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Abstract

This research will address the relationship between cooperation and conflict. Despite minor disagreements on the nature of cooperation and conflict, a majority of current works regard these seemingly opposite events as mutually exclusive ones. Concerning this theoretical issue, we organize the following research question: Are cooperation and conflict mutually reinforcing, exclusive, or irrelevant? In order to test this proposition, this research employs the Granger causality test and finds that these seemingly opposite events are rather mutually reinforcing in their nature.

Introduction

The occurrence of interstate cooperation has become a focal point of international relations research over the last few decades. Contemporary scholarship has tended to conceptualize international cooperation and conflict as a perfect dichotomy. In this view, cooperation encompasses the range of positive interactions that provide joint benefit to states through the coordination or collaboration of policies. Conflict, by contrast, represents the negative dimension of interstate interactions, in which states pursue zero-sum strategies aimed at achieving a unilateral benefit. In this way, conflict and cooperation represent mutually exclusive forms of interaction between states. Despite the intuitive appeal of this dichotomy between conflict and cooperation, there has been no empirical test of this conceptualization. In this paper, we seek to evaluate the degree to which conflict and cooperation represent separable components of interstate relations. In doing so, we develop an empirical test of the dichotomous view of conflict and cooperation.

Though a general agreement exists concerning the nature of cooperation and a surge of recent scholarly research has been devoted to issues of interstate cooperation, the concept of cooperation itself has proven difficult to analyze. (Milner, 1992). While theoretical definitions explore various dimensions of interstate cooperation, the empirical definition for operationalization fails to include these dimensions. Therefore, the object of new research should be definitional consistency and accuracy in terms of an operationalizable conceptualization.

Prominent empirical studies on interstate cooperation are based upon an untested assumption about the nature of interstate cooperation and conflict - that they are mutually exclusive modes of interaction. Goldstein (1991; 1992), Goldstein and Freeman (1991), and Goldstein and Pevehouse (1997) have all followed this assumption of mutual exclusivity between cooperation and conflict in their empirical analyses. This is a remnant of the theoretical approach begun by Richardson's arms race model and Axelrod's Tit-For-Tat (TFT) theory of interaction between two actors. Using a dyadic level of analysis, the authors weighted interstate cooperation and conflict, assigning cooperative events a positive score and conflict events a negative score, then taking the sum. This type of data treatment automatically leads a researcher to treat cooperation and conflict as events oppositional in nature, even though they declare that cooper-

ation and conflict are independent and separated foreign policy events (Goldstein 1992). Due to the resultant discrepancy between conceptualization and operationalization, the measured data present only a stylized picture of the reality of foreign policy behaviors of nation states. In an effort to better capture the true dynamic, this research will empirically test the nature of cooperation and conflict, with an eye toward assessing whether cooperation and conflict are mutually exclusive, reinforcing, or irrelevant policy options.

Literature Review

While there is general agreement on the broad conceptual definition of cooperation (Stein 1982; Milner 1992), there is considerably less agreement on the specifics of what constitutes cooperation. Keohane (1984), for example, defines cooperation as a process of coordination in which actors adjust their behavior to the actual or anticipated preferences of others. In this respect, policy coordination occurs when a state adjusts its policy in order to reduce negative consequences for other states. Stein (1982), by contrast, includes both collaboration and coordination as types of cooperation, arguing that either avoidance of common aversions or the creation of common interests can constitute benefits for an individual actor. In this review, collaboration focuses upon solutions to the dilemma of common interest while coordination focuses upon solving the dilemma of common aversion. Since either avoidance of common aversion or creation of common interest can lead to mutual benefit for cooperation participants, it is inappropriate to exclude collaboration as a cooperative behavior.

Groom (1990) defines cooperation as a set of relationships that are not based on coercion or compulsion, which are legitimized in an international organization for the welfare of the collectivity or perceived self-interest. While Groom (1990) recognizes cooperation and conflict are kinds of policy tools used to maximize self-interest, the problem with Groom's (1990) definition of cooperation lies in its consideration of the methods of cooperation as legitimate policy tools excluding coercion, pressure, or compulsion.

Each of these theoretical views of cooperation provides insight into the range of state inter-

actions that constitute cooperation in the international system. Yet, the distinctions between these definitions also points to the lack of agreement upon both the theoretical and empirical operationalization of interstate cooperation. We argue that “cooperation is a set of foreign policy events that produce common interest and that avoid common aversion through coercive, persuasive, or volunteer policy motivation.” This definition includes collaboration and coordination as policy goals and also includes both modes of policy tools. Therefore, this definition is as broad as it is inclusive, counting almost all cooperative events in existing event count data sets such as COPDAB and WEIS. Not only is the theoretical conceptualization of cooperation not yet fully developed, but disagreement remains regarding its empirical operation. In this sense, a key impediment to the progression of the cooperation literature centers upon the lack of both theoretical and empirical consensus on the concept and the lack of consistency between theory and data (Milner 1992; Goldstein 1992).

The development of empirical cooperation research occurred in three phases. The first systematic efforts to study cooperation began in the 1960s. This early phase of cooperation studies included the first empirical efforts to directly test the nature of cooperation and conflict (Tanter 1966; Kegley 1973). Tanter (1966) and Kegley (1973) focused upon correlation and factor analysis, respectively, in order to gauge the factors linked to the occurrence of cooperation. Kegley (1973) argues that foreign policy behaviors are arranged along a circumplex structure,¹ with hostility and friendship on one side and activity and passivity on the other side. Tanter (1966) also argues that there is a built-in structure between cooperation and conflict, where a certain degree of absence of conflict is related to the presence of cooperation, and vice versa. The results of his tests confirm that there are certain types of mutually exclusive relationships between conflict and cooperation.

