Integrative Complexity
of Communications
in International Crises

PETER SUEDFELD
Department of Psychology
University of British Columbia

PHILIP TETLOCK
Department of Psychology
Yale University

Diplomatic communications during international crises that resulted in war (1914 and 1950) and crises that were settled peacefully (1911, 1948, 1962) were scored for integrative complexity. This is a dimension of information processing characterized at one pole by simple responses, gross distinctions, rigidity, and restricted information usage, and at the other by complexity, fine distinctions, flexibility, and extensive information search and usage. Complexity of the messages produced by governmental leaders was significantly lower in crises that ended in war. As the crisis approached its climax, complexity declined in 1914 and increased in 1962. The results demonstrate the usefulness of information processing complexity, which can be measured objectively in a wide range of materials, for analyzing political and diplomatic events.

The systematic analysis of international crises, while primarily the focus of attention of historians and political scientists, can also be approached as the psychological study of decision makers under

[169]

pressure. This pressure occurs because there is a threat to important values (Robinson, Hermann, and Hermann, 1969) and the actions of other participants appear to become more hostile (Holsti, 1972). As a result of the decreased stability of the international situation (Young, 1967), there is a drastic increase in the perceived need to make rapid decisions (Holsti, 1972). The volume of information to be processed by decision makers grows as there is a greater exchange of communications both internally and with counterparts in other nations (Holsti, Brody, and North, 1964; Holsti, 1972; Paige, 1972). The combination of an imperative demand for crucial decisions to be made quickly and cor- rectly with a massive information overload is a form of psychological stress that can be expected to reduce the information processing complexity of the individuals involved (Holsti, 1972; Selye, 1956; Schroder, Driver, and Streufert, 1967).

Analyzing documents originated by national decision makers in a number of twentieth-century crises, Holsti and his coworkers have found several reliable trends which they have related to the eventual outcome of the crisis. For example, Holsti (1965) analyzed a large number of documents exchanged between high-level policy makers in the months prior to the outbreak of World War I. He found that as the crisis approached its peak, these decision makers increasingly perceived that they were under time pressure. They became concerned with short- range solutions and saw their freedom of action being increasingly restricted while that of their adversaries appeared to be increasingly wider. Furthermore, channels of communication became progressively overloaded, the amount of novel information tended to decrease, com- munication became more focused on allies as opposed to adversaries (see also Janis, 1972), and more and more information flowed through nontraditional channels. The ability to cope with stress may help to distinguish crises that lead to violent or extreme solutions, as in the 1914 case, from those that are resolved in a more moderate fashion. In the United States-Soviet Union confrontation over the placement of missiles in Cuba in 1962, American decision makers, apparently aware of the danger of simplification (Holsti et al., 1964), resolved not to make premature decisions and to maintain the flexibility of their options as much as possible. Also, communications remained at a level that enabled each protagonist to evaluate quite accurately the motivations and possible consequences of moves made by the other.

This analysis can be summarized in terms that are compatible with experimental results emanating from psychological research on infor- mation processing and cognition. Basically, there is agreement that
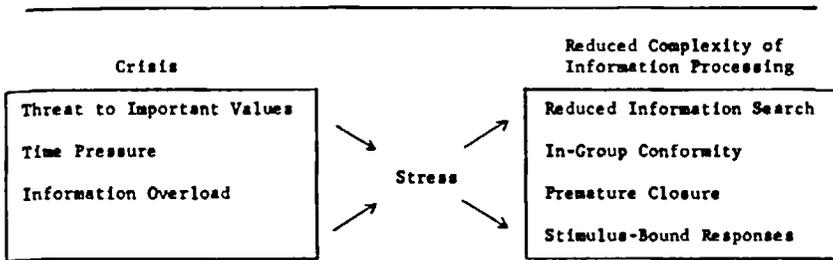
Figure 1: Cognitive Reaction to Crises

prolonged stress decreases the complexity of information processing. This impairment includes a lessened likelihood of accurately distinguishing between relevant and irrelevant information, reduced search for novel information, the suppression or ignoring of unpleasant inputs, and greater concentration of both incoming and outgoing communications to the ingroup. Long-term plans tend to be ignored in favor of stimulus-bound reactions, fine distinctions among items of information or among other participants in the crisis are abandoned, and responses and attitudes become increasingly stereotyped (see Figure 1).

