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# Bargaining and the Interdependent Stages of Civil War Resolution

Michael G. Findley<sup>1</sup>

## Abstract

This article examines civil war resolution as a process comprised of multiple interdependent stages. It engages directly the idea that peace emerges only as a process comprised of battle, negotiation, agreement, and implementation of an agreement. I hypothesize that events at earlier stages of the peace process have implications for later stages, but not always in the same ways. Drawing on bargaining models of war, I consider how two factors that might prevent successful bargaining—stalemates and the number of actors—can encourage cooperation early in a peace process but impede lasting cooperation at later stages. Using a nested dichotomies statistical approach to capture interdependence, I find support for the argument that stalemates and the number of actors have different effects depending on the stage of the peace process. The results substantiate the need in theoretical and policy work to consider peace as an interdependent, sequential process.

## Keywords

civil war, conflict management, conflict termination, bargaining, interdependence

Following over eighteen months of civil war in Chechnya, Russians and Chechens found themselves in a military stalemate. In the summer of 1996, Russians and Chechens negotiated and reached the Khasavyurt Accord, which allowed an immediate

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end to the war. But the agreement left many factors unclear; perhaps most importantly which side would be most likely to win if the war were fought to the end. Thus the stalemate provided a necessary push to reach a negotiated agreement but not necessarily a long-term resolution. Within three years, the Khasavyurt peace accord between Russians and Chechens broke down and war resumed.

The series of events in Chechnya suggest that lasting peace following a civil war, or the conclusion of a peace agreement, only emerges as part of a longer process. According to Darby (2001, 11), the term “‘peace process’ recognizes that the cycle of activities necessary to produce a just and lasting agreement stretches backward and forward from the actual period of negotiations . . .”. Others emphasize the need to examine war and peace as a process because the interdependencies across stages might provide important clues to understanding why war resolution is successful or why it fails (Filson and Werner 2002; Walter 2002; Diehl 2006).

Despite compelling reasons to treat war as a process (Bremer and Cusack 1995), most scholarship on war considers *isolated* periods, such as onset or reaching an agreement. Where studies do examine multiple periods in the process of war, the conclusions still typically imply that certain factors always encourage peace or other factors always work against it. Mutually hurting stalemates, for example, are argued to be an important impetus for peace (Zartman 1989) that does not vary over the course of the peace process. This article considers the possibility that different factors such as stalemates could have different effects at different stages of a peace process. As in the Chechnya example, the stalemate led to an immediate peace agreement, but one that ultimately failed.

Drawing on bargaining models of war, including those that result in the development of states (Wagner 2007), a primary argument in this article is that the evolution of the civil war and peace process reveals information (Filson and Werner 2002) that shapes decision making. But uncertainty is likely to have different effects on intermediate outcomes (e.g., negotiations) compared to final outcomes (e.g., implementation) of the peace process. I contend that negotiations and peace agreements are possible even in the presence of uncertainty, because these events may be used to reveal further information. But peace agreements resolving wars are not likely to be fully implemented until information problems are resolved. Certain factors, such as stalemates, might encourage negotiations to occur, but they may impede the information revelation process that would have occurred through fighting battles. This makes it difficult for combatants to agree to fully implement any negotiations or agreements that resolve the war. Thus, events occurring earlier in a peace process may affect bargaining and lead to very different outcomes at different stages.

To evaluate the interdependence of phases of the civil war resolution process, I estimate nested logit models of the probabilities that combatants: (1) decide to engage in formal negotiations with each other, (2) reach a peace agreement to end the civil war, conditional on negotiating with each other, and (3) successfully implement the terms of the agreement, conditional on negotiating and reaching an

agreement. The results of the analyses offer support for the argument about sequence and interdependence. I find that two factors affect the bargaining process differently depending on the stage: stalemates and the number of actors encourage the initiation of a formal peace process, but can undermine the implementation of peace agreements.

This article provides a more direct test of the information approach as applied to the process of civil war resolution than has been conducted previously, which also sheds light on arguments about bargaining over the creation of states (Wagner 2007). Because so much attention has been given to credible commitments in the civil war literature, this analysis points to the need for greater attention to uncertainty across interdependent stages of a peace process. This article goes beyond past studies focusing on multiple stages (Walter 2002) by explicitly testing the general sequence of the peace process and highlights how different factors can have different effects depending on when they occur. The differential effects of stalemates and the number of actors complement some of the findings of Doyle and Sambanis (2006) who find that third parties may have a different impact depending on when they choose to get involved. While some attention has been devoted both to stalemates and to the number of actors, this analysis refines our understanding of the conditions under which these factors are most or least consequential. And the analysis demonstrates the need to incorporate more systematically the interdependence of different stages of civil war resolution, which yields different conclusions than much of the previous literature.

In what follows, I consider how focusing on information problems and interdependence complements the credible commitment approach, which has gained considerable currency in studies of civil war resolution. Then, I detail a theoretical argument that directly engages the interdependence of multiple stages of a peace process, highlighting how the process of information revelation can lead to different effects at different stages of the peace process. Following, I test the argument and discuss the interdependent effects in the results—namely that different factors have different effects depending on when they occur during the peace process. The results imply lessons about the timing of peace initiatives for actors interested in conflict resolution, with which I conclude the article.

## Literature

The resolution of civil wars has been the subject of considerable discussion in recent years (e.g., Hartzell and Hoddie 2003; Doyle and Sambanis 2006). Much of the research in political science has adopted a rationalist perspective, most notably associated with the bargaining literature (Wagner 2007). The bargaining model of war begins with the premise that there always exists an agreement that is preferable to war (Fearon 1995). Because fighting destroys resources, potential combatants are always better off settling a dispute short of war (Powell 2006). For various reasons—most prominently, asymmetric information when there is an incentive to

misrepresent or a lack of credible commitments to keep peace—prewar bargaining sometimes fails, and disputants go to war. Lengthy treatments of the bargaining and war literature can be found elsewhere (Reiter 2003, 2009; Wagner 2007), but I consider how two of the main bargaining problems have been applied to civil wars.

The civil war literature quickly adopted insights from bargaining models of interstate war, but civil war scholars emphasized credible commitment problems primarily. Walter (2002) offers the most prominent exposition of the credible commitment logic to ending civil wars, contending that events occurring during wars are peripheral concerns unless the implementation of a peace agreement is somehow made credible. The logic is compelling: if one or more parties are required to disarm completely, which they often are, then without a guarantee against exploitation by the stronger party, the party required to disarm is unlikely to do so. Third parties are posited as a solution to the commitment problem because they can offer to guarantee the security of the civil war combatants militarily.

While important, the emphasis on credible commitments in the civil war literature has drawn attention away from underlying war dynamics, especially those from the bargaining literature. If the process of war is crucial for the development and evolution of the state (Wagner 2007), understanding underlying war dynamics may be all the more important. Fearon (2004) questions how much an information perspective can explain about civil war resolution, whereas others have contended that information problems in civil wars matter (e.g., Kirschner 2010; Mattes and Savun 2010). Indeed, a large literature on mediation and diplomacy assumes that information problems are often still an impediment to peace in late stages of a war (e.g., Kydd 2003; Regan and Aydin 2006). According to Walter (2009, 258-59), very little is known, theoretically and empirically, about how information problems are resolved, which stands in marked contrast to the study of interstate wars.

