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EXPLORATIONS IN THE MANAGEMENT OF
INTERNATIONAL CRISES: THREE STUDIES

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Mershon Center

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FOREIGN AFFAIRS	ORGANIZATIONAL STRUCTURES	
INDIVIDUAL PERFORMANCE	PSYCHOLOGICAL COPING	→ The three studies examine →
INTERNATIONAL EVENTS	PSYCHOLOGICAL STRESS	

20. ABSTRACT (Continue on reverse side If necessary and Identify by block number)

Three separate studies related to the avoidance and/or management of international crises are reported. The first study postulates a linkage between governmental foreign policy crises and the experience of stress by individual policy makers. Three points at which the development of stress within the individual are identified: (a) when policy makers internalize threat and experience negative affect; (b) when they try to cope with the threat; and (c) when stress responses influence decision making. For each point, relevant literature is reviewed for research involving

20. Abstract (continued)

verbal and nonverbal indicators that could reveal the presence of stress. Over fifty possible indicators of stress are described.

The second study suggests the possibility that certain types of actions by national governments may have properties that increase the probability that the recipients of those actions may experience crises. An initial test is performed to attempt to identify those attributes of behaviors that may trigger international crises. If such properties were established, they could be used as part of a short-term forecast of crises by third parties. Eight specific properties were hypothesized to increase the likelihood of a subsequent crises if present in an international event. Thirteen nations judged to have experienced a crisis were examined to see if before the outset of the crises they had been the recipient of actions having the specified properties. Twelve of the 13 nations did receive such crisis triggering events. Problems of the technique and means of enhancing its utility are discussed.

The third study examines the feasibility of designing a computer simulation of the organizational system intended to support the involvement of the President in various types of national security problems. It is suggested that the organizational configuration can affect the quality of support for Presidential participation in national security issues. The organizational arrangement that may be most effective for dealing with one kind of problem may not be satisfactory for other types. If this hypothesis were to be confirmed, it would have major implications for crisis management. It is proposed that a computer simulation using the production system approach to represent various combinations of seven clusters of organizational variables could be designed to investigate the proposition. The tradeoffs of introducing in the simulation multiple human participants are examined in a conducting section.

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EXPLORATIONS IN THE MANAGEMENT OF
INTERNATIONAL CRISES: THREE STUDIES

F I N A L   R E P O R T
October 1978

Charles F. Hermann, Principal Investigator

with

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Donald A. Sylvan
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all of the Mershon Center

INTRODUCTION

The studies presented in this final report were undertaken to address three
research objectives established in the work statement for the contract between the
Office of Naval Research and the Ohio State Univesity Research Foundation. The
first objective concerned the minimization of the consequences of psychological
stress in crises. To address that objective Margaret G. Hermann has prepared a
report based on two key premises. The first is that foreign policy crises can,
but do not necessarily always, create some significant psychological stress for
the policy makers that must deal with such problems. The second premise is that
in order to minimize the consequences of stress, we must first devise means of
determining if any one is experiencing it to any significant degree. A relatively
large number of prior research efforts conducted under a variety of circumstances
and with various designs are reviewed to determine possible indicators. To perform
this task it was first necessary to develop a conceptual scheme suggesting how crises
create psychological stress. The resulting model reveals the points at which in-
dicators of stress might be detected.

A second research objective involved the development of a testable model of
crisis using variables from multiple levels of analysis. The concern here was
with the anticipation of crises. In their work addressed to this objective
Charles Hermann and Robert Mason elected to focus on properties of actions that
might trigger crises. Although all the examined attributes can be detected in
international behavior, the dimensions of an action that are hypothesized to
precipitate crises reflect quite different features and multiple levels of analysis.
These range from national attributes such as military instruments of policy to
such psychological features as expressions of negative affect. That the scheme is
empirically testable is demonstrated through an initial analysis using the CREON
event data set. The authors explicate their reasons for believing that while the

system as initially formulated has limited value, it could be incorporated with contextual variables to provide short-term early warning for parties not directly involved in the potential crises.

A final objective concerned the feasibility of constructing simulations to explore organizational effects on crisis management. The organizational machinery designed to support Presidential involvement in national security policy making has been modified numerous times since the National Security Act of 1947 and a much larger number of recommendations for reorganization continue to be advanced on a regular basis. The authors of this third study -- Charles Hermann and Donald Sylvan -- believe it would be possible to examine initially the effects on policy of these alternative organizational configurations in a way that would avoid the incredibly high costs associated with actually experimenting with real national security support systems. The simulation of various organizational arrangements for dealing with national security issues has definite implications for effective crisis management. It is proposed that alternative organizational structures and processes be simulated to compare their ability to cope with various kinds of crisis and noncrisis problems. It is entirely possible -- indeed even probable -- that if such a simulation exercise were conducted it might reveal that some arrangements prove far better for dealing with noncrises than crises, whereas with other organizational configurations the reverse would be true.

None of the three studies presented in the following pages is definitive. It is hoped, however, that each explores a feasible avenue of social and behavioral science research that if pursued could yield usable information for crisis avoidance and crisis management. Although the ultimate evaluation must clearly reside with the users of such knowledge, a common theme in all three of the efforts is that applicable knowledge is clearly within reach in the near term.

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INDICATORS OF STRESS IN POLICY MAKERS

DURING FOREIGN POLICY CRISES

Margaret G. Hermann
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Given the far-reaching consequences of decisions in foreign policy crises for a nation and the international arena, the quality of decision making in such situations needs careful attention. Case studies indicate that the quality of the performance of policy makers in crises is highly variable. Some policy makers reveal abilities and resourcefulness in crisis situations seldom seen in their day-to-day activities; whereas, others appear erratic, devoid of sound judgment, and disconnected from reality. As Robert Kennedy (1969, p. 31) noted of the policy makers who participated in the decision making during the Cuban missile crisis:

> "For some there were only small changes, perhaps varieties of a single idea. For others there were continuous changes of opinion each day; some, because of the pressure of events, even appeared to lose their judgment and stability."

One reason for such variability in performance may be the degree to which a foreign policy crisis has generated stress for the individual policy maker. The problem is how to ascertain when policy makers are experiencing stress severe enough to have an impact on decision making. The purpose of this paper is to propose several ways of making such judgments.

Foreign Policy Crises and Individual Stress[1]

Since crisis and stress are terms used casually in everyday conversation to describe a variety of experiences, let us stipulate at the outset how these terms will be used. Following C. Hermann

(1969), a crisis is a situation that poses a major threat to one or more goals or other values of the group experiencing the crisis. In foreign policy, the threat is to a goal, policy, program, or other state of affairs that the government desires on behalf of the nation in its relations with the external environment. In addition to threat, a crisis is characterized by shortness in the perceived time available for decision. Unless something is done quickly the external situation will be transformed and the opportunity to do anything to avert disaster will be gone or much more costly.

Individual (psychological) stress has three components: a stimulus, a response, and an intervening psychological process (see Lazarus, 1966). In the case of foreign policy crises, the stress stimulus is the threat to the nation's goals which a policy maker has internalized. A policy maker interprets the threat to the nation's goals as also endangering something of high value to him (her) as an individual. Perceiving the threat personally, the policy maker becomes emotionally aroused. With a perception of threat, such emotional arousal results in feelings of distress, fear, uncertainty, or anxiety.

For several reasons policy makers, particularly at higher levels, seem quite vulnerable to becoming emotionally involved in threats to their nation's goals. (1) The policies or objectives endangered may very well be ones they struggled to obtain. (2) They probably have a strong identity with the nation as an "entity" or

they would not have pursued a career to high national office.

(3) Their success, if not their continuation is office, may depend on their effective pursuit of the goals that the crisis threatens.

Once the foreign policy threat is internalized (personalized) by a policy maker, the individual probably becomes more emotionally aroused if the situation also appears to involve short decision time. The psychological process component of individual stress -- coping behavior -- is activated once the policy maker has internalized the threat and experienced negative affect. Coping behavior involves the individual's strategies for dealing with the threat. It is this coping behavior that sometimes leads to individual functioning that is inadequate for dealing with the international problem. Signs of such coping behavior become observable in a policy maker's responses during a crisis and can affect his (her) ability to operate effectively in a decision-making situation. The relationship between crisis and stress just described is schematized in Figure 1.

Relationship Between Stress and Performance

What happens when a policy maker or anyone else internalizes a threat? What is significant for crisis management is the resulting impact on task-oriented behavior or problem solving. A wide variety of studies in both laboratory and natural settings (see Lazarus, 1966; Coelho, Hamburg, and Adams, 1974) have found a similar general pattern between the intensity of individual stress and performance on some task. Those situations in which some stress occurs lead to better

Foreign Policy --> Internalization --> Internal Coping --> Stress --> Decision-Making
Crisis   of Threat   Processes   Responses   Manifestations

Figure 1. A Schematization of Relation Between Crisis and Stress.

performance than situations in which the persons performing the task are emotionally detached. In other words, performance generally improves as individual stress increases when the overall intensity of the stress is relatively mild. As the intensity of individual stress increases, however, the rate of improvement in performance begins to slow and then to stop altogether. If the amount of stress a person experiences continues to increase, performance begins to plummet and at some point the performance can become much worse than when there was no stress at all. This generalized relationship between stress and performance appears diagrammatically as an "inverted U" in Figure 2.

It is the downward slope of the curve in Figure 2 that poses the danger in crisis management. The task is to discover when stress has become so extreme as to seriously inhibit the quality of decision making and related tasks required of a policy maker. Several qualificiations are important here. The relationship between stress and performance that is characterized in Figure 2 as an inverted U is a generalized one and varies substantially under a variety of conditions. Three such conditions include the type of task (e.g., how complex), the nature of the individual (e.g., tolerance for stress), and the kind of setting (e.g., type of group or organization individual is in). Instead of one curve in Figure 2, there probably should be families of curves for different tasks, individuals, and settings.

Effective

Performance
Level

Ineffective

Low   High
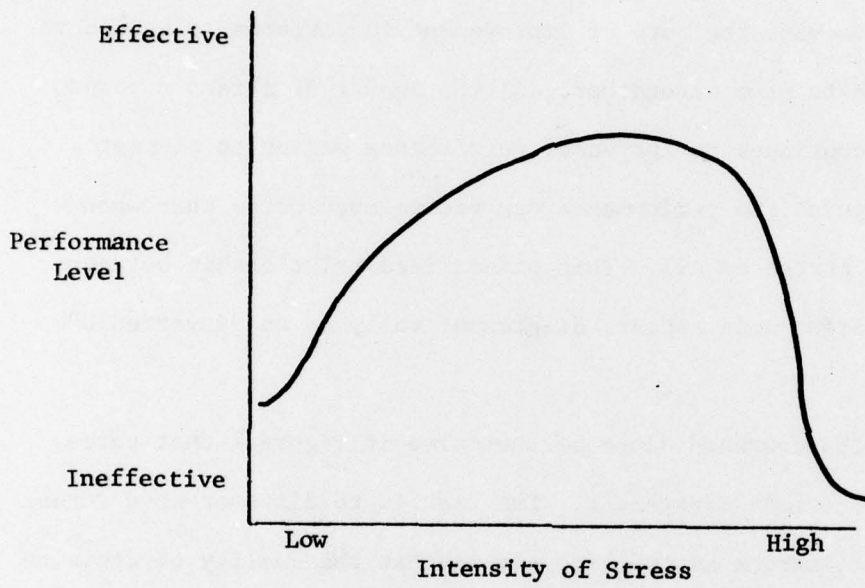
Intensity of Stress

Figure 2. The Generalized Relationship between Performance
Level and Individual Stress.

It is essential to keep these qualifications and four others in mind as we continue this discussion. These four are: (1) Policy makers involved in a crisis need not experience individual stress. (2) Not all coping processes that policy makers employ to deal with stress disrupt effective decision making. (3) Crises have effects on individuals, groups, and organizations other than those resulting from individual stress. (4) Crises are by no means the only source of individual stress. Even though it is extremely difficult to predict how much stress any particular individual can tolerate before his decision making begins to deteriorate, it is possible to describe various symptoms that a person under stress may display and the effects of such stress responses on decision making. Moreover, while it is not possible on the basis of presently available knowledge to isolate stress responses that are associated exclusively with intense stress or are found in all individuals under stress, nonetheless it should be possible to establish a rough "baseline" for particular individuals indicating their normal patterns of behavior for certain responses which can be disruptive under stress and to observe the changes in these normal patterns under situations with a high capacity for triggering intense stress.

Several features of crises make feasible the application of existing knowledge on stress and performance. Historical studies of foreign policy crises (e.g., Holsti, 1972) strongly support the assertion that crises are likely sources of intense individual stress, setting off the chain of reactions shown in Figure 1. Crises are also

reasonably well bounded in time and space. Furthermore, the number of individuals involved in the decision-making group in any given foreign policy crisis tends to be small and at least some of the probable participants are predictable (e.g., head of government, foreign minister).

Observable Indicators of Stress

How can we tell when policy makers are experiencing stress? The schematization in Figure 1 suggests three points in time at which signs of individual stress might be noted, i.e., when policy makers internalize threat and experience negative affect, when they try to cope with the threat, and when stress responses impact on decision making.

Verbal and Nonverbal Indicators of Negative Affect

In the past decade psychologists have become increasingly interested in verbal and nonverbal indicators of negative affect (i.e., feelings of fear, distress, uncertainty, anxiety). They have tried to learn when an individual is experiencing negative affect by observing the person's interactions with others. Researchers have found that facial expressions, gestures, body movements, vocal characteristics, and the structure as well as the content of speech give information concerning what a person is feeling. Such verbal and nonverbal indicators of negative affect seem to fall into seven broad categories as shown in Table 1.

In addition to presenting the broad categories, Table 1 gives illustrative indicators of the general type of behavior and several

studies where that particular indicator has been found to relate to negative affect. The cited studies are those focusing on spontaneous as opposed to staged or posed behavior. Instead of asking subjects to act out a particular negative affect, these investigators have observed people experiencing the negative affect. The setting where the research was conducted is also listed in Table 1.

Individuals appear to reflect the negative affect that they are experiencing in the following ways. The speech gets flustered; it often becomes faster. There is a change in voice quality; the body tenses. The person becomes irritable and/or vigilant. The face records signs of distress. The person becomes guarded and cautious, highly sensitive to what is going on in the surrounding environment. The individual searches for feedback. In an attempt, however, not to prolong any interaction, speech speeds up.

Recently several researchers (R. Frank, 1977; M. Hermann, 1977; Wiegele, 1977) have used various of these indicators to study the effects of stress on policy makers. Frank (1977) observed the first 1972 California primary debate between McGovern and Humphrey. He was interested in what topics appeared stressful for each of these political figures. By examining eye-blinks, head nods, spontaneous movements, and use of repetitions or sentence changes, Frank found the Soviet Union, domestic politics, and the elections were highly stressful topics for Humphrey while tax reform, bussing, and the election were highly stressful issues for McGovern. Vietnam, tax reform, and the Middle East were low stress topics for Humphrey; Vietnam and military spending were low stress topics for McGovern. In showing stress Humphrey tended to use more head nods and eyeblinks. McGovern evidenced stress with more repetitions and sentence changes, more spontaneous movement, and more

Table 1

Verbal and Nonverbal Indicators of Negative Affect

General Type of Behavior	Illustrative Indicators	Studies Finding Relationship to Negative Affect[a]
1. Flustered Speech	a. Increased use of "ah" or "you know"	Kasl and Mahl, 1965 (Laboratory); Lalljee and Cook, 1973 (Laboratory); Maclay and Osgood, 1959 (Speech samples); Panek and Martin, 1959 (Psychotherapy interviews); Siegman and Pope, 1965, 1966, 1972 (Laboratory)
	b. Increased number of repetitions of words, phrases, or sentences	Kasl and Mahl, 1965 (Laboratory); Lerea, 1956 (Speech course); Mahl, 1956 (Psychotherapy session); Osgood and Walker, 1959 (Suicide Notes)
	c. Increased number of changes or corrections in sentences in course of conversation	Kasl and Mahl, 1965 (Laboratory); Lerea, 1956 (Speech course); Maclay and Osgood, 1959 (Speech samples); Mahl, 1956 (Psychotherapy session)
2. Increased Speech Tempo	a. Faster rate of speech	Kanfer, 1958, 1959 (Laboratory); Sauer and Marcuse, 1957 (Laboratory); Siegman and Pope, 1972 (Psychiatric hospital)
	b. Fewer unfilled pauses	Goldman-Eisler, 1961 (Laboratory); Siegman and Pope, 1965, 1966, 1972 (Laboratory)
3. Body Tension	a. Increased nonpurposive or spontaneous movement	Dittmann, 1962 (Psychotherapy session); Mehrabian and Ksionzky, 1972 (Laboratory); Raskin, 1962 (Psychotherapy session); Sainsbury, 1954, 1955 (Psychotherapy sessions)
	b. Increased eye blinking	Doehring, 1957 (Laboratory); Ponder and Kennedy, 1927 (Courtroom); Kanfer, 1960 (Hospital psychiatric interview); Russell and Snyder, 1963 (Counseling interview)

Table 1 (continued)

General Type of Behavior	Illustrative Indicators	Studies Finding Relationship to Negative Affect[a]
	c. increased self-adaptive gestures (gestures that appear to help an individual relieve tension or pent-up energy) -- e.g., finger picking, head scratching, playing with ring	Freedman, 1972 (Clinical interview); Freedman, O'Hanlon, Oltman, and Witkin, 1972 (Laboratory); Freedman, Blass, Rifkin, and Quitkin, 1973 (Laboratory); Krout, 1954a, 1954b (Laboratory); McClintock and Hunt, 1975 (Laboratory)
4. Irritability	a. increased number of statements of discomfort	Auld and Mahl, 1956 (Psychotherapy sessions); Caughren, 1965 (Laboratory); Dollard and Mowrer, 1947 (Clinical interview); Lebo and Applegate, 1958 (Laboratory); Osgood and Walker, 1959 (Suicide notes)
	b. increased number of evaluative statements	Osgood and Walker, 1959 (Suicide notes); Weintraub and Aronson, 1967 (Psychiatric hospital)
	c. increased forced smiling	McClintock and Hunt, 1975 (Laboratory); Mehrabian, 1971 (Laboratory)
	d. fewer positive head nods	Mehrabian, 1971 (Laboratory); Rosenfeld, 1966a, 1966b (Laboratory)
5. Distress Signs in Face	a. furrowed brow	Coleman, 1949 (Laboratory); Ekman and Friesen, 1975, 1976 (Laboratory); Hanawalt, 1944 (Laboratory); Leventhal and Sharp, 1965 (Hospital)
	b. eyelids raised so see white sclera above iris	Coleman, 1949 (Laboratory); Ekman and Friesen, 1975, 1976 (Laboratory); Hanawalt, 1944 (Laboratory); Leventhal and Sharp, 1965 (Hospital)
6. Vigilance	a. increased eye contact	Exline, 1963 (Laboratory); Kleck, 1968 (Laboratory); McClintock and Hunt, 1975 (Laboratory); Mehrabian, 1968 (Laboratory); Mehrabian and Friar, 1969 (Laboratory)

Table 1 (continued)

General Type of Behavior	Illustrative Indicators	Studies Finding Relationship to Negative Affect[a]
	b. postural rigidity	Deutsch and Murphy, 1955 (Clinical interview); Kleck, 1968 (Laboratory); Lowen, 1958 (Psychotherapy); Mehrabian, 1968 (Laboratory); Mehrabian, 1971 (Laboratory)
7. Changes in Voice Quality or "Tone of Voice"	a. higher pitch	Eckman, Friesen, and Scherer, 1976 (Laboratory); Eldred and Price, 1958 (Psychotherapy); Fairbanks and Pronovost, 1939 (Laboratory); Krauss, Geller, and Olson, 1976 (Laboratory)
	b. change in intensity	Friedhoff, Alpert, and Kurtzberg, 1964a, 1964b (Laboratory); Hargreaves, Starkweather, and Blacker, 1965 (Hospital); Starkweather, 1964 (Radio conversation)

[a] Negative affect here refers to feelings of fear, distress, apprehension, anxiety, uncertainty, anger. The studies listed have focused on spontaneous rather than posed behavior.

eyeblinks. McGovern's response was more generalized; Humphrey's more specific. Frank's data suggest that at that point in time Humphrey showed more nonverbal indicators of stress when defending his own positions while McGovern exhibited more of the nonverbal stress indicators when attacking his opponent's (Humphrey's) positions. Whereas Humphrey felt his own record suspect, McGovern was more confident of his own positions than convinced of the weakness in Humphrey's positions.

