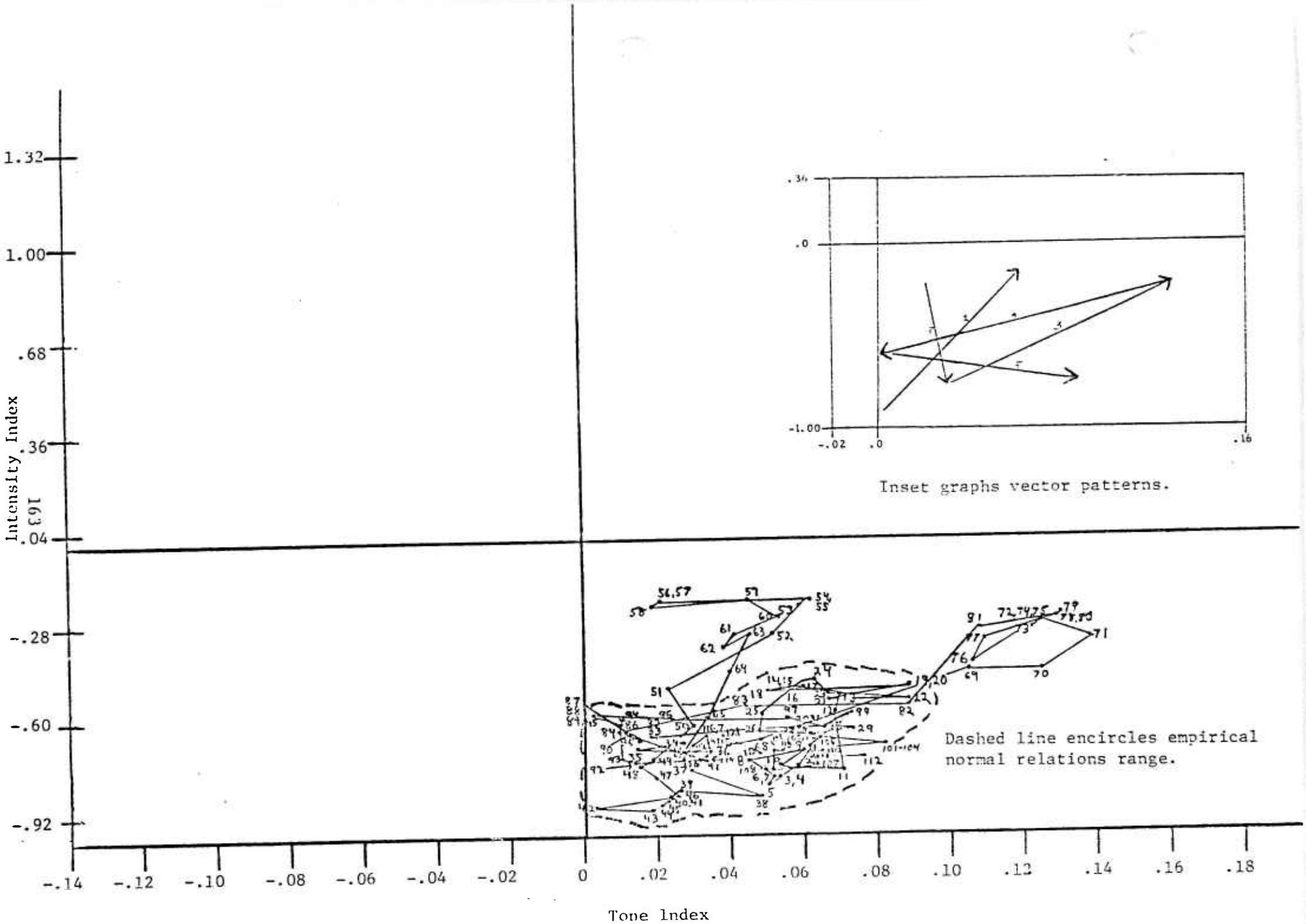



Figure 2. Event Patterning of U.S. → Japan (All Issues), 1972-1974

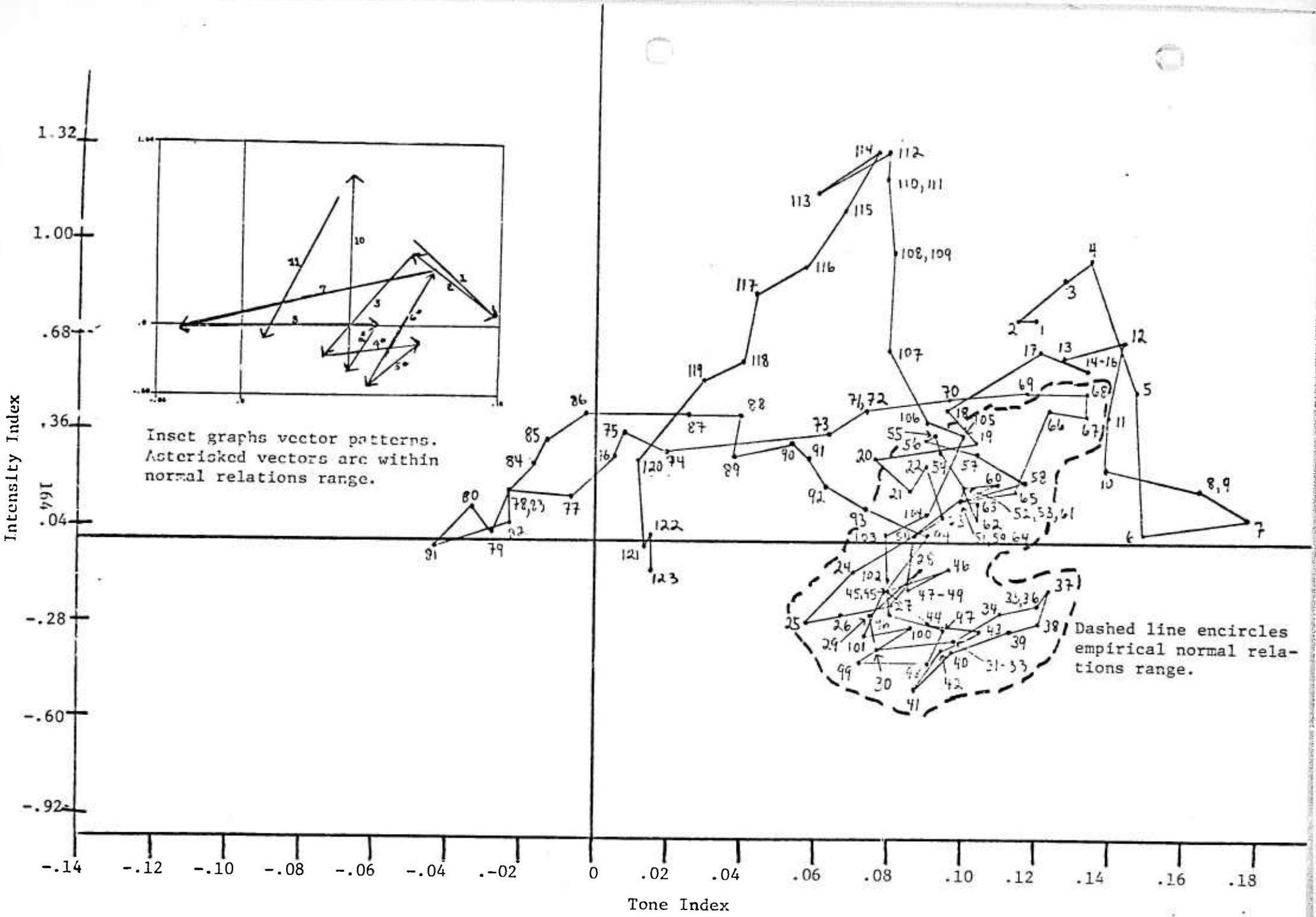



Figure 3. Event Patterning of Japan → USSR (All Issues), 1972-1974

TABLE 3

Density of Japan → USSR Interactions - All Issues

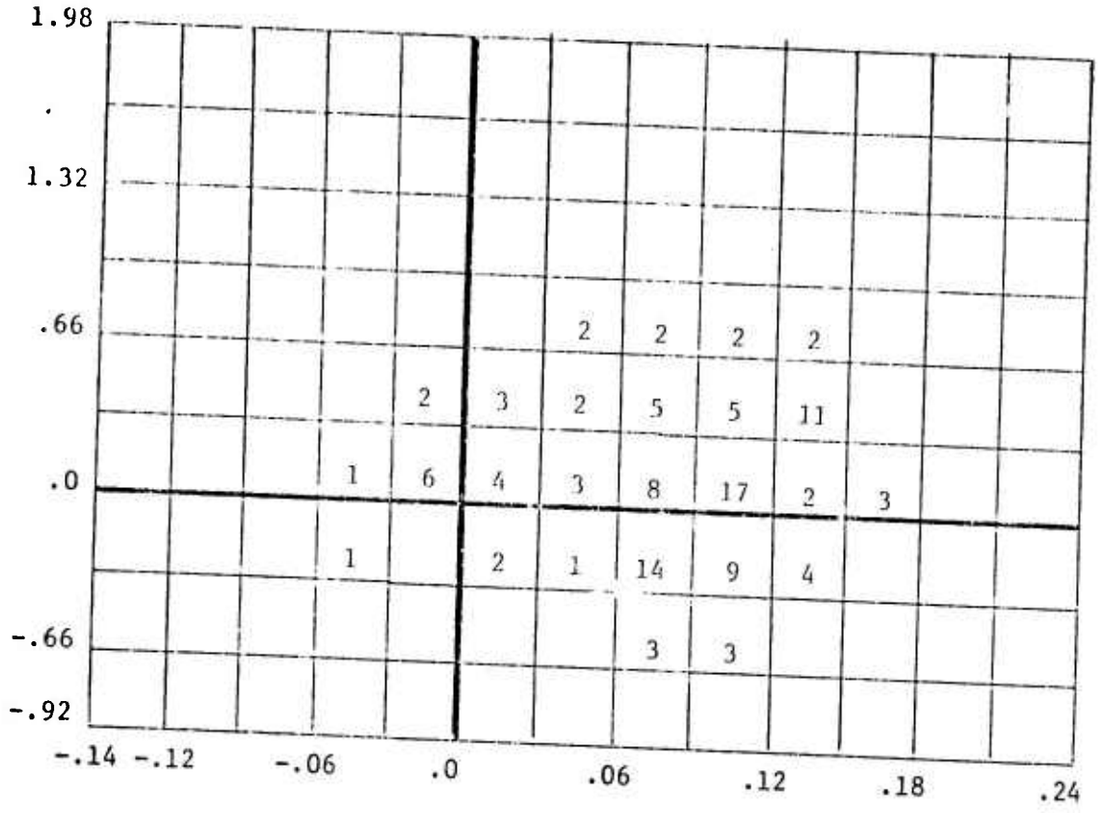
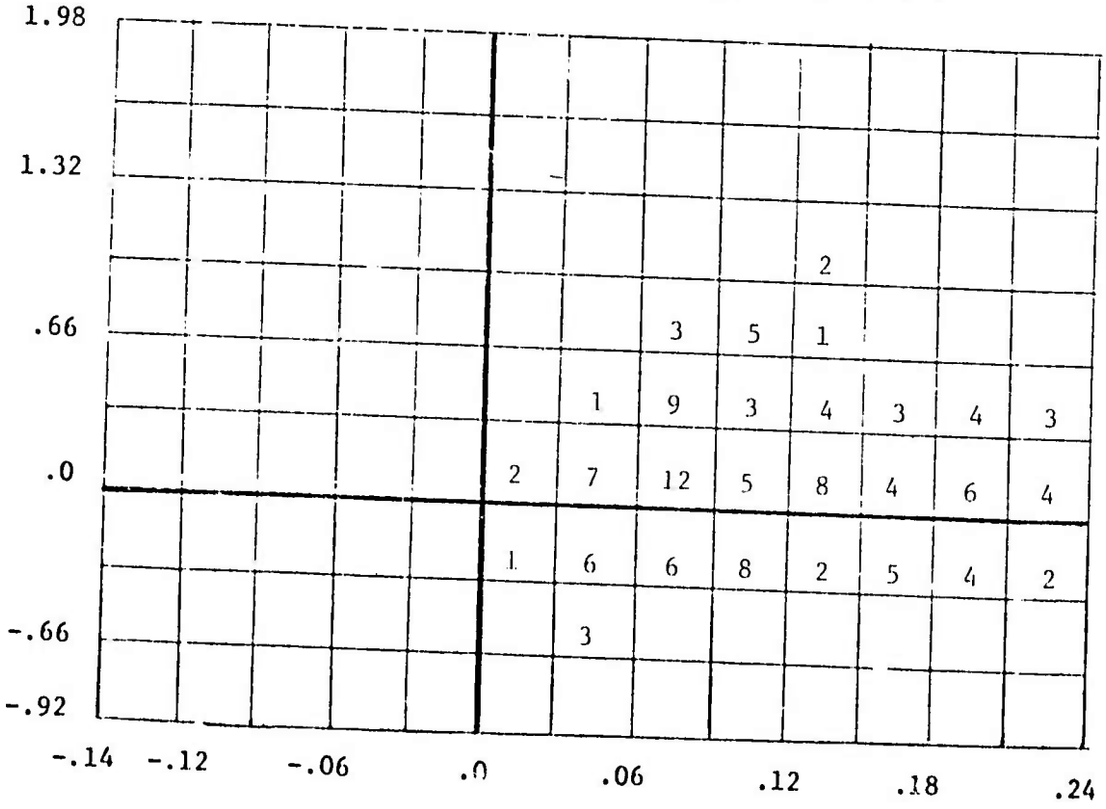



TABLE 4

Density of USSR → Japan Interactions - All Issues



The clustering of Japanese behavior toward the Soviet Union spans the intensity range of deviations one-third greater and one-third less than expected frequency, while the tone characteristic of these interactions falls into a range defined as positive, neutral communication (range: +.06 to +.12).

Soviet interactions with Japan range into an even more positive zone than do Japan's initiatives toward the Soviet Union. In Figure 4, Soviet initiatives extend to a more positive point than any observed thus far. At the same time, Table 4 indicates that the range of normal interactions for the Soviet Union→Japan is very slightly less positive than Japan→Soviet interactions, but that the two dyad partners' normal interaction ranges overlap considerably. The Soviet range is slightly more concentrated than Japan's. While the normal range of Japan→Soviet initiatives falls across quadrants I and IV, Soviet→Japan initiatives concentrate in quadrant I.

## IDENTIFICATION OF CRITICAL ISSUE PATTERNS

The identification of a range of normal interactions defines the expected behavior of dyad partners. That is, in the absence of disturbances from the international, domestic, or economic environments, it would be predicted that Japan→U.S. interactions would fall into a range of low intensity and mildly negative behavior, while U.S. initiatives to Japan would be even less intense, but mildly positive. Both Japan→Soviet and Soviet→Japan interactions would be low in intensity, but more strongly positive than U.S.→Japan interactions.

When critical issues arise that disturb the normal relations between dyad partners, it may be expected that more extreme behaviors will occur. If the critical issue is not resolved and if relations remain strained for an extended period of time, it may be that a new normal range will be established. If the critical issues are resolved, however, behaviors are expected to return to within the normal range.

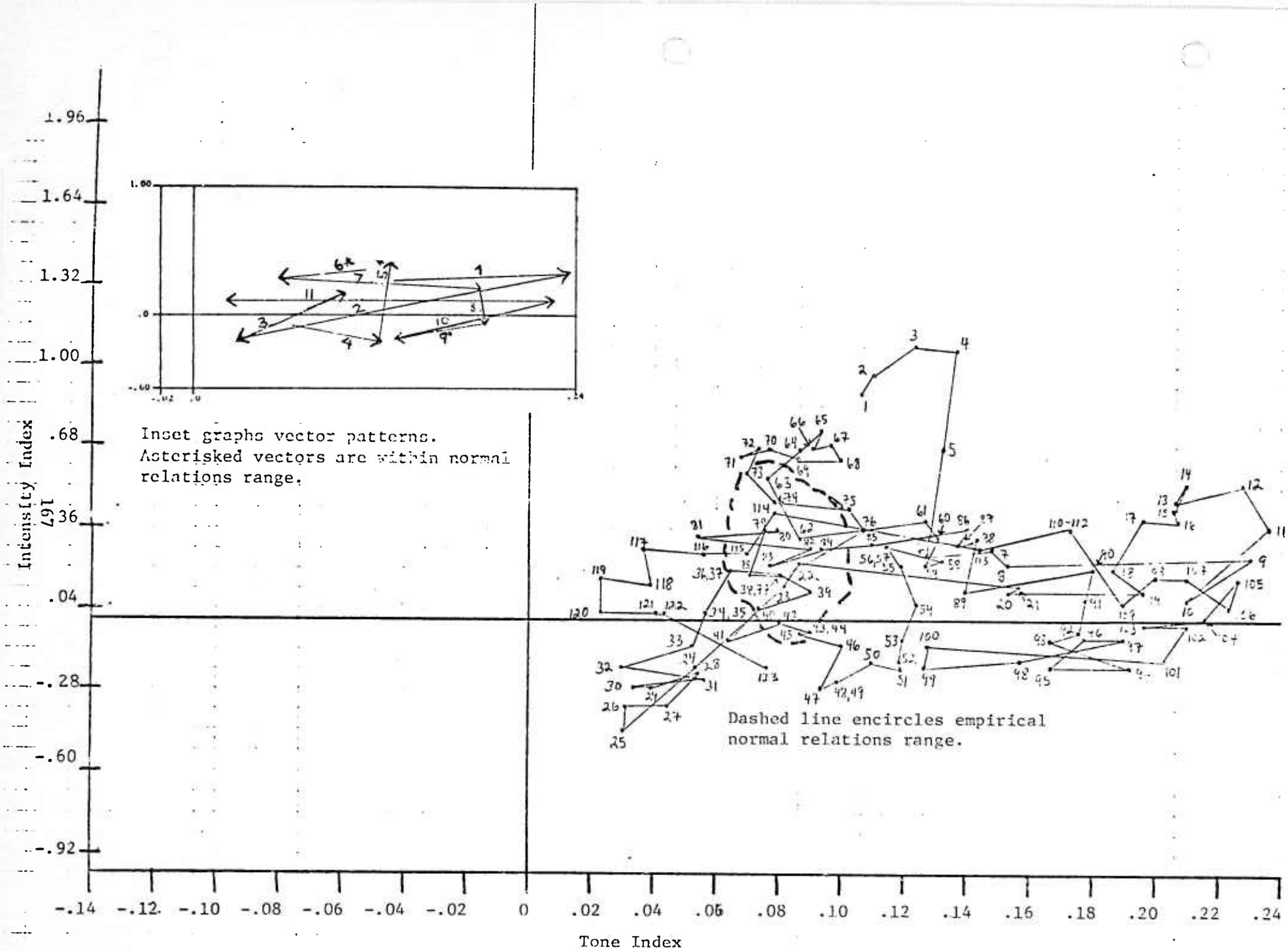



Figure 4. Event Patterning of USSR → Japan (All Issues), 1972-1974

The observation of the patterns of interaction that accompany the emergence of salient issues permits us to discover how different nations react in different types of issues, and how different issues are responded to in different ways. The pattern of data points plotted on the event patterning diagram permits the analyst to identify those time periods that are characterized by these highly salient issues. For example, in Figure 1 (Japan→U.S.) four salient patterns are observable. These are indicated by the movement of data points toward and away from the inflection points at weeks 14-17, 54-55, and 75-78, and 115-116. In contrast, only two clearly salient patterns are observed in Figure 2 (U.S.→Japan) as indicated by the pattern of movement toward the data points at weeks 70-80 and 55-58. In each case the movement of data points over time toward and away from these extreme points takes a pattern of departure from the range of normal interaction, inflection at the extreme point, and return to the normal range.

Each of these patterns may be described in terms of its quadrant location, the direction of its movement, rate of change, and the vectors and angles that describe the movement of data points away from and back to the normal relations range. Once the substance of the issues that cause the different patterns to develop is known, the different mathematical characteristics of the patterns may be compared and used as a base from which general statements about overall and issue-related behavior may be derived.

Tables 5, 6, 8, and 9 provide data for the mathematical analysis of overall directed dyad behavior. Column 1 in the tables identifies the inclusive weeks for which salient patterns or vectors are observed; column 2 indicates the number of weeks of duration of each pattern; and column 3 gives the Pearson product-moment correlation coefficient of the frequency and tone values associated with each vector pattern. The correlation coefficient describes the direction and degree of association of these values. A low correlation indicates that frequency and tone do not vary together, or that their pattern of covariance is not linear (and therefore does not describe a straight-line vector). A negative

TABLE 5

Japan → U.S. Vector Patterns, Overall Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location |
|---|---|---|---|---|---|---|---|
| 1 | 5-15 | 11 | -.80 | .81 | .07 | 95.0° | NNW: II |
| 2 | 15-41 | 27 | -.79 | 1.24 | .05 | 93.6° | SSE: II→III |
| 3 | 41-55 | 15 | .76 | 1.61 | .11 | 88.2° | NNE: III→II→I |
| 4 | 55-66 | 12 | .86 | 1.23 | .10 | 86.6° | SSW: I→II→III |
| 5 | 66-77 | 12 | .73 | .31 | .03 | 66.8° | NE: III→II→I |
| 6 | 77-85 | 9 | .94 | .58 | .06 | 78.3° | SW: I→IV→III |
| 7[a] | 85-90 | 6 | -.43 | .39 | .06 | 99.5° | NNW: III→II |
| 8 | 90-116 | 27 | -.67 | .42 | .01 | 116.8° | SE: II→III→IV |
| 9 | 116-123 | 8 | .12 | .05 | .01 | 14.6° | W: IV |

[a] Patterns Within Normal Relations Zone

TABLE 6

U.S. → Japan Vector Patterns, Overall Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location |
|---|---|---|---|---|---|---|---|
| 1 | 42-55 | 14 | .92 | .69 | .05 | 85.7° | N: IV |
| 2 | 59-67 | 19 | .93 | .50 | .06 | 87.2° | S: IV |
| 3 | 67-79 | 13 | .94 | .47 | .04 | 76.5° | NNE: IV |
| 4 | 79-95 | 17 | .90 | .36 | .02 | 68.5° | SSW: IV |
| 5 | 95-104 | 10 | -.67 | .13 | .01 | 130.2° | SE: IV |

correlation coefficient indicates, for a given pattern, that the most frequent events are more negative in tone. A positive correlation indicates that the most frequent events are also the most positive. Column 4 gives the length of the vector which describes each pattern, and column 5 indicates the average rate of movement of data points along that vector. The comparison of vector length and rates of changes permits the evaluation of the relative rapidity with which certain patterns emerge and extreme values of intensity and tone are achieved. Column 6 gives the size of the angle which each vector forms with the horizontal tone axis. This value indicates which behavior component, intensity or tone, is the driving force behind the pattern development and, when compared across patterns and dyads, indicates similarity of behavior patterns. If the angle value is below 45 degrees or between 135 degrees and 180 degrees, change in tone is the major factor contributing to the pattern. If the angle value falls between 45 degrees and 135 degrees, intensity is the major factor. When the angle value approaches 90 degrees, intensity becomes almost the sole contributor to pattern development, and conversely, when the angle value approaches 0 degrees or 180 degrees, tone becomes the sole contributor. When angle values approach 45 degrees or 135 degrees, tone and intensity make equal contributions to the patterns. The final column in the tables indicates the vector location and direction of movement within and across quadrants and is determined by the slope of the vector regression line. Vector direction of movement is given in terms of compass points (north, south, north-northwest, and so forth). Quadrant location, represented by roman numerals, refers to the areas of the event patterning diagram (Chapter 4).