These conclusions are strikingly similar to experimental data obtained by psychologists studying various aspects of problem solving. The work of Schroder and his colleagues (Harvey, Hunt, and Schroder, 1961; Schroder, Driver, and Streufert, 1967) appears particularly closely related. These authors analyze the differentiation and integration of information in terms of complexity.

Differentiation refers to the characteristics or dimensions of stimuli that are recognized and taken into account in decision-making. A differentiated characteristic may be regarded as an independent attribute perceived by the observer, along which the stimulus can be scaled. The same message, individual, or nation may be more or less well differentiated by different perceivers; in general, more complex information processors differentiate a larger number of characteristics in any given multidimensional stimulus. The more such dimensions are recognized, the more complex is the reaction of the individual to the stimulus. Integration refers to the development of complex connections among the differentiated characteristics. The complexity of integration depends on whether such characteristics are perceived as operating in isolation, in hierarchical interaction, or according to multiple, complex, and perhaps flexible patterns.

The combination of differentiation and integration defines the general dimension of simplicity-complexity in information processing. At the simple end of the continuum, decisions are characterized by anchoring around a few salient reference points; the perception of only one side of an argument or problem; the ignoring of subtle differences or similarities among other points of view; the perceiving of other participants, courses of action, and possible outcomes as being either totally good or totally bad; and a search for rapid and absolute solutions in order to achieve minimization of uncertainty and ambiguity. At the complex end, we find flexible and open information processing; the use of many dimensions in an integrated, combinatorial fashion; continued search for novelty and for further information; and the ability to consider multiple points of view simultaneously, to integrate them, and then to respond flexibly to them.

We have already cited the resolution of the Cuban missile crisis of 1962 as an example of high complexity on the strategic level (Holsti et al., 1964). American leaders considered a number of alternative solutions, searched for positive and negative information related to each one, and tried to estimate the possible outcomes of each objectively while maintaining the option to switch from one to another as long as possible. The result was a complex plan of mutually contingent steps by the two sides, avoiding irrevocable ultimata and unacceptable demands. In contrast, Israel's current policy of never compromising with terrorists is a simple strategy, even though the reasons for adopting it and the way it is applied tactically may be relatively complex.

More restricted examples are offered by two clauses of the Treaty of Versailles. In a clear-cut illustration of the unidimensional, undifferentiated nature of simple information processing, Article 231 states:

> The Allied and Associated Governments affirm, and Germany accepts, the responsibility of Germany and her Allies for causing all the loss and damage to which the Allied and Associated Governments and their nationals have been subjected as a consequence of a war imposed upon them by the aggression of Germany and her allies.

Considerable diplomatic maneuvering resulted in a noticeable increase in flexibility, open options, and a recognition of alternative outcomes embodied in Article 233:

> The Commission shall consider the claims and give to the German Government a just opportunity to be heard. . . . The Commission shall concurrently draw up a schedule of payments prescribing the time and manner for securing and dis-

charging the entire obligation within a period of thirty years from May 1, 1921. If, however, within the period mentioned, Germany fails to discharge her obligations, any balance remaining unpaid may, within the discretion of the Commission, be postponed for settlement in subsequent years, or may be handled otherwise in such manner as the Allied and Associated Governments, acting in accordance with the procedure laid down in this part of the present Treaty, shall determine.

The level of complexity of a policy, a decision, or a statement has no implications for an assessment of appropriateness, practicality, effectiveness, or morality. These characteristics can be evaluated only in light of the specific circumstances, responses, and available options. It should also be emphasized that, given reasonable length, almost any verbal material can be scored for complexity regardless of era, language, or topic.