Beyond the small amount of empirical research in the early phases of cooperation and conflict studies, there have been no more empirical tests which directly examine the relationship between cooperation and conflict. Instead, the majority of empirical analyses have treated it as given by definition in their empirical analyses that cooperation and conflict are mutually exclu-

1. According to Kegley (1973), “circumplexity” refers to a certain type of structural arrangement which is round despite no fixed beginning or end.

sive (Leng and Wheeler 1979; Cusack and Ward 1981; Majeski and Jones 1981; Ward 1982; 1984; Freeman 1983; Dixon 1986; Ostrom and Marra 1986; Goldstein 1991; Goldstein and Freeman 1991; Goldstein and Pevehouse 1997). This type of treatment is attributable to Axelrod's (1980) theory of Tit-for-Tat (TFT) in cooperation studies because TFT presupposes that cooperation is a type of action-reaction at the dyadic level. TFT results in a simple theory, which explains that the cooperation level of a source country is a function of the cooperation level from a target country at the dyadic level. This type of analysis is based on the Richardson's (1960) arms race model, which was initially designed to explain the arms race and disarmament among major powers. However, the applicability of the Richardsonian model to cooperation studies remains an untested proposition (McGinnis 1991).

The scientific study of cooperation started with the research program of Axelrod (1980), which illustrates the efficiency and stability of the TFT strategy under the Prisoners' Dilemma game as a means of overcoming the anarchic structure of the international system. While TFT theory demonstrates the possibility of cooperation under anarchic international relations, it does not test the relationship between cooperation and conflict. Reciprocity theory is simply an empirical substitution for TFT, the simplest strategy, whereby an actor starts with a cooperative choice and thereafter does what the other player did on the previous move (Axelrod 1980). A general problem of early empirical research built on Axelrod's TFT theory is that it relied on Richardson's arms race model as an example of action-reaction between two competing or relevant actors (See Majeski and Jones 1981; Cusac and Ward 1981; Ward 1982; Dixon 1986). Therefore, model specification of cooperative behavior is joined with conflict behaviors. At its very essence, the Richardson's arms race model relies on a simple comparison between reciprocal terms, which refer to relational behavior between two actors, and domestic fatigue terms, which represent the internal influence exerted by domestic politics. The reciprocal terms are measured with the current military expenditure of an opposite party, and the domestic fatigue term is measured with a country's own military expenditure from previous periods (Majeski and Jones 1981; Cusac and Ward 1981; Ostrom and Marra 1986).

Reliance on the arms race model for cooperative behavior leads to a theoretically inappropriate approach to data selection because disarmament is a part of cooperative behavior, but dis-

armament itself cannot replace the concept of cooperation. Ironically, early cooperation studies employ military expenditure data (e.g., Cusack and Ward 1981; Majeski and Jones 1981; Ostrom and Marra 1986). Though interesting for other reasons, such analyses are basically irrelevant to our understanding of cooperation. Recently, scholars investigating reciprocity have developed more sophisticated models of interstate cooperation (Goldstein 1991; Goldstein and Pevehouse 1997). These models are still based on the realist understanding of interstate cooperation, which argues that the reciprocal nature of cooperation between states makes relative gains not absolute gains from cooperative policy more important for rational foreign policy behavior. As the empirical research on cooperation has accumulated, the mutual exclusivity between cooperation and conflict has been adopted as a *fait accompli*; works using the concept of “net-cooperation” are part of this body of research. “Net-cooperation” simply means the total sum of cooperation minus the sum of conflict in a given period of time.

In a break from former research, and in an effort to explore the validity of its assumptions, our research design seeks to empirically test the relationship between cooperation and conflict and to theoretically clarify its dimensions. Instead of adopting the concept of “net-cooperation” without empirical verification, this research aims to develop an empirical standard that future empirical analyses may use when examining cooperative behavior. The way that we will go about achieving this is through a test of Goldstein’s (1992) assumption of “net-cooperation”. In so doing, we seek to better clarify the linkage between cooperation and conflict and the ways in which they are employed as policies by states.

Theory and Hypotheses

Before discussing the major theoretical thrust of this piece, we want to clarify any possible terminological confusion. In this paper, the concepts of conflict and dispute have been used interchangeably to denote verbally as well as materially hostile policy. However, conflict is an inclusive category ranging from a militarized interstate dispute to a verbal warning. When we refer to a militarized conflict, we specifically employ the term “militarized interstate conflict.”

Other than that, conflict simply refers to a whole variety of conflictual events.

The key question that remains is whether cooperation and conflict are separable means of interstate interaction. The literature puts forward two disparate answers. Some scholars argue that conflict and cooperation seem to be separated, but indirectly related, on any given issue (Rummel 1972; Park and Ward 1979). Conversely, others (Boulding 1963; Rummel 1972; Kegley 1973; Platter and Mayer 1989) describe cooperation and conflict as mutually exclusive events. Despite the lack of conceptual agreement on the relationship between cooperation and conflict, the dominant empirical approach in the international relations literature has treated these as discrete, independent events (Goldstein 1991; Goldstein and Freeman 1990; Goldstein and Pevehouse 1997).

Yet, this empirical treatment of cooperation and conflict contradicts the findings from the peace studies literature. Peace studies has developed a definition of peace by placing it opposite to violent conflict (Galtung 1969; Boulding 1978). Although there are definitional discrepancies between negative peace and positive peace, a majority of peace researchers accept that peace means the absence of violent conflict. While negative peace simply means the absence of violence, positive peace encompasses not only the absence of violence but the presence of justice. Regardless of the definitional variations, if these conceptual definitions of peace and violent conflict are appropriate, they contradict the conceptual and empirical treatment of conflict and cooperation argued by a majority of cooperation studies.

In this paper, we depart from the standard empirical treatment of conflict and cooperation in two key ways. First, we do not assume that cooperation and conflict are necessarily confined to a bilateral relationship, as much of the literature does. When a country engages in a cooperative policy toward a target country, the same source country does not necessarily remain loyal in the future to the same target country. The logic of a conflict relationship is very similar to that of a cooperation relationship. Conflict relationships between source and target countries are not necessarily bound to a given dyad. This theoretical presupposition means that cooperation and conflict relationships could both be multilateral in their very nature. In other words, when a country initiates a conflict relationship with a target country, it might also engage in conflictual policies against the allies of the initial target country and cooperative policy with the adversaries of the

same initial target country, at the same time.