Hermann (1977) used verbal indicators from Table 1 to explore local policy makers' reactions to stress in a negotiation situation. Of interest was how representatives from city hall, a municipal employees union, and the administration of a municipal service behaved in high and low stress conditions during the course of a negotiation. The particular negoriation was the 1965 New York City transit negotiation. High stress conditions were those times during the negotiation when there was a disruption or breakdown in talks; low stress conditions occurred when the negotiation was proceeding smoothly with some progress toward an agreement noted. Using from Table 1 the indicators of flustered speech and increased speech tempo; Hermann was able to discern different patterns of stress responses for the different representatives. Moreover, it was possible to show how the negotiators dealt with the negative affect they were experiencing in the high stress conditions. For example, in the high stress situations, as John Lindsay (mayor-elect and mayor of New York City during the course of the negotiations) became more uncertain (increased ah's), "he tried to cope with this uncertainty by denial (increased negatives) and withdrawing himself from the situation (decreased self references)....Similarly, in high threat situations, as Lindsay became more anxious (increased repetitions,

increased sentence changes), he dealt with his anxiety...by withdrawing from the negotiations (decreased self references) and focusing attention on the two main parties to the negotiations -- the transit union and the transit authority." (M. Hermann, 1977, p. 372). These relationships were minimal or reversed in the low stress situations.

For Richard Nixon the Watergate incident was a particularly stressful situation, becoming more intensely stressful as the possibility of impeachment began surfacing. For a classroom exercise in a course on leadership, the author had her students monitor Nixon's behavior during his televised State of the Union address in January, 1974. At the close of this speech Nixon made a statement to Congress about Watergate. The students observed Nixon's verbal behavior for flustered speech (use of repetitions, use of sentence changes) and his nonverbal behavior for body tension (use of spontaneous movement, use of self-adaptive gestures). Nixon made on the average 3 repetitions and sentence changes per minute when discussing Watergate and only .4 repetitions and sentence changes per minute during the general State of the Union address. Moreover, he exhibited on the average 8 movement changes per minute during his statement on Watergate and only 1.3 movements per minute in the main address. The differences were dramatic.

Using the Psychological Stress Evaluator which analyzes vocal stress, Wiegele (1977) has examined U.S. president's addresses to the people during international crises (e.g., Truman's speech of July 19, 1950 following the North Korean invasion of South Korea, Kennedy's speech on October 22, 1962 concerning the Cuban Missile Crisis, and Johnson's statement of January 28, 1968 about the North Korean capture of the U.S. ship, Pueblo). The Psychological Stress Evaluator analyzes subtle changes in voice quality. Plotting sound

waves for words, Wiegele ascertained which aspects of the situations were particularly stressful to the president's. Thus, for instance, when the North Koreans seized the Pueblo, Johnson's voice indicated little stress in his announcement of the seizure but much stress when he discussed why the North Koreans had taken the ship. Wiegele's data also suggest that situations over which the presidents perceived they had some control were less stressful than those in which the "enemy" was in control. We note that the mean stress level for Kennedy's speech concerning the Cuban Missile Crisis was lower than that for his speech on the Berlin Crisis on July 25, 1961. Moreover, Johnson's mean stress level for his speech on August 4, 1964 concerning the Gulf of Tonkin attacks was lower than that for his report of the capture of the Pueblo.

In each of these studies the investigators observed verbal and/or nonverbal indicators of negative affect in policy makers. With the exception of Nixon's State of the Union address, the observations were made "after the fact" from recordings or videotapes. It would be possible, however, for an observer to use these indicators "on the spot." Moreover, a staff member or aide to a policy maker could be trained to observe these signs of stress in his/her boss. Regardless of who the observer is, however, there are several cautions that an observer needs to bear in mind in using this list of indicators of negative affect with policy makers.

In the first place, as the R. Frank (1977) and M. Hermann (1977) studies showed, stress reactions are highly idiosyncratic. Different persons emphasize or display different verbal and nonverbal indicators of negative affect. When focusing on individual policy makers, an observer needs to become acquainted with the verbal and nonverbal behaviors that the policy maker

uses generally so changes can be noted. Such an assessment means observing what behaviors are not characteristic of the policy maker as well as those that are characteristic. The abrupt appearance of a behavior that is usually not a part of a policy maker's repertoire may be as important an indicator of the onset of stress as a gradual increase or decrease in a generally occurring behavior. In fact, an observer may want to compare a policy maker's verbal and nonverbal behavior under easily specified stressful and nonstressful conditions in order to identify the indicators which are likely to be most useful in monitoring the behavior of that policy maker under severe stress such as may occur in a foreign policy crisis. In effect, the observer needs some baseline information on the policy maker in order to know when a change in an indicator signals an increase in negative affect and, in turn, an increase in stress.

A second caution concerns the continuous nature of the coping process. The coping process cannot be considered as linking a stress stimulus to only one stress response. Rather, coping involves a continuing appraisal and reappraisal of the effects of any stress responses which are used in dealing with the threat or the negative affect that the individual is experiencing. Thus, negative affect may fluctuate markedly as coping behaviors are successful or unsuccessful in dealing with the threat. And the indicators of negative affect may change as the policy maker tries out various ways of alleviating the unpleasant feelings being experienced. For this reason observers who are deputies or key staff members might have an advantage over outside observers. Such individuals have probably had long enough associations with the policy makers to have some idea of which behaviors come early in a stressful experience and which may suggest a prolonged stress experience.

A final note of caution concerns the number of indicators of negative affect observed. We would not expect an observer to be able to monitor all the behaviors in Table 1 simultaneously. Such would be impossible. From previous knowledge of a policy maker's styles of behavior, an observer should be able to narrow the list of indicators to two or three that seem particularly likely to be important signals of negative affect for that individual.

Verbal and Nonverbal Indicators of Coping Behavior

Once an individual has internalized a threat and is experiencing negative affect, what does that person do? How does he/she cope with what is happening? Table 2 presents some verbal and nonverbal indicators of various types of coping behaviors. As with negative affect, researchers have tried to ascertain verbal and nonverbal clues to how individuals deal with stressful situations. How do their words, gestures, facial expressions, and voice indicate the way they are attempting to contend with the situation in which they find themselves?

One type of coping behavior is to avoid the threatening situation. An individual can avoid the situation by withdrawing himself/herself psychologically from the scene -- by "distancing" one's self from the event or by denying or negating involvement in the situation. A second way of coping is to "take the situation on" -- i.e., to try to deal with what is happening. Facing the situation may involve increased problem-oriented activity but it also could mean increased belligerence and aggressiveness, increased rigidity, or increased deception. A third way of coping is to be inactive as the result, for example, of ambivalence or depression. Illustrative verbal and nonverbal indicators of these various coping behaviors are presented in Table 2.

Table 2

Verbal and Nonverbal Indicators of Coping Behaviors

General Type of Coping Behavior	Specific Coping Behavior	Illustrative Verbal and Nonverbal Indicators	Studies Finding Relationship Between Stress and Indicator
Avoidance of Situation	1. Psychological Withdrawal from Situation	a. increased physical distance from others in interactions	Dosey and Meisels, 1969 (Laboratory); Leipold, 1963 (Interview); Little, 1966 (Parent-child interaction)
		b. increased use of outward-directed ("pushing away") gestures and postures	James, 1932 (Laboratory); Mehrabian, 1968a, 1968b (Laboratory)
		c. increased use of words that indicate distance from objects and people	R. Frank, 1973 (Political speeches); R. Frank, 1977 (Political debate); Wiener and Mehrabian, 1968 (Laboratory)
	2. Denial or Negation of Situation	a. increased use of negative words such as "no," "not," "never"	Aronson and Weintraub, 1972 (Psychiatric hospital); M. Hermann, 1977 (Labor-management negotiation)
		b. increased use of retractions	Aronson and Weintraub, 1972 (Psychiatric hospital); Weintraub and Aronson, 1962 (Psychiatric hospital)
Contending with Situation	1. Problem-Oriented Activity	a. increased rate if interaction	Alger, 1967 (United Nations); Blau, 1954 (Government agency); Chapple, 1949 (Interview); Strauss, 1952 (Labor union meeting)
		b. increased requests for information and feedback	Davis, 1968 (Interview); Heller, 1968 (Interview)
		c. increased references to problem	Heller, Davis, and Myers, 1966 (Interview); Heller, 1968 (Interview)

Table 2 (Continued)

General Type of Coping Behavior	Specific Coping Behavior	Illustrative Verbal and Nonverbal Indicators	Studies Finding Relationship Between Stress and Indicator
	2. Aggression	a. Increased intensity in voice	Eldred and Price, 1958 (Interview); Stagner, 1936 (Laboratory);
		b. Increased object (other) focused motions	Freedman, 1972 (Psychiatric hospital); Freedman, Blass, Rifkin, and Quitkin, 1973 (Interview)
		c. Increased hostile statements involving subject (actor)	Gottschalk, Winget, Gleser, and Springer, 1966 (Interview); Murray, 1954 (Psychotherapy)
	3. Rigidity in Position	a. Increased use of "allness" terms such as "always," "forever," "conclusively"	M. Hermann, 1977 (Labor-management negotiation); Osgood and Walker, 1959 (Suicide notes)
		b. Increased redundancy in what is said (i.e., the use of fewer different words)	Lerea, 1956 (Speech course); Moses, 1959 (Classroom); Osgood and Walker, 1959 (Suicide notes)
	4. Deception	a. less smiling	Argyle and Kendom, 1967 (Laboratory); McClintock and Hunt, 1975 (Interview)
		b. Increased self manipulations	Freedman, Blass, Rifkin, and Quitkin, 1973 (Interview); McClintock and Hunt, 1975 (Interview)
		c. increased use of hand-shrug gesture	Ekman and Friesen, 1972 (Interview); Mahl, 1968 (Interview)
		d. short responses	Kraut, 1976 (Interview); Mehrabian, 1971 (Laboratory)
Inaction	1. Ambivalence	a. increased use of qualifying words such as "perhaps," "maybe"	Eichler, 1966 (Prison); M. Hermann, 1977 (Labor-management negotiation); Osgood and Walker, 1959 (Suicide notes)

Table 2 (Conintued)

General Type of Coping Behavior	Specific Coping Behavior	Illustrative Verbal and Nonverbal Indicators	Studies Finding Relationship Between Stress and Indicator
		b. increased use of ambivalent evaluative assertions (i.e., objects described both positively and negatively)	Aronson and Weintraub, 1972 (Psychiatric hospital); Osgood and Walker, 1959 (Suicide notes)
	2. Depression	a. increased hand to body motions	Freedman, 1972 (Interviews); Rosenfeld, 1966 (Laboratory)
		b. increased self-references	Aronson and Weintraub, 1972 (Psychiatric hospital); Weintraub and Aronson, 1967 (Psychiatric hospital)
		c. increased silence	Aronson and Weintraub, 1972 (Psychiatric hospital); Weintraub and Aronson, 1967 (Psychiatric hospital)

As with the indicators of negative affect, it helps to have some information about an individual's usual coping behavior in ascertaining what to observe. In situations where one can be fairly sure the policy makers are under stress, what do they generally do? What specific non-verbal and verbal behavior do they exhibit?

If the coping behaviors are fairly habitual, the observer has to be careful to catch the presence of stress. The individual may mask any signs of stress by manifesting the coping behavior. The least experience of stress brings on the coping behavior. Thus, the observer has but a small opportunity to see the presence of negative affect. For such individuals the indicators in Table 2 will be more salient than those in Table 1.

As this discussion suggests, individuals often have characteristic ways of dealing with negative affect and threat. Thus, we have deniers, aggressors, and deceivers. One way to gain information about people's typical coping behaviors is to learn something about their personality characteristics. What a policy maker is like gives clues about the type of coping behavior he or she is likely to use under stress. For example, in examining how decision makers who were high and low in conceptual complexity reacted to stress in an inter-nation simulation, Driver (1977) found that the decision makers low in conceptual complexity became highly rigid under stress, assuming the correctness of their position, while decision makers high in conceptual complexity became more problem-oriented under stress. If we had been observing the verbal and nonverbal behavior of these decision makers, we would have focused on the appropriate indicators in Table 2 of rigidity and problem-orientation. The personality information provides a clue on what to look for.

In another inter-nation simulation exercise, M. Hermann (1965) found
that decision makers who differed in self-esteem and need for approval used
different verbal behaviors in coping with threats to their government's
policies and goals. Policy makers high in self-esteem and high in need
for approval withdrew from such situations making few attempts to affiliate
with others and few requests for information while increasing their self-
references. Policy makers high in self-esteem but low in need for approval
showed more problem-oriented activity increasing their interactions with
others and their requests for information and feedback. In one case the
high self-esteem was tempered by a need for social approval. To maintain
high self-esteem such policy makers had to avoid situations that suggested
failure and, thus, the need for self re-evaluation. On the other hand,
with little need for social approval, a policy maker high in self-esteem
could attend to the threatening situation without worrying about possible
consequences to his/her self-image.

A policy maker's attitudes and beliefs may predispose a particular
government, group, or type of action to be perceived as threatening, triggering
negative affect and coping behavior. Across time the attitude or belief may
automatically lead to the use of the coping behavior toward that government,
group, or type of action. For example, Holsti's (1962) examination of Dulles'
belief system toward the Soviet Union indicated a rigid coping behavior as
each Soviet behavior was interpreted as threatening and responded to in a
similar negative way. Driver (1977) has noted certain attitudes that appear
to be stress-enhancing. If present these attitudes increase the likelihood
that threat will be perceived. Ambiguous actions are likely to be interpreted

as threatening events. The two attitudes Driver examined were a general distrust of others and the belief in a normative ideology with its consequent expectation of the worst from others.

At this point a caution is in order with regard to observing verbal and nonverbal indicators of both negative affect and coping behavior. Some individuals appear better able to monitor their movements, facial expressions, and speech than others. Monitoring can occur in two ways. Snyder (1974) has shown that some people are more sensitive to cues in their environment than others, manifesting behavior appropriate to the cues or the appearance they wish to exhibit in that situation. The research of Buck, Miller, and Caul (1974) suggests that some people show physiological rather than verbal or nonverbal expressions of negative affect and coping behavior. Their skin conductance responses and heart rate increase while their nonverbal and verbal behavior remain fairly nondescript. Whether the individual is highly situation-sensitive or an internalizer of his/her reactions, Ekman and Friesen (1969, 1972) have found that such control is more likely to affect facial than body behavior. Particularly if one is familiar with another's nonverbal behavior, gestures, posture shifts, and feet and leg movements will belie what the person is experiencing and how he/she is reacting. Political leaders, given the high visiblity of their activities, are probably quite adept at monitoring their behavior so that careful observation will be necessary to pick up changes in their verbal and nonverbal behavior. Here again, knowledge from frequent observations of the policy maker over time may shed light on the behaviors that stress affects.

Disruptive Manifestations of Stress on Decision Making

We have discussed verbal and nonverbal indicators of negative affect and coping behavior. We have suggested that these indicators can be used as signals that a policy maker has internalized a foreign policy threat and is trying to cope with it and/or his/her feelings. What about the effects of these stress responses on decision making? Might it not be easier for an observer to watch for direct manifestations of stress on policy making in judging whether or not a policy maker is experiencing stress rather than looking for the indicators in Tables 1 and 2? After all, it was the appearances of disruptive signs of stress in the decision making of some policy makers that triggered the present exploration of verbal and nonverbal indicators of stress. It is to a consideration of this issue that we now turn.

Table 3 presents some possible disruptive influences on decision making that policy makers may evidence as a result of experiencing stress. In addition to listing the disruptions to decision making, Table 3 includes verbal and nonverbal indicators of that particular disruptive influence and research relating the disruption to a stressful event. This table is more tentative than the previous two since these particular indicators have received less direct, systematic testing than the indicators in the other tables. Qualitative case studies and anecdotal evidence account for much of the support for these indicators.

Let's explore some of the reasons for suggesting that these seven responses are disruptions to decision making. The reader will note in what follows that many of the reasons flow directly from the coping behaviors listed in Table 2.

Table 3

Verbal and Nonverbal Indicators of Disruptive Manifestations of Stress on Decision Making

Disruption to Decision Making	Indicator	Research Relating Disruption to Decision Making to Stressful Situation
1. Fixation on Only One Reasonable Option	a. Increased statements indicating that there is only one course of action available	George, 1974 (Presidential decision making); Holsti, 1972 (Outbreak of World War I); Lazarus, 1966 (Laboratory); Paige, 1972 (Invasion of South Korea)
	b. Increased statements indicating that a course of action is not possible, is inadequate, or is flawed	
	c. Increased expressions of displeasure with other people who criticize or suggest reservations with favored course of action	
2. Simplification of Adversary and Adversary's Limitations	a. Increased statements about the adversary as if it was a single individual or dehumanized, undifferentiated agent (e.g., "the enemy," "Reds," "them," "as Peking says")	Berkowitz, 1962 (Laboratory); deRivera, 1968 (Invasion of South Korea); Holsti, 1962 (Statements by Dulles); Holsti, 1972 (Outbreak of World War I); Paige, 1968 (Invasion of South Korea); Rosenblatt, 1964 (Review of research); White, 1966 (Vietnam War)
	b. Increased statements about the many courses of action open to the adversary and the control the adversary has over events	
	c. Increased statements that attribute rationality and planning to the adversary's actions	

Table 3 (Continued)

Disruption to Decision Making	Indicator	Research Relating Disruption to Decision Making to Stressful Situation
3. Fatigue	a. dramatic increase in signs of irritability listed in Table 1	Holsti, 1972 (Outbreak of World War I); Kennedy, 1969 (Cuban Missile Crisis); Janis, 1972 (Cuban Missile Crisis); Milburn, 1972 (Review of research); Thomson, 1968 (Vietnam War)
	b. increased statements that challenge another person's position for no reason (e.g., "You can't be right," "How do you know that," "What makes you an expert")	
	c. dramatic increase in indicators of psychological withdrawal from Table 2	
4. Collapsed Time Perspective and Neglect of Future Consequences	a. increased statements considering only the situation at hand	Holsti, 1972 (Outbreak of World War I); Korchin, 1964 (Korean War); Thompson and Hawkes, 1962 (Natural disaster)
	b. decreased statements concerned with the future consequences of an action	
5. Heightened Tendency to Perceive Similarities between Present Situation and Certain Past Situations or Policies	a. increased recurrence in statements of references to certain previous events	Bobrow, 1966 (Decision making in People's Republic of China); J. Frank, 1967 (Review of research); Holsti, 1962 (Statements by Dulles); Holsti, 1972 (Outbreak of World War I); Jervis, 1970 (Case studies); Paige, 1972 (Invasion of South Korea)
	b. increased statements suggesting the need to follow policies used in previous situations.	

Table 3 (Continued)

Disruption to Decision Making	Indicator	Research Relating Disruption to Decision Making to Stressful Situation
6. Declining Sense of Responsibility for Outcome	a. increased statements denying responsibility for any outcome	George, 1974 (Presidential decision making); Holsti, 1972 (Outbreak of World War I); Schlenker and Miller, 1977 (Laboratory); Sorensen, 1965 (Cuban Missile Crisis)
	b. increased statements indicating that the specific role or position one holds forced outcome	
	c. increased statements blaming outcome on actions of adversary	
7. Tendency to Consult Only with Others Who Support Own Position	a. increased appointments and interactions with persons known to support particular position	George, 1974 (Presidential decision making); Holsti, 1972 (Outbreak of World War I); Janis, 1972 (Presidential decision making)
	b. fewer public appearances or non-staff appointments	

Fixation on Only One Alternative. There may, of course, be crisis
situations that arise where there is only one alternative available given
time, resources, and other constraints. But one of the often-reported
findings in research on stress is that it can produce a fixation on one
response in a decision maker who normally would explore a variety of
alternatives (cf. deRivera, 1968; J. Frank, 1967; Holsti, 1972; Lazarus,
1966). In effect, stress makes it more difficult for individuals to
think of alternatives. People become conceptually rigid. Even a person
who is usually inventive and imaginative may experience a mental block
under severe stress. Moreover, stress increases the need for action to
eliminate or reduce the threat. The presence of one reasonable alternative
speeds one's decision process along since there is little necessity to
search for others. As a result action can be taken more quickly and
the individual can extricate himself/herself from the situation.

Simplification of the Adversary and the Adversary's Limitations.
As stress increases, there is a tendency to define elements of crisis
situations in either-or terms, particularly one's adversaries and allies.
Quickly ingroups and outgroups are defined -- who is for you and who is
against you are stipulated. This process helps policy makers to deal
with the enormous uncertainties which crises generate -- uncertainties
concerning the nature of the adversary's motives and intentions and
the impact that any behavior of the actor is likely to have on the
adversary. By simplifying the adversary, policy makers can reduce
these uncertainties and can increase their sense of understanding
of the situation and, in turn, can respond. One consequence of
simplifying the adversary is that the policy maker also simplifies

the adversary's limitations. The adversary's behavior is always hostile, always motivated by the desire to undermine one's actions. If the alternatives which policy makers face in a crisis situation have particularly negative consequences (i.e., risk war), this simplification of the adversary's limitations may take the form of attributing the ability to control events to that adversary (cf. J. Frank, 1967; Holsti, 1972). The responsibility for what happens lies with the "bad guys" not with you.