In one previous attempt to use this variable in international relations, Hermann (1974) devised an extremely simple measure of complexity. She defined some words as reflecting high complexity (e.g., "maybe") and others low complexity (e.g., "definitely"). She then counted the appearance of words in each category in press interviews of ten heads of state between 1963 and 1968. On 15 comparisons using "foreign policy variables" as the (presumably) dependent measure, there was only one statistically significant relationship. "Complexity" was highly correlated with the use of deeds (e.g., use or regulation of national resources) as opposed to words (press releases, messages) in the conduct of foreign policy, but only for heads of state who had no training or professional background in diplomacy. Given the unvalidated measure of complexity, and the esoteric foreign policy variables, the restricted nature of the effect is not surprising. It should also be noted that complexity was used strictly as a personological construct, without allowance for situational influences.

While the major emphasis of past research in conceptual complexity theory has been on complexity as a personality trait, some experiments have been performed that are quite relevant to Holsti's work. Most prominent among these has been a series of studies in Guetzkow's (1959) internation simulation laboratory (Driver, 1962). In agreement with other research on information processing, Driver found a curvilinear function between integrative complexity of behavior and such environmental characteristics as interest (a function of the increasingly smooth operation of the simulations and of rewarding outcomes) and "noxity" (a function of military threat). Complexity of information processing was measured in these studies by multidimensional scaling of the perception of participants in rating the other nations in the

simulated world. As the complexity (i.e., combined interest and threat) of the environment increased beyond optimal, the degree to which multidimensional differences among the other nations were perceived decreased drastically. This finding is quite compatible with some of the results of archival content analyses.

In other related research, players of a tactical game showed decreases in complexity (fewer integrated decisions, reduced complexity of the average decision, shorter time-span of decisions, less search for novel information, and lower quality of high-level decisions) as the amount of information received in a given period of time exceeded an optimal range (see Schroder et al., 1967). The curvilinear functions reported by Schroder and his colleagues demonstrate that excessively low levels of interest and information input result in decreased complexity of decisions just as excessively high levels do. While no systematic research has been done on low-information situations in the international context, Young's (1967) taxonomy of crises does include underload crises, where there is an insufficiency of information (see also Hermann and Brady, 1972). Presumably, one would find specific differences in the pattern of decisions made in underload and overload crises, but in both instances the complexity of the decisions should be relatively low.

It is clear that these two lines of thinking, one from experimental psychology and the other from political science with an experimental psychological base, are quite closely linked. Unfortunately, it has not been possible to equate complexity of information processing, as measured in the international and tactical game simulations of Schroder et al., with the complexity of communications between actual national decision makers. For one thing, both the environment and the modes of response in simulations are under strict experimental control, which obviously is not the case in the nonlaboratory crisis situation. For another, archival content analyses are extremely complicated and voluminous, and make comparisons very difficult.

The current research was designed to bring the ideas and techniques of conceptual complexity theory to bear on crises in international relations. Insights developed by political scientists can thus be tested by a measurement technique clearly derived from laboratory research, with a potential increase in the use of such instruments for research in nonexperimental environments; at the same time, the ideas of conceptual complexity theorists would be enlarged in scope from traditional psychological experiments. Perhaps most important of all, a further step could be made toward integrating significant theoretical

and methodological advances in political science and in experimental psychology.

There are, of course, methodological problems. Most obviously, only published documents are available, so that even random sampling—as in the studies described here—is random only from a biased sample. One can hope that scholarly compendia, even if not complete, are at least reasonably representative, and that even where they are biased in content (e.g., to justify or to condemn one or another point of view) the materials included are representative in integrative complexity. It should be recalled that any particular ideology or course of action can be associated with any level of structural complexity.

