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War, Peace, and Integrative Complexity

UN SPEECHES ON THE MIDDLE EAST PROBLEM, 1947-1976

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UN General Assembly speeches concerning the Middle East conflict made by representatives of Israel, Arab countries (Egypt and Syria), the USA, and the USSR were scored for integrative complexity. Speeches were sampled from twenty years between 1947 and 1976. Complexity of information-processing was significantly reduced in speeches made in months preceding the outbreak of war (1948, 1956, 1967, and 1973), except in the case of the USSR. Israel, which with the United States exhibited the highest levels of complexity during peacetime, showed the greatest reductions prior to war. The low level of complexity characteristic of Israeli and Arab speeches during 1976 may reflect the escalation of the Lebanese civil war or may be a predictor of a major outbreak of hostilities in the near future.

The psychological study of international conflict has been an active enterprise for many years. Such studies have often focused on the personalities of major decision-makers, government functionaries, or in some cases on what the author purported to be modal or typical personalities of the cultures involved. In the recent literature, the different styles of modern conquerors have been ascribed to Freudian psychosexual personality constellations, and the hypothesis tested by content analysis of their speeches and writings (Luck, 1974); the personalities of such officials as Henry Kissinger have been analyzed in attempts to

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explain major strategies in international conflict management (Ward, 1975); and characterizations of modal personalities—for example, the purported tendency of the Arabs toward suspiciousness, conservatism, fatalism, hostility, and lack of reality-testing and of Israelis toward lack of trust in others, feelings of inferiority, and religiosity (see Beit-Hallahmi, 1972)—have been used to explain problems such as the apparent insolubility of the Middle East conflict.

An alternative psychological approach is to look at the interaction between the environment and significant individuals or groups—for example, ascribing the tendency to make inappropriate decisions to such aspects of group dynamics as the drive for consensus, group conformity, and the effects of public commitment (Janis, 1972). Some psychologists have built upon the first of these approaches to argue that conflicts may be avoided if political leaders are approved and monitored by behavioral science experts (Clark, 1971). Others, building upon the second approach, have maintained that such psychological techniques as human relations training (Lakin, 1969), contingent reinforcement for approximations of the appropriate behavior (Osgood, 1962), or training in high-level information-processing under stress could be useful (Janis, 1972; Suedfeld and Tetlock, 1977).

One increasingly popular approach to studying the relationship between psychological variables and political decision-making has been the emphasis on cognitive processes (Holsti, 1976). The inclusion of data from experimental psychology, particularly from the study of cognition and stress, has pointed up the inadequacy of the assumption that foreign policy is best conceptualized as a series of rational choices, and that utilitarian models are therefore sufficient to explain international behaviors (see, e.g., McGrath, 1970). Arguments that conflict can be reduced merely by changing the perception of the individuals involved as to the relative extrinsic payoff of cooperation versus competition (e.g., Deutsch, 1964) are therefore seen to be insufficient. At the same time, cognitive and interactionist approaches to the study of personality (e.g., Mischel, 1968; DiRenzo, 1974) have shown that the role of individual personality in politics and international relations need not be restricted to the highly subjective and essentially untestable explanations based on depth psychology with which psychohistorians have been so enamored (e.g., deMause, 1975).

Methodologically, cognitive approaches have concentrated on the analysis of massive amounts of primarily written, archival materials. Perhaps the single most characteristic aspect of such analyses has been

the great amount of effort and detailed interpretation involved. Some striking examples are the content-analytic techniques used by Holsti and his coworkers and the exhaustive—and probably exhausting—scrutiny involved in the construction of cognitive maps as developed by Axelrod (1976).

The current study was based on the scoring of archival materials for integrative complexity. This variable is derived from the conceptual complexity dimension of personality described by Harvey et al. (1961) and later modified by Schroder and colleagues (1967). According to the theory, this dimension reflects the information-processing capabilities of the individual. The concept stems from a general position that problem-solving, decision-making, and similar cognitive processes vary across individuals and across situations. Conceptual complexity theory posits that, while there are identifiable changes in how information is processed in various contexts and substantive areas, there is also a stable personality trait that can be identified as a general level of complexity of information-processing.