Table 5 presents the analytical data for the Japan→U.S. directed dyad. Eight distinct patterns are observed. Two of these are extended, lasting 27 weeks, while three are relatively brief, lasting between 6 and 9 weeks. With the exception of the last three patterns, the correlation of intensity and tone values is quite high, indicating a strong linear movement pattern. An examination of the data points for weeks 85-90 and 116-123 in Figure 1 indicates that these patterns are curvilinear, that is, for part

of the pattern duration, one behavior attribute dominates and for the remainder of the pattern, the other behavior attribute dominates. For example, in the pattern for weeks 85-90, intensity increases while tone remains approximately constant until week 88, after which tone decreases while intensity remains constant.

Examination of the individual vector patterns in Figure 1 and of the vector angles and directions in Table 5 indicates that the vector patterns tend to move in pairs. That is, a distinctive set of interactions occurs which results in the movement of behavior out of the range of normal interactions and along a given vector to an extreme point. The pattern inflects at the extreme point and traces a return route roughly parallel to the original vector pattern. A comparison of the patterns identified in the table with the plotted patterns in Figure 1 indicates that the first pattern moves from data point 5 in the normal range, with increasing intensity and more negative tone out to data point 15. From data point 15, both intensity and tone coordinates trace a steady decrease back to week 41, again within the normal range. A comparison of the angle values for the two vectors which summarize these patterns, 95 degrees for the first pattern and 93.6 degrees for the second, indicates that they are closely parallel and that intensity is almost the sole factor causing movement along both vectors.[1] The fact that the angles are both greater than 90 degrees indicates that the tone contribution is slightly negative.

A comparison of the vector lengths and rates of change of the two pattern vectors indicates that while the vector for the increasing intensity pattern is not as long as that for the decreasing intensity pattern (.81 versus 1.21) and therefore does not describe as great a total amount of change as the decreasing intensity pattern, the average rate of change from time unit to time unit is somewhat greater for the first vector (.07) than for the second (.05).

---

[1] The differences in scale of the axes of the event patterning diagrams make the angles appear to be much greater than the reported values. The angle values used represent the actual location of the vectors with respect to the axes, not the apparent fit which is seen in the figures.

The second pattern pair observable in the Japan→U.S. dyad occurs between weeks 41-55 (increasing interaction) and 45-66 (decreasing interaction). Again, the correlation between tone and intensity is high, indicating that the patterns may be described by linear vectors. The angle values indicate that intensity changes again dominate the pattern development, but that the tone contribution is positive rather than negative. While the increasing function is slightly longer in duration than the decreasing function, the average rates of change are about equal (.11 versus .10).

A similar pattern of paired movement emerges for the fifth and sixth vectors in the Japan→U.S. dyad, and apparently for the eighth and ninth. The ninth time period however is incomplete, and while it would appear that the vector which is emerging from the point between weeks 116 and 123 in Figure 1 is beginning to move back to the normal range identified in the density charts, the pattern remains indeterminant. In sum, the general pattern that emerges from Table 5 is one of paired movement of vectors away from and back to the normal relations range, and a strong tendency for intensity to be the driving force behind Japan's initiatives toward the United States.

Table 6 indicates that the number of identifiable vectors for the U.S. initiatives toward Japan is much fewer than those for Japan to the United States. The entire pattern of movement is contained within a narrow space of quadrant IV as indicated in the Density Table 2. In comparison with the Japan→U.S. patterns, the U.S.→Japanese vectors tend to be shorter and the rates of change lower, indicating the more stable quality of behavior practiced by the United States in its relations with Japan. Again, the vectors tend to move in pairs. Thus the vector for weeks 42-55 describes an increasing function, while the vector for weeks 59-67 describes a decreasing function. A similar pattern occurs with the vectors for weeks 67-79 and 79-85. The angle sizes for the two pairs of vectors are nearly the same, indicating parallel movement. In each case, intensity is the driving force behind the pattern development, though tone contributes somewhat more to the second pattern pair, as indicated by the smaller

angle size. Note that the final vector, that for weeks 95-104, has an angle of 130 degrees indicating nearly equal contribution of intensity and tone. The angles for the first two vector pairs indicate positive vector direction, while that for the final vector indicates a negative vector direction.

Pattern Comparison Between Dyads: Japan and the United States

The two directed dyads which have just been examined interact with each other, and it may be appropriate to regard the initiatives of one actor as stimuli to or responses to the other's initiatives. A comparison of the time-bound vectors identified for the separate dyad partners will indicate whether, in fact, the behaviors of the two dyad partners are highly related.

The time periods covered by each vector, the direction of the vectors, and the angle sizes are the appropriate data for this comparison. Even though the actors' normal relations ranges are different, or the ranges of behavior covered by the vectors are different, if the direction, duration, and quality of interaction as indicated by the angle values are similar, it may be inferred that the behaviors of one partner are responsive to those of the other, and in fact, deal with the same critical issue.

Table 7 juxtaposes the data necessary for the comparative analysis of dyad interactions. An examination of the vector weeks identified for each directed dyad indicates that the first pattern pair for Japan→U.S. has no counterpart in U.S.→Japan behavior. The second Japan→U.S. pair, weeks 41-55 and 55-66, however, parallels the U.S.→Japan pair for weeks 42-55 and 59-67. It is noteworthy that the U.S.→Japan pattern develops with a short lag behind the Japan→U.S. pattern. This would suggest that the patterns for both countries are determined by Japanese initiatives toward the United States. To further confirm the interpretation that the dyad partners' behaviors are responsive one to another, the direction of movement of the vectors is similar across the directed dyads, and the angle sizes reflecting the quality of interaction characterizing the

TABLE 7

Comparison of Vector Patterns Across Dyads:
Japan and United States

| Japan → U.S. | | | U.S. → Japan | | |
|---|---|---|---|---|---|
| Inclusive Weeks | Angle Value | Vector Direction | Inclusive Weeks | Angle Value | Vector Direction |
| 5-15 | 95.0° | NNW | --- | --- | --- |
| 15-41 | 93.6° | SSE | --- | --- | --- |
| 41-55 | 88.2° | NNE | 42-55 | 85.9° | N |
| 55-66 | 86.6° | SSW | 59-67 | 87.2° | S |
| 66-77 | 66.8° | NE | 67-79 | 76.5° | NNE |
| 77-85 | 78.3° | SW | 79-95 | 68.5° | SSW |
| 85-90 | 99.5° | NNW | --- | --- | --- |
| 90-116 | 116.8° | SE | 95-104 | 130.2° | SE |
| 116-123 | 14.6° | W | --- | --- | --- |

vectors are likewise similar, indicating approximate parallel movement of behaviors by the two actors. Similar patterns and interpretations can be given to the Japan→U.S. vector pair corresponding to weeks 66-77 and 77-85, to its U.S.→Japan counterpart for weeks 67-79 and 79-95, and to the isolated Japan→U.S. vector for weeks 90-116, and U.S.→Japan vector of weeks 95-104. It should be noted that in spite of the different lengths associated with these vectors (see Tables 5 and 6) movement along each vector is approximately parallel. Thus, though the duration of salient issue patterns varies with respect to actor, the quality of interaction is similar. The difference in duration provides a clue as to the relative importance of different subject matters to the different countries.

## JAPANESE-SOVIET INTERACTIONS

Analyses similar to those just described for U.S.-Japanese interactions can be performed for Japanese interactions with the Soviet Union. Figures 3 and 4 indicated that Japan-Soviet interaction patterns are quite different from Japanese-U.S. patterns. Soviet initiatives to Japan tend to be positive overall, but quite diffuse, while Japan→Soviet relations tend to be more concentrated, but also evidence several clear salient behavior patterns.

Table 8 presents the data necessary to evaluate the behavior pattern for Japanese initiatives toward the Soviet Union. Seven separate vector patterns are identifiable from the inflection points of the frequency and tone coordinates. With two exceptions, the correlation coefficients indicate a strong linear pattern of relations between the behavior indicators. An examination of the data points in Figure 3 indicates that one of these exceptions, vector 6 between weeks 81 and 94, describes a curvilinear pattern and therefore is not accurately represented by the linear vector. The second exception, vector 8 between weeks 99 and 114, describes a pattern in which variation occurs only on the intensity scale, while tone remains approximately constant.

TABLE 8

Japan → USSR Vector Patterns, Overall Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location |
|---|---|---|---|---|---|---|---|
| 1 | 1-7 | 7 | -.72 | .86 | .22 | 93.4° | S: I |
| 2 | 7-17 | 11 | -.87 | .56 | .05 | 95.3° | N: I |
| 3 | 17-25 | 9 | .88 | .92 | .10 | 94.4° | S: I→IV |
| 4 [a] | 25-37 | 13 | .29 | .13 | 1.00 | 44.8° | NE: IV |
| 5 [a] | 37-41 | 5 | .93 | .34 | .07 | 81.8° | SSW: IV |
| 6 [a] | 41-68 | 8 | .66 | 1.01 | .04 | 85.1° | NNE: IV→I |
| 7 | 68-81 | 14 | .93 | .56 | .04 | 70.4° | SSW: I→II |
| 8 | 81-94 | 14 | .08 | .15 | .01 | 15.9° | E: II→I |
| 9 [a] | 94-99 | 5 | .17 | .42 | .07 | 71.2° | SSW: I→IV |
| 10 | 99-114 | 16 | .20 | 1.70 | .11 | 93.8° | N: IV→I |
| 11 | 115-123 | 9 | .95 | 1.23 | .14 | 87.2° | S: I→IV |

[a] Patterns Within Normal Relations Zone

vectors are likewise similar, indicating approximate parallel movement of behaviors by the two actors. Similar patterns and interpretations can be given to the Japan→U.S. vector pair corresponding to weeks 66-77 and 77-85, to its U.S.→Japan counterpart for weeks 67-79 and 79-95, and to the isolated Japan→U.S. vector for weeks 90-116, and U.S. vector of weeks 95-104. It should be noted that in spite of the different lengths associated with these vectors (see Tables 5 and 6) movement along each vector is approximately parallel. Thus, though the duration of salient issue patterns varies with respect to actor, the quality of interaction is similar. The difference in duration provides a clue as to the relative importance of different subject matters to the different countries.

## JAPANESE-SOVIET INTERACTIONS

Analyses similar to those just described for U.S.-Japanese interactions can be performed for Japanese interactions with the Soviet Union. Figures 3 and 4 indicated that Japan-Soviet interaction patterns are quite different from Japanese-U.S. patterns. Soviet initiatives to Japan tend to be positive overall, but quite diffuse, while Japan→Soviet relations tend to be more concentrated, but also evidence several clear salient behavior patterns.

Table 8 presents the data necessary to evaluate the behavior pattern for Japanese initiatives toward the Soviet Union. Seven separate vector patterns are identifiable from the inflection points of the frequency and tone coordinates. With two exceptions, the correlation coefficients indicate a strong linear pattern of relations between the behavior indicators. An examination of the data points in Figure 3 indicates that one of these exceptions, vector 6 between weeks 81 and 94, describes a curvilinear pattern and therefore is not accurately represented by the linear vector. The second exception, vector 8 between weeks 99 and 114, describes a pattern in which variation occurs only on the intensity scale, while tone remains approximately constant.

As was the case with the Japan→U.S. dyad, the vector patterns of Japan-Soviet interactions tend to move in pairs. The first pair, vectors 1 and 2, occurs in an already extreme area of Japan-Soviet interaction (the extremity is defined with respect of the range of normal interactions). The fact that vector 2 is followed by a sharply declining vector (vector 3), which brings the interaction pattern back into the normal range, suggests that vectors 1 and 2 may mark a prolonged, unstable inflection endpoint of a critical issue which had developed prior to the beginning of the present data set. After the return to normal interaction which results from the vector 3 pattern, no salient pattern occurs until week 68. Beginning at that point, two vector pairs describing quite different behaviors emerge. The first pair is described by sharply decreasing tone values which move the pattern from quadrant I to quadrant II between weeks 68 and 81. Between weeks 81 and 94, the pattern is a reverse one of increasing positive tone values until the normal relations are again achieved. Though the vectors differ substantially in length, they are each 14 weeks long and as a result, the rate of change in the first pattern of increasing negative tone and decreasing intensity is four times more rapid than the pattern of return to the normal range. The angle sizes indicate that while the first vector in the pair is determined by both intensity and tone, the second vector is determined almost exclusively by increasing positive tone. In contrast, intensity is the driving force behind both vectors in the pair which occurs between weeks 99-114 and 115-123.

Soviet→Japan interactions presented in Table 9 are considerably more diffuse than those of the other directed dyads examined. The zone of normal interaction is less concentrated and as a result relatively few clear vector departures from this zone emerge. An examination of the angle values for all vectors indicates that the tone variable is more of an important driving force behind pattern movements than has been the case in the dyads examined so far.

TABLE 9

USSR → Japan Vector Patterns, Overall Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location | |
|---|---|---|---|---|---|---|---|---|
| 1 | 6-11 | 6 | .06 | .16 | .03 | 6.9° | E: | I |
| 2 | 11-32 | 22 | .92 | .59 | .03 | 75.3° | SSW: | I→IV |
| 3 | 32-39 | 8 | .77 | .31 | .04 | 80.8° | NNE: | IV→I |
| 4 | 41-51 | 11 | -.54 | .12 | .01 | 105.8° | SSE: | IV |
| 5[a] | 51-61 | 11 | .30 | .58 | .05 | 84.4° | NNE: | IV→I |
| 6[a] | 76-81 | 6 | .19 | .06 | .01 | 44.5° | SW: | I |
| 7 | 81-90 | 10 | -.25 | .19 | .02 | 153.5° | ESE: | I |
| 8 | 90-97 | 8 | .05 | .28 | .03 | 35.0° | WSW: | I→IV |
| 9[a] | 97-99 | 3 | .97 | .28 | .09 | 60.3° | SSW: | IV |
| 10 | 99-106 | 8 | .72 | .27 | .03 | 64.4° | NNE: | IV→I |
| 11 | 106-120 | 15 | -.00 | .20 | .01 | .001° | W: | I |

[a] Patterns Within Normal Relations Zone

In spite of the relatively long duration of several of the vector patterns, the vector lengths are relatively short, and the rates of change are low. The erratic movement of the vectors does not seem to indicate clear paired patterns.

Pattern Comparison Between Dyads: Japan and the Soviet Union

The constant fluctuation of Soviet-Japan behavior makes it less likely that clear parallel response patterns will be found between the two dyad partners. Table 10 indicates that the individual vectors identified for each dyad partner tend to overlap in time very little. Rather, there appears to be a syncopated pattern in which a relatively long delay occurs between the behavior pattern changes of one country and response elicitation in the other. The Japanese patterns again appear to begin first and endure longer than the Soviet patterns. The angle values associated with vectors, even when these latter do coincide across the directed dyads, indicate that the quality of interactions as measured by intensity and tone are dissimilar. Note particularly that the angle value for the Japan-Soviet vector for weeks 81-94 is 15.9 indicating nearly complete dominance of positive tone, and the corresponding Soviet-Japan vector for weeks 81-90 is 153.5 degrees, indicating dominance of negative tone. The following Soviet-Japan vector for weeks 90-97 (35.0 degrees) indicates a shift to positive tone. The delay in response is greater than 9 weeks, however. A similar lack of parallelism is observed in the angle values for the overlapping final vectors for each dyad partner. (Japan-Soviet = 87.2 degrees while Soviet-Japan = .001 degrees.)

ISSUE AREA PATTERNS

The hypothesis behind the event patterning analysis states that identifiable critical patterns should be found to represent specific issue areas, and that these specific issue areas should be characterized by unique behavior patterns. The analyses presented so far have dealt with overall behavior. Patterns of behavior on specific issues were mixed together

TABLE 10

Comparison of Vector Patterns Across Dyads:
Japan and the Soviet Union

| Japan → USSR | | | USSR → Japan | | |
|---|---|---|---|---|---|
| Inclusive Weeks | Angle Value | Vector Direction | Inclusive Weeks | Angle Value | Vector Direction |
| 4-7 | 93.4° | S | --- | --- | --- |
| 7-17 | 95.3° | N | 6-11 | 6.9° | E |
| 17-25 | 94.4° | S | 11-32 | 75.3° | SSW |
| 25-37 | 44.8° | NE | --- | --- | --- |
| --- | --- | --- | 32-39 | 80.8° | NNE |
| 37-41 | 81.8° | SSW | --- | --- | --- |
| 41-68 | 85.1° | NNE | 41-51 | 105.8° | SSE |
| --- | --- | --- | 51-61 | 84.4° | NNE |
| 68-81 | 70.4 | SSW | 76-81 | 44.5° | SW |
| 81-94 | 15.9 | E | 81-90 | 153.5° | ESE |
| 94-99 | 71.2 | SSW | 90-97 | 35.0° | WSW |
| 99-114 | 93.8 | N | 99-106 | 64.4° | NNE |
| 115-123 | 87.2 | S | 106-120 | .001° | W |

so that it was impossible to distinguish the unique patterns and contributions of analytically independent issue concerns. The analysis that follows explores the hypothesis that different issues evoke different, unique patterns of behavior by examining the behavior patterns on the political-military issue area for the two dyads, Japan→U.S. and Japan→Soviet Union.

Figures 5 through 8 present the event patterning plots for the four directed dyads on the political-military issue. A comparison of these plots with those for overall behavior indicates both patterns within overall behavior which are most heavily concerned with a single unique issue, and the relative weight of the political-military issue within the overall context of interactions. Figure 5 represents Japan→U.S. behavior in the political-military issue. It can be seen that political-military interactions parallel overall interactions in the normal relations range. The first pair of vector patterns identified in the analysis of Japan→U.S. overall interactions clearly can be seen to deal with the political military issue area. Furthermore, an examination of Figures 1 and 5 indicates that the political-military issue is a major component, though not the sole subject, of the critical pattern which develops between weeks 41-55 and 55-61. Note that the shape of the pattern is much flatter when only the political military interactions are considered. Moreover, a comparison of the density tables for the political-military issue (Table 11) and for all behavior (Table 1) indicates that the quality of Japanese interaction with the United States on the political-military issue is much more negative than overall interaction. Apparently, more positive behavior on other issues tends to disguise the negative quality of relations on the political-military issue.