Fatigue. Almost by definition crises are demanding, decision situations, requiring long hours with little opportunity for diversion or relaxation. These circumstances alone would be sufficient to generate physical fatigue. However, when the crisis creates high stress for individuals and the stress continues for a protracted period, the fatigue is compounded. Research findings suggest that extended periods of high stress lead to deterioration of various physiological systems which makes fatigue more actue. "If continued long enough, fatigue leads to increased irritability, to sub-clinical paranoid reactions, to heightened suspiciousness, hostility, and increased defensiveness" (Milburn, 1972, p. 264). Illustrations of these effects have been noted about policy makers in many crises. For example, Walter Hines Page, the American ambassador to London during the 1914 crisis, described an encounter with Prince Lichnowsky in the height of the crisis. "I went to see the German Ambassador at 3 o'clock in the afternoon. He came down in his pyjamas, a crazy man. I feared he might literally go mad...the poor man had not slept for several nights (Albertini, 1953, p. 501). During the Cuban

Missile Crisis William Knox noted on meeting with Khrushchev that
the Soviet premier was "in a state of near exhaustion" and "like a
man who had not slept all night" (Abel, 1966, p. 151). At some point
for each individual fatigue becomes debilitating, influencing decision
making.

Collapsed Time Perspective and Neglect of Future Consequences.
Stress, as it increases, leads to a narrowing of the field of attention,
generally to the threatening situation itself (cf. Korchin, 1964;
Thompson and Hawkes, 1962). There is a tendency to bound or limit
the situation. One consequence of this riveting of attention on the
task at hand (or present) is that the difficulties with or ramifications
of policies are not considered -- often are not even raised. The im-
mediate danger is so intense, the future seems almost irrelevant.
Certainly the future has "little or no relevance unless a satisfactory
solution can be found for the immediate problems" (Holsti, 1972, p. 16).
But what if the choice is between two alternatives, one with great
costs in the future but some benefits in the short-run, the other
with some costs in the short-term but great payoff in the future?
With no consideration of the future effects of a policy, an ineffective
choice may result. As Holsti (1972, p. 16) notes: There is "something
seductively appealing about the belief that 'If I can just solve the
problem of the moment the future will take care of itself.' This
reasoning appears to have contributed to both Neville Chamberlain's
actions during the Czech crisis of 1938 and to Lyndon Johnson's
policies during the war in Vietnam."

Heightened Tendency to Perceive Similarities Between Present
Situation and Certain Past Situations or Policies. As with collapsed
time perspective, the tendency to perceive similarities between the
present situation and past situations is an attempt to put boundaries
on the situation. The stressful event is much easier to deal with
(and perhaps less threatening) if there is some situation that it
resembles for which choices have already been made. "We can do what
we've done successfully in the past" or "By all means we must avoid
doing what we did previously." Following in one's footsteps may be
appropriate if the situations do indeed resemble one another. Problems
arise, however, if similarities are perceived that are not accurate.
Given the tendency for a narrowing of the perceptual field and reliance
on one's own expectations and beliefs in stressful situations, misin-
terpretations become a real possibility (cf. Jervis, 1970). Thus,
European leaders in the summer of 1914 perceived the latest Balkan
crisis as similar to those that had been successfully managed before
(cf. Holsti, 1972). "When faced with an intransigent Egypt in 1956,
Anthony Eden drew an analogy between Nasser and Hitler" (Holsti, 1972,
p. 22). Truman perceived "that the aggression in Korea [in 1950] was
like Nazi aggression in the 1930s and, if unopposed, would encourage
Communists to undertake new aggression..." (George, 1974, p. 224).

Declining Sense of Responsibility for Outcome. As stress in-
creases and there is less sense of a way out of the dilemma, to protect
one's self-esteem an individual is likely to begin to withdraw from
the situation. By decreasing one's sense of responsibility, a person
can avoid failures. There is a wealth of research at the individual

level that shows people assume success is the result of their own
talents and efforts while failures result from bad luck or the com-
lexity of the task and situation (cf. Fitch, 1970; Frieze and Weiner,
1971; Luginbuhl, Crowe, and Kahan, 1975; Schlenker and Miller, 1977;
Wortman, Costanzo, and Witt, 1973). Successes are of one's doing;
failures are attributable to outside forces. Schlenker and Miller
(1977,p. 755) have called this "the existence of self-serving moti-
vational biases that protect self-esteem and color attributions and
perceptions." One method policy makers can use to assume less
responsibility is to identify with their role. It is in the nature
of the presidential role, for instance, "that there will be many
occasions on which one simply cannot make a good decision without
some sacrifice to one's own interests or those of some significant
others" (George, 1974, p. 186). The role, not one's self, is to blame
for any failures. A declining sense of responsibility makes aggressive
and hostile behaviors more feasible since one cannot be held accountable
for the consequences.

Tendency to Consult Only with Others Who Support Own Position.
Janis (1972) has proposed in his notion of groupthink that policy
makers faced with highly stressful situations depend on the cohesiveness
and consensus of their decision-making groups for support. By including
in their decision-making compatriots only those who agree with their
position, policy makers can insure a sense of being right. In describing
nine malfunctions in the presidential decision process during crises,
George (1974, pp. 219-231) suggests five malfunctions that contain
evidences of this bias of consulting only those persons who agree with

you. These five times when malfunctions occur are: (1) "when the
president and his advisers too readily agree on the nature of the
problem facing them and on a response to it"; (2) "when there is no
advocate for an unpopular policy option"; (3) "when the president,
faced with an important decision, is dependent upon a single channel
of information; (4) "when the key assumptions and premises of a plan
have been evaluated only by the advocates of the plan"; and (5) "when
the president is impressed by the consensus among his advisers but
fails to ascertain how firm the consensus is, how it was achieved,
and whether it is justified." In each case the president only hears
what he wants to hear. Dissent, questioning, and search for information
or alternatives are dropped from the decision-making process.

In this section of the paper we have been deliberately looking at
behaviors that can be, and often are, dysfunctional or disruptive to
effective decision making. In a parallel manner to Holsti (1972, p. 199),
we suggest that:

> "Men rarely perform at their best under intense stress.
> The most probable casualties of high stress are the very
> abilities which distinguish men from other species: to
> establish logical links between present actions and future
> goals; to create novel responses to new circumstances; to
> communicate complex ideas; to deal with abstractions; to
> perceive not only blacks and whites, but also the many shades
> of grey which fall in between; to distinguish valid analogies
> from false ones, and sense from nonsense; and, perhaps most
> important of all, to enter into the frames of reference of
> others. With respect to these precious attributes, the law
> of supply and demand seems to operate in a perverse manner;
> as crisis increases the need for them, it also appears to
> diminish their supply."

The question becomes if policy makers are aided in perceiving how their behavior is being influenced by stress, can they change? Can policy makers learn to avoid those disruptive behaviors most characteristic of themselves by taking certain precautions when stress becomes severe? George (1974), Hermann and Hermann (1975), and Janis (1972) have proposed some ways of counteracting the disruptive effects of the behaviors in Table 3. However, before we can counteract these behaviors, we must be able to record their occurrence. Monitoring policy makers during crisis situations for the indicators in Table 3 can assist us in learning which behaviors are characteristic of which policy makers. Corrections become possible once we have information on these characteristic disruptive activities.

In Conclusion

This paper has proposed ways of observing stress in policy makers based on the growing research literature on verbal and nonverbal indicators of stress. We have examined three types of stress indicators -- indicators of negative affect, indicators of coping behavior, and indicators of possible disruptive influences on decision making. Political figures leave many traces of their behavior. They are constantly monitored by the media. Moreover, political forums are often open to the public. We should be able to use these indicators of stress on such traces of behavior.

The most direct way, of course, of employing the indicators that we have presented in this paper would be to train staff members or aides of policy makers to observe the described signs of stress in their superiors. These individuals would be privy to the policy maker's behavior during the

decision-making process and would have a reservoir of knowledge about
the policy maker's usual behavior (see Hermann and Hermann, 1975). Before
such a proposal can become feasible, however, several preliminary steps
are necessary.

Can we use the indicators to examine stress in readily accessible
policy makers (e.g., city council members, school board members) to see
where the problems lie in using such an observation scheme. Simulations
of policy-making environments could prove useful for these exploratory
ventures. Based on these "trial run" experiences, are there modifications
in the indicators that are required?

On another front, can we begin to work with policy makers to develop
a positive milieu toward self-examination of stress responses? At present,
to admit to being under stress is "bad form." As Selye (1973) has proposed,
though, stress needs to be considered as posing an opportunity as well as
a threat. If one can take advantage of the situation to be creative and
innovative, the rewards to both the individual policy maker and his/her
political unit can be great. In effect, knowing when one is experiencing
stress and the likely effects on one's behavior of stress can increase
polich makers' control over their own fate and the fate of their constituents.

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FOOTNOTES

1. The first two sections of the paper borrow from Hermann and Hermann (1975). The present paper builds on and elaborates the previous one.

IDENTIFYING BEHAVIORAL ATTRIBUTES OF EVENTS
THAT TRIGGER INTERNATIONAL CRISES

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INTRODUCTION

How do crises between nations begin? Can they be envisioned as
the culmination of a gradual spiral of escalating tension and hostility
between adversaries as in the situation prior to the Arab-Israeli War
of 1967? Should they be viewed as the product of a single dramatic
event that suddenly bursts upon one or more governments as illustrated
by the situation that faced the Israeli government with the 1976 hijack-
ing to Entebbe, Uganda of the jet carrying many passengers from Tel Aviv?
Both orientations have been used in previous research. In the various
studies of the outbreak of World War I conducted by those who have been
associated with Professor Robert North of Stanford, the gradual escalation
between parties has been traced as an important antecedent to the crisis.
(See, for example, North, Brody and Holsi, 1963; Holsti, North and Brody,
1968; and Zinnes, 1968.) Using the same historical episode as his
example, Russett (1962:6) describes the decisive turning point as:

> The moment when those controlling the foreign policy
> of a state realize that something is going wrong and
> is likely to involve their state in war. While the
> awareness may exist to some degree for a very long
> period before the key event, there is usually a point
> which can be identified as signalling a sharp increase
> in the awareness of danger. (Emphasis in original.)

The choice of interpretation could depend on various considerations.
The investigator's definition of crisis as well as the purpose of the
research could affect the choice. Alternatively, one might work with
a rather inclusive definition of an international crisis, but recognize
different types of crises in which a distinction is drawn between those
with a gradual buildup and those that appear abruptly without any prior
warning. Even if one includes as part of the class of situations to be

studied as crises those that emerge after a relatively protracted exchange, it may be reasonable to search for some critical event that crystalizes the evolving relationship as a crisis. That will be the premise of this paper: We will offer a definition of crisis that encompasses both abrupt outbreaks and gradual buildups, but will search in both types for a crisis precipitating event that triggers the onset of a crisis for at least one of the parties.

Let us further outline the framework of the proposed inquiry. In those crises which are the result of actions of international actors (as compared to those that might result from acts of nature), one actor or a coalition of actors will precipitate an event (or perhaps several events in close temporal sequence) which by its properties increases the likelihood of precipitating a crisis, as defined, for the recipient(s). If we can determine the properties of the class of events that have an increased probability of triggering crises, then we can use this information to create short-term forecasts of crises.

We contend that the properties of an event can be determined by a careful observer of international relations, even though we agree that a state of crisis for a set of policy makers depends on the perceptions of the event by the recipients. In other words, we accept the contributions made by Jervis (1976) and others that the impact of a signal or stimulus depends on the meaning given to it by its recipients and that the possibilities of misperception of the actor's intended message are often substantial. At least three factors, however, increase the capacity of a careful observer to estimate the manner in which a recipient will interpret a crisis precipitating event. First, certain

properties of an event are less susceptible to varying interpretation than others. A declaration that "this place is on fire" is less likely to be misunderstood than a statement that "I am uneasy about the present situation." We believe some of these unambiguous qualities mark crisis precipitating events. Second, the foreign ministries of governments in the latter part of the Twentieth Century appear to be populated by individuals who increasingly are part of an international network or subculture of diplomats who have acquired shared meanings for a variety of behaviors and terms to a greater degree than most other individuals in their respective societies. (Of course, this does not preclude deliberate attempts at maintaining ambiguity in interstate communication.) Third, the observer can examine the context and prior activities of the parties to a potential crisis to minimize misinterpretation. It is regrettable that we are unable to incorporate indicators of contextuality among actors in this initial study. We wish to recognize its importance at the outset, however, and to acknowledge our expectation that dimensions of context can be introduced in future research to sharpen the accuracy of this procedure.

Figure 1 offers a diagram representing the conceptual scheme that provides the framework for this study. In the simplified diagram, we have represented only one actor (A) and one recipient (R).[2] International exchanges often involve mlutiple actors or recipients, but we can ignore that complication initially. At some point, the authoritative policy makers in A or their political level representatives reach a decision to take some form of action directed at one or more recipients and intended to influence their behavior. Assuming the decision to

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┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│  ┌──────────────────┐                          ┌──────────────────────┐   │
│  │ A = ACTOR        │       OBSERVABLE         │ R = RECIPIENT        │   │
│  │                  │       EVENT              │                      │   │
│  │ DECISION TO      │──────▶(Charac-    ──────▶│ DEFINITION OF SITUATION│  │
│  │ ATTEMPT          │       terized by         │ (If high threat and  │   │
│  │ INFLUENCE        │       various            │ short time are included│ │
│  │                  │       properties)        │ in recipients definition│ │
│  │                  │                          │ then crisis exists.) │   │
│  └──────────────────┘                          └──────────────────────┘   │
│                                                                           │
│                         CONTEXT                                           │
│                  (Not considered in this study)                           │
│                                                                           │
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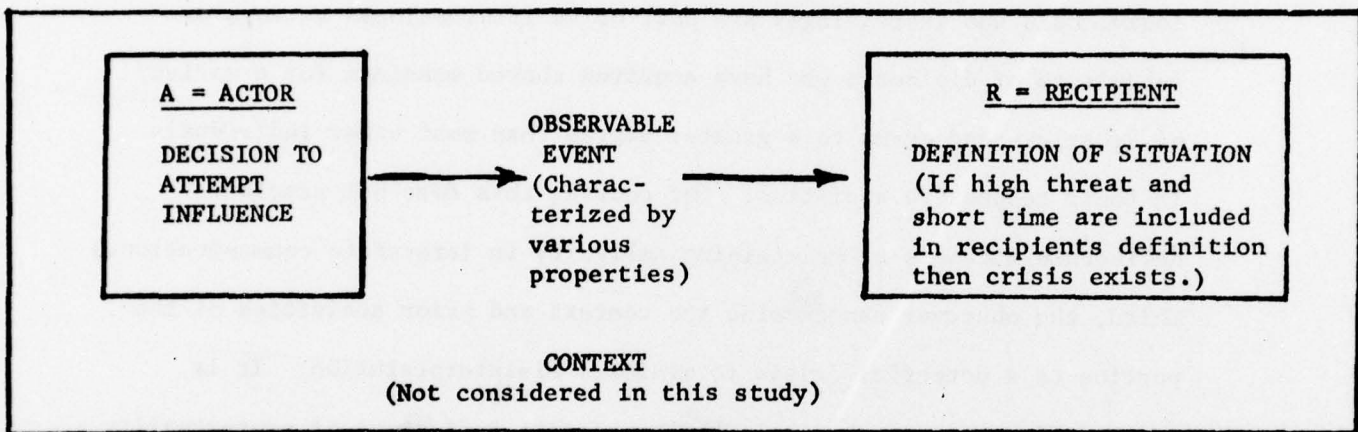
Figure 1: Proposed framework for study of crisis precipitating events. It may be possible to identify crises by examining selected properties of a certain class of events that trigger the perception of crisis attributes among decision makers in the recipient government.

engage in an influence attempt is not totally obstructed in the imple-
mentation process, this decision is manifested as an event consisting
of one or a series of activities -- all flowing in a relatively short
period of time from the same political level decision. The event may
be a verbal message or a non-verbal physical deed or a combination of
both.[3]

Whatever its character, the event is the observable trace of a
decision to engage in an influence attempt having at least one recipient
that is outside its political jurisdiction. (By definition, events
are capable of being observed if one is at the right place at the right
time. Unfortunately, for our purposes, governments take great effort
to deny observers, who are not part of their implementative process,
access to the necessary place and time for identifying some event. To
the extent such secrecy succeeds, errors in our estimating procedure will
result. The significance of that problem can be explored empirically.)
When an event is detected by the recipient, it is interpreted as a
"definition of the situation." By identifying certain properties of
events, we wish to infer when the recipient will likely define a
situation as a crisis. As Figure 1 suggests this transmission of the
actor's decision to the recipient by means of the event or signal occurs
in a particular context which helps to anticipate how the event will be
defined.

In the remainder of this paper we propose to examine some characteristics
of foreign policy events which, if present, are hypothesized to increase
the probability of a subsequent international crisis. We will then provide
an initial test of the suggested properties for anticipating crises.

This task will be done by determining which foreign policy events initiated by various governments between 1959 and 1968 had the stipulated properties and whether those that did were promptly followed by crises. Independent means will be used to establish whether a crisis, as defined, occurred. We also will check to see whether some properties are better predictors than others.

DEFINITIONS OF CRISIS AND RELEVANT EVENT PROPERTIES

For the purposes of this research we propose to define crisis as a situation which the relevant decision makers collectively interpret as (1) constituting a high threat to values they regard as important to their regime or country, and (2) presenting a relatively short period of time (a few days at most) for decision before the situation evolves further in a way that is unfavorable from the perspective of those policy makers. If the crisis is to be regarded as an international one, then the relevant decision makers must regard the source of the threat to be one or more entities existing outside the political jurisdiction of their government. Notice that it is irrelevant for this analysis whether the affected decision makers elect to call the situation a crisis, so long as it has these two defining characteristics.

Prior research strongly suggests that situations perceived by decision makers as having these characteristics will result in decision processes and actions significantly different from those that would result if either or both characteristics were absent. (See Hermann, 1969; Hermann, 1972; Brady 1974a; Brady 1974b; and Brewer, 1972.) The

research just cited defines crises as having a third characteristic --

surprise or an absence of prior awareness on the part of the relevant

decision makers. This added definitional property has been deleted

in the present research for two reasons. First, previous empirical research

failed to establish surprise as generating a measurable result either

as a separate main effect or in interaction with the other two dimensions.[4]

Second, we want to want to include in this study both crises that occur

suddenly without warning and those that result from an escalatory spiral.

Adding the requirement of surprise to the definition would tend to

limit the inclusion of the latter type of crises.

Crisis precipitating events are those characterized by certain

properties, each of which can be regarded as one end or pole of

a continuum or dimension. In other words, the investigated property

is an extreme value on a dimension. The properties (or extreme values)

of eight dimensions characterizing events will be used to estimate when

an event precipitates a crisis. We hypothesize that the more of the

eight properties an event has, the more it is likely to trigger a

crisis.

Both dimensions and their values have been constructed from

variables in the CREON data set. The CREON data set consists of over

12,000 separate foreign policy events for 36 nations. The events

have been coded from an uncollapsed version of the compilation known

as Deadline Data on World Affairs.[5] Events have been coded for randomly

selected quarters of each year in the decade 1959-1968. The operational

procedure used for each of the eight properties is mentioned only briefly

here but is described more fully in Hermann, et al. (1973). Let us

review the eight dimensions.

The key to our interpretation of crisis precipitating events is the presence of a high degree of obstruction of one or more goals judged by the observer to be basic to the regime or nation. If the event jeopardizes a valued goal, then the recipient decision makers are likely to preceive threat to their basic values. The continuum of goal obstruction ranges from events posing no obstacle to valued goals to those involving complete future denial of the goal. Notice the requirement that the obstruction either has not yet occurred (is intended) or is reversible, otherwise there would only be the preception of punishment, not threat. The degree of perceived threat can be expected to vary with the completeness of the obstacle to goal realization and with the credibility of the source to carry out the obstruction. Several of the event properties described below deal with the precipitating actor's credibility, but the first three are concerned with the basic requirement of intended goal obstruction.

Anticipated Desirability-Undesirability. For this dimension the observer must determine the extent to which the recipient(s) will find the event a relatively more or less attractive occurrence. At one extreme on this continuum are events that are greeted by the recipient with great enthusiasm. Events at the other end of the dimension recipients are expected to regard with great displeasure. Somewhere between these extremes is a neutral area that reflects the recipient's indifference or relative balance between desired and undesired effects.

If an event is accurately judged by an observer to be undesired by the recipient, then those decision makers are likely to recognize some goal obstruction. To capture this dimension with the CREON data,

coders were asked to judge each event on a three point rating scale --
one extreme value of which was "anticipated undesirability by the
recipient" -- the property we associate with the triggering of a crisis.