Drawing on Blainey (1988), Clausewitz (1993), and others, the information perspective was developed extensively in the context of *interstate* wars and offers many insights into the conditions under which interstate wars end (Wagner 2000; Filson and Werner 2002; Slantchev 2003; Powell 2004; Smith and Stam 2004).<sup>1</sup> This literature argues that information failures often occur prior to wars, due to asymmetric information problems in which parties have incentives to misrepresent their capabilities or resolve. Because such incentives exist, parties cannot simply agree to share information (Fearon 1995). Reed (2003) contends that uncertainty is highest when combatants are close to parity in their observable capabilities, which elevates the importance of unobservable factors such as resolve or military tactics.<sup>2</sup> If a resolution cannot be reached to prevent war, belligerents may resort to fighting battles during war, which should reveal accurate information about capabilities, resolve, or the costs of fighting and thereby allow parties to reach an agreement.

Information problems may have important effects on the resolution of civil wars, but with few exceptions (e.g., Wagner 2007; Walter 2009), these processes have gone unexamined. The effects could be consequential, and as argued in the following, may not be uniform over the course of a peace process. By construction, most

work analyzes information problems for war onset until a peace agreement or victory is reached, thereby neglecting a full discussion of the peace process including the implementation of agreements. In what follows, I instead consider the possibility that information problems are most consequential when considered across multiple interdependent stages of a peace process, in which implementation of an agreement is the likely final outcome of a war.

## Civil Wars and the Interdependent Peace Process

Recognizing that negotiating or reaching a peace agreement is alone insufficient for peace, scholars have recently made a convincing case for conceptualizing peacemaking as a *process* (Hampson 1996; Hopmann 1996; Walter 2003).<sup>3</sup> In a full peace process, combatants can move through (0) war, (1) negotiations, (2) an agreement, and (3) implementation of the agreement. Some combatants are clearly strong enough to pursue victory. If one of the combatants does not achieve immediate victory, however, belligerents may also decide to negotiate a peaceful agreement. The course of the war in large measure determines bargaining capacity during the negotiation period. Negotiations typically end in a return to war or a peaceful agreement. If combatants return to war, then the war and peace process begins again. If combatants succeed in negotiating an agreement, then they must begin implementing the agreement, which may hold up or break down. And importantly, most peace processes involve the negotiation of a wide variety of terms, what Wagner (2007, 121-22, 237) refers to as a collection of contracts that are subject to continued negotiation and renegotiation.

The paths through the war and peace process imply that the war itself and the early stages of the peace process create interdependencies that affect the likelihood of successfully implementing a peace agreement. That is, the conditions of the war when negotiations begin might not only affect whether negotiations succeed but also whether an agreement is ultimately implemented, thereby contributing to lasting peace. This stands in contrast to the forward-looking actors identified in Walter (2003) who ask whether an agreement is likely to be implemented, before taking steps toward peace. This conceptualization may be closer to what Doyle and Sambanis (2006) refer to as a dynamic peace process, in which third parties learn and update their strategies over time, though they emphasize third parties more than the conditions on the ground among the combatants.<sup>4</sup>

### *Information and Bargaining During Civil War*

Bargaining during a civil war peace process is similar in many ways to bargaining in the interstate context (Wagner 2010, 285), but the combatants (nonstate and state actors) and end goal (the creation and evolution of states) are not (Wagner 2007). As the war and peace processes evolve, so too evolves the information that combatants have about the distribution of power or the costs of fighting (Powell 2004) that

might help them resolve the war peacefully and thereby establish new conditions for the state. Based on the bargaining approach, the convergence of beliefs on the actual capability distribution (or resolve) is a means by which wars end and a revised state apparatus instituted (Slantchev 2003; Wagner 2007). In late stages of a war, incentives to misrepresent could still exist and delay an agreement so long as uncertainty about the capability distribution is present, but when information is fully revealed through battle, then misrepresentation is no longer a possibility. Once ended, typically one side in a civil war is required to lay down its weapons and demobilize.

And yet wars may be temporarily halted even without resolving information problems. Because of a mutually hurting stalemate, for example, combatants might begin negotiations even in the presence of continued uncertainty. Arguably, when periods of peace emerge without complete information being revealed, the peace is more likely to break down at some point in the future precisely because belligerents continue to have incentives to misrepresent and thus peace proposals may not accurately reflect actual capability distributions. Thus, a short-term peaceful outcome in a longer-term interdependent process, such as a successfully negotiated agreement, might not result in a final, peaceful equilibrium (an implemented peace agreement).

The analytic challenge is to identify the conditions under which information about capabilities and resolve is revealed sufficiently, thus making wars more likely to end in the short term and long term. Understanding how information problems are compounded, on the other hand, should give insights into the conditions under which peace might be obtained temporarily, but break down in the long run. Many factors affect the information revelation process during war; in what follows, I focus on two important possibilities. Because I have emphasized the interdependence of phases of peace processes, my hypotheses focus on how stalemates and the number of actors affect different intermediate stages of the peace process as well as the final outcomes.

### *Stalemates*

Military stalemates are one situation in which uncertainty about the distribution of capabilities may be present. Scholars have long argued that stalemates between combatants are an impetus for negotiations and peace agreements (Zartman 1989). Based on bargaining logic, however, a stalemate could indicate that no one side can win in the short term and leaves open substantial ambiguity about the relative distribution of power. When a stalemate occurs, there may be no clear pattern of battle outcomes to make actors clear about how a settlement should be concluded. As Pillar (1983, 199) wrote, “a common perception of the trend of military events” may be necessary to pursue peace. Put differently, stalemates could induce agreement terms at odds with what combatants believe, because the information from the battlefield is not sufficiently precise. Such conditions may lead to “inherently risky” peace

agreements (Werner and Yuen 2005) and leave open possible future fighting that could allow the war to end on different terms.

While a stalemate may reveal that neither side can win, this is not necessarily the same as revealing the precise capability distribution that would allow an unambiguous resolution of the peace. Examples such as the first Russian–Chechen war indicate that, although the observable capability differential was starkly in favor of Russia, Russia nonetheless had a difficult time understanding Chechnya’s unobservable capabilities<sup>5</sup> as well as Chechnya’s ability to adapt to changing circumstances. The Khasavyurt Accords, signed at the end of the war, reflect the confusion about the distribution of capabilities and the desire to delay a “final” solution until a later date. Because each side adapted using or creating capabilities that are difficult to observe or process, the resulting situation is not altogether different from the prewar situation in which the importance of unobservable capabilities is magnified (Reed 2003; Wagner 2007).

This argument about the information-inhibiting role of stalemates is consistent with what some have said about interstate wars: stalemates can leave parties unsatisfied and more likely to challenge the stalemated outcome in the future (Blainey 1988; Hensel 1994; Box-Steffensmeier, Reiter, and Zorn 2003). When stalemates occur, information asymmetries may be high and little precise information is revealed to combatants, but negotiations can reveal information (Slantchev 2003). Thus, a stalemate might encourage the initiation of negotiations that allow more information to be revealed to combatants.

