Exploring the Bargaining Model of War

By Dan Reiter

The bargaining model of war envisions the initiation, prosecution, termination, and consequences of war as part of a single bargaining process. This article focuses on the most recent works on this topic, many of which employ formal techniques, and it applies the model to the different phases of war. It also discusses the state of empirical work on the bargaining model. Finally, the article considers how the bargaining model meshes with other theories of war and international relations, including cognitive psychology, organization theory, domestic politics, and constructivism.

What is the relationship between politics and war? Are they separate phenomena, in which war represents the failure of politics? Or as Carl von Clausewitz famously suggested, should war be considered as part of politics—that is, politics by other means?

The bargaining model of war sees war as politics all the way down. It views international politics as disputes over scarce goods, such as the placement of a border, the composition of a national government, or control over natural resources. States use both war and words as bargaining tools to help them achieve optimal allocations of goods. Critically, the bargaining model does not see war as the breakdown of diplomacy but rather as a continuation of bargaining, as negotiations occur during war, and war ends when a deal is struck.

Although the idea of war as part of a bargaining process is a traditional one, a burst of new and increasingly sophisticated scholarship has opened up new avenues of development over the past few years. Most of this scholarship has used formal analysis to expand and deepen the theoretical reach of the bargaining model. It has provided new ways of thinking about war as a bargaining process, and it has strengthened logical foundations for old hypotheses and generated an array of provocative new hypotheses. The latest works use the bargaining model to link the causes, prosecution, termination, and consequences of war into a single theoretically consistent process. The continuing development of the bargaining model might offer better theoretical purchase over some of the most vexing and dangerous conflicts of the twenty-first century—including nuclear proliferation and the Israeli-Palestinian conflict over occupied territories—by pointing to sometimes overlooked factors, such as disagreements over military capabilities, concerns about the ability to commit to an agreement in the face of changing capabilities, and the potential inability to divide up the goods at stake.

The continuing development of the bargaining model might offer better theoretical purchase over some of the most vexing and dangerous conflicts of the twenty-first century by pointing to sometimes overlooked factors, such as disagreements over military capabilities, concerns about the ability to commit to an agreement in the face of changing capabilities, and the potential inability to divide up the goods at stake.

This article examines the bargaining model of war, with an emphasis on the latest wave of research. It describes the model's treatment of the causes, prosecution, termination, and outcome of war, and compares the bargaining model with other leading theories of war and international relations, including cognitive psychology, organization theory, domestic politics, and constructivism. These other approaches do not necessarily contradict the bargaining model; in fact, some variants of the bargaining model borrow from these other theories in order to flesh out assumptions and develop predictions. However, at least three sets of ideas do clash with the bargaining model: the cognitive psychological

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prediction that actors do not always use new information to update their beliefs; the domestic-politics prediction that some leaders prefer to fight, regardless of outcome, in order to solidify their domestic-political positions; and the constructivist proposition that some actors may rely on warfare to define their identities.

In this article, I summarize some of the key hypotheses of the bargaining model, as well as the empirical evaluation done to date. I then compare the bargaining model to other theoretical perspectives and conclude by describing how the model can be used to cross three important divides in political science: between academic research and policy practice, between formal and nonformal theoretical approaches, and between quantitative and qualitative empirical methods.

The Bargaining Model of War

Although many political scientists naturally resist the imperial tendencies of economists, it must be recognized that the generally accepted purview of economics, "the allocation of scarce resources among unlimited and competing uses," also describes a critical component of political life.[1] In particular, much of international politics can be accurately described as the allocation of resources under scarcity. Actors cannot all achieve their most desired goals simultaneously. Pakistan and India cannot each control all of Kashmir; Japanese nontariff barriers come at the expense of American economic welfare; the vetoes allocated to the permanent members of the United Nations Security Council diminish the institutional powers of other UN members; ameliorating global warming requires reducing the consumption of fossil fuels. At the limit of this perspective, if everyone could enjoy his or her most preferred set of policies and goods, then politics and economics would in some sense be unnecessary.

The bargaining model sees the essence of conflict, violent or otherwise, as disagreement over resource allocation and/or policy choice. Bargaining models have long been used to explain the resolution of conflict among actors. When some good or resource must be divided among at least two actors, bargaining is "the process of arriving at mutual agreement on the provisions of a contract."[2] In economics, bargaining illuminates the process by which a buyer and a seller agree on a price. Bargaining has also been used to describe the resolution of legal disputes.[3]

The bargaining perspective quite naturally offers an understanding of political-conflict resolution. The very stuff of politics is frequently bargaining: different wings of a party choosing a common platform, legislators making agreements to hold ruling coalitions together, congressmen assembling budgets to satisfy the needs of a number of constituencies, and so forth. Bargaining models have been constructively applied to parliamentary dynamics, government formation, legislative rule-making, and logrolling.[4]

International politics lends itself well to the bargaining perspective. Usually, international politics occurs among a small enough group of actors to make models of pure free markets inappropriate; notably, oligopoly models have been applied to international relations.[5] Further, international politics often concerns scarce goods, such as money. A state's decision to impose tariffs translates directly into lower sales for foreign producers. Some scholars see security as a scarce good, as one side's efforts to increase security may impinge on the security of a neighbor.[6]

Bargaining plays an important role in a number of central areas in international politics. Interstate cooperation can be framed as a bargaining problem, in that states negotiate an agreed-upon course of action to advance the goals of all under conditions of scarcity.[7] International institutions facilitate bargaining by providing information and linking different issues. Importantly, the very design of institutions can be understood as bargaining, as the skeleton of an institution represents the distribution of finite resources (veto power, committee structure, voting rules, and so forth).[8]

Carl von Clausewitz's view of war fits into a bargaining perspective. Clausewitz noted centuries ago that war is a means of accomplishing political goals and not an end in itself, remarking that "[t]he political object is the goal, war is the means of reaching it, and means can never be considered in isolation from their purpose."[9] In other words, war for its own sake has no value, so one would never pursue it without hoping to accomplish some larger political aim. In modern bargaining-model scholarship, discussed in greater detail below, this logic gets translated into the critical assumption that war itself—the actual fighting, aside from the political issues at stake—is always costly. Although this idea may seem truistic, some scholars (also discussed below) see fighting itself as serving a function: as an expression of cultural or gendered tendencies to aggression, as an affirmation of identity, or as a means of quelling domestic dissent.

Clausewitz also proposed that most "real" wars are limited rather than total. This insight re-emerged during the 1950s, when the Korean War demonstrated to American observers that the impending Cold War would probably take the form of limited conflicts rather than a third world war; it called for the development of ideas about how to fight, terminate, and win such smaller-scale conflicts.[10] The premise that wars are frequently limited laid the groundwork for developing a modern bargaining model of war: if wars are rarely total, then they usually end with a war-terminating bargain rather than with one side's decisive military defeat. Economist Thomas Schelling was one of the first modern social scientists to frame conflict as bargaining, using mostly informal discussion and early noncooperative game theory. He famously noted in 1960 that "most conflict situations are essentially *bargaining* situations."[11] Relatedly, some scholars during this period thought not just about how wars started but also about how they ended. Paul Kecskemeti framed the question of war-ending surrender in bargaining terms, examining four World War II surrenders. Some 13 years later, the "agonizing search for an exit" to the Vietnam War pushed Fred Iklé to think about how wars end, also within an informal bargaining framework.[12] As that war ended, Geoffrey Blainey and Steven Rosen separately made the important bargaining-model observation that wars may occur because of disagreements about levels of strength or resolve.[13]

By the 1980s, the bargaining model of war was increasingly expressed in formal terms, as part of the burgeoning literature on rational-choice models of politics and war. At this stage, rational-choice models claimed that war is a deliberate political act, a view at odds with many psychology-based theories, which argued that