Presence/Absence of Physical Assault. This dimension concerns
whether the actor's event actually uses physical efforts against the
recipient or its possessions. If we momentarily ignore the compli-
cating factor of context, it may be generally true that the use of
physical force constitutes one of the most complete means of obstructing
any goal. The procedure involves either forcibly controlling or
destroying the goal object or similarly controlling or destroying the
humans necessary for its continued or greater realization. Whereas
the first dimension (anticipated undesirability-desirability) attempted
to estimate only whether some goal obstruction might occur, this one
poses a more severe indicator that goals will be obstructed.

To capture this dimension with the CREON data, each event was
checked to see if it had been coded as having involved either "force"
or "seize." These two nominal categories are part of a larger set
called the World Event/Interaction Survey (WEIS) originally developed
by Charles McClelland of the University of Southern California. The
version of the scheme used in the CREON data has been revised by Walter
Corson and members of the CREON Project. The crisis precipitating valve
on this dimension occurred when an event involved the use of force or
seizure, i.e., the presence of physical assault.

Instrumentalities. The third dimension introduces the means or
skills and resources used to execute the event. Foreign policy studies
commonly refer to categories of instrumentalities such as economic,

diplomatic, military, etc. We extend for this dimension the same argument advanced for physical assault as a crisis precipitating property. In other words, we assume that intended goal obstruction is more likely if military instruments are included in the mix of skills and resources used to implement the actor's decision. Of course, instruments of foreign policy such as diplomacy or economic action can hurt or cripple a nation, but they rarely threaten the immediate existence of the recipient. Moreover, a historical review suggests that increased military preparedness, alerts, maneuvers, mobilizations and so on have been associated with the onset of an international crisis.

In the CREON data, events are coded according to which of six general instruments for implementing action are present: (1) diplomatic/-political, (2) military, (3) economic, (4) scientific/technological, (5) promotive, and (6) natural resource production. We propose that events involving military instrumentalities in their implementation (alone or in combination with other resources) heightens the likelihood that the event will precipitate a crisis.

Affect. This dimension refers to the feelings ranging from friendliness to hostility that policy makers express toward the policies, actions, or government of another nation. Such feelings have both direction and intensity. Direction indicates whether the feeling expressed is positive (friendly) or negative (hostile), while intensity suggests the degree of feeling that is expressed (mild or strong).

Governments that perceive themselves facing an international crisis normally find that they are the recipients of someone else's

negative affect. This expression of the actor's hostile feelings reduces the ability of the recipient to interpret any obstructive behavior as inadvertent or unintended. The explicit communication of displeasure combined with the activity that blocks one or more of the recipient's important goals heightens the likelihood of perceived threat. Affect is measured along a seven point scale, from +3 through 0 to -3, with +3 indicating strong positive affect, and -3 indicating strong negative affect (the assumed crisis triggering property).

External Consequentality. By this dimension is meant the potential impact that a foreign policy behavior is likely to have on the governments of nations other than the one acting. What is the likelihood that a specific foreign policy action will generate in the governments of other nations much attention and activity? A high degree of external consequentiality is important for any signal in which one actor attempts to communicate to others. In a way it is analogous to the old joke about first hitting a mule with a 2 X 4 board in order to get its attention. By designing an event with a high degree of consequentiality, the actor is assuring that his action will be noticed -- the recipients will find it difficult to ignore the action and are forced into an occasion for decision. When combined with the other properties in this group, high external consequentiality is assumed to make the recognition of a crisis by the recipients less avoidable.

External consequentiality is measured on a scale from 0 to 1.00 with 1.00 representing actions which have the greatest impact on the governments of other nations. A number of characteristics are used to construct the scale including whether the event is precedent-setting

and the nature of the prior relationship between the actor and recipients.

Specificity. This dimension describes the amount of information an actor provides the recipient of his behavior about the actor's future expectations. To what extent does the action contain information about what the actor intends to do or desires some external entity to do? Put another way, specificity is defined as the part of a recipient's uncertainty that is manipulatable by the actor's signal or event.

To increase the credibility of a threat, an actor will attempt to increase the recipient's certainty of the intended goal obstruction and the action required to avoid that outcome. The CREON data contains a series of items that seek to establish whether the actor is specific with respect to five areas: (1) the problem, (2) the addressee, (3) the kinds of resources used, (4) the amount of resources used, and (5) the time frame. Crisis precipitating events are expected to be specific on all, or nearly all, the specificity items.

Commitment. The commitment continuum measures the extent to which an event involves the present or future allocation of tangible resources. Resources are allocated by the use or transfer of goods, services, or capital, or by the generation of expectations concerning their future use that limit the freedom of national decision makers.

Governments that express hostility toward another entity but take no definite action beyond verbal expressions of hostility are not likely to be of great concern to the recipient of the hostility. When resources are committed in support of that expression of hostility, the recipient is likely to increase its estimate that the acting

government is prepared to follow-up on its displeasure. Thus, high commitment becomes important for establishing the credibility of intended goal obstruction.

In the CREON Project commitment is measured along an eleven point scale. The scale value of one represents the least commitment, and eleven represents the most extensive commitment.

Implementation Time. This dimension of an event concerns an estimate of the amount of time the acting government will require for executing the action once a decision has been reached and a strategy for its realization established. A diplomatic conversation can be conducted in minutes or hours, but the administration of a technical assistance program may take months or years to complete.

If the actor's event requires extensive time for completion, then the recipient has more time to make a response and search for some alternative means of goal realization other than the one being obstructed by the actor. Furthermore, during protracted execution time the actor may lose his will to complete the event -- an occurrence that can be abetted by the recipient and third parties who have more time to develop counterpressures when the actor's event unfolds gradually. The credibility of the complete fulfullment of the triggering event is eroded. For these reasons, we would expect events precipitating a crisis for the recipient to be swift -- to have relatively short implementation times.

For in the CREON variable, "Time Required for Execution of Action," the coder estimates the amount of time the behaviors of the type initiated by the actor normally require. The variable is an ordinal scale consisting of minutes/hours, days, weeks, months, or years.

Table 1 summarizes the dimensions that have been described and the extreme values of each that are hypothesized to be associated with events that precipitate crises. As a further summary, let us review the contributions that the various properties are assumed to play. It is our expectation that a crisis is most likely to follow the initiation of an event by an actor that is a clear, recognizable, hostile behavior that credibly intends to obstruct the recipient's goals. To estimate clarity we have used a series of specificity variables designed to monitor different aspects of the event. To determine if the event has qualities that make it likely to be recognized, we have used a complex indicator called external consequentiality. To represent hostility we have used the expression of negative affect. To judge credibility we have used both commitment and implementation time. Finally, to calculate intent to obstruct goals we have first used anticipated undesirability as a general measure. For more rigorous indicators we have resorted to the kind of instrumentality employed and whether the event involves physical assault. Whether any or all of these properties precipitate crises and whether some are more useful indicators than others is an empirical question explored in the remainder of this study.

SELECTING THE INTERNATIONAL CRISES

We used the CREON data set to identify events having one or more of the stipulated characteristics and then determined whether they were soon followed by a crisis for the recipient of those signals. Hypothetically, the collective results could have taken one of several forms. One possibility was that events with these properties were

T A B L E 1

DIMENSIONS AND VARIABLES USED IN CONSTRUCTING CRISIS PRECIPITATING PROPERTIES

Dimension Name	CREON Variable(s)[a]	Specified Value for Crisis Precipitating Property
Anticipated Desirability-Undesirability	CREON Variable 33 (3 point rating scale)	undesired by recipient
Presence/Absence of Physical Assault	CREON Variable 28 (2 of 35 Revised WEIS categories)	"force" or "sieze" categories
Instrumentality	Modified CREON Variable 35[b] (1 of 6 skill/resource categories)	military instrumentality
Affect	Modified CREON Variables 38 & 39[c] (7 point scale from -3 to +3)	strong negative affect
External Consequentiality	Constructed CREON scale[d] (range from 0.0 to 1.00)	highly consequential
Specificity	CREON Variables 40,41,42, 43,44 (separate nominal variables)	each aspect of event coded as specific
Commitment	Constructed CREON Scale[e] (11 point scale)	high commitment
Implementation Time	CREON Variable 54 (5 point rating scale)	short time (minutes/hours or days)

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[a] CREON Variable numbers refer to the numbered descriptions in the appendix of Hermann, et al. (1973).

[b] The nominal categories for instrumentalities have been slightly revised from the description given in Hermann et al. (1973). The changes are described in Hermann (1974).

[c] The affect score has been expanded to a more differentiated scale as reported in Hutchins (1974).

[d] External consequentiality is a scale that has been constructed by using information from various CREON variables. For its development see East and Hermann (1974).

[e] Commitment is a scale that has been constructed by using information from various CREON variables. For its development see Callahan and Swanson (1974).

seldom followed by crises. Another configuration of results could
have been that while the events with these properties did precede most
crises, they also appeared prior to many other situations that were
not crises. In that case, the ability of the stipulated class of
events to discriminate crises from noncrises would be inadequate to
serve any forecasting purpose. A third outcome -- the one we hoped
to discover -- is that events with the designated properties or some
subset of them were found to be antecedents of crises but of very few
other situations.

To undertake the analysis we needed a means of determining when
an international crisis occurred at some point during the decade 1959-
1968 (the period of the CREON data). Several efforts have been made to
construct post-World War II inventories of international crises and
conflict situations. Although the authors of these crises inventories
have not necessarily used our proposed definition, we can use the
identified lists as a first approximation. Specifically, three
inventories have been most helpful. One is a list prepared by Phillips
and Moore (1975) which enumerates international crises for the entire
time period covered in the CREON data. Another inventory did not
provide exactly the focus required by the present study but could be
used selectively for our purposes. This was a list of both internal
and external political conflicts between 1944-1966 by Cady and Prince
(1974). A short compilation by Callahan (1974) focuses exclusively on
international crises. The second author of the present paper went
through both the Cady-Prince and Callahan lists to determine which ones
appeared to conform to our definition of a crisis (e.g., presenting

decision makers with high threat and short time). Table 2 lists the resulting thirty-eight crises that appeared on either the Phillips-Moore or the combined Cady-Prince and Callahan lists.

No claim is made that these lists together represent all the international crises that occurred from 1959 to 1968, but they do provide an initial reference point for this exploratory study.[6] Regrettably, the CREON data cannot be searched for crisis precipitating events related to all 38 crises contained on the independently established lists. One limitation stems from the requirement that the crises had to begin during the quarter of each year for which data was collected. (Recall that the data consists of only 10 of the 40 three-month quarter's occurring between January 1, 1959 and December 30, 1968.) The fourth column of Table 2 indicates that 22 of the 38 crises began in quarters not included in the CREON sample.

Another problem results from the restriction of the CREON data to 36 countries. Thus, we can establish precipitating events only for countries that are among those included as actors in the CREON data set. As the fifth column of Table 2 reveals, 17 of the 38 crises could not be examined because the data did not contain relevant actors.

Together these two constraints reduce to six the number of situations independently identified as crises:

China/Nepal	1960	Cyprus	1963-64
Cuba	1962	North Vietnam	1964-68
India/China	1962	Arab/Israel	1967

Even the casual reader will discover several problems with this list of six crises. First, the starting dates for the crises are extremely important to the analysis, yet are difficult to establish with confidence.

T A B L E 2

CANDIDATE INTERNATIONAL CRISES AND THEIR COVERAGE IN CREON DATA

CANDIDATE CRISIS/CONFLICT	INVENTORY SOURCE		INCLUDED IN ANALYSIS	REASON FOR EXCLUSION	
	Phillips-Moore	Cady-Prince Plus Callahan		Begins Outside Time Period	Precipitator Not CREON Actor
China/India, August, 1959		X	No	X	
Dominican Republic, 1959	X		No	X	X
Haiti/Cuba, 1959	X		No	X	X
Panama/Cuba, 1959	X		No	X	X
China/Nepal, 1960	X	X	Yes		
Congo, 1961	X	X	No		X
Kuwait/Iraq, 1961	X	X	No	X	X
Bay of Pigs, 1961	X	X	No	X	
India/Portugal, 1961	X		No	X	
Berlin Wall, 1961	X	X	No	X	
Cuba, 1962	X	X	Yes		
India/China, 1962	X	X	Yes		
Taiwan Straits, 1962	X		No	X	
Yemen, 1963-69	X	X	No		X
Haiti/Dominican Republic, 1963	X		No	X	X
Kenya/Somalia, 1963	X		No	X	X
Berlin, 1963	X		No	X	X
Algeria/Morocco, 1963	X	X	No	X	
Malaysia, 1963	X	X	No		X
Cyprus, 1963-64	X	X	Yes		
Somalia/Ethiopia, 1964	X		No		X
Malaysia, 1964	X		No		X
North Vietnam, 1964-68	X	X	Yes		
India/China, 1965	X		No	X	
Kashmir, 1965	X	X	No	X	
Jordan/Syria, 1965	X		No		X
Rhodesia, 1966	X		No	X	X
Sino/Soviet, 1967	X		No	X	
Arab/Israeli, 1967	X	X	Yes		
Cyprus, 1967	X	X	No	X	X
Hong Kong, 1967	X		No	X	X
Israel/Jordan, 1968	X	X	No	X	
Pueblo, 1968	X	X	No	X	
Czechoslovakia, 1968	X	X	No	X	
Israel/Syria, 1962		X	No	X	
Israel/Syria, 1964		X	No	X	
Afghanistan/Pakistan, 1964		X	No		X
Cambodia/S. Vietnam, 1964		X	No		X X
Haiti/Dominican Republic, 1964		X	No		X X

As displayed in Table 2, the original sources normally reported only the year (not the day and month) and in several instances the initially assigned dates covered several years. We had to determine if one or more crises under our requirements of threat and short decision time could be established within the given time period originally assigned by the independent service. We have determined, for example, that the North Vietnamese conflict listed for the years 1964-1968, can be disaggregated into at least three crises that occurred during the months for which CREON data were collected.

> Gulf of Tonkin, 1964
> US Sustained Bombing, 1965
> US Spring Air Offensive, 1967

In addition, the 1959 China/India conflict is listed in Table 2 as beginning in August, 1959, which would be outside the October to December quarter which CREON coded for 1959. We are prepared to argue, however, that the crisis actually began in October, 1959. Accordingly that crisis also has been added to those included in this study.

Finally, the Arab/Israeli conflict of 1967 can be considered two short term crises, one beginning with the closing of the Gulf of Aqaba in May, 1967, and the second beginning with the onset of hostilities in June, 1967. This brings to ten the number of crises considered in this analysis. An appendix to this study presents arguments for the beginning dates (day and month) of these crises. It also advances evidence that each selected situation created a situation of high threat and short decision time for the recipient nation and thus conforms to our stipulated definition.

A final problem encountered in the attempt to construct an inventory of crises independently of the analysis of the CREON data set was the seeming imbalance in terms of the parties asserted to be in crisis. Was not the United States government in crisis upon the discovery of the missiles in Cuba as well as the Soviet Union upon the initiation of the American blockade? The problem of identifying nations participating in any crisis is compounded by the limitation of the CREON data set to only 36 nations, as discussed above. Thus, North Vietnamese actions that precipitated crises for the United States during the Vietnamese conflict can not be included in the analysis because North Vietnam is not an actor in the CREON data set. Only US actions precipitating crisis for North Vietnam can be examined.

We believe at least 20 nations experienced crises in the ten episodes we have identified. However, because not all those nations are actors in the CREON data set, only 13 nations in crisis situations could be examined. Using the properties of events previously specified, the analysis sought to discover whether the following 13 nations experienced a crisis precipitating event prior to the beginning of their crisis.

> India enters a crisis on 20 October 1959 as a result of China's actions. (1959 Border Clash)
>
> China enters a crisis on 20 October 1959 as a result of India's actions. (1959 Border Clash)
>
> Nepal enters a crisis on 28 June 1960 as a result of China's actions. (Chinese Troops Enter Nepal)
>
> India enters a crisis on 11 October 1962 as a result of China's actions. (1962 Border Clash)
>
> China enters a crisis on 11 October 1962 as a result of India's actions. (1962 Border Clash)

USSR enters a crisis on 22 October 1962 as a result of United States action. (Blockade in Cuban Missile Crisis)

North Vietnam enters a crisis on 5 August 1964 as a result of United States action. (Bombing in Response to Gulf of Tonkin)

Greece enters a crisis on 8 August 1964 as a result of Turkey's actions. (Turkey bombs Greek Cypriot positions)

North Vietnam enters a crisis on 2 February 1965 as a result of United States actions)

Israel enters a crisis on 22 May 1967 as a result of Egypt's actions. (Egypt closes Gulf of Aqaba)

Israel enters a crisis on 5 June 1967 as a result of Egypt's actions. (1967 Arab-Israeli War)

Egypt enters a crisis on 5 June 1967 as a result of Israel's actions. (1967 Arab-Israeli War)

North Vietnam enters a crisis on 20 April 1967 as a result of United States actions. (U.S. Initial Bombing of Hanoi and Haiphong)

Clearly, further work is required in the creation of a uniform list of international crises using an explicit definition of crisis. These 13 situations, however, will serve as the basis for an initial test of the utility of our stipulated properties for estimating events that precipitate crises.

RESULTS AND CONCLUSIONS

A total of 11,962 events in the CREON data were searched to determine if they possessed any of the crisis precipitating properties. We performed some initial experimenting to establish the numerical value to be used as the cutoff point for high commitment, high specificity, and high external consequentiality. In each case we found the highest possible scale value was too severe a threshold and eliminated many events that appeared relevant to the identified crises. Accordingly,

slightly lower values were used, but still in the direction of the extreme value or property presented earlier.

Another preliminary task for analysis required attention. The recipient in each of the 13 crises established in the previous section were national governments. In the CREON data, however, recipients may be international governmental and nongovernmental organizations as well as subunits within a nation (both governmental and private) including specific individuals. Therefore, it was necessary to add a ninth property to the eight crisis precipitating ones; namely, that the recipient be a national government.

We used each of the properties as a screen through which all CREON events were filtered. Each variable was added one at a time to reduce the total set of events and more closely approximate the desired subset. Not all the properties proved equally useful in creating the class of events hypothesized to precipitate crises. As Table 3 shows, the data set could most rapidly be reduced by first applying the physical assault category which by itself eliminated all but 146 of the over 11,000 events. By next using the high external consequentiality variable, we cut the remaining events in half -- leaving only 70. Of these 70 events, ten involved only non-national government recipients and thus were eliminated by introducing the recipient stipulation. The property that required all crisis precipitating events to have strong negative affect was applied next and it reduced the set to 54 events. We then introduced the property of short implementation time which eliminated two additional events. None of the remaining four stipulated properties -- military instruments, high specificity, anticipated undesirability, or high commitment -- reduced the remaining set of 52 events.

TABLE 3

SEQUENTIAL APPLICATION OF PROPERTIES IN CREATING
SET OF CRISIS PRECIPITATING EVENTS

Property	Events Remaining in Set*
Physical Assault Present	146
High External Consequentiality	70
Nation as Recipient	60
Negative Affect	54
Short Implementation Time	52
Military Instrumentality	52
High Specificity	52
Anticipated Undesirability	52
High Commitment	52

*The total number of events in the used version of CREON data set before any were eliminated by specified properties was 11,962.

The question becomes, how many of the 52 events pertained to the
13 crises identified as falling within the domain of the CREON data?
The short answer -- as shown in Table 4 -- is that 40 (77 percent)
concerned one of the 13 crises. Furthermore, 12 of the 13 crises had at
least one of the events with the crisis precipitating properties that
occurred on the day we had estimated that the recipient entered a state
of crisis. Of the 40 events, 12 occurred on or before the specified
dates for the beginning of the crises; another 3 are dated as having
transpired within 24 hours of the designated onset of the crisis.
(Given the difficulty of pinpointing the starting point of a crisis,
some variability in the dating of events should probably be considered.)
The remaining 25 events took place in a matter of days after the initiation
of the crises.

A total of 12 events (23 percent) that we had assumed would be
crisis precipitating events did not relate to any of the 13 crises.
Ten of these events concerned the Vietnam War and several may very well
flag events that some analysts might designate as crises. For example,
one event referred to the first air strikes by the United States in the
demilitarized zone (DMZ). Four other events related to the Vietnam War
referred to incidents along the Cambodian border. Unrelated to Vietnam
were the Chinese shelling of Quemoy and Matsu in May, 1960, and again
in June of 1960 upon President Eisenhower's arrival in Taiwan.

