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Military Strategy, Private Information, and War*

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In conventional crisis bargaining models, bluffing provides the primary rationale for states to misrepresent their private information, and war occurs because strong states are unable to credibly demonstrate strength to their opponents. Here, I argue that military strategy supplies an alternative reason for states to misrepresent their private information. Both strong and weak states may misrepresent themselves because of the battlefield benefits of fighting against an uninformed opponent, who may choose a suboptimal military strategy. Under appropriate conditions, the military gains for concealing information exceed the diplomatic gains available for revealing that information. Thus, states will choose to keep secrets and fight. To demonstrate this, I incorporate military strategy into the standard bargaining framework, showing that military concerns incentivize both strong and weak states to conceal information, even when they are able to reveal that information costlessly and credibly. As in the usual model, war may occur when states underestimate their adversaries, but it may *also* occur when states overestimate their adversaries. I further show that a mere willingness to fight does not reveal that a state is strong. I conclude the paper with two brief case studies.

In the summer of 1862, during the U.S. Civil War, Confederate armies under Braxton Bragg and Edmund Kirby Smith began a campaign in Kentucky. Among other objectives, they hoped to cut Union supply lines, which passed over a railroad bridge in the town of Munfordville (Brown 1999). On September 13, a brigade of 2,000 Confederate cavalrymen approached the town, which about 1,200 Union infantry defended, and demanded its surrender; the Union forces refused. The next morning, the Confederate force, which had doubled in size through infantry reinforcements overnight, attacked the town, but was repulsed after a bloody defeat (Barnett 1971). Following the battle, the Confederate commander sent a note to the Union commander, John Wilder, in which he again demanded that the Union forces surrender, citing the proximity of Bragg's much larger Confederate force (Scott 1886:961). Wilder "was not to be so easily bluffed," and again refused (McDonough 1994:169).

In fact, Bragg's army was nearby. After learning of the defeat, Bragg marched on Munfordville with his full strength of about 24,000, arriving on the 16th (Barnett 1971). Bragg then sent another demand for surrender, advising Wilder that he was "surrounded by an overwhelming force" (Scott 1886:968–969). The Union officers prepared to refuse, but Wilder agreed to meet with Simon Buckner, one of Bragg's commanders, to discuss the matter. Wilder, in his memoir, recalls his response to Buckner's reiteration of the demand to surrender: "I answered him…that we had been summoned four times to surrender, with like assurances of their power to compel it, and we at each time successfully repelled their attacks, and that I would not surrender to any one without absolutely knowing…of our inability to resist" (Wilder 1908:302).

Wilder's response neatly encapsulates the dilemma outlined in contemporary models of costly conflict as a response to private information—he preferred surrender to fighting a strong opponent, but only the Confederates knew the actual strength of their forces, and given Confederate incentives to bluff, Wilder had no reason to believe claims of strength. Thus, our present theories hold a clear prediction—Wilder should have declined to surrender, whereupon the Confederates should have attacked and won, though at a regrettable cost for both sides.

This prediction, however, fails; private information did not prevent successful bargaining. In his response to Buckner, Wilder also argued that if the Confederates were as strong as claimed, "there could be no reason why [he] could not go around and see this overwhelming force" (Wilder 1908:302). Buckner agreed and allowed Wilder to ride along the Confederate lines with him, observing the forces arrayed against his position and counting the number of Confederate artillery emplacements (Brown 1999). The ride "convinced [Wilder] that his position was hopeless," and he agreed to surrender (McDonough 1994:180). In short, Buckner used a credible, costless mechanism to reveal his strength to Wilder, thus proving that he was not, in fact, bluffing. The two forces therefore avoided a costly battle.

The pages of military and diplomatic history abound with similar cases. At the siege of Fort Niagara in 1759, the British allowed the French commander to meet with the defeated officers of a French relief force to confirm the balance of power (Emerson 1909:42). Bismarck made a famous choice in 1887, during difficult negotiations with Russia, to show the Russian ambassador a copy of his secret treaty with Austria, thus "compelling Russia to accept his terms" (Weitsman 2003:103). These few examples underscore a basic point: Soldiers and leaders have historically found diverse ways to credibly reveal private information about their capabilities without much cost.

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Scholarship in the rationalist tradition shows that private information, when combined with "incentives to misrepresent" that information, can lead states to engage in costly conflict—even when bargains exist that both sides prefer to war (Fearon 1995:381). In most existing versions of this argument, weak states face incentives to misrepresent their private information because bluffing may allow them to achieve better terms than admitting weakness. In these models, however, weak states do not fight. The strong states, who do fight, would always reveal their strength if allowed to do so, because revealing strength would allow them to extract maximal concessions from an opponent. Consequently, allowing states to credibly reveal strength would eliminate the risk of conflict; strong states would reveal their type and weak types would be unable to bluff, as failing to demonstrate strength would signal their weakness.

In this article, I formalize an alternative motive for states to misrepresent private information. I show that military strategy supplies a reason for both strong and weak states to conceal information about their capabilities. This holds even in a setting that makes credible, costless revelation, like Wilder's ride with Buckner, possible. In general, when a state reveals information about its capabilities, this information will change an opponent's willingness to grant concessions. If revealing this information does not affect the probability of victory, then strong players will always be willing to demonstrate their strength, after which they will receive a favorable bargain. When military strategy matters, however, the probability of victory will depend on the strategies chosen by each side. Thus, revealing information may change the probability of victory.

The selection of military strategies depends on the information available to each player. An uninformed player may choose a suboptimal military strategy, conferring a battlefield advantage on his opponent, but an informed player will not make this mistake. Consequently, revealing information to an opponent reduces a state's expected probability of victory by increasing the probability that the opponent will use this information to select an optimal military strategy. Consequently, a state may actually receive a higher payoff for concealing information and fighting under incomplete information, given that this may lead to suboptimal military choices by the opponent, than it can receive by revealing information in order to reach a bargain that secures some of the surplus for avoiding war. As a result, war becomes possible even when costless, credible mechanisms for revealing strength are available.

The implications of this argument diverge in several important ways from the traditional consequences of modeling war as a result of private information. Most importantly, war can occur as the result of either false optimism (underestimating an opponent's capabilities) or false pessimism (overestimating an opponent's capabilities). This result stems from the simple military fact that overestimating an opponent may lead a state to overdefend against infeasible attacks. In doing so, they divert the resources necessary to adequately defend against feasible attacks. While overestimating an opponent *should* increase a state's willingness to make concessions, I show that the willingness to make concessions does not always rise sufficiently rapidly to offset a state's potential gains from fighting against an uninformed opponent. This dynamic leads to conflict. Second, and relatedly, the mere willingness to fight in this setup fails to separate strong and weak types. In equilibrium, conflict only occurs under circumstances where both strong types and weak types fight with positive probability. Consequently, the updating process after observing that an opponent wishes to fight proves considerably different than in the conventional setup. These results combine to extend the informational theory of conflict beyond its roots as a theory of optimism (Blainey 1988). In the remainder of the paper, I briefly review the literature on information and conflict, present a formal model incorporating uncertainty about military-strategic options, and provide two brief case studies of the Gulf War and Seven Years' War that illustrate the equilibria of the model.

