Affect Control in International Interactions

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This research tests the proposition that national leaders generate international interactions in the process of maintaining sentiments about nations and international actions. The analysis deals with 1,934 international incidents in which one of 25 Middle Eastern nations responded twice within four weeks to an instigation by another of the 25 nations. Quantitative predictions from affect control theory correlate significantly with quantitative measurements of observed responses. In particular, affect-based predictions account for 59 percent of the variance in the nations' cooperation-conflict. Thus, international interactions are affectively-regulated to a significant degree.

This study uses affect control theory (Heise 1977, 1979, 2002; MacKinnon 1994; Smith-Lovin and Heise 1988) to analyze how individuals produce international events. The specific hypothesis is that nation states and international actions have affective meanings in the worldwide political culture postulated in neo-institutionalism (Finnemore 1996; Jepperson 2002; Meyer et al. 1997), and relevant individuals try to maintain these meanings through political actions.

This hypothesis is empirically tested by predicting international action-reaction sequences in the Middle East during the 1970s. While happenings at that time and place are not representative of all international interactions, the focus is justified by excellent event records for the region and period (Azar 1980, 1993b) and by the continuing political volatility of the Middle East.

Before turning to the empirical study, a synopsis of affect control theory is given. Then the use of microsociological theory in macrosociological analysis is addressed in terms of two questions. How can wide ranging social events be interpreted in terms of individual action theory? To what extent are sentiments about national identities and behaviors shared in a world culture?

Affect Control Theory

According to affect control theory, individuals in a social situation allocate identities to each other and then perform identity-appropriate actions in order to confirm sentiments associated with the identities and actions.

Sentiments are enduring affective associations; impressions are transient affective associations emerging from observed events (Heise 1979:1). Events confirm or disconfirm sentiments about entities in an event by creating impressions of the entities that match or differ from the sentiments about the entities.

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Affect control theory proposes that individuals construct new events in such a way as to turn disconfirming impressions into impressions that confirm sentiments. For example, an aggressive action by one friend to another produces relatively negative impressions of both individuals, and the other friend has to engage in an especially good act, like forgiveness, to restore feelings to normal. Simulation and experimental studies (Heise 1979; MacKinnon 1994; Smith-Lovin and Douglass 1992; Smith-Lovin and Heise 1988) have demonstrated that this perspective accounts for institutional role behavior, as well as predicting creative responses to deviant acts.

A cross-cultural project conducted in dozens of societies and heterogeneous languages (Osgood et al. 1975) established three universal dimensions of affective meaning: Evaluation, Potency and Activity (EPA). Bipolar graphic rating scales with contrasting adjectives at each end are used to measure affective meanings – both sentiments and impressions – on these dimensions. In English, the Evaluation dimension may be measured with a scale that contrasts "good, nice" with "bad, awful." Potency may be measured by contrasting "powerful, big" with "powerless, little." And, Activity may be measured by contrasting "lively, active, fast" with "quiet, passive, slow."

The transformation of impressions in an event is described by affect control theory's empirically-derived equations for predicting impressions (Heise 1979; MacKinnon 1985/1988/1998; Smith-Lovin 1987; Smith et al 1994). These contain linear and non-linear terms, as shown in the following simplified example from Smith-Lovin (1987:37).

$$A'_e = -0.26 + 0.39 \times A_e + 0.48 \times B_e + 0.25 \times B_e \times O_e$$

In this equation, A'_e is the outcome evaluation of the actor in an event; A_e is the evaluation of the actor before the event; B_e is the evaluation of the actor's behavior; and O_e is the evaluation of the object of action before the event. The equation shows that the outcome evaluation of the actor depends on the previous goodness-badness of the actor, on the goodness-badness of the behavior that the actor performed, and on the consistency between the behavior evaluation and the prior evaluation of the object.

Impression-formation equations currently used in affect control theory have more terms than the above, including cross-dimensional terms – e.g., a term multiplying behavior evaluation times object potency. Also, there are nine different equations – a separate equation to estimate the evaluation, potency and activity outcomes for the actor, behavior and object. The equations can be examined in affect control theory's behavior simulation program available over the Internet (Heise 1997).