Second, cooperation and conflict are *not in a mutually exclusive relationship*. The occurrence of a cooperative policy does not necessarily lead to a reduction in the level of conflict. When a country engages in cooperation, the same country can also engage in more conflict with its cooperation partner. In this sense, the initiation of cooperation toward another state does not necessarily bring with it a reduction in the overall level of conflict between them. Once a country initiates a cooperative policy with a state partner, the cooperation process does not automatically guarantee mutually beneficial behavior. Rather, initial cooperation might be embedded in a larger conflictual process. The initially policy goal is pursued through cooperation because cooperative partners try to maximize their own interest, not because they are striving to achieve mutual benefits. In other words, both cooperative partners pay more attention to relative gain than to absolute gain from the initial cooperation. These two major theoretical points can be illustrated with some historical examples.

Franco-American interactions leading up to the withdrawal of the United States from the gold standard in 1971 demonstrate of this multilateral nature of cooperation and conflict. France sought to force the U.S. to change its domestic-cum-currency policy in 1971 with a threat of specie payment for French foreign exchange reserves. In doing so, De Gaulle succeeded in pushing the U. S. away from its Gold Exchange Standard and forced the world onto a true dollar standard in the summer of 1971 (Gilpin 1987).

President Nixon's announcement in August of 1971 changed U.S. economic policy by suspending the dollar's convertibility to gold and imposing a 10-percent surcharge on imports. This action prompted international markets to abandon fixed exchange rates for the Japanese currency (by which the value of one U.S. dollar was set at 360 yen) and shifted the international economic system toward one of floating exchange rates.

As this example illustrates, the international action-reaction relationship was not merely bilateral between the United States and France, but multilateral. Initially, France sought to change the international political economic system on behalf of its own interests by forcing the U.S. to change the currency exchange system. At first blush, this event seems to reflect a dyadic interaction between the U.S. and France. However, the economic policy change implemented

in response by the United States extended beyond France to a much larger set of states in the international economic sphere. States like Japan, Germany, and South Korea—who had close economic ties to the U.S.—were impacted as much, if not more so, than was France. Additionally, America's leading role in moving from a fixed exchange rate system to a floating exchange rate system reflected an effort at collaboration, constituting a form of cooperation. At the same time, other American actions such as imposition of tariffs on imports represented more aggressive and conflictual actions. As this example shows, the response from an initial target country (in this case, the United States) is not necessarily directed exclusively at the initial source country of the interaction (France, in this example). Instead, in an effort to maximize policy efficiency and effectiveness, when circumstances warrant it, target countries diversify their actions and involve as many countries as possible in crafting their policy response. The predominant empirical approach to the study of cooperation suggests simply summing the conflictual and cooperative actions of states dyadically in order to gauge the nature of their interaction. Yet, in this example, simply summing the dyadic actions and reactions between the United States and France would miss the bigger picture by overlooking the multilateral nature of this interaction. In order to better model this aspect of state interactions in the analysis to follow, we employ an aggregated measure of conflict and cooperation by state rather than by dyad.

The second theoretical departure we take from the contemporary international relations literature is over the idea that conflict and cooperation represent separable events that are exclusive in nature from one another. If conflict and cooperation are truly mutually exclusive, then the level of conflict (or cooperation) exhibited by a state can be simply measured by summing conflictual and cooperative actions. This represents the approach taken by Goldstein (1992). Yet, we argue that such a conceptualization of conflict and cooperation misses the degree to which they coexist in a single continuum.

The evolution of Sino-American relations following Nixon's opening toward China provides a good example of this logic. Since the Nixon administration began official diplomacy with the People's Republic of China, there has been a remarkable development of cooperation within Sino-American relations. At the same time, however, there has been a considerable amount of conflict between the two, often arising as the cooperative relationship between the

U.S. and China matured. The issue of intellectual property rights, for example, provides an example of how conflict can arise amidst cooperation. The United States has protested violations of American copyrights in the Chinese software market nearly every year since the early 1990s. It took several years for the United States and China to reach a copyright agreement in February 1995, primarily due to Chinese resistance to adopting copyright protection measures. The cooperative agreement on copyright issues between the U.S. and China followed a series of conflictual policy events including verbal threats and counter-threats as well as retaliatory tariffs by the United States.²

The fisheries agreement between South Korea and Japan offers another example of this link between cooperation and conflict. The fisheries agreement was signed by South Korea and Japan in June 1965 and went into effect in December of the same year. Since the agreement took effect, there have been several minor conflictual interactions between South Korean and Japanese fishing fleets. These conflicts came to a head with the *Murorang* accident in 1979, when a Korean fishing fleet of nine ships was attacked by stones and Molotov cocktails thrown from a Japanese fishing fleet of 160 ships. As the situation deteriorated, Korean and Japanese authorities entered into negotiations from October 1978 to December 1979 and reached a new fishery agreement in October 1980 (Kim 2003, 97). As this series of incidents shows, cooperation can give rise to conflict, and conflict can inversely encourage cooperation. Therefore, we contend that cooperation and conflict are not mutually exclusive with one another. Instead, cooperation and conflict can function to mutually reinforce one another. In other words, once one type of policy event increases, the other contrasting policy increases concurrently.

As a policy chain, one cooperative agreement between two or more countries is almost always followed by a conflictual policy. By the same token, once conflictual interactions begin, incentives arise for the development of a cooperative agreement in order to prevent serious conflict escalation. Based on this theoretical logic, two sets of hypotheses about the nature of cooperation and conflict may be derived.

2. Faison, Seth, "U.S. and China Agree on Pact To Fight Piracy." *New York Times*, 18 June 1996.

H1-1: The more conflictual the foreign policy a state demonstrates toward the rest of the world, the more cooperation that will emanate from the same state.

H1-2: The more cooperative the foreign policy a state demonstrates toward the rest of the world, the more conflict will that emanate from the same state.

According to the theoretical conceptualization of “net-cooperation,” the presence of cooperation presupposes an absence of conflict and vice versa. As a result, net-cooperation can be measured as the total sum of cooperation minus the total sum of conflict within a given dyad for a given period of time. Yet, this operationalization does not reflect the true nature of interactions between states. If two concepts are mutually exclusive (such as war and peace), there must be a perfect negative correlation between them—such a negative correlation might not exist between conflict and cooperation in the international system.