Information and Conflict

Private information serves as one of the central explanations for war in the modern rationalist tradition (Fearon 1995). More recent bargaining models show the conditions under which private information leads to conflict and include relaxations of many of the original assumptions. Some of these models, for example, allow bargaining to continue during fighting (Wagner 2000; Filson and Werner 2002, 2007; Slantchev 2003; Powell 2004; Langlois and Langlois 2012), explore more sophisticated bargaining protocols (Powell 1996; Leventoğlu and Tarar 2008), allow the probability of victory to depend on endogenous mobilization levels (Slantchev 2005), or allow states to invest resources to learn about their opponents' capabilities (Arena and Wolford 2012). Importantly, however, none of these models allow states involved in bargaining to credibly reveal their private information, so bluffing supplies the central motive for states to misrepresent their types.[1] While the bargaining literature focuses on contexts where information revelation is not possible, a related body of work examines constraints on the ability to bluff, notably those supplied by the ability to generate domestic audience costs and send other costly signals (Fearon 1994; Weeks 2008; Tarar and Leventoğlu 2009). These and other signaling models show that the ability to reveal information generally reduces the risk of war, calling further attention to the incentive for strong states to find a way to separate from weak states.

A handful of alternative approaches focus attention away from bluffing, and the related issue of screening. Smith and Stam (2004) argue that conflict may occur in a context where states "agree to disagree" about the probability of victory. In their model, there is no private information, so bluffing is irrelevant. Instead, states disagree as the result of differences in their theories about how capabilities translate into outcomes. Like the approach taken here, this directs attention away from beliefs about the gross balance of forces and toward beliefs about force employment strategies, but the model here uses private information, rather than divergent priors, as the source of disagreement and considers a case in which credible communication can change beliefs. A second departure from the bluffing incentive arises in Slantchev's (2010) model of "feigning weakness," in which strong states may disguise their strength in order to launch a surprise attack. In this model, however, credible revelation of information is not allowed, and allowing it would

[1] Meirowitz and Sartori (2008) do present a model in which states can reveal their military capabilities, but find that giving states the ability to perfectly reveal such information leads to a peaceful equilibrium.

eliminate the risk of war as it does in the conventional setup discussed above.[2] Perhaps more significantly, the Slantchev model involves a state's choice to "arm" (mobilize militarily valuable resources at cost) or not, while the model here involves a choice about how to employ forces pursuant to some military strategy. This distinction matters because arming increases a state's probability of victory regardless of its opponent's actions, while the effect of a given military strategy depends on the strategy selected by an opponent.

From a theoretical point of view, the bluffing incentive and its consequences are relatively well understood. In the conventional setting, where credible communication is not available, weak states are both unwilling and unable to disclose their types, while strong states are willing but unable to do so. As it becomes possible for strong states, who are willing to signal their types, to do so, bluffing loses its relevance. On the other hand, in the military-strategic setting examined here, both strong and weak states are able to disclose their type but are unwilling to do so, suggesting that the incentive to misrepresent provided by military strategy is considerably more dangerous than the one provided by bluffing.

Assumptions and Model Structure

The model begins with the assumption that war is a costly contest in which the probability of success depends on three factors: the gross balance of forces, the military strategies chosen, and the relative attractiveness of those strategies. I assume that the costs of war and the gross balance of forces are common knowledge, while one state has private information about the relative attractiveness of its military strategies. If war occurs, the states choose their military strategies simultaneously (that is, without knowledge of the other side's choice). I assume that the side with private information has the option to reveal that information and that if it does so, the two states negotiate peacefully and reach the Nash bargaining solution to divide the disputed good (an extension in the Appendix shows that alternate peaceful bargains deliver the same general results). Finally, I assume an initial bargaining process in which the uninformed state may make an offer of any size to its opponent at the outset of the game. In this section, I examine these assumptions and layout structure of the model.

Table 1 shows the payoff matrix for the stylized model of war adopted here. Two players fight over a good with a value normalized to 1, and if a war occurs, the victor receives the entire good; thus, a state's value for war is simply its probability of victory less its cost, c. For the sake of simplicity, I assume that both sides pay the same cost of war; the results are not sensitive to this choice.

Table 1. Normal Form of the War Stage

		Player 2	
		Direct (D)	*Indirect (I)*
Player 1	Direct (D)	$1 - \alpha p - c, \alpha p - c$	$1 - \beta p - c, \beta p - c$
	Indirect (I)	$1 - p - c, p - c$	$1 - \alpha\beta p - c, \alpha\beta p - c$

Within the war, each state has two generic military options—which I label "direct" and "indirect." Player 1 prefers to match Player 2's strategy, and if he does so successfully, then Player 2's probability of victory decreases by a factor $\alpha \in (0,1)$. Regardless of the options chosen, the probability of victory also depends on a parameter $p \in (0,1)$. This is easily seen as representing the overall balance of forces (and I will refer to it as such); however, it really captures *all* factors other than Player 1's strategy that influence Player 2's probability of victory if she chooses the direct approach. Finally, one of Player 2's strategies may be more attractive than the other, as represented by β, which defines the type of Player 2. Of these parameters, I assume that c, α, and p are all common knowledge, while only Player 2 knows β. I further assume that β takes on one of three substantively important values: either $\beta = 1/\alpha$, in which case I is dominant for Player 2; $\beta = \alpha$, in which case D is dominant for Player 2; or $\beta = 1$, in which case neither strategy dominates. I now turn to a more detailed discussion of these assumptions.

The first group of assumptions concerns the payoffs in the war stage, which depend on α, β, and p. Most conflict models employ a balance of forces' parameter, similar to p in this setup, but this model departs from others through the strategy-related parameters α and β. As a result of these parameters, the war payoffs depend on strategic choices, rather than just some fixed balance of power. These two parameters capture the facts that choices about military strategy matter and that a state benefits from correctly countering an opponent's plan of operations. The two strategic options here are meant to be fully generic, although the labels come from Liddell-Hart (1967:17–20). Analytically, the distinction is that the expected consequences of the direct option are common knowledge, while only Player 2 knows the expected consequences of the indirect option. I have adopted the labels direct and indirect because, substantively speaking, "direct" options in the sense of Liddell-Hart (for example, attrition) appear to be more likely to depend on common-knowledge factors than indirect options (for example, complex maneuver strategies), but in the historical cases discussed, I focus exclusively on the analytical distinction.