Published articles and books discuss subtleties in impression formation associated with consistency and cross-dimensional effects (see especially Smith-Lovin and Heise 1988). However, roughly speaking, actors performing behaviors create impressions of themselves as follows. Engaging in good actions makes the actor seem benevolent, and engaging in bad actions makes the actor seem rancorous, though the object's goodness-badness moderates these effects. Controlling actions make the actor seem strong, while servile actions make the

actor seem weak. Rushed actions make the actor seem active, and unhurried actions make the actor seem passive. Examples of effects on the object of action are: an individual who is the object of a good, weak and active behavior seems benevolent, potent and active; while an individual receiving a bad, strong, passive action seems evaluatively neutral, slightly impotent and passive.

Equations for predicting behavior are derived from the impression-formation equations in conjunction with the proposition that people try to construct events that confirm sentiments (Heise 1977, 1979, 1985, 1992). First, the impression-formation equations are used to predict differences between sentiments and the impressions that will be produced by the next event. Then, the differences represented by these equations are minimized via calculus, yielding new equations that specify an Evaluation-Potency-Activity profile for an optimal future behavior. The EPA profile for the future behavior is defined in terms of cultural sentiments and current impressions regarding the actor and object.

Affect control theory presumes that the actor chooses intelligently among behaviors that instantiate the optimal EPA profile, and that he avoids behaviors with affective meanings so far from the profile that they imply immorality or lunacy.

Macroactors, Macroactions

Cetina and Bruegger (2002) chronicled computer-mediated transactions in the global financial market, and observed that the discourse in face-to-screen financial interactions occurring over great distances, such as New York to Tokyo, shows many characteristics of face-to-face relations. They argued that "microsociological structures and relationships are what instantiate some of the most globally extended domains – for example, global financial markets. In the last few decades, we have witnessed a rise to structural equivalence of what Goffman called the interaction order and macrosocial phenomena." (Cetina and Bruegger 2002:907)

The system of nation-states is another venue where there is equivalence between an interaction order and a global order. Political representatives of nation-states are linked via world-wide interpersonal ties (Giddens 1991). As these individuals interact with each other at a distance, international interactions result.

Various types of individuals perform state actions. Officials – presidents, prime ministers, ambassadors – are chartered to act in the name of their nations within prescribed limits. Offices such as that of president encompass a group of advisors and staff members, so an interaction between two nation-state leaders amounts to interaction of their retinues. Shadow governments of out-of-power political parties sometimes have enough international legitimacy to augment the international behaviors of a state. Also, collective identities have role-like implications (Thoits and Virshup 1997), and thereby individuals in parliaments, patriotic masses or paramilitary groups may respond to foreign stressing of national identity by performing nationalistic actions (Irwin 2003, 2004; see also Troyer and Robinson 2006). These various kinds of individuals are the animating agents of the nation-state as macroactor.

Heise and Durig (1997) introduced the concept of macroaction to designate interpersonal behaviors that are accomplished through the activities of third parties. The third party may be a social organization embodied in a material establishment, implementing a division of labor, employing professionals and relying on sophisticated information-processing. Macroactions enable political action at a distance without requiring dematerialization of behaviors, as in the case of the global financial market described by Cetina and Bruegger (2002). For example, lodging a diplomatic protest to register distress about an incident begins with a prime minister or president instructing her foreign minister to deliver an appropriate document to the leader of another nation. Staff members at the foreign ministry prepare and manage movement of the text and coordinate a meeting with the ambassador of the other nation, to whom the protest document is handed for delivery to the ambassador's superiors via diplomatic pouch. Thus, one ruler gives a concrete document to another at a distance by employing diplomats and their staffs as instruments of action.

Macroactions compounded recursively within bureaucracies or armies may be far-reaching in time and space. For example, a presidential order to act militarily instigates further orders from the chiefs of each military service, which in turn instigate cascading orders among officers of each service – all marshaling legions of warriors to far-flung places over a period of weeks or months. "Yet the crucial insight continues to hold: these vast social complexes are instruments of action by individuals – magnates and rulers." (Heise and Durig 1997:112)

A wide range of international macroactions are available to individuals who perform state actions. Azar and Lerner (1981) distinguished 125 types in a variety of categories including confederating, forming strategic alliances, providing military and non-military support, displaying discord or hostility, and acts of war.

Shared Sentiments

Worldwide political culture provides "cognitive and ontological models of reality that specify the nature, purposes, technology, sovereignty, control, and resources of nation-states and other actors." (Meyer et al. 1997:149) Are affective meanings also shared in a worldwide culture? If so, we should find cross-national correlations in sentiments about identities and behaviors.