U.S. interactions on the political-military issue (Figure 6) are far less concentrated than overall U.S. interactions. While the latter were located exclusively in quadrant IV of Figure 2, political-military interactions cover three quadrants. Density Table 12 also indicates considerable divergence in the weight of the political-military issue as compared to the overall average of interactions presented in Table 2. Political-military issue tone tends to cluster at a minimum positive position and is a major

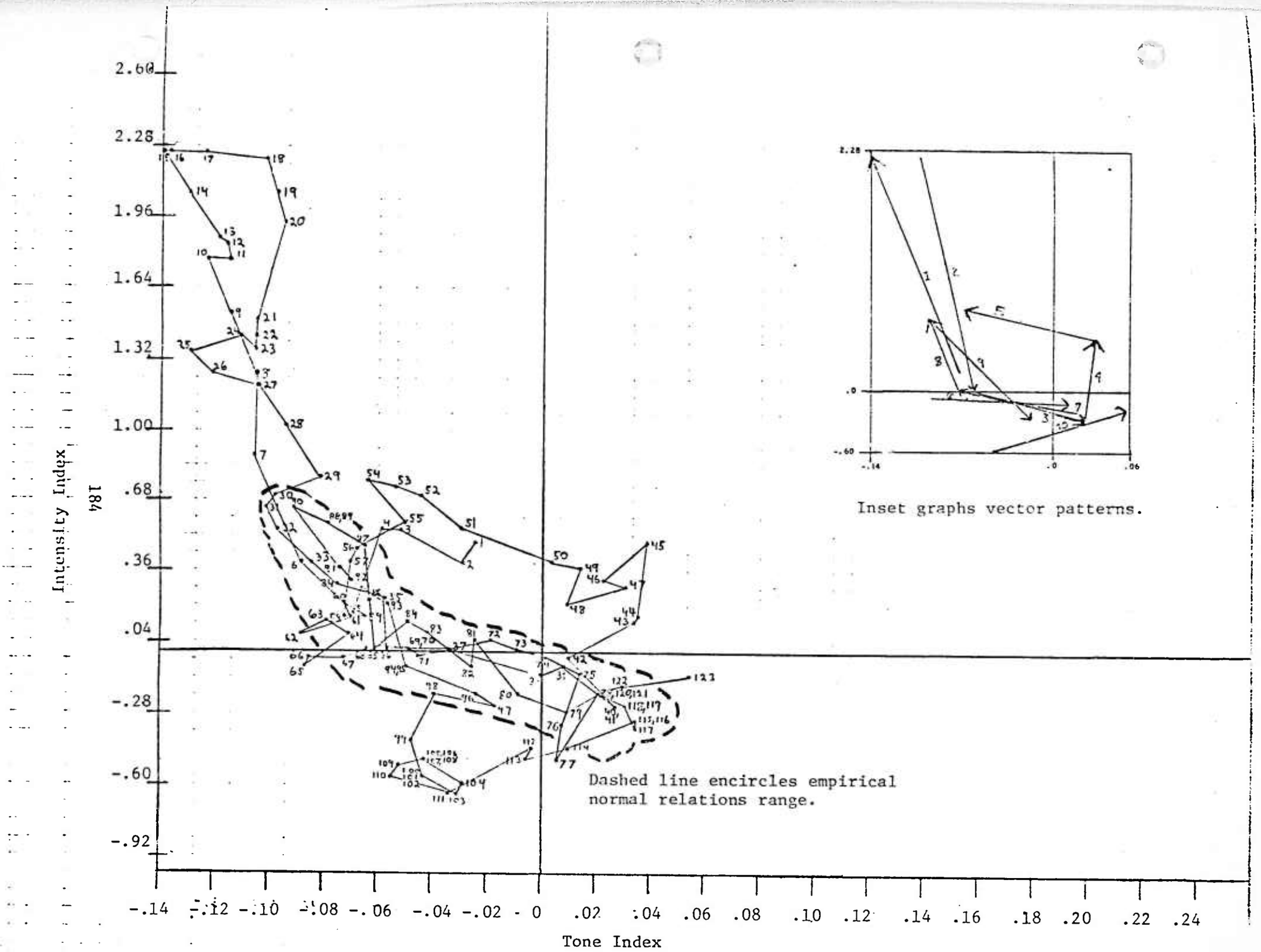



Figure 5. Event Patterning of Japan → U.S. (Political-Military Security Issue), 1972-1974

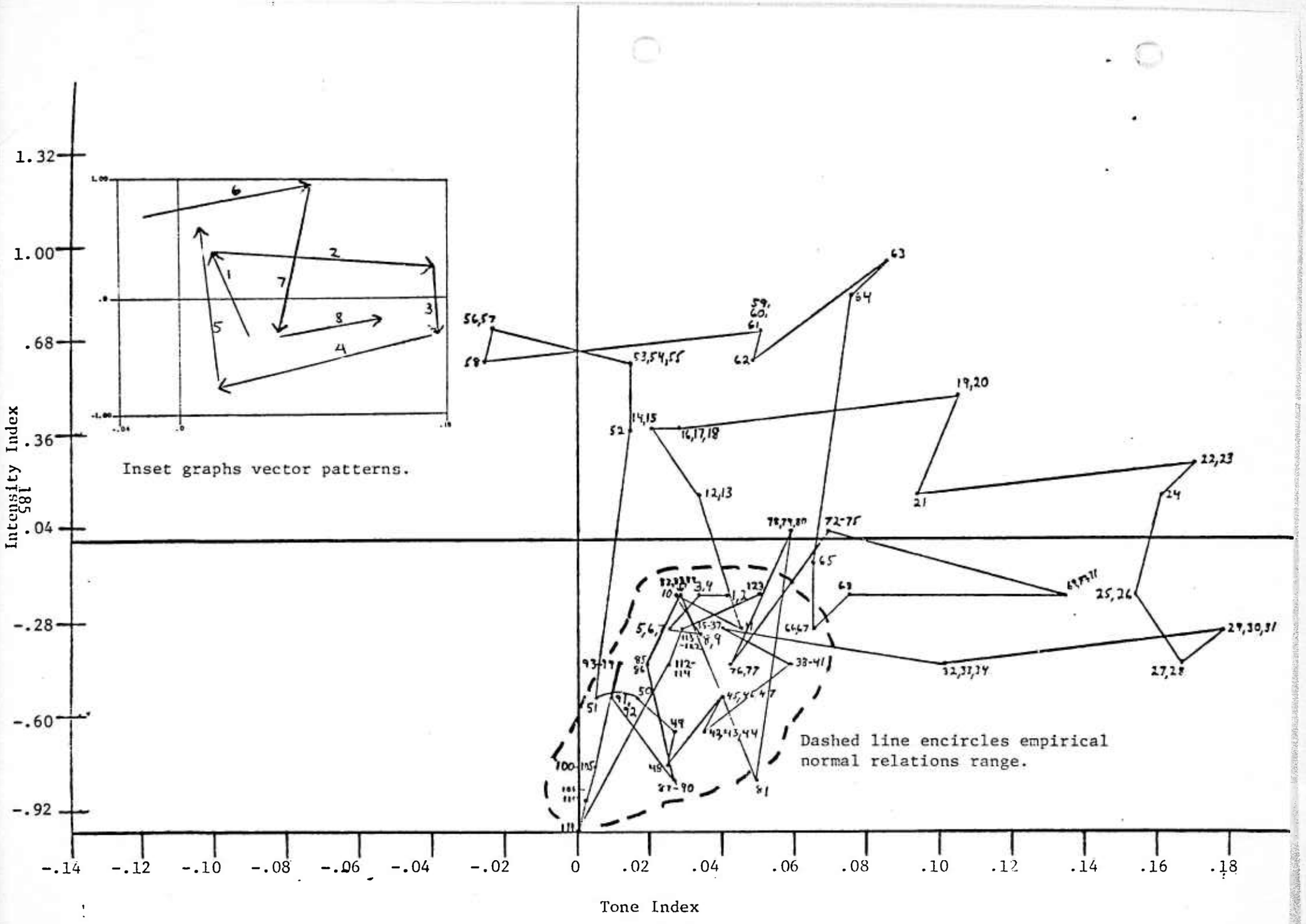



Figure 6. Event Patterning of U.S. → Japan (Political-Military Security Issue), 1972-1974

TABLE 11

Density of Japan → U.S. Interactions
Political-Military Security Issue

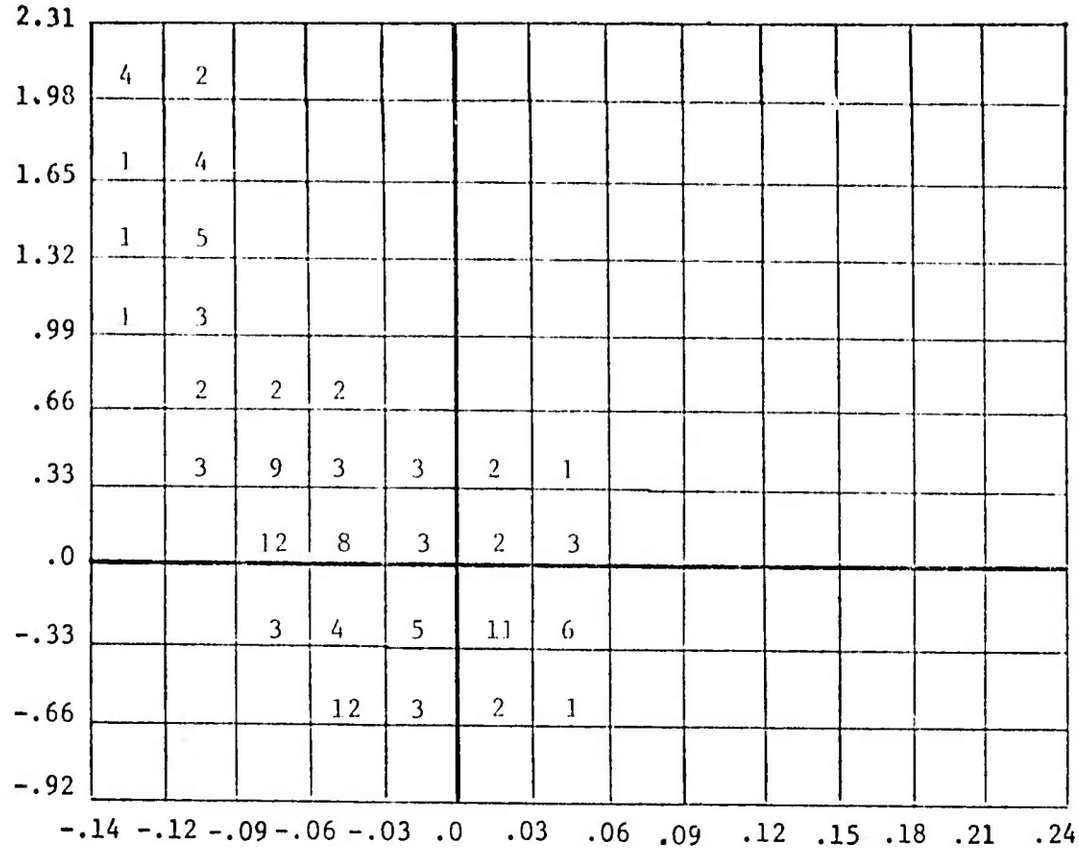
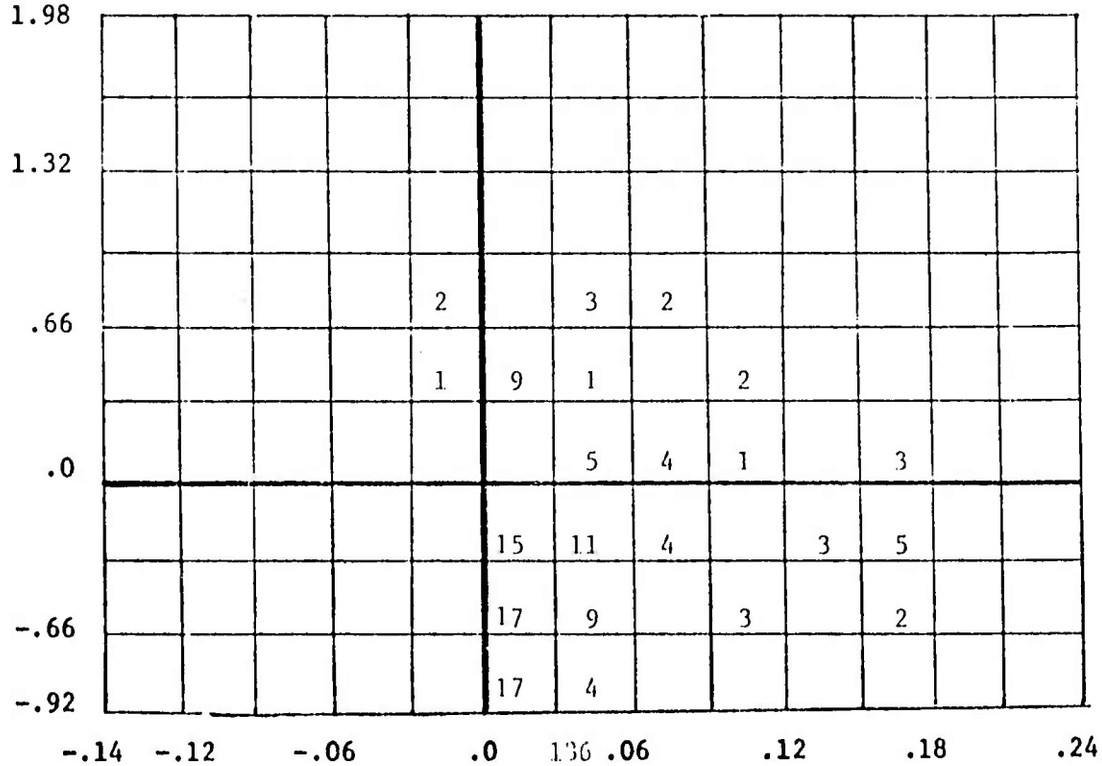



TABLE 12

Density of U.S. → Japan Interactions
Political-Military Security Issue



contribution to the low intensity level that describes the U.S.→Japan normal interaction range.

Political-military interactions are also considerably different than overall interactions for the Japan→Soviet dyad (Figure 7). While overall Japan→Soviet behavior and particularly the Japan→Soviet normal relations cluster are quite positive relative to other dyads examined, Japan→Soviet interactions on the political-military issue are comparatively negative in tone. Few of the political-military interaction points extend into the normal relations area described for overall interactions. A comparison of Density Table 13 for the political-military issue and Table 3 for overall interactions suggests that the political-military issue has a strong impact in reducing both the level and quality of interactions between Japan and the Soviet Union.

Soviet→Japan interactions are also affected by the political-military issue. While overall interactions were all located in the positive quadrants, political-military interactions fall frequently into negative quadrants in Figure 8, and intensity is lower on the issue than on overall behavior, as can be seen in a comparison of Density Tables 4 and 14.

Table 15 compares the vector patterns for Japan→U.S. behavior on all issues with behavior on the political-military issues.[2] If fluctuations which occur within the normal relations range are discounted, the data indicate that the political-military issue is salient only during the first 55 weeks of analysis. In addition, it can be seen that the issue behavior patterns are different from overall behavior. The vectors for the issue area have more inflection points than do overall vectors, and they differ in quality of intensity and tone as measured by the angle values from overall behavior.

It is clear that the first vector pair in both analyses is almost exclusively concerned with the political-military issue area. The first vector in both

---

[2] Tables with more detailed analysis of vector patterns for the political-military issue area are inserted at the end of the chapter.

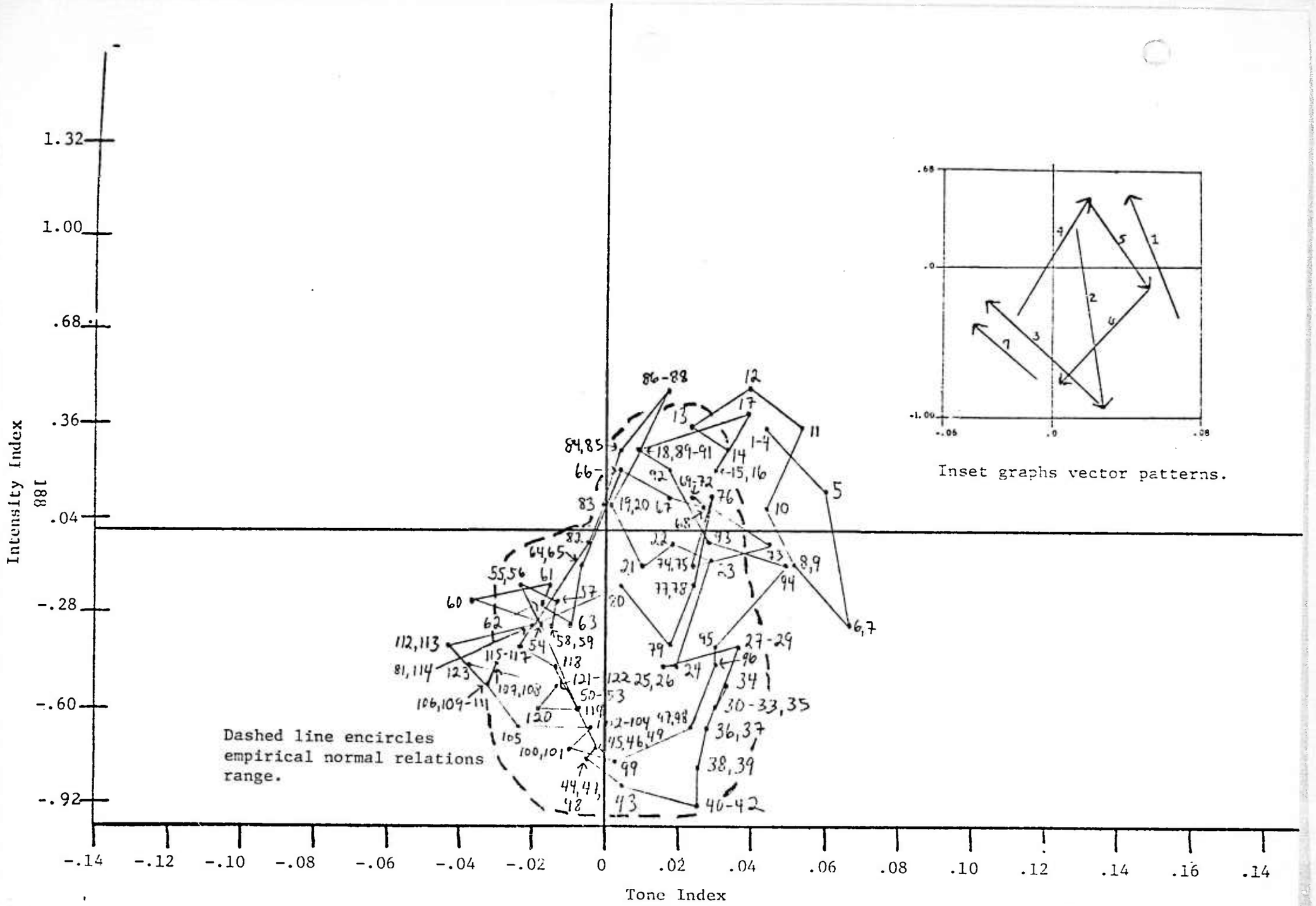



Figure 7. Event Patterning of Japan → USSR (Political-Military Security Issue), 1972-1974

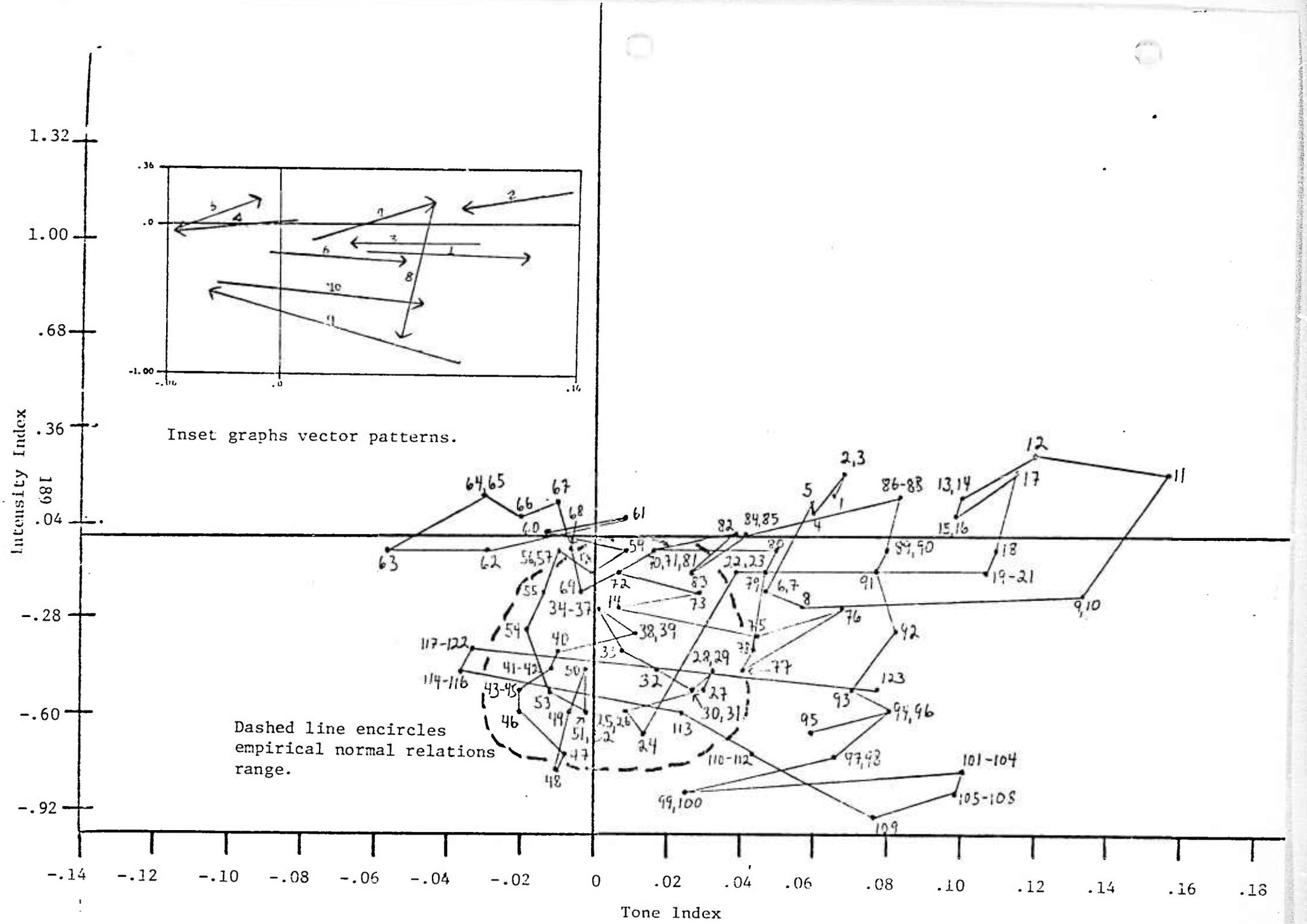



Figure 8. Event Patterning of USSR → Japan (Political-Military Security Issue), 1972-1974