The level of conceptual complexity of a particular individual is a function of three components. The first of these is discrimination, a term that refers to the individual's ability to identify differences among stimuli along a particular dimension. For example, the ability to distinguish between black and white would be a much lower level of discrimination than the ability to identify a large variety of shades of gray between the anchor points. The second component, differentiation, is defined as the ability to perceive multidimensionality in a stimulus array. On the perceptual level, for example, an individual who can group stimuli on the basis of hue, saturation, and brightness is differentiating at a higher level than an individual who uses only hue as the basis for categorization. Differentiation is essentially equivalent to the variable of cognitive complexity as conceptualized by such authors as Kelly (1955) and Bieri (1961). The third aspect, integration, refers to the way in which the differentiated aspects of the information array can be used in decision-making. Highly complex integrations involve a relatively large number of interconnected schemata, which can be used in various combinations, modified or abandoned if that seems to be desirable, and which are subject to change as new information is sought and obtained. Thus, an artist may integrate the three dimensions of color perception quite flexibly, emphasizing different combinations of the three continua to achieve a desired effect, and possibly combining them with other dimensions such as shape or size. In con-

trast, a designer of traffic signs whose most important goal is salience might always strive for a combination that maximizes contrast with the background, thus using the three dimensions in a relatively stereotyped way.

Theoretically, differentiation and integration are considered to be the crucial components in defining conceptual complexity. The first of these is a prerequisite for the second, since it is not possible to be highly integrated unless there is a highly differentiated multidimensional cognitive space to integrate. Low levels of conceptual complexity are characterized by low differentiation and integration; moderately low, by higher differentiation but still low integration; moderately high, by fairly high differentiation and moderate integration; and high complexity by high levels of both. Information-processing at the lower end of the scale tends to be rigid, all-or-nothing, routinized, and based upon only a small segment of the total information available. At the high end, information-processing is flexible, combinatorial, probabilistic, and information-oriented.

While complexity of information-processing does vary as a function of environmental variables such as stress or novelty (Schroder et al., 1967), the main emphasis of Schroder's group is on the characteristic complexity levels of particular individuals. Of the several tests developed to measure this trait, the Paragraph Completion Test (Schroder et al., 1967) has been perhaps the most frequently used and the most thoroughly validated. In the PCT, the subject is presented with the beginnings of six sentences, one at a time. In each case, he is to complete the sentence and continue writing about the same topic until the time limit (usually approximately 2 mins., but flexible as a function of the type of subject being tested) is reached. Each of the sentences is intended to tap a particularly salient aspect of the decision-making environment, including areas such as uncertainty, interpersonal conflict, and relations to authority. Each completed scorable paragraph is assigned a score from 1-7, in which 1 = low complexity, 3 = moderately low, 5 = moderately high, and 7 = high. Scores of 2, 4, and 6 indicate that some of the qualities for the next higher score are present in the completion, but that their presence is not clear or explicit enough for assigning that level. Training of scorers takes several days of intensive work, at the end of which interjudge reliabilities of .85 or better can be achieved; in our procedures, a correlation of .85 with the trainer is considered the minimum for permitting the individual to operate as an independent scorer. The validity of the PCT has been upheld in a wide number of

studies, which are summarized in Schroder et al. (1967); it has the predicted correlations with such conceptually related measures as dogmatism, authoritarianism, and intelligence.

In our previous work, the scoring schema for the Paragraph Completion Test was used for measuring the complexity of verbal material other than paragraphs written specifically in the measurement context. We found that interscorer reliabilities for archival materials were just as high as for the scoring of the test itself: that is, after about a week of training, most trainees can reach the criterion of a correlation of at least .85 with an expert and experienced scorer. In our own group, the interscorer reliability has ranged from .86 to .97. Almost any connected verbal material of sufficient length (in our own case, we have used the paragraph as the basic unit) can be analyzed for differentiation and integration. The major exception to this in archival material tends to consist of pure descriptions or lists of facts; such passages are omitted from scoring. Otherwise, the material to be analyzed can be selected randomly from an array of any size, so that biased selection of materials can be avoided.