Studies by different researchers working in six nations – the United States, Canada, Northern Ireland in the United Kingdom, Germany, Japan and the People's Republic of China – have provided quantitative EPA measurements of hundreds of social identities and behaviors (data available in Heise 1997). Heise (2001) correlated the average ratings of equivalent concepts in different cultures, and found substantial correspondence. The median values of the cross-national correlations reported by Heise (2001: Table 2) for average ratings of identities were: 0.82 on evaluation (goodness), 0.78 on potency (powerfulness) and 0.62 on activity (liveliness). The median cross-national correlations for average ratings of behaviors were: 0.86 on evaluation, 0.45 on potency and 0.44 on activity.

Thus there is cross-national convergence in evaluations of people and behaviors. "An international moral order circumscribes judgments of morality and the allocation of honor and stigma in interpersonal relations, and this moral

order bridges human societies across continents, across political economies, and across languages." (Heise 2001).

The cross-cultural correlations for potency and activity are large enough to indicate that international orders also exist with regard to these dimensions, though less dramatically so than in the case of evaluations. The lower correlations for potency and activity probably result from limited variance – attenuation of correlation due to restriction of range is a well known statistical phenomenon (e.g., Lord and Novick 1968:129). Evaluations of identities and behaviors range broadly from extremely bad to extremely good, providing a substantial base for cross-cultural comparisons. However, behavior potencies vary mainly from slightly potent to extremely potent, and activities of identities and behaviors concentrate around the middle of the activity scale.

While none of the concepts examined in the Heise (2001) study concerned international relations, Azar and Lerner's (1981) study of political macroactions provides some evidence of convergence in international-relations sentiments. Azar and Lerner (1981, Table 1) reported mean EPA ratings of nation-state actions on the one hand from professionals in international relations and on the other hand from laypeople – mainly U.S. undergraduates. Comparing the mean ratings from the international-relations professionals with the mean ratings from the laypeople, one finds that evaluations of international behaviors correlate 0.96 between the two groups, potency ratings of the two groups correlate 0.80; and activity ratings correlate 0.83. Thus the affective meanings of international behaviors held by international-relations professionals largely correspond with the affective meanings held by laypeople. From this, one might infer that international-relations professionals worldwide possess similarity in affective meanings of international behaviors at least as great as the cross-national similarity in laypeople's affective meanings demonstrated by Heise (2001). In fact, the professional consensus should be greater because professionals are the ones who propagate worldwide culture, according to neo-institutionalist arguments.

International Affect Control

In accord with the argument of Meyer et al. (1997) that interactionist perspectives account for much of the behavior of national leaders, this study applies affect control theory to international interactions as follows. National leaders and other concerned individuals take on nation-state identities and utilize international macroactions to maintain affective meanings of their nations and of international behaviors. As these individuals personify their countries and engage in international macroactions with each other to regulate their interpersonal expressive order, they produce a world interaction order among nation-states.

To illustrate, here is an analysis of affective processing by hypothetical states, constructed with affect control theory's computer simulation program *Interact* (Heise 1997; Schneider and Heise 1995), and measurements of macroaction sentiments from Azar and Lerner (1981).

Sentiments about three nation-states are set as follows. Nation 1 and Nation 2 are very benevolent, somewhat controlling and somewhat active (similar to Ethiopia and Morocco during the 1970s). Nation 3 is extremely rancorous, extremely controlling and extremely active (similar to Israel in the 1970s).

Lacking any external disturbances, the leader of Nation 1 confirms the affective meaning of his nation by acting extremely good, quite strong and a bit lively toward Nation 2, as in "conducting or elevating friendship agreements" (quoted phrases are international macroactions from Azar and Lerner 1981). Indeed, such behavior would be equilibrium activity between the two nations.

Suppose that the leader of Nation 3 chooses to act on Nation 1. The optimal macroaction in this case is somewhat bad, a bit strong and very lively – such as "condemning strongly specific actions and policies." This macroaction maintains the affective meaning of Nation 3, but it causes Nation 1 to seem less benevolent, controlling and active than it is supposed to be.

The leader of Nation 1 might try to recover from the macroaction of Nation 3 by returning an unfriendly macroaction to Nation 3, such as "granting sanctuary to opposition leaders." Another, and actually more effective, way for Nation 1 to recover its affective meaning is to return to the relationship with Nation 2 and act stronger and more lively than usual while retaining the usual goodness – e.g., by "ceasing economic restrictions." Still another possibility (and the least effective) is to engage in good, weak, lively domestic macroactions, such as "celebrating holidays." (Azar and Lerner 1981 assess sentiments for 113 domestic macroactions as well as for international macroactions.)