Second, we clearly do not have an experimental situation where variables have been manipulated by the investigators. For this reason, causal relationships are difficult to establish. On the other hand, our data have high external validity: they were produced by real national leaders trying to find real solutions to real crises. These studies add a connecting link to laboratory experiments and simulations on the one hand and qualitative descriptions and global analyses of political events on the other.

As was mentioned above, conceptual complexity theory is to a great extent an approach to reliable individual differences. That is, people are hypothesized to differ along the dimension of simplicity-complexity in their chronic modes of information processing and decision-making. To measure this variable, Schroder et al. (1967) revised an earlier Paragraph Completion Test (Harvey et al., 1961) and produced a measure that has been validated in a number of studies. The subject is presented with a number of sentence stems (e.g., "When I don't know what to do . . . ") and is instructed to write several sentences on each topic. These completions are then scored for level of conceptual complexity. This is done by considering the number of alternative dimensions apparent in the completion and the ways in which these dimensions are related to each other and to behavior. High complexity is associated with more dimensions, conditional relationships, integrated choices, and positive search for information from several sources.

For the stem given as an example, a very simple response might be: "I ask someone for help" or "I think about it." A more complex completion may indicate that the subject considers alternate solutions, consults different sources, and then combines the best components of each. Affectively, higher complexity would be implied if the writer indicated his feeling that not knowing what to do could lead to excitement, infor-

mation search, and new learning as opposed to viewing the situation as completely stressful and undesirable.

Although developed as a personality test in research contexts, the Paragraph Completion Test manual can be applied to the scoring of a wide range of verbal materials. The scoring system has, for instance, been used to determine from archival evidence the conceptual complexity of individuals who were prominent in revolutionary struggles (Suedfeld and Rank, 1976) and is applied here to archival records of diplomatic communications.

While the Paragraph Completion Test has been used with considerable success as a measure of individual differences, an important emphasis of conceptual complexity theory is that information processing complexity is an interactive consequence of environmental and dispositional factors. It is within the framework of such an interactive view that the major hypotheses of this paper have been formulated. The term "integrative complexity" will be used to distinguish between the dependent variable of information processing in this approach and the more traditional measures of conceptual complexity as a personality characteristic.

STUDY I

Holsti et al.'s (1964) comparative analysis of the 1914 and 1962 crises is the basis of Study I. Holsti et al. imply that more flexible and complex information processing was characteristic of leading decision makers in the 1962 crisis. The quantitative data collected on the two crises bear only indirectly on this hypothesis, which can be more directly tested with the scoring system of the Paragraph Completion Test. Statements of leading officials of the five nations most immediately involved in the 1914 crisis, and of the two nations most directly involved in the 1962 crisis, have been analyzed for integrative complexity.

The hypothesis is that complexity of information processing should decline between earlier and later phases of the 1914 crisis but should be relatively constant or even rise between earlier and later phases of the 1962 crisis. The data would not be able to specify whether this is due solely to situational factors—i.e., that in 1914, conditions became less and less favorable for complex processing, while this was not the case in 1962 (see Holsti, 1972)—or to personality differences interacting with the situation (so that in 1962, but not in 1914, individuals in decision-making roles were people who could maintain complexity even under adverse conditions).

METHOD

Archival records of speeches and diplomatic communications by leading decision makers in the 1914 and 1962 crises were sampled and scored for conceptual complexity. Primary source material for the 1914 crisis included:

> Great Britain: Foreign Office, *Collected British Documents on the Origins of the War, 1898-1914,* Vol. XI, G. P. Gooch and H.W.V. Temperley, eds. (London, 1926).
>
> France: Commission for the Publication of Documents Relative to the War of 1914, *Documents Diplomatiques (1871-1914),* 3rd Series, Vols. X and XI (Paris, 1936).
>
> Germany: Max Monteglas and Walter Schucking, eds., *Outbreak of the World War,* German documents collected by Karl Kautsky (Oxford University Press, 1924).
>
> Austro-Hungarian Empire: Ministerium des k. and k. Hauses und des Ausseren, *Osterreich-Ungarns Aussenpolitik von der bosnischen Krise 1908 bis zum Kriegsausbruch 1914,* Diplomatische Aktenstucke des Osterreichisch-Ungarischen Ministeriums des Ausseren. Ludwig Bittner, Alfred Pribram, Henrich Srbik, and Hans Uebersberger, eds., Vol. VIII (Vienna and Leipzig, 1930).
>
> Russia: *How War Began in 1914* (Being the Diary of the Russian Foreign Office) S. D. Sazonov.

