Threats and Assurances in Crisis Bargaining

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Abstract

Both threats and assurances can be useful in international negotiations. Threats help convince the adversary that a state will fight if challenged, and assurances can convince the adversary that a state will not attack if not challenged. We develop a model that analyzes when threats and assurances are used. Threats are widely useful because there is typically a range of outcomes that are preferable to war for each side, and threats can secure a better deal within that range by strengthening a state’s bottom line. In contrast, assurances are only necessary when war would result without them because of insufficiently valued intermediate outcomes or shifting power. We discuss insights from the model, including the role of false assurances, in the context of both the Sudetenland Crisis and Cold War Europe.
We will never be an aggressor. We want adequate security. We want no more than adequacy. But we will accept nothing less.

President Eisenhower, November 13, 1957.

President Eisenhower’s statement during a speech about the Soviet Union combined a threat and an assurance. By saying that the U.S. would accept nothing less than security, he issued a threat that any infringement on U.S. security would be met with force. By combining it with an assurance that the U.S. wanted nothing more than security, he disavowed any interest in changing the status quo by force. Threats and assurances are often thought to be complementary. Threats bolster a state’s resolve, reducing the adversary’s incentive to attack out of greed, while assurances lessen the adversary’s security concerns, reducing its incentive to attack out of fear.

This logic suggests that threats and assurances should be used together, since they maximize the likelihood that the adversary complies with a state’s demand. However, the picture is more complicated. Previous scholarship indicates that both threats and assurances may involve tradeoffs. Threats strengthen one’s bottom line in bargaining, but can make war more likely. Meanwhile, assurances make peace more likely, but may weaken one’s bargaining position. Therefore, leaders may not always prefer to make both types of statements. The potential tradeoffs associated with threats and assurances suggest that the theoretical rationales for both types of statements need to be examined more closely to see when each is needed. Analyzing when threats and assurances are necessary will not only enrich our understanding of the bargaining model of war, but also has the potential to provide practical insights for policymakers who are seeking to peacefully compel or deter an adversary.

We introduce a formal model of threats and assurances in the context of an international crisis. Threats to fight if the other side goes too far generate an audience cost that is paid if a state fails to fight. Assurances not to attack if the other side does not go too far generate an audience cost that is paid if a state engages in unprovoked aggression. We find that threats strengthen a state’s bottom line and hence are generally useful in bargaining situations. So
long as there is some range of deals that both sides prefer to war, all states will make at least some level of threat in order to secure a better deal. Assurances are needed when without them, there is a chance that the set of deals that both sides prefer to war is empty, and a state prefers to lower its own bottom line through an assurance rather than fight. This condition, we argue, is not as widespread, and hence assurances are less often useful than threats. Assurances are most likely to be needed when a state is attempting to compel a change to the status quo, changing the status quo would shift the balance of power, and other states wonder how far its ambitions extend. False assurances may arise in equilibrium if failing to offer them would be alarming, yet the cost of violating them is relatively small.

We consider the empirical implications of our model by analyzing two well-known cases: NATO attempts to deter the Soviet Union from attacking Western Europe and Nazi Germany’s attempts to compel Britain and France to accept its annexation of the Sudetenland. The Western Europe case highlights the role of threats in strengthening NATO’s bottom line. The Sudetenland Crisis illustrates the role of false assurances.

We first review the existing literature on the benefits and tradeoffs of threats and assurances. The following sections develop our formal model. First, we introduce a baseline model without threats or assurances. Then, we add in threats and assurances, first separately and then jointly. Finally, we discuss the empirical implications of the model and the evidence that we find.

1 The Benefits and Tradeoffs of Threats and Assurances

Threats and assurances are thought to help states accomplish peaceful coercion, which encompasses both deterrence and compellence. Deterrence is the art of preventing an adversary from challenging a state’s interests, whereas compellence is the art of extracting a concession from the adversary without using force. We use the term peaceful coercion to encompass
both cases, and consider it to be successful only if large-scale force is not actually used, to
distinguish it from military coercion, or simply victory.