TABLE 13

Density of Japan → USSR Interactions
Political-Military Security Issue

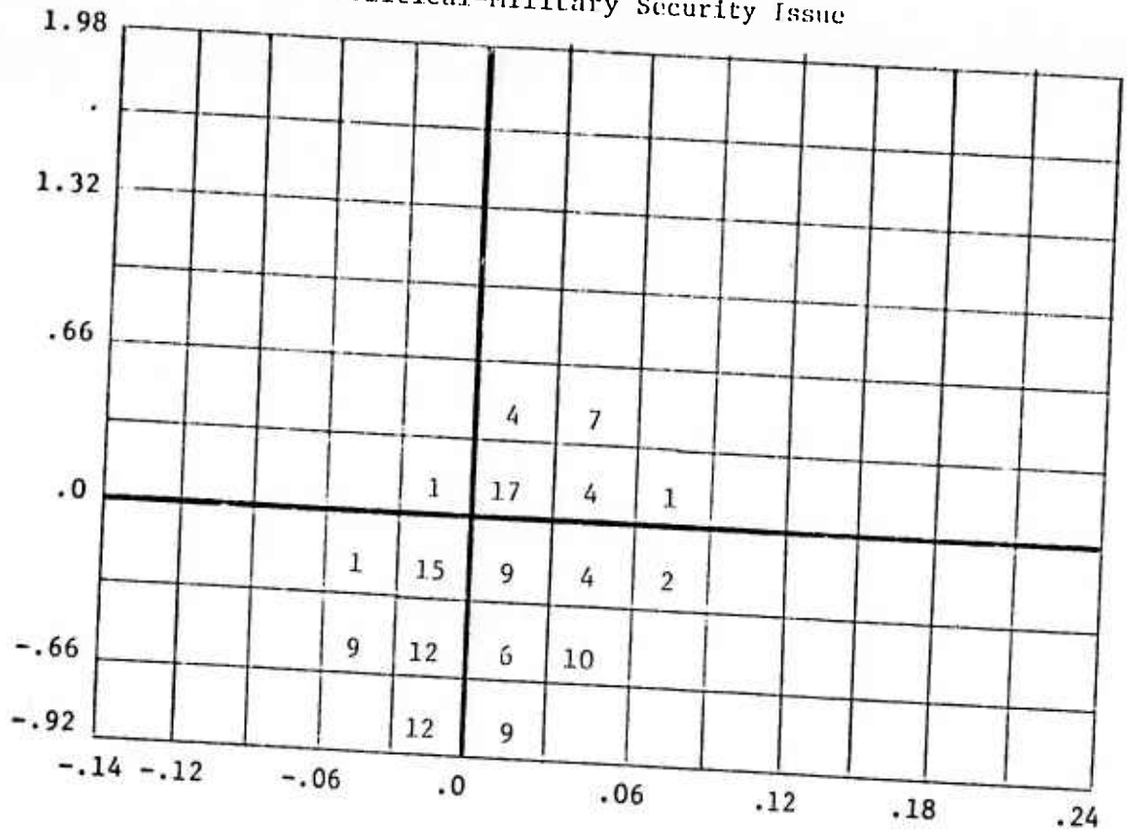



TABLE 14

Density of USSR → Japan Interactions
Political-Military Security Issue

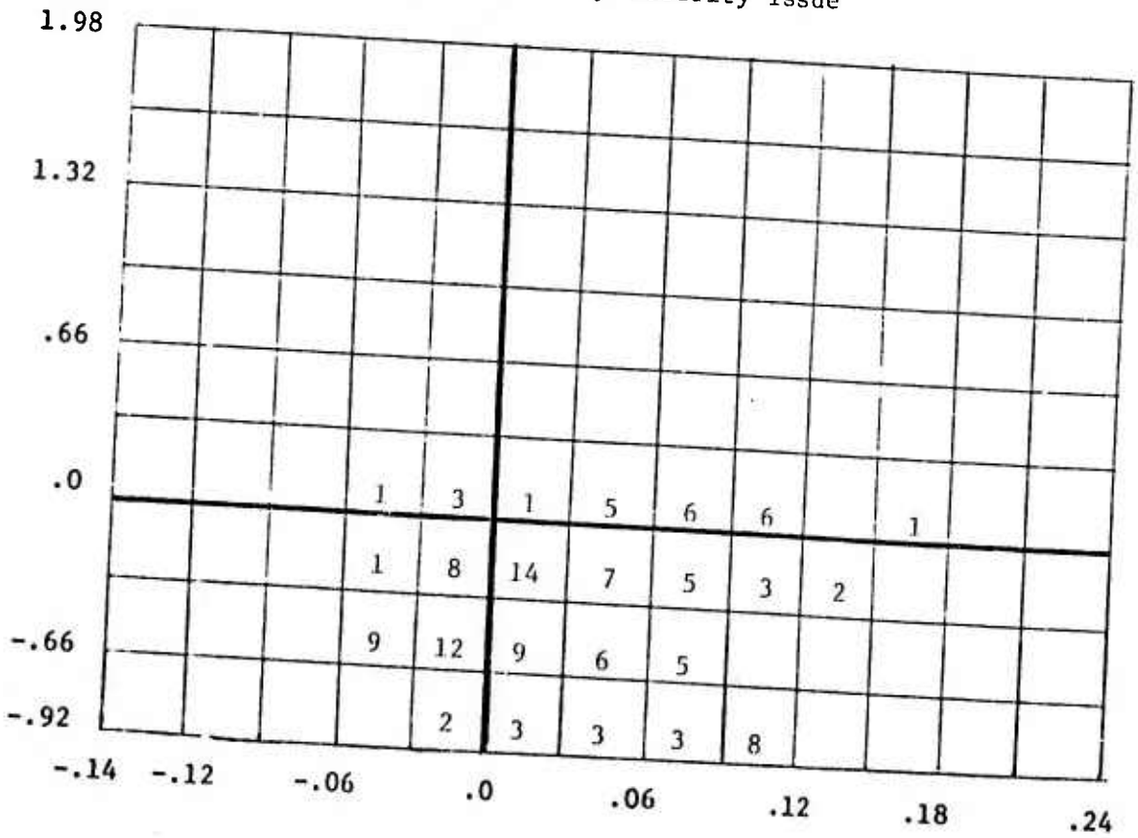


TABLE 15

Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the Japan → U.S. Dyad

| Japan → U.S. - All Issues | | | Japan → U.S. - Political-Military Issue | | |
|---|---|---|---|---|---|
| Inclusive Weeks | Angle Value | Vector Direction | Inclusive Weeks | Angle Value | Vector Direction |
| 5-15 | 95.0° | NNW | 5-15 | 91.7° | N |
| 15-41 | 93.6° | SSE | 18-36 | 92.7° | S |
| | | | 36-41 | 107.2° | SSE |
| 41-55 | 88.2° | NNE | 41-45 | 86.7° | N |
| | | | 45-54 | 102.6° | NNW |
| 55-66 | 86.6° | SSW | --- | --- | --- |
| 66-77 | 66.8° | NE | 65-75 | 176.2° | E |
| 77-85 | 78.3° | SW | 78-85 | 102.5° | NNW |
| 85-90 | 99.5° | NNW | 85-90 | 93.4° | N |
| 90-116 | 116.8° | SE | 90-97 | 94.9° | S |
| 116-123 | 14.6° | W | 100-123 | 75.3° | NNE |

TABLE 16

Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the U.S. → Japan Dyad

| U.S. → Japan - All Issues | | | U.S. → Japan - Political-Military Issue | | |
|---|---|---|---|---|---|
| Inclusive Weeks | Angle Value | Vector Direction | Inclusive Weeks | Angle Value | Vector Direction |
| | | | 11-15 | 92.1° | N |
| --- | --- | --- | 15-23 | 176.6° | E |
| --- | --- | --- | 23-31 | 100.7° | S |
| --- | --- | --- | 31-48 | 60.1° | SW |
| 42-55 | 85.9° | N | 48-55 | 91.8° | N |
| 59-67 | 87.2° | S | 56-63 | 51.5° | NE |
| | | | 63-67 | 89.1° | S |
| 67-79 | 76.5° | NNE | 67-71 | 44.6° | NE |
| 79-95 | 68.5° | SSW | --- | --- | --- |
| 95-104 | 130.2° | SE | --- | --- | --- |

patterns is identical in duration and quite similar in angle value. The second political-military vector, which describes the pattern of return to normal range, however, is similar in angle value, though much shorter than the second overall vector. It can be inferred that another issue became salient during the period of disengagement of the political-military issue (weeks 18-36) and that this second issue was responsible for delaying the return to normal range in the overall pattern of vector 2. A similar overlap of issues is apparent for the second vector pair in the overall pattern. In Figure 1 the observed pattern was one of first a sharply increasing function (weeks 41-55), then a sharply decreasing one (weeks 55-66). The political-military issue analysis shows two separate patterns for the period between weeks 41-55. The first pattern, for weeks 41-45, is dominated by increasing intensity (angle value - 86.7 degrees), while the second (weeks 45-54) is somewhat more heavily influenced by negative tone changes (angle 107.6 = degrees). In the overall analysis, only the intensity changes were identified (overall angle for the total vector = 88.2 degrees). While the political-military issue continued to be a factor in Japan-U.S. interactions, after week 54 it declined in salience and remained in the normal interaction range, with less than expected frequency of mention. The salient vector pattern which emerged between weeks 66-90 and 90-116, therefore, must have involved other issues.

U.S. responsiveness to Japan's political-military issue concerns is reflected in Figure 6 and Table 16. Whereas no salient vector emerged for U.S.→Japan to match the first Japan→U.S. vector pair, when the isolated issue is examined, an interaction pattern does appear. Since overall U.S.→Japan behavior fell well within the normal range of low interaction, the fact that a salient pattern emerges for the political-military issue suggests that this issue differed considerably in both intensity and tone from interactions on other matters, and that these other interaction behaviors had a dampening effect on the overall average of interactions. It is also interesting to note that during the period of Japan-U.S. disengagement from the political-military issue (weeks 18-36), U.S.→Japan interactions were characterized primarily by change in tone (angle size for weeks 15-23 = 176.6 degrees)

and that, as can be seen in Figure 6, the change was largely in a positive direction as the United States apparently sought to reassure Japan of its positive intentions on an issue in which Japan→U.S. interactions had been predominantly negative.

As was noted in the discussion of Table 6, U.S. interactions with Japan tended to lag behind Japan's initiatives to the United States. The second Japan-U.S. pattern on the political-military issue begins at about week 41 with increasing intensity, and at week 45 begins to assume a more negative tone. A U.S. response does not begin until week 48. It is, however, followed by an increasing positive tone pattern. Note that the angle value of weeks 56-66 is 51.5 degrees indicating a mix of intensity and tone values. Interestingly, this increasing positive tone pattern overlaps the period of Japanese disengagement from the issue (weeks 55-65). As in the Japan→U.S. case, after the disengagement from this second political military pattern, no further salient pattern emerges for the issue, though other patterns are apparent in overall behavior.

Japan→Soviet interactions on the political-military issue assume a much less salient position than in Japan→U.S. relations. As noted in the background, the political-military questions are closely tied to economic questions in Japan-Soviet relations. Figure 7 indicated that the political-military questions are tightly concentrated in Japan→Soviet interactions. In Table 17 salient vectors emerge to parallel the patterns observed in overall interactions between weeks 68-94 and 99-123. A close comparison of the movement of data points over time within the two figures (3 and 7) indicates that the political-military issue tends to follow the general movement of overall salient patterns even though it does not become independently important. This suggests that, as in the case of Japan→U.S. behavior, they are an underlying issue in all interactions. Though the political-military data points change little in tone, they tend to increase slightly in frequency of mention during the periods which mark the saliency of other issues. Only one pattern emerges in which the political-military

TABLE 17

Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the Japan → USSR Dyad

| Japan → USSR - All Issues | | | Japan → USSR - Political-Military Issue | | |
|---|---|---|---|---|---|
| Inclusive Weeks | Angle Value | Vector Direction | Inclusive Weeks | Angle Value | Vector Direction |
| 1-7 | 93.4° | S | | | |
| 7-17 | 95.3° | N | 6-12 | 92.3° | N |
| 17-25 | 94.4° | S | 18-42 | 104.4° | SSE |
| 25-37 | 44.8° | NE | | | |
| 37-41 | 81.8° | SSW | | | |
| 41-68 | 85.1° | NNE | 42-60 | 92.6° | N |
| 68-81 | 70.4° | SSW | --- | --- | --- |
| 81-94 | 15.9° | E | 81-88 | 87.4° | N |
| | | | 88-94 | 94.7° | S |
| 94-99 | 71.2° | SSW | 94-99 | 86.3° | S |
| 99-114 | 93.8° | N | 100-113 | 97.7° | N |
| 115-123 | 87.2° | S | --- | --- | --- |

TABLE 18

Comparison of Vector Patterns for Overall Behavior and Political-Military Issue Behavior Within the USSR → Japan Dyad

| USSR → Japan - All Issues | | | USSR → Japan - Political Military Issue | | |
|---|---|---|---|---|---|
| Inclusive Weeks | Angle Value | Vector Direction | Inclusive Weeks | Angle Value | Vector Direction |
| 6-11 | 6.9° | E | 6-10 | 12.2° | E |
| 11-32 | 75.3° | SSW | 11-16 | 66.4° | SSW |
| | | | 19-23 | 0.01° | W |
| 32-39 | 80.8° | NNE | --- | --- | --- |
| 41-51 | 105.8° | SSE | --- | --- | --- |
| 51-61 | 84.4° | NNE | 59-63 | 50.2° | SW |
| --- | --- | --- | 63-67 | 65.3° | NNE |
| --- | --- | --- | 69-76 | 114.1° | SSE |
| 76-81 | 44.5° | SW | --- | --- | --- |
| 81-90 | 153.5° | ESE | 81-88 | 74.4° | NNE |
| 90-97 | 35.0° | WSW | 88-98 | 87.7° | S |
| 97-99 | 60.3° | SSW | --- | --- | --- |
| 99-106 | 64.4° | NNE | --- | --- | --- |
| 106-120 | .001° | W | 105-116 | 107.5° | NNW |
| | | | 117-123 | 129.3° | SE |

questions are dominant and that occurs in weeks 6-12. This pattern parallels the overall vector observed in weeks 7-17, and it should be noted that this same period was one of dominant political-military discourse in Japan-U.S. relations. The pattern suggest a Japanese effort to converse with both superpowers on the political-military subject.

Soviet-Japan interactions on the political-military issue generally parallel overall interactions (Table 18), though they are generally less positive and less intense. They are highly diffused and evidence wide fluctuations. The angle values indicate a greater dominance of change in tone, rather than intensity, as the driving force behind the patterns. The political-military issue appears most salient during weeks 6-10, again paralleling the Japan→Soviet and U.S.→Japan patterns. It emerges briefly between weeks 59-63 with an increase in intensity and negative tone values. This period is not salient in the overall Soviet→Japan interaction. Again, it is suggested that the third-party interactions (U.S.→Japan) influence the emergence of political-military dialogue between the Soviet Union and Japan.

SUMMARY

The analysis indicates that Japanese behavior toward its partners tends to be quite moderate in quality of interaction. Only a few issues evoke unusual behavior from Japan. Political-military security issues involving questions of the Japan-U.S. military alliance, U.S. military bases in Japan, and U.S. and Japanese policies and roles in Asia, and economic issues involving questions of markets for and resource supplies to the Japanese economy are especially important. In these areas Japan tends to initiate dialogue with its superpower partners. The United States and the Soviet Union respond to Japan's initiatives with statements and actions which are more moderate but which, over time, generally follow the pattern set by Japan.

The range of behaviors evidenced by Japan covers only a small area of the types of behavior open to major international actors. Japan's relations with the countries and regions studied here reflect Japan's low

key and pragmatic approach to international relations -- the policy of "being friendly with everybody, or at least not making serious enemies anywhere" (Okita, 1974: 723). Even deviant patterns -- those that fall outside the normal range of relations -- are moderate. Japan's relations with the United States evidence a much greater amount of perturbation than Japan's relations with the Soviet Union; they are both more negative and more intense toward the United States. This is in part because the period covered is one of redefinition of the political and economic foundations of the traditional U.S.-Japanese alliance, and of positive overtures toward the Soviet Union. These overtures are stimulated by both economic needs and a desire not to antagonize the neighboring superpower as Japan moves into a more independent and active period of international policy.

Japanese relations with the United States tend to vary over time in intensity of interaction, while Japan-Soviet relations vary predominantly in tone while intensity remains approximately constant. This is both a function of opportunities for interaction and the policy content of these interactions. By virtue of longstanding military alliance and economic cooperation, Japan and the United States have more issues on which there must be dialogue than do Japan and the Soviet Union. Japan's relations with the Soviet Union are still tentative and concerned more with possibilities for future closer relations than with the present status quo.

The political-military issue proved to be the dominant topic of U.S.-Japanese relations for slightly less than half of the period studied. The quality of interactions on this issue was in large part responsible for the overall negative character of Japanese initiatives toward the United States. U.S. responses to increasing negative behavior by Japan tended to occur with some delay and to be very mild, almost indifferent. It is possible that more positive U.S. responses to Japanese concern on this issue might have improved the overall quality of relations between the two countries. This hypothesis could be tested with further development of the decision analysis component of the research effort.

## FURTHER DEVELOPMENT

The analysis performed concentrated on the identification of salient patterns within the overall context of international interactions. Because all country dyads studied involved Japan, a simplified approach to the identification of the normal relations range was used. In more detailed analysis, the centroid of normal zone relations would be identified and standard deviation ranges about the zone would be computed. This would facilitate the characterization of areas within the event pattern quadrants, locations of salient pattern endpoints, and median points within these areas that would then permit more detailed characterization of types of issue behavior. Analysis of countries other than Japan is needed to complete the characterization of all zones of the quadrants.

Further development of salient Japanese patterns requires in-depth substantive analysis of the development of each of the issue patterns identified in the present research. The event patterning analysis can indicate the subject area of different patterns, but an analysis of the text or content of specific events contributing to the pattern is required to identify critical decision points within issue area development and disengagement processes. This would permit the integration of power impact analysis (see Chapters 4 and 7) within the different issue areas and would provide a basis for evaluating the consequences of different policy decisions.

Regression analysis of the relationships between the individual directed dyad partner patterns can be used to evaluate the impact of one actor's policy decisions on the other. Interrupted time series analyses should be useful in this evaluation. Third party influences, such as the apparent Japan-U.S. and Japan-Soviet response patterns which emerged in the analysis of the political-military issue area can also be tested and evaluated in this fashion. The development of these areas would provide a foundation for the simulated testing and evaluation of the impact of alternative policy decisions for different issues of international contention and different target countries.

TABLE 19

Japan → U.S. Vector Patterns, Political-Military Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location |
|---|---|---|---|---|---|---|---|
| 1 | 5-15 | 11 | -.96 | 2.10 | .19 | 91.7° | N: II |
| 2 | 18-36 | 19 | -.64 | 2.22 | .12 | 92.7° | S: II |
| 3 | 36-41 | 6 | -.91 | .03 | .00 | 107.2° | SSE: II→III→IV |
| 4 | 41-45 | 5 | .72 | .02 | .01 | 86.7° | N: IV→I |
| 5 | 45-54 | 10 | -.85 | .03 | .00 | 102.6° | NNW: I→II |
| 6 | 65-75 | 11 | -.05 | .11 | .01 | 176.2° | E: III→II→III→IV |
| 7 | 78-85 | 8 | -.85 | .00 | .00 | 102.5° | NNW: IV→III→II |
| 8 | 85-90 | 6 | -.85 | .06 | .01 | 93.4° | N: II |
| 9 | 90-97 | 8 | -.96 | .89 | .11 | 94.9° | S: II→III |
| 10 | 100-123 | 24 | .86 | .08 | .00 | 75.3° | NNE: III→IV |

TABLE 20

U.S. → Japan Vector Patterns, Political-Military Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location |
|---|---|---|---|---|---|---|---|
| 1 | 11-15 | 5 | -.97 | .69 | .14 | 92.1° | N: IV→I |
| 2 | 15-23 | 9 | -.33 | .19 | .02 | 176.6° | E: I |
| 3 | 23-31 | 9 | -.21 | .57 | .06 | 100.7° | S: I→II |
| 4 | 31-48 | 18 | .48 | .48 | .03 | 60.1° | SW: I→II |
| 5 | 48-55 | 8 | -.33 | 1.38 | .17 | 91.8° | N: IV→I |
| 6 | 56-63 | 8 | .52 | .25 | .03 | 51.5° | NE: II→I |
| 7 | 63-67 | 5 | .94 | 1.26 | .25 | 89.1° | S: I→IV |
| 8 | 67-71 | 5 | .68 | 1.34 | .03 | 44.6° | NE: IV |

TABLE 21

Japan → USSR Vector Patterns, Political-Military Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location |
|---|---|---|---|---|---|---|---|
| 1 | 6-12 | 7 | -.81 | .82 | 1.17 | 92.3° | N: IV→I |
| 2 | 18-42 | 25 | -.14 | 1.21 | .05 | 104.4° | SSE: I→IV |
| 3 | 42-60 | 19 | -.88 | .70 | .04 | 92.6° | N: IV→III |
| 4 | 81-88 | 8 | .99 | .81 | .10 | 87.4° | N: IV→I |
| 5 | 88-94 | 7 | -.80 | .61 | .09 | 94.7° | S: I→IV |
| 6 | 94-99 | 6 | .95 | .68 | .11 | 86.3° | S: IV |
| 7 | 100-113 | 14 | -.91 | .34 | .02 | 97.7° | N: III |

TABLE 22

USSR → Japan Vector Patterns, Political-Military Behavior

| Vector Number | Inclusive Weeks | Duration | Correlation Coefficient | Vector Length | Average Rate of Change | Angle Value | Vector Direction and Location | |
|---|---|---|---|---|---|---|---|---|
| 1 | 6-10 | 5 | .33 | .09 | .00 | 12.2° | E: | IV |
| 2 | 11-16 | 6 | .67 | .15 | .02 | 66.4° | SS: | I |
| 3 | 19-23 | 5 | .66 | .07 | .01 | 0.01° | W: | IV |
| 4 | 59-63 | 5 | .55 | .06 | .01 | 50.2° | SW: | IV→II→III |
| 5 | 63-67 | 5 | .41 | .08 | .00 | 65.3° | NNE: | III→II |
| 6 | 69-76 | 8 | -.51 | .09 | .01 | 114.1° | SSE: | III→IV |
| 7 | 81-88 | 8 | .96 | .21 | .03 | 74.4° | NNE: | IV→I |
| 8 | 88-98 | 11 | .66 | .88 | .08 | 87.7° | S: | I→IV |
| 9 | 105-116 | 12 | -.97 | .43 | .04 | 107.5° | NNW: | IV→III |
| 10 | 117-123 | 7 | -1.00 | .17 | .02 | 129.3° | SE: | III→IV |

# CHAPTER 7

# APPLICATION OF THE POWER STRATEGY IMPACT ANALYSIS

## APPLICATION OF THE POWER STRATEGY IMPACT ANALYSIS

### HYPOTHESES

This chapter reports the findings of an empirical analysis using the power strategy indicators (Chapter 3) and power-response structure of international interaction (Chapter 4). It is hypothesized that power strategies exercised in international dyadic interactions have observable effects on response patterns of target countries. If the probability of compliance with certain power attempts is high for particular dyads and on specific issues during the period analyzed, it may be possible to predict response potentials in reaction to similar power stimuli in the future.