Primary sources for the 1962 crisis included:

> *The Cuban Missile Crisis of 1962,* David Larson, ed., Houghton Mifflin, Boston.
>
> *Vital Speeches,* 1962.

Leading decision makers in the 1914 crisis who are included in this study are:

> Great Britain: Sir Edward Grey (Foreign Secretary) and Sir Arthur Nicolson (Permanent Under-Secretary for Foreign Affairs).
>
> France: Rene Viviani (Premier and Minister for Foreign Affairs) and J.-B. Bienvenu-Martin (Acting Minister for Foreign Affairs).
>
> Germany: Kaiser Wilhelm II and Count Theobald von Bethman Hollweg (Chancellor).
>
> Austria-Hungary: Emperor Franz Joseph and Count Leopold Berchtold (Minister for Foreign Affairs).
>
> Russia: Czar Nicholas and S. D. Sazonov (Minister for Foreign Affairs).

Leading decision makers in the 1962 crisis who are included in this study are:

United States: President John F. Kennedy and Dean Rusk (Secretary of State).

Soviet Union: Prime Minister Nikita Khrushchev and Andrei Gromyko (Minister for Foreign Affairs). As it was possible to obtain material authored by Gromyko for only one of the two required time periods of the 1962 crisis, we have taken as a substitute a speech delivered by Vladimir Zorin (Soviet Ambassador to the United Nations) to the United Nations General Assembly.

An effort was made to collect as wide as possible a sampling of material written by these individuals. From these samples, the material to be analyzed for conceptual complexity was randomly selected. Six paragraphs were selected for each decision maker for each of two time phases (preliminary and climax) into which the crises had been sub-divided. The 1914 preliminary phase was June 24 to July 27, and the climax phase was July 28 to August 4. In 1962, the two phases were September 11 to October 21 and October 22 to October 28. In total, 168 paragraphs of material were scored for conceptual complexity.

The majority of material used was either originally in, or had been translated into, English. Scoring of the English material was carried out by the second author and another individual who was unaware of the hypotheses. Interrater agreement was $r = .89$; subsequent reanalysis of disagreements increased the correlation to .97. In a few instances, it was necessary to rely on original French, German, and Austro-Hungarian sources. In these instances, individuals fluent in French or German and trained to the criteria of the complexity scoring system were responsible for the scoring.

Occasionally a selected paragraph was unscorable, primarily because it consisted of purely descriptive passages. As some degree of active interpretation and manipulation of information is necessary for infer-ences regarding conceptual structure, such paragraphs were omitted from analysis and were replaced by the next paragraph from the same document. This is standard procedure with the Paragraph Completion Test, since straight description—e.g., "a telegram was sent on August 1"—does not reflect in any way on the integrative complexity of the source. It should be added that well under 10% of connected discourse, whether in speech or in writing, fits into the unscorable category.

RESULTS

Table 1 gives the mean complexity scores as a function of crisis, nation, and phase. The difference between the mean scores for the 1914 and 1962 crises was highly significant, $F(1,14) = 128.18$, $p < 2 \times 10^{-8}$. Internation differences were not statistically significant.