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war emerges from perceptual biases and miscalculations. Bruce Bueno de Mesquita developed this point in 1981, providing more theoretical and empirical support for the central point that war occurs when states prefer war to peace.[14] Throughout the 1980s and into the 1990s, a number of important papers fleshed out the view that international relations is composed of political choices to advance national aims; these papers developed models in which states bargained over issues. Some models allowed for at least one state to choose war as an alternative to accepting the status quo or continuing to bargain. James Fearon prominently contributed to this scholarship with his 1995 paper "Rationalist Explanations for War." He usefully highlighted the point that if states agreed on the outcome of a possible war, they could probably avoid war. Central to Fearon's paper is the importance of focusing on states' disagreement over their capabilities and/or resolve.[15]

The shift to more-formal approaches during this period constituted both a step forward and a step back from earlier work by scholars such as Kecskemeti, Iklé, and Pillar. The introduction of formal models—applying rigorous, mathematized logic—was progress. However, these models incorporated an important simplification: although they considered the causes of war within a bargaining framework, they saw war itself not as part of the bargaining process but as an apolitical, two-outcome, costly lottery.[16] They assumed that once war starts, a random draw determines its outcome. War is costly because both sides must pay the costs of fighting, regardless of who wins, so there are fewer goods to distribute between the two sides after war than before. The only two possible outcomes are one side winning decisively or the other side winning decisively. Lastly, it is apolitical in that the models allow for no bargaining within war, interpreting the war-fighting process as fundamentally mechanical rather than strategic or instrumental. In contrast, the earlier, nonformal work generally did not employ the costly-lottery assumption and viewed the fighting and, especially, the termination of war as bargaining.

A second, roughly post-1995 wave of formal bargaining work has made important improvements over the earlier formal work. This newer scholarship views both the causes and the termination of wars as part of the bargaining process, explicitly relaxing the assumption that war is a costly lottery. Specifically, rather than seeing bargaining and war as exclusive but complementary phenomena, it has returned to the outlook of the earlier, nonformal work, which asserted that bargaining takes place during as well as before and after war.

I term this general perspective, which sees war as part of international bargaining, to be the bargaining model of war, although I recognize that it encompasses a number of different perspectives and theories. The bargaining model of war is similar to the common understanding of labor strikes. Labor and management bargain over contracts and exchange offers, and labor has the option of calling a strike to impose costs on management and thereby extracting more concessions. The strike itself is thus part of the bargaining process. Bargaining continues during the strike, as both sides exchange offers in negotiations and learn about each other's willingness to absorb costs until they arrive at a contract that each prefers over having the strike continue.

Importantly, the latest wave of research on the bargaining model covers all phases of war. Each phase is part of the bargaining process. Fighting breaks out when two sides cannot reach a bargain that both prefer to war. Each side fights to improve its chances of getting a desirable settlement of the disputed issue. The war ends when the two sides strike a bargain that both prefer to continuing the war, and the outcome is literally the bargain struck. Finally, the duration of peace following the war reflects the willingness of both sides not to break the war-ending bargain.

The causes of war

The essence of the bargaining model as applied to the causes of war is that states experience disputes over the settlement of some issue, and war is one means by which states can achieve (or maintain) a better settlement. I structure my discussion around Fearon's seminal paper, in which he shows how a bargaining (or "rationalist") model explains the outbreak of war. Fearon uses a bargaining model to argue that if two states in dispute know the outcome of a possible war, they should in general prefer to reach a deal that would reflect the hypothetical postwar political settlement, rather than fight, reach that same settlement, and also suffer the costs of war. This view assumes that fighting itself is costly—that the belligerent always suffers some negative utility, no matter how the issue at stake is settled. In fact, this assumption becomes necessary when one asserts that two states would *always* prefer to reach a bargain without fighting rather than fight and then reach the same bargain.[17]

Within his bargaining model, Fearon develops three conditions under which war is possible. First, there may be disagreement between the two sides as to the likely outcome of a war. If at least one side overestimates its chances of winning or underestimates the opponent's resolve, it may not raise its settlement offer enough to make the other side choose the offer over war. This lack of bargaining space stops a war-avoiding compromise.[18] In the months following Germany's June 1941 invasion of the U.S.S.R., for example, Hitler recognized that he had underestimated Soviet capabilities; he remarked that if he had believed the more pessimistic reports about Soviet strength he might not have ordered the attack.[19] This focus on uncertainty may explain the empirical finding that states of equal power are more war-prone than are states of unequal power: uncertainty under parity may make states optimistic enough to prefer war to peaceful settlement, whereas uncertainty under imbalance is usually not great enough to cast doubt on a war's ultimate outcome.[20]

This proposition immediately presents a puzzle. If complete information can help states avoid fighting, and states prefer to avoid fighting, then why don't states completely reveal their capabilities and resolve to one another? States have an incentive to exaggerate their capabilities and resolve in an attempt to extract better offers. Costly, more-credible signals of resolve, such as the mobilization of troops, may help states better reveal capabilities to one another, albeit at the expense of raising the risk of accidental war.[21] Additionally, there may be a military advantage to keeping secret a particular strategy, force, or capability if openness would undermine military effectiveness. For example, a crucial

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part of Israel's huge military advantage in the Six Day War was its plan to surprise attack Egyptian aircraft on the ground. Revelation of this strategy would have nullified its effectiveness, as Egypt could then have taken countermeasures. Hence, keeping information about capabilities secret may make war more likely by preventing the convergence of expectations, but doing so may also make the expected utility of war itself higher by raising a state's chances of winning.[22]

Fearon's second condition: war may occur because of an inability to commit not to fight in the future. If there are advantages to be had from striking first, then the outcome of the war differs depending on who attacks first, and the inability in anarchy for two sides to credibly commit not to attack may preclude a settlement. Additionally, if one side grows in power, then the outcome of war may change in the future, meaning that a bargain that is sufficiently war-avoiding now may not be when the balance changes. The inability of the growing side to commit not to attack in the future may undermine the ability of the two states to reach an accommodation.[23]

Fearon's third condition: bargaining may not avoid war if the item under dispute is indivisible. The all-or-nothing status[24] of the good might prevent the two states from reaching a mutually acceptable prewar bargain if the projected outcome of the war is something other than a decisive victory for either side. Though Fearon downplays the likely incidence of indivisible issues, scholars have begun to explore the conditions under which an issue may be practicably if not literally indivisible. In particular, issue indivisibility may explain why some intranational ethnic disputes descend into war. A central government may be unwilling to strike a bargain with a minority group seeking autonomy, because doing so would create a precedent and encourage other groups to seek a bargain. This fear of establishing a precedent effectively makes the issue at stake indivisible.[25]

The conduct and termination of war

Here, I lay out how the bargaining model views the conduct and termination of war. A preliminary task to understanding the conduct of war and its relation to bargaining is to define combat, the actual activity of war. Combat is a violent clash between at least two politically distinct groups organized to wield force. War consists of sustained and substantial episodes of combat. Clausewitz saw episodes of combat as the building blocks of war, pointing out that "[c]ountless duels go to make up a war," and even more tersely that "[e]ssentially war is fighting."[26]

An armed force engaged in combat tries to accomplish one or more of three immediate tasks: the destruction of military forces, the occupation of territory, and the destruction of civilian assets. Destruction of military forces means just that: the killing, disabling, or capture of military personnel, and the destruction, disabling, or capture of military equipment. Territory is occupied when one can control movement into, out of, and through it. Destruction of civilian assets includes killing and injuring noncombatants and/or destroying and damaging material items, such as the means of production. Importantly, capturing territory and destroying forces can be both means and ends. An army might destroy a defending force in order to capture a piece of territory. Alternatively, capturing territory might allow the destruction of enemy forces—for example, if seizing high ground provides fire control of an area.