Goertz and Regan (1997, 324) contend that some cooperative events are precisely what are causally tied to changes in the medium-term outcome of conflictual relationships. In their view, an agreement with an adversary represents a cooperative event because the agreement results from a conflict relationship that requires mediation and negotiation in order to allay current conflict. Goertz and Regan (1997) argue that the concept of “net-cooperation,” cooperation minus conflict, is an appropriate measure for capturing the abstruseness of cooperation. Since cooperation and conflict are interrelated events, an analyst needs to use the concept of “net-cooperation” to exclude data noise caused by conflict from cooperative events. This assumption overlooks the other linkage between cooperation and conflict, which we discussed above: the multiplicity of the cooperation-conflict relationship and the mutually reinforcing nature of seemingly opposite events. And this type of data treatment simply serves a methodological convenience instead of a rigorous conceptual examination.

Other prominent empirical studies find that the current level of cooperation or conflict is a function of the lagged endogenous variable (Dixon 1986; Goldstein 1991). We also pay attention to the importance of these lagged endogenous variables. If conflict is not a function of cooperation, the current level of cooperative or conflictual events is a function of its own past value. Once a country engages in a certain level of cooperation and conflict with a target coun-

try, the current level of cooperation and conflict regulates the future level of cooperation and conflict. This effect is similar to the “domestic fatigue term” in Richardson’s (1960) arms race model. His model demonstrates that the current level of armament creates a domestic fatigue effect that negatively impacts the future level of armament. In a similar vein, this model of cooperation takes into account that the current level of cooperation positively affects future cooperation. On the other hand, the current level of conflict is negatively related to future conflict because conflict, unlike cooperation, carries political and economic costs with few additional benefits in the short run. Therefore, a rational decision maker, in general, would try to avoid costs from conflict policy and try to improve the current cooperation level (McGinnis 1991).

According to Fearon (1995), militarized interstate conflict is a policy of *ex post inefficiency* in terms of cost-benefit calculation. In order to explain the *ex post inefficiency* of conflict initiation, Fearon (1995; 390-401) suggests several conditions which might affect the cost-benefit calculation. The most persuasive explanation hinges on private information and incentives to misrepresent. Fearon (1995) illustrates miscalculation concerning objective capability status and subjective willingness to fight a target country. However, the conditions positively affecting conflict initiation or escalation could be ad hoc conditions rather than routine policy responses. The COPDAB and WEIS data sets include various degrees of conflictual events, while Fearon (1995) selects only cases of militarized interstate conflict. Therefore, simple theoretical application causes theoretical consistency problems due to discrepancy in the degree of the conflictual event. We understand militarized interstate conflict to be the most severe of the degrees of conflict, as it is included in the WEIS and the COPDAB database as an extreme conflictual event. Therefore, we reason a general relationship between conflict and cooperation where only a few conflict relationships develop into a higher level of conflict. Contrary to conventional wisdom, previous cooperation levels might have a positive impact on current levels of cooperation because cooperative policy becomes inertial; more cooperation continues to take place to achieve national interests with a minimum amount of political cost. Based on this reasoning, we formulate the following hypotheses concerning the self-driven impact of cooperation and conflict:

H2-1: The occurrence of more conflict in a given country's foreign policy toward the rest of the world at time $t-1$ will lead to less conflict emanating from the same country at time t .

H2-2: The occurrence of more cooperation in a given country's foreign policy toward the rest of the world at time $t-1$ will lead to more cooperation emanating from the same country at time t .

While prior empirical research argues that current cooperative or conflictual behavior is mainly a function of past values of partners' cooperation and conflict, respectively, we contend that a country is conditioned by its own past behavior as well as its partner's behavior. In some extreme cases, there might be an unexpected policy change from cooperative alliance to adversarial conflict, short of military engagement, that ultimately breaks or damages the traditional trust between long-time allies. Like cooperation, conflict is a routine policy tool as long as the conflict is not a serious militarized interstate dispute. A country freely alternates between routine conflict and cooperation policies on a daily basis to maximize its national interest.

In sum, a country with a certain policy goal almost always prefers cooperation to conflict policy because of the relative cost-benefit efficiency of cooperation. However, a country may adopt conflict as a temporary policy choice intended to achieve a particular policy goal. Sometimes, escalating to a higher level of conflict might lead to an uncontrollable situation beyond the initial policy intention. Other than that, there is no reason a country would continuously prefer conflicts to cooperation.

Research Design

If two factors are mutually exclusive, they must have a negative correlation—if not causality—between them. Generally speaking, causality requires several sophisticated conditions: the cause and effect must change together, cause must precede effect, there must be an identifiable causal linkage between cause and effect, and finally, there must not be simultaneous covariance

by some third factor (King, Keohane, and Verba 1994, 76-84). If these conditions are not satisfied, analyses can produce spurious results due to indirect and multiple causations.

Among these requirements, factors must also be exogenous if they are to be proven to cause another factor. In other words, it is easy to find ostensible causality between endogenous sets of orthogonal factors in classifications such as conservative and liberal. According to this line of reasoning, cooperation and conflict are expected to be mutually exclusive if the concept of “net-cooperation” is employed as an appropriate operational definition.

In order to determine the specifics of the relationship between conflict and cooperation, a series of Granger tests is an appropriate statistical method. According to Freeman (1983), a variable X is said to “Granger cause” another variable Y, when Y can better be predicted from the past values of X and Y together than the past value of Y alone. By definition, the Granger causality test does not exactly match the theoretical definition of “causality” put forth by King, Keohane, and Verba (1994). However, I think Granger causality is an appropriate test method to validate the built-in relationship between cooperation and conflict: whether cooperation and conflict are mutually exclusive. The equations for the Granger causality test are as follows:

$$C_t = C_{t-1} + C_{t-2} + C_{t-3} + C_{t-4} + D_{t-1} + D_{t-2} + D_{t-3} + D_{t-4} + \varepsilon$$

$$D_t = D_{t-1} + D_{t-2} + D_{t-3} + D_{t-4} + C_{t-1} + C_{t-2} + C_{t-3} + C_{t-4} + \varepsilon$$

where “C” refers to cooperation and “D” refers to conflict, respectively. This model simply means that the current level of cooperation is a function of past levels of both cooperation and conflict. These models structure any possible built-in causality between cooperation and conflict. Although Freeman (1983, 328-329) argues that the idea of Granger causality is based on an incremental forecasting value, the logic of Granger causality pertains to the practical and theoretical value of exogeneity, which is an essential condition for structural representation. Therefore, tests for Granger causality are valuable tools in the empirical analysis of political economic processes. In addition to the empirical reasonableness of Granger causality, Freeman (1983) argues that is useful in that it offers qualitative characterizations of the relationships under

study. We thus conclude that the Granger causality test is a reasonable statistical option for detecting the built-in structure of mutual exclusivity between cooperation and conflict.