TABLE 1
Mean Complexity Scores, Study I

Crisis and Country	Preliminary Phase	Climax Phase
1914		
England	3.25	2.42
Germany	1.92	2.34
Austro-Hungary	1.67	1.75
Russia	2.09	1.59
France	1.83	1.84
All Countries	2.15	1.99
1962		
USA	4.09	5.75
USSR	3.92	5.09
All Countries	4.01	5.42

There was a significant crisis x phase interaction, $F(1,14) = 11.51$, $p < .005$. As Table 1 shows, complexity decreased from the preliminary to the climactic phase in 1914, and increased in the same comparison in 1962.

STUDY II

The second study was designed to extend and clarify the above findings. The 1914-1962 comparison is obviously not clear-cut, being confounded by at least two other factors besides their different (i.e., war versus no war) outcomes. One is the wide difference in historical era, which may have led to stylistic changes in diplomatic communications, or even to real changes in complexity of information processing; the other is that completely different countries were involved in the two crises.

In the second study, we examined two sets of crises. Each set included both war and no war resolutions; the crises within each set were in relatively close chronological proximity and involved identical protagonists.

Early Twentieth Century. The Moroccan Crisis, July 1, 1911 (the appearance of the German warship "Panther" at Agadir) to November 4, 1911, the formal agreement between France and Germany, in which England played a mediating role and which resulted in a peaceful solution; and the 1914 crisis, using Study I data for those three countries.

Mid-Twentieth Century. The Berlin blockade crisis, defined as lasting from June 22 through September 18, 1948, involving the United States and the USSR, and resolved peacefully by the airlift (time limits compatible with the data of McClelland, 1968); the invasion of South Korea followed by the UN/United States intervention, June 25-July 4, 1950 (times compatible with the definition of Paige, 1968), again sampling from the United States and its perceived major opponent, the Soviet Union; and the 1962 Cuban missile crisis data used in Study I. The breakdown into phases was eliminated in this study because in several instances specific phases were difficult to identify.

METHOD

Archival records of official statements of governmental policy and of diplomatic communications were randomly sampled and scored for conceptual complexity for the 1911, 1948, and 1950 crises.

Early Twentieth Century. Data for the 1911 crisis were obtained from the same general sources as in the 1914 case in Study I. Six paragraphs were scored for complexity for each decision maker. Major decision makers in the 1911 crisis included in this study are:

> Great Britain: Sir Edward Grey (Foreign Secretary) and Sir Arthur Nicolson (Permanent Under-Secretary for Foreign Affairs).
>
> France: J.M.A. Caillaux (Premier) and J. de Selves (Minister for Foreign Affairs).
>
> Germany: Count Bethman Hollweg (Chancellor) and A. von Kiderlen-Wachter (Foreign Secretary).

Six paragraphs each were selected randomly from the Study I 1914 data for England, France, and Germany for analysis in this comparison.

Mid-Century. Primary source material for the 1948 Berlin crisis included:

> *Documents on Germany Under Occupation 1945-1954*, selected and edited by Beate Ruhm von Oppen, issued under the auspices of the Royal Institute of International Affairs, Oxford University Press, 1955.
>
> *Background Documents on Germany, 1944-1959, and a Chronology of Political Developments Affecting Berlin, 1945-1956,* United States Government Printing Office, Washington, 1959.

Documents were sampled randomly between June 22 and September 18, 1948, for both the Soviet Union and United States.

Primary source material for the 1950 Korean crisis included:

U.S. Department of State *Bulletin,* Vol. 23, 1-520, 1950: 3.

The Soviet Union and the Korean Question: Documents, London, Soviet News, 1950.

Documents on International Affairs, 1949-1950, selected and edited by Margaret Carlyle, issued under the auspices of the Royal Institute of International Affairs, Oxford University Press, 1953.

Documents were sampled randomly between June 25, 1950 and July 4, 1950, for both the United States and Soviet Union. Twelve paragraphs were scored for each nation for each of the crises, 1948 and 1950.