If negotiations do not fully resolve information deficiencies, which may be likely given the high uncertainty, then reaching or implementing an agreement may be difficult, despite experiencing a stalemate. Parties recognize that reaching or implementing an agreement could solidify a new status quo, making any future challenges to the agreement much more difficult. Thus, parties will want to be sure that they have fully resolved information problems and attained what they expect based on their capabilities before reaching or implementing a new agreement.

Paradoxically, then, stalemates might force parties to cooperate in the short term, but they may not be conducive to a long-term resolution of the war. Indeed, stalemates might simply create more of an incentive to derail a peace agreement that occurs at some later time because information problems were not fully resolved or because stalemates create disincentives for long-term cooperation. This highlights a potentially important aspect of the peace process:<sup>6</sup>

*Hypothesis 1:* A stalemate during war is more likely to lead to negotiations but is less likely to result in reaching an agreement or successfully implementing the agreement.

Of course, the presence of uncertainty during military stalemates is not an iron law. It is possible that combatants could come to agree that they are relatively evenly matched and divide accordingly. These cases could make long-term peace more

likely, though they may still be subject to commitment problems. Despite convergence of expectations on an equal distribution, exogenous shocks during the negotiation process may be more precarious than if combatants are not evenly matched. Indeed, if the conflict is highly asymmetric, then exogenous shocks are not likely to substantially alter the weaker party's beliefs that it could prevail in a return to war. However, exogenous shocks to an evenly matched set of combatants could substantially alter both the capabilities of each party and their incentives to misrepresent, thus making renewed conflict a realistic possibility.

Other complications could exist when combatants' beliefs converge, but they are nonetheless close to parity. It may be unclear which side should disarm or how military and political integration should occur. Belligerents may avoid making agreements that will put them at a disadvantage in future bargaining and, instead, attempt to regroup and rearm rather than negotiate and demobilize, such as occurred on more than one occasion in Sri Lanka over the course of several decades. This prospect may be most consequential when parties are close to parity as long-term majority control of government, military, or territory is often at stake and difficult-to-observe strategic considerations play a more prominent role.

### *Multiple Actors*

Uncertainty over the distribution of power as manifested in stalemates is just one way in which information problems appear. In wars with more than two combatants, information problems can be severe (Cunningham 2006; Walter 2009). When multiple actors engage in battle with each other, whether separately or in coalitions, capability and resolve may be more difficult to assess than they would be in maximally dyadic conflicts. But perhaps more importantly, uncertainty over the continued costs of fighting may be key to actors' decisions to cooperate or continue violence.

When multiple actors compete against each other in the process of a war, actors likely face greater informational challenges regarding the consequences of continued fighting. That is, as the war appears likely to go on for a long time among a variety of actors, the expected costs of continued fighting may become prohibitive, thus making each combatant's expected value for continued fighting decrease relative to its expectation for settlement.<sup>7</sup> As the expected value of fighting a long war decreases, it is more likely that combatants will choose to negotiate with each other in an attempt to forestall a long and costly war. In such a case, negotiations could occur before information problems have been fully resolved. And yet despite being an impetus for negotiations, there are compelling reasons why negotiations may fail in the presence of multiple actors.

If combatants choose to negotiate, information about the distribution of power and the costs of fighting should be revealed during the negotiations, which could lead to fewer incentives for combatants to reject a proposed peace agreement. On the other hand, with multiple actors, extremists can undermine moderates (Kydd and

Walter 2002; Lake 2002), spoilers can emerge more easily (Stedman 1997), the bargaining space can shrink, information asymmetries can persist, and parties could shift allegiances prior to reaching agreement (Cunningham 2006). If agreements are somehow reached in a multi-actor war, in the absence of a resolution of the information asymmetries, understanding the true capabilities and resolve of all the actors would be difficult. Thus, obtaining fully implemented agreements should be less likely in multi-actor environments. This discussion of the multiplicity of actors leads to the following hypothesis:

*Hypothesis 2:* In multi-actor wars, combatants are more likely to negotiate over an end to the war but less likely to reach a peaceful agreement or implement the agreement, if signed.

### *Information and Credible Commitment Problems*

The discussion, thus far, has focused on potential obstacles to the information revelation process that affect the intermediate and ultimate outcomes of the war. According to Walter (2002), credible commitment problems might trump the importance of wartime dynamics, such as the information revelation process. While a full discussion of third parties is beyond the scope of this article, I consider one implication of the discussion above: if information problems are not resolved, then third parties will have an even more difficult time resolving commitment problems.<sup>8</sup>

Strong security guarantees can help solve commitment problems (Hartzell, Hoddie, and Rothchild 2001; Walter 2002), especially if third parties agree to enforce an agreement that belligerents prefer to continued war (Werner and Yuen 2005). But even security guarantees might not be successful in the long run if they contribute to the information problems by disrupting the flow of information, or if underlying information problems among the combatants have not been fully resolved. That is, security guarantees are not likely to result in an implemented agreement if information failures continue in the postagreement period. Thus, security guarantees might only be weakly correlated with long-term success of the implementation period, once accounting for information failures. If information problems have not been resolved because of a stalemate, as suggested in Hypothesis 1, I also hypothesize:

*Hypothesis 3.* Agreements are less likely to be implemented if a stalemate occurred during the war, even if a third-party security guarantee is present.

### **Research Design**

The dependent variable is an ordered, sequential scale measuring the stages of the peace process (0 = *negotiations not started*, 1 = *negotiations held*, 2 = *agreement*)

reached, and 3 = *successful implementation*). Given that the outcomes of the peace process are both ordered and sequential, I estimate “nested dichotomies” (nested logit specifically) to capture this process accurately. Ordered logit, unlike nested logit, does not capture interdependencies among the possible outcomes.<sup>9</sup> More to the point, ordered logit does not distinguish ordered *sequential* outcomes from ordered outcomes (Johnston and DiNardo 1997, 414). Scholars typically use ordered logit (or ordered probit) on ordered scales for which the beginning and end points do not denote any time sequence.<sup>10</sup>

Ordered logit is problematic for peace process data because there is not only order to the values of the outcome variable but there is an implied temporal sequence as well. Groups must first decide to negotiate, then reach an agreement, and finally implement the agreement. Suppose one inverts the order of the scale? The result is nonsensical. One cannot assume that implementation must occur prior to an agreement, which must occur prior to a decision to negotiate. Thus, an appropriate statistical technique would account for the selection effects created by the interdependencies. Nested logit, a specific form of “nested dichotomies” (Fox 1997), accounts for such effects.<sup>11</sup> A more detailed discussion of how nested logit is set up and identified is contained in the appendix, along with variable descriptions and coding rules.