In forming conclusions about this study, it should be recalled
that neither the event data nor the variables designating event pro-
perties were originally designed for the purposes of this research.
Furthermore, it is evident that a comprehensive, independent inventory
of international crises covering the entire time period and employing

TABLE 4

DISTRIBUTION OF CRISIS PERCIPITATING EVENTS FOR CRISES

CRISIS	Day Crisis Began	Day + 1	Day + 2	Total
1959 China/India	1			1
1959 India/China	1			1
1960 China/Nepal	1			1
1962 China/India	1		5	6
1962 India/China	1		4	5
1962 US/USSR	1	1		2
1964 US/North Vietnam	1			1
1964 Turkey/Greece	1	2		3
1965 US/North Vietnam	1		11	12
1967 Egypt/Israel (Gulf)	1			1
1967 Israel/Egypt (War)	0			0
1967 Egypt/Israel (War)	1			1
1967 US/North Vietnam	1		5	6
Total Crisis Precipitating Events	12	3	25	40

Total Events not Applicable to Any of 13 Designated Crises	12
Total Events Having Properties Assumed to Precipitate a Crisis	52

a standard definition of crisis and techniques of dating was missing. Whether or not correction of these limitations would improve the results may be uncertain. Surely their absence, however, should make us cautious about interpreting this initial effort.

If the proposed procedure does have merit, two modifications would undoubtedly improve its effectiveness. The first would be to develop some indicators of context that could be used in conjunction with crisis precipitating properties. As McClelland (1969:476) observes: "The type of act perceived to have been the immediate cause of an acute crisis does not 'communicate' the same way at all times. The immediate 'logic of the situation' and the timing of events seem crucial." We completely concur, and believe it should be possible to construct some background indicators concerning the condition of particular governments and the state of relations between governments against which specific events could be more readily interpreted. Choucri notes that on a 13 point tension scale contemporary relations between Canada and the United States might range normally between 2 and 5, whereas those between Israel and the Arab States might be closer to 11 or 12. She notes: "If the United States-Canada interactions were to jump to a mean of 8 on a 13 point conflict scale the implications would be quite different than if Arab/Israeli interactions were to converge around a mean of 8" (Choucri, 1974:71-72). The point we would make is that a background conflict scale of the kind Azar (1975) has been developing could establish what the prevailing norms are and could serve as one kind of contextuality indicator for inter-preting crisis precipitating events. Of course, others would be required and could be devised.

A second change that could improve the quality of the technique would be the use of multiple sources for event collection including sources from the nations to be monitored. Of course, the type of stipulated properties described in this paper could be equally well applied to official governmental cable traffic and related materials if available to the analyst.

But why should anyone -- in government or elsewhere -- consider adopting a procedure such as this one even if improved and demonstrated to be relatively dependable? For one thing it proposes the possibility of identifying a class of events that may proceed the occurrence of a crisis. As Wilbert Moore (1967:942) commented in a discussion of scientific forecasting: "Although single political events are sometimes very important, the best we can hope to do is predict the probability of a class of events." If perfected that is what this procedure could optimally do -- provide a probability estimate of a certain class of events (crises) based on a combination of contextual indicators and properties of other prior classes of events.

Based on the events examined in the CREON data, the lead time between the triggering event and the onset of the crisis is short indeed. In every case, the crisis precipitating event occurred on the same day as we stipulated the recipient to be in crisis. Hopefully, the introduction of other event properties and contextual variables would improve the lead time. But what if they do not? Such a system would be of little use to recipients of such events as a means of anticipating crises. Although it is conceivalbe that an acting government would be unaware that its own behaviors contained elements tending toward crisis, those

circumstances would seem infrequent. It may be that the primary benefit of such a system -- if it is workable -- would be for third parties who are not at the outset among either the initiators or the recipients of the crisis. As such, a workable system that alerted third parties to an imminent danger might be worthwhile even if its warning occurred simultaneously with the unfolding events. Evidence from the study of past crises suggests that third parties have sometimes been slow to recognize crises that subsequently spread and engulfed them. Not only would an early warning available to third parties enable them to take prompt steps to reduce the enlargement of the confrontation, it would also give them more time to introduce mediating capabilities.

One final point deserves mention. The proposed configuration of crisis precipitating properties may have placed too heavy an emphasis on military factors (i.e., physical assault and military instruments). Such concentration might be less appropriate in the future than in the examined decade of 1959-1968.

FOOTNOTES

[1] An earlier version of this paper was presented at the 18th Annual Meeting of the International Studies Association in St. Louis, Missouri, March 16-20, 1977 and subsequently to an informal political science colloquium at Ohio State University. The authors gratefully acknowledge the helpful comments of participants in both occasions.

[2] The CREON Project, from which the data used in this research are drawn, makes the distinction between the direct target of an event (the receiver of a communication), and the indirect object of that event (the entity which the actor is attempting to influence). The target and object may be the same, but need not be. For the purposes of this initial inquiry, we are combining targets and objects under the term "recipients." It is possible that an actor creates a crisis for an entity that is not an identifiable recipient in the way we have used the term. For the moment we have no way of specifying such non-recipient potential subjects for crisis.

[3] The concept of coercive diplomacy advanced by George, Hall and Simons (1971) is an important example of incorporating physical deeds in signaling activities.

[4] Part of the difficulty may be attributable to the inadequate conceptualization and operationalization of the concept of surprise in our previous research. For example, one might wish to distinguish between such features as the familiarity of a problem (i.e., whether more or less similar problems have been experienced in the past) and the extent to which the present problem was anticipated (i.e., whether the urgent problem was expected before it occurred). These conceptual distinctions have been confounded in the past. The difficulty has been aggrevated by the absence of good indicators of surprise in event data descriptions and relatively unsophisticated questionnaire items.

[5] By an "uncollapsed" version of Deadline Data, we mean that none of the index cards on which the material is displayed have been discarded. The producer of this reference service instructs subscribers to eliminate many of the older file cards and replace them with newly provided summary cards that greatly telescope prior events into a much shorter list that retains only those events that the Deadline Data editors regard as most significant in view of subsequent developments. This process maintains the file at a fixed size by constantly collapsing the number of older entries. The procedure significantly reduces the utility of the reference for longitudinal analysis. Regrettably, most libraries follow the producers' instructions and, even more regrettably, most of the studies using Deadline Data have used this truncated version.

[6] Two other inventories considered for this paper were a list of "imperialist wars" enumerated by official sources of the Chinese Peoples Republic and cited by Chen (1976) and an inventory of local wars by a noted Hungarian social scientist (Kende, 1971). Although these inventories would have greatly expanded the international flavor of the research, neither list added any new crises that were not already contained in the other inventories

and that also met the additional requirements of the CREON data to be discussed in the text. A third inventory prepared by Hazelwood, et al (1977) for CACI, Inc., was also considered for this paper. However, this inventory listed only crises involving the United States, and therefore was of limited use for this research.

[7]The nation whose action is assumed to trigger the crises (e.g., China in the first item) must be one of the actor nations for which events were cited in the CREON data set. We do not assume that the designated actor is the only entity responsible for creating the crisis for the other nation or that it is necessarily the ultimate source of the situation. For the purpose of this analysis, however, it is the CREON actor whose behaviors prior to the crisis were searched for behaviors manifesting the postulated crisis precipitating properties.

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A P P E N D I X

Information on Dates, Nature of Threats, and Decision Time for Thirteen International Crises

Of those international crises that occurred during the 1959-1968 decade, only 13 fell during the quarter of each year coded by the CREON Project and also involved CREON nations as actors in the precipitating events. Those crises are briefly discussed below. The description suggests the beginning date of the crises, and the evidence to support their crisis status.

As discussed in the text, it is important that these crises be established as crises independently of the attributes postulated to characterize a crisis. Because crises are defined as situations of high threat and short decision time, it must be established that each CPE (Crisis Precipitating Event) generated a situation of threat and short decision time for the recipient of that event.

Therefore, this appendix provides the basis for three questions that had to be answered for the analysis:

1) What is the beginning date of the crisis?

2) Which nations involved in the crisis faced a situation characterized by short decision time?

3) Which nations involved in the crisis faced a situation characterized by threat?

An unambiguous answer to the first question and positive respones to the second and third were required in order to claim the situation qualified as a crisis according to our stipulated definition.

The criteria by which the beginning date was established are not as rigorous as might be hoped, but serve the needs of this initial study.

Basically, that date was sought which was considered the beginning point

of the crisis by most sources consulted or by the actors themselves, or

the date on which the situation took a fairly obvious new direction.

To establish short decision time and threat the CREON Supplemental

and Descriptive Coding Manual: Revised (Salmore and Brady) was used as

a guide. The coding manual indicates that threat exists when there is

some danger to a value of importance to the actor's government.

> The damage must not have already been totally experienced.
> If the harm already has been done and there is no real
> possibility of further damage in the foreseeable future
> regardless of the actor's behavior (that is, the actor
> cannot avoid the harm no matter what he does), then there
> is no threat. If the reference to the prior occurrence is
> discussed in general terms, i.e., is not a specific event,
> and is one that has existed for a month or more, then that
> general state of affairs, even if undesirable or obstructing
> to the actor's goal, should not be treated as a threat."
> (Brady and Salmore, 1972, p. 106)

Three questions were used in the coding to determine threat

(Brady and Salmore, 1972, pp. 108-109):

Threat Mentioned

1) Does the actor or source explicitly mention danger or threat present
   in the circumstances or condition that triggered the present event?

Threat Inferred

2) Does the event mention any object, goal, or condition that is described
   by the actor or source as described or important to the actor?

3) Can it be reasonably assumed that almost any nation that values the
   object, condition, or goal identified in this event would see itself
   as harmed by the situation which the actor faces?

Decision time refers to the amount of time a government has to

decide what action to take in response to the CPE. Several questions were

used to determine short decision time (Salmore and Brady, 1972, pp. 112-113):

Closure Mentioned

Was something about to happen that would have limited the actor's choices, created conditions making action more difficult, or posed circumstances more unfavorable to the actor? In cases of military combat, short decision time is indicated if the actor has experienced a recent defeat or the combat is less than ten days old.

Haste Mentioned

Does the background or source material contain any explicit references to terms that imply the decision to act was made with haste?

Recent Stimulus

Is the event a response to a known stimulus for which a definite date can be established?

In establishing short decision time the attempt was made to find supportive evidence for as many of the above questions as possible. Let us now examine the thirteen crises used in the study for the needed criteria.

1959 China/India (Border Clash creates crisis for India).

The dispute between India and China over the location of their mutual boundary was the source of considerable tension during 1959, and particularly from August to November of that year. In October, that tension erupted into a brief but threatening clash of arms, precipitating a crisis for India. (Butterworth, 1976, p. 180).

The Chinese attack on Indian troops on October 20, 1959, was the first major clash since the beginning of the dispute (New York Times, October 21, 1959, p. 5:1) and is taken as the beginning of the crisis for India. In response to the attack, Nehru announced that India would not bow down to Chinese threats and aggression. (New York Times, October 25, 1959, p. 1:1). Furthermore, the Chinese claimed that 40,000 square miles of Indian territory belonged to China. (New York Times, October 24, 1959, p. 5:1). 40,000 square miles of territory would be valued by India; most

nations would regard claims by other nations for that amount of territory as a threat. Therefore, threat is both mentioned and can be inferred.

Because the military combat is less than 10 days old at the outset of the crisis and is a recent stimulus, short decision time can be inferred.

1959 India/China (Border Clash creates crisis for China).

Because 40,000 square miles -- the area of dispute between India and China -- was highly valued by China, the clashes in the area can be considered a threat to the Chinese Peoples Republic's efforts to gain that territory. China noted the serious difficulties the Indian aggression created for relations with that country, and the heavy casualties that resulted. (New York Times, October 24, 1959, p. 5:1, 2). As a military action less than 10 days old at the outset of the crisis and a recent stimulus, short decision time can be inferred.

1960 China/Nepal (Chinese troops in Nepal create crisis for Nepal).

The relations between China and her neighbors, Tibet, India, and Nepal, had been strained for some time during the decade of the 1960s, and occasionally, the nations came to blows. In the case of Nepal, these clashes came in 1960, and precipitated a crisis for Nepal.

In June of 1960 the Chinese moved a large number of troops into the Mustang area on the Nepalese border, not only violating Nepalese territory, but also violating an agreement signed by China and Nepal in March, 1960. On June 28, the Chinese troops attacked a Nepalese force. (New York Times, June 30, 1960, p. 8:3-4). That date is taken as the beginning of the crisis.

Nepal expressed her concern to China in a tense note that described the situation as gravely delicate and that denounced Chinese aggression. (New York Times, June 30, 1960, p. 8:5). Because most nations would consider military movements along a disputed border a threat, threat is both mentioned and can be inferred in this case.

Short decision time is indicated by the combat being less than 10 days old at the outset of the crisis -- closure mentioned -- and the clash was a recent stimulus. Finally, emergency meetings were held by the Nepalese government during the onset of the crisis, indicating haste and short decision time. (New York Times, June 30, 1960, p. 8:3-4)

Because Nepal is not an action in the CREON data set, Nepalese actions that may have precipitated a crisis for China cannot be considered in this analysis. Therefore, the crisis is listed as a crisis for Nepal only.

1962 China/India (Border Clash creates crisis for India).

Following the 1959 border crisis, the tension between India and China eased somewhat. But in October, 1962, the tension erupted into a clash of arms. The initial attacks came on October 11, 1962, and were the worst in three years. That date is taken as the beginning of the crisis for India. There followed a sustained, though short, period of clashes beginning on October 20, 1962.

The Indian perception of threat is clearly indicated, and is both mentioned and can be inferred. The Indians noted the "serious fighting" and "fierce attacks," (New York Times, October 12, 1962, p. 1:6), the "Chinese as a menace to us," (New York Times, October 13, 1962, p. 1:2), and that the attacks were a "threat to liberty." (New York Times,

October 27, 1962, p. 1:2). The challenge to the security of the state, a most important value, would be regarded by most nations as a threat.

The beginning of the crisis for India is less than 10 days after the military stimulus -- closure mentioned -- and is a recent stimulus. Furthermore, urgent meetings of the Indian Cabinet were called to deal with the crisis -- an indicator of haste in reaching decisions -- and therefore evidence of short decision time. (New York Times, October 26, 1962, p. 1:2).

1962 India/China (Armed Indian response creates crisis for China).

The Indian response to the Chinese attacks on October 11, 1962, was to order her army to clear the area of Chinese troops, (New York Times, October 13, 1962, p. 1:2) precipitating a crisis for China. The Chinese seemed to have anticipated an imminent invasion from India, (New York Times, October 14, 1962, p. 5:1) an indication of threat. In the face of the Indian attacks, the Chinese perceived short decision time, as indicated by a sense of urgency in her response:

> Diplomatic observers here said the tone of the reports and the speed of the transmission reflected a sense of urgency on the Chinese side. (New York Times, October 21, 1962, p. 1:6)

1962 US/USSR (U.S. blockades Cuba and creates crisis for USSR).

Though initiated by the Soviet placement of nuclear weapons on Cuba, the crisis between the US and USSR can be said to have begun with the US announcement of a naval quarrantine around Cuba on October 22, 1962. This announcement precipitated a crisis for the Soviet Union.

That the situation presented the Soviets with a severe threat is generally recognized. As Khrushchev wrote in his first private letter

to Kennedy, "...if we do not show wisdom...we will come to a clash,
like blind moles, and the reciprocal extermination will begin."
(Allison, 1976, p. 212).

Lacking any detailed analysis of the Russian role in the crisis
comparable to the analysis of the US role, such as Robert Kennedy's
Thirteen Days (1969) short decision time for the Russians can only be
inferred. Allison notes that William Knox, President of Westinghouse,
received an urgent invitation to meet with Khrushchev. John Scali,
the American newsman who served as one of the channels for personal
communication between Kennedy and Khrushchev received an urgent call
from the Soviets. (Allison, 1976, p. 220). These references to urgency
would seem to indicate a sense of short decision time on the part of
the Russians.

With respect to the precipitation of a crisis for the United States,
serious problems were encountered. Because the data set was coded from
public news sources, only public events are captured. The Soviet action
of placing the missiles in Cuba, which precipitated the crisis for the
US, was not reported in the press, and therefore was not coded in the
CREON data set. Thus, Soviet actions precipitating a crisis for the US
cannot be examined in this study.

1964 US/North Vietnam (American retaliation bombing raids for Gulf of
Tonkin create crisis for North Vietnam).

The Gulf of Tonkin crisis began with the North Vietnamese attack
on a United States destroyer operating in the Gulf of Tonkin in August,
1964. Because Vietnam is not a CREON actor, those events are not con-
tained in the data set. However, the American bombing raids in retaliation
of the Vietnamese attack did precipitate a crisis for North Vietnam. The

American retaliatory raids began on August 5, 1964, the beginning date
of the crisis for the North Vietnamese.

The threat to North Vietnam can be established by examining her
response to the American bombing, but with the recognition that these
statements contain a fair amount of rhetoric. North Vietnam claimed in
a broadcast on August 5, 1964, that the United States had violated its
security by attacking its territory. (New York Times, August 5, 1964,
p. 3:4-6). On August 6, North Vietnam stated, "This is an extremely
brazen act of aggression and provocation of U.S. imperialists against
Democratic Republic of Vietnam." (New York Times, August 6, 1964, p. 1:8).
On August 7, it asked the signers of the 1954 Geneva accords to help
protect North Vietnam from an impending invasion, noting its "...particular
concern for the expressly serious threat created by U.S. imperialists in
Vietnam." (New York Times, August 7, 1964, p. 1:7).

Further evidence of the degree of threat generated by the Gulf of
Tonkin incident and the February 5, 1965 bombings (discussed below) is
indicated in the changed relationship between North Vietnam and the USSR
and PRC. Until the Gulf of Tonkin incident, the government in Hanoi was
apparently becoming somewhat hostile toward the USSR, and moving toward
support for China in the Sino-Soviet dispute.

> Between late 1964 and 1965, however, Hanoi shifted back to
> a more neutral position, due mainly to the increasing threat
> of American attack highlighted by the Gulf of Tonkin incident
> in August, 1964. To meet the American threat Hanoi obviously
> required Soviet assistance. (Zagoria, 1967, p. 111).

Short decision time can only be inferred. The attack was less
than 10 days old, allowing closure to be inferred, and the attack was

a recent stimulus. No evidence of haste could be obtained due to the lack of information on internal North Vietnamese decision making.

1964 Turkey/Greece (Turkey bombs Greek Cypriot positions creating crisis for Greece).

Fighting between Turkish and Greek residents of Cyprus broke out in December, 1963. A United Nations peace keeping force sent to the island in March 1964, was unable to quell the violence; civil war broke out again in April, 1964. By June, a fragile peace had been established only to be shattered by the resumption of the civil war in August, 1964. It was not until December, 1964, that the United States was able to impose a cease-fire.

Throughout this period both Greece and Turkey actively participated in the crisis by providing the Cypriots with supplies and arms. However, neither side took part in the fighting until August, 1964, when Turkish aircraft bombed Greek Cypriot positions on Cyprus, precipitating a crisis for Greece beginning on August 8, 1964.

The threat to Greece was such that she put her armed forces on alert and requested an emergency meeting of the UN Security Council. (New York Times, August 8, 1964, p. 5:3). The threat of war between Greece and Turkey was seen as a real possibility by the Greek government. (New York Times, August 9, 1964, p. 1:5)

Short decision time can be inferred from the mounting tension in the capital, and the urgent and frequent meetings of the Cabinet that indicated haste (New York Times, August 9, 1964, p. 28:2). As a military clash that was less than 10 days old at the outset of the crisis, closure can be inferred, and the stimulus was recent.

Because neither Greece nor Cyprus are actors in the CREON data set, only Turkish actions precipitating crises for Cyprus and Greece can be examined in this study.

1965 US/North Vietnam (U.S. creates crisis for North Vietnam by initiation of Rolling Thunder).

In February, 1965, the Viet Cong attacked the United States base at Pleiku, providing America with a rationale to begin a sustained bombing campaign against the North Vietnamese beginning on February 7, 1965. The bombing campaign precipitated a crisis for the North Vietnamese beginning on that date.

The discussion above of the Sino-Soviet split and Hanoi's neutral position during late 1964 and early 1965 is evidence that North Vietnam perceived the bombing campaign as a threat. (Zagoria, 1967, p. 111). North Vietnam considered the bombing an extremely serious threat, "a new and serious act of aggression." (New York Times, February 8, 1965, p. 1:4).

As a military clash less than 10 days old, closure can be inferred. Because a definite stimulus (the bombing of February 7) existed, the stimulus can be considered recent. Therefore short decision time can be inferred.

North Vietnam is not a CREON actor. Therefore North Vietnamese actions that may have precipitated a crisis for the US can not be examined in this study.

1967 Egypt/Israel (Egypt closes Gulf of Aqaba and creates crisis for Israel).

The tension between Israel and her Arab neighbors remained high since the end of the Palestinian War in 1949, and in mid-1967, that

tension erupted into full-scale war. The closing of the Gulf of Aqaba
to Israeli shipping on May 22, 1967 precipitated a crisis for Israel.

Israel indicated that because the Gulf was a critical source of
material, the closing would be considered an act of war, (New York
Times, May 23, 1967, p. 1:8) evidence that Israel considered the closing
a threat.

The closing of the Gulf created a situation of short decision
time. Extraordinary Cabinet meetings were held, for example, indicating
a sense of haste and urgency (New York Times, June 1, 1967, p. 1:5).