The concept of peaceful coercion, and particularly deterrence, has been at the core of
American foreign policy for decades. The early nuclear strategists and deterrence theorists
pondered how the United States could persuade the Soviet Union not to challenge its inter-
ests, while at the same time avoiding nuclear war (Schelling 1966, George & Smoke 1974).
This question was later taken up in the game theoretic literature on deterrence and crisis bar-
gaining (Powell 1990). A central theme in recent literature on peaceful coercion is that leaders
use public commitments as bargaining tactics, on the theory that domestic or international
audiences will impose costs on them for backing down from stated aims (Fearon 1994, Leven-
toglu & Tarar 2005, Schultz 1998). In these models, states with high resolve, high strength,
a low cost of war, or a high payoff for war are likely to fight a challenge. These states send
costly signals that tend to reveal their type and so prevail in crises by convincing other states
to not challenge or to accede to the state’s demands.

Separately from the literature on peaceful coercion, a contemporaneous literature has
analyzed how conflicts can arise between states through suspicion, mistrust, or fear. Theo-
rists of the security dilemma and spiral model argued that conflict could arise because states
would take measures to increase their security, but these measures would lessen the security
of others and cause them to be suspicious of the first state, leading to a reaction that in turn
lowers the security and increases the suspicions of the first state (Herz 1950, Jervis 1976,
Butterfield 1951, Glaser 1992, Montgomery 2006, Glaser 2010). Game theoretic work has
applied costly signaling theory to reassurance and looked at how states can reduce mistrust
At the heart of this literature, in contrast to the previous strand, is the notion that some-
times a state can be too willing to fight for its own good (Sechser 2010). Fear can lead others
to believe that one is expansionist and lead them to attack preventively or preemptively.

The two strategic tasks focused on by these two strands of literature, coercion and reas-
surance, have so far been treated mostly in isolation, yet they are obviously related. Early on, Schelling recognized their interdependence:

Actually, any coercive threat requires corresponding assurances; the object of a threat is to give somebody a choice. To say, “One more step and I shoot,” can be a deterrent threat only if accompanied by the implicit assurance, “And if you stop I won’t” (Schelling 1966, 74).

Peaceful coercion, therefore requires that the adversary not believe a state plans to attack in any event. If the adversary is to be persuaded not to challenge a state’s interests, it must believe that if it does the consequences will be worse than if it does not (Monteiro 2010). Threats promise that the consequences of challenging will be bad; assurances promise that the consequences of not challenging will be good. This much seems clear, but it is somewhat unclear whether the assurance can remain implicit or whether it must be stated verbally.

Despite the potential complementarity of threats and assurances, scholars have also argued that there is a tradeoff between deterrence and compellence on the one hand and reassurance on the other. Jervis recognized this clearly in his discussion of policies recommended by the spiral and deterrence models:

Policies that flow from deterrence theory (e.g. development of potent and flexible armed forces; a willingness to fight for issues of low intrinsic value; avoidance of any appearance of weakness) are just those that, according to the spiral model, are most apt to heighten tensions and create illusory incompatibility. And the behavior advocated by the spiral theorists (attempts to reassure the other side of one’s nonaggressiveness, the avoidance of provocations, the undertaking of unilateral initiatives) would, according to deterrence theory, be likely to lead an aggressor to doubt the state’s willingness to resist (Jervis 1976, 84).

Thus, assurances may hamper the coercive impact of threats, and threats may inhibit the peace-inducing function of assurances. This raises the question of how often it is truly
optimal to make both threats and assurances.