Previous empirical research on international cooperation has focused upon dyads as the units of analysis. As discussed above, however, we argue that cooperation and conflict are quite often multilateral in nature.³ In the French challenge to the U.S. foreign currency exchange system, the initial conflictual signal from France stimulated an American response that impacted relations with many states, not merely relations with France. Because international cooperation and conflict events entail multiple relevant actors, a dyadic level analysis could miss important parts of policy responses by excluding possible combinations of policy reactions outside of a particular dyad. As a result, in order to capture all possible policy reactions toward all possible target countries, this research design will focus upon the accumulated cooperation and conflict level for each state for a particular period of time. Goldstein (1991) highlights the problem of “over-aggregation,” in which annual measures of cooperation lose the dynamics of daily event count data; therefore, he suggests the use of sub-annual data aggregation. To reach a middle ground between the broadness of annual-level data and the preservation of the dynamics of conflict and cooperation captured by monthly level data, we employ quarterly measures of conflict and cooperation in our analysis.

For these analyses, we utilize two different data sets to generate our measures of conflict and cooperation: the Conflict and Peace Data Bank (COPDAB) (Azar 1982; 1984) and the World Events Interaction Survey (WEIS) (McClelland 1978). Both data sets are the most frequently used sources of event count data for the study of interstate cooperation. These data sets provide daily dyadic measurements of conflict and cooperation events reported by major news media.

The COPDAB data set covers 135 nations, international organizations, and nongovernmental agencies from 1948 to 1978, collecting reports from approximately seventy public sources.

3. Goldstein and Freeman (1991) agree that the major power relationship is trilateral rather than bilateral, and Goldstein and Pevehouse (1997) say that the major power relationship is multilateral, involving more than two or three relevant actors. However, Goldstein and his colleague test the multilateral nature with a limited number of dyadic combinations and admit that the multilateral nature of cooperation exists only in a limited issue area such as ‘super power arms race’ and ‘Bosnia conflict.’

The COPDAB conflict/cooperation scale is an ordinal measurement of conflict and cooperation that covers different types of foreign policy behavior ranging from voluntary integration at one extreme to extensive war at the other.

By comparison, the WEIS data set covers 243 nations, international organizations, and non-governmental agencies from 1966 to present. Unlike COPDAB, the WEIS data set is compiled with a categorical measurement that consists of 22 nominal categories without any weighted ordering of the degree of cooperation and conflict. This research will employ the Goldstein and Pevehouse (1997) version of the WEIS data set. Although Goldstein and Pevehouse (1997) employ and modify WEIS coding rules, they develop their own data set from the WEIS coding scheme. The WEIS data collection has concentrated on the world's major conflict areas such as Bosnia-Kosovo, Somalia, China, Haiti, Cuba, India, and the Middle East (Goldstein and Pevehouse 1997). After collecting cooperation and conflict events, we will also apply the Goldstein and Pevehouse (1997) weighting scheme to the WEIS data set, which is initially measured with a categorical measurement scheme. Once the weighting scheme is applied for the Granger causality test, the data become an ordinal measurement because the weighting value reorganizes cooperation and conflict according to their relative importance.⁴ Although there is theoretical debate about the assigned weighting values for each cooperation and conflict level, the weighting value shall not be the major concern in this research paper. Therefore, we will employ Goldstein's weighting scheme for the WEIS data set.

In selecting our sample of cases, we employ a Most Similar System (MSS) design in order to maximize and control for systematic similarity among the cases. As a result, we focus our analysis upon democratic countries from Western Europe and North America since these countries share similar political, economic and cultural systems. One weakness of the MSS approach is that it tends to over-determine statistical outcomes with case selection (Przeworski and Tune, 1970). Because the case selection strategy in our analysis is based upon theoretical

4. Goldstein (1992) separates cooperative events and conflictual events and assigns positive weight values to cooperation and negative weight values to conflict. For example, military attack as an extreme example of conflictual events gets a weight value of -10.0 and extended military assistance as a cooperative event has an 8.3 weight value.

considerations rather than methodological convenience, we argue that MSS will provide for a more reliable case selection and produce logically sound outcomes.

Findings and Discussion

The panel data analysis with ten sample countries presents the nature of these two seemingly opposite events. As we discussed earlier, there must be negative coefficients in order to support the concept of “net-cooperation” as a logical deduction: a built-in mutual exclusivity between two variables should lead to a statistically significant negative coefficient.

As Table 1 shows, I tested the direction of both causal arrows with two different data sets, WEIS and COPDAB. Generally speaking, all models satisfy the standard of statistical significance, which is smaller than a probability level of .05. As a conclusion, although there are certain causal relationships between cooperation and conflict as other prominent scholars argue (Kegley 1973; Ward 1982), the general picture conveys no structured mutual exclusivity between cooperation and conflict.

There are a few findings supportive of the concept of “net-cooperation,” which are demonstrated when the coefficients of the other events get a negative sign. In the test of WEIS data, conflict Granger causes cooperation negatively (-.0767) on the second lag, with statistical significance. Using the same WEIS data set, we analyze if cooperation Granger causes conflict, which is presented on the bottom of the first column in Table 1. Only the third lag of cooperation Granger causes conflict, as the WEIS data takes on a negative coefficient (-1.2007) with statistical significance at the .01 level.

In the model using COPDAB data, no conflict variables have a statistically significant negative coefficient. When we test whether cooperation Granger causes conflict, the first lag gets a negative coefficient (-.069) with statistical significance, which is presented on the bottom of the second column in Table 1.