Evaluating the situation faced by Egypt at the time she announced
the closing of the Gulf to Israeli shipping is difficult. It can be
argued that because she launched an attack against Israel within two
weeks of the closing of the Gulf, Egypt apparently faced a situation of
high threat and short decision time. Egypt apparently feared an imminent
attack from Israel during this two week period (New York Times, June 5,
1967, p. 2:4).

There is some evidence, however, that Egypt may have been in the
midst of a crisis before the closing of the Gulf of Aqaba. On May 15,
1967, Egypt placed its nation on a complete war footing. She claimed
that the mounting tension between Israel and Syria, and the possibility
of war between these two nations was the motive for the declaration of
a war footing. (New York Times, May 16, 1967, p. 1:8). She noted that
the situation was "extremely tense" and "might flare up at any moment."
(New York Times, May 16, 1967, p. 16:4).

Yet the announcement of the mobilization followed by over a month
the most severe Israeli/Syrian clashes on April 6, 1967. These clashes

between Israel and Syria date back to November, 1966 and had continued regularly up until the outbreak of war in June, 1967. The Egyptians were therefore reacting to a situation that had existed for some time.

Given the difficulty in establishing if and when Egypt faced a crisis situation before the June, 1967 war, no crisis for Egypt will be considered in this analysis. Only Egyptian actions which precipitated a crisis for Israel will be examined.

1967 Israel/Egypt (The outset of the 1967 war creates a crisis for Egypt).

Once the war between Israel and Egypt was underway, Egypt was clearly in a situation of crisis. Not only would most nations faced with the start of a major war be expected to experience high degrees of threat, but Egypt declared a state of emergency throughout the country. (New York Times, June 6, 1967, p. 16:5). As a military clash less than ten days old and a recent stimulus, short decision time can be inferred.

1967 Egypt/Israel (The outset of the 1967 war creates a crisis for Israel).

Israel definitely considered the attack on her territory a danger and threat, (New York Times, June 5, 1967, p. 1:5), as would any nation faced with a similar situation. Because the outbreak of hostilities was less than 10 days old and the stimulus can be identified, short decision time can be inferred.

1967 US/North Vietnam (U.S. creates crisis for North Vietnam by initial bombing of Hanoi and Haiphong).

The 1967 bombing raids begun on April 20, 1967 were the first raids directed to Hanoi and Haiphong by the United States. Thus, they represented an important escalation of the war, and precipitated a crisis for North Vietnam.

The foreign Ministry declared these raids to be "new, extremely dangerous war escalation steps." (U.S. Foreign Broadcast Information Service, Report #79, 24 April, 1967.) In the wake of the intensified U.S. bombings, the government ordered the evacuation of non-essential people from Hanoi. (London Times, April 26, 1967, p. 3:7).

Because there is little information available on North Vietnamese decision-making, short decision time can only be inferred. After the bombing raids began the government urgently requested other countries to raise strong protests against the raids. (U.S. Foreign Broadcast Information Service, Report #81, April 26, 1967.) In addition to some sense of urgency, as a military clash less than 10 days old and a recent stimulus, short decision time can be inferred.

SIMULATING THE U.S. NATIONAL SECURITY
DECISION MAKING SYSTEM

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INTRODUCTION *

Since the National Security Act of 1947 established the National Security
Council as a facility for supporting Presidential direction of our military and
foreign policies, each President has modified both the Council and the broader
supporting machinery in distinctive ways. Augmenting these actual organizational
modifications has been a continuous flow of major studies and recommendations
proposing other reforms of the machinery for forming and conducting foreign
policy.[1] Until recently those inquiries that focused on national security
organizations (e.g., Hammond, 1960; Jackson, 1966; and Clark and Legere, 1969)
tempered their proposals with the observation that the preferable support system
is the one which corresponds most closely to a given President's personal style.
Of course, it is essential to establish some congruence between the operating
methods congenial to the occupant of the White House and those procedures
actually used by the national security organizations intended to support the
President. As the period of adjustment at the beginning of every new Presidential
Administration testifies, even this basic organizational requirement of congruence
with personal style may be difficult to achieve.

In the past few years a number of publications have appeared that examine
other implications of various organizational configurations for national security
(Destler, 1972; George, 1972; Halperin, 1974; Johnson, 1974; Allison and Szanton,
1976; and Hoxie, 1977). They have not rejected the maxims that no organizational
arrangement alone can assure good policy and that there must be a fit between
the machinery and a given President's mode of operation. In various ways, however,
they have emphasized that alternative modes of operation of the Presidential
support system have different effects on the substance of policy.

Not only is it likely that organizational systems will influence policy differently, but the effectiveness of any system may depend on the nature of the problem it is called upon to address. In other words, national security policies can be affected by the interaction between the mode of organization and the problem area. Thus, for example, one configuration of the national security machinery may be extremely effective at systematically reviewing extant doctrines and policies for critical inconsistencies with current world conditions, yet be quite inadequate for coping with acute international crises. In fact, there is evidence from other types of organizations, such as the business firm, that arrangements that work well for handling crises are poorly qualified for noncrisis situations (see Thompson, 1967). Recognition in the government of the need for special communication capabilities to cope with national security crises is reflected in features of the Worldwide Military Command and Control System and in the creation of a crisis center in the Department of State. (Later it was expanded into a communication center but retained the crisis management facilities.) The Washington Special Actions Group illustrates an effort in the Nixon Administration to construct a special crisis capability at the level of the President.

We adopt as a basic premise that organizational structures and processes used to support the President in crises and other national security matters do have an impact on the substantive nature of the decisions and their implementation; that these effects vary from one arrangement to another and from one type of problem to another; and that, for the most part, the factors involved are not well understood. We need to develop techniques to systematically explore these effects. We should compare

alternative organizational structures (e.g., the arrangement and composition of the entities involved) and the nature of the processes used in those structures (e.g., the modes of handling information, resolving disputes, performing implementation). Alternative organizational structures and processes need to be compared for their impact on the time needed to respond to a problem, the range of options considered, the likelihood of innovative actions, the probability that the preferences of the President and the national command authority are implemented, and the amount of feedback and evaluation they receive about the consequences of their directives.

This essay constitutes a feasibility study for creating techniques necessary to explore systematically those issues pertaining to alternative configurations of the support system for Presidential involvement in national security, hereafter referred to as the National Security Support System (NSSS). By NSSS is meant those principal policy makers, associated staffs, relevant elements of Executive Branch departments and agencies, and interdepartmental procedures that regularly can be utilized to give direct support to a President when an issue of national security requires his consideration. A comprehensive examination of a NSSS would examine all support functions before, during, and after Presidential action to determine the effect on policy outputs. As an intermediate task, however, this feasibility study will be limited to techniques for examining organizational inputs prior to Presidential decision making. We are concerned with what the President gets as inputs rather than what happens after he acts. Thus, the organizational outputs that our research needs to examine are the topics the system surfaces for Presidential consideration together with the analyses and recommendations that it offers with respect to those topics. Additionally, relevant outputs would include the support system's responsiveness to Presidential requests for further information and analysis.

Before continuing it is important to underscore why variation in organizational features warrants attention. Of course, many elements influence the nature of major national security decisions. It may be that other factors have more impact on policy actions than the organizational structures and processes of the NSSS. Some of the other factors, (such as the nature of the foreign entities with which the United States must deal), however, may not be very susceptible to change in any substantial way by American officials -- at least not in the short run. Organizational arrangements, by contrast, can be changed and -- as indicated earlier -- have been altered regularly by different Administrations. Moreover, for every new organizational configuration that has been tried numerous others have been recommended -- a strong Presidential staff, a strong Secretary of State, a super cabinet level officer, and so on.[2] The significance of organizational machinery, in contrast to many other elements affecting national security policy, lies in the ability of American policy makers to modify it more or less at will. The tragedy lies in the lack of systematic study of the effects of various alternative arrangements.

Let us summarize our view of the problem:

1) The United States Government has used a variety of organizational structures and processes to support Presidential decision making in national security and foreign policy since the National Security Act of 1947. Even more numerous than the actual changes have been the endless series of studies that have recommended other organizational arrangements. Both studies and actual experimentation with the Presidential National Security Support System are likely to continue.

2) Changes in organizational configurations are not likely to be benign with respect to their impact on the substance of policy recommendations and analysis as presented to a President. It is not only efficiency, coordination, and style that are likely to be influenced, but also substance. Furthermore, there is reason to suspect that a system appropriate for one type of situation, such as politico-military crises, may not be nearly as appropriate for some other types of problems.

3) The effects of organizational structure and process on policy analysis and recommendations are not well understood. Nor has there been much attempt to examine the interaction between type of policy problem and organizational configuration in recommendations for various organizational procedures.

4) A research strategy is needed that will provide some evidence of the effects of various configurations of the NSSS system on policy analysis and recommendations. That strategy should permit a system perspective in which the interaction effects with problem-area and related factors are taken into account.

To address this problem we propose the use of computer simulation as a research technique. The justification appears in the next section. Given a simulation approach we consider the variables with which such a simulation would have to deal. First, we discuss the construction of a classification scheme for national security problem areas that will highlight different types of demands that any support system would confront. Secondly, we identify the organizational variables that would serve as the core of the simulation. This initial specification of the requirements for a simulation leads to a review of existing simulation models and the examination of one in particular that appears as a promising candidate for the proposed investigation. A final section compares alternative modes of human involvement. It addresses the question: Should there be a single operator interacting with a totally programmed system or should there be multiple role-assuming participants?

EXPLORATION THROUGH COMPUTER SIMULATION

This feasibility study contends that the research problem posed above can be productively investigated through the use of computer simulation. Several reasons suggest such a strategy. First, simulation allows for the careful representation and manipulation of various structural and process relationships while controlling for other possible factors. In this manner it may be possible to ascertain what impact various structure and process

variables have on the policy outputs in dealing with alternative national security tasks. Second, by using simulation it becomes possible to explore configurations of structure and process for Presidential support systems that have not been tried in historical experience. It enables one to experiment with alternative designs without the staggering consequences of introducing modifications in the real system. Third, the track record of simulation as a useful and practical tool in representing organizational characteristics is already well established. Simulations have been used successfully to explore a variety of budgetary, marketing, personnel, management, and production problems in various types of organizations. (For some reviews of this work, see Cohen and Cyert, 1965 and Guetzkow, Kotler and Schultz, 1972.)

One possible research plan using such a simulation might be as follows: A small set of prototypic national security and foreign policy problems that might require Presidential involvement are carefully defined. (For example, the consideration of a new program, an international crisis, or management of alliance relationships. See below for more details.) Each prototypic problem would pose different demands on the NSSS simulation. The simulation would contain a number of key parameters and variables representing such structure and process variables as the nature of the information available to each participant, the role of NSC and other pertinent staff, and the degree of Presidential participation.

If the variables have been correctly chosen and designed it should be possible to configure them in arrangements that characterize important features of, say, the Eisenhower, Johnson, or Kennedy national security support systems, or to produce more abstract decision systems such as the formalistic, competitive and collegial schemes described by Johnson (1974). Still other configurations of the NSSS that did not correspond to any in an actual Presidential Administration also could be represented by altering the values of the simulation's components

(or the permitted roles and relationships among any human participants).
Obviously none of these configurations would be able to represent the total
complexity of an actual national security support system, but the purpose would
be to isolate those qualities believed to be most influential in affecting policy.

It then would be possible to initiate a series of trials. Every prototypic
problem would be run against each of the major configurations of the NSSS. (If
human participants were involved, repeated trials of each problem would be re-
quired to determine whether stable model tendencies emerged.) One could determine
whether the different support systems tended to produce different kinds of
outputs for comparable tasks. The outputs could be compared against a number
of performance criteria.

Of course, the above illustration is only one possible research plan that
could be pursued with the simulation model. Many others would be possible.
For example, sensitivity testing could be performed to determine the effect
on policy achieved by manipulating only one variable while all others were
held constant. Furthermore, the possibility of using some version of such a
simulation for training purposes exists as has been done with various simulations
of firms at graduate schools of business.

Let us be more specific about the major components present in any national
security support system in post-war America that would need to be included in a
simulation designed for the type of research described. The simulation would
represent those features of the Executive Branch that are designed to identify
and assist the President in making and implementing decisions about national
security and foreign policy problems. We propose to define the NSSS to include
three basic components: (1) The Executive Branch departments and agencies that
assume a major role in a variety of national security problems, (2) the heads of
these departments and agencies and other key individuals who are national security

principals, and (3) the interagency staffs -- most notably the National Security Council staff -- intended to coordinate the activities of the other components of the support system and represent the White House perspective.

The first category of the support system needs little explanation. These are the large bureaucratic organizations that as a major, if not exclusive, part of their mission deal with some aspects of the national security and foreign policy of the United States. They constitute major resources for information, analysis, and options as well as the capability for the implementation of decisions. Although most of the thousands of men and women in these organizations do not have as their normal assignment the direct support of the President, many of them can be mobilized for that purpose when directed to do so through the chain of command that runs through the head of their department or agency. These heads of departments or agencies are often foreign policy principals.

By individual principals we mean the persons who occupy those positions that in virtually every administration become the top foreign policy and national security advisors to the President. A point of departure in identifying such individuals is the membership of the National Security Council that includes in addition to the President, the Vice President, Secretary of State, Secretary of Defense, and Director of the Office of Emergency Preparedness. Furthermore, the Assistant to the President for National Security Affairs, the Director of the Central Intelligence Agency and the Chairman of the Joint Chiefs of Staff have served as advisory members. Various Presidents have regularly included other individuals such as the Under Secretary of State, the Attorney General, or other White House staff members such as the Press Secretary. However, the actual use of the formal National Security Council is itself a variable that fluctuates substantially across administrations. Accordingly, any NSSS simulation would include those individuals who consistently appear as the highest level participants on

foreign and national security issues regardless of formal NSC membership includ-
ing, when appropriate, key Congressional leaders. The minimal set of principals
for all simulations includes the (a) President, (b) Assistant to the President
for National Security Affairs, (c) Secretary of State, (d) Secretary of Defense,
(e) Chairman of the Joint Chiefs of Staff, and (f) Director of the Central
Intelligence Agency.[3]

The final component included in every NSSS is the National Security
Council Staff. In some respects it is the organizational equivalent for
the President and the Assistant for National Security Affairs to the
departments and agencies for certain other principals. Because we regard
it as having important differences compared to other Executive Branch
organizations in terms of its capabilities (detailed below), we introduce
it as a separate element of the support system.

We have elaborated the research focus with respect to our definition of
the components of the support system. Clarification also is required concerning
the steps of the national security decision-making process to be represented in
the simulation. A variety of analytic schemes have been advanced for differenti-
ating the various tasks involved in the decision-making process (e.g., Lasswell,
1956). Frequently these are referred to as stages or phases, such as information
gathering or intelligence, analysis or interpretation, generation and advocacy
of options, choice selection, implementation, feedback, and evaluation.
Of course, decision making seldom proceeds in a linear progression from one stage
to another, but for purposes of our exercise we must distinguish minimally
between pre and post decision stages. In its initial development, the simu-
lation will focus on the pre-decision operation of the support system.[4] As has
been discussed, the simulation outputs will be the presentation to a President

of one or more recommended options (including the possibility of no response)
together with various documentation concerning a given kind of problem.
Various NSSS configurations will be comparable on such factors as the type and
extent of information, the quality of analysis, and the options provided the
President at the end of the pre-decisional phase.

TREATING PROBLEM AREAS AS CONTROL VARIABLES

The type of simulation described above requires that the model be designed
to treat two broad categories of variables whose impact on policy outputs would
be studied. One class of variables characterizes different tasks or problem areas.
These problems would serve as the input variables for the simulation and they would
represent the range of major issue areas with which the NSSS deals at the highest
levels of authority. The other class of variables that would be incorporated in
a NSSS simulation model are the organizational characteristics including both
structural and procedural properties. Each of these classes of variables --
problem areas and organizational characteristics -- will be discussed in turn.

It is reasonable to assume that various kinds of problems in foreign
policy and national security pose quite different demands or requirements
on the support and decision system that must cope with them. This variation
in the demands faced by any system becomes one of two criteria for selecting
problems for a typology of task inputs:

1) The problem should be recurrent in foreign policy/national
security issues at the Presidential level.

2) The problem should be expected to create distinctive require-
ments on the decision system.

One approach to establishing the set of problems to be treated in
the simulation is to enumerate those issues frequently handled at the
Presidential level. Although it is difficult to get a comprehensive picture

of the problems demanding Presidential attention (particularly those that are not attended to), it is possible to make some informed judgments from public sources (for example, see Leacacos, 1971-72). The following set of possible problem categories is by no means comprehensive, but they do capture some of the diversity of requirements on the NSSS:

1) Formulating U.S. position in protracted major negotiations with foreign governments (e.g., with North Vietnamese on the Vietnam War, SALT).

2) Selecting and reviewing "in principle" policies and doctrines (e.g., first use of nuclear weapons, one and one-half war fighting capability).

3) Responding to external crises (e.g., Mayaguez seizure, 1973 Arab-Israeli war).

4) Making budetary allocations for established programs (e.g, annual Defense Department appropriations request to Congress).

5) Deciding upon new programs and weapons systems (e.g., nuclear reactors to Egypt, Trident submarine system).

6) Making administrative arrangements (e.g., revision of National Intelligence Estimate format, designation of U.S. ambassador as head of "country team," creation of the Interdepartmental Groups).

7) Engaging in personal diplomacy (e.g., NATO summit meetings, receiving or visiting major heads of state).

These categories are neither strictly parallel nor mutually exclusive, but such a list does appear to capture a number of the major recurrent tasks facing the upper levels of the national security support system. It is still necessary, however, to determine whether this set of problem areas adequately represents the array of distinctive demands made on the Presidential national security support system (the second criterion for critical issues).

Miller et al. (1976) constructed a series of dimensions that represent underlying properties -- such as urgency, scope of problem, and complexity --

that are present to a greater or lesser degree in any problem. In order to
better estimate the demands that problems create for the NSSS, we can use
similar dimensions and relate them to the types of recurrent problems listed
above. An example may clarify this procedure. One situational dimension of
possible significance is the extent to which the President and his national
security advisors can determine or regulate the pace at which a situation
develops -- that is, the controllability of timing. In the review and selection
of a major policy or doctrine, the NSSS leadership normally has substantially
greater control over timing than in most external crises. Thus, the two pro-
blem areas of external crisis and policy differ substantially on the situational
feature of "controllability of timing."

What are some other situational dimensions that might be used to evaluate
the requirements for policy makers imposed by various types of problems? An
initial listing might include the following:

1) Problem familiarity -- the extent to which the major features of
the problem seem clear and familiar to the policy makers. The
less familiar the problem, the more uncertainty about its nature
and probable effects. As problem familiarity declines, the NSSS
is probably required to engage in more search activity about the
problem and to engage in procedures for resolving competing in-
terpretations of the problem.

2) Problem stability -- the likelihood that the problem will remain
in its essential features about as it was when first considered by
the government or, at least, will change only graudally. In con-
trast are highly volatile problems that are likely to change rapidly
and unpredictably. The less stable the problem, the more an NSSS
is required that can shift plans and actions quickly and flexibly.

3) Value conflicts -- the degree to which the problem poses a choice
for the policy makers between two or more strongly held values so
that one cannot be secured or protected without forefeiting some or
all of one or more other values. Problems that involve major value
tradeoffs require a system that can make sensitive political judge-
ments about who will be deprived by various responses and the impli-
cations that may follow.

4) Detailed technical information -- the extent to which a problem
encompasses substantial amounts of scientific, economic, or other
specific knowledge which must be comprehend in order to cope with
it. The more a problem rests on technical information, the more a

NSSS must be able to acquire the necessary expertise and transmit that information accurately to the locus of decision.

5) <u>External threat</u> -- the degree to which the problem poses a major obstacle to the realization or maintenance of some highly desired objectives, programs, or policies that come from some entity outside the government's political jurisdiction. The greater the threat, the more necessary is (a) the ability to mobilize resources that might neutralize that threat (military, economic, political, etc.) and (b) knowledge of the external entity's capabilities and motivations.

6) <u>Feedback probability</u> -- the likelihood that the consequences of any response to the problem result in reasonably quick and clear feedback to the policy makers as to both intended and unintended effects. Problems with potential for feedback require an NSSS that is capable of monitoring the environment and interpreting the signals received. Timely transmission of feedback to the locus of decision also is required.

7) <u>Decision time</u> -- the amount of time available before the problem is transformed significantly making any response impossible or possible only under conditions less favorable to the United States. The less decision time, the greater the need for quick analysis and response capability.

8) <u>Collaboration of autonomous domestic actors</u> -- the extent to which the problem affects or otherwise involves multiple domestic actors with a significant degree of autonomous authority from one another (e.g., Congress or corporations in the private sector). The more collaboration of autonomous authorities is required, the more a NSSS must be able to communicate and coordinate effectively with these separate actors and establish procedures by which they can reach agreement.

