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FÜR SOZIALFORSCHUNG

P 90-308

Realpolitik and Multistate

System Stability

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Beziehungen**

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Relations**

ABSTRACT

This paper describes a project focused on the theoretical value of realism to the study of international relations. A large number of the primary assumptions and propositions within realism are detailed and evaluated in light of results drawn from studies using a simulation model of a multistate system that incorporates many of the principal components of realism. In sum, these results help to assess many of the contradictory positions within realist thought and also illustrate the bases for the diversity of expectations held by different schools within realism.

ZUSAMMENFASSUNG

Dieser Beitrag beschreibt ein Projekt, das sich mit der theoretischen Bedeutung des Realismus-Ansatzes in der Forschung über internationale Beziehungen beschäftigt. Viele Grundannahmen und Behauptungen des Realismus-Ansatzes werden ausführlich beschrieben und anhand von Forschungsergebnissen untersucht, die mit einem Simulationsmodell eines Multistaatensystems, das viele Hauptkomponente des Realismus-Ansatzes umfaßt, erzielt wurden. Zusammenfassend kann gesagt werden, daß die Ergebnisse viele widersprüchliche Positionen innerhalb des Realismus-Ansatzes einschätzen helfen und die Grundlagen für die vielfältigen Erwartungen der verschiedenen Denkschulen innerhalb dieses Ansatzes aufzeigen.

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INTRODUCTION

Realpolitik, a school of thought in international politics, is generally recognized as one of the principal sources of guidance in the making of foreign policy (cf., Holsti, 1985; Singer and Small, 1974). Although its origins can be traced to the ancient Greeks (Doyle, 1990), extensive efforts at articulating its various aspects and its widespread explicit invocation as a source of inspiration came only with the breakup of the Medieval World and the emergence of what has come to be recognized as the modern state system rooted in Europe (cf., Carr, 1946). In the more recent period, where scholars have engaged in the effort of constructing a "science of international politics," it is probably the most dominant vision of the behavior of states and the workings of the international system. This holds whether cast in the form of "traditional realism," per Morgenthau, or "structural realism," per Waltz. In recent scholarly work, its influence is pervasive. Thus, the leading quantitative research project on international conflict, the "Correlates of War" Project, explicitly acknowledges "realpolitik" as a major part of the organizing framework that has guided its endeavors (cf., Singer, 1980). This tendency is evident as well among traditional scholars as witnessed in the major efforts of Kennedy (1987) and Gilpin (1981) to unravel and interpret the long-term dynamics of the modern international system.

There are, however, some serious flaws that may undermine this hegemony. Three major failings include: (1) imprecision and incoherence; (2) failure to demonstrate the logical consistency of the arguments; (3) an insufficiency of empirical support. Almost paradigmatic in quality, realpolitik reflects, or may perhaps be one of the major causes of the lack of cumulativeness that marks the study of international politics. Many of its "theories" and "hypotheses" are rather tenuous in quality and despite their supposed common origin they appear contradictory. Indeed, it is often impossible to see more than assertion as the basis of many predictions and explanations in the literature; the logic employed has no apparent rigor. Contradictory assertions and murky logic may also be factors contributing to the alleged scarcity of empirical findings that might lend support to the scientific claims of the realists (cf., Vasquez, 1980).

Our project has sought to make a positive contribution to the debate regarding the value of this approach to the study of world politics.¹ It focuses on the dynamics of war and the evolution of the international system, two central concerns of realpolitik. The principal means employed has been a large scale computer simulation model of an abstract multistate system wherein the states employ realist principles. The project is based on the premise that an effort at synthesizing the theorizing and empirical research within this school and formalizing this synthesis would provide a two-fold benefit. First, it would enable us to systematically explore the logical implications of arguments and findings within the approach, and allow us to evaluate the merits of competing claims within some of the many controversies that prevail therein. Second, the effort at model building and evaluation might also help point out areas where empirical research should be focused in order to help further the development of this approach and, as well, subject it to critical tests that would substantiate or invalidate its claims.

In the next section, the project is outlined. Following that, a brief description of the basic model developed by the project is presented. In the two succeeding sections, a discussion of some of the principal schools within realist thought is presented and the results from a recently completed set of studies using the model to examine the arguments of these schools are summarized and used to evaluate the main points of these arguments. Finally, we conclude with a description of the project's plans for further research.

THE RESEARCH PROGRAM

The simulation model that has been developed is better understood as a series of models. The progression of models through this series has incorporated further developments and refinements to the initial version. The initial version was a reconstruction of an earlier simulation model created by Stuart A. Bremer and Michael Mihalka (1977). Since no extant version of the Bremer-Mihalka simulation model was available, we had to rely principally upon the one published

¹ The project has been supported by the Stiftung Weltgesellschaft and the Wissenschaftszentrum Berlin für Sozialforschung. The generous support of these two institutions is gratefully acknowledged.

paper, "Machiavelli in Machina: Politics Amongst Hexagons," that provides a loose verbal description of the model's structure. Although this report is fairly clear in its description of many program elements, ambiguity still surrounds some critical components. Personal communication with one of the model architects, Stuart A. Bremer, has helped in eliminating some of this ambiguity.

During the initial phase the original model was reproduced. Owing to its more attractive qualities, the PASCAL programming language was employed in place of the FORTRAN language originally used. When the project shifted away from a mainframe computer to reliance on PC's, we decided to rebuild the model in the MODULA-2 programming language. An advance over Pascal, this language also offered efficiencies in run-time on smaller machines. The latter consideration was important given the large number of experiments conducted and planned for the model. After a period of time it was felt that since the model would eventually be made available to other interested scholars, another shift in the programming language was required. Since MODULA-2 is not widely used, it was decided that the model be translated into C, a more commonly used language. This had other advantages, particularly in terms of run time, which, as the model has grown in size and complexity, has become a matter of critical importance.