In opposition to these findings supportive of the net cooperation assumption, most of the lagged endogenous variables have either statistically insignificant coefficients or positive coef-

Table 1> Granger Causality Tests for Panel Data

Causal Directions	WEIS		COPDAB	
Conflict → Cooperation	COOP{1}	.8474 ^{††} (.0643)	COOP{1}	.2905 ^{††} (.0306)
	COOP{2}	.3440 ^{††} (.0768)	COOP{2}	.2131 ^{††} (.0315)
	COOP{3}	-.2811 ^{††} (.0842)	COOP{3}	.1421 ^{††} (.0314)
	COOP{4}	.2264 [†] (.0737)	COOP{4}	.1507 ^{††} (.0295)
	CONF{1}	-.0217 (.0297)	CONF{1}	.0893 [†] (.0346)
	CONF{2}	-.0767 [†] (.0260)	CONF{2}	.0131 (.0442)
	CONF{3}	-.0310 (.0264)	CONF{3}	.1802 ^{††} (.0441)
	CONF{4}	-.0324 (.0260)	CONF{4}	-.0560 (.0356)
Null Hypothesis: The followings are Zero	F(4,371) = 2.58 With Sig. Level .03666		F(4,1191) = 19.95 With Sig. Level .00000	
Cooperation → Conflict	CONF{1}	-.2367 ^{††} (.0658)	CONF{1}	.8282 ^{††} (.0303)
	CONF{2}	-.2434 ^{††} (.0575)	CONF{2}	-.2065 ^{††} (.0387)
	CONF{3}	.0341 (.0585)	CONF{3}	.1902 ^{††} (.0386)
	CONF{4}	.0174 (.0574)	CONF{4}	.0442 (.0312)
	COOP{1}	1.4213 ^{††} (.1424)	COOP{1}	-.0690 [†] (.0268)
	COOP{2}	1.5903 ^{††} (.1700)	COOP{2}	.0705 [†] (.0276)
	COOP{3}	-1.2007 ^{††} (.1863)	COOP{3}	-.0099 (.0275)
	COOP{4}	-0.1719 (.1631)	COOP{4}	.0417* (.0258)
Null Hypothesis: The followings are Zero	F(4,371) = 86.64 With Sig. Level .00000		F(4,1191) = 3.68 With Sig. Level .00543	

Note: COOP = Cooperation, CONF = Conflict / Standard Error in parentheses

^{††}p < 0.001

[†]p < 0.01

**p < 0.05

*p < 0.1

ficients with statistical significance. The test of WEIS, in which cooperation Granger causes conflict, achieves a positive coefficient at a .01 level of statistical significance on the first two lags. The test of whether conflict Granger causes conflict, using the COPDAB data set, has consistently positive coefficients for all lags except the fourth.

A summary of the results of these panel data analyses is that the statistical outcomes are mixed, allowing us to conclude that cooperation and conflict are not fully mutually exclusive. In general, the results from WEIS and COPDAB provide different answers. In the WEIS data analyses, more conflict seems to lead to less cooperation, and more cooperation seems to lead to more conflict. In the COPDAB data analyses, however, more conflict seems to lead to more cooperation, and more cooperation seems to result in less conflict. These inconsistent findings between cooperation and conflict, while not necessarily confirming the hypotheses, could not be regarded as supportive evidence for the concept of “net-cooperation.” Although each of the four different models achieves some level of statistical significance, the directions of the coefficients are inconsistent, and in some instances counter to our expectation. For instance, more conflict leads to less cooperative behavior, but not vice versa: more cooperation results in more conflict.

These findings can be divided according to three major characteristics, which inform us of all the possible derivative logical inferences that can be made between cooperation and conflict. First, initial cooperation might increase conflicts later. The occurrence of cooperative events does not necessarily imply the absence or abatement of conflict. Once a country engages in cooperative behavior in order to maximize national interest at time t , the same country is more likely to go through conflict behavior at time $t+k$, $k>0$. Temporary agreements resulting from cooperative policy do not necessarily lead to the automatic assurance of mutual interest between two states. Instead, cooperative agreement requires more adjusting and executive process by both sides in case of bilateral cooperation. This adjusting process involves conflictual events between the initial cooperation partners.

To clarify, we return to the Sino-American case examined above. The agreement between China and the U.S. on copyright protections could be regarded as a major cooperative event for both countries. However, the initial agreement that China adhere to copyright laws served as the

source of future conflict events, including both verbal threats and counter-threats, as well as actual retaliatory tariff policies instituted by the United States. Thus, an initial cooperation event bred years of conflict events. This is not to say that the Sino-American relationship is one characterized solely by conflict. Further proving the thesis of this paper, conflict around the copyright issue has caused both further conflict and cooperation since the U.S. continuously makes use of threats and negotiations at the same time it tries to preserve its interests in the Chinese market. This provides significant counter evidence to the concept of ‘net-cooperation.’

Second and inversely, initial conflict might lead to more cooperation. The occurrence of conflict makes participants desirous of more cooperation in the interest of preventing further conflict. When a country engages in conflict behavior, the same country might need more cooperation and actually engage in more cooperation. To illustrate, when the United States initiated unilateral military action against Iraq in 2003, it requested military support—a form of the highest level of cooperation—from France, Germany, and Russia. While the U.S. initiated militarized conflict against Iraq, it also engaged in a series of cooperative requests, consequently. In facing the request of military support from the U. S., France opposed American military action and refused any military support for American military operations. Concurrently, the French government initiated cooperative gestures to the U.S. in order to prevent any retaliatory trade policies and to protect its own economic interest, for example, the French exportation of dairy product and wine to the U.S.

When France, Germany, and Belgium blocked the NATO plan to fortify Turkish defenses ahead of a war in Iraq, the United States recognized NATO’s opposition to the military intervention and scorned the hostility by its traditional allies. American lawmakers threatened to take retaliatory action against France, Belgium and Germany for their opposition to U.S. policy towards Iraq: call for a trade boycott of French products such as cheese and wine, French tourism, and Airbus. However, France tried to protect its investment and trade relations with Iraq that might be disrupted by American military intervention through cooperation with other European countries. At the same time, French President Jacques Chirac directly called on Washington to maintain existing economic ties with the United States.

The German case might be even more interesting. Although Germany also opposed Ameri-

can military action and refused to provide any military support for the U.S., it maintained military support in Afghanistan as an expression of cooperation toward the U.S. As shown in these examples, a conflictual policy is not necessarily followed by a reciprocal conflictual policy, nor does it exclude any possibility of cooperation, even at the dyadic level.