The bargaining model proposes that military means are used as part of the bargaining process, to advance political ends. There are a variety of ideas about exactly what role combat plays within war (specifically, how it relates to bargaining). A common theme within the newer bargaining-model scholarship is acceptance of Clausewitz's general distinction between limited (or "real") and absolute war.[27] The central difference is as follows: at the end of absolute war, the military capacity of the defeated state has been completely exhausted, whereas at the end of limited war, both sides retain at least some ability to fight.[28] Notably, though absolute war is a useful theoretical construct, it rarely occurs; states almost never fight to the last man and/or surrender unconditionally (the principal exceptions being perhaps Germany's surrender in 1945 and the 2001 defeat of the Taliban). Even Japan in 1945 extracted from the Allies the important concession that the emperor remain the spiritual (though not political) leader without facing prosecution as a war criminal. The terms of Germany's surrender in 1918 and the Confederacy's surrender in 1865 also were harsh but not unconditional.[29]

I identify here two separate means by which combat can accomplish political goals within the bargaining model of war. First, combat can seek total conquest, or the utter destruction of the enemy's means to resist, in order to achieve victory in a Clausewitzian absolute war. Second, combat can reduce uncertainty about the capabilities or resolve of the combatants.

The utter destruction of the enemy's means to resist is the outcome of absolute war, and it is of course accomplished through the bloody reality of combat. After obliterating the adversary's military capabilities, the victor has the luxury of establishing whatever political settlement it likes. Alastair Smith and Allan Stam offer a straightforward model of this perspective, in which states seek to occupy forts and the war ends in absolute victory when one side captures all of the forts. Darren Filson and Suzanne Werner describe a somewhat similar dynamic, in which losers suffer a greater loss of resources following a battle than do winners—a relevant imbalance, because a state must stop fighting and lose decisively if its resources reach a certain minimum. Hence, accumulating a series of battlefield successes can accomplish decisive victory by depleting the opponent's resources. Both the Smith/Stam and Filson/Werner models also allow that as a decisive outcome approaches—that is, as one side controls fewer and fewer forts (Smith/Stam) or as one side's resources dip close to their minimum (Filson/Werner)—the losing side may be motivated to offer a negotiated deal acceptable to the winning side, to avoid a decisive defeat. In Robert Powell's costly-processes model, in contrast, each side faces some risk of collapse after each battle, and battles that do not end in collapse do not provide information to the two sides about what the chances of collapse are.[30]

How exactly could combat hasten a decisive defeat in this manner? If it aims to occupy territory, then the accumulation of battle victories means the progressive conquest of more and more territory. While the conquest of this territory may not affect the likelihood of the outcome of future battles, it may bring the invader

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closer to decisive territorial capture and result in absolute victory. The most prominent means of decisive territorial capture is seizure of the enemy's capital city, which in some cases (including many in World War II) has meant the total collapse of an enemy's ability to resist, because the capital is the seat of so much administrative and economic power. However, capture of the capital does not always mean decisive defeat. During the War of 1812, for example, British forces sacked Washington without forcing American capitulation; and during World War II, the Soviet Union might have kept fighting after the capture of Moscow, since in the fall of 1941 the civil government was evacuated from Moscow to the more secure city of Kuibyshev.[31]

Destruction of military forces and capture of economic capacity might achieve the same goal as capturing the capital. A series of battles could conceivably grind down a belligerent's armed forces to essentially nothing, allowing a decisive victory by literally destroying the enemy's capacity to resist. And attacks against a nation's economic capacity might eventually do enough damage to undermine its war production completely. This is sometimes the ultimate aim of counterindustrial bombardment, although it has never proven successful to this degree. The United States came close to wrecking Japan's industrial capacity in World War II through aerial bombardment and the destruction of Japan's merchant marine.[32]

In short, this is an apolitical notion of combat's role in advancing national aims: brute force is used to crush the enemy's means of resistance. Some have argued that this conception of combat as brute force can also be applied to the accomplishment of limited aims. According to this perspective, war occurs when one side has completely lost faith in the chances of striking a bargain to settle the dispute and thus resorts to violence to impose a change. Brute force is used to destroy part of the adversary's military assets or to seize a piece of territory. Schelling discussed the possibility of accomplishing limited aims through physical force in his distinction between using violence as brute force and using it as coercion.[33] The bargaining model proposes that exercising brute force to accomplish limited aims is generally misguided. If both sides knew that the attacker could conquer a small piece of territory, then they would peacefully exchange the territory rather than fight. The failure of negotiations to facilitate territorial exchange probably indicates some other problem, such as disagreement over capabilities or the perceived indivisibility of the territory. One might imagine an environment in which the land is more easily defended once seized by the revisionist than it is in the hands of the original status quo power, although this view requires assumptions about asymmetrical surprise-attack advantages or peculiar distributions of terrain that make one border easier to defend than another.

A more central role of combat in the bargaining model of war is the reduction of uncertainty. As discussed, a common bargaining-model explanation of the outbreak of war is uncertainty about the outcome of a hypothetical war. Combat can reduce uncertainty by providing information about the actual balance of power. Or as some have put it, combat in a limited (or "real") war reveals information about what the outcome of an absolute war would be.[34] The outcome of combat is observed by both sides and should cause their expectations to converge regarding the likely outcomes of future combat. This increases the likelihood of reaching an agreement that both sides prefer over continued fighting. Rosen draws an analogy to "two men fighting in a darkened room. If the lights were turned on and some of the combatants had a clearer picture of the hopelessly superior size of their opponents, much of the fighting would end."[35] This finding deviates from an earlier proposition that fighting battles does not facilitate war termination, as a battle outcome would not bring two sides closer to reaching a deal, since the battle winner would raise its demands as the battle loser lowered its own, creating no bargaining space.[36] Note that this view holds even if a great victory convinces a battle winner that its capabilities are even greater than originally hoped and hence causes the victor to raise its war aims, as following such a battle the loser should, roughly speaking, lower its war aims more than the winner's were raised, bringing the sides' aims closer together.[37]

Combat might also reduce uncertainty about resolve and about military effectiveness. A defender that takes casualties in a battle may convey resolve to the other side. For example, Japanese troops inflicted heavy losses on invading American forces during the 1945 Iwo Jima and Okinawa campaigns. This caused the United States to update its beliefs and increase its casualty estimates for an invasion of Japan, which in turn strengthened the case for dropping the atomic bomb as a means of making such an invasion unnecessary.[38]

Some bargaining models allow for states to update their beliefs about each side's ability to absorb and/or inflict costs.[39] Note that this perspective contrasts with some older models that envision wars as games of attrition, in which each side inflicts costs on the other, and in which one side sues for peace if its threshold of acceptable costs is crossed.[40] The newer bargaining models propose that if the two sides could agree that the imposition of costs would cross at least one side's acceptability threshold, then they would reach a war-avoiding or war-terminating bargain reflecting what the outcome would have been if war had proceeded. For example, after invading the Netherlands in 1940, Germany threatened to destroy Rotterdam and Utrecht unless all resistance ceased. Since the Germans had demonstrated a willingness and ability to destroy cities, the Dutch surrendered to spare their cities.[41] War happens because the sides disagree about their abilities to inflict and/or absorb costs, and combat helps end war by reducing disagreement between the two sides over these two factors and by creating bargaining space.

How are costs actually inflicted in combat? Note first that the focus here is on pain for its own sake—that is, costs unrelated to the balance of power. Combat can inflict costs in any of the ways described above. Capturing territory inflicts costs, both because territory has intrinsic value to nations and because it may provide economic benefits. Destroying military forces can inflict pain even aside from the question of the balance of power if it undermines the ability of the leadership to stay in power, for example, or if the leadership desires to use its military forces in another theater. Destroying civilians or civilian assets also means inflicting costs, although research on aerial bombardment indicates that bombing civilian assets is generally unsuccessful as a tool of coercion, despite the fact that bombing *military* assets can work.[42] Significantly, capturing territory is a zero-sum means of inflicting

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costs; nothing is actually destroyed (necessarily) in territorial capture, so whatever is taken is still subject to inclusion in an eventual war-terminating bargain. Conversely, destroying forces or civilian assets is negative sum in the sense that the pie for both sides becomes smaller.