9) <u>Collaboration of autonomous external actors</u> -- the extent to which the problem affects or otherwise involves multiple actors outside the political jurisdiction of the United States who have a significant degree of autonomous authority from one another. The more collaboration of autonomous authorities is required, the more NSSS must be able to communicate and coordinate effectively with these separate actors and establish procedures by which they can reach agreement.

10) <u>Resource mobilization</u> -- the extent to which the problem involves the utilization of large amounts of human and nonhuman resources. The more resources required, the more a support system must have a credible and effective means for the timely mobilization of those resources.

Table 1 arrays the seven proposed types of problems against the ten dimensions of problems just introduced. A provisional judgment has been made

TABLE 1

JUDGMENTS ON TYPICAL VALUES OF TEN SITUATIONAL DIMENSIONS FOR VARIOUS POLICY PROBLEMS[a]

	PROBLEM FAMILIARITY	PROBLEM STABILITY	VALUE CONFLICTS	TECHNICAL INFORMATION	EXTERNAL THREAT	FEEDBACK PROBABILITY	DECISION TIME	DOMESTIC COLLABORATION	EXTERNAL COLLABORATION	RESOURCE MOBILIZATION
MAJOR NEGOTIATIONS	MODERATE	MODERATE	HIGH	HIGH	HIGH	HIGH	MODERATE	MODERATE	SUBSTANTIAL	SUBSTANTIAL
POLICIES & DOCTRINES	HIGH	HIGH	MODERATE	MODERATE	MODERATE	LOW	EXTENDED	SUBSTANTIAL	MODERATE	MODERATE
EXTERNAL CRISIS	LOW	LOW	HIGH	MODERATE	HIGH	HIGH	SHORT	LITTLE	SUBSTANTIAL	MODERATE
BUDGETARY ALLOCATIONS	HIGH	HIGH	HIGH	HIGH	LOW	MODERATE	MODERATE	SUBSTANTIAL	LITTLE	SUBSTANTIAL
PROBLEM & WEAPON SELECTION	HIGH	MODERATE	HIGH	HIGH	MODERATE	HIGH	EXTENDED	SUBSTANTIAL	MODERATE	SUBSTANTIAL
ADMINISTRATIVE ARRANGEMENTS	HIGH	HIGH	MODERATE	MODERATE	LOW	HIGH	EXTENDED	MODERATE	LITTLE	LITTLE
PERSONAL DIPLOMACY	MODERATE	LOW	LOW	LOW	LOW	MODERATE	SHORT	LITTLE	SUBSTANTIAL	LITTLE

[a]The judgments reflected in this table are provisional and considerable variation undoubtedly occurs within each type of problem as to the appropriate value on the situational dimensions. However, the purpose of this table is to illustrate the overall distinctiveness of the profile for each type of policy problem rather than report uncontestable judgments concerning the value assigned any particular problem on a single dimension.

as to the typical value of each dimensional feature in a given class of problems. The reader may not agree with some of the ratings. Given the broad categories of problems, there is undoubtedly considerable variation within any one of them and we may have misjudged the average or most common value in some cases. Because Table 1 is intended only to be illustrative, however, possible disagreement need not be troublesome. The important point that the table seeks to summarize can be stated as follows: The prototypic problems selected as simulation inputs very substantially with respect to certain characteristics. Specifically, the problems are structured so as to create varied requirements on the National Security Support System. The purpose is to create inputs that will allow us to determine how well a given support system copes with problems that create diverse demands on it.

CORE ORGANIZATIONAL VARIABLES

The problem area variables can be regarded as input variables for the simulation or they can be considered control variables inasmuch as the effects attributable to various kinds of problems will presumably be controlled by selecting one of these alternative problem area categories. The second major class of variables involve the core of the simulation, that is, the organizational features which can be varied to represent different support systems.

As with the class of variables representing problem areas, we have constructed two criteria for the selection of the organizational variables to be employed.

1) The organizational features should capture in a limited number of variables, and their relationships, those organizational properties that would appear to be able to have a substantial impact on the policy output.[5]

2) The organizational features should be among those that differentiate historical support systems (e.g., Truman through Nixon) so that it can be established with some confidence that the represented features are ones which policy makers have regarded as manipulable.

We believe that seven organizational clusters of variables meet our dual criteria of influence on policy and variability in past National Security Support Systems.

Organizational Base

The first cluster of organizational variables refers to the information and interpretation capabilities of the respective departments involved in a NSSS simulation (i.e., Departments of State and Defense, Joint Staff, the Central Intelligence Agency and any issue-speciality agency). Using organizational goals, orientation to the external world, and an existing stock of information as the basis for designing decision rules, each organization would screen the input on an incoming problem area and selectively retain and weigh that new information. The organizational base variables can be compared to the early work of Pool and Kessler (1969) on the selective perceptions of the Kaiser and the Tsar in 1914. These variables are suggested for inclusion on the assumptions developed by Halperin (1974, especially chapter 3) and others that each of the major Executive Branch organizations has its own organizational interests which influence how it considers national security and foreign policy issues. In brief, the organizational base consists of two groups of variables. First, a set of topics for which selected information and evaluative analyses are stored in its memory. Second, a set of decision rules that determine what new information or problem will be retained and now it will be evaluated.

Organizational Leader's Link to Base

This component of a NSSS simulation also would contain two parts, both of which concern the link between the weighted and screened information in the organizational base and the individual who heads that organization. The first element concerns how much access the leader has to his or her organization's informational base. Historical accounts

suggest that there are differences among heads of departments and agencies with respect to the amount and kinds of access they have to information in their organization.

The second element of this component concerns the latitude or discretion the leader has to deviate in his advice to the President from the organization's goals and interpretation of developments. Clearly, the head of each of the major Executive Branch departments and agencies assumes many roles -- advisor to the President, chief department administrator, overseer of assigned policy implementation, spokesman for the mission of the department, and so on. Some conflict exists between these various roles, and individuals can partially resolve these role conflicts by emphasizing some at the expense of others. The simulation should be designed to represent different emphases or mixes of these roles for department heads. The constraint would determine whether the individual must remain committed to the department's point of view. Under one condition he may be able to disassociate himself from his department's analysis and weigh it equally with evaluations from all other sources in giving his advice to the President. Adherence to this non-advocate role may hamper the welfare of his department. It might be noted that a leader's access to his or her organizational base may be inversely related to the leader's latitude to deviate from the agency's position in dealing with others. If a leader is known by his department not to be a vigorous advocate of their analyses and goals, their morale and interest in providing him with all the information at their disposal may decline. Conversely a strong departmental advocate might find his subordinates committed to giving him every possible bit of information and argumentation available to them.

Interagency Information Exchange

This next set of variables determines the normal procedures in a given version of the NSSS simulation for the exchange of information among agencies or departments and principals. Decision rules govern (a) with whom information is shared, (b) under what conditions, (c) whether the information is "raw" or "weighted" (i.e., interpreted from the department's point of view), (d) whether the information is volunteered or given only on request, and (e) when and from whom search procedures are instituted to acquire or confirm information. Historically, support systems have used different patterns of communication as the normal or typical arrangement. For example, with a limited NSC staff the exchange of information might be left to individual departments. With a strong NSC staff, all information tends to be routed to it for compilation and general distribution or restricted circulation.

Interagency Option Coordination

One of the major tasks of any support system is to develop alternative courses of action or options for the President. A variable is needed that governs the nature of the coordination between agencies or departments in formulating options. At one extreme, the task is performed independently by each agency without any consultation with others. Each agency forwards its separate recommendations to the President or the National Security Council Staff. At the other extreme, the agencies not only share their provisional options with each other, but must reach consensus on the preferred course of action before forwarding it to the President. Between these extremes, is the sharing of the suggested options among agencies without any requirement for reaching consensus. In this mode an agency can modify its original options to include features of others. Moreover, two or more agencies

may submit joint recommendations. Decision rules would be established
to determine which mode is operative in a particular simualtion.

NSC Staff Functions

The NSC staff -- as distinct from the departmental staffs in the
various agencies -- has played quite varied roles in different Presidential
administrations. A set of variables is needed to determine the mix of
functions assigned to a particular NSC staff. The staff functions can be
characterized as consisting of a series of dimensions with opposing extremes
on the dimensions as follows:

1) Establishment of Government-Wide Studies and Requests for
   Information.

   Studies and information needed by President determined
   exclusively by departments vs. NSC staff with authority
   to require government-wide studies and request specified
   information.

2) Recommended Revisions in Materials Supplied by Departments.

   Nonobligatory suggestions for revision made by NSC staff to
   department vs. mandatory revisions before material will be
   forwarded or meeting convened.

3) Role in Creation of Analysis and Recommendations.

   No NSC staff authority or capability to conduct independent
   analysis of problems vs. generation of independent NSC
   analyses and recommendations.

4) Transmission of Material and Access to President

   Nonevaluative neutral transmission of materials submitted
   by departments to President (or departmental material not
   routed through NSC staff at all) and independent departmental
   access to President vs. NSC staff preparation of summaries and
   evaluation of departmental materials before transmitted to
   President and control of access to President by others.

Of course these functions would not be granted specifically to a
staff but rather to the Assistant to the President for National Security

Affairs who in turn creates a staff to fulfill authorized functions that he

directs. Thus, the NSC staff is equivalent to the organizational base of

other principals. A strong or weak NSC staff can be created by its degree of

authority on these functions. A NSC staff also has potential functions con-

cerning the implementation of Presidential policy, but that is beyond the scope

of the proposed simulation.

Presidential Participation

This cluster contains three major variables -- timing of Presidential

participation, nature (or kind) of Presidential participation, and style of

Presidential interaction. For the present purposes, the timing of Presi-

dential participation can be treated as a dichotomy -- participation only

after options are advanced (post-options) or involvement in defining the

problem and shaping the options (pre-options). In each stage the nature

of the President's participation can be varied by the types of activities

in which he engages.

Post-option Presidential participation limits his role to the final

act of choice between a set of alternatives placed before him. Full post-

option participation allows the President to engage in a variety of activities

after one or more options have been advanced. These activities include

(a) interrogating advisors for more information or for their evaluation of

options, (b) generating entirely new options or combining elements of

those advanced, and (c) conducting informal "votes" among advisors as to their

preferred course of action. Alternatively, a simulation might be structured

to represent pre-option participation. In this mode the President's

activities could include some combination of (a) underscoring his concern

with certain issues of information thereby structuring or defining the

situation for other participants, (b) placing parameters or requirements

on the kind of options he will accept, and/or (c) requesting certain

sequence routines in handling the problem (see the next set of variables).
Depending upon whether the pre or post-option condition is being simulated,
the President will be able to access different information sources at different
times.

Regardless of post-option or pre-option modes and the mix of activities,
the President could have a variety of styles of interaction with other actors.
He could meet with them singularly (that is, with one advisor at a time), with
a subset of advisors, or simultaneously with all advisors. In the latter case --
which would be the simulation equivalent of a slightly expanded NSC Council
meeting -- all participants would witness all the interaction with the President
and might engage in it at any time. In other conditions of Presidential inter-
action the circulation of information would be restricted.

Decision Process Functions

We have already established that the simulated support system could vary
with respect to the mix of participants and their expected functions at different
points in the decision process. Essentially this last cluster of variables
concerns who will be represented in the decision process and what functions will
be operative. With the exception of the President and the Assistant to the
President for National Security Affairs, the other suggested participants in
the simulation would have any combination of three possible functions: (a) infor-
mation acquisition and exchange, (b) option generation, and (c) evaluation of
information and options. The President's functions are determined by the Presi-
dential participation variables and those of his National Security Advisor by
the NSC staff function variables.

Differentiating Historical Administrations

Although space does not permit a full presentation, we believe it is pos-
sible to represent major features of the support systems in the Truman through

Ford Administrations by assigning each system values on the variable clusters

described above. Moreover, the configuration of values on these variables for

each system will, we believe, capture some of the important differences between

Administrations. As one possible illustration, consider the following quotation

from Moose (1969:81):

> The staffing practices of the Kennedy Administration
> contrast sharply with those of the Eisenhower Admini-
> stration in several major respects: First, the Kennedy
> staff devoted very little energy to the National Security
> Council per se, and the council's supporting mechanisms
> were abolished; second, the staff concentrated heavily on
> what was happening at the moment, in part because so many
> critical situations arose which demanded the President's
> personal attention, but primarily because the President
> himself reached down and out for so many issues; and,
> third, many staff members had direct and personal access
> to the President, and thus became channels for a type of
> guidance that had previously flowed through traditional
> channels from the President to his department and agency
> heads.

The downplaying of the NSC in the Kennedy Administration as compared to

the Eisenhower Administrations would be reflected in the simulation by

reducing the President's option of simultaneous interaction with all

advisors. It also would result in eliminating the NSC staff function

of recommending modifications in agency options to maximize their clarity

and feasibility. The direct Presidential involvement would be represented

by giving him access to the organizational base of the agencies through

the appropriate NSC staff function. Direct Presidential access to the NSC

staff organizational base in the simulation would be the equivalent of

individual NSC staff member's access to President Kennedy. It should be

emphasized that the primary purpose of a NSSS simulation would not be

simply to reconstruct key aspects of previous actual support systems --

although that capability appears possible. Instead, it is to know what the

consequences of different organizational arrangements -- whether historical or as yet untried -- might be on policy outputs given different problem areas.

APPLICABILITY OF VARIOUS SIMULATIONS

Having described the purpose and general content of the proposed research, we now turn to considerations concerning the development of an applicable simulation. What follows is a brief, partial overview of a few related simulation models that might be of relevance. In addition to indicating applicable features of existing simulations, this review is intended to suggest how the proposed undertaking compares to previous work. No claim is made that this survey is either exhaustive or representative. Some human-computer, as well as some solely computer, simulations will be noted.

Among human-computer simulations in international relations, probably the best known is the Inter-Nation Simulation or INS (see Guetzkow et al., 1963:82-93).[6] Most participants in this exercise play decision-making roles in countries, while several may assume roles representing leaders of international organizations and members of the world press. Country teams make annual allocations of resources available to the nation by filling out forms. Each allocation period comprises one cycle of play. Information from forms recording these allocation decisions are entered into a computer program which, in effect, incorporates the dynamics of international activity and produces reallocation of political, social and economic resources as outputs. One difference between INS and any NSSS simulations is that INS represents all actors in an international situation whereas the proposed effort would look more closely at decision-making in the United States. Furthermore the Inter-Nation Simulation normally is designed to avoid representing actual countries.

Another human-computer simulation endeavor that attempts to capture the international environment is INTOP, or the International Operations. INTOP is

an international business simulation (see Thorelli and Graves, 1964) that

emphasizes issues related to international trade and multinational corporations.

The basic organization of INTOP resembles INS with corporations replacing countries.

An important difference, however, is that INTOP offers more flexibility with res-

pect to internal organization of the basic decision unit. Each corporation must

have a president, but beyond that common denominator, choice of roles and the

division of labor are up to the participants. As in INS, channels of communication

are clearly defined and limited. Both the role of flexibility (at least with

respect to authority) and the specified communications might lend themselves to

a human-computer simulation of a national security support system.

A great variety of computer simulation exercises deserve consideration

here. Political science (including the areas of foreign policy and international

politics), psychology, sociology, management science, and organization behavior

are all fields of endeavor which have developed computer simulations that touch

upon matters of conceivable utility to the design of a simulation of the national

security system. We shall discuss a few of these.

Bonini(1963) constructed a comprehensive model of the business firm.

The simulation incorporates three major major areas -- manufacturing, sales,

and planning-control -- and builds upon six essential elements or "general

concepts." Bonini's general concepts are decision centers, information links,

information systems, decision systems, information centers, and decision

rules. He has altered the values of indicators of these concepts across 64

simulation runs, thereby simulating differing structures for a firm. For

each simulation run a mean, standard deviation,and trend over time are produced

for six output variables consisting of price, cost, inventory, sales, profit,

and pressure. The specialization and division of labor represented in the

simulation of the firm is not unlike that required for a NSSS. Moreover, Bonini's input variables are similar enough to our notions of NSC organizational structure to merit serious consideration in borrowing that aspect of his simulation. His output variables, however, are far from parallel to any needed to simulate national security support systems. This fact renders Bonini's programmed interrelationships between variables largely inapplicable for a NSSS computer simulation.

One area of computer simulation that focuses on individual behavior is simulation of cognitive processes. Newell and Simon (1972) illustrate these efforts in a simulation of human problem solving or artificial intelligence with the attempts to program a computer to play chess as a knowledgeable human is understood to approach this task. The Newell, Shaw, and Simon program (described in Newell and Simon , 1972:678-698) operates at two levels of organization. On one level it adopts a minimax strategy toward the ultimate goal of winning the chess match. On a secondary level, goals corresponding to such basic aspects of chess situations as material balance and center control are considered. On each of these levels the computer evaluates as many potential moves as it can consider while approximating the human mind.

Ultimately it might be desirable to construct a simulation of national security support systems in the fashion of the cognitive process simulations. To produce policy recommendations it would posit rules guiding the problem-solving processes of various individual components of the national security support system and their interaction. Just as in the chess simulation, empirical tests of the existence of actions that follow from the posited logic would serve as one kind of validity check. For the present, however, this must serve as a rather distant goal rather than an immediately applicable approach because the representation of a single human problem solver is still in its early stages and the interaction of multiple units is not currently

feasible. Although cognitive process simulations may not be directly applicable, some insights from this human problem-solving approach may be of value.

Thorson, Anderson, and Thorson (1975) have utilized some of this problem-solving orientation in a decision-making simulation of foreign policy processes. More specifically, their simulation "is an effort at elucidating the internal mechanisms by which governments generate behaviors..." (Thorson, Anderson, and Thorson, 1975:3). The type of simulation employed involves an engineering framework elaborated by Simon (1969) and Thorson (1974). Called a production system simulation, it seeks to create a computer simulation for the investigation of the consequences of alternative policies. Governments are treated as goal seeking systems for which goals can be multiple and changing. One of its features is to permit a user or operator to interact with the system without knowledge of a special computer language.

The production system simulation consists of linearly ordered lists of action and condition statements. Serving as an input to an element of the system, an action statement triggers some aspect of the memory or state of knowledge of the system. This state of knowledge or condition section is dictated by circumstances that have developed during the simulation's operation as well as from the pre-chosen scenario. (In a hypothetical NSSS simulation the conditions would reflect the organizational behavior configuration and the selected issue area.)

Table 2 illustrates the most elementary components of a production system simulation using content that might be found if it were designed to model features of a national security support system. The four columns of the table correspond to the basic building blocks of such a simulation. To begin the process an input sentence or action is selected by the simulation user or triggered by some other aspect of the program. In the example the

TABLE 2

EXAMPLE OF PRODUCTION SYSTEM FORMAT FOR A NSSS COMPUTER SIMULATION

Action or Input Sentences	State Transition	Conditions or State of Knowledge in Memory	Logic of Situation
IS1 ACDA Director recommends stretching out rate of Trident sub production	IS 1 → SK3	SK1 Issue Area X = Naval weapon acquisition.	SK1+SK2+SK3 → IS 2
		SK2 Secretary of Navy, Chief of Naval Operations, and ACDA Director all part of support system.	
IS2 NSC Assistant requests opinions of Secretaries of State and Defense and Chairman of JCS		SK3 Secretary of Navy & Chief of Naval Operations oppose delays.	

first input or action statement is a recommendation from the Director of the
Arms Control and Disarmament Agency. The second column labeled "state transi-
tion" is a channeling device built into the simulation that indicates to which
part of the program's memory a particular type of action statement applies. In
this instance, given the conditions labeled SK 1 and SK 2, the action is routed
to SK 3 which is shown in this illustration to be the opposition of the Chief
of Naval Operations and the Secretary of the Navy. The fourth column of the
table or "logic of the situation" indicates the consequence that the simulation
generates from the combination of action and conditions. The programming of
the logic of the situation column depends on the knowledge built into the
simulation using in this instance the understanding drawn from national security
and organizational behavior materials and experts. In sum, the illustrative
logic of the situation column states that in issue area X (Trident submarine
production) if the ACDA Director, Chief of Naval Operations, and Secretary of
Navy are all members of the national security support system, then in that
system the Assistant for National Security Affairs will ask the Secretaries of
State and Defense and the Chairman of the Joint Chiefs of Staff to offer their
opinions. Presumably that will trigger new action or input statements for
estimating their judgments which when generated will activate input statements
for determining whether any resolution of differing views is required.

Several considerations should be noted in considering the example in
Table 2. First, the input sentences can be overridden by the user. If they
are not countermanded by the operator, they will trigger the associated state
of knowledge or conditions and the results prescribed by the logic of the
situation. Second, state transition and logic of the situation statements are
the basic elements of a theory -- in this case a theory of U.S. national security
behavior. Running the simulation and analyzing the results constitutes a test
of that theory. Altering state transition and logic of situation statements

creates a variation in theory. Changing initial statements of actions or conditions (state of knowledge) does not modify the theory, but rather leads to tracing the implications of alternative assumptions through a given theory. and logic of situation statements creates a variation in theory.