The statistical analysis is based on the civil wars identified by Doyle and Sambanis (2000). Their coding is similar to standard codings except that the battle-death threshold (1,000) needs to be satisfied over the course of the entire conflict, rather than each year, and wars are collapsed if less than two years separate them. Most of the data match Walter’s (2002) original data on 72 civil wars for the 1945–1992 period.<sup>12</sup> I also incorporated the wars that occurred following 1992 from Doyle and Sambanis (2000), bringing the total number of civil wars in the sample to 116. The civil war phase is the unit of analysis, with 116 observations in the first stage, 70 observations in the second stage, and 48 observations in the third stage for a total of 234 total observations.

The dependent variable resembles Walter’s (2002) coding of the three-stage decision process. Her coding requires the inclusion of *all* major parties and that they negotiate and implement agreements in “good faith.” Because cooperation can occur among subsets of combatants, in my sample negotiations are coded if some subset of the main parties met face to face and discussed a political solution to the war and a political solution that emerged from negotiations is coded as a peace agreement (excluding ceasefires). If there was no return to major violence for five years, and the parties at least partially implemented the terms of the agreement, then the case is coded as being successfully implemented. Identifying negotiations in good faith is not straightforward, as parties might have “devious objectives” (Richmond 1998), including the use of violence to extract negotiations. Such behavior might appear suspicious and would be excluded when possibly it should not be. Thus, including the full set of peace processes in which parties negotiate, reach agreements, and/or attempt to implement the agreement is important.

The primary explanatory factors in the theoretical argument relate to factors that affect the information structure during the war. Because expectations are group-level

phenomena, they are difficult to measure in the aggregate. Thus, to operationalize the role of capability and resolve, I focus on measuring key systemic factors such as the distribution of capabilities or information about the capabilities, which help me capture the underlying logic of the argument.<sup>13</sup> I also use measures of third-party involvement, such as security guarantees (Walter 2002). Because all hypotheses state clear directional expectations, one-tailed significance tests are reported in each table.<sup>14</sup>

I use a limited number of additional variables in the statistical model. Because I have relatively small  $n$  (116, 70, and 48 depending on the stage), overspecifying the model with too many covariates can lead to poor estimates. In the appendix, I include some additional specifications that explore the robustness of these measures.

### *Matching the Hypotheses*

The hypotheses set forth above predict likely outcomes of a settlement process based on two key concepts: the distribution of capabilities and the number of actors.

*Distribution of capabilities.* Consistent with bargaining theories of war, a group's share of the distribution of capabilities is expected to be roughly equivalent to the probability of prevailing in conflict. By extension, the share of the distribution of capabilities should be roughly equivalent to a group's share of any settlement terms. Although a measure capturing capability is likely quite important for understanding civil wars, few attempts have been made to capture the distribution of capabilities in civil wars.

Capturing an actor's capability (or the overall distribution of capabilities) has proven difficult in many quantitative studies. Statistical studies rely on indicators that are easily quantified; yet many aspects of a civil war combatant's capability structure, such as social institutions are difficult to capture. As no one measure is likely to be sufficient, I use a couple of measures to capture the overall distribution of capabilities.

The primary measure captures whether a stalemate occurred during the war. The logic behind this measure is that if a stalemate occurred, it is likely that there was relative parity between the opposing parties, but the uncertainty about the distribution of capabilities is extreme at this level (Reed 2003). When a stalemate does not occur, then this suggests that at least one actor is able to gain an advantage, which the combatants are more certain about.<sup>15</sup> The stalemate measure is likely the most appropriate for my analysis because it captures conditions later in the war close to potential negotiations. The rebel strength variable, which I explain below, is based on initial conditions of the war. Consistent with the theoretical argument, events during (but earlier) in the peace process may have important downstream consequences. I expect that if stalemates occur, then the information revelation process is stymied. Although temporary cooperation is possible, long-term cooperation is far less likely.

As a secondary measure, I also capture the relative capabilities between the government and rebels at the outset of the war drawn from Cunningham, Gleditsch, and Salehyan (2005). They code an ordinal variable with five categories that ranges from rebels being: (1) much weaker, (2) weaker, (3) parity, (4) stronger, and (5) much stronger. Because their data are dyadic, I use, as a proxy for the entire distribution of capabilities, only the measure for the strongest rebel group. In other words, if in a civil war there are two rebel groups fighting the government—one much stronger than the government and one much weaker—I code the higher of the two (much stronger). Although this approach loses information about weaker rebel groups, it is the best alternative to capture a meaningful aspect of the capability distribution.<sup>16</sup>

*Number of factions.* The importance of measuring the number of actors stems from the idea that the more actors there are, the greater the uncertainty there is likely to be about the capability structure and likely distributional outcomes (Walter 2009). I identify the relevant set of actors from the Cunningham, Gleditsch, and Salehyan (2005) data set, which codes the number of parties that participated actively in the fighting. These data are composed of all civil war dyads (government vs. rebel groups) from World War II to the present. Because my data use the civil war phase as the unit of analysis, I add up the number of rebel factions in the various dyads and then add one for the government to obtain the total number of factions.<sup>17</sup>

### *Additional Measures*

*Third-party peace interventions.* As indicated above, third parties could affect the provision of information as well as whether agreements are likely to be implemented. Third-party interventions as part of a peace mission or to provide a security guarantee are two primary ways in which third parties intervene to promote peace. Yet it is possible that third-party effects differ by the type of intervention or by the time at which they intervene. I examine the possibility that third parties have different effects depending on the stage of the peace process: during the war, negotiations, or implementation.

Furthermore, I examine the effects of United Nations (UN) or non-UN (by states) peace operations because the theory does not suggest a difference so long as the intervention is a peace operation, as opposed to a biased military intervention.<sup>18</sup> The peace operation measure is from the Doyle and Sambanis (2000) data set and ranges from no intervention to mediation, observers, peacekeeping, and peace enforcement (see Appendix for details). Increases in the values of this measure represent greater third-party commitment to the peace operation, and if third parties were involved in multiple tasks, then the highest level is coded.

In addition to the peace operation measure, I examine whether a third party made a guarantee to support (militarily) a given peace agreement. These data are based on the coding criteria in Cunningham (2006). Although peace operations and security guarantees appear similar in purpose, they differ in practice. A peace operation can

consist of actions as simple as placing observers in the civil war region or mediating a conflict. They can also include higher levels of involvement, such as a full peacekeeping mission.

A security guarantee, on the other hand, is an explicit promise by the third party to insure, with a significant number of troops, that the terms of a peace agreement are implemented and that the state does not return to war. By definition, a security guarantee represents the highest level of involvement, and it exceeds that of even many peacekeeping missions. Thus, these two measures capture different aspects of third-party involvement.

*Power sharing.* Following a substantial literature on the importance of various power-sharing pacts (Walter 2002; Hartzell and Hoddie 2003; Mukherjee 2006), I use a composite measure of power sharing based on an aggregation of political, military, and territorial pacts. These pacts refer to a variety of arrangements between parties that include, for example, agreements to share cabinet posts in a new government, the integration of military forces, and written agreements to grant and observe territorial autonomy. The power-sharing measure is a composite measure that adds the various types of pacts that are concluded (See Mukherjee 2006, 494). As pacts are not relevant during the war itself, I only incorporate them into the stage 2 and stage 3 analyses.