It is to be expected that power strategies will be more or less effective in achieving their intended goals of modifying the target nation's behavior depending upon the dyad and issue being examined. Dyads that possess, to some degree, relational characteristics of dominance and submission should provide excellent proving grounds for studying the impact and effectiveness of power strategies. Particular dyads may exhibit dominant-submissive traits (for example, the Soviet Union and East Germany) in which the submissive nation generally complies with the dominant actor's power attempts. If both nations in a dyad are equally dominant (for example, the People's Republic of China and the Soviet Union) the interactive results may be deadlock and non-compliance rather than compliance to reciprocate power strategies (Singer, 1972).

In the present study two dyads are analyzed that are hypothesized to have dominant-submissive relationships: the United States-Japan, and Japan-Asia. Japan is subordinate to the United States in terms of its economic well-being (the United States is Japan's single largest export market) and military security against potential adversaries. Asia can be considered subordinate to Japan in terms of its dependence on processed goods

and technological and financial assistance. If our assumptions on dominance and submission are valid, we should observe relatively high rates of compliance by Japan and Asia to power strategies initiated by the United States and Japan, respectively.

We would not expect all types of power strategies exercised by the United States and Japan toward their partners to be successful all of the time, but some to have higher degrees of effectiveness than others in modifying certain types of behavior in the target nation. Increased pressure by Japan for diplomatic and political autonomy from the leadership of U.S. international policy may dampen their dominant-submissive relationship and may impact on Japan's potential to comply with U.S. power initiatives. This trend may reduce Japanese compliance with and increase defiance of U.S. power attempts.

## DATA PREPARATION

Data on the nine power strategy indicators that could be explicitly operationalized in Chapter 3 were collected for the United States as initiator toward Japan, and Japan as initiator toward Asia. These indicators, which reflect the frequency of power strategy occurrence in overall behavior as well as issue-specific behavior, were computed for every 28-day period. Thus there are 33 time periods in the analysis from January 1972 to July 1974. Table 1 lists the power strategy variables employed in the analysis.

TABLE 1

Power Strategy Variables

| Variables | On Dyad -- Issues |
|---|---|
| Promise | US → Japan (all issues) |
| Threaten | US → Japan (political-military security issue) |
| Positive Commitment | |
| Negative Commitment | US → Japan (trade issue) |
| Reconciliation | Japan → Asia (all issues) |
| Diplomatic Support | Japan → Asia (resource dependence issue) |
| Material Support | |
| Diplomatic Hostility | Japan → Asia (trade issue) |
| Physical Conflict | |

To operationalize response behavior, all cooperative and conflictual events for the Japan to United States and Asia to Japan dyads were summed independently for each 28-day period yielding two frequency variables, each of positive and negative interactions. Response behavior was collected only for overall behavior in these dyads (and not on specific issues) since it was hypothesized that responsiveness to issue-specific power strategies might well be manifested in other issue domains. For instance, Soviet promises to return the northern islands (a diplomatic issue) may be favorably responded to (complied with) by Japan in agreements to cooperate with the Soviet Union to develop Siberian oil and gas fields (a resource dependence issue). Furthermore, a preliminary empirical investigation utilizing issue-specific response behaviors suggested that greater interpretability might be achieved by employing response variables that measure overall behavior. Mean frequencies, computed for the Japan to United States and Asia to Japan positive and negative response variables, were used as expected values to calculate a cumulative Poisson probabilities index of deviation from the mean.[1] Critical probability levels of .95 and .05 were chosen to denote substantial change from the mean, either substantial decreases or increases, respectively. Thus two response measures indicating significant deviation from a mean value (for cooperative and conflictual behavior) were developed for the Japan to United States and Asia to Japan directed dyads.

Treating the power strategy indicators as dummy variables (with "1" denoting occurrence and "0" denoting absence of occurrence within a time period), tables were compiled that relate the occurrence of power strategies to the response deviation measures for positive and negative behaviors on all issues and specific issue areas. In addition to forming tables that implicate simultaneous response (within the same 28-day period as the power strategy stimulus), time series tables were created that test whether responses to power strategies became more apparent with a one-month lag. Causality is inferred between power strategy usage and response behavior with or without lag.

---

[1] Poisson probability tables used were found in E.C. Molina, Poisson's Exponential Binomial Limit. Princeton, N.J.: D. Van Nostrand Co., 10th printing. No date.

Tables 2-7 present the results of the power strategy impact analysis. Four indices are presented in these tables that were discussed at greater length in Chapter 4.[2] The Power Impact Rating (PIR) appears on the first row of each cell. This rating is the product of the effectiveness and efficiency probability indices that follow. PIR varies from 0.0 to 1.0. Values of .25 and higher are considered to be significant in this analysis since they are ideally composed of ratings that indicate at least 50 percent effectiveness and efficiency. The second row in each cell is the Probability of Effectiveness (pEv) index. This figure provides an explanation of strategy impact. It indicates, in probabilistic terms, the degree to which certain types of response patterns are elicited by different types of power strategies. The third row in each cell represents the Efficiency Probability (pEc) index. It indicates the extent to which overall strategy distribution is spread between the various response conditions (increases, decreases or no change), and thus reflects the relative efficiency of strategy direction. A Probability of Strategy Success (pSS) index is calculated for each table to reveal the relative success of significant power impacts (as measured by PIR values) in obtaining favorable response patterns.

One further note about the tables. While the pEc index over the three response conditions sums to 1.0, the pEv index over all power strategy types sometimes adds to more than 1.0. Within each of the 33 time periods in the analysis, it was possible for more than one power strategy to occur simultaneously; for instance, both promise and threat strategies could be exercised within the same 28-day period. But in measuring the effectiveness of each power strategy in this analysis, all other simultaneous strategies were held constant, that is, they were assumed to be zero. Thus, in essence, each power strategy was observed independently of all other strategies. Since more than one strategy could occur in each period, some periods were counted multiple times, causing the addition of pEv values in any column to sum to more than 1.0.

---

[2] In Tables 3-7 only the two summary measures that are referred to in the discussion of results -- the PIR and pSS indices -- are presented for the sake of visual clarity.

## RESULTS

### U.S. Power Impacts on Japanese Behavioral Response Patterns

Tables 2-4 present the simultaneous and lagged impacts of U.S. power strategies on Japanese overall behavior. In Table 2 the occurrence of U.S. power strategies was tapped from overall U.S. behavior; but in Tables 3 and 4, U.S. power strategies represent behavior in the international trade issue area and political-military security issue area, respectively.

Overall U.S. Power Impacts (Table 2). Promise strategies have the highest significant Power Impact Rating (PIR) scores resulting in simultaneous increases of Japanese positive behavior (PIR = .303). Promises also result in a simultaneous "no change" in Japanese cooperative behavior (PIR = .298). These findings indicate that U.S. promises to Japan appear to be moderately effective in maintaining or increasing the level of Japanese cooperative response. In addition to being effective, they are also used fairly efficiently by the United States; that is, promises are not made indiscriminantly or at times when the intended cooperative responses are unlikely. Promise strategies, however, appear to have no simultaneous or lagged effect on changes in Japanese conflictual behavior (PIR = .280 and .280, respectively). In other words, while promise strategies may be effective and efficient tools for maintaining or causing increases in levels of Japanese cooperative behavior, they have little influence in modifying conflictual response patterns; however, they do not elicit outwardly defiant responses by Japan. This finding may be a signal of Japanese desires for autonomy from U.S. policy.

U.S. threats result in a lagged increase in Japanese conflictual responses (PIR = .334), and diplomatic hostility results in a lagged decrease in cooperative responses (PIR = .267). While these appear to be apparent responses of non-compliance with U.S. intentions, the fact that they become operative one month after the U.S. power attempts may reflect moderation in the degree of Japanese defiance. Japan's subordination to the U.S. desires is not assured, but Japan is taking an especially cautious road in asserting independence.

TABLE 2

Power Strategy Impact Analysis: The Effects of U.S. Power Strategies in All Issue Areas on Japan's Responses to the U.S.[a]

United States to Japan (All Issues): Power Strategy Types

| | Japan to United States (All Issues): Simultaneous Power - Response Interaction | | | | | | | | Japan to United States (All Issues): Lagged Power - Response Interaction (one month) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Positive Responses | | | | Negative Responses | | | | Positive Responses | | | | Negative Responses | | | |
| | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency |
| PROMISE | | | | | | | | | | | | | | | | |
| PIR | [.303] | .024 | [.298] | | .235 | .066 | [.280] | | .157 | .212 | .180 | | .079 | .184 | [.280] | |
| pEv | [.857] | .200 | [.563] | 17 | 1.00 | .375 | [.476] | 17 | .667 | .600 | .438 | 17 | .667 | .625 | [.476] | 17 |
| pEc | [.353] | .118 | [.529] | | .235 | .176 | [.588] | | .235 | .353 | .412 | | .118 | .294 | [.588] | |
| THREAT | | | | | | | | | | | | | | | | |
| PIR | .143 | .100 | .0 | | .0 | .125 | .048 | | .042 | .0 | .141 | | [.334] | .0 | .048 | |
| pEv | .286 | .200 | .0 | 4 | .0 | .250 | .095 | 4 | .167 | .0 | .188 | 4 | [.667] | .0 | .095 | 4 |
| pEc | .500 | .500 | .0 | | .0 | .500 | .500 | | .250 | .0 | .750 | | [.500] | .0 | .500 | |
| POS. COMMIT. | | | | | | | | | | | | | | | | |
| PIR | .117 | .082 | .142 | | .023 | .102 | .212 | | .016 | .228 | .142 | | .030 | .102 | .212 | |
| pEv | .429 | .300 | .313 | 11 | .250 | .375 | .333 | 11 | .167 | .500 | .313 | 11 | .333 | .375 | .333 | 11 |
| pEc | .273 | .273 | .455 | | .091 | .273 | .636 | | .090 | .455 | .455 | | .090 | .273 | .636 | |
| NEG. COMMIT. | | | | | | | | | | | | | | | | |
| PIR | .029 | .0 | .200 | | .050 | .0 | .152 | | .0 | .080 | .113 | | .0 | .025 | .152 | |
| pEv | .143 | .0 | .250 | 5 | .250 | .0 | .190 | 5 | .0 | .200 | .188 | 5 | .0 | .125 | .190 | 5 |
| pEc | .200 | .0 | .800 | | .200 | .0 | .800 | | .0 | .400 | .600 | | .0 | .200 | .800 | |
| RECONCIL. | | | | | | | | | | | | | | | | |
| PIR | .082 | .014 | .143 | | .036 | .018 | .170 | | .095 | .014 | .143 | | .0 | .0 | [.333] | |
| pEv | .286 | .100 | .250 | 7 | .250 | .125 | .238 | 7 | .333 | .100 | .250 | 7 | .0 | .0 | [.333] | 7 |
| pEc | .286 | .143 | .571 | | .143 | .143 | .714 | | .286 | .143 | .571 | | .0 | .0 | [1.00] | |
| DIP. SUPPORT | | | | | | | | | | | | | | | | |
| PIR | .114 | .020 | .050 | | .0 | .0 | .238 | | .0 | .180 | .050 | | .067 | .025 | .086 | |
| pEv | .286 | .100 | .125 | 5 | .0 | .0 | .238 | 5 | .0 | .300 | .125 | 5 | .333 | .125 | .143 | 5 |
| pEc | .400 | .200 | .400 | | .0 | .0 | 1.00 | | .0 | .600 | .400 | | .200 | .200 | .600 | |
| MAT. SUPPORT | | | | | | | | | | | | | | | | |
| PIR | .117 | .082 | .142 | | .0 | [.284] | .156 | | .061 | .146 | .142 | | .0 | .182 | .212 | |
| pEv | .429 | .300 | .313 | 11 | .0 | [.625] | .286 | 11 | .333 | .400 | .313 | 11 | .0 | .500 | .333 | 11 |
| pEc | .273 | .273 | .455 | | .0 | [.455] | .545 | | .182 | .364 | .455 | | .0 | .364 | .636 | |
| DIP. HOSTILITY | | | | | | | | | | | | | | | | |
| PIR | .024 | .017 | .167 | | .0 | .021 | .198 | | .0 | [.267] | .042 | | .0 | .083 | .127 | |
| pEv | .143 | .100 | .250 | 6 | .0 | .125 | .238 | 6 | .0 | [.400] | .125 | 6 | .0 | .250 | .190 | 6 |
| pEc | .167 | .167 | .667 | | .0 | .167 | .833 | | .0 | [.667] | .333 | | .0 | .333 | .667 | |
| VIOLENCE | | | | | | | | | | | | | | | | |
| PIR | .0 | .0 | .003 | | .0 | .0 | .047 | | .0 | .100 | .0 | | .0 | .0 | .048 | |
| pEv | .0 | .0 | .063 | 1 | .0 | .0 | .047 | 1 | .0 | .100 | .0 | 1 | .0 | .0 | .048 | 1 |
| pEc | .0 | .0 | 1.00 | | .0 | .0 | 1.00 | | .0 | 1.00 | .0 | | .0 | .0 | 1.00 | |
| TOTAL RESPONSE FREQUENCY | 7 | 10 | 16 | | 4 | 3 | 21 | | 6 | 10 | 16 | | 3 | 8 | 21 | |

Overall pSS = .562

[a] Cells with significant PIR values ($\geq$ .250) are outlined.

U.S. allocation of material support to Japan appears to be successful in causing simultaneous decreases in the level of Japanese conflictual actions (PIR = .284). A large degree of U.S. material support to Japan is concerned with military security. Japan's response pattern with respect to this power strategy reveals an effective and efficient method for the United States to alter Japanese hostile behavior in a continually sensitive area.

U.S. Trade-Specific Power Impacts (Table 3). Promise strategies possess a greater impact when they concern the trade issue area specifically. U.S. promises cause a simultaneous increase in levels of Japanese cooperative behavior (PIR = .286), and a lagged decrease in Japanese conflictual behavior (PIR = .250). Since the United States remains the single largest export market for Japanese goods, compliance with U.S. promise strategies emphasizes Japanese dependence in this area.

However, U.S. trade-specific threats result in a lagged increase in the level of Japanese negative behavior to the United States (PIR = .334). This defiant response pattern may indicate Japanese desires to assert its own economic power in a competitive mode with the United States.

U.S. Political-Military Security-Specific Power Impacts (Table 4). Power strategy impact analyses were also performed on political-military security issue behavior. Considering this issue area to be one in which Japan is especially subordinate to the United States, the results were extremely surprising. Promise strategies had the intended simultaneous effect of causing increases in Japanese cooperative behavior (PIR = .254), and U.S. reconciliation strategies had the indifferent impact of maintaining the average level of Japanese conflictual behavior (PIR = .286). Neither of these results suggests an apparent dominant-submissive relationship between the United States and Japan on this issue area. Yet, it must be emphasized that there is no defiance of U.S. desires on this issue. Perhaps the lack of apparent impact of U.S. power strategies on political-military security issues is a result of dwindling credibility of the U.S. commitment to Japanese security (Scalapino, 1972: 101). Another plausible reason might be that in the midst of Japan's

TABLE 3

Power Strategy Impact Analysis: The Effects of U.S. Power Strategies in the Trade Issue Area on Japan's Responses to the U.S.[bc]

| United States to Japan (Trade Issues): Power Strategy Types[a] | Japan to United States (All Issues): Simultaneous Power - Response Interaction | | | | | | | | Japan to United States (All Issues): Lagged Power - Response Interaction (one month) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Postive Responses | | | | Negative Responses | | | | Positive Responses | | | | Negative Responses | | | |
| | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency |
| PROMISE | | | | | | | | | | | | | | | | |
| PIR | .286 | .050 | .031 | 8 | .125 | .016 | .149 | 8 | .0 | .113 | .196 | 8 | .042 | .250 | .054 | 8 |
| THREAT | | | | | | | | | | | | | | | | |
| PIR | .143 | .100 | .0 | 4 | .0 | .125 | .048 | 4 | .042 | .0 | .141 | 4 | .334 | .0 | .048 | 4 |
| POS. COMMIT | | | | | | | | | | | | | | | | |
| PIR | .036 | .0 | .141 | 4 | .063 | .0 | .107 | 4 | .042 | .025 | .063 | 4 | .0 | .125 | .048 | 4 |
| NEG. COMMIT | | | | | | | | | | | | | | | | |
| PIR | .0 | .0 | .125 | 2 | .0 | .0 | .095 | 2 | .0 | .050 | .032 | 2 | .0 | .063 | .024 | 2 |
| MAT. SUPPORT | | | | | | | | | | | | | | | | |
| PIR | .191 | .0 | .021 | 3 | .0 | .042 | .063 | 3 | .056 | .033 | .021 | 3 | .0 | .042 | .063 | 3 |
| DIP. HOSTILITY | | | | | | | | | | | | | | | | |
| PIR | .0 | .033 | .083 | 3 | .0 | .042 | .063 | 3 | .0 | .033 | .083 | 3 | .0 | .042 | .063 | 3 |
| TOTAL RESPONSE FREQUENCY | 7 | 10 | 16 | | 4 | 8 | 21 | | 6 | 10 | 16 | | 3 | 8 | 21 | |

Overall pSS = .667

[a] Only power strategy types that were exercised are listed.

[b] Significant PIR values (≥.250) are underlined.

[c] pEv and pEc indices are not presented in this table for the sake of visual clarity. PIR values are the product of pEv and pEc.

TABLE 4

Power Strategy Impact Analysis: The Effects of U.S. Power Strategies in the Political-Military Security Issue Area on Japan's Responses to the U.S.[be]

| United States to Japan (Political-Military Issues): Power Strategy Types[a] | Japan to United States (All Issues): Simultaneous Power - Response Interaction | | | | | | | | Japan to United States (All Issues): Lagged Power - Response Interaction (one month) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Positive Responses | | | | Negative Responses | | | | Positive Responses | | | | Negative Responses | | | |
| | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequeney | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency |
| PROMISE PIR | <u>.254</u> | .0 | .174 | 9 | .111 | .056 | .132 | 9 | .074 | .178 | .063 | 9 | .0 | .125 | .191 | 9 |
| POS. COMMIT. PIR | .029 | .180 | .013 | 5 | .0 | .100 | .086 | 5 | .0 | .080 | .113 | 5 | .067 | .0 | .152 | 5 |
| NEG. COMMIT. PIR | .0 | .0 | .125 | 2 | .0 | .0 | .095 | 2 | .0 | .050 | .032 | 2 | .0 | .0 | .095 | 2 |
| RECONCIL. PIR | .024 | .017 | .167 | 6 | .042 | .021 | .127 | 6 | .111 | .017 | .094 | 6 | .0 | .0 | <u>.286</u> | 6 |
| DIP. SUPPORT PIR | .0 | .0 | .063 | 1 | .0 | .0 | .048 | 1 | .0 | .100 | .0 | 1 | .0 | .0 | .048 | 1 |
| MAT. SUPPORT PIR | .029 | .080 | .050 | 5 | .0 | .100 | .086 | 5 | .033 | .020 | .113 | 5 | .0 | .100 | .086 | 5 |
| DIP. HOSTILITY PIR | .072 | .0 | .032 | 2 | .0 | .0 | .095 | 2 | .0 | .200 | .0 | 2 | .0 | .063 | .024 | 2 |
| VIOLENCE PIR | .0 | .0 | .063 | 1 | .0 | .0 | .048 | 1 | .0 | .100 | .0 | 1 | .0 | .0 | .048 | 1 |
| TOTAL RESPONSE FREQUENCY | 7 | 10 | 16 | | 4 | 8 | 21 | | 6 | 10 | 16 | | 3 | 8 | 21 | |

Overall pSS = .75

[a] Only power strategy types that were exercised are listed.

[b] Significant PIR values ($\geq$ .250) are underlined.

[c] pEv and pEc indices are not presented in this table for the sake of visual clarity. PIR values are the product of pEv and pEc.

cautious attempts to normalize relations with its two potential adversaries, the Soviet Union and China, it had to effectively ignore U.S. attempts to influence its behavior on security matters.

Summary. As witnessed by the tables, most U.S. power strategies targeted at Japan, regardless of time lag or issue focus, have little impact on Japanese response patterns. However, some U.S. strategies, notably promise and material support strategies, have a significant impact as reflected in the Power Impact Rating score in a direction favorable to U.S. interests. Threat, diplomatic hostility, and reconciliation strategies have a significant impact on Japanese responses but in directions that are somewhat detrimental to U.S. concerns.

A summary index that reflects the relative success of power impacts on obtaining favorable response patterns, the Probability of Strategy Success (pSS), can be calculated by using the following formula:

$$pSS = \frac{\text{Number of significant power impacts considered to have favorable responses to the initiator nation}^{3}}{\text{Total number of significant power impacts}}$$

This formula is applied to the U.S. - Japanese dyad:

$$pSS \text{ overall behavior} = \frac{4.5}{8} = .562$$

$$pSS \text{ trade issue} = \frac{2}{3} = .667$$

$$pSS \text{ political-military} = \frac{1.5}{2} = .75$$

This index confirms the existence of a dominant-submissive relationship between the United States and Japan. Of the times the United States had significant power impacts on Japanese actions between 1972 and 1974, Japan's behavioral response patterns were successfully influenced by U.S. power strategies in a direction favorable to U.S. interests between 56 percent and 75 percent of the time, depending on the issue focus. This means that

[3] Indifferent response patterns are counted as being ½ favorable.

between 44 percent and 25 percent of the time, U.S. power impacts had unintended, detrimental effects. While it appears that U.S. success is greatest (U.S. dominance is highest) on political-military security issues, this result is largely a function of small sample size. But the overall pSS index on all issues suggests that compliance with U.S. desires is far from perfect; the degree of noncompliance observed may indicate that the dominant-submissive relationship within this dyad is gradually disappearing.