Several scholars have offered hypotheses regarding when threats and assurances can both be beneficial and when not. Christensen (1992) analyzes the role of threats and assurances in the Korean War and finds that given that Mao had decided in the fall of 1950 to attempt to drive US forces off the peninsula, no combination of threats or assurances would have averted an escalated war. He returns to the issue in a recent book in which he argues in the context of alliance politics that fractured alliances will tend to be worse at sending both credible threats and credible assurances (Christensen 2011). Liebman (2009) argues that the tradeoff between threats and assurances will be particularly hard to manage for rising states since their deterrent threats depend on current power, which is weak, and their assurances depend on future power, which is strong. Davis (2000) uses prospect theory to argue that threats are appropriate when facing leaders attempting to make gains, while assurances are needed in dealing with leaders attempting to avoid losses.

Game theoretic analyses have typically focused on deterrence (Powell 1990, Zagare & Kilgour 2000) or reassurance (Kydd 2005), but not both. Schultz (2005) looks at whether hawkish or dovish leaders are better able to establish cooperation in a repeated game setting but does not consider explicit threats and assurances. Gurantz & Hirsch (2014) examine a related model but focus on the question of when a state can deter a small challenge, without considering assurances. The closest model to ours is by Kurizaki (2014). Our model differs by having a continuous bargaining space, and by allowing for explicit threats and assurances around an announced goal in that space. This ensures that conflict is not driven by artificially indivisible issue spaces, but by more fundamental aspects of how the issue space is valued and how it affects the balance of power between the two sides.
2 The Baseline Model

We begin by considering a baseline model with complete information and with no threats or assurances. Consider two players confronting each other over an issue, denoted $X = [0, 1]$. They are assumed to have conflicting preferences, $u_1(x)$ and $u_2(x)$, so player 1 prefers $x$ to be higher and player 2 prefers $x$ to be lower. For example, two states could be disputing the border between them, where each side wants more territory at the expense of the other. In that case, $x$ would represent the share of the disputed territory going to player 1, and player 2 would get $1 - x$.

The actors play the extensive form game illustrated in Figure 1. Player 1 moves first, announcing a goal that it wishes to achieve or defend, $g_1 \in X$. For now this will have no payoff-relevant consequences, but in the next sections we will examine what happens when this is interpreted as a threat to attack if this goal is not met, an assurance that it will not attack if the goal is met, or both.

Player 2 then chooses an allocation of the good in dispute, $x \in X$. Let the status quo be division of the good be denoted $s \in X$. If player 2 chooses some $x < s$, this represents a fait accompli, in which player 2 grabs some additional amount of the good to player 1’s detriment. Conversely, if player 2 chooses some $x > s$, this represents a concession to player 1. Player 2 can of course also choose to leave the status quo unaltered by choosing $x = s$. The model is therefore able to represent both deterrence and compellence. Deterrence is the problem of preventing player 2 from selecting an $x < s$ and then daring player 1 to do something about it. Compellence is the problem of convincing player 2 to select some $x > s$, in order to avoid a war.

After player 2 moves, player 1 can attack or not attack. It is important to note that player 1 can choose to attack player 2 even if player 2 leaves the status quo untouched, and even if it makes a concession, moving $x$ above $s$. That is, successful deterrence or compellence can be followed by aggression on the part of player 1. This is a departure from the standard deterrence model in which it is assumed that complying with the threat will lead to peace.
If player 1 does not attack, then the payoffs are simply $u_1(x)$ and $u_2(x)$, based on whatever level of $x$ player 2 selected. If player 1 does choose to attack, there is a war. We assume that a player’s chance of winning is a function of the distribution of the good in dispute. That is, we assume that the good is, at least to some extent, strategically valuable. Player 1’s chance of winning is denoted $p(x)$, and player 2’s is $1 - p(x)$. We assume that player 1’s chance of winning increases with the division of the good, $p'(x) > 0$. This implies that the more of the good a player possesses at the start of the war, the greater its chance of winning the war. Each side gets the whole good if it wins, gets nothing if it loses, and pays war costs of $c_i > 0$ regardless of the outcome, so player 1’s war payoff is $p(x) - c_1$ and player 2’s is $1 - p(x) - c_2$.