An Empirical Test

The empirical test of affect control theory's usefulness in analyzing international relations is based on the theory's predictions about action-reaction sequences in the Middle East during the 1970s. Incidents are considered where nation A acted on nation B, and then within four weeks nation B acted at least twice on nation A. For each of these incidents, affect control theory's prediction about nation B's action toward nation A – given nation A's earlier action on nation B – is compared with nation B's actual behaviors toward nation A.

The empirical analyses take account of the stable affective meanings of the two nations in their relation with each other and of the affective disturbance created by the initial action of nation A to nation B. They do not make allowance for (1) earlier interaction between the two nations; (2) nation B's ameliorative interactions with nations other than nation A; or (3) nation B's displacement of international disturbance into domestic activity. Overall, then, the testing is conservative in registering only part of the web of continual international and domestic activity.

Data

The data about international events come from Azar's (1980, 1993b) Conflict and Peace Data Bank. Similar datasets are discussed in a special issue of the journal *International Interactions* (Duffy 1994). However, COPDAB is notable as a large database (431,263 events) for the years 1948-1978 built on reports from 71 worldwide sources and giving excellent coverage to international interactions in the Middle East.

This study focuses on Middle Eastern events during the period 1971-78, divided into a five-year span, 1971-75 and a three-year span, 1976-78. The split is uneven because there are fewer events in the early years than in the later years, superior data-gathering having been instituted for the later years (Azar 1993a). Events in the five-year span are used to derive quantitative measurements of the affective meaning of each international actor. Events in the three-year span are used to test theoretical predictions based on quantitative measurements from the five-year span.

This study deals with interactions among 25 Middle Eastern political entities: Afghanistan, Algeria, Bahrain, Egypt, Ethiopia, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, North Yemen, Oman, Pakistan, Saudi Arabia, Somalia, South Yemen, Sudan, Syria, the Palestinian Liberation Organization, Tunisia, Turkey and the United Arab Emirates. All of these are referred to as nations, including the PLO because it was recognized by the United Nations in 1974 as the representative of the Palestinian people.

Assaying Behavior Sentiments

Azar and Lerner (1981) obtained Evaluation, Potency and Activity ratings of 125 international behaviors from 29 professionals in international relations. The raters were State Department employees, consulting firm specialists and academics in and out of the United States, drawn from the collegial network of Edward Azar (1938-91), a Lebanese-born political scientist specializing in the Middle East. Adjectives defined the polar opposites of the three rating scales: *Evaluation* – good-bad; *Potency* – strong-weak; *Activity* – fast-slow. Each scale had nine rating positions with adverbial anchors of infinitely, extremely, quite and slightly on either side of a middle position labeled "neutral or neither." Ratings in the various positions were interpreted numerically with a derived metric from Heise (1978), and mean ratings of the 125 international behaviors varied from approximately -3 to +3 on each scale.

Though Azar and Lerner (1981) did not report reliabilities of their measures, these can be estimated as follows. Variances in rating a behavior on similar scales typically are 1.29 on Evaluation, 2 26 on Potency and 1 68 on Activity (Heise 1978: Table 4.9). Hence, with 29 raters, the error variances of the mean ratings would be about 0.04 on Evaluation, 0.08 on Potency and 0.06 on Activity. Total variances of the mean ratings across the 125 behaviors presented by Azar and Lerner (1981) are: 2.36 on Evaluation, 0.38 on Potency, 0.40 on Activity. Entering the error variances and total variances in standard equations from measurement theory (Lord and Novick 1968) yields the following reliabilities for Azar and Lerner's (1981) measures: 0.98 for Evaluation, 0.79 for Potency and 0.85 for Activity.

The COPDAB database describes international events with behavior descriptions that are more detailed than the 125 specified by Azar and Lerner (1981). For example, one of the actions by Syria to Saudi Arabia is described in terms of an *Activity* "accept," an *Issue-Area* "Saudi idea for sharing Euphrates water," and a *Scale Value* of 6. Trained analysts on the COPDAB project assigned a Scale Value to each event by coding event descriptions from the source periodicals into one of 15 scale categories, with value 1 being for the most

cooperative events between nations (e.g., voluntarily uniting into one nation-state) and value 15 representing the most conflictive events between nations (e.g., total war). The codebook for scaling events (Azar 1993a) offered examples of events at each level, these examples being the 125 events that later were studied by Azar and Lerner (1981).