The power strategy impact analysis of U.S.-Japanese relations suggests that overall, increased Japanese efforts have been taking shape to move out from under the shadow of U.S. policy leadership over the past two and a half years. We have observed a shift in the nature of American-Japanese relations that probably would not have been manifested to this degree during the 1960's or before (Scalapino, 1972). U.S. attempts to modify Japanese behavior in a manner favorable to U.S. interests are successful only about half the time. Rather than always bowing to the desires of U.S. policy, Japan's policy-makers have developed an increasingly independent stance. But while Japan appears to be no longer subservient to U.S. policy, it is not openly defiant of U.S. interests.

If this dual-headed trend of increasing Japanese autonomy and loosening U.S. ability to persuade and influence Japanese international policy continues, U.S. policy-makers would be wise to rethink the utility of power strategies that have proven to have low probabilities of success, effectiveness, and efficiency in causing Japan to change its position and behavior. The strategies that have been identified in this category are basically those that impose negative sanctions on Japan -- threat and diplomatic hostility strategies. Japan appears to react unfavorably to U.S. exercise of these punishing strategies. U.S. policy reassessment can take several directions, given the ultimate objective to maximize U.S. influence over Japanese policy-making:

1. Increasing the stated level of negative sanctions that will be incurred by Japan if it does not comply with U.S. desires -- raising the ante for Japan's policy-makers -- may well heighten the credibility of U.S. power capabilities and cause a favorable change in Japan's position and

behavior toward the United States. However, this path maximizes the risk that strategies that already possess low probabilities of success will remain unsuccessful despite changes in their negative implications for Japan. In fact, it is conceivable that such a path taken by the United States might strain Japanese-U.S. relations to the point of causing a negative backlash and pressuring Japan to quicken its pace of normalizing relations with the Soviet Union and China.

2. A more cooperative path to maximizing U.S. influence on Japanese policy-making would be to increase the use of positive power strategies that have proven successful, such as promise and material support actions. This is the low-risk course that is likely to result in high probabilities of U.S. access and effective influence, or at least the maintenance of present influence, over future Japanese behavior.

Japanese Power Impacts on Asian Behavioral Response Patterns

Tables 5-7 provide the results of the power impact analyses for the Japanese-Asian dyad. It is hypothesized that Asia is in a subordinate role vis-a-vis Japan, and will respond favorably, for the most part, to Japan's use of power strategies.

Japan's Overall Power Impacts (Table 5). All Japanese power strategies, except threat, reconciliation, diplomatic hostility, and violence strategies, result in a simultaneous maintenance of Asian cooperative response patterns about the mean frequency. Although increases in the level of Asian cooperation would have signalled a more concrete impact, maintenance of positive behavior can generally be interpreted as compliance with power attempts. With a one-month lag in Asian responses, two hostile power attempts, negative commitments and diplomatic hostility, cause increases in Asian cooperation toward Japan (PIR = 2.61 and .347, respectively). Thus, forecasting and actually implementing negative sanctions against Asia to make its behavior more favorable appear to achieve the intended effects. Peculiarly, Japanese reconciliation strategies that allocate positive rewards to Asia have the opposite effect; they cause a decrease in the level of positive behavior with a lag of one month (PIR = .250).

TABLE 5

Power Strategy Impact Analysis: The Effects of Japanese Power Strategies in All Issue Areas on Asia's Responses to Japan[ab]

| Japan to Asia (All Issues): Power Strategy Types | Asia to Japan (All Issues): Simultaneous Power - Response Interaction | | | | | | | | Asia to Japan (All Issues): Lagged Power - Response Interaction (one month) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Positive Responses | | | | Negative Responses | | | | Positive Responses | | | | Negative Responses | | | |
| | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency |
| PROMISE PIR | .143 | .107 | .655 | 29 | .077 | .345 | .456 | 29 | .214 | .161 | .481 | 28 | .143 | .175 | .543 | 28 |
| THREAT PIR | .137 | .011 | .234 | 11 | .091 | .082 | .172 | 11 | .150 | .200 | .047 | 10 | .025 | .040 | .258 | 10 |
| POS. COMMIT. PIR | .133 | .100 | .379 | 20 | .113 | .180 | .318 | 20 | .219 | .059 | .335 | 19 | .211 | .084 | .335 | 19 |
| NEG. COMMIT. PIR | .157 | .066 | .309 | 17 | .059 | .147 | .309 | 17 | .261 | .071 | .211 | 16 | .063 | .056 | .398 | 16 |
| RECONCIL. PIR | .084 | .0 | .027 | 2 | .125 | .0 | .027 | 2 | .0 | .250 | .0 | 2 | .0 | .050 | .027 | 2 |
| DIP. SUPPORT PIR | .017 | .008 | .556 | 16 | .141 | .157 | .211 | 16 | .094 | .196 | .211 | 16 | .063 | .225 | .211 | 16 |
| MAT. SUPPORT PIR | .143 | .211 | .524 | 29 | .077 | .279 | .524 | 29 | .149 | .219 | .481 | 28 | .143 | .175 | .543 | 28 |
| DIP. HOSTILITY PIR | .220 | .165 | .070 | 12 | .084 | .132 | .158 | 12 | .347 | .042 | .110 | 12 | .0 | .133 | .281 | 12 |
| VIOLENCE PIR | .033 | .0 | .169 | 5 | .0 | .180 | .042 | 5 | .033 | .025 | .095 | 5 | .0 | .020 | .169 | 5 |
| TOTAL RESPONSE FREQUENCY | 6 | 8 | 19 | | 4 | 10 | 19 | | 6 | 8 | 19 | | 4 | 10 | 19 | |

Overall pSS = .739

[a] Significant PIR values (≥ .250) are underlined.

[b] pEv and pEc indices are not presented in this table for the sake of visual clarity. PIR values are the product of pEv and pEc.

While strategies with negative sanctions appear to cause increases in Asian cooperative response patterns with a one month lag, two other strategies that forecast and actually implement positive rewards seem to cause decreases in the level of Asian conflictual behavior toward Japan. Promise and material support strategies significantly shift Asian response patterns toward a less negative mode (PIR = .345 and .279, respectively). It is interesting to note the almost mirror-image impacts of Japan's use of the carrot and the stick toward Asia. The carrot is an effective and efficient way for Japan to minimize the negative in Asia's behavior, and the stick is equally successful in maximizing the positive in Asia's actions. A bit of ambiguity is introduced into these findings, however, by the large number of significant PIRs which indicate that Japanese power strategies cause no change in Asia's conflictual behavior.

Japan's Resource Dependence-Specific Power Impacts (Table 6). The resource issue is one in which Japan's dominance over Asia is partially negated by its dependence for raw materials. Potentially, this is an area in which Asia can assert bargaining leverage over Japan. However, this does not appear to be the mode of Asian behavior. Japanese positive commitment strategies impact significantly on simultaneous increases in Asian cooperative responses (PIR = .250). Promise strategies serve to maintain and increase Asian positive behavior simultaneously and with a lag (PIR = .539, .250, and .334, respectively). Finally material support strategies exercised by Japan result in a maintenance in the level of Asian cooperative responses with a one-month lag (PIR = .292). Japan's high level of dependence on Asia for raw materials and resources is reflected in its effective use of "carrot" strategies. Promise and material support strategies have only indifferent results on altering levels of Asian conflictual behavior targeted at Japan.

Japan's Trade-Specific Power Impacts (Table 7). Several Japanese strategies have favorable and cooperative impacts. Japanese promise and material support (with a lag) strategies maintain Asian cooperative behavior patterns (PIR - .399 and .347, respectively). Positive commitments result in an increase in positive responses (PIR = .381). But in response to

TABLE 6

Power Strategy Impact Analysis: The Effects of Japanese Power Strategies in the Resource Dependence Issue Area on Asia's Responses to Japan[bc]

Japan to Asia (Resource Dependence): Power Strategy Types[a]

| | Asia to Japan (All Issues): Simultaneous Power - Response Interaction | | | | | | | | Asia to Japan (All Issues): Lagged Power - Response Interaction (one month) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Positive Responses | | | | Negative Responses | | | | Positive Responses | | | | Negative Responses | | | |
| | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency |
| PROMISE PIR | .167 | .080 | <u>.539</u> | 25 | .090 | .196 | <u>.473</u> | 25 | <u>.250</u> | .188 | <u>.334</u> | 24 | .167 | .116 | <u>.493</u> | 24 |
| THREAT PIR | .0 | .0 | .105 | 2 | .0 | .050 | .027 | 2 | .0 | .063 | .028 | 2 | .125 | .0 | .027 | 2 |
| POS. COMMIT. PIR. | <u>.250</u> | .021 | .035 | 6 | .042 | .0 | .219 | 6 | .111 | .083 | .037 | 6 | .167 | .0 | .141 | 6 |
| NEG. COMMIT. PIR | .0 | .063 | .027 | 2 | .125 | .0 | .027 | 2 | .167 | .0 | .0 | 1 | .0 | .0 | .053 | 1 |
| DIP. SUPPORT PIR | .0 | .0 | .053 | 1 | .0 | .0 | .053 | 1 | .0 | .0 | .056 | 1 | .0 | .0 | .053 | 1 |
| MAT. SUPPORT PIR | .173 | .225 | .213 | 20 | .050 | .125 | <u>.445</u> | 20 | .141 | .164 | <u>.292</u> | 19 | .053 | .211 | <u>.335</u> | 19 |
| DIP. HOSTILITY PIR | .0 | .0 | .105 | 2 | .0 | .050 | .027 | 2 | .0 | .063 | .028 | 2 | .0 | .056 | .027 | 2 |
| TOTAL RESPONSE FREQUENCY | 6 | 8 | 19 | | 4 | 10 | 19 | | 6 | 8 | 18 | | 4 | 9 | 19 | |

Overall pSS = .778

[a] Only power strategy types that were exercised are listed.

[b] Significant PIR values ($\geq$.250) are underlined.

[c] pEv and pEc indices are not presented in this table for the sake of visual clarity. PIR values are the product of pEv and pEc.

TABLE 7

Power Strategy Impact Analysis: The Effects of Japanese Power Strategies in the Trade Issue Area on Asia's Responses to Japan[bc]

Japan to Asia (Trade Issues): Power Strategy Types[a]

| | Asia to Japan (All Issues): Simultaneous Power - Response Interaction | | | | | | | | Asia to Japan (All Issues): Lagged Power - Response Interaction (one month) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Positive Responses | | | | Negative Responses | | | | Positive Responses | | | | Negative Responses | | | |
| | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency | Increase | Decrease | No Change | Total Frequency |
| PROMISE PIR | .219 | .026 | .399 | 19 | .119 | .190 | .277 | 19 | .219 | .164 | .237 | 19 | .117 | .211 | .277 | 19 |
| THREAT PIR | .167 | .0 | .0 | 1 | .0 | .0 | .053 | 1 | .167 | .0 | .0 | 1 | .0 | .0 | .053 | 1 |
| POS. COMMIT. PIR | .095 | .018 | .120 | 7 | .036 | .057 | .120 | 7 | .381 | .018 | .032 | 7 | .322 | .0 | .120 | 7 |
| NEG. COMMIT. PIR | .042 | .125 | .013 | 4 | .250 | .025 | .013 | 4 | .042 | .031 | .056 | 4 | .063 | .028 | .053 | 4 |
| DIP. SUPPORT PIR | .0 | .063 | .027 | 2 | .125 | .050 | .0 | 2 | .0 | .063 | .028 | 2 | .0 | .0 | .105 | 2 |
| MAT. SUPPORT PIR | .116 | .087 | .198 | 13 | .0 | .193 | .259 | 13 | .013 | .087 | .347 | 13 | .077 | .077 | .259 | 13 |
| DIP. HOSTILITY PIR | .0 | .125 | .0 | 1 | .0 | .0 | .053 | 1 | .0 | .0 | .056 | 1 | .0 | .111 | .0 | 1 |
| TOTAL RESPONSE FREQUENCY | 6 | 8 | 19 | | 4 | 10 | 19 | | 6 | 8 | 18 | | 4 | 9 | 19 | |

Overall pSS = .555

[a] Only power strategy types that were exercised are listed.

[b] Significant PIR values (≥.250) are underlined.

[c] pEv and pEc indices are not presented in this table for the sake of visual clarity. PIR values are the product of pEv and pEc.

Japanse negative and positive commitments (with a lag), Asian nations tend to increase their conflictual relations (PIR = .250 and .322, respectively). The Asian nations seem to have balked at attempts by Japan to assert its economic power on the continent. Some of these nations fear the reappearance of Japanese political and military hegemony over Asia as a result of its economic dominance, and therefore respond with defiance to Japanese power attempts in the economic sphere.

Summary. All but two power strategies exercised by Japan--negative and postive commitments on the trade issue--that have a significant impact on Asian behavior yield favorable response patterns. Thus we would expect the Probability of Strategy Success (pSS) index to be somewhat higher for the Japanese-Asian dyad than for the U.S.-Japanese dyad. The pSS results are listed below:

$$\text{pSS overall behavior} = \frac{17}{23} = .739$$

$$\text{pSS resource dependence issue} = \frac{7}{9} = .778$$

$$\text{pSS trade issue} = \frac{5}{9} = .555$$

These values confirm a dominant-submissive relationship between Japan and Asia that is slightly stronger than the relationship between the United States and Japan. However, the Asian nations appear to reveal a certain amount of independence from Japan on the trade issue.

The results of the power strategy impact analysis of Japanese-Asian relations indicate an overall high level of power and influence exercised by Japan over its Asian neighbors. Japanese desires to modify Asian behavior in an increasingly friendly vein have been largely successful (except concerning matters of international trade). Unlike the U.S.-Japanese dyad, the Asian nations respond favorably to Japan's use of negative, punishing strategies. In itself, this bowing to the threat of punitive action signals Asia's heightened submissive relationship in light of Japanese interests.

In general, this analysis of the impact of power strategies has confirmed the hypotheses presented earlier concerning dominant-submissive relationships between nations. It has also shown that the success, effectiveness, and efficiency of different types of power strategies are largely dependent on the actor, target, and issue focus of the strategies. Most importantly, this test has demonstrated that these vital attributes of power strategies can be quantified and monitored successfully through event-based indicators to predict the probability of certain types of response behavior from target nations.

# CHAPTER 8

# INTERNAL PREDICTION MODELS OF JAPANESE INTERNATIONAL BEHAVIOR

# INTERNAL PREDICTION MODELS OF JAPANESE INTERNATIONAL BEHAVIOR

In this chapter, the influence of domestic environmental factors and forces on Japanese international behavior is examined. International behavior is operationalized as the tone of overall Japanese interactions with the United States, the Soviet Union, the People's Republic of China, Asia (excluding the PRC), and the world as a whole. In addition, international behavioral tone in several issue areas is studied. Two types of domestic indicators are used: opinion indicators reflecting the influence of perceptions within the population on international behavior, and event-based indicators of domestic dyadic interactions reflecting the influence of political and economic elites on international behavior. (See Chapter 3 for a discussion of these indicators.) The time frame of the analysis is January 1972 to July 1974. Weekly time units were employed in the part of the analysis dealing with internal and external event indicators; monthly aggregations were used to study the effects of public opinion on international behavior.

Correlation and regression techniques are employed to determine the degree to which domestic environmental indicators can attempt to predict international behavior. Event-based indicators of domestic dyadic interactions appear to be the best predictors of international behavioral tone. Different mixes of these internal indicators predict behavior toward different international targets, though specific indicators of domestic indicators of domestic interaction on economic issues are consistently the most potent predictors. The analysis demonstrates that public opinion has little power in predicting international behavior. Domestic dyadic interaction tone on particular issue areas also fails to predict international behavior on the same issue. When domestic dyadic interaction tone variables representing a variety of issues are used to predict international behavior, however, predictive power is much improved. More specifically, variables representing different subnational actor positions on economic

issues, particularly domestic economic conditions and resource dependency, appear to have an important impact on international tone toward different countries and on different issues.

## THE IMPACT OF PUBLIC OPINION ON INTERNATIONAL BEHAVIOR

Six measures of public opinion from the JIJI Press monthly polls were used in the analysis (see Chapter 3 for a more complete description of these measures). They represent the percentage of responses of a stratified random sample of the Japanese population to a survey of the following questions:

(1) Which political party do you support?

(2) Do you support the (incumbent Prime Minister's) cabinet?

(3) Do you think the price of commodities is leveling off? Do you think the cost of living will still go up? Or do you think it will come down?

(4) How do you view the prosperity of the people in general? Do you think it is about the same as last month? Do you think it is has become worse? Or do you think it has improved?

(5) How difficult is your life compared with this time last year? Has it become easier? Or has it become more difficult?

(6) What countries do you like/admire most?

Data on these items were available on a monthly basis. To statistically relate these opinion data with international behavior, the international tone index was computed and averaged for each calendar month, yielding 31 monthly observations. Table 1 presents the Pearson product-moment correlation coefficient (r) for the percentage of responses to these questions with the international tone indicators for Japanese overall behavior toward each of five directed dyads. The coefficients of determination ($r^2$), which represent the amount of variance in international tone that is explained by the opinion indicators, or the degree to which the latter predict the former, are presented in parentheses.

TABLE 1

The Impact of Domestic Public Opinion on International Tone Behavior

Pearson Product Moment Correlation Coefficients (r)
and Coefficients of Determination ($r^2$)--(in parentheses)

| | Japan → US | Japan → USSR | Japan → PRC | Japan → Asia | Japan → World |
|---|---|---|---|---|---|
| (1) Support for Government Party | -.14 (.02) | .08 (.01) | -.13 (.02) | -.003 (.00) | -.19 (.04) |
| (2) Support for Incumbent Cabinet | .08 (.01) | -.11 (.01) | -.23 (.05) | -.11 (.01) | .26 (.07) |
| (3) Cost of Living Is Increasing | -.04 (.00) | -.45 (.20)** | -.13 (.02) | .05 (.00) | -.12 (.01) |
| (4) Prosperity Has Worsened | .14 (.02) | -.31 (.10)* | -.11 (.01) | .06 (.00) | .33 (.11)* |
| (5) Life Is Becoming More Difficult | .26 (.07) | -.45 (.20)** | .10 (.01) | -.08 (.01) | .29 (.08)* |
| (6) Percent Admiring Target Country | -.21 (.04) | .44 (.20)** | .27 (.07) | -- | -- |

* Significant ≤ .05

** Significant ≤ .01

The results of the analyses are straightforward. The coefficients indicate that public opinion has very little impact on Japanese international behavior. It is interesting that the only statistically significant relationships to emerge are those relating attitudes on economic conditions to international behavior toward the Soviet Union. When economic conditions are perceived to worsen, behavior targeted at the Soviet Union becomes more conflictual; as conditions become more favorable, international interaction becomes cooperative. The interpretation of these results is difficult in light of Japanese desires to tap Soviet energy resources to supplement supplies from other countries. This long-range policy would be expected to result in a more friendly posture toward the Soviet Union in times of economic adversity.

Scatterplots of the opinion variables indicate that after the third quarter of 1972, negative attitudes toward the state of the domestic economy evidenced a sharp linear increase. This break in the pattern of economic attitudes, and the fact that the political support variables fluctuate considerably over time may be responsible for the low predictive power of the set of opinion indicators. In addition, the opinion indicators represent a potential influence that is considerably removed from the decision-making process which ultimately is responsible for international statements and actions. As was suggested in Chapter 2, international policy-making is largely a bureaucratic function; party dialogue and public opinion, although they exist, are not likely to have a major impact on the status quo. A high correlation between popular attitudes and international posture, therefore, should not be expected. The analysis confirms this hypothesis, and indicates that, for the period under examination, opinion indicators did not serve as useful predictive monitors of international behavior.

## THE IMPACT OF DOMESTIC DYADIC INTERACTIONS ON INTERNATIONAL BEHAVIOR

Eighteen different domestic dyads (see Chapter 3) were used to test the impact of salient concerns among domestic political and economic elites on international behavioral tone. These 18 dyads may be grouped by

actor-target and by issue area. To simplify presentation, the following notations are used:

GNA - Government actor to non-government target on all issues

GNP - Government actor to non-government target on political-military security issues

GNDI - Government actor to non-government target on diplomatic relations issues

GNR - Government actor to non-government target on resource dependency issues

GNDOMEC - Government actor to non-government target on domestic economic issues

GNT - Government actor to non-government target on international trade issues

NGA - Non-government actor to government target on all issues

NGP - Non-government actor to government target on political-military security issues

NGDI - Non-government actor to government target on diplomatic relations issues

NGR - Non-government actor to government target on resource dependency issues

NGDOMEC - Non-government actor to government target on domestic economic issues

NGT - Non-government actor to government target on international trade issues

GGA - Government actor to government target on all issues

GGP - Government actor to government target on political-military security issues

GGDI - Government actor to government target on diplomatic relations issues

GGR - Government actor to government target on resource dependency issues

GGDOMEC - Government actor to government target on domestic economic issues

GGT - Government actor to government target on international trade issues

For each of these dyads a behavioral tone index was computed to measure the average mix of cooperation and conflict between the actor and the target on a particular issue area (see Chapter 3). Table 2 presents the inter-correlation matrix for these variables. The table reveals several useful pieces of information about the subject areas of domestic political discourse. High correlation coefficients suggest areas where behavioral tone is highly interrelated over time. Overall, some of the strongest correlations within each dyad group involve overall behavior variables ("A" issues areas) and diplomatic relations variables ("DI" issues areas). This occurs in part because the diplomatic issues form a substantial percentage of total interactions (See Table 13, Chapter 3). Diplomatic issue behavior is also likely to reflect a variety of concerns, with mixtures of both positive and negative behavior, as does the overall category behavior. Within the government to non-government dyads, tone on political-military security issues and diplomatic relations issues is also strongly associated (r=.71), indicating that national security is an important component of the dialogue between government and opposition as the former defends its diplomatic activities.