The parameter α captures the fact that selecting a strategy that one's opponent does not counter appropriately increases the probability of victory; we can therefore call this the value of surprise (more precisely, α represents the reduction in Player 2's probability of victory when Player 1 selects the appropriate counterstrategy, so that $1/\alpha$ is the value to Player 2 of surprising Player 1). We can easily imagine the logic here in geographical terms: It is best to attack in the north if your opponent defends in the south, but the idea applies more generally. For example, Arreguín-Toft (2001) dichotomizes strategies in asymmetric wars into "direct" and "indirect" approaches, and shows that the stronger side tends to win when both sides match strategies, while the weaker side tends to win when strategies do not match. Stam (1996) shows that the combination of strategic choices (defined as attrition,

[2] In Slantchev's model, the informed player makes a demand, after which his opponent chooses to accept or reject. After rejection, the uninformed player is permitted to arm (increasing his probability of victory) at cost; the incentive to "feign weakness" stems from the desirability of fighting an opponent who has chosen not to arm. If, however, we allowed the informed player to reveal his type when making an offer, then in Slantchev's notation, the strong type could make a demand as large as $s_a + c_2 + k_2$, which would be accepted. In Slantchev's "feint" equilibrium, the strong type receives a utility which is some weighted average of his war payoff against an armed opponent $s_a - c_1$ and his high value demand, which trivially cannot exceed $s_a + c_2 + k_2$ (or else the uninformed player would prefer to arm and fight). Thus, the strong type possesses exactly the same incentive to separate as in other models, and it is the assumption that costless, credible signals are unavailable that leads to war.

maneuver, or punishment) is highly predictive of international war outcomes, with certain pairings favoring the attacker and others favoring the defender.

Second, the parameter β, which defines the type of Player 2, also affects payoffs in the war stage. Player 2's type is either "strong," "middle," or "weak"; these types depend on whether or not Player 2 has a viable alternative to the common-knowledge direct strategy. The weak type has an indirect strategy inferior to the common-knowledge direct strategy, the middle type has an indirect strategy as attractive as the common-knowledge direct strategy, and the strong type has an indirect strategy more attractive than the common-knowledge direct strategy. The value of surprise implies that Player 2 always has a higher probability of victory when Player 1 does not anticipate and counter her strategy, regardless of type; I now provide three examples, all drawn from World War Two, to clarify these types, and the kind of uncertainty involved in the β parameter. All three examples also demonstrate Player 2's incentive to conceal information from Player 1.

First, Player 2 may be a weak type, for whom the direct option is preferable to the indirect option, even if the direct option will be correctly countered. As an example, consider the Allied position in the Mediterranean in 1943. Due to its important location, Sicily was a crucial target for the Allies, and the Allied leaders decided that taking Sicily was the only reasonable option in the Mediterranean, even if surprise could not be achieved. In fact, the Allies believed there was little chance of surprise; Churchill observed: "Everyone but a bloody fool would know [the target of the invasion] was Sicily" (Macintyre 2010:37). German commanders knew the strategic value of Sicily, and the forces available for an operation against it, but the Allies knew that successfully disguising their target would facilitate victory if it led to a shift in the German defensive posture. Consequently, the Allies launched a dramatic deception operation designed to trick the Germans into believing that the Allies had a large army in the Eastern Mediterranean poised to attack Greece (Colaresi 2014:54–55). The deception was somewhat successful and diverted German forces away from Sicily (Tomblin 2004:140), allowing an easier victory, despite the fact that the Allies never had a large force in the Eastern Mediterranean or a realistic plan for an attack on Greece (Smyth 2010:272–279; Citino 2011). The Allies were a weak type in this interaction because they had no indirect alternative as good as or better than the Sicily operation, while the Germans were uncertain because they did not know whether or not the Allies actually had the forces and operational plans in place for an attack on Greece.

Player 2 might also be a middle type for whom the indirect option is better than the direct option only if surprise is achieved. A famous example of this comes from the Allied plans in 1944 for an invasion of France. The Allies selected Normandy for their landings, despite the fact that it was much further from Britain than Calais and did not offer a deep-water port, simply because they believed that the Germans would prepare a stronger defense at Calais than in Normandy. Both sides were aware of the likely outcome of an assault on Calais, but the Allies held crucial private information about the outcome of an attack on Normandy—in particular, they had developed secret "mobile harbors," which were useless in an attack on Calais, but essential for an attack on Normandy as they allowed for resupply without the necessity of seizing a port. Albert Speer later commented that mobile harbors "made the German defense system completely irrelevant," so awareness of this technology would certainly have led to a shift in German posture (Handel 1989:145). Here, the Allies were a middle type because the mobile harbors gave them the option to attack at Normandy, but only made such an attack preferable to one on Calais if the Germans defended Calais more strongly than they did Normandy. If, for some reason, the Germans had committed to mount their best defense in Normandy, and the Allies had learned this fact, they would have switched the attack to Calais.

Finally, Player 2 might be a strong type for whom the indirect option is superior to the common-knowledge direct option even if surprise is not achieved. Consider here American strategy toward Japan in 1945. The United States could have launched an amphibious invasion of the Japanese home islands, and both sides were fully aware of the extreme costs of this strategy. Meanwhile, the Americans had secretly developed the atomic bomb, which opened up the possibility of coercing Japan into surrender at a minimal cost in American lives. While there is debate about whether or not the atomic bombings actually caused the Japanese surrender (Wilson 2007), the bombings were seen at the time as a superior military option to an invasion whether or not Japan learned of the existence of the bomb. In fact, American officials gave some consideration to demonstrating the power of the bomb in an effort to compel surrender rather than using it in a surprise attack, but discarded the idea in part because it would allow Japan to take countermeasures such as moving American POWs near atomic targets or concentrating fighters on the interception of atomic bombers (Levine 1995:162). Even in response to these countermeasures, the bomb still held out a higher probability of a cheap victory than an invasion, so its existence made the United States a strong type, but the decision was made not to reveal the bomb because its military value was higher when used as a surprise.

The second set of important assumptions concerns the information structure of the game, notably the assumptions that p and c are common knowledge while only Player 2 knows β. The assumptions about p and c are primarily an analytical choice, allowing for a focus on a novel type of uncertainty, given the numerous models already available to describe the consequences of uncertainty about gross capabilities and resolve. This knowledge structure also plausibly describes the run-up to certain cases, but if I assume that states hold an unreasonable amount of information, then this only makes it more surprising that war occurs with positive probability in the model's equilibrium, highlighting the severity of informational issues related to military strategy as a cause of a war.