One conceivable method of converting COPDAB descriptions into Evaluation-Potency-Activity measurements would be to compute the mean EPA profile of all Azar-Lerner (1981) events that were used as examples of a particular COPDAB-Scale value and then assign that mean EPA profile to COPDAB events with that Scale Value. The method would expand the COPDAB-Scale values to the three EPA dimensions but give only 15 different configurations of EPA. Lerner (1983, pp. 88-9) devised an alternative procedure to use more of the information in a COPDAB description and obtain a greater variety of EPA configurations.

Lerner classified COPDAB records into more than 6,000 combinations of Scale Values and Activities. (A specific Activity, such as agree, combines with multiple Scale Values since nations' agreements vary in their degree of conflict-cooperation.) The classification was reduced to 431 most common types of events by keeping only those that applied in five or more records and that accounted for at least 0.5 percent of the records within a particular Scale Value. Lerner (1983) assigned a subset of the 125 behaviors in the Azar-Lerner (1981) study to each of the 431 event types by selecting behaviors appropriate to the Activity from the list of behaviors exemplifying the given Scale Value in the COPDAB codebook. For example, the event type Scale Value 7 and Activity "attend" can be used to describe "Meeting of high officials," "Conferring on problems of mutual interest," or "Visits by low level officials for talks, but is not representative of "Proposing talks," "Exchanging prisoners of war," or any of the seven other Azar-Lerner (1981) behaviors that exemplify Scale Value 7. The EPA ratings for all Azar-Lerner (1981) behaviors related to a particular event type then were averaged, producing a single EPA profile for that type.

Use of 1,293 computer-implemented rules (431 event types times three dimensions) yielded EPA profiles for COPDAB descriptions of events in the Middle East, 1971-78. The assignments of EPA profiles to behavior categories dealt with 89 percent of the events between Middle Eastern nations during the years 1971-78. Events whose Activity verbs were not among the 197 used in Lerner's (1983) behavior classification system were assigned the mean EPA values of all successfully-coded events with the same Scale Value.

Assaying National Sentiments

Sentiments about national identities in the Middle East were inferred from dyadic events in the period 1971-75. Of the 300 dyads among the 25 nations, 151 were suitable for analyses. Excluded were 121 dyads that had eight or fewer events in 1971-75 from which to estimate sentiments.

An additional 28 dyads were excluded because their mean levels of cooperation-conflict, as measured by COPDAB Scale Values, changed by 1.2 or more between 1971-75 and 1976-78, indicating that behavior-based estimates of identity sentiments from the earlier period no longer would be relevant to

behavior in the later period. For example, the Egypt-Israel dyad was eliminated because national sentiments estimated during the 1973 Ramadan (Yom Kippur) War could not be explanatory for the more positive interaction between these nations in 1977-78; the change of mean Scale Values from 9.4 to 8.1 reflects the decline in conflict. Dropping the 28 dyads from analyses implements the goal of seeing whether affect control theory predicts behavior generated by shifting impressions, rather than by changes in sentiments.

EPA profiles of nation-to-nation behaviors were averaged to obtain a single summary profile. For example, Iraq acted on Saudi Arabia 17 times during the years 1971-75, and the mean Evaluation, Potency, and Activity of those acts was 1.53, 0.69, 0 55, respectively.

Affect control theory's reidentification model (Schneider and Heise 1995), as implemented in the computer program *Interact* (Heise 1997), was used to answer the question: What kind of actor nation would perform this average act on that kind of target nation? Initially, the target nation was given an EPA profile consisting of all zeros. On later rounds of calculations, the target nation was assigned the profile computed for it as an actor on the previous round. Eight iterations yielded EPA profiles for all nations that were stable from round to round within 0.02 units.

To illustrate: Asking what kind of nation would perform the mean Afghanistan-Iran action (1.54, 0.89, 0.49) on a nation with a neutral EPA profile (0,0,0) gives a first estimate of Afghanistan's identity in its relations with Iran: 1.15, 0.83, 0.73. By a parallel computation, Iran's identity in its relations with Afghanistan is estimated as 1.35, 0.85, 0.77. On the next round, we ask what kind of nation would perform the mean Afghanistan-Iran action on a nation with a profile of 1.35, 0.85, 0.77, and we get the revised identity for Afghanistan of 1.86, 0.77, 0.81. At the end of eight such iterations, the estimate of Afghanistan's identity in its relationship with Iran had stabilized at 2.06, 0 83, 0.79.