For the 1948 and 1950 crisis data, it was necessary to rely heavily on written materials which, while clearly expressions of official government policy, did not identify a specific author. For the 1948 crisis, data for the Soviet Union included material drawn from Marshal Sokolovsky's note to General Clay of the Western occupying forces (June 22, 1948), the statement of withdrawal from the Berlin Kommandatura (July 1, 1948), a reply to the Western diplomatic notes of July 6, 1948, and an aide-memoire (September 18, 1948) to the United States, United Kingdom, and France. For the United States, the scored material included a note from General Robertson to Marshal Sokolovsky (June 23), a note regarding the Berlin Blockade to the Soviet Union (July 6), and aides-memoires to the Soviet Union on July 30 and September 18.

For the 1950 crisis, data for the Soviet Union included an editorial statement in *Pravda* (June 28, 1950), the Soviet response to Truman's commitment of naval and air support to South Korea, and a July 4, 1950 statement by Andrei Gromyko on the U.S. intervention. Data for the United States included Truman's June 27 speech of commitment to South Korea, two diplomatic notes to the Soviet Union, and a statement by Secretary of State Acheson.

For the 1962 crisis, six paragraphs for each country were randomly selected from those previously used in Study I.

RESULTS

Early Twentieth Century. Mean complexity scores in the peacefully resolved 1911 crisis were significantly higher than in 1914, $F(1,6) = 108.27$, $p < 5 \times 10^{-5}$ (see Table 2 for mean scores).

Mid-Century. Table 2 shows the mean scores for these three crises. Because some of the communications were anonymous, to avoid a false assumption of independence the data within each cell were reduced to two entries each, reducing the degrees of freedom for the error term. In spite of this, ANOVA showed a significant main effect for crises, $F(2,6) = 54.59$, $p < .0002$. Multiple comparisons showed significant ($p < .01$) Scheffe critical values for 1948 versus 1962, 1948 versus 1950, 1950 versus 1962, and 1948/1950 combined versus 1962.

DISCUSSION

Both studies strongly confirmed the major hypotheses. International crises that resulted in war were characterized by lower levels of communicative complexity than those that were resolved peacefully; and, in Study I, the changes in complexity as the climax approached showed a decrease prior to the outbreak of war and an increase prior to peaceful solution. These findings support the general predictions concerning changes in information-processing complexity as a function of environmental stress, derived from both experimental psychology and political science analyses. In addition, the significantly high 1962 scores as opposed to 1948 and 1950 combined may indicate the effect of pervasive tension in the diplomatic atmosphere. The 1948/1950 crises came at the height of the Cold War; 1962 occurred at a time when, in spite of occasional outbursts of hostility, U.S.-Soviet relations were comparatively relaxed. This is not only an interesting datum, but also a good warning against simplistic concentration on one particular explanatory construct.

One obviously important question is whether decreasing complexity is a sign or a cause of the breakdown of negotiations. It may be that

TABLE 2
Mean Complexity Scores, Study II

Country		Mean Score	
Early Twentieth Century		Moroccan Crisis	World War I
England		5.16	2.58
France		4.83	1.42
Germany		3.92	1.84
Mid-Twentieth Century	Berlin Blockade	Korean War	Cuban Missile
USA	3.00	1.75	4.75
USSR	2.50	1.67	4.67

crises are differentially stressful from the beginning, and that this difference leads to reduced complexity as well as to war. On the other hand, low levels of information processing complexity may be the consequence of a variety of causes (e.g., bias in the selection or training of decision makers, reinforcement of simple responses) and may themselves cause the breakdown of international stability. Research currently being conducted is directed toward clarifying these alternatives. We are also planning to perform truly predictive, as opposed to retrospective, analyses.

At this point, we hypothesize that it would be possible to maximize integrative complexity in crisis situations. Some of the techniques used in 1962 by President Kennedy and his advisors have already been cited, and others are described in Holsti et al. (1964). The legitimization of alternative points of view, perhaps even via explicit role-playing, would help to prevent early closure and to ensure that all relevant information would be sought out. The neutrality, or even (as in 1962) the deliberate physical absence of the actual leader, would encourage full discussion without the attempt to gain favor or approval. A realistic estimate of the need for quick decisions might reduce perceived time pressure in many instances. Perhaps paradoxically, the inclusion in the decision-making group of individuals representing heterogeneous interest groups, areas of expertise, and levels of partisanship might result in more complex and harmonious resolutions.