Notably, there are differences among the newer, formal wartime-bargaining models. For example, Wagner sees combat as reducing uncertainty over who would win the eventual absolute war, whereas Filson/Werner and Smith/Stam see combat as reducing disagreement over who would win forthcoming individual battles. Both Powell and Filson/Werner allow a belligerent to update its beliefs on the basis of negotiations, because if an adversary keeps fighting without making concessions, the belligerent updates its beliefs about the adversary; Wagner and Smith/Stam, however, do not. Powell's model permits a focus on resolve that many of the other models do not. Smith/Stam relaxes the standard game theory assumption employed by the other models that actors share common prior beliefs.[43]

The consequences of war

Lastly, the bargaining model helps explain the consequences of war, specifically the stability of a postwar peace. Two important hypotheses have emerged from different versions of the bargaining model. Werner lays out the bargaining-model claim that wars are about the revelation of information about power and capabilities, and that the end of war creates a readjustment of goods consistent with a new understanding of the distribution of power. Her proposition is that the more the power balance between two former belligerents changes in the years following war, the more likely war becomes, as the two states will resort to war to realign the distribution of goods to match the changing balance of power.[44]

Smith and Stam produce a second argument. They propose that the more battles are fought, the more information is revealed, causing the expectations of the two sides to converge. Additionally, they posit that the greater the convergence of expectations about capabilities, the more stable will be the postwar peace. This argument provides a stronger theoretical basis for the long-standing war-weariness hypothesis, the speculation that peace lasts longer after long wars than after short wars.[45]

The empirical record

There are islands of empirical support for the bargaining model, with studies finding, for example, that (1) dyadic power parity produces uncertainty that makes war more likely, (2) economic interdependence reduces uncertainty, which reduces conflict, (3) changes in the postwar balance of power can make the recurrence of war more likely (though this is a disputed finding), (4) anticipated conflict costs affect prewar bargaining demands, (5) war settlements reflect belligerents' expectations about future costs and probabilities of winning, (6) more intense wars are likely to be followed by longer periods of peace, and (7) semirepressive, moderately exclusionary regimes fight longer wars.[46] Further, according to the bargaining model, mobilization (especially by democracies) during crises ought to reveal credible information about capabilities and intentions, thereby facilitating the convergence of expectations and the avoidance of wars; quantitative studies support this expectation.[47] Hypotheses that certain kinds of ethnic disputes are more likely to face issue indivisibility and hence conflict have yielded mixed results.[48]

The existing empirical scholarship does raise questions for the bargaining approach, however. The finding that wars are not duration dependent (meaning that they are neither more nor less likely to end the longer they last) presents a puzzle. If war is caused by uncertainty and combat reduces uncertainty by revealing the true capabilities of both sides, then wars ought to become increasingly likely to end as they endure, as fighting battles continually reduces uncertainty until there is sufficient agreement on capabilities to create bargaining space and to permit war termination.[49] Another puzzle is whether conflict is self-sustaining or self-dampening. As noted above, the bargaining model predicts that conflict should be self-dampening, and the finding that more-intense wars are followed by longer periods of peace offers support for this view. But some studies have found that occurrences of international disputes are self-sustaining—that is, the occurrence of one dispute makes the occurrence of others more likely.[50]

More centrally, however, the core of the bargaining model remains to be tested. This will call for examination of three factors: estimates of capabilities, estimates of resolve, and the exchange of offers between two sides. A critical task is collecting data on battles fought during war. Testing intrawar hypotheses of the bargaining model requires linking changes in negotiations with changes in each side's estimates of the war's likely outcome, which in turn are generally determined by battlefield events. The quantitative approach requires collecting data on individual battles within wars and keeping track of wins and losses. There exists one data set for battles, devised by the Historical Evaluation and Research Organization, but its inconsistent coverage of battles across wars makes it inappropriate for this application.[51] It is feasible to create a more appropriate, comprehensive data set, although doing so will inevitably invite controversy over issues such as defining battles, coding the beginnings and ends of battles, and determining battle casualties and outcomes. Data on offers during wartime would also have to be collected.

In addition to quantitative analysis, case studies of individual wars will be necessary to test the central ideas of the bargaining model. Case studies are likely to do better than quantitative analyses at following the exchange of offers, noting in particular how one side might increase or decrease its settlement offer to the other side in reaction to battle outcomes and changing domestic political conditions. Hein Goemans provides one such case study in his examination of bargaining during the First World War, with a focus on the German offense in March 1918 as a "gamble for resurrection."[52] Similarly theoretically informed studies need to be conducted of other major conflicts, including the Napoleonic War, the American Civil War, the Second World War, the Korean War, and the Vietnam War.[53] For instance, concerning possible gambles for resurrection, scholars should explore the German Ardennes offensive of December 1944, the 1864 Union attack on Atlanta, and the 1950 U.S. attack on Inchon.

Old wine in new bottles?

Does the newest formal work offer important advances over the nonformal work of the 1950s through the 1970s? One criticism

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might be that nearly all of the new hypotheses can be found somewhere in works by Blainey, Schelling, Kecskemeti, Iklé, or Pillar. This is a general criticism of formal work, that it (especially scholarship on war) amounts to old wine in fancier bottles.[54] The new work, however, makes progress in at least three important ways. First, formalization itself offers key advantages. This kind of analysis lies within the language of rigorous math, so (to the trained reader) its logic is completely transparent, its propositions must be logically derived, and these propositions all must emerge from a common set of assumptions. Formalization is especially appropriate for portraying the mechanics of bargaining (if not the formation of preferences), as it gets at the critical, essentially economic bargaining concepts of costs, the exchange of offers, and the enforcement of agreements.

Second, and relatedly, formalization helps the theoretical development of the model. Even though the very basic insights have been developed by earlier, nonformal scholars, formal approaches have explored and expanded the model, searched for potential contradictions or inconsistencies, opened new channels, and developed new hypotheses. To name a few contributions produced thus far: Formal analysis helped to develop—and to provide a solution for—the puzzle that fighting might not lead to the creation of bargaining space because the winning state may simply increase its aims.[55] It also generated the new idea that issue indivisibility may cause war. The use of noncommon priors by the Smith/Stam model provides a formal means of addressing the critique that the Fearon model does not allow for the possibility of actors drawing different conclusions from the same information.[56] Formal models have presented the point that new information during war can be provided by battle outcomes, negotiating dynamics, or both. They have also given more satisfying explanations for observed empirical phenomena, such as evenly balanced states being more war-prone than unevenly balanced states, long wars being followed by long stretches of peace, and democracies being both likely to win wars and likely to be attacked.[57] Formal models have been used to account for the finding of no relationship between the strength of an ethnic minority and its decision to rebel against the ruling government.[58]

Third, the new formal approaches offer, for the first time, the possibility of linking the causes, prosecution, termination, and consequences of war into a single theoretically consistent framework. The older work limits itself to one or two of these phases, as Schelling focuses mostly on causes; Kecskemeti, Iklé, and Pillar on termination; and Blainey on causes and a bit on consequences. Some of the newer models build frameworks that would permit seeing all phases as part of a bargaining process, an ambition that falls short of providing a grand unified theory of war but still offers a more comprehensive vision than previously existed.