A comparison of the correlations for behavioral tone between government tc non-government and non-government to government dyads indicates relatively weak and frequently negative associations. This suggests that the dyad aggregates are indeed reflecting the different positions which government and oppositions are expected to assume on the different issues. Note particularly that the domestic economy and resource dependency issue areas have a moderately strong correlation across the dyads (r=-.52) but the negative coefficient sign indicates that the positions assumed by the actors often contradict each other.

TABLE 2

Correlations Between Domestic Dyadic Actor Interaction Indicators for Aggregate and Issue Area Tone (Coefficients ≥.50 Are Underlined)

| | GNA | GNP | GNDI | GNR | GNDOMEC | GNT | NGA | NGP | NGDI | NGR | NGDOMEC | NGT | GGA | GGP | GGDI | GGR | GGDOMEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GNP | .68 | | | | | | | | | | | | | | | | |
| GNDI | .81 | .71 | | | | | | | | | | | | | | | |
| GNR | .45 | .36 | .34 | | | | | | | | | | | | | | |
| GNDOMEC | .29 | -.00 | -.15 | .19 | | | | | | | | | | | | | |
| GNT | .53 | .32 | .41 | .69 | .48 | | | | | | | | | | | | |
| NGA | .05 | -.08 | .07 | -.53 | -.05 | -.26 | | | | | | | | | | | |
| NGP | .07 | -.03 | -.02 | -.33 | .19 | -.31 | .21 | | | | | | | | | | |
| NGDI | .44 | .13 | .48 | -.21 | .03 | .19 | .64 | .07 | | | | | | | | | |
| NGR | .13 | -.04 | .11 | .48 | .20 | .43 | .10 | -.31 | .15 | | | | | | | | |
| NGDOMEC | -.24 | .05 | -.14 | -.52 | -.09 | -.28 | .65 | .23 | .20 | -.15 | | | | | | | |
| NGT | .36 | .23 | .23 | .13 | .09 | .41 | .28 | -.13 | .48 | -.06 | .25 | | | | | | |
| GGA | .80 | .56 | .81 | .54 | .14 | .60 | .03 | .01 | .44 | .35 | -.11 | .32 | | | | | |
| GGP | .30 | .23 | .38 | -.01 | -.08 | .06 | .32 | .39 | .25 | .01 | .42 | .17 | .51 | | | | |
| GGDI | .60 | .35 | .68 | .40 | .02 | .52 | .07 | -.03 | .48 | .14 | -.01 | .45 | .86 | .49 | | | |
| GGR | .21 | .12 | .26 | .72 | .10 | .68 | -.24 | -.46 | .02 | .73 | -.25 | .11 | .52 | .05 | .51 | | |
| GGDOMEC | .44 | .30 | .36 | .82 | .23 | .69 | -.26 | -.28 | .00 | .77 | -.31 | .12 | .64 | .10 | .46 | .87 | |
| GGT | .73 | .73 | .65 | .33 | .21 | .42 | .09 | .27 | .23 | .10 | .16 | .27 | .72 | .58 | .50 | .15 | .44 |

As would be expected, there are relatively strong associations between government to non-government and government to government tone, since the actors are the same in these dyads. Differences across the dyads may be attributed to the fact that intra-governmental dialogue is likely to be more positive and supportive of ongoing government activities, while government to non-government dialogue reflects efforts to defend government activities against the criticism of opposition groups. Overall, the different actor positions appear most divergent on political-military security issues, and most similar on economic issues -- especially domestic economy and resource dependency. Though tone for diplomatic relations issues is strongly associated with overall tone within each dyad, it is not closely associated across dyads, or with other, more specific issue areas. Again, this reflects the aggregate nature of diplomatic relations which must be tempered to reflect the mix of a variety of concerns.

Table 3 presents the correlations of domestic dyadic tone with overall Japanese international tone toward the United States (JUSA), the Soviet Union (JUSRA), the People's Republic of China (JPRCA), and Asia (JASA), and with tone in the Japan to U.S. political-military (JUSP), diplomatic relations (JUSDI), and international trade (JUST) issue areas and Japan to USSR political-military (JUSRP) issue area. High coefficients indicate strong domestic prediction of international tone to the different target countries (the actual predictive power of each variable is equal to the squared value of the coefficients presented). The general pattern to be inferred from the table is that domestic concern over resource dependency and domestic economic conditions has the most important influence on the quality of relations between Japan and other countries. The all issues category of domestic interactions tends to have low levels of association (and therefore low predictive power) with international tone behavior. This indicates that international tone is a result, not of generalized domestic concerns but rather of specific, time-bound salient issues.[1]

---

[1] This interpretation is further supported by the overall low correlations between the composite domestic indicator on all issues (all domestic actors→ all domestic targets) with international tone. However, the composite domestic indicator on resource and domestic economic issues, again, appears to be more strongly associated with selected international tone behaviors.

TABLE 3

Correlation of Domestic Actor Tone Indicators
and International Tone Indicators
(Coefficients ≥.50 Are Underlined)

| | JUSA | JUSRA | JPRCA | JASA | JUSP | JUSDI | JUST | JUSRP |
|---|---|---|---|---|---|---|---|---|
| GNA | .09 | -.44 | .31 | -.32 | .09 | .38 | .15 | .05 |
| GNP | -.16 | -.14 | .25 | -.29 | -.17 | .31 | -.09 | .22 |
| GNDI | -.00 | -.29 | .34 | -.33 | -.17 | .36 | .28 | .33 |
| GNR | .59 | -.69 | -.18 | -.54 | .45 | .82 | .25 | -.14 |
| GNDOMEC | .17 | .06 | .09 | .21 | .29 | .13 | -.08 | -.57 |
| GNT | .30 | -.36 | -.13 | -.17 | .19 | .55 | .17 | -.16 |
| NGA | -.46 | .25 | .13 | .25 | -.35 | -.36 | .26 | .35 |
| NGP | -.03 | .21 | .49 | .19 | .22 | -.23 | -.26 | -.06 |
| NGDI | -.21 | -.01 | .14 | .10 | -.35 | -.02 | .27 | .20 |
| NGR | .58 | -.63 | -.10 | -.36 | .35 | .64 | .55 | -.33 |
| NGDOMEC | -.56 | .52 | .07 | .28 | -.42 | -.39 | -.02 | .42 |
| NGT | -.23 | -.01 | -.26 | -.02 | -.23 | .06 | .06 | .32 |
| GGA | .25 | -.48 | .23 | -.36 | .10 | .60 | .37 | .20 |
| GGP | .03 | .12 | .37 | .08 | .13 | .12 | .24 | .45 |
| GGDI | .06 | -.31 | -.04 | -.29 | -.10 | .40 | .33 | -.40 |
| GGR | .47 | -.60 | -.37 | -.53 | .17 | .70 | .45 | .09 |
| GGNDOMEC | .61 | -.77 | -.13 | -.64 | .42 | .83 | .43 | -.21 |
| GGT | .04 | -.22 | .44 | -.22 | .19 | .35 | .12 | .18 |

Note that no single variable emerges as a strong potential predictor of J→PRC tone, or, surprisingly, of J→U.S. tone on the political-military security issue.

The matrix of correlations between domestic dyadic tone on different issues (Table 2) indicated relatively high intercorrelation across several different issue areas and actor groups. This suggests that domestic political and economic forces are likely to influence international behavior in a complex and interactive manner. The task for the researcher is to sort out those sets of indicators that have greatest predictive power within selected issues areas and selected international dyadic relations. Once these sets of indicators are identified, it becomes possible for the policy analyst to focus attention on those processes that are most likely to influence change in policy within the specific dyadic relations and issue area with which he is concerned.

Multiple regression was the technique chosen to select the best set of predictors of Japanese international tone toward selected targets and on selected issues. The dependent variables (predicted variables) in the analysis presented below are tone indicators for Japanese behavior toward the United States, Soviet Union, People's Republic of China and Asia on all issues (JUSA, JUSRA, JPRCA, and JASA); toward the United States and the Soviet Union on political-military security issues (JUSP and JUSRP); and toward the United States on diplomatic and international trade issues (JUSDI, JUST).

The independent variables (predictor variables) are domestic dyadic tone indicators. Because tone for all issues and diplomatic issues was highly intercorrelated within dyads, only the diplomatic issue variables were used in the analysis. A total of 15 independent variables was therefore introduced into each multiple stepwise regression equation. The stepwise technique permits the best predictor variable (always the variable with the highest simple correlation) to be entered into the equation first. Then the variable that maximizes the explanatory power of the existing equation is selected and so on until the remaining variables cannot

significantly improve prediction. A criterion of at least .01 contribution to explained variance ($R^2$) was used to limit the number of variables admitted to the equations presented in Table 4. Data for each equation consist of $R^2$ values or total variance in the dependent variable explained by the variables admitted to the equation; the regression coefficient (b) associated with each variable; and, in parentheses, the standardized regression coefficient (beta weight) which permits the comparison of the relative influence of each variable. All equations are statistically significant, though in a very few equations, certain variables became insignificant (F statistic is significant at $\leq .01$) after the addition of the final variables. These are marked with asterisks in the table.

In equation 1 overall Japanese tone to the United States is most responsive to intra-governmental concerns about the domestic economy and secondarily to resource dependency and international trade issues. This is reasonable, as it has been noted in previous sections (see especially "Background," Chapter 2), since Japanese-U.S. relations were strained during the analytic period by threats of tariff restrictions on exports to the United States and embargoes on vital food exports for the United States. Each of these policies would have had a substantial impact on the Japanese economy. In response to the threatened restrictions, the Japanese Government adopted a more active policy of seeking new markets in areas which would guarantee raw materials supplies. Political-military questions also influence overall tone to the United States, though the dominant influence comes from government positions (GGP and GNP) rather than from the opposition which has been pressing for departure from past policies of close alliance with the United States. Overall, intra-governmental positions dominate the equation. This may be explained in part as a consequence of the traditionally close relationship between the United States and Japan, a relationship to which much of the government establishment is committed and from which Japan can extricate itself only with great effort. Note that the equation does not indicate any influence of government need to defend its positions against the opposition, though some influence of opposition concern over the domestic economy is suggested.

TABLE 4

Analysis of the Impact of Domestic Dyadic Actor Interaction on International Behavior

1. JUSA = -.04067 +.04018GGDOMEC -.02588NGDOMEC -.01451GNP -.02029GGR +.04101GGP -.02537GGT -.00739GGDI
(1.28414) (-.44688) (-.22364) (-.61150) (.48642) (-.39036) (-.18631)

$R^2$ = .77

2. JUSP = -.07319 +.03116GNR +.00945NGP -.01887GNP -.00641GGDI +.01479GGT -.02463NGDOMEC +.03278GGP
(.35273) (.12520) (-.31353) (-.17414) (.24522) (-45904) (.41868)

-.01504GNDI +.01190NGR -.02038GGR +.01982GGDOMEC
(-.42143) (.13414) (.66178) (.68273)

$R^2$ = .85

3. JUSDI = -.04245 +.00450GGDOMEC* +.03671GNR +.01498NGR +.0623GGP
(.20285) (.54471) (.22192) (.10428)

$R^2$ = .77

4. JUST = .00858 +.01232NGR -.00238NGDOMEC* +.00144GGDI* -.01069GNP +.00408GNDI +.00716GGT -.00619NGP
(.47849) (-.12625) (.13501) (-.61185) (.39355) (.40598) (-.28245)

-.00626GNT
(-.26665)

$R^2$ = .57

5. JUSRA = .11169 -.02672GGDOMEC +.02122NGDOMEC +.04029GNT -.03249NGT
(-.98623) (.42195) (.53413) (-.22304)

$R^2$ = .79

6. JUSRP = .00786 -.01400GNDOMEC +.00663GGDI +.00824NGDOMEC -.01451NGR -.00827NGP +.00877GGP
(-.42271) (.34701) (.29608) (-.31556) (-.21882) (.21603)

$R^2$ = .72

7. JPRCA = .09830 +.00866NGP +.01853GNDI -.01042GGDI +.02071GGP +.01290GNDOMEC -.03520NGT -.00768GGR
(.13981) (.63289) (-.34494) (.32279) (.24631) (-.27486) (-.30410)

$R^2$ =.64

8. JASA = .11987 -.02649GGDOMEC +.05156GNT +.02850NGR +.01792GGP -.00795GNDI -.00676GGR -.01737NGT
(-1.19394) (.83442) (.42047) (.29972) (-.29161) (-.28730) (-.14560)

$R^2$ =.75

* The F statistic for these variables was insignificant at the .01 level.



Reproduced from best available copy.

The Japan-U.S. political-military security issue emerges in equation 2 as considerably more complex than might be anticipated. Eleven variables each contribute at least 1 percent of the total variance explained. Intra-government, government to non-government, and non-government to government tone on the political-military issue all exercise influence in determining international tone on this same issue. Resource dependency and domestic economic concerns are closely intertwined with political-military concern: and in fact, their relative weight, as indicated by the beta coefficients, is more substantial than that of the domestic positions on the political-military issue. When the equation is limited only to the domestic indicators on the political-military issue, only 8 percent of the variance in international tone is explained.

The Japanese-U.S. diplomatic relations (JUSDI) equation (number 3) points clearly to the underlying domestic issues that influence overall tone to the United States. These are domestic economic and political-military security concerns. The interaction between government and opposition is indicated by the presence of variables representing both dyads on the resource dependency issue. A major theme of Japanese internal dialogue on this issue has been the question of diversification of economic activities to reduce reliance on U.S. markets and supplies. Again, government policy, (GGP) rather than government-opposition dialogue (GNP or NGP), provides the strongest input on the political-military security issue.

Japanese tone on trade with the United States (equation 4) is strongly influenced by government to non-government dialogue on political-military and resource dependency issues, in addition to trade issues. This can be explained as a result of the long history of dependence on the United States and current efforts to revise that relationship. Note that both GNP and NGP coefficients carry negative signs in the equation, suggesting agreement between government and non-government actors on the trade issue. At the same time, the positive government positions on GNDI and GGT suggest a reluctance to let purely political considerations interfere too strongly with an essential international relationship. As a result of this complexity

of relations, the JUST equation accounts for the least amount of explained variance of the entire set studied. Nevertheless, the 57 percent explanatory power is respectable.

As in the case of JUSA tone, tone between Japan and the Soviet Union on all issues (equation 5) responds overwhelmingly to economic considerations. Four economic-related variables account for .79 variance explained. The signs of the coefficients require consideration. The negative sign on GGDOMEC suggests possible reluctance on the part of the very conservative government to permit internal economic issues to alter its long-standing policy of resisting expansion of diplomatic relations to Communist nations, while the opposition has long argued that such an expansion of relations is highly desirable. The sign on trade issue variables is the reverse of those hypothesized, which suggests that positions on these issues are not clear cut.

Japanese interactions with the Soviet Union or political-military security issues (equation 6) again reflect the strong influence of domestic economic concerns on international tone for different issues. Non-government positions have more influence in this equation than in any other, and it should be recalled that a major feature of opposition arguments is the improvement of collaboration between Japan and the Soviet Union. The non-government position on the domestic economy, reflecting support or approval of more positive relations with the Soviet Union, may be influential for this reason.

The event pattern analysis of interactions between Japan and the Soviet Union on all and political-military issues strongly suggested a third party influence in the political-military security issue area, and it was suggested that the interacting issues concerned political-military issues with the United States. The negative signs for the NGR and NGP variables again indicate the possible influence of a third party. If such an interpretation is valid, the positive sign for GGP may indicate efforts on the part of the government to reassure the Soviet Union with respect to Japan's political-military intentions.

Diplomatic issue domestic dialogue has the most important influence on Japan to PRC overall tone (equation 7) and this is to be expected given the informal, "private meeting" approach which Japan has used to expand interactions with China. The influence of opposition demands for formalization of Japanese-PRC relations and of intra-government concern over the impact of such a step on Japan's relations with the Soviet Union, the United States, and Asia are active in the equation. The beta coefficients indicate, however, that the relative influence of NGP is minor, though the non-government position has been strongly in favor of the China rapprochement. Economic questions are comparatively less important in the JPRC relations than in relations with other countries. This is somewhat surprising, given the strong economic rationale behind present relations with China. It is, however, the fact that the impact of a change in policy toward China would have substantially greater impact on Japan's diplomatic relations with other countries than on its economic efforts.

Asia, even more than China, represents a new economic and diplomatic frontier in current Japanese thinking. Equation 8 indicates that strong government concern over domestic economy, trade, and resource dependency is active in influencing Japan's behavior toward Asia. In addition, intragovernmental political considerations, reflecting Japan's new approach to Asia as a Japanese responsibility, are influential in determining Japanese tone toward the region.

Summary

The analysis of domestic influences on Japanese international behavior confirms the notions, represented frequently in scholarly literature, that Japanese international behavior is more responsive to institutionalized influences of political parties and the government bureaucracy than to changing opinion patterns within the population. The issues within domestic dialogue which exercise the most influence on international behavior are those related to economic questions -- domestic economic performance,

resource needs, and international trade, in that order. The interrelationships between stated concerns of domestic actors on these issues and international behavior are complex. However, the strength of these relations, indicated by the regression technique, indicates that economic variables of the type used here can serve as useful indicators of likely changes in international policy.

# CHAPTER 9

# ECONOMIC PREDICTION MODELS OF JAPANESE INTERNATIONAL BEHAVIOR

In this chapter, potential economic influences on Japanese international behavior are analyzed. Economic indicators believed to be relevant to Japanese goals and actions, as developed in Chapter 3, are employed in an estimation model to predict future movements in event-based indicators of Japanese overall and issue-specific international behavior.

## DEPENDENT VARIABLES

The variables to be forecast by economic variables are issue area quantitative indicators of Japanese behavioral tone toward selected countries and all countries as a group. These indicators have been explained previously in Chapter 3. The following notation is used in the analysis below. The countries or groups of countries toward which Japanese actions are directed are: the United States, US; People's Republic of China, PRC; Soviet Union, USSR; Asian countries, ASIA; and all Japanese behavior regardless of target, WRLD.

To identify issue areas, a hyphen after the country designation will be followed by one of five letters: A, all issues; P, political/military security issues; D, diplomatic issues; R, resource dependency issues; or T, trade issues. Each issue area classification was not estimated for every country; a total of 20 of the possible 25 were considered. The economic independent variables employed as predictors in this analysis have been discussed previously in Chapter 3. The time period under analysis is January 1972 through July 1974. The behavioral tone index was calculated on a monthly basis to enable comparison with monthly economic variables (N=31).

## ESTIMATION TECHNIQUE

Multiple linear regression was chosen for estimation of the forecasting equations. A variety of possible curve fitting techniques could have been applied to the problems. Regression analysis was chosen for two reasons -- statistical theory and functional specification.

Regression theory is well developed and permits a variety of statistical tests for the significance of an equation and the significance of individual coefficients. Other techniques--the Box-Jenkins method is an excellent example--are powerful and extremely flexible tools but do not permit the variety of statistical inferences possible in using regression. As a result, the Box-Jenkins system tends to be more data-oriented. For problems with known causal structures or easily presumed causal implications, such an orientation can be very desirable. Unfortunately, neither condition applies to the problems at hand.

By choosing regression, a linear relation is accepted for the problem. Admittedly, this may well be an oversimplification of reality. But, lacking any information to suggest an alternate system, a linear relation provides a more readily understandable and interpretable result.

To allow greater flexibility within the regression approach, lagged values of each economic variable were created. The lags employed as the most consistent across all equations were 2-month, 4-month, and 6-month lags. This structure established 60 economic "variables." To implement the lags, data for July through December 1971 were added to the set of economic figures previously collected.

To distinguish one variable for different periods, the following notation is adopted: US-A and $X_{USSR}$[1] indicate that the two variables are observed for the same month; US-A and $X\text{-}6_{USSR}$ indicate that the value of exports to the USSR was observed 6 months prior to the observation of US-A.

ESTIMATION RESULTS

The equations estimated are reported in groups according to the target country of Japanese actions. Tables 2-5 report the estimated equations. The coefficients and their estimated standard errors (in parentheses) as well as $R^2$ and the F statistics of the equation are included. All equations were estimated using 27 of the 31 available observations--the April through July 1974 observations were deleted to allow limited testing of the equations'

[1] See Chapter 3 for a key to the economic variable notations used here.

forecasting ability. Forecasts were constructed for each of the four months for each equation. Observations outside the 95 percent confidence interval of the forecast by the equation render the equation suspect. Those equations failing are noted in the discussion of each table.

US AS TARGET - TABLE 1

In terms of the limited forecasting experiment, each equation's 95 percent confidence interval for the forecast contained the observed value. However, US-P and US-D were marginally successful.

The interesting feature of the US-A and US-P equations is the significant coefficient estimated for $X_{USSR}$. A possible interpretation for these results can be extracted from the theory of collective goods applied to alliances. If it is true that Japan's dependence on the United States as a market for exports is the benefit derived from the U.S. alignment, then increased exports to the USSR would allow Japan to replace a part of the sales normally going to the United States, reduce the benefit it derives from U.S. alignment and also reduce the cost of alignment. This may result in Japan's adopting a less friendly tone toward the United States. The negative coefficients on $X_{USSR}$ in both equations are consistent with this interpretation.

USSR AS TARGET - TABLE 2

In all honesty, the equations reported in Table 2 are difficult to interpret. But, because each of these equations performed well on the small forecast test, it seems worthwhile to attempt to sort out some of the influences.

For the USSR-A equation, the sign of the coefficient on $X_{US}$ is consistent with the public good-alliance model but the sign of $X_{US}^{-2}$ is not. Neither is the sign of the term $X_{USSR}$ consistent with the explanation. Only if a dynamic response framework is adopted can the signs of these variables be explained. In more familiar language, it is possible to posit a behavior pattern that is capable of replicating a "walk a fine line" approach to the USSR--gather the benefits but do not allow costs to be imposed.