I do assume that β, the relative attractiveness of the indirect strategy, is private information held by Player 2. This assumption largely corresponds to the sort of information that countries guard most closely, such as technical detail and military plans. Of course, common-knowledge factors also influence the attractiveness of the indirect strategy (for example, in the France 1944 case, the relative attractiveness of the Normandy plan was shaped both by common-knowledge aspects of geography and by private information about the mobile harbors and plans), but these common-knowledge factors can be incorporated by giving Player 1 an informative prior on β. While I assume that β is private information, I also

assume that Player 2 can reveal it if desired with complete credibility. Naturally, the assumption of complete credibility oversimplifies and distorts some cases, but it provides a clean analytical focus on the incentives involved in Player 2's choice, allowing a focus on the questions of theoretical interest. The kind of factors incorporated into β include those described above: secret technologies, information about the positioning of forces, operational plans, and so forth.

The sequence of the game is fairly simple. It is both described below and shown in the extensive form in Figure 1.

1. Nature selects the type of Player 2: "strong" ($\beta = 1/\alpha$) with probability r_{initial}, "middle" ($\beta = 1$) with probability $1 - r_{\text{initial}} - q_{\text{initial}}$, or "weak" ($\beta = \alpha$) with probability q_{initial}.
2. Player 1 makes an initial offer of size x to Player 2.
3. If Player 2 accepts the offer, the game ends with payoffs of $(1-x, x)$. If Player 2 rejects the offer, she chooses to either initiate a war or reveal her private information (in which case, the players reach the Nash bargaining solution for the division of the disputed good where the disagreement points come from the complete information war payoffs).[3]
4. If Player 2 initiates a war, then the players enter the war stage described above. The two sides select their strategies, *D* or *I,* simultaneously (though both are aware that Player 2 has chosen to fight *before* selecting a strategy). The war occurs, and the two sides realize their payoffs.

Equilibrium under Complete Information

To begin solving the model, consider the war stage under complete information, where Player 2's type is common knowledge. If Player 2 is "strong," then she plays her dominant strategy *I*, leading to a Nash equilibrium of $\langle I,I \rangle$ with payoffs of $(1-p-c, p-c)$. Second, if she is weak, then she plays *D*, leading to a Nash equilibrium of $\langle D,D \rangle$ with payoffs of $(1-\alpha p-c, \alpha p-c)$. Finally, if she is the middle type, then the equilibrium is in mixed strategies. In this equilibrium, each of the two players plays *D* with probability 1/2. A bit of algebra reveals that the payoffs for this equilibrium are $(1 - p^*(1 + \alpha)/2 - c, p^*(1 + \alpha)/2 - c)$. Notice that the war stage payoff for the strong type is strictly greater than the payoff for the middle type, which is in turn strictly greater than the payoff for the weak type.

These payoffs serve as the disagreement points if Player 2 reveals her private information, generating a surplus of $2c$, which is divided evenly under the Nash solution. Thus, the payoffs to revealing are the same as what the players would receive if they fought costlessly. By the construction of these payoffs, Player 2 always strictly prefers revealing to fighting under complete information. Given this, Player 1's initial offer is unimportant. He either offers exactly the payoff that Player 2 would receive for revealing, or makes a meaningless offer and waits for Player 2 to reveal; either way, the game ends with the "reveal" payoffs and there is no chance of war.

[3] This particular choice is unimportant to the results below as shown in the Appendix. Choosing the Nash solution and awarding half the surplus to Player 2 is a convenience that biases the model against war and allows greater clarity in the presentation of results.

Equilibria under Incomplete Information

I solve the model under incomplete information for Perfect Bayesian Equilibrium; henceforth, simply "equilibrium." The solution largely hinges on a simple, intuitive observation. Because the payoffs to Player 2 for revealing her type are anchored to those for war under complete information, she always strictly prefers a negotiated settlement to fighting against an opponent who knows her type; thus, war only occurs when Player 1 does not know Player 2's type after she decides to fight.

Lemma 1: *There is no equilibrium in which only one type of Player 2 fights with positive probability.*

Proof: If only one type fights, then Player 1's posterior will concentrate on that type, guaranteeing both players their complete information payoffs from war. This is strictly worse than revealing for Player 2, so she would instead reveal.

Lemmas 2 and 3 refine the type of uncertainty required to generate conflict. The intuition behind each resembles that for the first lemma; if the mere act of fighting reveals sufficient information about the second player's type, then she should reveal rather than fight.

Lemma 2: *There is no equilibrium in which only the middle and strong types fight with positive probability.*

Proof: First, suppose the middle type plays *I*. In this case, Player 1 uniquely best responds with *I*. The strong type always plays *I* but receives her payoff to $\langle I,I \rangle$ plus c for revealing, so she will prefer revealing. Second, suppose that the middle type plays *D* with positive probability. Against any strategy by Player 1, the weak and middle types receive the same payoff for *D*; however, the middle type receives a strictly better payoff for revealing than the weak type does; thus, if the middle type weakly prefers to fight and use a mixed strategy that places any weight on *D*, then the weak type must strictly prefer to fight.

Lemma 3: *There is no equilibrium in which only the middle and weak types fight with positive probability.*

Proof: Suppose the middle type fights and plays *D*, then Player 1 uniquely best responds with *D*. If Player 1 plays *D*, then the weak type strictly prefers to reveal. Suppose that the middle type plays *I* with positive probability. For the middle type to prefer fighting to revealing, it must be the case that $c < p\sigma_1(D) - p\alpha\sigma_1(D) - 1/2 - \alpha p/2$ (where $\sigma_1(D)$ is the probability that Player 1 plays *D* in an arbitrary mixed strategy). The strong type will prefer fighting to revealing whenever $c<(p\sigma_1(D))/\alpha - p\sigma_1(D)$, which is always satisfied if the condition on the middle type is satisfied; thus, as above the strong type will also prefer to fight if the middle type fights and selects *I* with positive probability.

These allow us to establish Lemma 4:

Lemma 4: *War is only possible if the weak and strong types both fight with positive probability.*

Proof: Combination of Lemmas 1–3.