When completed, the model was tested to assure that it reproduced the kind of results that Bremer and Mihalka reported in their 1977 study. Such concordance was eventually achieved. With these reconstruction, test, and refinement activities completed, attention shifted to model evaluation experiments suggested by Bremer and Mihalka, but never carried out. These experiments included two general types. The first focused on a systematic evaluation of the performance implications of alternative configurations of systemic and state characteristics. A report on this study is to be found in a paper published in the *Journal of Politics* (Cusack and Zimmer, 1989). The second set of preliminary experiments focused on a systematic evaluation of the consequences of alternate assumptions regarding motives and behavior of actors within such a system. This study allowed for the possibility of comparing the relative efficacy of a non-realist power management strategy with strategies that

fall within the realist paradigm. Thus, the consequences of a "collective security ethos" as well as imputed "self-less" contributions to "power-balance management" strategies were explored.²

The project later focused on the introduction of alternative decision making rules. These alternatives are based upon theories and empirical research other than those employed in developing the original model. One aspect that received significant attention here is the decision making rule employed in various stages of the conflict process in the model. Here a formulation based on a "rational choice" model was employed for purposes of modifying the repertoire of decision making routines used by the state-actors within the model. A study focusing on the ecological superiority of rationality in a realpolitik world (cf., Waltz, 1979) was conducted and reported on in a volume of studies dealing with the dynamics of international war (Cusack and Stoll, 1990a).³

A third area for deepening and refinement dealt with a central concept within the model, viz., power or resources. We attempted to provide at least a minimal decomposition of this term and develop certain associated processes. The basic idea was to decompose resources into two elements: military on the one side and reproductive on the other. Military power would be the only directly applicable resource in external war situations. What has been described as reproductive represents resources that a conquering state leaves in the hands of a population indigenous to territorial units it conquers.

This allowed at least a primitive portrayal of some processes concerned with how territorial/national populations orient themselves toward state power centers. In addition, it permitted further enrichment of government policy considerations and decision processes. As Deutsch (1957, 1966) has shown, the social, political, and economic processes associated with the attempted integration of diverse peoples into greater political entities are difficult to manage

² Results from this study are reported on in a paper by Cusack (1988a).

³ This paper represents part of a collaborative effort with Richard J. Stoll of Rice University who has developed a slightly different version of the basic model (cf., Stoll, 1987). Some other work with Stoll on decision making problems focused on the question of adaptation (Cusack and Stoll, 1990b).

and are sensitive to events and trends both external and internal to nascent "security communities." The manner in which such processes can be managed is a difficult area of policy choice (Kochen and Deutsch, 1980). Sustained policy failure can provoke untoward responses from alienated populations and may also induce external actors to intervene (Gurr, 1970; Richardson, 1985). This allowed the model to provide more theoretically interesting as well as plausible portrayals of state growth and decline. It also helped illuminate the systemic consequences of the reversible process associated with hegemony. A report on this research is to be found in Cusack (1988b). This represented the culminating activities of the initial efforts of the project.

The second stage of the project has just been completed and an extensive report on its activities published (Cusack and Stoll, 1990c). It had two foci. First, it focused on the incorporation of further elements into the model and the improvement of some existing ones. Second, by systematically employing this theoretically based model it was then possible to conduct a broad-based study of a wide-range of debates both within realism as well as between realism and idealism. Included among the new model elements were (1) mechanisms that permit wars to end in indecisive ways, (2) the removal of the restriction that states engaged in war suffer equally in relative terms, (3) constraints on alliance or coalition building, and (4) the possibility of introducing differentials in endogenous growth rates. Additionally, rational choice decision-making routines were greatly expanded to incorporate the expected utility logics argued to be central by many realists (cf., Bueno de Mesquita, 1981). Finally, the mechanisms of imperial control and the processes whereby multiterritorial polities sometimes undergo internal war and secession were made more extensive.

AN OVERVIEW OF THE MODEL

Many essential characteristics of a multistate system are incorporated within the model.⁴ First, the *size* of the system, i.e., the number of sovereign states, can be large or small. In our experimental studies with the model we have generally

⁴ The model can only be briefly described here. A much fuller description is to be found in Cusack and Stoll (1990c). The simulation program and related documentation are available from Thomas R. Cusack, Wissenschaftszentrum Berlin, Reichpietschufer 50, D-1000 Berlin 30, Federal Republic of Germany.

worked with systems of 98 states. A second essential element is the *geopolitical character* of the system's units. The state units are provided with distinct territorial domains located in an ordered geographical space. The units possess some amount of a resource, power, that is both critical to survival and subject to growth and destruction. A third characteristic is the capacity of each of these states to *observe* their environments, *decide* on alternative courses of action, and *implement* their decisions.

It should be noted that it is possible to populate the system with states having various types of *decision rules* and *power management styles*. The variety here is relatively extensive and this scope allows one to focus on some of very important debates within realism as well as between realism and the idealist school. An overview of these different types of state characteristics is provided in Table 1.

Time is also represented, i.e., the model incorporates a dynamic flow. Actions take place within an iteration of a model run and the consequences of these actions help to define and shape the system of states in succeeding iterations. Within each iteration there are five major phases of activity. In the first phase internal conflict in the form of civil war is portrayed. The potentials for disintegration of states as a consequence of these internal wars and the emergence of new actors within the interstate system are also represented. In the next three phases the model deals with processes directly associated with interstate war. The first of these phases determines whether a dispute will occur, in effect, whether a state threatens to use force against another system member. The processes of dispute escalation and de-escalation are portrayed in the next phase. The following phase occurs should war result and deals with the direct consequences of war in terms of the costs both sides incur and territory and power defeated states must transfer to victorious states. In the last or fifth phase the power capabilities of the states in the system are changed in light of their growth rates and states' policies regarding the allocation of their power between internal and external purposes are set.