*Third-party military interventions.* Third-party interventions into the wars could affect the likelihood that combatants will seek an agreement (Balch-Lindsay, Enterline, and Joyce 2008). The measure helps to capture shifts in the distribution of capabilities as a result of intervention but also other reasons why third parties might have an interest in sabotaging the peaceful resolution of the war.<sup>19</sup>

## Summary of Statistical Approach

Table 1 summarizes the outcomes on the dependent variables along with their associated explanatory variables by stage. Also see the appendix for a summary of the coding of each variable as well as descriptive statistics about each one. In the next sections, I discuss the results for each of the hypotheses, and then in a separate section I consider the additional variables.

## Results

### *Stage 1: The Decision to Negotiate*

Hypothesis 1 suggests that if a stalemate occurs, no one combatant is strong enough to win outright, and the precise distribution of capabilities is far from clear. The variable capturing rebel strength also reflects on the relative distribution of capabilities, though it is measured at the outset of the war rather than closer to the time when negotiations may occur. When combatants are at a stalemate or are fairly symmetrical in their capabilities, they should be more likely to decide to negotiate with each

**Table 1.** Summary of Estimation

Stage 1	Stage 2	Stage 3
Outcome on dependent variable		
Decision to negotiate	Agreement reached	Successful implementation
Primary independent variables		
Military stalemate	Military stalemate	Military stalemate
Number of factions	Number of factions	Number of factions
Rebel strength		
Additional variables		
Peace operation	Peace operation	Peace operation
	Security guarantee	Security guarantee
Govt-biased intervention	Govt-biased intervention	Govt-biased intervention
Oppos-biased intervention	Oppos-biased intervention	Oppos-biased intervention
	Power-sharing pacts	Power-sharing pacts

other. The negotiations could be a new source of information about capabilities and resolve (Slantchev 2003), given that battlefield information is not forthcoming. The theoretical argument also predicts that as the number of actors increases, the likelihood of *deciding to negotiate* increases as well (Hypothesis 2). When there are many actors, information problems are extreme, which should motivate actors to negotiate in order to generate more information about the distribution of capabilities and resolve.

The results of the analysis support both hypotheses. Table 2 displays the results of the estimation of the likelihood that negotiations will be reached. The estimated coefficients show that the stalemate measure and number of factions measure are statistically significant; the rebel strength variable is significant at the 0.1 level ( $p = .054$ ). The predicted probabilities, furthermore, show nontrivial increases in the probability of negotiations, given shifts in the values of the covariates (when all other covariates are held at their mean or mode for dichotomous variables).

A central theme in this article is the importance of a changing information structure about capabilities, resolve, or the costs of continued fighting. Key components of the information structure include outcomes such as stalemate, the capability distribution among combatants, and the number of actors involved. Consistent with Hypothesis 1, the statistical results reveal that cooperation in deciding to negotiate is more likely in the cases that reach a stalemate or that have symmetry in relative capabilities than those that do not. Both the stalemate and the rebel strength measures are substantively and statistically significant in the expected direction.

The result that stalemate encourages cooperation is similar but not identical to findings in other literatures on civil war negotiations (see a brief review in Zartman 1995, 8). For example, Zartman argues that a “mutually hurting stalemate” is necessary for negotiations to occur and lead to an agreement. A stalemate between

**Table 2.** Stage 1: Results for All Civil Wars

Stage 1: Deciding to negotiate						
Covariate	$\hat{\beta}$	SE	<i>p</i>	Covariate $\Delta$	Prob $\Delta$ (%)	Consistent
Stalemate	2.411	0.627	.000	(0 to 1)	51	YES
Number of factions	0.283	0.153	.032	(2 to 4)	11	YES
Peace operation	0.642	0.258	.007	(0 to 2)	24	YES
Rebel strength	0.519	0.323	.054	(1 to 3)	18	YES
Govt intervention	-0.472	0.507	.177	(0 to 1)	-10	yes
Oppos intervention	1.320	0.593	.016	(0 to 1)	30	YES
Constant	-3.223	0.949	.001			

Note. Stage 1:  $N = 116$ ;  $p > \chi^2: < .000$ ; Pseudo  $R^2 = .355$ ; one-tailed *p* values. yes/no = expected direction? CAPS = stat significant at 0.1 level.

parties offers information about the ability of the parties to win or negotiate in the short term, but the bargaining approach suggests that it leaves the distribution of capabilities and resolve ambiguous, especially given the fact that both can change substantially over the course of the peace process.

As rebel strength increases, the government has less of a preponderance of strength; in approximately 30 percent of the cases, in fact, the rebels are stronger than the government. When actors are at parity, the distribution of capabilities and resolve is relatively more ambiguous than if one party was clearly much more powerful than the other. Thus, each side might feel an immediate need to negotiate, but the long-term implications are not as clear-cut.<sup>20</sup>

The results of the analysis with respect to the number of actors are consistent with Hypothesis 2, but perhaps counterintuitive. They show that as the number of actors increases, the probability of cooperation also increases. Most work on civil wars in particular and other topics more generally find that as the number of actors increases, cooperation decreases (Bloom 2005; Kydd and Walter 2002). According to the theoretical argument, given that there are so many actors, information problems are extreme, especially as they relate to the continued costs of fighting. Negotiations offer a means by which combatants can avert a long war and also reduce uncertainty about capabilities and resolve. In the Democratic Republic of the Congo in the late 1990s, for example, there were a number of parties in the conflict (up to ten depending on when, and who, one counts). Over the course of the war and the peace process (between 1998 and 2002), there were at least ten different sets of negotiations between the various parties. Although counterintuitive, the argument offers an explanation about why this is the case: negotiations might be an attempt to avert an otherwise much longer war and can provide another, potentially richer, source of information.

Because groups have to pass through earlier stages in order to arrive at the later stages, the set of cases at stages 2 and 3 are likely stalemated and closer to parity in

**Table 3.** Stage 2 Results for Civil Wars that Reached Negotiations

Stage 2: Reaching an agreement						
Covariate	$\hat{\beta}$	SE	<i>p</i>	Covariate $\Delta$	Prob $\Delta$ (%)	Consistent
Stalemate	-0.363	0.797	.324	(0 to 1)	-1	yes
Number of factions	-0.025	0.259	.462	(2 to 4)	0	yes
Peace operation	-0.365	0.288	.103	(0 to 2)	-2	no
Security guarantee	1.755	1.428	.109	(0 to 1)	3	yes
Power sharing	1.516	0.463	.001	(0 to 1)	14	YES
Govt Intervention	2.342	0.966	.008	(0 to 1)	19	YES
Oppos Intervention	-2.208	0.981	.012	(0 to 1)	-19	YES
Constant	0.266	1.059	.401			

Note. Stage 2:  $N = 70$ ;  $p > \chi^2$ :  $< .009$ ; Pseudo  $R^2 = .468$ ; one-tailed  $p$  values. yes/no = Expected direction? CAPS = stat significant at 0.1 level.

their capabilities. Thus, when estimating the impact of the various covariates in later stages, the analysis is capturing variation within an already more symmetric set of cases that also includes higher numbers of actors. According to the theoretical argument, this may make any peace agreement more difficult to reach and implement.