This occurs because Player 2 only fights if she can (sometimes) catch her opponent by surprise. If the weak type never fights, then the strong types can never achieve surprise because fighting reveals strength. If fighting itself

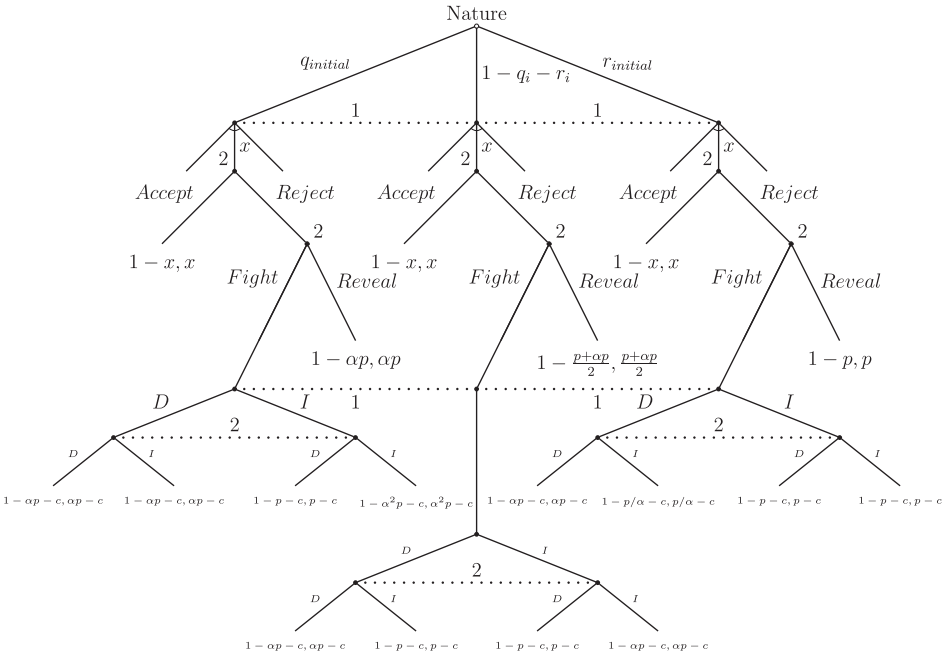

FIG. 1. Extensive form of the game.

reveals Player 2's type, then she discloses little when she chooses to reveal her type and negotiate, so she might as well do so and avoid the costs of war. Lemma 4 has an additional implication—Player 1 can ensure a peaceful equilibrium by making a "screening" offer that the weak type prefers to fighting.

Proposition 1: *In every equilibrium of the game where war is sufficiently costly or the* ***ex ante*** *probability that Player 2 is strong is sufficiently high, war never occurs. For sufficiently high costs, all types of Player 2 reveal. Given lower costs, but a sufficiently high* ***ex ante*** *probability that Player 2 is strong, Player 1 makes a war-avoiding screening offer.* The proof and precise conditions for this and all other propositions are provided in the appendix.

The cost condition is simple: War does not occur if it is so expensive that Player 2 will find it unprofitable. The second portion follows familiar logic. When deciding whether or not to make the "screening" offer, which the weak type always accepts, Player 1 faces a trade-off. The screening offer is costly because it requires providing a sufficiently high payoff to the weak type such that she will prefer not to fight even if she very likely achieves surprise. War against the weak type, however, is not especially dangerous for Player 1, while war against the strong type is quite risky. Thus, Player 1 will only pay the cost of a screening offer when the risk he will face a strong opponent is high. When he makes this offer, war never occurs. As will be shown in Propositions 2 and 3, Player 1 does not always make this offer, sometimes generating conflict.

Proposition 2 *In every equilibrium of the game for an intermediate cost of war and a sufficiently low probability of the strong type, Player 1 makes a "meaningless" offer (that is, one that is less than or equal to the weak type's "reveal" payoff), the strong type of Player 2 always fights, the middle type of Player 2 always reveals, and the weak type of Player 2 mixes between fighting and revealing.*

This equilibrium, where the middle type reveals but strong and weak fight, may surprise readers, but the reasoning is simple. While the types are ordered by their payoff for fighting, what really matters for the decision to fight is the difference between what Player 2 can expect by fighting under incomplete information and what she gets by revealing, where the bargain depends on the complete information war payoffs. Only the middle type can achieve surprise under complete information. This means that the bargain offered to the middle type reflects some of the advantages offered by surprise; consequently, the payoff for fighting and the payoff for bargaining increases for the weak and strong types, who never achieve military surprise when Player 1 knows their types. In response to uncertainty about Player 2's type, Player 1 mixes between his military options; this means that any of the types *might* achieve surprise, but as the cost of war rises, the middle type no longer values a slim chance at surprise sufficiently to induce her to fight; instead, she capitalizes on the fact that she gets a relatively competitive bargain and reveals. On the other hand, the strong type takes advantage of the opportunity to achieve surprise and fights. Finally, the weak type faces a difficult choice between fighting and revealing. She gets a particularly bad bargain for revealing but also fares poorly when fighting. Thus, in equilibrium she is indifferent between the two and will mix between fighting and revealing. Because this equilibrium only occurs when the *ex ante* probability of the strong type is low, this mixed strategy makes the ratio of strong types to weak types among actors who choose to fight more equal than it was beforehand, justifying Player 1's choice to mix.

Proposition 3: *In the every equilibrium of the game for a sufficiently low cost of war and sufficiently low probability of the strong type, Player 1 makes a "meaningless" offer and all three types of Player 2 fight with positive probability.*

This equilibrium occurs because it is possible for all three types of Player 2 to achieve some measure of

"surprise" against Player 1. Given appropriate uncertainty about his opponent's type, Player 1 adopts a mixed strategy that keeps Player 2 guessing as well. Thus, Player 2 cannot be certain of surprising Player 1, but she knows that she may do so regardless of her type; however, Player 1's strategy will involve placing more weight on one defensive posture or the other. Consequently, one type of Player 2, who achieves surprise with lower probability, faces a particularly difficult choice—to fight with relatively low odds of surprise or to reveal her type and take a bargain without paying the costs of war. In equilibrium, this type is precisely indifferent and mixes between fighting and revealing. Player 1 benefits from this outcome insofar as adopting exactly this mixed strategy allows him to avoid costly conflict whenever Player 2 opts for the negotiated solution. No military strategy can force all types into a negotiated settlement, unless combined with a costly screening offer. Given sufficiently low costs of war and a sufficiently low probability of the strong type, Player 1 declines to make this offer for the same reasons as above.

Proposition 4: *If all parameters are drawn from distributions with nonzero density across the entire range of values, then the probability of war approaches zero as* α *approaches 0 or 1.*

Recall that $1/\alpha$ captures the value of surprise, so we see that war occurs with the highest probability when the value of surprise is neither too high nor too low. This occurs because of two countervailing forces. When surprise confers large advantages, Player 1 faces a strong incentive to make a screening offer in order to avoid being taken by surprise. On the other hand, when surprise confers large advantages, Player 2 faces strong incentives to attack whenever Player 1 fails to make the screening offer; as the value of surprise falls, Player 2 gains less and less by attacking, making it more attractive for Player 2 to reveal her type and reach a settlement. Thus, when surprise has extremely high value, war rarely occurs because Player 1 will make the screening offer, and when surprise has very little value, war rarely occurs because Player 2 chooses to reveal. As a consequence, the relationship between the value of surprise and the probability of war is nonmonotonic.