The end result of these computations was a set of EPA profiles for each nation specifying its actor identity in a dyadic relationship with another nation. In essence, a nation's different identities define how it adjusted its behavior in different relationships. For example, Israel was "warm" in its relations with Ethiopia, "apathetic" in its relations with Turkey, "domineering" in its relations with Iraq. (These descriptive adjectives were obtained by assuming that Israel's unmodified identity was the mean of its relational identities in all dyads: -0.62, 0.14, 0.67, and then *Interact* was used to find a modifier explaining Israel's average behavior in each relationship.)

Delineating Incidents

The test of affect control theory requires sequences in which a nation's action on another nation was followed by reaction from the other nation. The goal is to predict the reaction using affect control theory's behavior model.

It was assumed that affect-based reactions typically would occur no more than four weeks after the initiating event. However, not knowing whether the response in every such incident constituted a reaction to the initial event, incidents were expanded to encompass two reactions. An incident was recognized whenever

an actor's behavior toward a target was followed by two behaviors of the target toward the actor within four weeks, without consideration of thematic connections among the three behaviors. In the years 1976-78 there were 1,934 such incidents among the 151 nation-dyads that were suitable for analyses.

Table 1: Canonical Correlations Between EPA Profiles for Predicted and Two Observed Responses

Canonical Variate	Second Response Occurs Within Days: 28	21	14	10	7	5	3	2	1
1	.765**	.767**	.770**	.772**	.774**	.776**	.797**	.812**	.828**
2	.164**	.165**	.221**	.256**	.218**	.194*	.225*	.253	.381
3	.029	.039	.022	.044	.070	.076	.135	.085	.214
N	1934	1656	1224	979	674	483	305	160	57

Notes: Correlations are computed over Middle Eastern incidents, 1976-78, for dyads having stable sentiments during the period, 1971-78. Significances were obtained with Bartlett test of residual correlations: * $p < .05$ ** $p < .001$.

Behavior Predictions

Affect control theory's predictions of reactions in each of the 1,934 incidents were computed with computer program *Interact* (Heise 1997). First, Evaluation-Potency-Activity profiles for the dyadic identities of the nations and for inter-nation behaviors were imported into the program. Next, for each incident, *Interact* calculated impressions created by the initial event, and then computed the EPA profile for the reaction that would best change the impressions created by the first event into new impressions optimally matching sentiments.

For example, on June 17, 1976, Libyan leader Kaddafi opposed Syrian intervention in Lebanon – a behavior with an EPA profile of -0.90, 0.40, 0.60. Entering this initial behavior into program *Interact* along with the sentiments for Libya (1.65, 0.53, 0.87) and Syria (1.87, 0.62, 0.86) in their relation with each other, we find that affect control theory predicts that the resulting impression of Libya was -0.30, 0.46, 0.94; the resulting impression of Syria was 0.79, -0.34, 0.48, and the Syrian response to reduce the discrepancies between impressions and sentiments should have been a behavior having an EPA profile of 2.02, 1.38, 0.34. The first of Syria's actual responses occurred three days after Kaddafi's remarks when Syria's President Assad met with Libya's Premier Jalloud for talks on Lebanon – a behavior with EPA profile 1 90, 0.90, 0.50; the second actual response occurred after eight days when Syria negotiated with Libya on the withdrawal of Syrian forces in Lebanon – a behavior with profile of 1.50, 0.50, 0.40.

Results

Linear canonical correlation analysis1 dealt with the multi-dimensional nature of the predictions and observations about international behaviors. The Evaluation-Potency-Activity profiles for predicted actions constitute one set of variables in

each canonical analysis, and the EPA profiles for actual actions constitute the other set of variables. Canonical analyses identify ways of summing variables in each set into multiple variates with maximal correlations across sets and zero correlations within sets.

The first question is whether affect control theory predictions about nations' reactions to other nations' actions correlate with the first two reactions that actually were observed after an instigating event. Since the optimal lag for affective responses in international interactions was not known beforehand, canonical correlations were computed for subsets of incidents involving different maximum lags, from one day to four weeks.

The most striking feature of the results in Table 1 is the high correlation achieved in the primary pair of canonical variates, regardless of amount of lag. Such power of explanation substantiates affect control theory's usefulness in this domain.

The table shows significance levels for the correlations between each pair of canonical variates.2 The first pair of variates is related at high levels of significance in every column of Table 1; the second pair is related significantly in all samples of more than 300 incidents; and the third pair is not significantly correlated. The appearance of two significant canonical correlations indicates that affect control theory's predictions relate in a multi-dimensional manner to measurements of actual international behaviors.