Together with the study of revolutionary leaders (Suedfeld and Rank, 1976), this paper demonstrates the usefulness of Schroder et al.'s (1967) concepts and techniques as adapted to historical, archival research. Information processing complexity, both as a personality characteristic and as an interactive function of personality and environmental variables, is a source of varied and powerful hypotheses and can be investigated by a quantifiable and methodologically rigorous procedure. It is relevant to a wide range of questions in history, political science, and related areas.

REFERENCES

DRIVER, M. J. (1962) Conceptual Structure and Group Processes in an Inter-Nation Simulation. Part I: Perception of Simulated Nations. Princeton, N.J.: Educational Testing Service.
HARVEY, O. J., D. E. HUNT, and H. M. SCHRODER (1961) Conceptual Systems and Personality Organization. New York: John Wiley.
HERMANN, C. F. and L. P. BRADY (1972) "Alternative models of international crisis behavior," pp. 281-303 in C. F. Hermann (ed.) International Crises: Insights from Behavioral Research. New York: Free Press.

HERMANN, M. G. (1976) "Leader personality and foreign policy behavior," pp. 201-234 in J. N. Rosenau (ed.) Comparing Foreign Policies: Theories, Findings, and Methods. New York: Halsted.

HOLSTI, O. R. (1972) Crisis, Escalation, War. Montreal: McGill-Queens Univ. Press.

───── (1965) "The 1914 case." Amer. Pol. Sci. Rev. 59: 365-378.

─────, R. A. BRODY, and R. C. NORTH (1964) "The management of international crisis: affect and action in American-Soviet relations." J. of Peace Research 3-4: 170-190.

JANIS, I. (1972) Victims of Groupthink. Boston: Houghton-Mifflin.

McCLELLAND, C. A. (1968) "Access to Berlin: the quantity and variety of events, 1948-1963," pp. 159-186 in J. D. Singer (ed.) Quantitative International Politics: Insights and Evidence. New York: Free Press.

PAIGE, G. D. (1972) "Comparative case analysis of crisis decisions: Korea and Cuba," pp. 41-55 in C. F. Hermann (ed.) International Crises: Insights from Behavioral Research. New York: Free Press.

───── (1968) The Korean Decision (June 24-30, 1950). New York: Free Press.

ROBINSON, J. A., C. F. HERMANN, and M. G. HERMANN (1969) "Search under crisis in political game and in simulation," pp. 88-94 in D. G. Pruitt and R. C. Snyder (eds.) Theory and Research on the Causes of War. Englewood Cliffs, N.J.: Prentice-Hall.

SCHRODER, H. M., M. J. DRIVER, and S. STREUFERT (1967) Human Information Processing. New York: Holt, Rinehart & Winston.

SELYE, H. (1956) The Stress of Life. New York: McGraw-Hill.

SUEDFELD, P. and A. D. RANK (1976) "Revolutionary leaders: long-term success as a function of changes in conceptual complexity." J. of Personality and Social Psychology 34: 169-178.

YOUNG, O. R. (1967) The Intermediaries: Third Parties in International Crises. Princeton, N.J.: Princeton Univ. Press.

Peter Suedfeld is Professor in and Head of the Department of Psychology at the University of British Columbia. His major research interests are in sensory deprivation, attitude change, information processing, and archival research on decision-making processes, and he is editor of Attitude Change: The Competing Views *and coeditor of* Personality Theory and Information Processing *and* The Behavioral Basis of Design. *He is also coeditor of the* Journal of Applied Social Psychology.

Philip Tetlock is now studying for his Ph.D. in the Department of Psychology at Yale University. His interests are in psychological approaches to history and in information processing and attitude change.