When the analytic level is extended to multiple dyadic levels, a conflict policy towards a target country is less likely to ensue after one conflict is initiated by the same source country. Even further, there is an increasing change of cooperative policy toward other related countries. In the same example of French opposition to American military action, France sought policies of cooperation with Germany and Russia after the initial conflict with the U.S. More specifically, France, Germany, and Russia coordinated their responses in order to prevent any possible retaliatory policy by the U.S. At the same time, they collaborated in order to reinforce their policy tools in an effort to deter American military action against Iraq. The other side of the coin is that the United States also did not engage solely in conflict policies toward France. Instead, it sought and utilized other possible cooperation partners, so-called young European countries such as Poland and Italy.

Moving back to the model's results, due to the relatively inconsistent outcomes from panel data analyses, we suspect that we will observe a difference between major and minor powers in terms of cooperation and conflict behavior. Major powers have the capability and willingness to affect other countries' behavior while minor powers lack resources to utilize for their interest. (Katzenstein 1985) Therefore, major powers can enjoy autonomy in terms of Tit-for-Tat behavior, which leads a difference between major and minor powers' behavior. Therefore, we employ the Granger causality test for individual cases. After running the Granger causality test for each case, we exclude several sample countries from the table since the cases of Australia, Germany, Italy, Japan, and Switzerland fail to reject the null hypothesis.

The table reports five sample countries: the United States, the United Kingdom, Austria, Canada, and the Netherlands. Generally speaking, there are no statistically significant correlations in the Granger causality test. These results present further evidence to repudiate the concept of "net-cooperation" because there are no systemic linkages between cooperation and conflict. In other words, cooperation and conflict can be interpreted as separate and independent

Table 2 Granger Causality Tests for Individual Sample Cases

Directions	Variables	U.S.		U.K.		AUSTRIA		CANADA		NETHERLANDS	
		WEIS	COPDAB	WEIS	COPDAB	WEIS	COPDAB	WEIS	COPDAB	WEIS	COPDAB
Conflict → Cooperation	COOP{1}	.69*** (.23)	.19* (.1)	-.04 (.22)	.17* (.1)	2 (.19)	.03 (.09)	.09 (.1)	.13 (.18)	.21*** (.09)	
	COOP{2}	.23 (.26)	.13 (.1)	-.15 (.2)	.12 (.1)	-.02 (.18)	-.01 (.09)	.16 (.1)	-.06 (.17)	.17* (.1)	
	COOP{3}	-.43 (.3)	.05 (.1)	-.19 (.14)	-.1 (.1)	.07 (.18)	.07 (.09)	.01 (.11)	-.24 (.17)	.08 (.1)	
	COOP{4}	-.01 (.28)	.003 (.09)	.08 (.13)	-.003 (.1)	-.04 (.24)	.1 (.11)	-.01 (.16)	-.05 (.16)	.04 (.09)	
Cooperation → Conflict	CONF{1}	-.01 (.09)	-.003 (.08)	.23† (.07)	.29*** (.11)	.30 (.34)	-.83 (.58)	-.38 (.56)	.66*** (.33)	.74* (.41)	
	CONF{2}	-.02 (.08)	.01 (.1)	.35† (.08)	.02 (.13)	.07 (.26)	1.04* (.59)	.03 (.21)	.16 (.34)	-.1 (.47)	
	CONF{3}	.03 (.09)	2*** (.1)	.05 (.1)	-.01 (.13)	-.1 (.24)	-.38 (.59)	.56 (.54)	-.08 (.34)	-.42 (.42)	
	CONF{4}	.02 (.08)	.005 (.08)	.1 (.09)	.01 (.11)	-.07 (.26)	-.1 (.55)	1.44† (.54)	.43 (.32)	-.1 (.41)	
Null Hypothesis: The followings are Zero		F(4,29)=07 Sig..98	F(4,11)=3.92 Sig..005	F(4,29)=7.97 Sig..001	F(4,11)=2.32 Sig..06	F(4,29)=3.4 Sig..84	F(4,11)=1.08 Sig..36	F(4,29)=2.41 Sig..07	F(4,29)=1.46 Sig..23	F(4,11)=1.26 Sig..02	
Cooperation → Conflict	CONF{1}	-.27 (.23)	.86** (.1)	.34 (.23)	.66†† (.09)	-.04 (.19)	-.49†† (.09)	.13 (.09)	-.13 (.17)	.26 (.09)	
	CONF{2}	-.21 (.21)	-.26** (.12)	.04 (.24)	-.22** (.11)	-.008 (.15)	-.32†† (.09)	-.02 (.22)	-.24 (.18)	-.04† (.09)	
	CONF{3}	.12 (.21)	.22* (.12)	-.15 (.31)	.1 (.11)	-.28** (.14)	.32†† (.09)	.06 (.22)	-.21 (.18)	-.01 (.09)	
	CONF{4}	.11 (.20)	.12 (.1)	.02 (.29)	.04 (.09)	-.07 (.14)	.001 (.08)	.007 (.22)	-.23 (.17)	-.08 (.09)	
Cooperation → Conflict	COOP{1}	1.24** (.54)	-.31 ^q * (.12)	.47 (.69)	-.01 (.08)	.01 (.11)	.02* (.01)	.23 (.19)	.35†† (.09)	-.009 (.02)	
	COOP{2}	1.72† (.61)	.02 (.12)	.14 (.62)	.08 (.08)	.1 (.1)	-.01 (.01)	.06 (.19)	.09 (.09)	-.001 (.02)	
	COOP{3}	-1.49*** (.7)	-.15 (.12)	-.63 (.44)	-.11 (.08)	.51†† (.1)	.05†† (.01)	.04 (.19)	-.02 (.09)	.04** (.02)	
	COOP{4}	-.59 (.66)	-.09 (.11)	.09 (.40)	.09 (.08)	-.09 (.13)	-.01 (.01)	.21 (.17)	-.007 (.08)	-.02 (.02)	
Null Hypothesis: The followings are Zero		F(4,29)=6.64 Sig..0006	F(4,11)=3.60 Sig..008	F(4,29)=60 Sig..66	F(4,11)=78 Sig..53	F(4,29)=7.37 Sig..000	F(4,11)=4.72 Sig..001	F(4,29)=70 Sig..59	F(4,29)=3.68 Sig..01	F(4,11)=1.24 Sig..02	

Note: COOP = Cooperation, CONF = Conflict
††p < 0.001 †p < 0.01 **p < 0.05 *p < 0.1

foreign policy tools.