Correlations for the two significant canonical variates generally are highest at short lag periods, and the second canonical correlation declines notably when the maximum lag is longer than 14 days. This suggests that affective reactions in international interactions mostly occur within two weeks of a provoking event, and that is the cut-off used for subsequent analyses.

Table 2 shows canonical loadings on the significant canonical variates in the sample of incidents with a maximum lag of 14 days. Canonical correlations in this case are 0.770 for the first pair of variates and 0.221 for the second pair of variates.

The first numerical column in Table 2 indicates that the first pair of canonical variates emphasizes behavior Evaluation, within both the predictions and the observed responses. Additionally, behavior Activity correlates negatively with these variates for both predictions and observations. Thus the variates meld Evaluation and Activity into a composite dimension contrasting bad and rushed action with good and unhurried

Table 2: Canonical Loadings for EPAs of Predicted and Observed Responses

	Canonical Variates	
	1	2
ACT Predictions		
Evaluation	.926	.355
Potency	-.256	.549
Activity	-.938	.168
Observed Responses		
Event 1 Evaluation	.886	.128
Event 1 Potency	.048	.384
Event 1 Activity	-.636	.332
Event 2 Evaluation	.898	.116
Event 2 Potency	.185	.806
Event 2 Activity	-.642	.072
Canonical Correlation	.770	.221

action. This meld corresponds to the COPDAB Conflict-Cooperation Scale (Azar and Lerner 1981) which correlates -0.93 with behavior Evaluation and 0.72 with behavior Activity in the 20,086 Middle East events, 1971-78.

The second numerical column in Table 2 shows the composition of the second pair of variates, obtained after removing all variance explainable by the first pair. This pair of variates is defined in terms of predicted behavior Potency and in terms of the Potency of the later observed response; Potency of the earlier response also has a moderate correlation. Thus these canonical variates relate to a dimension of behavioral dominance, aligning potencies for predicted behaviors with Potencies of observed responses. The canonical correlation for behavior dominance is lower than the correlation for cooperation-conflict probably because of restriction of range: the variance of behavior potencies is only about one-sixth the variance of behavior evaluations.

In summary, affect control theory predictions correlate highly with real events on a dimension of cooperation vs conflict, where cooperation is a meld of positive evaluation and unhurriedness. Indeed, affect control theory explains 59 percent of the variance in inter-nation cooperation and conflict. The theory's predictions also correlate with real events on a dimension of behavioral domination, defined in terms of behavioral potency. Affect control theory predicts 5 percent of the variance in behavioral domination. Affect control theory's predictions work best for reactions occurring within two weeks of an instigating event.

Discussion

This study converts a three-dimensional affective space having cross-cultural validity into a bounded world for studying the interactions of macroactors. The dimensions of the space are analogous to familiar macrosociological variables – Evaluation and Potency are akin to status and power (Kemper 1992) and Activity relates to an actor's rate of agentic initiation (Heise 1999) – but there are some benefits to viewing the space in terms of affective dimensions as opposed to the macrosociological analogues. Past research has endowed the affective dimensions with sophisticated measurement technologies (Heise 2001; Osgood et al. 1975), and mathematical equations in affect control theory offer rigorous depictions of dynamic processes occurring in the affective space (Smith-Lovin 1987). Thus, the affective space brings quantitative accuracy and mathematical depth to studies of macroactor interactions.

This study shows that affect control theory predicts significant portions of variance in international action-reaction sequences, thereby documenting the importance of an expressive order in macroactor interactions. Affect control theory thus serves as a multi-level theory specifying general principles governing the social world.

Affectivity motivates general goals of actors during exchanges (MacKinnon 1994:54-9) – e.g., whether actions will be cooperative or conflictual. Thereupon rationality is exercised to choose among options and to implement selected actions. For example, a ruler maintaining an inter-nation expressive order may be inclined to cooperate with another nation. Implementing this inclination involves rational choice among macroactions such as "Conducting or elevating friendship

agreements," "Establishing technological and scientific communications," "Conducting cultural-academic agreements or exchanges," "Repaying debts." The ruler's subordinates employ logic and reasoning to implement the selected macroaction. The importance of affect in setting goals explains why subjects in game-theoretical experiments often fail to act properly in their own interests (Davis 1983; McDermott 2002), thereby not meeting the rationality assumptions of game theory; their general inclinations toward cooperation or defection are expressive rather than rational.