The model can be seen as a laboratory for experimentation. In an experimental session, numerous runs under alternative conditions (which correspond to theoretically based propositions that can be found in the realist

Table 1: The Characteristics of Different Types of States

Decision:	State Type:			
	<i>Primitive Power-Seeker</i>	<i>Power Balancer</i>	<i>Collective Security</i>	<i>Rational</i>
<i>Initiation of a Dispute</i>	Power Advantage	Power Advantage	Never Initiate	Positive Utility Expected from a War
<i>Target</i>	Target is Weaker	Target is Weaker	No Target	Target Provides a Positive Expected Utility
<i>Ideal Alliance</i>	Minimum Winning	Target's Alliance	Target's Alliance	Coalition which Provides a Positive Expected Utility
<i>Join Offensive Alliance</i>	If Offensive Proto-Alliance is Stronger	Never Join	Never Join	If Offensive Proto-Allinace Provides State with a Positive Expected Utility
<i>Join Defensive Alliance</i>	If Defensive Proto-Alliance is Stronger	Always Join	Always Join	If Defensive Proto-Allinace Provides State with a Positive Expected Utility

literature) are possible. The user simply is required to specify certain parameter values that define critical aspects of the system, as well as the configuration of the system's population in terms of decision making styles and rules. Other required information includes details on the maximum possible length of the run, the system's size and geographical configuration, as well as various options with respect to output that will be generated by the model.⁵

REALIST DEBATES

The assumptions and propositions about interstate relations made by realism form its foundations. In this, then, there is some basis for optimism with respect to goals such as Morgenthau's, i.e., to develop a "science of international politics." Nevertheless, with the passage of time and the efforts to develop realist theory, it is ever more clear that the foundations of realism are fractured. With respect to many if not most its principles, divergence and disagreement characterize the writings within realism. Some examples of this are provided in the following paragraphs. We return to a more systematic examination of these and other conflicting positions in the next section.

A close reading of realism would suggest that the power of its explanations rests on assumptions and propositions dealing with three areas: (1) systemic level conditions, (2) the characteristics of the state actors, and (3) technical relations, particularly those associated with war. All too often, however, these are often points about which there are markedly divergent perspectives.

One example at the systemic level can be seen in the question of whether the system of states needs the characteristics of a community (i.e., shared values, mutual restraint, etc.) in order for the promised outcomes we associate with mainstream realism (i.e., the preservation of systemic pluralism and the survival of states) to be assured. Claude (1989:80-1) has pointed out that there lurks within realist thought a major contradiction on this point. On the one side, there

⁵ Output files generated by the model include summary statistics on an experiment, statistics on iteration by iteration activity, a detailed accounting of the sequence of actions and state involvements during each iteration, reports on the characteristics of the states, and a visual display of the geopolitical character of the system as it evolves over a run.

are realists who argue that a community is a basis or precondition for system preservation and state survival while on the other side there are realists who see that a community arises out of the practice of realist principles by states inside the system.

Hoffmann (1968:507), for example, argues that the widespread "possession of a common conception of international legitimacy" is a basic desideratum for the successful operation of a balance of power system. Martin Wight (1973:86), the British theorist, is also a major proponent of this view. This is revealed in his argument that a "sufficient sense of common interest" among the system's states is required for the stability of a balance of power system.

Standing in contradiction to this position are views such as those held by Hinsley (1967:177). He has argued that conditions such as the relative equality of the distribution of power within a system can dampen the tendencies toward aggression by states and invoke among them a shared sense of restraint and caution. Theorists on this side of the argument agree in effect with Rousseau's position that the "virtue" of restraint derives from necessity within an anarchic state system.

Dissension is also rampant at the level of basic principles characterizing states and their behavior within the system. An example of the multiple contradictions that mar realism in this regard is to be seen in the question of whether the power of a state can and must be accurately assessed. For some writers (e.g., Mattingly, 1955; Gulick, 1955), the capacity of states to assess accurately their and others' power helps a balance of power system to function smoothly. There are, however, those who concede the importance of accuracy for the smooth functioning of the system but assert that error pervades most power calculations. As a consequence, they argue, multistate systems are rendered unstable and the life chances of individual states are reduced (e.g., Hawtry, 1952; Hoffmann, 1968). On the other hand, some writers dismiss the importance of this factor and suggest that it plays no significant role in the operations of a realist system (cf., Haas, 1953).

One of a number of central technical relations involving war that concern realists deals with its decisiveness and the impact that this has on the system and the latter's member states. Mainstream realist theory often seems to suggest the

while the immediate costs of war are not to be denied, war's occurrence does not necessarily imply the destruction of states or excessive and damaging exploitation by one side at the termination of hostilities. In effect, for many in realism, war is an often indecisive phenomenon in that not every war has a victor. Thus, war's occurrence does not necessarily place the survival of states in jeopardy, nor does it contribute significantly to the destruction of pluralism within the system. An opposing view holds that even if war is frequently indecisive, the damage inflicted on the participants, when sustained frequently over a long period, so weakens most of the system's members that eventually one or a small number of states will rise to a hegemonic position and simultaneously destroy the independence of the others.

These contradictions are symptomatic of realist thought. It should not be surprising then that the basic expectations realists have with respect to the central questions of system stability and state survival are radically divergent. At one extreme there are realists who take a very optimistic position. For them, neither the endurance of a multistate system nor the life chances of individual states are problematic; both effectively are guaranteed by a form of natural law regulating relations within an environment of realist states. Diametrically opposed to this group of realists are those pessimists who contend that systems of states inevitably collapse to universal empire, and as a corollary, that the survival chances of individual states are slim. This conclusion is also based on analogy to natural law-like principles and derives from a postulate, which, like that of the optimist, accords centrality to the process of competition. However, here competition is viewed as inherently destructive.

There are moderate views with respect to both of these opposed schools. The moderate optimists concede that there is an inherent tendency toward the destruction of pluralism within realist systems. However, this school of realism suggests that there are means with which this can be blocked. What is required is an active policy on the part of one or more actors able to play the role of balancer. In other words, some state or states need to intercede in situations where the survival of other actors is at risk. Balancers need to come to their protection and deter or defeat aggressors whose actions threaten the equilibrium of the system.

Within the pessimist school the moderate wing sees the destruction of system pluralism as inevitable. It also holds that the products of this destruction, universal empires, are themselves fragile creatures that are equally unstable. This is a cyclical model of systemic dynamics. Both multistate systems and their antitheses, universal empires, are subject to patterned destruction, with one extreme outcome repeatedly superceded by the other.