Other Theoretical Perspectives

How does the bargaining model relate to other theories of war? Does it strike new ground, putting itself at odds with other leading theories of conflict and international relations? Here, I will work through a number of leading theories of war, drawing comparisons with the bargaining model. A central point is that the bargaining model is not necessarily a competitor with many leading theories, but rather these theories can be connected with the bargaining model—specifically if the other theories flesh out the basic conceptual structure of the bargaining model. A few theoretical perspectives, however, should be thought of as clashing directly with the bargaining model.

Deterrence, the spiral model, and cognitive psychological biases

The bargaining model overlaps with deterrence theory. In deterrence theory, an actor (a defender) attempts to deter another state (a potential attacker) by promising to make a specific response if the second state takes some action. Deterrence succeeds when the potential attacker does not attack. Though there are many variations on deterrence theory, a basic proposition is that "[d]eterrence is predicted to succeed when the expected utility of using force is less than the expected utility of not using force."[59] This formulation fits into the bargaining model well, as both models make similar assumptions (states seek to advance their national interests, weigh costs and benefits, and sometimes see war as a useful tool of foreign policy) and some similar predictions (e.g., war becomes more likely as the perceived costs of war go down).

The bargaining model does make one important, different prediction. Classic deterrence theory predicts that as an imbalance of power between two states grows, war becomes more probable. The bargaining model, on the other hand, argues that it is not an imbalance of power that causes war, but rather disagreement over the balance of power (and over the likely outcome of war). From this emerges the prediction that balances of power might be more significantly associated with war than are imbalances of power, because there is more uncertainty about the outcome of an eventual war between two evenly matched states than about two unevenly matched states.[60]

Another major theory of war is the spiral model. In contrast to the deterrence model, which argues that war occurs out of greed, the spiral model predicts that war occurs out of fear. Anarchy makes the state prepare military forces, which threaten its neighbors and push them to arm; the resultant arms race makes all sides less secure, a dynamic known as the security dilemma. The spiral model forecasts two principal paths to war. Preventive war occurs when one state perceives the balance of power shifting against it and attacks sooner rather than later, when conditions would be less favorable. Preemptive war occurs when one state attacks in order to forestall a perceived imminent attack.[61]

Both types of war fit into the bargaining model. A changing balance of power may introduce commitment problems that make a war-avoiding bargain difficult to attain, leading to preventive war. Or incomplete information about preferences in the context of a shifting balance of power may make a preventive war more likely.[62] Conversely, growing perceptions of the advantages of attacking first can make preemption more probable, or at least can reduce bargaining space.[63]

The versions of the deterrence and spiral models laid out thus far have retained rationalist assumptions. Many scholars have built versions of these theories that incorporate nonrationalist assumptions and look instead to cognitive psychology. Some have argued that cognitive biases affect leaders' perceptions, so that

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leaders make attribution errors or maintain images of a hostile enemy even in the face of disconfirming evidence. Such biases may reinforce spirals of hostility by making defensively oriented moves look offensive and conflict more likely. Attribution errors cause states not to update their beliefs about the intentions of other states in patterns predicted by rationalist deterrence theory. Others have argued that motivated biases affect leaders' perceptions. For example, a leader may feel he faces domestic political pressures that demand an international victory in order for him or her to maintain power at home. The leader is then motivated to perceive that an international adversary can be defeated, and may then believe that victory is possible, even as the adversary becomes more powerful. In other words, the standard deterrence proposition that a more powerful defender makes deterrence success more likely does not hold.[64]

The cognitive-psychological school would level at least one general critique of the bargaining model: that revelation of information about the opponent during peacetime ought not significantly reduce the likelihood of war breaking out, and that revelation of information about the opponent during wartime ought not significantly reduce the likelihood of war ending. In the prewar case, the bargaining model would propose that, ceteris paribus, as two sides reveal information about their capabilities and intentions, bargaining space will open up to permit a war-avoiding bargain. Such revelations might come through increased transparency of societies (through democratization, for example), costly mobilization during international crises, the performance of armies in wars with third parties, and so forth. The cognitive-psychological school would doubt the ability of such revelations to preserve peace. Leaders' images of other countries as hostile or weak will likely persevere even in the face of credible evidence to the contrary. Further, if external factors such as domestic developments create an environment conducive to motivated bias, then leaders may develop beliefs that make war seem more appealing despite unfavorable military conditions. During wartime, similar dynamics may operate, precluding battle outcomes from causing leaders to update their beliefs about the resolve or capacity of the enemy. This is the view of some of the older war-termination literature, that cognitive and motivated biases are likely to swamp clear-headed thinking during war.[65]

Conducting decisive, competitive tests of these two perspectives may be difficult, as the difference is one of degree rather than kind. That is, the bargaining model says that the revelations that emerge from mobilization or battles are more likely to cause war avoidance and war termination, whereas the psychological perspective argues that such revelations will probably be less effective, though not completely useless.[66] The best approach would likely be to isolate specific factors—leaders' experience of formative events, for instance, or variation in the form of received information among leaders—that are hypothesized to cause some of these biases, such as the perseverance of beliefs in the face of disconfirming evidence.[67]

Organization theory and the conduct of war

Like cognitive psychology, organization theory is built on a set of assumptions that might be inconsistent with the unitary, rationalist assumptions of some versions of the bargaining model. Beliefs about preferences and capabilities in particular are filtered through organizations, frequently militaries. This might introduce systematic biases into the formation and evolution of beliefs. Some have argued, for example, that militaries tend to view adversaries as intractably hostile, implying perhaps that military intelligence might not recognize actions intended to signal benign intent.[68] Intelligence failures and poor collaboration between civilian and military leadership might distort prewar assessment of capabilities, in turn precluding the emergence of a war-avoiding bargain.[69] Further, the rigidities of their organizational culture and beliefs might prevent militaries from recognizing that a particular strategy is not working; failures on the battlefield might not cause militaries to help open bargaining space by downgrading their estimates of their own abilities.[70]

The question of organizational rigidity is something of a double-edged sword for the bargaining model, however. Too-rigid militaries may not recognize that they have overestimated their own capabilities and underestimated those of their adversary, so again, information may not be taken from battle outcomes to provide war-terminating bargaining space. Yet more-flexible militaries that recognize the underperformance of troops in the field may not be content to accept it; such militaries may be entrepreneurial, changing strategy and the application of technology so as to minimize disadvantages and maximize advantages as they appear.[71] The bargaining model seems to envision militaries as rather odd institutions: completely clear-sighted in terms of using information to recognize strengths and weaknesses, but too rigid to address revealed weaknesses or emphasize emerging strengths.

Formal bargaining-model frameworks tend not to account for entrepreneurship.[72] In most of them, battles occur with no variation in the way sides employ forces (that is, military strategy is often absent), the working assumption being that the likelihood of one side winning any given battle remains constant across all battles throughout the war, and termination is made possible by reducing each side's uncertainty about that constant probability.[73] Active entrepreneurship would introduce a dynamic component to military capabilities, perhaps precluding battles from causing the necessary convergence of expectations that might permit war termination. Sometimes entrepreneurship allows the application of new technology that changes the likelihood of winning future battles, such as the American introduction of tank-to-plane radio communication in the European theater in World War II.[74] In other instances, technology can play a more dynamic role, as countermeasure technology emerges to defeat new technology. For example, Germany was the first country to use gas in World War I, achieving stunning success and opening a gap 8,000 yards wide in the Allied lines in 1915. However, the German gas advantage was quickly nullified, as the Allies distributed simple gas masks to their soldiers. More generally, countermeasures prevented gas from ever playing a decisive role in the war, which dragged on for another three years.[75] Of course, new military tactics can negate technological advantages. During the Vietnam War, North Vietnamese forces effectively used sophisticated anti-aircraft

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tactics to reduce the air superiority enjoyed by the technologically advanced U.S. planes. Similarly, the adoption of the convoy in both world wars helped Britain reduce the threat posed to trans-Atlantic shipping by German U-boats. In these cases, adaptation by the targets of coercion (North Vietnam and Britain) prevented the convergence of expectations about the expected course of military operations that might have led to earlier settlement of each war.[76]