Each player’s bottom line, denoted $b_i$, can be defined as the worst deal they would accept rather than fight. For player 1, this is the lowest value of $x$ such that $u_1(x) \geq p(x) - c_1$. This comparison is illustrated in Figure [2]. The horizontal axis is $X$, the issue in dispute. Player 1’s utility for a peaceful settlement, $u_1(x)$, is illustrated as a line of slope 1. Player 1’s payoff for war, $p(x) - c_1$, is the line with a lesser slope, that intersects the peaceful payoff at $x = b_1$. For $x < b_1$, player 1 prefers war, for $x \geq b_1$, player 1 prefers peace. Shifting the war payoff up shifts the bottom line up as well. The more likely player 1 is to win and the lower its cost of fighting, the higher its bottom line will be, or the more it will demand.

Turning to player 2, if player 2 anticipates war, it will wish to select $x = 0$, since that maximizes its chance of winning. Therefore, player 2’s bottom line is the largest value of $x$ such that $u_2(x) \geq 1 - p(0) - c_2$. The lower player 1’s chance of winning and the lower player 2’s costs, the lower player 2’s bottom line will be. Since it prefers lower values of $x$, a lower bottom line is a more demanding one for player 2.

With these bottom lines in hand, the game is easily solved via backwards induction for a sub-game perfect equilibrium. At its final node, player 1 will not attack if player 2 gives it something at least as good as its bottom line, that is, if $x \geq b_1$, and will attack otherwise. Player 2 will choose to buy off player 1 if $b_1 \leq b_2$, so that player 2 prefers player 1’s bottom line to war. If this is the case, then player 2 will set $x = b_1$ and peace will obtain. Otherwise,
it will set $x = 0$, and player 1 will subsequently attack.$^1$

The equilibrium of the game will be peaceful so long as $b_1 \leq b_2$, that is, if there is a range of deals that both sides prefer to war. This will be the case if two conditions hold. First, the players need to sufficiently value intermediate outcomes, such that $u_1(x) + u_2(x) \geq 1$. This will hold if the good is continuously divisible and the parties are risk neutral or risk averse (Fearon 1995). If the good is hard to divide or the parties are risk acceptant, they may not value (or not be able to locate) compromise solutions that are mutually preferable to war. Risk acceptant preferences can arise when the good in dispute has special significance to the parties. For instance, if both parties view the disputed territory as part of their homeland, or as sacred under their religion, they may be very reluctant to compromise over it (Shelef 2014, Hassner 2009).

Second, the power shift accompanying possession of the good in dispute must be sufficiently small in comparison to the costs of fighting, such that $c_1 + c_2 \geq p(b_1) - p(0)$. Large shifts in power associated with the good are most likely to arise in the case of strategic territory or negotiations over arms programs (Carter 2010, Debs & Monteiro 2014). The more territory one concedes, or the lower one’s level of armaments, the weaker one becomes. This condition accords with the widespread finding that shifting power, or potentially shifting power in this case, can cause conflict in complete information settings (Fearon 1995, Powell 2006).

If these two conditions both hold, then the equilibrium in the model is peaceful. If one or more does not, then player 2 may prefer to seize the entire issue in dispute and provoke a war rather than grant player 1 its bottom line. This result is summarized in the following proposition and proved in the online appendix.

**Proposition 1** The equilibrium of the baseline game will be peaceful if there are deals that both sides prefer to war, $b_1 < b_2$. If the players sufficiently value intermediate outcomes, $u_1(x) + u_2(x) \geq 1$, $\forall x \in X$, and the change in power conferred by the good is small enough compared to the costs of fighting, $c_1 + c_2 \geq p(b_1) - p(0)$, then player 2 will select player 1’s bottom line, $x = b_1$, and there will be no war.
The take-away point of the baseline model is that if the parties sufficiently value intermediate outcomes and the issue in dispute does not have too great an effect on the balance of power between the two sides, they should be able to bargain peacefully to a compromise solution.