### Stage 2: The Conclusion of an Agreement

Table 3 displays the results for the analysis of the decision to sign a peace agreement. The estimated coefficients and  $p$  values show that the presence of a stalemate and increasing the number of factions have no significant effect (substantively or statistically) on the likelihood of cooperation. Proposed power-sharing arrangements do have a strong impact on the likelihood of signing a peace agreement, however.

Hypothesis 1 suggests that actors experiencing a stalemate or relative symmetry in capabilities are less likely to cooperate than actors in wars that did not experience a stalemate. The finding for the stalemate measure supports the directional expectation in Hypothesis 1, but it is not statistically significant. This result casts doubt on the importance of the mutually hurting stalemate hypothesis. Instead, my analysis suggests that stalemates produce ambiguities about capabilities and resolve, which encourage negotiations, but are not conducive to taking the important step of reaching a peace agreement.<sup>21</sup>

Hypothesis 2 states that as the number of actors increases, the likelihood of reaching an agreement, given that actors have decided to negotiate, should decrease. Although many actors might be more willing to negotiate to avert war or reduce uncertainty about capabilities, numerous factors, such as spoilers and extremists or a smaller bargaining space, could prevent multi-actor wars from reaching an agreement. The results of the analysis are consistent with the directional expectation, but are not statistically significant.

**Table 4.** Stage 3 Results for Civil Wars that Reached an Agreement

Stage 3: Implementing the agreement						
Covariate	$\hat{\beta}$	SE	$p$	Covariate $\Delta$	Prob $\Delta$ (%)	Consistent
Stalemate	-1.594	0.687	0.010	(0 to 1)	-32	YES
Number of Factions	-0.418	0.210	0.024	(2 to 4)	-16	YES
Power Sharing	0.533	0.252	0.017	(0 to 1)	11	YES
Peace Operation	0.587	0.278	0.018	(0 to 2)	23	YES
Security Guarantee	0.821	1.024	0.212	(0 to 1)	14	yes
Govt Intervention	-0.235	0.796	0.384	(0 to 1)	-5	yes
Oppos Intervention	-0.478	0.923	0.303	(0 to 1)	-9	yes
Constant	1.018	1.052	0.167			

Note. Stage 3:  $N = 48$ ;  $p > \chi^2: < .013$ ; Pseudo  $R^2 = .304$ ; one-tailed  $p$  values. yes/no = Expected direction? CAPS = stat significant at 0.1 level.

Findings in other studies suggest that, similar to my argument, the number of actors should be negatively correlated with the likelihood of reaching an agreement. Cunningham (2006), for example, finds that the more “veto players” there are, the longer the duration of a war. Although his focus is on the duration of civil wars, his general finding is that the more actors there are, the more difficult cooperation becomes.<sup>22</sup>

### Stage 3: The Implementation of the Agreement

Table 4 displays the results for the analysis of the implementation of a peace agreement. The statistical results for this stage are generally consistent with Hypotheses 1 and 2. Hypothesis 1 contended that wars in which a stalemate occurred are less likely to result in an implemented arrangement. The results of the analysis strongly support this contention and show that stalemates are negatively and significantly related to implementation of peace agreements. The logic behind this claim and the associated results is that stalemates create ambiguities about the distribution of capabilities or resolve, which lead to “inherently risky” agreements, which is consistent with some arguments and findings in the interstate war context (e.g., Box-Steffensmeier, Reiter, and Zorn 2003; Werner and Yuen 2005). Although stalemates make conflicts ripe for negotiations, we should be concerned about the long-term viability of any agreements that occur because of persistent disagreement about capabilities.

Hypothesis 2 states that as the number of actors increases, the likelihood of successfully implementing an agreement, given that actors have negotiated and reached an agreement, decreases. As outlined above, if agreements are reached in multi-actor wars, it is not likely that information problems were fully resolved, or it is also possible that significant changes (e.g., spoiler emergence or shifting alliances) occurred with at least one of the actors following the peace agreement, leading it to seek a renegotiation of the terms or pursue outright victory.<sup>23</sup>

Hypothesis 3 suggests that even though third parties can often encourage peace by securing credible commitments, if information problems are not resolved, then third parties are not likely to be successful. To test this hypothesis, I interacted the stalemate variable with security guarantees and also with UN peace operations. This test does not separate information and credible commitment problems, but allows a test of whether commitment problems are more difficult to resolve in the presence of continued information problems.

I consider each interaction term in two separate regressions and find that the results strongly support the hypothesis. When a security guarantee and stalemate are both present, implementation is much less likely ( $\beta = -15.962$  and  $p = .000$ ). When a stalemate and peace operation are both present, the result is similarly strong ( $\beta = -8.021$  and  $p = .000$ ). While this analysis does not pretend to sort out all of the differences between information and credible commitment approaches, the result is striking in that it suggests that information problems may be as important as credible commitment problems. And the result is indirectly related to some of the work on imposed settlements of interstate wars in that it suggests that efforts to impose settlements may not work if information problems are not fully resolved.

### *Additional Analyses*

When third parties engage in peace operations during a war, it appears that negotiations are indeed more likely to occur. The costs of entering negotiations are not prohibitive and, moreover, third parties can provide further incentives to come to the table.<sup>24</sup> In the Israeli–Palestinian and Israeli–Egyptian conflicts, for example, it is evident that third parties, especially the United States, were able to get the combatants to the negotiating table fairly easily over the course of many years.

At stage 2, peace operations have a negative effect on the likelihood of reaching an agreement, although the result is not statistically significant. This may reflect the interruption in the flow of information, which discourages cooperation at the agreement phase. The security guarantees measure has a positive effect, but is also not statistically significant. Interestingly, the sign on the peace operations measure is in the opposite direction from stage 1. It appears that if third parties engage in some form of a peace operation, then negotiations, once begun, might break down more easily. There is potentially some interdependence in the third-party results; these factors may also have different effects at different stages.

Conditional on reaching an agreement, third parties positively affect the likelihood of successful implementation. Peace operations are now positively and significantly related to the likelihood of cooperation, consistent with findings in much of the existing literature on war resolution. Although the security guarantees measure is positively related to successful implementation, it is not statistically significant. It is possible that security guarantees do not provide a strong explanation in cases where information revelation did not occur fully, which is what the nested logit should help capture, though more research is needed.

That third-party peace operations have different effects at different stages is an interesting finding and builds on the findings of Greig and Diehl (2005), who find that peacekeepers often become obstacles before agreements are reached. However, their findings are stronger for interstate, rather than civil wars. It also connects well to Doyle and Sambanis (2006) who find differential effects for third parties before and after agreements. Taken together, these results suggest that past research may have overemphasized, or at least has not clearly identified, the role of third parties throughout an entire peace process.<sup>25</sup>

In addition to third-party peace operations and security guarantees, the analysis controls for third-party military interventions. The results in stages 1 and 2 suggest that the addition of outside combatants provides mixed incentives for internal combatants to pursue negotiations and agreements. Military interventions have been shown to increase or decrease the duration of civil wars (Regan 2002), presumably by altering the capability structure or expectations about the distribution (Akcinaroglu and Radziszewski 2005), though this has proved difficult to measure (Hegre 2004).