Theoretically, our approach diverges from that of Schroder and his coworkers in that we do not investigate differentiation and integration as personality variables; rather, we view them as aspects of information-processing, which may change as the situation changes. Thus, we prefer to use the term "integrative complexity" rather than conceptual complexity, which we reserve for the personality trait measured by the Paragraph Completion Test. In previous studies, we have shown that the integrative complexity of successful revolutionary leaders increases from before to after the victory of the revolution, while leaders who do not maintain themselves in power after victory do not show such change (Suedfeld and Rank, 1976). In a second study (Suedfeld and Tetlock, 1977), we showed in a number of international crises of the twentieth century that the integrative complexity of the communications of major decision-makers is significantly lower during crises that eventually culminate in war than during crises that are resolved peacefully. Both of these studies demonstrated the interaction between environmental characteristics and the complexity of high-level information-processing: in the first instance, the need for a change from the single-minded, relatively simple cognitive tactics appropriate to a revolutionary struggle toward the more flexible, open-ended, and complex approach required of a government in power; and in the second, the mediating effect of information-processing complexity during crises.

The study described here applies this approach to what is perhaps the longest-lasting, one of the most violent, and potentially most dangerous international conflict of the last few decades: the Arab-Israeli confrontation. It focuses on one of the major arenas in which that conflict has been carried on, the United Nations. The thorough content analysis performed by Graber (1969) on UN speeches on the Middle East between 1953 and 1965 concluded that while the debates to a great extent went along bloc lines, and while the debate tended to be strikingly in opposition to the point of view of Western powers, "One is struck by the prevalence of moderation and sustained efforts towards conflict resolution. In crises, even more than in noncrises, speeches were usually moderate and delegates were more ready to praise than condemn" (p. 482). The problem that Graber pointed out was that this kind of conflict-reducing behavior occurs primarily during crises and is then deemphasized. Of course, the manifest content of speeches in the UN, as elsewhere, does not necessarily reveal the actual plans and attitudes of the participants in the conflict (see Graber 1970, 1976).

Our own interest was in whether changes in integrative complexity in UN speeches changed as a function of the recurrent exacerbation of Arab-Israeli crises. If it is in fact the case that as critical points approached, greater efforts would be made to resolve them peacefully, one would expect that complexity of speeches would increase or at least remain relatively stable. Complexity—being an indicator of the ability of the involved countries to avoid a zero-sum, good-versus-evil, rigid, stimulous-bound stance—has been shown in our previous study Suedfeld and Tetlock, 1977) to decrease prior to the outbreak of war.

We predicted that, even if the desire to maintain peace were emphasized in speeches made by the protagonists, the imminence of high levels of belligerency would nevertheless be preceded by integrative simplification. This hypothesis had not previously been tested in a situation where repeated outbreaks of armed conflict occurred between the same set of opponents over a long period of time. Second, we were interested in whether changes of the integrative complexity of the direct antagonists were related to similar changes in speeches made by representatives of their primary Great Power patrons—that is, whether the level of integrative complexity in the speeches of Israeli and Arab delegates would be related to similar measures for the United States and the Soviet Union, respectively.

Another aspect of this particular question is whether the changes would be affected by how involved the particular country is in the con-

flict and by the stakes that it presumably sees as being at risk. In this context, we predicted that the order of changes as a function of the imminence of major crises would be: Israel, its major Arab neighbors, the United States, and the USSR. Our rationale for this hypothesis was that while the first two entities named clearly had more at stake than the last two, Israel's existence was endangered by each outbreak of war to a considerably greater extent than the continued existence of the Arab nations; and similarly, that the United States was much more closely identified with the survival of Israel than was the USSR with the success of the Arab forces on any particular occasion of belligerency. Parenthetically, it should be pointed out that if a recurrent pattern of the sort that we predicted is actually found, the analysis of integrative complexity of such materials in the future may be used as a predictor that a major outbreak of war may be imminent.

METHOD

War in the Middle East was defined operationally as an armed conflict in which the regular military forces of more than one nation were involved. Thus, terrorist operations, guerrilla raids, or unilateral air strikes were not counted. By this criterion, the following were identified as war situations: (1) the combined Arab attack on the newly established State of Israel in 1948; (2) the Anglo-French-Israeli invasion of the Suez Canal zone in 1956; (3) the Six-Day War of 1967; and (4) the October War of 1973.

The 1976 developments in the Lebanese civil war, which involved the incursion of Syria and other Arab troops (and, it has been reported, of Israeli forces), could be defined as a war. However, since this situation is quite different from the others (with Israel involved only marginally, if at all), it was omitted from the major peace-war comparisons.