Entrepreneurship can also lead to rapid changes in military strategy, slowing the creation of bargaining space. The rapid German conquest of Poland should have encouraged the convergence of expectations between France and Germany about the likelihood of a future Franco-German war, perhaps enabling a war-avoiding settlement of some kind. However, the French drew lessons from the Polish campaign, hoping to do better than the Poles. France inferred that a German attack in the West would come through the Belgian plains. French General Maurice Gamelin commented: "The chief lesson to be learnt from the Polish campaign was the penetrative power of the speedy and hard-hitting German armoured formations. . . . Belgium was the more likely target because the Ardennes was not a good tank country and there were good defences in Luxembourg." France confidently prepared for a decisive battle in Belgium. This strategic choice might have caused Germany to reconsider its attack plans and strike a war-avoiding deal with France, but Germany also did not sit on its hands. Germany devised a strategy to exploit French expectations: a feint into Belgium to lure Allied forces forward, coupled with a decisive thrust through the Ardennes to cut off the bulk of Allied forces and separate them from Paris.[77] This successful change in German strategy prevented a possible war-avoiding settlement, as the two sides did not agree on the potential outcome of a German-French campaign (each was confident of victory). Note also that such an agreement would have been very unlikely because in the process of divulging strategy, Germany would have lost the crucial nexus of its military power: its planned surprise attack through the Ardennes.

How might variation in military entrepreneurship affect war outcomes? The straightforward argument is that entrepreneurship is positively correlated with victory. More adaptive militaries are more effective, maximizing their own strengths and their enemies' weaknesses. The bargaining model, however, would make two different predictions. First, *militaries with higher levels of entrepreneurship should fight longer wars.* If the capability of militaries changes from battle to battle, then this will slow the convergence of expectations necessary for war termination. Second, *states confident in the high levels of entrepreneurship of their militaries may find it more difficult to avoid war through bargaining.* Entrepreneurship makes militaries more effective, but this is relatively difficult to convey to adversaries (as opposed to the obvious advantage of possessing fleets of combat aircraft, for example). More generally, the bargaining model might simply incorporate entrepreneurship into its assumptions, accepting the simple premise that if states update their beliefs and settlement offers they ought also to update their military strategies—since, after all, strategy is strategic.

Organization theory might offer other critiques of the bargaining model beyond issues of the rigidity/entrepreneurship of militaries. Organizations use quantitative indicators to demonstrate success or failure: firms use profit statements, graduate programs use job placement rates, and so on. Existing versions of the bargaining model assume that two opposing militaries use the same metric to determine success and failure. For example, success might be measured by the acquisition of forts (as in the Smith/Stam model), so as one side gains forts from the other, the former experiences success and the latter experiences failure. However, in some conflicts, militaries may have different measures of success; two opposing sides could conceivably observe the same battle outcome with both concluding that they were successful, coming no closer to agreement on the eventual outcome of the war. This is one interpretation of the Vietnam War, as the United States sought to inflict North Vietnamese casualties (the infamous body count) and North Vietnam sought to inflict American casualties. The occurrence of combat and casualties on both sides caused each to conclude that it was doing well, perhaps delaying the termination of the war. Similarly, in 1812 Napoleon viewed the French capture of Moscow as a step toward victory, whereas Russian General Mikhail Kutuzov saw it as hastening French overextension and defeat, commenting when he ordered the retreat from Moscow that "Napoleon is a torrent which we are as yet unable to stem. Moscow will be the sponge that will suck him dry." Note that the bargaining model is not completely incapable of accounting for organizations drawing inferences. The Smith/Stam relaxation of the noncommon-priors assumption permits two sides to draw different inferences from the same event.[78]

A more common problem is when all actors within a single side do not agree on the actual metric of success—that is, no indicator is dominant. The army might focus on territory captured, the navy on enemy tonnage sunk, the air force on bombing sorties carried out, the foreign service on allies lined up, and so on.[79] Optimally, a clear-headed civilian leader will stay focused enough on the political stakes to identify which military means best advance political goals; but such a view may be overly optimistic.

Domestic politics and the formation of preferences

The role of domestic politics in world affairs has dominated the past decade of international-relations research. How can domestic political factors fit into the bargaining model? Most applications of the bargaining model have treated states as unitary actors. One model has incorporated domestic politics by distinguishing among regime types, generating an array of theoretical predictions that account for a variety of apparently contradictory empirical findings—for instance, that democracies win wars but are especially prone to being challenged militarily.[80]

The bargaining model lends itself well to other applications of domestic politics. Within war, variations in regime type may encourage different bargaining strategies. If a belligerent perceives its democratic opponent as particularly vulnerable to costs, it may be encouraged to initiate a battle as a means of demonstrating its capacity to inflict costs—as was perhaps Iraq's intention when it launched a ground attack against coalition forces at Khafji in late

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January 1991, or as was probably North Vietnam's intention when it launched the Tet offensive in January 1968.[81] The timing of elections may also play a role, because when a nation suffers a battlefield defeat, its leader (especially if elected) may be pushed from office. This was Hitler's hope in March 1944, when he argued that a failure of the coming Allied invasion of France "would prevent Roosevelt from being reelected—with any luck he'd finish up in jail somewhere!"[82] Relatedly, change in leadership may be necessary to permit a war-ending convergence of expectations.[83]

Another cut on domestic politics and the bargaining model concerns the "gamble for resurrection." A state losing a war may adopt a new strategy—a gamble for resurrection—that might increase the chances of winning at the expense of also increasing the chances of decisive defeat. In and of itself, the gamble is a useful conceptual step forward for the bargaining model, as it to some extent endogenizes military strategy by allowing states to choose between a strategy with higher mean and lower variance of outcomes and one with lower mean and higher variance. In terms of domestic politics, one might expect that leaders more fearful of suffering moderate defeat—such as those in semi-repressive regimes, who might be executed or imprisoned as a result—to be more likely to gamble for resurrection than are other kinds of leaders, such as democratic or dictatorial leaders. Goemans describes the German offensives on the Western Front in the spring of 1918 as a gamble by the German leadership staking the captured conquests in the East to defeat France in the West and maintain its hold on power.[84]

Domestic-politics theories can produce a deeper critique of the bargaining model. A fundamental assumption of the bargaining model is that fighting itself, divorced from the political issues at stake, is intrinsically costly. That is why the model sees war as a puzzle: both sides are better off striking a political settlement instead of fighting to reach that same political settlement, as each side's net utility must reflect the political benefit of the deal minus the costs of fighting.

But some domestic-politics theories have posited that leaders may prefer fighting over reaching a settlement peacefully. They may engage in conflict to divert public concern from internal problems, rallying citizens around the flag to increase support of the leadership. The evidence of such dynamics in the United States is generally weak.[85] However, there is some evidence (although it is not entirely supportive) that other kinds of states, especially semidemocratic regimes and states undergoing partial democratization, may view fighting as intrinsically valuable. Leaders of newly emerging democracies may wish to solidify their hold on power through scapegoating and calls to nationalism. If one assumes that the actual experience of conflict with another nation—as opposed to the favorable resolution of a disputed issue—serves a leader's goals, a war-avoiding bargain may be impossible to reach. If internal political change is a principal path to war because it makes leaders prefer fighting, this undermines the contribution of the bargaining model, as it would be more important to think about the sources of preferences for war than to think about how disagreement about capabilities or resolve contribute to war.[86]

Constructivism

Constructivism, a theory that emphasizes the importance of intersubjective social factors in determining critical phenomena such as identity and interests, claims that war is best understood as a social convention determined and shaped by norms and culture, not as a rationalist choice reflecting costs and benefits. The fundamental causes of war, then, are best explored in light of factors like the nature of international culture (i.e., whether it fosters Hobbesian anarchy or Rousseauvian cooperation) and more specific cultural factors, such as taboos on the use of nuclear weapons.[87]