RESULTS FROM EXPERIMENTAL STUDIES WITH THE EARTH MODEL

In a series of studies, described extensively elsewhere (Cusack and Stoll, 1990c), we have attempted to clarify the nature of realist thought and to subject it to a critical evaluation. Clearly realism suffers from a number of debilitating characteristics. There exists no unified theoretical structure and much of what passes for theory here is simply a set of conflicting assumptions and propositions (realism's "fractured foundation") that, through no transparent process, have led to a variety of opposed conclusions (realism's "fissured facade"). Having identified some of its leading contradictions as these reveal themselves in conflicting propositions and assumptions, we were able to evaluate the logical implications of many of these in terms of some of the strong claims that different realists make, particularly with regards to the questions of system endurance and state survival, by using our large scale computer simulation model of a multistate system inhabited by states guided by realist principles (EARTH). In this section a review of these findings is presented.

The analyses undertaken with the EARTH model fell into five study categories. In the first study the model was configured to represent the "automatic stabilization" version of the optimist's or relaxed realist's balance of power system. Here numerous factors were varied to address the question of whether the optimist's expectations are borne out with respect to both system stability and state survival. In conducting this study the factors chosen for variation corresponded to many of the significant debates within realism as to the putative effects of one or another systemic, state-level, or technical condition. In all, 8748 simulation experiments were conducted in this study.

The second study was designed to explore a leading hypothesis with respect to a major difference between the sharply contrasting expectations of the optimists and pessimists. Specifically, our expectation is that the belief of the optimists that alliances are spontaneously generated in the presence of local threats and that these alliances assure the defense of system members and thus guarantee the pluralism of the system is one of the major points that divide them from the pessimists. Thus the model was modified to represent the logics of Carneiro (1970, 1978) and Dacey (1970, 1974) who seem to place little faith in the frequent appearance or importance of alliances. When contrasted with a set of parallel runs from the first study, the 729 simulation experiments conducted in this study provide a basis for assessing this hypothesis.

In the third study the state and system level impacts of alternative power management styles have been evaluated. Here the effects of realism's moderate optimist modality, conscious balancing, and idealism's collective security strategy, when practiced in environments where some proportion of the states employs the primitive strategy suggested by the optimist school, are assessed. In all, 8019 simulation experiments were undertaken in this study. The fourth study dealt with alternative decision making logics. Here the primitive power seeking style was contrasted with a rational choice one of the expected utility form. In total, 1458 simulation experiments were conducted for this study. Study number five dealt with problems of resource allocation, civil war, and disintegration processes. It is directly comparable with a parallel sets of runs from the first study where such processes were not incorporated in the model. In this study 729 simulation experiments were conducted.

Table 2 provides an overview of the major contentious assumptions and hypotheses that have been identified within the realist literature. It also reports on the relevant findings developed in the experimental studies just described. Included as well are comments on aspects of the experimental analyses and conclusions that can be drawn these studies with respect to the points of contention.

Table 2: Specific Realist Debates in Light of Results from Experimental Studies

ELEMENT OF REALIST THEORY/ Alternative Positions	EXAMPLES IN REALIST LITERATURE	Study					COMMENTS ON EXPERIMENTAL ANALYSIS AND RESULTS	COMMENTS ON IMPLICATIONS FOR REALIST DEBATES
		1	2	3	4	5		
1. OPEN/CLOSED SYSTEM A. There is a closed environment that contains a set of interconnected territorially based actors. Because of the interdependence that exists, balancing practices naturally arise and help ensure the survival of states and the pluralism of the system. B. Open systems redirect acquisitive tendencies and destructive actions of states away from the core of the system and thus minimize elimination of states within the system. The more tightly connected the system, the greater the tendency for conflicts to enmesh larger numbers of actors and to weaken them and ultimately destroy pluralism within the system.	A. Gulick, Rousseau, von Gentz, Brougham B. Toynbee, Alker and Bock, Collins	NE	NE	NE	NE	NE	While it is feasible to reconfigure the model to deal with this problem, no effort has yet been undertaken to do so.	
2. COMMUNITY A. The system needs the characteristics of a community, i.e., a shared set of values and norms that imposes restraints on the actors. B. There is no need for the system to have the characteristics of a community wherein restraint is consciously or unconsciously practiced. C. The system produces this community and set of restraints.								
This element of realist theory is covered in a number of ways though admittedly not in an exhaustive fashion (esp. the question of the emergence of norms--C). One prime focus of the many experiments conducted is the way in which victors deal with the vanquished in wars (<i>reparations</i>) and the degree to which restraint benefits its practitioner and the system. A second focus is on the conscious use of <i>power balancing</i> strategies by actors that fall within (a modus of behavior described by one school of realists). A third focus explicitly contrasts realist principles with idealist ones where the latter are embodied in <i>collective security</i> strategies on the part of a number of states within the system.	<i>Reparations:</i> restraint (A) Franklin, Gulick, Kaplan, Riker lack thereof (B) Machiavelli <i>Power Balancing:</i> pro (A) Thompson contra (B) Rousseau <i>Collective Security:</i> pro (A) Wilson contra (B) Claude, Organski	A	A	A	A	A	<i>Reparations:</i> Systems marked by an ethos of draconian reparation extractions are far less likely to endure than those with mild reparation policies.	<i>Reparations:</i> Findings are consistent with the position in realist thought that suggests restraint is a prerequisite for system endurance.
		NE	NE	A	NE	NE	<i>Power Balancing Strategy:</i> The presence of states following conscious power balancing strategies has a beneficial effect on system endurance and state survival.	<i>Power Balancing Strategy:</i> Findings lend some support to moderate optimist strand of realism that argues for a "hands-on" approach to power management as a way for insuring system endurance.
		NE	NE	A	NE	NE	<i>Collective Security Strategy:</i> The presence of states following collective security strategies has a powerfully beneficial impact on system endurance and state survival	<i>Collective Security Strategy:</i> Findings undermine the dominant realist view that altruistic policy undermines system maintenance and only exposes practitioners to heightened danger.