The year preceding and the year following each war year were used as controls. In addition, other years between 1947 and 1976 were randomly sampled until a total of 20 time points was obtained. The final data collection was performed for the following years: 1947[1] through 1949, 1952, 1953, 1955 through 1957, 1961, 1962, 1966 through 1968, and 1970 through 1976. Speeches from war years used in the study were all made in the months previous to the outbreak of major hostili-

1. Since there was no Israeli delegation to the UN in 1947, a speech made by David Ben-Gurion to the Elected Assembly on October 2, 1947 was used as the source of data for that cell.

ties. Thus, complexity scores of these speeches are predictive of imminent war rather than being responses to concurrent conflict.

For each of the years listed above, the official English-language versions of speeches made in the UN General Assembly and Security Council dealing with the Middle East situation were sampled. The speeches were obtained from published UN documents; through direct requests to the UN Missions of Israel, the component countries of the United Arab Republic (combined data from Egypt and Syria), the United States, and the Soviet Union; and through requests to the embassies of these countries in Canada. Since not every country was adequately represented in relevant debates in all of the years sampled, some country/year combinations were omitted from data analysis. The final scorable data consisted of 5-15 paragraphs for each country in each year, selected randomly from the total available.

While there may be some translation problems, particularly in relation to the Soviet Union and the UAR, we have found in past research that this does not seem to make much difference. In previous studies where some material was scored both in the original language and in English translation, complexity scores were essentially equivalent. It appears that well-trained translators and interpreters (among whom we feel confident in including those used to prepare official UN translations) capture the spirit of the original quite faithfully. Still, since we have no scorer competent in Arabic or Russian, the possibility that the scores are to some extent contaminated by linguistic differences must be borne in mind.

As far as possible, identifying material that would have enabled the scorer to specify the country and year of origin was removed. In most cases it was still possible to tell from which general camp the material had come; and in some cases, although not many, the specific country could be identified. It was very rare that the particular year or state of belligerency could be ascertained, and in no case was it possible to identify with any degree of certainty all three of these components.

Scoring was performed by three trained scorers who had achieved interjudge reliabilities of .94 or better and all of whom had had previous experience in the scoring of archival materials for integrative complexity (see Schroder et al., 1967; Suedfeld and Rank, 1976). While not all scorers rated each paragraph, there was sufficient overlap and sample cross-checking to ensure high reliability. The senior author, who was the only one aware of the hypotheses (but who was also unaware of the source of the particular items), scored a few paragraphs to ascertain reliability and to resolve disagreements between the other scorers.

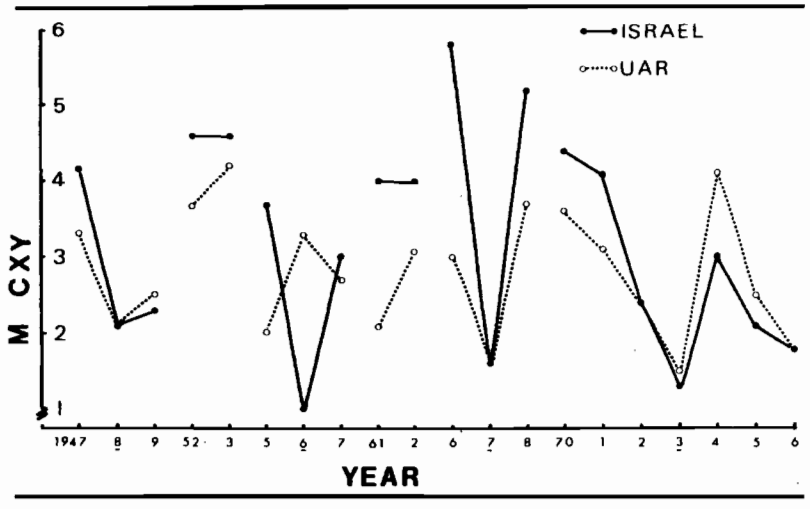

Figure 1: Changes in Mean Integrative Complexity by Year, Israel and Egypt/Syria (UAR)

RESULTS

Figure 1 presents the overall complexity ratings for the two direct protagonists. The US and USSR data are omitted to increase the clarity of the figure, which shows the pronounced reduction in complexity in speeches made by Israeli delegates during every one of the years (underlined in the figure) in which war occurred. The same pattern holds true for Arab delegates except in 1956, when the outbreak of war was the tripartite onslaught in the Suez zone rather than, as has been more usually the case, a mutual escalation of animosity and preparation for war. Year-by-year correlations of complexity scores show significant positive relationships between the integrative level of speeches made by Israelis and by Arabs—$r(18) = .59$, $p < .01$—as well as between those made by Israeli and US delegates—$r(16) = .47$, $p < .05$. No other inter-country correlation was significant.