Discussion

The introduction raised the question of why states choose to keep secrets and risk war, given the ability, in principle, to reveal information about their capabilities. The model shows that states will choose to conceal information when war is not prohibitively costly, and when they can create sufficient uncertainty to prevent their opponents from responding optimally to their military choices. This result resembles both Slantchev (2010) and Meirowitz and Sartori (2008), but carries distinct implications. First, Slantchev's model does not allow a costless mechanism for revealing information; Meirowitz and Sartori do explore such a mechanism but find that including it in their model leads to a peaceful equilibrium. Thus, the results here show deeper incentives to engage in deception and produce uncertainty than previously appreciated. Both the Slantchev and the Meirowitz and Sartori models also follow what might be termed the "allocational" approach; the advantage of surprise comes from secretly mobilizing resources, which increase a state's chances of victory regardless of its opponent's actions. This is a key divergence from the type of surprise described here, where the value of surprise comes from the fact that an opponent selects a suboptimal military response.

The focus on military strategy as a source of uncertainty, rather than mobilization levels, has several advantages. First, it provides a more solid basis for maintaining secrecy. If states can reveal strength credibly, then a state that has secretly mobilized resources might as well reveal that capability at the opportune moment and reap the benefits of a favorable bargain. Of course, an opponent might give in temporarily and then mobilize additional resources to demand revision to such a forced settlement. If this possibility undermines a peaceful bargain, however, we have transformed the problem of war due to private information into war as a commitment problem (Powell 2006). The approach here maintains the autonomy of the informational explanation. Second, the sort of operational deception implied here appears to be much more common in practice than secrecy regarding intentions to attack or mobilize resources. In his survey of 63 cases of attempted surprise attack from 1914 to 1968, Barton Whaley finds that surprise most commonly concerns the direction or location of an attack rather than a state's overall intentions, identifying this form of surprise in nearly three-quarters of his cases (Whaley 2007:113–114). Deception and surprise have also formed an important part of the operations within wars where levels of effort were never very much in doubt.

This points toward an interesting aspect of the model—its logic easily applies to any point within a war, addressing both war initiation and war termination. Traditional private information models show that if a war begins over private information, then the process of fighting should reveal that information, leading to convergence in expectations and an end to hostilities (Wagner 2000; Slantchev 2003), but the empirical record of this prediction is mixed (Reiter 2003). This model, however, assumes that both sides know the balance of forces and resolve, focusing on uncertainty that is less likely to dissipate across the course of a war. While battle outcomes likely reveal information about overall force strength, any conflict repeatedly features new strategic options as it evolves. So long as one side holds private information about the attractiveness of these new options, the model suggests that conflict may continue. Rather than seeing war as a gradual process of revealing information, this presents war as a dynamic struggle for military advantage. Within the informational tradition, Langlois and Langlois (2009, 2012) also develop the argument that offers and counteroffers might not converge over the course of a war, but this occurs in their setup *despite* a gradual convergence in beliefs. In contrast, the argument here holds that belief convergence requires that states agree not only on the gross balance of forces, but also on the strategic options available. So long as the opportunities for innovative attacks are available, fighting may continue.

Perhaps more importantly, the model also points to the fragility of inferences drawn from a state's decision to fight. In both traditional models, and the newer models of surprise discussed above, *only* strong states fight. This fact leads Fey and Ramsay (2007:738) to the conclusion that "mutual optimism cannot lead to war [because]... if both sides are willing to fight, each side should infer that they have either underestimated the strength of the opponent or overestimated their own strength." Uniquely in this model, however, weak states *do* fight. Indeed, the

model has equilibria in which the weak type fights, but the stronger middle type does not. After observing that his opponent fights, Player 1 clearly cannot infer strength. Indeed, the entire dynamic of the model is driven by Player 1's uncertainty about his opponent's type after fighting begins. Given this, neither player would have an incentive to make a last-minute phone call on the brink of war in order to avoid the conflict.

Why, then, do weak states fight in this model? In essence, weak states are disadvantaged in bargaining by revealing that weakness. The possibility that an opponent will respond on the battlefield as if they were strong creates an opportunity for military victory, which may be unlikely, but still can be superior to the certainty of achieving a poor bargain. This arises from the assumption that the weak type derives a battlefield advantage from the perception that it might play the indirect strategy, which forces an opponent to divert resources. Consequently, states may sometimes be tempted into starting wars they are unlikely to win because they believe that bargaining will give them little. In such a situation, a weak state will try to create the impression of strength, not in order to bluff its way into a better settlement, but rather as a means of military misdirection. This dynamic could be termed "false pessimism" in that Player 1's belief that Player 2 is *stronger* than she actually is leads to war.

In conventional models, the "false pessimism" dynamic cannot exist—an exaggerated belief in an opponent's strength merely predisposes a player toward concessions even larger than those needed to maintain peace, ensuring stability. This conventional dynamic can occur in this model (as Player 1's prior on the strong type becomes sufficiently high, he makes the screening offer), but false pessimism also operates within an appropriate parameter space. The essential idea here is that Player 1's overestimate of Player 2's type will lead him to take counterproductive military actions, diverting resources needed to defend against Player 2's actual plan of attack to guard against some other possibility. This suboptimal response may make war rational for Player 2. Such situations are often observed at the operational level, where commanders routinely exaggerate their strength not to induce surrender, but instead to confuse enemy military preparations. For instance, Michael Handel gives the example of British preparations for their offensive against the Italians in Egypt in 1940. The British placed fake tanks and artillery on the Italian southern flank, heavily defending them with anti-aircraft guns to prevent reconnaissance. This led the Italians to dramatically overestimate British strength and plan their defense in the south, allowing an assault by the dramatically outnumbered British in the northwest to succeed (Handel 1989:316–317). I provide a more complete examination of this type of dynamic in the case of the Seven Years' War below.