3 Adding Threats

Now we consider a modified version of the model in which we interpret player 1’s selection of a goal, $g_1$, to imply a threat that if player 2 goes below $g_1$, player 1 will fight. If player 1 chooses $g_1 = 0$, it effectively makes no threat, since it does not promise to fight even if player 2 takes the whole good in contention. If player 1 chooses some $g_1 > 0$, then it has promised to fight if player 2 grabs too much. Having made a threat, if player 1 fails to fight in response to player 2 selecting some $x < g_1$, player 1 pays a cost, $\alpha_t > 0$.

The parameter $\alpha_t$ represents the additional costs that are paid for violating a pledge to stand up to aggression. This cost may be a domestic political cost (Fearon 1994) or an international reputational cost (Sartori 2005). In this model, we simply assume that such costs can be generated by making statements, as other models have already explored the strategic logic of such costs (Sartori 2005, Slantchev 2006, Smith 1998). There has been some debate in the literature over the existence of audience costs and whether they can be mitigated (Levendusky & Horowitz 2012, Snyder & Borghard 2011). However, survey experiments have found evidence of domestic audience costs (Tomz 2007, Trager & Vavreck 2011), and Sartori (2005) and McManus (2015) have found evidence of international reputational costs using data on international disputes. Therefore, we believe there is enough evidence to consider the existence of some sort of cost of backing down plausible.

Making threats has the potential to raise player 1’s bottom line, making it more demanding, as shown in Figure 3. The war payoff is the same as in Figure 2. The payoff for accepting the deal is the same above the threat level, $g_1$. Below the threat level, the payoff
for peace is less by $\alpha_t$. The original payoff is illustrated as a dashed line, and the new one as the lower solid line. The effect this has is to raise player 1’s bottom line, the lowest level of $x$ for which the peace payoff equals the war payoff. The old intersection is where the dotted line crosses the war payoff. The new intersection is where the solid line intersects the war payoff, at $g_1$. The new intersection is higher, so player 1 is more demanding.

Player 1’s bottom line in the game with threats, denoted $B^t_1$, can be found as follows. If the threat is less than the original bottom line, $g_1 < b_1$, then it does not commit player 1 to do anything it was not already going to do anyway, and so player 1’s bottom line remains $B^t_1 = b_1$. The largest bottom line that player 1 could commit itself to defend by making a threat, denoted $b'_1$, is the smallest value of $x$ such that $u_1(x) - \alpha_t = p(x) - c_1$. We know that $b'_1 > b_1$ because the parameter $\alpha_t$ lowers the peace payoff, so a greater amount of $x$ is needed to compensate. If the threat is between the original bottom line and the maximal one, $g_1 \in [b_1, b'_1]$, then the effective bottom line is the threat itself, $B^t_1 = g_1$, since it commits player 1 to fight for this value but not for anything more. Finally, if the threat is bigger than the biggest bottom line player 1 can credibly fight for, $g_1 > b'_1$, then the bottom line remains $B^t_1 = b'_1$, since player 1 will not fight for anything higher even though it has pledged to do so.

We can solve the game once more through backwards induction for a sub-game perfect equilibrium. Player 1’s behavior at its final move will depend on its bottom line, in light of any threat it has made. If $x \geq B^t_1$, then player 1 will not attack, and if $x < B^t_1$, player 1 will attack. Player 2 will satisfy player 1 by choosing $B^t_1$ if it prefers player 1’s new bottom line to war, if $B^t_1 \leq b_2$, and it will choose $x = 0$ and provoke a war otherwise. There remains player 1’s decision about how big a threat to make. We know that player 1’s bottom line, $B^t_1$, is weakly increasing in its threat. Therefore, if the maximal bottom line player 1 could defend is still acceptable to player 2, $b'_1 \leq b_2$, player 1 should make the corresponding threat, namely $g_1 = b'_1$. This threat will be accepted by player 2, resulting in a payoff of $u_1(b'_1)$. Any lesser threat will result in a lesser value of $x$ selected by player 2 and a lower payoff.
Any higher one will result in player 2 selecting \( x = b'_1 \) anyway, which player 1 will have to accept, but with the additional penalty of \(-\alpha_t\) because it failed to make good on the threat. On the other hand, if player 1’s maximal bottom line is higher than player 2’s, \( b'_1 > b_2 \), then player 1 should set the threat equal to player 2’s bottom line, \( g_1 = b_2 \). In that case, player 2 will be willing to implement its own bottom line, \( x = b_2 \), and so long as this is above \( b_1 \), player 1 will also be willing to live with this. Finally, if \( b_1 > b_2 \) war is inevitable regardless of what threat player 1 makes, so it can choose any threat without affecting the payoff.