According to Table 2, there is very weak to no Granger causality, whatsoever, between conflict and cooperation in the listed countries. The only explanation for these weak statistical outcomes that we can determine is the relative size of state capability and state willingness to respond in a TFT mode in given sample countries. Although Germany and Japan have been major economic powers since the mid-1980s, they did not actively respond to other countries in a TFT mode particularly in political and military issue areas.

In general, the cases presented in Table 2 indicate that a majority of events do not support the concept of “net-cooperation” because there is no consistent pattern of negative coefficients, though some are in fact negative and statistically significant. Not surprisingly, the general results of the Granger causality are similar to those of the panel data analysis in that the coefficients of both the lagged endogenous variables and the other type of foreign policy behavior yield statistically insignificant results.

Our test of whether cooperation Granger causes conflict using COPDAB is somewhat supportive of the “net-cooperation” assumption since it produces statistically significant negative coefficients, but this occurs only on the first lag. Contrarily, the American case with the WEIS data indicates that cooperation positively Granger causes conflict in the first lag (1.24) at the .05 significance level and the second lag (1.72) at the .01 significance level, while the third lag gets negative coefficients (-1.49) at the .05 significance level.

Both cooperation and conflict are rather self-driven foreign policy behaviors, i.e., cooperation and conflict show more consistent correlations with their past values, respectively. In the test of whether conflict Granger causes cooperation, past values of cooperation return positive coefficients except with the third lag in the WEIS data set. We can interpret this outcome to mean that more cooperative behavior in the past leads to more cooperation in the future. Once a country engages in cooperative behavior, the same country tries to maintain the cooperative policy trend in an effort to enhance its national interests, which become linked to further collaboration over time. This buttresses Axelrod’s (1981) Tit-For-Tat theory of strategic interaction, which stresses viability and stability.

Conflictual behavior shows results opposite to that of cooperation behavior. In general, past

levels of conflict behavior have a negative impact on the current level of conflict. In other words, a conflict initiator tries to decrease conflict over time, meaning that conflict behavior does not have a self-reinforcing nature. More generally, this suggests that decision-makers do not act as a risk-taker when deliberating over conflict behavior in routine international relations. In some sense, a conflict initiator has to assume a certain level of political responsibility for escalating conflict levels. Unless a country is hawkish, it might try to avoid domestic as well as international political costs that accrue from conflict. Escalation of conflict fails to guarantee not only mutual benefit but also individual benefit in routine international relations. Therefore, countries try to restrain conflict behavior as conflict levels tend to increase. Based on these findings, we argue that the intrinsic behavioral pattern of nation states is as follows: while cooperative behavior has a reinforcing nature, conflict behavior has a faltering nature.

Conclusion

The results from the Granger-causality test demonstrate that there is no built-in exclusivity between cooperation and conflict since there are no statistically significant test coefficients, which are supposed to be negative. The frequency of cooperative events is better explained with the past values of the level of cooperation. Conflict events behave according to similar conditions. This result repudiates the utility of the concept of ‘net-cooperation,’ which is most frequently employed by various prominent empirical studies.

Based on these findings, we maintain that cooperation and conflict are conceptually separate events and foreign policy tools in the real practice of international relations. In other words, the current conceptualization of cooperation does not reflect the true nature of cooperation and conflict in real politics. Two major findings concerning the nature of cooperation and conflict stem from the empirical analyses in this paper.

First, cooperation and conflict are not limited to bilateral relations; rather, each is multilateral in its very nature. This means that a decision maker in a target country does not necessarily respond to an original source country when faced with either cooperative or conflictual policies.

The decision maker in a target country can respond to a third party to maximize the state's own utility, if such an option is available. This finding reflects exactly the complex interdependence in international relationships.

Second, cooperation and conflict are not mutually exclusive. Rather, they are mutually reinforcing even when one maintains the assumption of bilaterality. Although a cooperative event often ensures a subsequent cooperative event from the target country, cooperation from a source country may result in a conflictual response by a target country, which decides independently whether its national interest will be maximized through cooperation. Conflict initiated by a source country may lead to a cooperative response by a target state, which may seek to minimize the political costs caused by an escalating conflict relationship. Either way, nation-states may act in a way that is counter-intuitive in order to maximize national interests by enlarging political benefits or by decreasing political costs.

Third, the current level of cooperation or conflict is better explained by past values of each rather than by other types of events. More specifically, more cooperation at time t leads to more cooperation at time $t+n$, and more conflict at time t results in less conflict at time $t+n$ (where n is greater than 1). Generally speaking, this result means that cooperation and conflict are not related. Rather, they are independent foreign policy tools. When a nation-state faces external impacts, its behavior is more likely to be decided by its own behavioral past. This further redounds back into indirect support for the non-exclusive nature of cooperation and conflict.

This result supports the conclusion that cooperation has a self-reinforcing effect, while conflict has self-destructive effects. While cooperation does not involve a serious political and economic cost, conflict generally costs a great deal. Therefore, more cooperation in a given nation-state can lead to more cooperation in the future, which serves to maximize its national interest. On the other hand, more conflict in a given country is more likely to eventually result in less conflict, as states seek to avoid conflict costs.

Finally, based on these findings, we would suggest that the empirical analyses measuring cooperative events not use data combining cooperation and conflict. Unless cooperation and conflict is mutually exclusive, which our tests showed is clearly not the case, then the data treatment based on the concept of 'net-cooperation' will remain flawed, and will provide for inade-

quate analyses based on a divide between empirical reality and methodological operationalization. The conceptually incorrect specifications used to date, we believe, can lead to incorrect model specification, erroneous statistical inference, and inaccurate interpretations. If a research design accepts the assumption that the nature of conflict and cooperation follow reciprocity theory with “net-cooperation” as a dependent variable, it suffers from a serious logical flaw.

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