Finally, consider why Player 1 does not make a peace-ensuring "screening" offer in the equilibria where conflict occurs. The dynamic is related to, but distinct from the conventional "risk–return" trade-off (Powell 1999; Slantchev and Tarar 2011). Within this model, a sufficiently high probability of a strong opponent does lead to a "screening" offer and peace; war only occurs when the probability of a strong opponent is sufficiently low that Player 1 prefers to take his chances. The logic here differs in that the conventional risk–return trade-off suggests that peace can only be guaranteed when a state makes an offer sufficient to satisfy its *strongest* possible opponent; here, a state need only make an offer sufficient to satisfy its *weakest* possible opponent. In fact, Player 1 always prefers acceptance of the "screening" offer to war against *any* type. He fails to make the screening offer when there is a sufficiently large chance that the crisis will end without war because the weak type backs down. The expectation that an opponent will choose to reveal his type and avoid war leads to the "meaningless" offer and thus costly conflict. This may explain the fact that conflicts often occur without any exchange of offers and counteroffers in advance; a state knowing that it will only make a "meaningless" offer might as well save its breath.

Wars of False Optimism and False Pessimism

As an illustration of the model's logic, I present two brief case studies that illustrate the dynamics of false optimism and false pessimism, respectively. First, I examine the Gulf War, where the Iraqi leadership underestimated American strength by failing to recognize the possibility of the American "left hook" strategy, and the American leadership failed to disclose the viability of this option in order to preserve its tactical advantages, leading to war. Second, I examine the outbreak of the Seven Years' War, where the British leadership overestimated French strength, incorrectly believing that the French were capable of a cross-channel invasion, leading the British to concentrate their forces on home defense and leave the Mediterranean under-defended, leading to war when the French capitalized on this posture to seize Minorca.

The relevant history for the Gulf War case begins with UN Security Council Resolution 678, which set January 15, 1991, as the deadline for an Iraqi withdrawal from Kuwait, and authorized the use of force if Iraq did not comply. Iraq rejected the offer contained in the resolution and refused to make a serious counteroffer; in a meeting with US Secretary of State James Baker just before the deadline expired, Iraqi Foreign Minister Tariq Aziz refused to accept a letter from President Bush to Saddam Hussein and would not even use the word "Kuwait" in a press conference afterward (Friedman 1991), and even went so far as to tell Baker "we accept war" (Seliktar 2008:51). The Iraqi decision not to bargain hinged on beliefs about American resolve and the overall balance of capabilities that appear to have been largely accurate. What Iraq failed to anticipate was the strategic option available to the United States in the "left hook." The United States made no effort to hide the forces it deployed to the Persian Gulf, and general troop figures were available to any reader of the *New York Times* (Shennon 1991); thus, this was not a case of "feigning weakness." No one doubted the superior quality of American forces, and Iraqi strategists never believed that they could defeat an American assault outright. Instead, Iraqi commanders believed that they could inflict several thousand American casualties, after which the United States would seek a negotiated settlement (Sullivan 2012:34–35). Ultimately, it is not possible to assess whether or not this judgement was accurate; however, it was objectively reasonable and quite similar to the belief of American leaders—in short, the results of a direct attack through Kuwait were common knowledge. First, the Iraqi evaluation of American resolve fit closely with political judgement communicated by the White House to American officers. Schwartzkopf's operational guidance, for instance, specified that 10,000 US casualties would be unacceptable (Stein 1992:175), and pollsters found that support for the war fell off dramatically among Americans

who expected 10,000 casualties (Jentleson 1992). The Iraqi estimate of the likely outcome of an American assault were also consistent with American estimates. American military planners expected losses at exactly ten thousand casualties—2,000 dead and 8,000 wounded—for a direct assault on Kuwait (Schwarzkopf 1993). Outside experts' analysis placed likely U.S. casualties in the range of ten to twenty thousand for this option, underlining the common-knowledge nature of the belief (Diamond 2008:149). In short, American and Iraqi officials shared the same beliefs about the level and consequences of American casualties resulting from a direct assault on Kuwait, despite some retrospective reasons to doubt the accuracy of these shared beliefs.

Given the high casualty estimates, Schwarzkopf and Pentagon planners abandoned the idea of a direct assault in favor of an attack on the Iraqi western flank that became known as the "left hook." Under this plan, U.S. strategists anticipated three to five thousand casualties, a figure deemed acceptable by the White House (Diamond 2008:150). The success of the "left hook," however, depended on Iraq adopting a posture designed to repel a frontal assault on Kuwait; an Iraqi response that anticipated the direction of the American attack would have dramatically reduced its chances of success, leading Schwarzkopf to design various deception measures (Atkinson 1993:330–335). Ultimately, the Iraqis failed to anticipate the left hook option and stationed their best forces in Kuwait, including more than 80,000 soldiers along the beaches, allowing the U.S. to win a famously easy victory (Latimer 2003).

Why did the Iraqis fail to anticipate the maneuver? Press argues that the Iraqis lacked knowledge about "the effectiveness of the U.S. global position system (GPS) and other navigation equipment" (Press 2001:14). Others have suggested that the Iraqis incorrectly believed that the desert regions over which the attack occurred were not "trafficable." Mueller notes that information on both GPS and the terrain should have been available to Iraqi commanders. The fact of the matter, however, is that the Iraqis apparently attached a vanishingly low probability to the possibility of an American flank attack (Mueller 1995).

The United States could easily have disabused the Iraqis of their notion that the direct attack through Kuwait was the only viable option. Demonstrating the potential of GPS would have been straightforward. More than 80% of the GPS units in operational use during Desert Storm were commercial receivers, mostly the Trimble Trimpack handheld unit, purchased from civilian suppliers (Rip and Hasik 2002:136–137). Iraqi agents could literally have purchased the same, if not superior, units from sporting goods stores (Dyer 2001) in order to verify American claims about GPS capabilities. Similarly, the Iraqis could easily have established that desert regions, then under Iraqi control, were passable by armored vehicles simply by sending a few vehicles to the areas in question (Mueller 1995:100); thus, the Americans could have passed along this information with little more than a phone call. Informing the Iraqis about the potential for the "left hook" would, however, have destroyed the surprise value of the operation. The Americans were caught in exactly the dilemma illuminated by the model. Knowing that the Iraqis were unlikely to anticipate the kind of action that they would undertake meant that American commanders had a military option more valuable than the deal they could get by revealing its existence. Similarly, the Iraqis attached a very low prior probability to the existence of a viable American option other than a direct attack, leading them to believe the Americans would back down. Consequently, they were unwilling to offer a meaningful deal. Ultimately, the outcome of the military operation revealed that both sides had overestimated Iraqi strength, but this did not play into pre-war decisions. Instead, it was the development of secret plans for an indirect assault that led the American leadership to choose to attack.