Japanese Behavior to the U.S.
Estimated Equations

$$US\text{-}A = -2.22707 - \underset{(0.01585)}{0.04818}\ X_{USSR} + \underset{(0.00371)}{0.01747}\ NO^{-6} - \underset{(0.00238)}{0.00650}\ NO^{-4}$$

$$R^2 = .5601 \qquad F = 9.762$$

$$US\text{-}P = 3.14743 + \underset{(0.00284)}{0.00824}\ X_{EEC} - \underset{(0.0239)}{0.07518}\ X_{USSR} - \underset{(0.00011)}{0.00023}\ R$$

$$R^2 = .3667 \qquad F = 4.439$$

$$US\text{-}D = -18.87129 - \underset{(0.00243)}{0.00474}\ X_{EEC} + \underset{(0.06505)}{0.2094}\ CU$$

$$R^2 = .3020 \qquad F = 5.192$$

$$US\text{-}T = -17.40811 - \underset{(0.00392)}{0.01721}\ M_{EEC} - \underset{(0.01410)}{0.02658}\ W + \underset{(0.00130)}{0.00508}\ NO + \underset{(0.07800)}{0.24974}\ CU^{-6} + \underset{(0.00068)}{0.00230}\ X_{US}^{-4} + \underset{(0.00008)}{0.00034}\ R^{-4} - \underset{(0.00009)}{0.00051}\ R$$

$$R^2 = .7308 \qquad F = 7.367$$

TABLE 2

Japanese Behavior to the USSR
Estimated Equations

$$\underset{}{\text{USSR-A}} = \underset{}{-2.15247} - \underset{(0.01232)}{0.07992}\ X_{USSR} + \underset{(0.00121)}{0.00247}\ X_{US} + \underset{(0.02114)}{0.09120}\ W^{-4} - \underset{(0.00173)}{0.00946}\ X_{US}^{-2} + \underset{(0.00281)}{0.00685}\ X_{EEC}^{-2}$$

$$R^2 = .8037 \qquad F = 17.196$$

$$\underset{}{\text{USSR-P}} = \underset{}{6.58180} - \underset{(0.00008)}{0.00023}\ R + \underset{(0.01242)}{0.03043}\ X_{USSR} - \underset{(0.00146)}{0.00579}\ NO^{-4} - \underset{(0.00092)}{0.00207}\ X_{US}^{-2}$$

$$R^2 = .5278 \qquad F = 6.148$$

$$\underset{}{\text{USSR-D}} = \underset{}{14.37666} - \underset{(0.06029)}{0.14892}\ CU + \underset{(0.00159)}{0.00428}\ X_{US}^{-6} - \underset{(0.00147)}{0.00229}\ X_{US}^{-2}$$

$$R^2 = .3964 \qquad F = 5.035$$

$$\underset{}{\text{USSR-R}} = \underset{}{2.52923} + \underset{(0.00165)}{0.00662}\ M_{US} - \underset{(0.00186)}{0.00306}\ M_{EEC} - \underset{(0.01004)}{0.03058}\ X_{EEC} - \underset{(0.00345)}{0.00765}\ NO^{-6}$$

$$R^2 = .4896 \qquad F = 5.276$$

For the USSR-R equation, the signs of all variables are interpretable. The negative sign for new orders suggests that an upswing within the Japanese economy permits a lessening of friendly tone toward the Soviet Union as a potential supplier of resources. Alternately, the negative sign could be the result of an increased firmness by the Japanese in attempts to acquire resources from the Soviet Union as the Japanese economy expands. The negative signs for exports and imports to and from the EEC capture the possibility of an alternate market for Japan as it switches from U.S. dependence. On resource areas, Japan depends for foodstuffs on the United States. To insure deliveries from the United States, increased imports are associated with increased tone.

PRC AS TARGET - TABLE 3

The equations reported in Table 3 performed adequately in the small forecast test. On these grounds the equations are acceptable. In the judgment of the research staff, the particular time period of the study may have produced these results rather than any underlying causal structure.

Throughout the sample period, Japanese tone toward the PRC was quite friendly and showed a tendency to rise (becoming more friendly) over time. Virtually all economic variables display an increasing trend over time. High correlations are to be expected in such a situation. Two checks of the "data-induced" or "sample period" problem were tried. The first, a detailed examination of the correlation matrix of all variables (dependent and independent) plus a time trend, did indicate a tendency for slightly higher correlations of PRC-A, PRC-D and PRC-T with time and all economic variables than any other issue area indicators. The second check was an extended regression strategy that posited more economic variables for each of the equations. It was possible to produce near "perfect" fits for these expanded equations.

As a result of these checks and the previous experience of the research staff, the reported equations are indicative of an emerging structure. In the immediate future, the best expectation is that the equations will perform reasonably well. As Japanese-PRC relations mature, the equations will do less well as forecasting tools.

TABLE 3

Japanese Behavior to the People's Republic of China
Estimated Equations

$$\underset{}{\text{PRC-A}} = \underset{}{17.94643} + \underset{(0.00007)}{0.00196}\ M - \underset{(0.00201)}{0.00768}\ NO_{-4} + \underset{(0.01683)}{0.08727}\ X_{USSR}^{-6} + \underset{(0.00456)}{0.01533}\ NO^{-4} - \underset{(0.06511)}{0.25680}\ WPI^{-2}$$

$$R^2 = .6731 \qquad F = 8.649$$

$$\underset{}{\text{PRC-D}} = \underset{}{4.87383} - \underset{(0.00405)}{0.01237}\ NO^{-6} - \underset{(0.00214)}{0.00790}\ M_{US}^{-4} + \underset{(0.01672)}{0.09230}\ X_{USSR}^{-4} - \underset{(0.00179)}{0.00810}\ X_{US}^{-2} + \underset{(0.00712)}{0.03041}\ M_{EEC}^{-2} + \underset{(0.00334)}{0.00454}\ X_{EEC}^{-2}$$

$$R^2 = .7293 \qquad F = 8.979$$

$$\underset{}{\text{PRC-T}} = \underset{}{16.05367} + \underset{(0.00188)}{0.01010}\ M_{US} - \underset{(0.01423)}{0.06662}\ M_{USSR} - \underset{(0.01724)}{0.07860}\ X_{USSR} + \underset{(0.10079)}{0.18115}\ CU + \underset{(0.00009)}{0.00030}\ R^{-6} + \underset{(0.00201)}{0.00321}\ X_{EEC}^{-2} - \underset{(0.09608)}{0.36938}\ CU^{-2}$$

$$R^2 = .7841 \qquad F = 9.861$$

ASIAN COUNTRIES AS TARGET - TABLE 4

The ASIA-D equation is not statistically significant at the 99 percent confidence level, nor does it forecast even tolerably well. The other equations do perform adequately, ASIA-R in particular. For the ASIA-R equation, a moment's reflection will allow the realization that every coefficient sign save one ($R^{-6}$) is perfectly consistent with the thesis that Japan views Asian markets as sources of needed raw materials and that Japan views the Soviet Union as an alternative supplier of raw materials. The positive sign of $M_{EEC}$ reflects the relative lack of primary resources of European countries.

JAPAN TO THE WORLD - TABLE 5

Of the five equations estimated for total Japanese actions, WRLD-A and WRLD-D are not significant. Although significant, WRLD-P did not pass the forecast test. Both of the remaining equations performed well. The surprising feature of these equations is the appearance in each equation of total imports and country-specific exports. A reasonable a priori surmise would have aggregate measures of imports and exports in the equations together with descriptors of the domestic Japanese economy.

SUMMARY AND EVALUATION

Having estimated 20 forecasting equations for different aspects of Japanese international behavior, two points seem clear. First, in general, it is possible to use economic variables to forecast such interaction in the short term. Second, the failure of some equations and the difficult interpretation of others suggest that an improved forecasting technique could be developed.

The suggested approach for any future research efforts is to attempt to consider simultaneously the several ideas subsumed under the heading, public-goods theories of alignment behavior. The potential explanatory power of such an approach seems to be substantial. The fundamental difficulty that blocked any attempt to begin that development during the current project is

TABLE 4

Japanese Behavior to Asia
Estimated Equations

$$\text{ASIA-A} = -2.26708 + \underset{(0.00215)}{0.00676}\ X_{US} - \underset{(0.00261)}{0.00758}\ M_{US} + \underset{(0.00380)}{0.00815}\ NO^{-4}$$

$R^2 = .3613$ F = 4.337

$$\text{ASIA-D} = -0.56333 + \underset{(0.00155)}{0.00245}\ X_{US}$$

$R^2 = .0910$ F = 2.504

$$\text{ASIA-R} = 23.02054 + \underset{(0.00046)}{0.00070}\ X + \underset{(0.01115)}{0.03811}\ M_{EEC} - \underset{(0.02148)}{0.07173}\ M_{USSR} + \underset{(0.00150)}{0.00326}\ X_{US}^{-6} - \underset{(0.13177)}{0.35491}\ CU^{-6} - \underset{(0.00009)}{0.00018}\ R^{-6} + \underset{(0.00276)}{0.00863}\ NO^{-4} + \underset{(0.00012)}{0.00031}\ R^{-2}$$

$R^2 = .7776$ F = 7.866

$$\text{ASIA-T} = -1.02464 + \underset{(0.02151)}{0.05324}\ X_{USSR}^{-6}$$

$R^2 = .1969$ F = 6.128

TABLE 5

Japanese Behavior to the World
Estimated Equations

$$\text{WRLD-A} = -2.03327 + \underset{(0.00132)}{0.00337}\ X_{US}^{-6} + \underset{(0.01590)}{0.03277}\ X_{USSR}^{-4}$$

$R^2 = .2760$ $\quad$ $F = 4.574$

$$\text{WRLD-P} = -1.92065 + \underset{(0.00452)}{0.00847}\ NO^{-6} - \underset{(0.11615)}{0.44755}\ CU^{-4} - \underset{(0.00014)}{0.00032}\ R^{-4} - \underset{(0.01546)}{0.03494}\ X_{USSR}^{-2} + \underset{(0.11501)}{0.49909}\ CU^{-2}$$

$R^2 = .6260$ $\quad$ $F = 7.031$

$$\text{WRLD-D} = .46838 + \underset{(0.01576)}{0.03102}\ X_{USSR}^{-4}$$

$R^2 - .1341$ $\quad$ $F = 3.873$

$$\text{WRLD-R} = 14.31647 + \underset{(0.00174)}{0.00794}\ M_{US} + \underset{(0.00113)}{0.00263}\ X_{US} - \underset{(0.00160)}{0.00074}\ NO + \underset{(0.00127)}{0.00629}\ X_{US}^{-6} - \underset{(0.05582)}{0.23054}\ PI^{-6} + \underset{(0.00063)}{0.00107}\ M^{-2}$$

$R^2 = .7718$ $\quad$ $F = 11.275$

$$\text{WRLD-T} = 6.52271 + \underset{(0.00064)}{0.00326}\ M - \underset{(0.00151)}{0.00475}\ X_{US} - \underset{(0.03053)}{0.06217}\ WPI - \underset{(0.00286)}{0.00995}\ M_{EEC}^{-6} + \underset{(0.01747)}{0.09885}\ X_{USSR}^{-6} - \underset{(0.00971)}{0.04950}\ X_{EEC}^{-2}$$

$R^2 = .7658$ $\quad$ $F = 10.898$

the number of observations required to estimate parameters in such a system. And, properly designed, the system would require data for at least one other country.

In the absence of an alternate forecasting strategy, three suggestions are rendered as guides for future work. First, concentrate attention on individual country targets or groups of homogeneous countries. Second, focus the forecasting exercise toward the economic issue areas if at all possible. Rather than be exhaustive in attempts to forecast political/military behavior, attempt to relate political/military issue indicators to both economic variables and indicators of target country responses in the same equation. And third, attempt to estimate time trends for economic variables and employ the residuals from these equations as predictors of international behaviors.

BIBLIOGRAPHY


ABEL, E. (1968) The Missile Crisis. New York: Bantam Books.

ANDRIOLE, S., J. WILKENFELD, and G. HOPPLE (1975) "The Sources and Processes of Foreign Policy Behavior: A Panoramic Conceptualization." Paper presented at the International Studies Association Annual Meeting, Washington, D.C., 19-22 February.

AZAR, E. (1972) "Conflict Escalation and Conflict Reduction in an International Crisis: Suez, 1956," Journal of Conflict Resolution 16, 2 (June).

_____ (1970) "Analysis of International Events," Peace Research Reviews IV (November).

BREWER, T. (1973) "Issue and Context Variations in Foreign Policy," Journal of Conflict Resolution 17 (March).

Bureau of Statistics (1972) Japan Statistical Yearbook. Tokyo: Office of the Prime Minister.

BURROWES, R. and B. SPECTOR (1970) "Conflict and Cooperation Within and Among Nations: Enumerative Profiles of Syria, Jordan and the United Arab Republic, January 1965 to May 1967." Paper presented at the Annual Meeting of the International Studies Association, Pittsburgh, Pennsylvania, 2-4 April.

BURROWES, R., et al. (1970) "The Road to the Six Day War: A Relational Analysis of Conflict and Cooperation Within and Between the Arab-Israeli and Inter-Arab Political Domains." Presented at the Annual Meeting of the Middle East Studies Association.

CACI (1974) Development and Experimental Application of Quantitative International Affairs Indicators, Final Report. Arlington, Va.: CACI, Inc.

_____ (1973) "International Affairs Indicators for Defense Decision-Making." Arlington, Va.: CACI, Inc.

_____ (1972) "Development and Experimental Application of Quantitative International Affairs Indicators," Interim Technical Report. Arlington, Va.: CACI, Inc.

COPLIN, W. (1971) Introduction to International Politics: A Theoretical Overview. Chicago: Markham Publishing Co.

CORSON, W. (1971) "Conflict and Cooperation in East-West Crises." Unpublished paper, University of Michigan.

_____ (1970) "Conflict and Cooperation in East-West Relations: Measurement and Explanation." Institute for Social Research, University of Michigan. (mimeo)

DAHL, R. (1969) "The Concept of Power," in R. Bell, D. Edwards, and R. Wagner (eds.) Political Power. New York: Free Press.

_____ (1961) Who Governs. New Haven: Yale University Press.

DEUTSCH, K. (1968) The Analysis of International Relations. Englewood Cliffs, N.J.: Prentice-Hall, Inc.

_____ (1966) "Power and Communications in International Society," in A. DeReuck and J. Knight (eds.) Conflict in Society. London: Ciba Foundation Symposium.

FUKUI, H. (1974) "Foreign Policy-Making in Japan: Case Studies for Empirical Theory." Paper presented at the Annual Meeting of Association for Asian Studies, Boston, 1-3 April.

HAITANI, K. (1973) "Japan's Trade Problem and the Yen," Asian Survey 13 (August).

HARSANYI, J. (1969) "Measurement of Social Power, Opportunity Costs, and the Theory of Two-Person Bargaining Games," in R. Bell, D. Edwards, and R. Wagner (eds.) Political Power. New York: Free Press.

HAYES, R. (1974) "Does Violence Precede Repression or Does Repression Precede Violence: A Study Over Time." Presented at the Annual Meeting of the American Political Science Association.

_____ (1973) "Identifying and Measuring Changes in the Frequency of Event Data," International Studies Quarterly 17, 4 (December).

HELLMANN, D. (1972) Japan and East Asia. New York: Praeger Publishers.

HERMANN, C. (1969) "International Crisis as a Situational Variable," in J. Rosenau (ed.) International Politics and Foreign Policy. New York: The Free Press.

HOGGARD, C.D. (1970) "Differential Source Coverage and the Analysis of International Interaction Data." University of Southern California.

_____ (1969) "Indicators of International Interaction." University of Southern California.

IKLE, F.C. (1964) How Nations Negotiate. New York: Praeger.

_____ and N. LEITES (1962) "Political Negotiations as a Process of Modifying Utilities," Journal of Conflict Resolution 6, 1.

JOHNSON, C. (1972) "How China and Japan See Each Other," Foreign Affairs 50 (July).

KOHLER, G. (1975) "Scaling Events Aggregates: The H.Q. Scale and Tension Management," Peace Research 7, 2 (April).

MARCH, J. (1969) "An Introduction to the Theory and Measurement of Influence," in R. Bell, D. Edwards, and R. Wagner (eds.) Political Power. New York: Free Press.

MCCLELLAND, C.A. (1969) "Action Structures and Communication in Two International Crises: Quemoy and Berlin," in J. Rosenau (ed.) International Politics and Foreign Policy. New York: Free Press.

_____ (1963) "Response Behavior Study: International Bargaining, Conflict and Accommodations," University of Southern California (May).

_____ and G.D. HOGGARD (1969) "Conflict Patterns in the Interactions Among Nations," in J.N. Rosenau (ed.) International Politics and Foreign Policy. New York: Free Press.

MCCLELLAND, C.A. and R. YOUNG (1970) "The Flow of International Events, July-December 1969." Interim Technical Report, World Event/Interaction Survey, Department of International Relations, University of Southern California (January).

MOLINA, E. (No Date) Poisson's Exponential Binomial Limit, 10th Printing. Princeton, N.J.: D. Van Nostrand Co.

MOORE, J.A. and R.A. YOUNG (1969) "Some Preliminary Short-Term Predictions of International Interaction." World Event/Interaction Survey Working Paper, University of Southern California.

MOSES, L., R. BRODY, O. HOLSTI, J. KADENE, and J. MILSTEIN (1967) "Scaling Inter-Nation Action Data," Science 156 (May).

NICKEL, H. (1974) "The Rediscovery of Japan," Foreign Policy 14.

OKITA, S. (1974) "Natural Resource Dependency and Japanese Foreign Policy," Foreign Affairs 52 (July): 714-724.

OVERHOLT, W. (1974) Japan's Emerging World Role, HI-1946/3-RR. Croton-on-Hudson, New York: Hudson Institute.

PHILLIPS, W. (1973) "The Conflict Environment of Nations: A Study of Conflict Inputs to Nations in 1963," in J. Wilkenfeld (ed.) Conflict Behavior and Linkage Politics. New York: David McKay Co.

_____ and R. CRAIN (1974) "Dynamic Foreign Policy Interactions: Reciprocity and Uncertainty in Foreign Policy," in P. McGowan (ed.) Yearbook of International Relations. Beverly Hills: Sage.

POND, E. (1973) "Japan and Russia: The View from Tokyo," Foreign Affairs 52 (October).

REISCHAUER, E. (1974) "Their Special Strengths," Foreign Policy 14 (Spring).

RICHARDSON, B. (1974) The Political Culture of Japan. Beverly Hills: University of California Press.

ROSENAU, J. (1967) "Foreign Policy as an Issue-Area," in J. Rosenau (ed.) Domestic Sources of Foreign Policy. New York: The Free Press.

_____ (1966) "Pre-Theories and Theories of Foreign Policy," in R.B. Farrell (ed.) Approaches to Comparative and International Politics. Evanston: Northwestern University Press.

RUBIN, T. and G.A. HILL (1973) "Experiments in the Scaling and Weighting of International Event Data." Arlington, Va.: CACI, Inc.

RUMMEL, R.J. (1970) Applied Factor Analysis. Evanston: Northwestern University Press.

SALMORE, B. and L. BRADY (eds.) (1972) "Creon Supplemental and Descriptive Coding Manual: Revised," CREON Publication 9B, Mershon Center, The Ohio State University.

SCALAPINO, R. (1972) "American-Japanese Relations in a Changing Era," The Washington Papers 2. Beverly Hills: Sage Publications.

SCHELLING, T. (1971) Arms and Influence. New Haven: Yale University Press.

_____ (1960) The Strategy of Conflict. New York: Oxford.

SINGER, M. (1972) Weak States in a World of Powers. New York: The Free Press.

SMOKER, P. (1969) "A Time-Series Analysis of Sino-Indian Relations," Journal of Conflict Resolution 13, 2.

SPECTOR, B. (1976) "A Social Psychological Model of Behavior and Position Modification in International Bargaining," in I.W. Zartman (ed.) The Fifty-Percent Solution. New York: Doubleday.

_____ (1975) "The Effects of Personality and Situational Variables on the Bargaining Process and Outcome." Ph.D. dissertation, New York University.

STOUFFER, S., et al. (1950) Measurement and Prediction. New York: John Wiley and Sons.

TANTER, R. (1974) Modeling and Managing International Conflicts: The Berlin Crises. Beverly Hills: Sage.

TSURUTANI, T. (1974) "The Causes of Paralysis," Foreign Policy 14 (Spring): 125-141.

TUFTE, E. (1975) "Determinants of the Outcome of Midterm Congressional Elections," American Political Science Review, forthcoming.

WAKAIZUMI, K. (1974) "Japan's Dilemma: To Act or Not To Act," Foreign Policy 16 (Fall).

WARD, M., et al. (1975) "Petroleum-Related Transnational Interactions: A Comparative Issue-Specific Events Data Analysis." Presented at the Annual Meeting of the International Studies Association.

WHITE, D.M. (1971) "Power and Intention," American Political Science Review LSV, 3: 749-759.

WILKENFELD, J. (ed.) (1973) Conflict Behavior and Linkage Politics. New York: David McKay Co.

_____ (1973) "Domestic and Foreign Conflict," in J. Wilkenfeld (ed.) Conflict Behavior and Linkage Politics. New York: David McKay Co.

YANAGA, C. (1968) Big Business in Japanese Politics. New Haven: Yale University Press.

ZARTMAN, I.W. (1974) "The Political Analysis of Negotiations," World Politics 26, 3 (April).

_____ (1971) The Politics of Trade Negotiations Between Africa and the EEC. Princeton: Princeton University Press.

ZINNES, D.A. (1972) "Some Evidence Relevant to the Man-Milieu Hypothesis," in J.N. Rosenau, V. Davis, and M. East (eds.) The Analysis of International Politics: Essays in Honor of Harold and Margaret Sprout. New York: Free Press.