3. POWER DISTRIBUTION: STATIC A. The distribution of power is unimportant, other characteristics more than compensate for any distribution that could be considered unfavorable. B. The distribution of power in the system is a central structural element that defines the dynamics of the system: -- B.1. Parity in the distribution of power across the system minimizes state destruction and facilitates the endurance of the system. -- B.2. Unequal distributions of power minimize state destruction and facilitate system endurance.	A. Hawtry, Wight, vonGentz B. B.1. Deutsch and Singer, Wright B.2. Waltz, Organski, Midlarsky	B.2	A	A	A	A	<i>Relatively Equal/Unequal Power Distribution:</i> Even where estimated coefficient is statistically significant, the impact was not very great.	<i>Relatively Equal/Unequal Power Distribution:</i> No major impact of this factor, at least with respect to the initial configuration of the system. This is not to say that its role within the system was unimportant at later points in system evolution.
4. POWER DISTRIBUTION: DYNAMIC A. Uneven growth rates deriving from internal causes destroys the prevailing balance of power and thus undermine the functioning of the system. B. Uneven growth rates have no effect on the system or the capacity of states to survive.	A. Organski, Fay B. Wight, von Gentz	A	NE	B	A	NE	<i>Variance in Internal Growth Rates:</i> The impact of this factor is very large in both studies where it was found to reduce likelihood of system endurance.	<i>Variance in Internal Growth Rates:</i> Findings generally contradict the stream of realist thought that suggests this is unimportant. Supports those theorists who argue that relaxed realist's model rests on a key implausible assumption.
5. SOLIDITY OF STATE A. Within this environment a single type of unitary actor prevails. This actor is often called the state, and it is assumed that states effortlessly control all the resources within their boundaries. B. States are complex entities wherein resource control is neither guaranteed nor completely in the hands of those directing external policy.	A. Bueno de Mesquita, Waltz B. Claude, Sprout and Sprout, Machiavelli, Kennedy	NE	NE	NE	NE	B	<i>Resource Diversion and Disintegration:</i> Limited analysis suggests that this has the ironic impact of lessening the likelihood of system endurance while significantly increasing the length of time system can be sustained prior to the onset of a universal empire.	<i>Resource Diversion and Disintegration:</i> Findings supportive of moderate pessimist strand of realism that argues for cyclical evolution of systemic power concentration.
6. RATIONAL DECISION MAKING A. Decision making is a rational process and thus guarantees the survival and success of the state and thereby insures the proper function of the system. B. Decision making, while goal directed, does not conform to the highly abstract and calculation intensive character of the expected utility model, nor need it.	A. Waltz B. Bremer and Mihalka, Morgenthau	NE	NE	NE	A	NE	<i>Rationality (Expected Utility):</i> Presence has a strong positive impact on system endurance and state survival.	<i>Rationality (Expected Utility):</i> Findings suggest that presence of such a demanding attribute enhances system endurance and state survival chances.
7. PRIMARY GOAL OF STATE States have a <i>primary goal</i> , which drives most of their activity. There is disagreement as to whether this primary goal is survival, gaining power, or preventing preponderance by other states.	Surv: Chatterjee, Waltz; Incr. Power: Hamilton, Morgenthau; Prev. Prepond.: Liska; Multiple: Ostrom	NE	NE	NE	NE	NE	While not directly examined, results across studies 1,3, & 4 would suggest that the goal of preventing preponderance is ecologically superior to that of increasing power.	

8. ERROR IN POWER ASSESSMENT A. The power of states must be subject to accurate measurement and decision makers must correctly assess the power of their own states and others if the realist system is to function properly. B. Power need not be accurately measured; a rough or approximate assessment suffices.	A. Hawtry, Hoffmann, Kissinger, Spykman B. Haas, Kaplan	A	-A	A	A	-A	<i>Error:</i> The only instance where this has a statistically significant positive impact, i.e., in systems where states could not employ alliances, is one where its impact is critical.	<i>Error:</i> Findings are relatively inconsistent across studies and do not help to resolve the contradictions on this matter within realist thought.
9. ALLIANCES: CENTRAL MECHANISM A. Alliances are a principal instrument used by states in dealing with threats from the interstate environment. They are the most efficient means of augmenting their own power. B. Internal means, not external means, are the most efficient and most used techniques of countering threats from the interstate environment.	A. Gulick, Haas, Hoffmann, Vattel B. Organski, Carneiro, Dacey	NE	A	NE	NE	NE	<i>Availability of Alliances:</i> Limited analysis suggests that this factor plays a critical role in endurance capacity of system.	<i>Availability of Alliances:</i> Findings supportive of traditional realist view that the use of alliances is a key factor in strengthening system endurance capacity.
10. DETERRENCE: POWER VS. EXPECTED UTILITY A. Alliances deter attack because they alter the power ratio and thus instill the belief that loss and not gain would result from aggression. B. Alliances do not deter attack unless both the combination of the power ratio and the balance of expected gains and losses suggest to the aggressor that the expected value of an attack would be negative.	A. Blainey B. Altfeld, Bueno de Mesquita	NE	NE	NE	NE	NE	<i>Beans vs Utiles:</i> To date we have not directly examined this question. It should, however, be possible to do examine elements of this problem with the model in its present form.	
11. ALLIANCE FORMATION: BALANCES VS. BANDWAGONS A. Alliance formation follows a balancing pattern and thus minimizes state destruction and maximizes the endurance of the system. B. Alliance formation follows a bandwagoning pattern and thus maximizes state destruction and minimizes system endurance.	A. Walt B. Dowty	A	NE	NE	NE	NE	<i>Balancing vs. Bandwagoning:</i> Limited analysis of results suggest that balancing more likely to occur than bandwagoning. As noted below, more oft than not insufficient to produce the desired outcome.	<i>Balancing vs. Bandwagoning:</i> In conjunction with other results this suggests that the laissez-faire approach does not produce the results guaranteed by the relaxed realists.
12. BALANCING: UNCONSCIOUS VS. CONSCIOUS A. The persistent pattern of balancing with respect to alliance formation occurs naturally without any conscious choice on the part of states to behave in this way. B. Balancing only occurs if states consciously recognize the need to behave in this way.	A. Claude, Rousseau, Taylor, Wesson B. Bull, Crowe, Guicciardini, Hume, Thompson, von Gentz	A	NE	NE	NE	NE	<i>Spontaneous Balancing:</i> Strong indications of spontaneous balancing; however, failure rates and presence of bandwagoning often leads to massive state destruction even when pluralism retained.	<i>Spontaneous Balancing:</i> The frequent but often ineffective operation of spontaneous balancing undermines the relaxed realists' belief in the self-equilibrating properties of the system.