Peace is possible in the model with threats under the same conditions as in the baseline model; the key condition is that \( b_1 < b_2 \). If this is true, there is a range of deals that will make both player 1 and player 2 better off than war. The only thing that threats do in this case is affect the selection of which deal will be implemented. The effect of threats, in equilibrium, is to increase player 1’s bargaining leverage and so improve the deal that player 1 receives under these conditions. This is summarized in the following proposition.

**Proposition 2** Threats will be made in the modified game if there would be a peaceful outcome without them, that is, if \( b_1 < b_2 \). In this case, the equilibrium threat will be either the biggest threat player 1 would be willing to honor, \( b'_1 \) or player 2’s bottom line, \( b_2 \), whichever is smaller.

### 4 Adding Assurances

Now consider what happens to the model when only assurances are added. Posit that the goal announced by player 1 at the outset of the game represents an assurance, understood as a promise not to attack if the other side selects any \( x \geq g_1 \). If player 2 does select \( x \geq g_1 \) and player 1 attacks anyway, it pays a penalty equal to \( \alpha_a > 0 \), an audience cost for violating its assurance. That is, we assume that if a state attacks after making a public promise not to attack if its conditions are met, then the state suffers an additional cost for aggression that would not be paid if it had made no promises. Unlike audience costs for backing down...
from threats, this type of audience cost is not commonly included in theoretical models. However, Tingley (2014) finds evidence of domestic opposition to attacking in violation of a commitment in a survey experiment, and violating an assurance would also be likely to damage a state’s international reputation for honesty.

The effect of assurances is to potentially lower player 1’s bottom line, making player 1 more accommodating, as shown in Figure 4. The payoff for accepting the deal is $u_1(x)$, as it was in the baseline case. The payoff for attacking is the same as before below $g_1$, but then jumps down for levels of $x > g_1$, where player 2 respects player 1’s announced goal. This lowers player 1’s bottom line from what it would have been, where the unmodified war payoff intersects the payoff for accepting the deal. Therefore, player 1 can lower its own bottom line by promising not to attack for levels of $x$ that would have been previously unacceptable.

Player 1’s assurance-related bottom line, denoted $B_{a1}$, is derived as follows. The smallest bottom line that player 1 could commit itself to live with would be the smallest $x$ that solves $u_1(x) = p(x) - c_1 - \alpha_a$, which we call $b_{a1}^1$. We know that $b_{a1}^1 < b_1$ because the additional cost on the war side lowers that payoff, meaning that the peace payoff must be lower to compensate. If the announced goal is greater than $b_1$, then it will have no effect since player 1 would not have attacked in that case even without an assurance, and $B_{a1} = b_1$. If the goal is between the two values, $g_1 \in [b_{a1}^1, b_1]$, then player 1’s bottom line becomes the announced goal, $B_{a1} = g_1$, because it would fight below that, but not above. If the assurance is below $b_{a1}^1$, then player 1 will fight anyway, and pay the additional cost, because the audience cost is insufficient to make it willing to live with such a low issue resolution, so $B_{a1} = b_{a1}^1$.