Constructivism's hypothesis that practice generates interests may also be outside the bargaining model. The bargaining model proposes that a state's preferences, especially regarding what constitutes acceptable terms of peace in relation to expectations about the course of future costs and battle outcomes, are stable across the war. Constructivism might propose that the practice of violence could polarize these preferences, pushing states to make more extreme demands as the war proceeds and an image of the enemy as an intractably hostile barbarian becomes solidified. One hypothesis might be that particularly bloody wars are more likely to have extreme terms of settlement, because states hold out longer for better terms. Arguably, the intensity of combat during World War II in the Pacific may have pushed the United States to demand unconditional surrender.[88]

Constructivism also poses a deeper challenge to the bargaining model, again returning to the assumption that fighting is costly. Some strains of constructivism posit that fighting serves important social functions, principally the formation of group identity. The definition of self requires the definition of other, and, some argue, the essential nature of the relationship between self and other is competitive and ultimately conflictual.[89] Hence, states may seek war not just to acquire goods, but as an end in itself to generate and reinforce national identity. Not coincidentally, there is overlap between this perspective and diversionary logic.[90] Some argue that war defines gender roles by sharpening the social distinctions and functions of men and women.[91]

Interestingly, some constructivist propositions may fit into the bargaining-model framework. The bargaining model predicts that war may become more likely if the issue at stake is indivisible. Some items in international politics may be physically divisible, but discourse and culture may make them practically indivisible. By describing the city of Jerusalem as practically if not literally indivisible, constructivism may help explain why the Arab-Israeli conflict seems intractable. It may similarly shed light on the Indo-Pakistani conflict, describing Kashmir as having characteristics of indivisibility.[92]

Summary

The relationships between the bargaining model and existing theories of war and international relations are varied and potentially quite fruitful. The conflict with cognitive psychology is one of degree rather than kind, as the psychological perspective would predict a slower, less efficient process of updating beliefs. Organization theory offers a challenge to current versions of the bargaining model, although it should help the future theoretical

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development of the bargaining model to become more nuanced. Some versions of the bargaining model are beginning to capture domestic political factors, and future theoretical development will continue in this trend.

Probably the most direct challenges to the bargaining model come from theoretical perspectives that propose that fighting may take on a net positive utility, even when divorced from the issues at stake. Such fighting may serve the purpose of bolstering identity or a government's hold on domestic political power. While the broadest forms of this hypothesis—predicting omnipresent war as a means of reinforcing national or gender identity—may be overdrawn, the possibility that specific conditions, such as internal political change, may make war for its own sake desirable should not be ignored; indeed, this view is beginning to acquire some empirical support. In the broadest sense, this critique is part of the older point that because formal theory cannot describe where preferences come from, its contribution to our understanding of world politics will always be limited.[93]

Future Directions for Research

One of the concerns that drove the creation of the journal *Perspectives on Politics* was a sense of division among political scientists of different orientations, along with a desire to improve constructive discourse across the discipline. The bargaining model as an arena of scholarship well demonstrates the benefits of crossing these divides. I close this article by discussing how the bargaining model can best be developed, tested, and applied in the spirit of crossing three such divides.

The first is between academic research and policy practice. There is, of course, a long-running tension within political science between research motivated purely by the pursuit of knowledge and research done to inform specific policy issues. Although little of this article discusses policy applications, the bargaining model could shed light on a number of policy issues. Thinking about indivisibility may help explain an array of current conflicts. Understanding that Arabs and Israelis see Jerusalem as indivisible makes it clearer why the city's status is such a significant barrier to a lasting settlement. If we understand a state's first nuclear weapon as an indivisible good (one can't have half a nuclear weapon, and even a single weapon confers tremendous and virtually irreplaceable deterrence and prestige benefits), then we can see why diplomacy to prevent the spread of nuclear weapons to motivated states like North Korea, Iran, and Iraq may be difficult.

The bargaining model also serves as a new framework for confirming some older ideas about the conduct of foreign policy. Focus on agreement about military capabilities provides an argument for increased transparency of military forces, since transparency may both prevent surprise attack (the traditional arms-control argument) and facilitate war-avoiding bargains. Further, the bargaining model emphasizes the importance of enforcing bargains that have already been reached, which in turn suggests the necessity of sending third-party forces to enforce settlements reached to terminate civil wars.

Conversely, policy experience can be very useful in informing the development and testing of the bargaining model. A diverse array of conflicts are constantly breaking out (and being avoided), unfolding, and terminating. The international community continues to experiment with a variety of conflict resolution and prevention tools, such as ethnic partition in civil conflicts, war crimes tribunals, and the varied uses of international peacekeeping and peace-enforcing troops; awareness of the outcomes of these experiments can only improve and facilitate the development and testing of the bargaining model.

The second divide is theoretical. The newest wave of bargaining-model research is formal, but many scholars who do not employ formal techniques feel that such work is often inaccessible in its grammar and offers little genuine theoretical insight, often just dressing up fairly intuitive propositions. Stephen Walt voiced these concerns in a widely read 1999 article.[94] The danger is that the formal nature of much bargaining-model scholarship might drive many nonformal scholars (including some who specialize in security studies) to ignore or dismiss the bargaining model as yet another example of game theorists resorting to pages of mathematical proofs to proclaim the obvious.

We need to avoid alienation from the bargaining model for two reasons. The bargaining model, properly understood, is neither inaccessibly complex in its logic or forgettably trivial in its insights and implications. Its basic ideas, both straightforward and fruitfully novel, belong to Walt's "first wave" of formal theory ideas, expressed by scholars such as Thomas Schelling, Daniel Ellsberg, and Mancur Olson. Additionally, as discussed earlier, the newer, formal applications of the bargaining model promise important advances beyond the early insights of thinkers such as Schelling, Kecskemeti, and Pillar.

And just as nonformal scholars can benefit from the bargaining model, the model stands to benefit from the active engagement and scrutiny of nonformal scholars. Emerging variants of the bargaining model make assumptions about the nature of combat that deserve discussion. Specialists on culture and identity can help pinpoint the conditions under which assets or issues become practicably if not literally indivisible. Organization theorists improve our understanding of how information is processed to update beliefs, whether and how such updating leads to entrepreneurial adaptation, and how competition among organizations with different beliefs gets (or does not get) resolved.

The third divide is empirical. The bulk of recent research on the bargaining model has been quantitative, producing promising but not universally supportive results. However, many of the tests that have been conducted have been on secondary hypotheses, using crude proxy variables; the ability of quantitative methods to test the bargaining model appears fundamentally limited because of the high information demands of the most direct tests of the bargaining model. Case studies will continue to be necessary to test the core propositions of the bargaining model, albeit on only one or a few cases at a time. As in most other areas, the best general empirical strategy will be to couple more limited, large-sample quantitative tests that offer generalizable findings with small-N case studies that provide more careful analysis of a smaller data set.