For further data analysis, the unequal sample sizes and the lack of data for some countries in some years were resolved by putting the data into a 4 (country) x 2 (peace versus war) array, taking the cell with the smallest number of data entries (Israel during war years, $n = 31$), and then randomly sampling an equal number (i.e., 31) of entries from appropriate samples to fill the other cells. Table 1 shows the mean complexity scores based on this procedure.

TABLE 1
Mean Complexity Scores

	Belligerency Condition			
Country	*Peace*	*War*	*Country Overall*	*% Change Peace to War*
Israel	4.00	1.52	2.76	-62%
United Arab Republic	3.00	2.00	2.50	-33%
USA	4.10	3.32	3.71	-19%
USSR	2.94	3.42	3.18	+17%
Condition Overall	3.51	2.56		-27%

Analysis of variance of these data showed significant effects ($p < 10^{9}$ in all cases) for country, $F(3,240) = 11.79$; for belligerency condition, $F(1,240) = 37.55$; and for the interaction, $F(3,240) = 15.61$. Clearly, complexity went down significantly during the times immediately preceding the outbreak of war ($p < .01$, Tukey *a* procedure). As Tables 1 and 2 show, there was a fairly consistent pattern of internal differences. The US and Israel demonstrated higher complexity in peacetime than the UAR and USSR; just before the outbreak of war, all countries except the USSR showed striking decreases. These were greatest for Israel, followed by the Arab countries and the US. The USSR actually showed higher complexity prior to war. Only the first two of these changes reached statistical significance. Overall, the US manifested higher complexity than Israel or the UAR ($p < .01$ in both comparisons by the Tukey *a* test), with no other intercountry comparison reaching significance.

DISCUSSION

This study demonstrated several aspects of the relevance of integrative complexity to events on the international scene, and it can also be used as the basis for some suggestions. To begin with, it showed that even in a hostile confrontation that goes on for a long period of time, major outbreaks of violence are preceded by unusually low levels of complexity in international debates. Between such outbreaks, the

Table 2
Significant Differences, Individual Comparison

Country/Condition	*1.*	*2.*	*3.*	*4.*	*5.*
Israel					
1. Peace		**	*	**	
2. War			**		
UAR					
3. Peace				**	
4. War					**
US					
5. Peace		**	**		
6. War		**		**	
USSR					
7. Peace	**	**		**	**
8. War		**		**	

Newman-Keuls Test
*$p < .05$
**$p < .01$

protagonists—although still hostile—evidence higher levels of complexity. These changes occur within the same general time periods for the two direct opponents.

Second, both in peace and in war, delegates of particular countries exhibit characteristic levels of complexity. In this case, for example, the United States and Israel were significantly higher in integrative complexity than the Arab countries and the USSR; the United States maintained a relatively high level prior to war (even though it declined significantly from its own peacetime levels), while Israel plummeted to the lowest level of all countries when war was imminent.

As we predicted, also, the prewar decrease in complexity appears to be a function of the seriousness of a possible negative outcome for the particular country. One may hypothesize from the USSR data, whose trend is directly opposite to the other three, that the imminence of war in the Middle East evokes a more flexible, finely differentiated, and integrative outlook on the part of the Russian government.

The relationship between the countries directly involved and their more remote patrons was also shown by the results. One may infer from the data that the relationship between the United States and Israel is closer than that between the USSR and the Arab countries: for example, the former two, but not the latter, were significantly corre-

lated in terms of changes in complexity across years; the United States, but not the Soviet Union, exhibited the characteristic peace-to-war dip shown by the antagonists. A reading of the events in the Middle East would confirm these conclusions: the United States appears to be much more closely tied to the continuous survival of Israel than is the Soviet Union to any particular outcome for its Arab protégés. In fact, while the relationship between Egypt and Syria on the one hand and USSR on the other has fluctuated rather sharply over the thirty-year period covered in the study, the basically positive orientation of United States toward Israel has remained relatively consistent.