Affect control theory's power to predict cooperation vs. conflict in international behaviors emerged even though dealing solely with isolated dyadic incidents, disregarding nations' ameliorations of dyadic stresses by interactions with outside nations or by domestic activity. More sophisticated future analyses focusing on series of behaviors within a network of interactants should explain more of the variance in cooperation-conflict. Affect control theory's predictive capacity also emerged while giving no consideration to relevance between actions and reactions other than temporal proximity, and predictions might be improved by incorporating judgments about which events actually were responses to instigating actions.

This study's analyses were limited to dyads that maintained a stable relationship throughout the 1970s so that estimates of sentiments and norms from 1971-75 would remain appropriate in the later period. However, affect control theory remains predictive when sentiments are allowed to be time-varying and are estimated from recently observed behavior, as demonstrated by analyses of international interactions reported elsewhere (Heise 2006). Time-varying sentiments might be caused by shifts in network influences (Axelrod 1997: Chapter 7; Friedkin 1998; Ridgeway and Erickson 2000), especially ties to international bureaucracies according to neo-institutionalism (Meyer et al. 1997). Internal political successions by democratic or other means are crucial as well, installing leaders with different sentiments, who consequently behave differently toward other nations, and thereby change the meaning of their nation in the international community.

Affect control analyses usually assign each interactant in a situation a single institutional identity, and the sentiment attached to that identity generates different roles as the interactant engages individuals with other identities. However, this study assigned multiple identities to a nation – a different sentiment for each of its international relationships – allowing that its demeanor might be, for example, warm in one relationship and domineering in another relationship. Multiple sentiments for an interactant, corresponding to different relationships, are appropriate in situations lacking institutional structuration, such as interactions within an informal clique. Current international relations have this character notwithstanding structuration with regard to center and periphery in the modern world system (Wallerstein 1976).

Related to the issue of multiple sentiments, 46 percent of the incidents that began with a negative instigation included at least one positive response – a fact that limited affect control theory's ability to account for reactions. Affect control theory will have to incorporate concurrent identities (Smith-Lovin 2002, 2003) in

order to predict simultaneous acts of vengeance and conciliation. For example, in one case Israel responded to a PLO attack by setting a curfew, thereby confirming its conflictual dyadic identity with the PLO, and also responded by agreeing to attend a UN conference with the PLO, thereby confirming its cooperative identity within the UN.

To summarize, merging two sources of data – Azar (1980) and Azar and Lerner (1981) – produced a large dataset of international events, with each action and each nation measured on three affective dimensions. This dataset was used to conduct affect control analyses of international interactions in an entire region over a period of years. The analyses explained international activities with a high level of accuracy.

This work justifies collection of Evaluation-Potency-Activity measurements for a variety of political concepts. Shrodt (2001:9) reported, "We now have a fairly stable set of about 4,000 verbs and verb phrases that are sufficient to capture most of the political behavior coded in the WEIS [World Event Interaction Survey] ..., and a standard list of about 500 major political actors." Obtaining EPA profiles for 4,000 verbs and 500 nouns would be a substantial project, but feasible. With such dictionaries in hand, it will be possible to perform enlightening analyses of the accumulating data on international interactions, being assembled through automatic coding of news stories on the Internet (Duffy 1994; Schrodt 2001).

Notes

1. The canonical analyses were computed in SPSS using the CANCORR macro in file Canonical correlation.sps of the Advanced Statistics module. The macro is called with the following two lines of syntax.

   ```
   INCLUDE 'c.\Program Files\SPSS\Canonical correlation sps'.
   CANCORR SET1=varlist/SET2=varlist/.
   ```

2. Some incidents shared events because the incidents come from continuous sequences of interaction, but significance testing assumes that the incidents are wholly independent. Culling overlapping incidents leaves samples of non-overlapping incidents: 532 with a 28-day lag, 420 for 21 days, 275 for 14 days, 233 for 10 days, 115 for 7 days, 96 for 5 days, 76 for 3 days, 48 for 2 days, and 18 for one day. The canonical analyses were recomputed for culled samples with more than 200 independent incidents, and the first two canonical correlations always were significant at the 0.01 level. Values of the first canonical correlation ranged from 0.442 to 0.534 – lower than the values in Table 1, because culling eliminated most negative incidents, halving the Evaluation variance of observed behaviors, and thereby attenuating correlations. Values of the second canonical correlation ranged from 0.164 to 0.334. The third canonical correlation was significant at the 0.01 level in the 21-day sample with a value of 0.214 but insignificant otherwise. Thus, results with the independent incidents sustained the conclusion of statistical significance.

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