It is often unclear how much military support third parties provide, what the existing capability distribution is, and how the increase or decrease of capabilities occurs. If the opposition is weaker than the government prior to the intervention, then an opposition-targeted intervention increases the strength of the rebels and brings them closer to parity. If the government is believed to be stronger than the opposition prior to an intervention, then a government-targeted intervention increases the capability of the government and leads to an even more asymmetrical situation. Opposition-biased interventions have a positive and statistically significant effect on the likelihood of negotiations. Government-biased interventions that presumably widen asymmetries, on the other hand, have a negative, but not statistically significant effect on the likelihood of negotiations. When including government- and opposition-biased intervention measures into stage 2 of the analysis, the opposite occurs. This is consistent with what we might expect from the logic that parity encourages negotiations, but not agreements or implementation and vice versa.

Power-sharing arrangements should provide information about the relative distribution of capabilities and resolve and also reduce incentives to misrepresent, making peace agreements and the implementation of those agreements more likely.<sup>26</sup> In the statistical analysis, power sharing is strongly and positively related to decisions to reach an agreement. The more extensive the power-sharing arrangements, the greater the likelihood of cooperation. This finding reflects the robustness and inclusiveness of a proposed peace agreement as well as information about the combatants. Among other things, power-sharing arrangements institutionalize the capability structure and make the realization of distributional gains, based on each party's relative capabilities, more likely.

Disproportionately strong groups do not need to agree to power-sharing arrangements; their usefulness is most evident in cases of power parity. A tabulation of the power-sharing arrangements and initial rebel strength shows that only 10 percent of

power-sharing arrangements occur between parties at the extremes of asymmetry (rebels much weaker or stronger), which supports my contention that peace processes are comprised of multiple interdependent stages. In a disproportionate share of wars in which combatants negotiate, the combatants are closer to power parity. It is also these cases that leave the most ambiguity about the distribution of capabilities (Reed 2003), which might provide an explanation for why negotiated settlements are often so brittle (Downes 2004).

It is possible that power sharing is not an accurate proxy for the capability distribution or information about the capability distribution. To examine this more closely, I estimated two additional regressions with (1) the rebel strength measure as a predictor of reaching an agreement and (2) an interaction of the rebel strength and power sharing measures. In the first case, the coefficient for the rebel strength measure is positive (0.392), as expected, and the  $p$  value is .119, thus missing conventional thresholds for statistical significance. When estimating a model that interacts power sharing and rebel strength, the coefficient is positive (1.282) with a  $p$  value of .011 and a predicted change of 82 percent (for a change from 1  $SD$  below the mean to 1  $SD$  above the mean). While not conclusive, there appears to be a potential connection between power sharing and parity, at least as parity is measured prior to the war. RENAMO in Mozambique, for example, posed a significantly balanced threat to the FRELIMO government and, subsequently, was able to make arrangements for power-sharing terms in a peaceful settlement.

At the third stage, power sharing is positively related to successful implementation and is statistically significant. The results show that power sharing increases the likelihood of cooperation, which fits the logic sketched above. In general and over time, it appears that the more information that is available to the parties, the more likely it is that cooperation will result.

## Conclusion

The theoretical argument and data analysis address hypotheses about the intermediate and final outcomes of peace processes, which help define the evolution of states in the international system (Wagner 2007). I argued that stalemates and the number of actors can create bargaining challenges that result in different effects at different stages of the peace process. Overall, the results for stage 1 suggest that current studies finding a uniformly positive impact of stalemates or a uniformly negative impact for increases in the number of actors reconsider the logic of why differences in these factors might be a help or a hindrance. Just because more actors are involved does not necessarily imply that negotiations should be more difficult. Capability levels and the involvement of multiple parties might affect civil war outcomes.

The results are weakest for the stage 2 (reaching an agreement) analysis. And the results of the stage 3 analysis (implementation of an agreement) indicate that wars experiencing a stalemate are less likely to achieve an implemented peace agreement. This stands in contrast to the first stage results showing that stalemates encourage

negotiations. Further, the number of factions measure has a negative impact on the likelihood of implementing an agreement, which also stands in contrast to the first stage results. Finally, third parties appear to have a positive effect on implementation, except when a stalemate has occurred.

This analysis also finds that when groups in civil war are relatively equal in capability, the possibility of short-term cooperation is higher than long-term cooperation. This suggests an explanation for why in places such as Sri Lanka, stalemates often preceded negotiations, even though negotiations typically fell apart. It appears that in Sri Lanka, ceasefires (informal or formal) were used for little more than times to regroup and attempt to gain an upper hand. Furthermore, the civil war cases that advance to negotiations and implementation are disproportionately symmetric.

The analysis in this article considers the role of interdependent stages of peace, something that has not been considered systematically in past work. The nested dichotomies approach captures the interdependence of stages accounting explicitly for the general sequence of events, in contrast to past work using other techniques such as ordered logit (Walter 2002) or multiple stages without making the interdependence argument central and directly tested (Doyle and Sambanis 2006). Similar to Slantchev (2004), this article offers a first attempt at capturing wartime dynamics without capturing the entire sequence of battles, negotiations, and agreements. Future work could analyze more complex patterns of repeated battles, negotiations, and agreements, but substantial data collection efforts would need to be devoted to disaggregating the peace process further.

The findings encourage optimism in some respects, but pessimism in others. The clearest finding is that certain factors have different effects depending on the stage. Consistent with the bargaining logic outlined in the article, stalemates and higher numbers of actors, both of which may compound information problems, make negotiations more likely, but implementation less likely. The findings indicate that a complex set of incentives faces civil war combatants—not only during implementation but also earlier in the peace process. That certain factors have different effects at different times is striking and one with important policy implications: parties interested in conflict resolution should recognize the importance of interdependence in peace processes and attempt to insure that information problems are resolved upon reaching an agreement, or with the design of the agreement.