We turn now to the model's prediction that "false pessimism" may lead to war because the side that overestimates its opponent adopts the wrong defensive posture. We clearly see this dynamic in the outbreak of the Seven Years' War in 1756 between Britain and France. After some limited conflict in North America, but before any declaration of war or the spread of hostilities to Europe, Britain faced two apparent French threats in the European theater—the threat of an invasion of the British Isles from ports on the English Channel and the threat of an attack on Minorca by French forces from Toulon. British leaders held accurate information about the strength of French forces at Toulon by January 1756, and both sides were well aware that this force would be able to seize Minorca unless British reinforcements were sent there (Pope 1962:59–61). Although both sides had correct information about the situation in the Mediterranean, "alarming reports of the French strength" at Brest led the British government to greatly overestimate the threat of invasion across the English Channel (Corbett 1907:134). In fact, the French did not even have any troop transports in the Channel ports (Dull 2005:50), but inaccurate British intelligence reports claimed the presence of "a vast number of flat-bottomed boats with heavy cannon. . .to transport the [French] troops" (Richmond 1913:160).

The French resolved to attack Minorca and abandoned any plans for an attack on England as early as January 1756, but they pretended to continue preparations in the Chanel ports in order to "distract their opponents' attention" (Gregory 1990:168). Despite this French decision, in mid-February British sources reported that the French had determined a cross-channel attack was "very practicable" (Richmond 1913:164), and in early April, the Admiralty "believed a serious attempt [would] be made to land a great number of troops in England and Ireland" within the next month (Richmond 1913:185). These exaggerated reports combined with concerns among London merchants to yield a substantial overestimate of French strength (Corbett 1907:134). There is no evidence that this overestimate prodded the government toward concessions, given its generally strong position; instead, it led to a military realignment. The King summoned 8,000 Hessian troops to aid in the defense of the English coast (Leadam 1909:441), while leaving an understrength garrison on Minorca (Rodger 2004:264), and a small naval squadron, belatedly sent to the Mediterranean, was "weakened. . .in order to keep an unnecessarily strong fleet in the Channel" (Robertson 1921:133). While the French force in Toulon lacked sufficient supplies for a lengthy siege and had weak naval support, the British diversion of its forces to the defense of England opened up the possibility of French success. Corbett writes that the British "certainly had. . .a force which, if sent to the Mediterranean, would either have stopped Richelieu's [that is, the French commander's] sailing altogether or have destroyed his expedition" (Corbett 1907:135), but the British did not send such a force.

Given the weak and belated British response, the French knew that they had a chance to seize Minorca, which would confer substantial military advantages in a war by helping to secure the French supply line to North America, severely threatening the British position in the Mediterranean, and potentially allowing the French to join their Brest and Toulon fleets for offensive operations (Nester 2000:1–3). The French also hoped that Minorca might serve as a bargaining chip to secure Spanish entry on their side of the conflict (McLeod 2012:3) or in eventual negotiations with the British to force a favorable settlement in North America (Szabo 2013:16). Consequently, the French settled on a policy they knew was "an enormous gamble" by attacking Minorca while the British were focused on the defense of England, hoping that the advantages secured by taking Minorca would allow for a short war and favorable peace (Nester 2000:1). Consequently, the French sent their fleet to Minorca, which was soon taken, and the British declared war as soon as the news of the invasion reached London (Marston 2013:26). The French choice was part of a grand strategy that "envisioned a short series of coherent operations and a quick, decisive end to the fighting" (Schumann and Schweizer 2008:46). While this strategy ultimately failed, it was certainly reasonable at the time, as shown by the French successes in 1756–1757. If, however, the British had sent a defensive force to the Mediterranean, this strategy would have been questionable at best, and the war might well have been avoided. As noted above, the British were fully aware of the possibility, and likely consequences, of a French attack on Minorca in 1756. Thus, the British overestimate of French strength on the English Channel almost entirely drove the decision to leave the Mediterranean under-defended.

Conclusion

Existing work relies on the assumption that states are *unable* rather than *unwilling* to reveal private information; thus, it has left largely unexplored the nature of choices to reveal or conceal such information. My model demonstrates that states will choose to conceal information and risk war, even if they are able to credibly reveal that information. Their motivation for doing so resides in the military gains from fighting against an opponent who does not select an ideal battlefield counterstrategy. This highlights a particularly strong connection between specifically military issues and broader political considerations. The study of strategy remains theoretically and empirically underdeveloped within political science (Mearsheimer 1983; Biddle 2006); my finding reinforces the need to integrate strategic studies with international relations theory more broadly. Existing work in this vein shows that choices about military strategy correlate significantly with dispute initiation and escalation (Reiter 1999), which tracks with the logic outlined here. What we need, however, is a more complete empirical exploration of the link between military strategies, including uncertainty about those strategies, and dispute outcomes.

When we consider military strategy in relation to crisis bargaining, we reach different conclusions about what kinds of states will fight and why they do so. The essential conclusion of the standard approach to private information centers on the idea that strong states fight in order to prove that they are not bluffing. However, states enjoy a variety of ways to prove that they are not bluffing, whether through audience costs (Fearon 1994), signals from domestic actors (Schultz 1998; Debs and Weiss 2014), the development of reputations (Guisinger and Smith 2002; Sartori 2002, 2005), various military moves (Fearon 1997; Slantchev 2005), or the sort of costless, credible mechanisms described at the beginning of this paper. States often go to war without appearing to engage in any of these. My theory helps explain why. Furthermore, the results show that both strong states and weak states will sometimes fight. This demonstrates a more complex link between private information and war than mere "mutual optimism." States may find that they receive advantages both from being underestimated and from being overestimated. Such advantages create incentives for them to be opaque about their capabilities and to fight in a variety of different circumstances. Conversely, states that fail to form accurate assessments of their opponents, perhaps as the result of poor civil–military relations (Brooks 2008), will face particularly high risks—even if they tend to overestimate, rather than underestimate, their opponents.

The findings here also carry policy implications. First, leaders should exercise caution when drawing inferences from an opponent's failure to make demands. Stalin, for example, would later report that the German attack in 1941 surprised him because "Hitler made no demands on Russia" beforehand (Handel 1989:347). My theory supplies a logic for war without meaningful advance demands. It underscores the fact that leaders cannot depend on the warning supplied by such demands. Second, the theory presented here suggests that surprise attacks will occur and that the occurrence of a surprise attack does not necessarily represent an intelligence failure. Classic studies of surprise reach a similar, but less severe, conclusion—Wohlstetter, for example, concludes her book on Pearl Harbor with the observation that "we cannot count on strategic warning" (Wohlstetter 1962:400). The point here is slightly different. If strategic warning means learning everything that an opponent knows or intends, thus eliminating private information, then complete strategic warning will mean avoiding war. Wars will only occur when strategic warning is incomplete or inaccurate. Consequently, planners should proceed under the assumption that fighting will break out will occur precisely when clear warning about intentions or capabilities is absent and not merely under the assumption that bad luck or botched intelligence will occasionally force to them to fight under such circumstances.

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Appendix S1. Online Formal Appendix.