The case of 1976 poses an interesting problem. As was mentioned previously, we hesitated to identify 1976 as a war year, since the events in the Lebanese civil war (while involving major armed activities by Syria) did not include a serious direct confrontation with Israel. If the situation is in fact perceived as a war in the Middle East, then UN speeches during that year further confirm our findings for the other years in which war has occurred. If, on the other hand, such a definition is inappropriate, then our data would lead to the prediction that a war involving Israel and the Arab countries is likely to occur within the near future. This is clearly an extremely tenuous case; however, we would generalize beyond 1976 to say that a significant decrease in integrative complexity of UN speeches on the Middle East topic by Israeli and Arab delegates can be used to generate a testable prediction of imminent hostilities. A concurrent analysis of such speeches, therefore, could be used as one source of data in forecasting events in that area.

Another interesting implication of our data is based on the difference in changes between 1956 and the other war years. As was pointed out, in 1956, when the strike against the Suez Canal zone was not preceded by the usual levels of mutual preparation for war, no decrease occurred in speeches made by delegates of the Arab countries. This would imply that a unilateral sharp decrease may presage the initiation of hostilities by that country. It should be noted that this is not a feasible technique for predicting which of the two sides will attack first at the culmination of a generally deteriorating situation; rather, it appears appropriate only when the attack is a relative surprise. There is some question as to whether a preemptive strike is in fact a sensible strategy at this stage (see, e.g., Rosen and Indyk, 1976). However the likelihood of such a strike could be inferred from a monitoring of the kinds of data used in the study.

A fascinating problem is that of the question of attempted deception. Comparing our data with the interpretations of Graber (1969), it is clear that complexity levels do not necessarily correlate very highly with manifest content. It would be desirable to investigate further such matters as what happens to complexity when a country that is determined on war is attempting to project an image of desiring peace or, conversely, when a threatening attitude is adopted for strategic purposes but without any real desire for armed conflict. We would predict that in these cases complexity scoring would be quite enlightening as to the actual intentions of the source—at least until spokesmen begin deliberately to control and manipulate the levels of complexity of their comments. Another way to maintain deception, of course, would be to keep the spokesmen ignorant of the actual intentions of the government. In general, however, it is probably very difficult to hide at least the mood of the leadership from high-level representatives.

It would also be interesting to explore further the finding, indicated in Suedfeld and Tetlock (1977) and confirmed in the present study, that there are relatively stable internation differences in complexity. The kinds of national and cultural characteristics that are associated with these differences may include aspects of ideology, modernization, form of government, and various cultural parameters; we are currently pursuing research on some possible indicators that might correlate with level of complexity. The personalities and formal roles of important decision-makers, the sources of power by which they operate, the stability of their tenure, and other characteristics of this elite group may also be relevant. In addition, the literature on small-group interaction could point to sources of information, stress, social support, sociometric patterns, and in-group traditions that would affect whether a particular decision-making elite maintains, reduces, or increases its complexity in the face of external stress.

Still another aspect of these data that needs to be investigated is the relationship between the complexity of messages and the nature of the intended audience. Hypothetically, it appears likely that different audiences tend to elicit different levels of complexity from the communicator. Thus, for example, it would be interesting to know whether the integrative simplification hypothesis holds true for private (personal, intragroup) communications as well as for public speeches and writings (see also Suedfeld and Rank, 1976).

Last, for all of these hypotheses, the relationship between integrative complexity as measured in our work should be compared with

other cognitive measurement techniques such as those to which we referred to the introductory section. It would be important to see whether content analyses, cognitive maps, repertory grids, and similar techniques would lead to conclusions like those that are drawn from complexity scoring of a particular body of data, and to identify specifically the aspects of more complicated scoring methods that coincide with, are irrelevant to, or contradict our measure of integrative complexity. We also plan to look at the relationship between our technique and less complicated ones, particularly those based on the frequency of particular words and other psycholinguistic measures (e.g., Osgood and Walker, 1959; Ertel, 1975). In spite of the low levels of success of the attempt made by Hermann (1976) to infer complexity from the use of particular modifiers, a more extended and more fully tested version of her technique might be useful.

The research described here points to ways of predicting future events on the basis of integrative complexity scores, rather than merely offering such scores as explanations for past events—a common criticism of many major approaches to the psychological study of history and international relations. It further implies at least two useful strategies for national decision-makers. One is to make a conscious attempt, possibly including consideration in selection and the use of training procedures such as simulation, to maintain high levels of differentiation and integration even during periods of crisis; the other is to be aware that during such periods the officials of other countries may in fact be processing information at a lower level of integrative complexity than is normal—a possibility that could affect the strategy of those countries.

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