13. FREQUENCY OF WAR A. War is an acceptable instrument in a realist system. While wars occur with great frequency, their occurrence does not undermine the system nor significantly affect the life chances of states. B. The occurrence of war is minimized in a properly functioning system. War's occurrence is damaging to the system and undermines the survival chances of individual states.	A. Hoffmann, Gulick, Haas B. Hoffmann, Organski	NE	NE	NE	NE	NE	<i>Frequency of War:</i> More detailed analyses need to be undertaken to deal with this question. However, it is clear from our studies that wars do occur with great frequency inside multistate systems regulated by realist principles. While often not prone to completely undermine the system, the destruction they wreak even in instances where the system retains its multistate character is enough to sharply reduce its size.	
14. DESTRUCTIVENESS OF WAR A. War is not very destructive to the power of states participating in it. As such, the occurrence of war does not greatly undermine the power of states and thus does not significantly lower states' survival chances nor greatly reduce the likelihood of the system maintaining its pluralistic character. B. War does entail costs, even to the victors, and this reduces states' survival chances and the likelihood of the system continuing to endure.	A. 15th cent. Italy, 18th cent. Europe B. Toynbee, Fenelon, Howard	A	A	A	A	A	<i>Maximum War Costs:</i> Consistently positive impact on system endurance across studies. <i>Disproportionate War Costs:</i> Negative impact consistent across studies where examined.	<i>Maximum War Costs:</i> Findings are generally contrary to the position one encounters in realist thought. Likely that the weakening of victors in their war experiences hinders their capacity to wreak further destruction in the system. <i>Disproportionate War Costs:</i> Findings suggest that this more plausible condition undermines the ability of system to endure.
15. DECISIVE VS. INDECISIVE WAR OUTCOMES A. Wars end decisively. This eliminates confusion regarding relative power and therefore lessens future destruction of states which would undermine the stability of the system. B. War is often indecisive. B.1. As such the chance that a state will forfeit its existence by participation therein is not very great and the consequence is that the endurance of the multistate system is not gravely threatened by the occurrence of war. B.2. Despite its indecisiveness, participation weakens the power of participants therein and thereby places states at risk of losing their existence.	A. Blainey B. B.1. Pre World War I View B.2. Post World War I View	B.1	NE	B.1	NE	NE	<i>Possibility of Indecisive War Outcome:</i> The presence of this condition has a consistently positive impact across studies where examined; the impact is relatively large.	<i>Possibility of Indecisive War Outcome:</i> Findings supportive of traditional realist view that sees this as an important key to system maintenance.
16. POWER-WAR OUTCOME SUCCESS LINKAGE A. Superiority in power assures success in war. The long term consequence of this technical relationship is that a positive feedback cycle is in play that persistently rewards superiority and elevates the capacity of a state to attain superiority later. B. War is a risky undertaking and while greater power enhances one's chances of success, it does not guarantee it. The greater the role of chance in determining the outcome of wars, the less likely any particular state or states will be able to build success upon success in an uninhibited fashion. This lowers the risk that war entails for both state survival and system endurance.	A. Cameiro, Cannizzo, Dacey B. Hawtry, Machiavelli, Hume	B	B	B	NE*	B	<i>Likelihood of Victory Function</i> (Parameter controlling relationship between relative power and victory): Only excessively high values for this parameter provide reasonable assurance that system will endure.	<i>Likelihood of Victory Function:</i> Findings suggest that only implausible values can assure the outcome promised by relaxed realists.

Explanatory note to table --
A: supportive of position A;
B: supportive of position B; etc.;
the prefix "-": directly contradicts the position it precedes;
NE: not directly examined in study.

At the system level, there are three major areas of contention about the necessary conditions for the preservation of system pluralism and the enhancement of states' survival chances. The first deals with whether the system needs to be closed or open so that its multistate character be preserved. Here there are two contradictory positions. On the one side, some argue that the system needs to be closed. This quality is supposed to provide a degree of interdependence which in turn facilitates balancing practices that themselves putatively aid in the preservation of pluralism. On the other side, some realist theorists see closedness as a dangerous and debilitating quality for a system. Generally these theorists argue that a porous system helps redirect aggressive and acquisitive tendencies outward. This redirection minimizes state-destructive actions within the system. This is an important question for the long-term evolution of multistate systems, but it is one to which our project has not yet attended. Given the present model structure, however, it would be feasible to undertake some limited analyses of this question.

A second area of significant importance and contention at the system level deals with the community question briefly discussed in the last section. Here contradiction is evident on whether the restraint by a sense of community is necessary for the preservation of system pluralism as well as with respect to whether restraint may actually be a consequence or by-product of a properly functioning realist system. The studies described above that have been undertaken with the EARTH model permit one to address this problem from a number of perspectives. Thus, across all of the studies it was found that systems marked by restraint in the form of minimum reparation extraction by victors in war are more prone to retain their pluralistic character than are systems wherein less restraint is demonstrated with respect to reparation practices. Another way of examining this question was to explore the implications of embedding within the system varying numbers of states that practice explicit forms of restraint. In this instance, the third study undertook to examine the implications of two types of power management strategies. The findings here are supportive of the advocates of restraint and, indeed, one can go so far to suggest that this study reveals weaknesses not only in one school of realism but with the entire approach as well. Remaining within the realist perspective it is clear from the experiments that systems populated to some extent by states practicing conscious balancing strategies are inherently more stable. More importantly, however, the results of

this study demonstrate the highly beneficial effects (both for the system as a whole and for the individual practitioners) of collective security (i.e., idealist and not realist) strategies.