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Notes

1 Sills 1968, 472.
2 Kennan and Wilson 1993, 45.
3 Cooter and Rubinfeld 1989.
4 See Baron 1991; Carrubba and Volden 2000.
5 Waltz 1979.
6 This is known as the security dilemma. Jervis 1978.
7 Fearon 1998.
8 See Koremenos, Lipson, and Snidal 2001.
9 Clausewitz 1976, 87.
10 See Kaufmann 1994; Osgood 1957.
11 Schelling 1960, 5.
12 Kecskemeti 1958; Iklé 1991 (revised edition), vii for "agonizing search" quotation. Pillar 1983 informally applied a bargaining framework to war termination.
13 Blainey 1973; Rosen 1972.
14 Bueno de Mesquita 1981.
15 Bueno de Mesquita 1981; Morgan 1984; Morrow 1986; Morrow 1989; Powell 1990; Fearon 1995. A review of this literature is Powell 2002b.
16 See the discussion in Wagner 2000. For other examples of costly lottery models, see Bueno de Mesquita et al. 1999; Garfinkel and Skaperdas 2000; Bearce and Fisher 2002. Of course, not everyone before 1995 conceptualized war as a costly lottery. Three exceptions are Rosen 1972, Pillar 1983, and Wittman 1979.
17 Fearon 1995.
18 Gartzke 1999; Powell 2002b.
19 Guderian 1952, 190.
20 Wittman 2001; Reed 2002; Reed 2003.
21 Powell 1990; Fearon 1995.
22 Oren 2002; Lai 2001; Van Evera 1999.
23 Powell 1999; Fearon 1995.
24 In some models, the good need only be discretely divisible (as opposed to being continuously divisible) to prevent a bargain from being struck.
25 Goddard 2002; Walter 2002; Toft 2002; de Marchi and Goemans 2001.
26 Clausewitz 1976, 75, 127.
27 Clausewitz 1976; Wagner 2000; Howard 1983.
28 See also Osgood 1957, 1–2.
29 Kecskemeti 1958; Frank 1999; Keegan 1999, 418; McPherson 1988, 849.
30 Smith 1998; Smith and Stam 2002; Filson and Werner 2002b; Powell 2002b.
31 Perkins 1993, 141; Harrison 1985, 91.
32 Pape 1996.
33 Schelling 1966, 2–6; see also Snyder 1961.
34 Wagner 2000.
35 Rosen 1972, 183. See also Goemans 2000; Lepgold and Sterling 2000.
36 Wittman 1979.
37 Filson and Werner 2002b; Smith and Stam 2002. Realism proposes that militarily successful belligerents will expand their war aims. Labs 1997, esp. 19.
38 MacEachin 1998; Giangreco 1997.

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39 See Powell 1990; Powell 2002a; Slantchev 2001.
40 Zartman 1989; Stam 1996; Smith 1974. There is a small amount of empirical evidence on this point, and it is mixed. Gartner and Segura 1998, for example, found that American opposition to war during the Korean and Vietnam Wars was driven both by the cumulative casualties suffered and by casualties recently suffered, the latter of which might be an indicator of expectations of likely future costs.
41 Pape 1996, 342–3.
42 Pape 1996; Horowitz and Reiter 2001.
43 Wagner 2000; Filson and Werner 2002b; Smith and Stam 2002; Powell 2002a; Powell 2002b.
44 Werner 1999b.
45 Smith and Stam 2002.
46 Reed 2002; Reed 2003; Werner 1999a; Werner 1999b; Fortna (forthcoming); Reed and Hwang 2002; Werner 1998; Smith and Stam 2002; Box-Steffensmeier et al. 2003; Goemans 2000. However, see Grieco 2001.
47 Schultz 2001; Lai 2001. Kinsella and Russett 2002 argue that democracies are less likely to be in conflict with one another and do not signal resolve through conflict.
48 Toft 2002. See also Cetinyan 2002.
49 On wars not being duration dependent, see Bennett and Stam 1996; Goemans 2000¸ 69.
50 Box-Steffensmeier et al. 2002; Colaresi and Thompson 2002.
51 *Analysis of Factors That Have Influenced Outcomes of Battles and Wars* 1983. See also Reiter and Stam 2002, chapter 3; Gartner 1997.
52 Goemans 2000. See also Brooks 2000; Kecskemeti 1958; Frank 1999.
53 Garofano 2002 argues that the bargaining model does not explain the escalation of the Vietnam War in 1964–65, because the United States and North Vietnam were playing different games, because disagreement about outcomes was irrelevant to the escalation of the war, and because the issues at stake were not divisible. However, the difference in the American and North Vietnamese perspectives on the conflict fits nicely into the bargaining model: the United States saw it as a war of Communist aggression and hence underestimated the resolve of the North Vietnamese, who saw it as a war of national liberation. There was also absolutely critical disagreement about capabilities, as the Americans underestimated the ability of the Communists to absorb casualties without backing down, and underestimated the ability of the Communists to inflict casualties on American forces by fighting a long guerrilla war. Lastly, the stakes were quite divisible, as demonstrated by the endgame negotiations in 1972 in which the two sides haggled over the particulars of the composition of the South Vietnamese government, ultimately compromising with the 1973 Paris Peace Accords. On the Vietnam War, see Karnow 1984. On North Vietnamese casualties, see Mueller 1980.
54 Walt 1999.
55 Wittman 1979; Wagner 2000; Filson and Werner 2002b.
56 Smith and Stam 2002; Kirshner 2000.
57 Wittman 2001; Reed 2002; Smith and Stam 2002; Filson and Werner 2002a.
58 Cetinyan 2002. See also Werner 2000.
59 Huth and Russett 1990, 469–70. See also Morgan 1977; Jervis 1976.
60 Wittman 2001; Reed 2002.
61 Jervis 1976.
62 Powell 1999.
63 Fearon 1995. However, preemptive wars almost never happen; see Reiter 1995.
64 Lebow 1981; Jervis et al. 1985; Jervis 1976; Larson 1985; Mercer 1996; Hopf 1994.
65 See Kecskemeti 1958, 19–20; Iklé 1991, 96–7.
66 Some have argued, though, that deterrence essentially never succeeds. See Lebow 1981.
67 See Jervis 1976; Reiter 1996; Khong 1992; Kaufmann 1994.
68 Snyder 1984; Posen 1984.
69 Brooks 2002.
70 Legro 1995; Katzenbach 1977; Kier 1997; Gartner 1997.
71 Shimshoni 1990/91.
72 Goemans 2000 developed one bargaining model that allows for very limited entrepreneurship through "gambling for resurrection," enacting a military strategy that increases the chances of victory at the cost of increasing the chances of decisive defeat.
73 One way a model could do this is by allowing for the probability of victory to change from battle to battle, perhaps because the victor in a battle captures resources that in turn change the balance of power and make it easier to win the next battle. No model allows for this to occur during war, though Fearon 1996 allows for bargaining to change the balance of power at war's end. On the general issue of whether or not resources are cumulative, see Van Evera 1999 and Liberman 1996.
74 Ambrose 1997, 71–2.
75 Keegan 1999, 198–9; Rhodes 1986, 78–103.
76 Biddle and Zirkle 1996; Gartner 1997.
77 May 2000, 295. Interestingly, the Germans also took important lessons from the Poland campaign about the combat effectiveness of their own forces, leading them to make critical improvements in readiness and training. Murray 1981.
78 Gartner 1992; Kutuzov quoted in Nicolson 1985, 88; Smith and Stam 2002.
79 Iklé 1991, 96–7.
80 Filson and Werner 2002a.
81 Gordon and Trainor 1995, 267–88; Long 1996.
82 Quoted in Ambrose 1994, 29.
83 Stanley-Mitchell 2002.
84 Goemans 2000; Fischer 1967, 609.
85 See Gowa 1998; Fordham 2002; Baum 2002; Meernik 2001; Mitchell and Moore 2002; Levy 1989.

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86 Dassell and Reinhardt 1999; Snyder 2000; Mansfield and Snyder 2002; Russett and Oneal 2001, chapter 3; Gleditsch and Ward 2000.
87 Wendt 1999; Katzenstein 1996; Hopf 2002. Note that there are important differences among constructivists.
88 Dower 1986. Settlements become more extreme as battle deaths increase; see Werner 1998.
89 Mercer 1995; Wendt 1999, 274–78; Snyder 2002.
90 A point recognized in Wendt 1999, 275.
91 Goldstein 2001.
92 Goddard 2002.
93 Jervis 1988.
94 Walt 1999. See also the responses in the fall 1999 issue of *International Security*.

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