Finally, it should be stressed that one of the advantages of a production system simulation is its ability to deal with the complexity of foreign policy making in a way that can be traced or monitored. The highly restricted segment in Table 2 cannot illustrate this feature without making the table itself too involved for our purposes. It should be remembered, however, that most foreign policy decision situations could not be represented with only three items in any of the basic columns. Adding just a few more conditions or actions would necessitate positing a large number of state transition and logic of the situation equations. Each subsequent relationship between a condition and an action must be evaluated in terms of all previously stated relationships. The systematic communication of the relationships between large numbers of conditions and actions -- a crucial type of complexity -- can be accomplished by a production system simulation. Few if any alternative modes of addressing foreign policy problems can both deal with such complexity and exhibit the desired flexibility -- that is, the ability to trace through the implications of both alternative theories of foreign policy behavior and alternative actions, given a particular theory.

The "production system" approach has many features that recommend it for our simulation pusposes. First, it is an effort to model the internal structure of government. Second, it allows for the pursuit of multiple goals. Third, it allows for the "redundancy of potential control" and, fourth it considers governments to be event-based. "Redundancy of potential control"

refers to a situation in which lines of authority and authoritative communi-
cation can at times fail to be mutually exclusive. In other words, a particular
task can be accomplished by multiple means or can be obstructed by conflicting
directives emanating from alternative sources. The advantage of treating
governments as event-based entities is that it allows for decision-making
processes to be affected by the timing of other events or occurrences in the
evolving situation rather than by a rigourous sequence determined by clock or
calender time. For the aforementioned reasons, the production system approach
appears to offer substantial promise as a simulation for addressing issues of
decision making in the national security support system.

Any proposed NSSS simulation, however, would differ in at least two
respects from the approach outlined by Thorson, Anderson, and Thorson (1975).
One difference is the scope of their assumption that "internally governments are
organized hierarchically" (Thorson et al., 1975:1089). We clearly agree with
the general thrust of the comment; that is, we agree that the President, the
other NSC principals, and their staffs operate at different levels within a
hierarchical system. Some aspects of a NSSS simulation, though, must concern
interactions completely within the level of the NSC principals. Thus, a number
of the relationships with which it deals would not be hierarchically based,
although the degree of overall hierarchy is a variable that could be subject
to manipulation. The other difference is the contextual definition of external
environment. In the case of a NSSS simulation the immediate environment is
primarily domestic as opposed to foreign. Whereas Thorson and his associates
have been primarily concerned with a government's attempts to control and respond
to other external international actors, the proposed simulation approach discussed
here deals largely with interactions among security principals and their depart-
ments.

Modifications such as these would not alter the basic approach or assumptions of the production system simulation. We, therefore, conclude that such a simulation is both a feasible and a most promising means of studying the organizational effects of alternative national security support systems. Its utility could be enhanced by introducing certain modifications that draw upon the richness of the management science and psychological simulations in the area of human information processing.

SHOULD THERE BE HUMAN PARTICIPANTS?

The previous section of this essay revealed that a number of existing simulation approaches offer insights for designing a simulation of various national security support systems. Although no present simulation model can be adapted without significant modifications, the production simulation procedure appears especially promising as a general approach. One major feature distinguishing various political decision-making simulations noted in the previous section was the use or nonuse of human participants to represent selected features. No recommendation for a national security simulation would be complete without addressing this issue.

A clarification is required at the outset. Either form of the NSSS simulation considered in this section involves a computer model as a major integral part. We will not be considering a role playing exercise or political game devoid of any systematic and carefully programmed structure because we do not believe such procedures -- although valuable in other contexts -- are appropriate for the present experimental purposes.

In one form of the simulation to be considered here a single human operator interacts with a completely programmed computer model of the support system. The operator sets initial parameters to represent a

particular organizational configuration and substantive problem. At key points. in the model's operation the operator could have the option of selecting among alternative paths or overriding programmed decision rules. In contrast to the operator-directed simulation is a form in which multiple human participants interact through the computer with one another. The participants assume established positions in the support system with the computer program designed to shape and constrain their role behavior as well as provide them with the organizational context that transforms the setting from a small group to the interacting heads of complex bureaucracies. Because the labels "operator-directed computer simulation" and "computer supported, multiple interacting participant simulation" are extremely cumbersome, we will hereafter refer to them as the computer and participant simulations respectively. But the reader must remember that these shortened titles are not fully accurate because both involve computer programs and some form of human intervention.

It should also be established that various features of each type of simulation could be combined. We shall not consider such hybrid designs, however, in order to dramatize the tradeoffs presented by each of the basic alternatives. The liabilities and assets of each mode of simulation will be examined by comparing their interaction dynamics, their option generation and selection procedures, and their treatment of personal leader styles.

Representative of Interaction Between Principals

A computer simulation would not represent the interaction dynamics between the principal actors in a national security support system in great detail. Procedures for interaction and their outcomes would be calculated from programmed relationships. A particular input sentence and stored state of knowledge would activate a programmed "logic of the situation"

decision rule that would determine the results of the interaction. In other words, a given action in a prescribed scenario dealing with a particular issue area would generate a list of the principals who would be involved, their initial positions on the issue, those that would exchange information and views, and -- if the system being represented required resolution of any differences among advisors -- that outcome would be calculated.

A specific example may clarify how the computer simulation would deal with the dynamics of interaction between national security principals. Assume that the organizational components of the simulation are configured to resemble a national security system with considerable authority delegated to the Secretary of State who acts as the major conduit for advice to the President. In this arrangement other principals know that their views are unlikely to be thoroughly considered by the President unless supported by the powerful Secretary of State. (In simulation terms, this design involves certain structures of interagency information exchange, option coordination, etc.) From a repertoire of possible problem areas for the simulation, the operator has chosen a crisis in which a major hostile foreign power has indicated it is prepared to initiate an extremely provocative act toward the United States unless certain issues are resolved to its satisfaction. The organizational base supporting the Secretary of Defense leads him to hold a different view from the Secretary of State as to the appropriate response. The program directs that the Secretary of Defense channel his information to the Secretary of State (an interaction), but after certain programmed checks triggered by the interaction, the Secretary of State's position is unaltered and it is transmitted as the sole recommendation to the President (the output of the simulation).

One variation on the above description involves human intervention by the simulation operator. As described above the initial programming would treat interaction paths and results as completely determined by the scenario. As an alternative, however, one or more of the paths could be overridden by the simulation operator or user. Small amounts of structured interaction at the terminal could supersede the preprogrammed interaction. Thus, the operator might arrange for the Secretary of State to amend his position to take into account some aspects of the Secretary of Defense's proposal. This user intervention would trigger different programmed interactions.

In the interacting human participant mode, the pre-programmed computer components would play a more limited role in determining the dynamics of interaction. On the basis of the selected scenario and problem area, the computer would assemble a separate data bank of information for each principal. Some initial information would be displayed to the human participants, but details could be discovered only by queries to their computer-represented organizations. Some information would be available only through the terminals available to particular actors, some desired information undoubtedly would be unavailable to all, and interpretations of existing information conveyed to different principals might be expected to vary. What information and evaluations a participant elected to seek would be entirely his choice. Participants would communicate with one another through their computer terminals in a designated format (to facilitate monitoring,described below) but the content of their communications would be left to their discretion. To represent organizational configurations, however, certain rules about the eligible recipients of communications and the treatment of information received would be established. For example, in the illustration advanced earlier concerning a reservation of the Secretary of Defense,the channels

would be configured so that the information could not be transmitted directly to the individual assuming the Presidential role but rather had to go to the Secretary of State. The previously mentioned organizational structure did not require the Secretary to relay the concern to the President, but if it had, then the computer would be instructed to monitor the communication flow and assure that the obligation was met.

The clear emphasis in this simulation mode is to use humans to capture difficult or impossible to program variables in human decision-making interaction. Thus, for example, an important element is the possibility of ambiguity in transmitted messages. That feature would be extremely difficult to introduce in an appropriate fashion in the completely programmed computer simulation, but in this mode if a communication has more than one meaning, the interpretation is determined by the recipient who may or may not elect to ask for clarification. Similarly, the substantive range of options or alternatives that can be recommended by the support system in this simulation mode is much greater -- although bounded -- than in the other version.

In the area of interaction between national security principals, there are clear tradeoffs between the interacting human participants and the operator directed, or completely programmed, modes of simulation. As we have seen multiple human participation permits greater freedom and complexity of interaction and option generation. It also introduces psychological variables such as misperception in a much more comprehensive way. These gains are acquired, however, at the cost of control of interaction. Comprehension of the factors in interaction and ability to identify the elements responsible for a particular outcome are reduced.

Generation of Options and Related Advice

We already have touched briefly on the matter of options and the related recommendations that national security advisors transmit to the President. In the completely programmed computer simulation a full set of all permissible options has been programmed in advance for every combination of issue area and organizational configuration. From that list the computer determines the option or options recommended to the President based on decision rules governing two broad areas. Decision rules in the first area determine the preferred position of each principal advisor. These calculations are based upon (a) his organization's mission, (b) his closeness to his supporting organization, and (c) his programmed personal values and style (i.e., an abbreviated operational code). The second area of decision rules concerns procedures to be followed if the advisors disagree on their recommendations. These decision rules will vary depending on the organizational configuration of the national security advisory system being simulated. For some configurations, multiple separate recommendations to the President may be a permitted outcome. In others, decision rules are introduced to obtain a partial or complete consensus or to determine whose preferences will prevail.

In the multiple human participant mode, participants would initially be informed of the organizational structure and features of the issue area creating the problem with which they must cope. Upon request information is available in their organization about the resources and estimated intentions of related foreign actors and the resources under the jurisdiction of their own agency that might be potentially applied (e.g., disposition of U.S. forces, available diplomatic officers, intelligence capabilities). Strengths and weaknesses of other actors also may be sought. With whatever

of this information is available and is requested by each human participant, every individual has complete freedom to identify options and evaluate them.

The basic tradeoff between the two simulation modes with respect to options and advice involves the number and creativity of potential options versus their comparability. With human participants the simulation offers a substantially greater variety of options but so many are possible that cross-run comparisons and conclusions may be difficult assuming a finite number of runs. (How does one compare ten runs of two different organizational configurations when the outputs or recommendations to the President in no two runs are alike?) The completely programmed simulation, on the other hand, cannot be realistically expected to deal with more than an extremely limited set of options. That limited set, however, affords substantial opportunities for comparing options and their possible effects.

Personal Styles of Individual Advisors

There can be little doubt that individual qualities of actual principals in any national security system affect the procedure for option search, option selection, information exchange, and option evaluation. As new individuals assume key roles some differences in the treatment of variables relevant to the proposed study can be expected. Although we assume that it is not the intended purpose of the NSSS simulation to study the effect of personality differences on the national security support system, some limited attention to selected personal attributes seems prudent.

The completely programmed computer mode could be structured to represent selected personal style variables judged to be pivotal for the operation of an organizational support system. Literature from psychology, organizational behavior, and foreign policy decision making could be drawn upon to determine the key variables. For example, Driver and Mock (1975) advance a series of

decision style categories that might be applicable. As an illustration, consider how one of their categories, integrative style, could be programmed. One of the characteristics of this individual style is that the person desires extensive amounts of information in making a decision. To incorporate that feature in a simulation, an integrative type of actor could be programmed to choose, ceteris paribus, an option that included an extensive information search over one that did not. Other individual characteristics that might be particularly salient for the NSSS simulation are interpersonal style (see M. Hermann, 1978) and several variables incorporated in the operational code (George, 1969).

With the multiple interacting participant mode of simulation, several alternative means of treating personal characteristics are available. As in the completely programmed computer mode, one might wish to be quite specific about the individual characteristics to be represented. Through various types of psychological tests administered to potential participants before the simulation, individuals could be selected for particular positions in given runs who appeared to display the desired values on the selected variables. The feasibility and impact of this procedure has been demonstrated on several occasions (see for example, Hermann and Hermann, 1967). Even if participants could not be assigned given roles, individual testing for selected variables would indicate what configuration of personal characteristics was present. A less rigorous procedure would be to design rules governing behavior for each personal style to be represented. Participants would be told to perform in accordance with the rules for their position on such matters as option strategies, etc. These behaviors could be promoted through certain checks and reinforcement routines built into the computer. A third option would be to minimize individual differences by random assignment of individuals to participant roles and runs of the simulation. This process would be combined with a fairly large number of trials or runs of the simulation.

A comparison of the completely programmed computer simulation and the multiple participant simulation with respect to personal styles depends on several key factors. One of them is how much is known about the interaction among personal characteristic variables and between them and the salient organizational variables. If those interactions are reasonably well understood or, at least, have plausible theories relating them, then a totally programmed simulation may be preferable. If, however, the linkages are relatively unknown, then the multiple human interaction mode may become more appropriate because it does not require speculation on those features. A second consideration is how many personal style variables are judged to be essential. Should the number exceed two or three, the programming demands will grow substantially and the time and effort required for the all computer mode may become significant.

Overview Comparison of the Two Modes

Some comparative observations about the two simulation modes already have been advanced. It may be instructive, however, to provide some summary evaluation against four criteria that we regard as necessary considerations in any simulation design. The four criteria are (a) desired product, (b) nature of the users, (c) available resources, and (d) the role of theory.

With regard to the desired product that can be expected from each mode, the two approaches differ notably. In cases where general distinctions between broadly defined options and other variable categories would be useful, the completely programmed simulation would more likely supply the kind of product desired. If, however, greater detail with respect to option choice and other actions is desired, the human interaction simulation is probably superior.

The nature of the NSSS simulation user is a second differentiating criterion. If a potential user values direct participatory role-playing experience, and will accept relatively non-technical output (assuming normal participant background),

then the human interaction mode is more optimal. On the other hand, if either pure research or a potentially technical decision aid are desired, the completely programmed simulation may be preferred.

Realistically, resources constrain research. The completely programmed simulation would best be undertaken with a computer of its own at most institutions. Moreover, the greater resources required for the very substantial programming effort would add to the initial expense of that approach. Therefore, if resources are a severe constraint, the human interaction mode probably is the better choice.

A final criterion for comparison of the two simulation approaches is their relation to theory. The completely programmed simulation can serve as a vehicle for constructing theory of foreign policy decision making. The computer program itself represents at least one theory. It is an excellent vehicle for drawing out the logical consequences of the elements of a theory taken together. The fully programmed simulation, however, cannot serve as an empirical testing ground for a theory because it is constructed from a single set of either assumptions or empirical generalizations and does not provide for comparison to another system.

The human interaction simulation, in the other hand, could not represent logical consequences or implications of a theory. It could, however, test theories or hypotheses whose origin was outside the simulation itself. It also might generate limited pre-theoretic hunches that could be used in another setting to help produce theory. In general, the human interaction mode may be more suited for dealing with the exploration of initial questions than for issues of scientific theory construction.

CONCLUSION

This study has identified a set of factors that have a probable effect on the national security policies of the United States and whose effects under varying conditions have not been systematically compared. Not only does the organizational support system for Presidential involvement in national security. influence the substance and style of policy, but it also can be modified to some degree by the policy makers themselves. In fact, it is clearly the case that recent Presidents and their principal advisors have elected to modify the support system from time to time. Because many of the other forces that impinge on the national security policies of the United States can be altered by policy makers only with great difficulty -- if at all -- those that can be changed such as the organizational support system deserve careful study.

Organizational effects on policy should be of particular interest to those charged with establishing and maintaining machinery for crisis management. Good reasons exist to expect that an organizational configuration that is nearly optimal for one class of national security problems may be extremely deficient with respect to others. A strong case has been made (summarized in Table 1) that national security crises pose different types of demands on organizational support systems than do other types of national security and foreign policy problems. Unless policy makers are aware of these differences and use that knowledge to design systems that can vary depending on the demands they encounter, an organization that is reasonably satisfied with in normal situations may seriously erode effective policy making in times of crises.

Serious costs would obviously be incurred from experimenting too extensively with actual organizational support systems. Accordingly, this study has explored the feasibility of examining the effects of different organization configurations through the use of simulation. Our conclusion is that whereas no simulation model

now exists that can be used in exactly its present form to explore the problem, at least one -- and perhaps others -- could be adapted to serve as constructive research tools. Indeed we believe the production system simulation offers one quite promising model for representing interactions among the six sets of organizational variables that seem pivotal in any simulation of the national security system. The seven clusters of organizational variables we have introduced concern the organizational base for each major department or agency, the linkage between a secretary or director of a bureaucracy and his organizational base, the exchange of information between agencies, the degree to which options and support materials are coordinated between agencies, the functions of the Assistant to the President for National Security Affairs and his staff, the nature of the President's participation, and the functions played in the decision process. The utility of the production system simulation seems clear regardless of whether it is designed to operate in a completely programmed mode or as part of a system that also involves multiple human participants. Given the clear trade-offs between those two modes, the choice must depend on the specific intended purposes for which the simulation would be designed.

The product of the proposed simulation would be one or more recommendations and related supporting material to the President in response to a given type of national security problem. The products could be compared for different organizational configurations. This feasibility study has not considered the criteria against which recommendations from different national security support systems should be evaluated. Both Steiner (1977) and Reichart (forthcoming 1979) have proposed criteria for precisely that purpose. As developed by Reichart they include:

1) accuracy and accessibility of information

2) completeness of information distribution among advisors

3) availability of multiple options to the President

4) transmission of any dissent to President

5) explicit consideration of uncertainty

6) use of relevant experts

7) concern for implementation

8) explicit consideration of goals and possible tradeoff effects

The five criteria advanced by Steiner (1977) are broader than those listed above and include such things as public definition and understanding of the issue, decision-making continuity, debate on alternatives, development of consensus, and administrative guidance. As Reichart notes, any set of criteria may not always be applicable, but he makes a compelling case for their consideration in most cases. Obviously the exact set of evaluative criteria should be determined by the simulation user, but the Steiner and Reichart works provide a clear point of departure.

In summary, it is our conclusion that a simulation of the national security support system is definitely feasible and potentially valuable.

NOTES

* An earlier version of this report was presented at the annual meeting
of the Midwest Political Science Association, April 29 -May 1, 1976. The authors
express their appreciation to the panelists and audience -- particularly Arnold
Kanter -- for their helpful comments. The first author also wishes to acknowledge
the Council on Foreign Relations for awarding him an International Affairs
Fellowship in 1969 that allowed a year's service on the National Security Council
staff. That experience sensitized him to the issues treated in this report.

1. Destler (1972) reviews eleven major public and private studies of the
American foreign affairs machinery since Wrold War II. To that list would
have to be added several items prepared since Destler's book was published
including Allison and Szanton (1976) and the U.S. Commission on the Organization
of the Government for the Conduct of Foreign Policy (The Murphy Commission) (1975).

2. See Destler (1972) for summary of the various organizational arrange-
ments that have been recommended.

3. The role of the Assistant to the President for National Security Affairs
has emerged as a more critical position as the office has evolved and might not
qualify as one of the six principals if the focus was exclusively on the Truman
or Eisenhower Administrations. As indicated below, the authority of this position
would be treated as a variable in the simulation. Of course individuals in many
other positions in the Executive Branch are involved in foreign affairs and
national security with great frequency -- the Secretary of the Department of Energy,
the Director of AID, the Director of International Communications Agency, the
Director of ACDA, the individual military service chiefs and civilian military
secretaries, the secretaries of other cabinet departments (such as the Secretary
of the Treasury, Agriculture, and Commerce) or their assistant secretaries

charged with the international division or bureau of their department. The
basic roles could be expanded to include one or more of these positions
depending on the type of problem.

4. Examination of the post-choice phases of decision making often has been
neglected. It may prove desirable in subsequent development of such simulations
to include three additional stages of post-recommendation outputs: (a) what the
President decided; (b) what the NSC system did in the form of implementation
(and what discrepancies, if any, appear); and (c) what awareness, if any, the
President had of any discrepancies between his choice and the actual implementation.
We believe that organizational variables in the NSC system play a significant
role in these processes and hence should ultimately be part of the simulation.
This point is made by Richard Moose who, in reviewing the NSC staffs since 1947,
writes: "Indeed, many observers and participants of the processes of the Kennedy-
Johnson period believe there were great gaps between the articulation of policy
objectives and the implementation and verification of coordinated action in
furtherance of those objectives" (Moose, 1969:79).

5. Although it is clearly desirable to select organizational variables
that one has reason to believe have an effect on policy when considered in isolation,
it may not be possible to determine what that effect will be when a given variable
interacts with others included in the simulation. Indeed one of the attractive
features of a computer simulation is the opportunity it affords to explore com-
plex interaction sequences that may produce unexpected results and, on some
occasions, results that seem counterintuitive using a simpler mode of analysis.

6. Subsequent generations of simulations that have been derived from the
Inter Nation Simulation and the work of Guetzkow are described in Smoker (1972)
and Bremer (1977).

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