A third area at the system level deals with the distribution of power and how this distribution changes. With respect to the static characterization of equal and unequal distributions of power and the implications for system endurance, realists take a variety of opposed positions. Some argue that the nature of the distribution is unimportant while others argue for its critical role. Even those who see it as critical are split into two camps, one arguing for the benefits of parity or equality and the other for preponderance or inequality. Contention as well reigns on the question of the implications of variation in the internally fuelled power growth rates across the system of states. Some see uneven growth rates as disruptive for the system of states and argue that they inevitably lead to the destruction of system pluralism. Others see this characteristic as unimportant for the operation of the system, concluding that uneven growth rates have no impact on system endurance.

Findings generated by the model in this general area are mixed. While most often it was found that the static dimension, i.e., the initial distribution of power within the system, had no significant impact on system endurance, two of the three studies wherein the dynamic dimension was examined brought forth findings that suggest the critical importance of this in the determination of system endurance: the presence of variation in endogenous growth rates generally undermines system stability.

A variety of assumptions and propositions about the characteristics of states and state behavior help to form the core of realist thought. At the same time most of these are subject to debate amongst realists. Thus, some realists see the state as a unified actor (the "billiard ball" model of the state), while others suggest that varying degrees of incoherence mark states and that this condition has profound implications for individual state success as well as for system stability. Diversity of opinion also characterizes realist thought on the nature of state decision making processes with some suggesting that it is strictly rational while

others see it as something much less than completely rational. The nature of state goals is also debated as is, per the discussion in the last section, the question of whether error pervades the calculations upon which decisions are made.

The studies conducted with the model directly addressed three of these four areas. Limited analysis undertaken with the model, wherein the possibility of resource diversion for internal purposes and the potential for state disintegration existed, suggest that these conditions radically alter the trajectory of system evolution. In effect, these more plausible conditions lead to system dynamics far closer to those suggested by the moderate pessimists than to those articulated by the relaxed realists. The study undertaken to evaluate the implications rationality has for system dynamics as well as state survival chances suggest that the increased presence of rationality on the part of state members has a beneficial effect. While the question of the goal or goals of states in a realist system was not directly examined, one can infer from some of the results of the studies that preponderance prevention, as opposed to the simple-minded selfish pursuit of power, is both individually and collectively superior. Findings with respect to the question of error in power assessments were mixed across the studies and do not help to resolve the conflict of opinion on this matter evident in realist thought.

On state behavior in the interstate system a major focus of controversy within realism centers on the question of alliances. For some realists, alliances are the principal tool of the state while other realist strongly discount their importance. The question of why alliances are important, in terms of deterrence, is also a controversial point. Finally, there exists a wide ranging debate on the alliance formation process and whether it tends to follow a balancing or a bandwagoning path and if it does follow a balancing path, the degree to which this spontaneously occurs or is the result of conscious policy by many states.

The results of the various studies undertaken with the model can be used to address most of these questions. Study number 2, where alliances were a central focus of experimentation, helps to point out the critical importance of alliances as tools for states if the system is to retain some degree of pluralism. Other results also suggest that balancing is more likely to occur than bandwagoning and that the balancing process is to some extent spontaneous in a realist system. Nevertheless, it is clear from the various studies that when the balancing process

is left to occur naturally and does not follow from relatively strict policy commitment to the prevention of aggression and hegemony, then an extensive amount of state destruction occurs. This undermines confidence in the relaxed realist's suggestion that multistate system have inherently self-equilibrating properties.

On the question of war there are at least four major points of contention within realism that have been addressed by the studies with the model. One question deals with the relative frequency of war inside a multistate system. Here some theorists suggest that it occurs frequently, even in a properly functioning system, but with no untoward effect. Others argue that its occurrence is minimized and were it frequently to occur it would act to destroy system pluralism. While not the direct focus of any particular study undertaken with the model it is clear that in systems guided by relaxed realist principles, war is both frequent and injurious to durability of the system. Other questions on war that have been directly examined with the model include the debate on whether the destructiveness of wars undermines system stability. Here two findings stand out. First, the overall destructiveness of war, in terms of power losses, is negatively related to system endurance. This is antithetical to mainstream realist thought and somewhat counter-intuitive. What appears to be the case is that when wars are generally costly, they not only weaken the losers but also the victors. This in turn hinders the onset of a pathological feedback cycle whereby victory in war heightens the chances of engaging in further war and doing so successfully. The consequence is to thus minimize the likelihood of potential hegemons moving from one successful aggression to another that as a byproduct could culminate in the construction of a universal empire. Second, it would appear that on the question of disproportionate war costs there is consistent support for the position that when these attain, which is more plausible than to assume that victors and vanquished endure the same costs, then system stability is jeopardized. Another finding, which in this case is supportive of mainstream realist thought, is that indecisive wars, where no victory is produced and hence no loss of sovereignty follows as a consequence, are highly promotive of system stability. Finally, the question of the surety with which the more powerful side will emerge from war victorious proved to be a critical factor in determining the

stability of the system. Where chance and circumstance play a greater role in the translation of relative power to war outcome, system endurance is consistently more likely.

What do these results then portend for the individual schools within realism and realism in its entirety? A summary assessment can be found in Table 3.

Perhaps the most dominant image in realism is that connected with the relaxed realists. Their view is that neither system endurance nor the survival of states is problematic. Drawing together the findings based on the model studies, one must conclude that the optimism of this school is misplaced. Multistate systems characterized by relaxed realist practices and operating according to the dictates of the "automatic stabilization" model do not inevitably retain their pluralistic character. Indeed, when this type of system does not degenerate to universal empire, it is likely to evolve into a highly oligopolistic one -- and this "success" generally is likely only under some fairly implausible conditions.