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## Notes

1. Strikingly, the credible commitment problem following war endings is, however, almost completely absent from the literature on ending interstate wars (with the notable exceptions of Werner and Yuen [2005]; Reiter [2009]; and Wolford, Reiter, and Carubba [2010]).
2. Reed (2003) argues that uncertainty is an explanation for wars when combatants are at parity as unobservable components of capability become crucial in this state (On this point, also see Wagner [2007, 164]). Formally, this is captured by the variance in the challenger's estimate of the distribution of power where highest variance occurs at parity. In a similar, but not identical vein, power-transition theory (Organski and Kugler 1980) contends that war is more likely when two states are at parity, but the emphasis is on observable capabilities and dissatisfaction with the status quo.
3. Focusing only on a single stage of a peace process might create selection problems and obscures many important features of the peace process that shape combatant decision making. In particular, important processes occur well before the attempted implementation of a peace agreement that can directly affect implementation success.
4. Interdependence conceptualized as such shares some similarities with the idea of path dependence (David 1985; Pierson 2000), a topic that may be worth theorizing and testing in future research.
5. On the complex, but potent, repertoire of capabilities, see Findley and Edwards (2007).
6. Although my primary concern in this article is the implementation of negotiated agreements, an extension of the logic suggests that recurrence of war should be less likely following decisive military victories because they reveal fairly unambiguous information about the distribution of capabilities. Work in this vein (Toft 2009) seems to offer empirical support for the proposition.
7. An alternative argument could be that multilateral wars allow costs to be more widely distributed across actors. This is likely more applicable in the context of interstate wars where multilateralism and alliances allow such costs to be spread out. In civil wars, multilateralism is, at best, very weak as rebel groups often fight among themselves as much as they fight against the government (Cunningham, Gleditsch, and Salehyan 2009). Thus, each rebel group must not only bear the costs of fighting a larger set of actors but also of learning about these various actors from their own interactions as well as the interactions of other sets of combatants.
8. Third parties can also play a role in the information revelation process, potentially revealing information (Kydd 2003, Rauchhaus 2006) about capabilities or resolve, but possibly impeding the information revelation process (Werner and Yuen 2005). But disentangling third-party effects on information revelation from the more familiar credible commitment problems (Walter 2002) that third parties can affect is difficult. The two are difficult to

separate, but to focus adequately on the distribution of power and the number of actors, a theoretical treatment of third parties is beyond the scope of this article.

9. Walter (2002) uses ordered logit to test her hypotheses because of the small number of cases. Fortunately, more data are now available that make a nested logit test possible.
10. In studies of American politics, for example, researchers use ordered logit to scale party identification. The scale may span from “strong Republican” at one extreme to “strong Democrat” at the other. This type of scale does not require that earlier values be reached first. In other words, all respondents are not required to be “strong Republican” first, then “weak Republican,” and so on until they arrive at “strong Democrat.” The scale could just as easily be inverted to begin with strong Democrat and end with strong Republican. The only consequence is a corresponding inversion of the signs on the coefficients.
11. This discussion of nested dichotomies draws heavily from, and relies almost exclusively on, Fox (1997). Note that this approach does not consider the complex sequencing and timing of multiple rounds of negotiations and agreements. Valid sequential data on recurrent patterns of battles, negotiations, and agreements are not available cross-nationally and, even if available, would be extremely complicated to analyze. As one example, combatant groups could be fighting and negotiating simultaneously, making even a Markov transition model difficult to estimate. Thus, nested logit provides a reasonable means of capturing the basic sequence of the peace process and is an improvement over what has been used previously, namely ordered logit, which does not capture any sort of sequence.
12. Although data sets on civil war generally differ considerably (Sambanis 2004), the degree of overlap between these sources is extremely high.
13. While interests or resolve are likely important factors during war and insurgency (Mack 1975; Fearon 1995), because of measurement problems, I limit my attention to the capability dimension here. Of course, measuring capabilities is also difficult, but more manageable and so I devote extra attention to capturing it here.
14. Actual  $p$  values, rather than asterisks, are reported to facilitate more precise interpretation of the results, including two-tailed tests. In two-tailed tests, results are qualitatively similar in nearly every case.
15. According to Mukherjee (2006, 495), the stalemate measure captures when “the battlefield situation . . . was described as an ‘impasse’ or stalemate” or when there was an informal truce because of a stalemate.
16. One alternative to the ordinal variable is a measure of the ratio of rebel troops to government troops. Unfortunately, there are considerable missing data, which limits the utility of this approach. Even splicing together measures from different data sets leaves many missing values. Such a measure also has difficulty capturing guerrilla forces that are typically extremely difficult even to identify. Furthermore, one has to question the validity of the various measures of troops that currently exist, as they differ drastically in many cases. For example, two separate measures of the number of opposition troops involved in the Chinese civil war differ by more than 500,000 troops (Regan 2002; Cunningham, Gleditsch, and Salehyan 2005). This is an extreme example, but in general there is significant variation across a number of cases. Other options to capture the distribution of capability include transforming the variable by aggregating (averaging) all the dyads. Yet

this approach is not satisfactory because the measure is ordinal. Although it is common in the social sciences to use ordinal variables in regression analysis, statisticians generally argue that ordinal variables should not even be used in regression contexts. Thus, transforming an ordinal variable stretches the limits of good statistical practice. Despite this, for the sake of evaluating the robustness of the measure, I do use one transformation of the variable that is somewhat justifiable and explain this in the “robustness” section of the appendix.

17. There is significant overlap between the Cunningham, Gleditsch, and Salehyan (2005) cases and the civil wars in the Doyle and Sambanis (2000) data set. In the few instances where they do not overlap, I use Doyle and Sambanis’s coding of the number of factions. I also check the robustness of the analysis using Doyle and Sambanis’s measure for all the wars, and the results are very similar.
18. Note that others have argued that the choice of third party might matter. For example, some literature suggests that the choice of biased or trustworthy mediators is important (e.g., Kydd 2003). In a separate vein, I note that peace operations could occur because of decisions to negotiate rather than being the impetus for negotiations. Because peace operations are outside the scope of this article’s theory, future research could usefully sort out the interdependent causes and effects of peace operations over the course of a peace process.
19. Notably, shifts in the distribution of power are often highlighted in the context of credible commitment problems. Because third-party interventions are not the focus of this article, I remain agnostic about whether the interventions contribute to information or commitment problems.
20. Note that because rebels can be stronger than the government, the rebel strength measure does not precisely capture the hypothesized relationship. In the robustness section, I discuss a variable transformation that allows me to more accurately to address this. The results are much stronger, lending even further confidence to the hypothesized relationship. I do not use the transformed variable in the main analysis because it reduces the categories on the ordered variable from 5 to 3, which further strains statistical assumptions.
21. In the stage 1 analysis, I use a measure of rebel strength to capture the relative symmetry in the distribution of capabilities, but it is not likely to be the best measure at this stage (or during implementation). The rebel strength indicator, which is measured at the beginning of the war, applies better to earlier stages. Once parties are actively negotiating, significant changes have likely occurred both to decrease capabilities (in battle) or increase capabilities (in the absence of costly fighting). Thus, by the agreement and implementation stages, rebel strength may have decreased or increased substantially.
22. Although we should not read too much into a “nonresult,” the potential empirical finding that the number of actors does not matter at least suggests that future research examine this more closely. It is also possible that there is simply a complex nonmonotonic relationship that this analysis is not able to explain. In sum, the finding is inconsistent with the hypothesis, but neither the expectation nor the result is precise.
23. Note that the results are quite robust to different model specifications, such as excluding power-sharing arrangements.

24. To be sure, negotiations could be costly in some cases, especially if some political constituencies favor a more extreme stance.
25. To consider uncertainty-reducing third-party measures (Mattes and Savun 2010), I controlled for UN mediation and observers. The direction of each result is similar to the peace operation variable in the direction, but the statistical significance attenuates in the second and third-stage models. In stage 1, mediation and observation are strongly correlated with the decision to negotiate.
26. Although not writing about civil wars, per se, Stinchcombe's (1999) argument that government formation reflects power distributions has application to power-sharing arrangements and helps justify using the power-sharing measure the way I do.

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