More favorable results accrue under the assumption that at least some actors within the system are conscious of the need to engage in balancing behavior against aggressors and act accordingly. This lends support to the moderate optimists who see the need for intervention to prevent the rise of hegemony and the corresponding loss of pluralism. This sort of "altruistic" policy, when taken to its ultimate conclusion, and thereby removing itself from the basic precepts of realism, can be found in the idealist's strategy of collective security. The experimental results with the model suggest that this is indeed a much more efficacious strategy, both in terms of its collective and individual effects.

The pessimist's school receives some support in its contention that realist multistate systems are highly unstable when left to operate "naturally." However, in order to produce consistently the kind of outcome portrayed within this image, one needs to make seemingly untenable assumptions regarding the inability or unwillingness of states to join in alliances. On the pessimist side, however, it is clear that when conditions and processes are introduced into the theoretical model that more closely relate to the typical problems associated with governing states, i.e., when both internal and external problems need to be confronted, then the cyclical movement between pluralism and hegemony and back again is quite likely to typify the evolution of the system.

Table 3
The Modal Images of Realism: Synopsis, Exemplary Advocates,
and Summary of Experimental Results

	Extreme	Moderate
Optimist	<i>Automatic Stabilization Model</i> <u>Image:</u> The relaxed realists' automatic stabilization model describes state survival and system endurance as unproblematic due to the "natural law"-like forces regulating behavior within system (competition beneficent). Balancing always occurs when needed. <u>Advocates:</u> Claude, Rousseau <u>Results:</u> Extensive experimental analysis suggests that promised outcome of system endurance is difficult to obtain unless extreme and implausible conditions hold; this finding modified to the extent that states employ extremely rational choice process; but even then, outcome not well guaranteed and under most plausible conditions, quite unlikely. Generally the case that success entails an oligopolistic outcome.	<i>Power Balancing</i> <u>Image:</u> Inherent tendency for system to move toward universal empire. Outcome can be prevented by a conscious, hands-on strategy of "balancer" or "balancers." International politics analogue to Keynesian stabilization policies. <u>Advocates:</u> Thompson, Kissinger <u>Results:</u> Extensive experimental analysis suggests that some gains occur in presence of such a realist power management style. Clearly though, a non-realist strategy, i.e., collective security, is far more efficacious both in terms of assuring system endurance and maximizing size of the system that endures. Contrary to realist argument, practitioners benefit not only others but themselves as well.
Pessimist	<i>Ineluctable Tendency Toward Universal Empire</i> <u>Image:</u> Another "natural law" approach; this one sees competition as destructive and the resulting accretions of power in fewer and fewer hands leading inevitably to universal empire. <u>Advocates:</u> Carneiro, Dacey <u>Results:</u> Under many experimental conditions with relaxed realist model this indeed appears to be the outcome; this finding tends to support the pessimistic perspective on the practical consequences of a competitive interstate environment. Limited experimental analysis suggests result almost guaranteed if alliances removed from the repertoire of states -- a position pessimists are wont to take and relaxed and semi-relaxed realists to reject.	<i>Cyclical Pattern: Concentration -- Diffusion</i> <u>Image:</u> Various arguments; generalization: system is naturally prone to universal empire but the forces driving it to this condition also contain within them the seeds that will in turn destroy that empire. <u>Advocates:</u> Polybius, Toynbee, Kennedy <u>Results:</u> Pattern can be produced under more plausible condition that imperial conquests are not freely held and that policy failures of states may lead them to misallocate resources. Limited analysis suggests that presence of this condition actually increases chances of system failure. Presence also produces predicted outcome of cyclical pattern of hegemony and pluralism.

Mainstream realism, as reflected in the relaxed realist's perspective, appears to be highly flawed. Drawing at times on inappropriate analogies, and resting on conflicting and seemingly implausible assumptions, the image that it provides of a flawlessly functioning, self-sustaining and stable system does not appear to be well grounded. At the same time, the extreme pessimism of some realists would appear to require implausible constraints on the actions that states might undertake. The moderate pessimists have pointed to some important problems within mainstream realism and have suggested an evolutionary track that accords with a fair amount of historical evidence. Furthermore, the constraints and impediments it suggests as standing in the way of pursued and retained hegemony, seem eminently plausible and their effects are replicable inside a formalization of realism. Equally important, the moderate optimists have emphasized other critical problems and suggested ways in which these can be overcome with a system grounded in realism. Ironically, when taken to their logical conclusion, the precepts of these theorists bring one to a position with respect to state strategy that is outside realism and seemingly more beneficial to both its practitioners and others within the system.

CONCLUSION

The project described in this paper is an attempt at helping to clarify the logical structures of arguments in the realist approach to international politics. Using a computer simulation methodology, we have sought to build a formal model that captures the essential elements of the realist's conception of an international system. Work to this point has focused on a variety of problems including, among others: (1) the impact of structural and policy conditions on the stability of a multistate system; (2) the ecological superiority of alternative decision making procedures; and (3) the state and system level consequences of alternative power management styles.

Drawing upon work in the project, the preceding pages demonstrate that realism is flawed in terms of both its theoretical coherence and adequacy. Many of the areas in which realists postulate assumptions and basic propositions about states and systems seem to be the venue for contradiction and debate. At its roots, then, realism is splintered. Thus, it should not be surprising that the expectations realists have about the way in which states systems will evolve and

the fate of individual states should be so diverse. The work of this project has helped to illuminate this diversity, to demonstrate the relative adequacy of some positions as opposed to others, and, finally, to draw out the long-term implications of some of the fundamental positions within realism.

The project's aims in the future are twofold. First, there is a clear need to expand the structure of the model to deal with other outstanding theoretical questions both within realism and between realism and other theoretical schools. Second, critical components of the model as well as modal forms of behavior at both the state and system level need to be evaluated against historical evidence. In this regard, we plan to undertake some extensive analysis of the records of some historical states systems in order to provide a better grounding for the model as well as to assess its usefulness in charting the long-term dynamics of such systems.

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