We solve the game with backwards induction once more. Player 1’s attack choice will depend on its bottom line, with any assurances that have been made. If $x \geq B_{a1}^1$, player 1 will accept player 2’s choice; otherwise it will attack. Player 2 will choose $B_{a1}^1$ if $B_{a1}^1 \leq b_2$; otherwise it will choose $x = 0$. Finally, when does player 1 wish to offer assurances? If $b_1 \leq b_2$, there is no point in offering any assurance, since it can only lower player 1’s bottom line, and player 2 is already willing to accept player 1’s bottom line without any assurances.
Assurances therefore only make sense if \( b_2 < b_1 \), in the case where a war would take place without them. If \( b^*_1 < b_2 < b_1 \), then player 1 can set its goal equal to player 2’s bottom line, \( g_1 = b_2 \), and this will produce a peaceful resolution because player 2 will choose it, and player 1 will be willing to live with it, having made the assurance.

This will be optimal for player 1 if it beats war, or if \( u_1(b_2) \geq p_1(0) - c_1 \). We have assumed that \( b_2 < b_1 \), and we know that \( u_1(b_1) = p(b_1) - c_1 \) by definition. Subtracting the first equation from the second, this implies that assurances will only be offered if the following holds, \( u_1(b_1) - u_1(b_2) \leq p(b_1) - p(0) \). Making assurances, therefore, only makes sense if there is a change in relative power due to the good that is larger than the change in utility between the two players’ bottom lines. If player 2 will gain too much power by a fait accompli, shifting \( x \) down to zero, player 1 would rather appease it by committing itself to live with player 2’s bottom line in order to forestall such a move. The danger inherent in the shift in power associated with possession of the good makes assurances potentially attractive for player 1.

Finally, note that if player 2’s bottom line is too demanding, so that \( b_2 < b^*_1 \), then even with a maximal assurance, player 1 cannot produce a range of outcomes that both sides prefer to war, so there is no point in making assurances in this case either. These considerations are summarized in the following proposition.

**Proposition 3** Assurances will be made in the modified game when two conditions hold:

1. assurance is necessary and possible, because war would result without an assurance, but an assurance could generate an outcome that both sides prefer to war, \( b^*_1 \leq b_2 < b_1 \)

2. assurance is desirable for player 1, because the shift in utility between the two sides’ bottom lines is small relative to the shift in relative power produced by the good, \( u_1(b_1) - u_1(b_2) \leq p(b_1) - p(0) \)

In sum, assurances help player 1 solve the problem that arises when there is no deal preferred by both sides to war. If the two sides do not sufficiently value intermediate outcomes
or if the shift in power associated with the good is too great for a deal to be mutually preferable to war, an assurance can lower player 1’s bottom line enough so that player 1 is willing to accept player 2’s bottom line, ensuring a peaceful outcome.

5 Combining Threats and Assurances

With complete information, there is no need to combine threats and assurances. Threats raise one’s bottom line and are used when there is a range of deals that both prefer to war and player 1 wishes to get a better deal within that range. Assurances lower one’s bottom line and are used when there are no deals that both sides prefer to war, but player 1 would prefer to live with player 2’s bottom line rather than fight a war subsequent to player 2 seizing the entire good in dispute. These conditions are mutually exclusive.

Combining threats and assurances could make sense in a game of incomplete information, however. Consider a further modified game with multiple types for each player. There are three types of player 1, one with a lower baseline bottom line, one with a middle bottom line, and one with a higher one, \( b_1^l < b_1^m < b_1^h \). Let there also be two types of player 2, with bottom lines \( b_2^l < b_2^h \). Assume that the bottom lines are interleaved in the following pattern: \( b_1^l < b_2^l < b_1^m < b_2^h < b_1^h \). This implies that there are deals that the low-bottom-line type of player 1 and either type of player 2 would prefer to war. The middle type of player 1 would be willing to live with a deal acceptable to the high-bottom-line type of player 2, but, absent any assurances, not with a deal acceptable to the low-bottom-line type of player 2. Finally, the high-bottom-line type of player 1 cannot live in peace with either type of player 2 unless it can make sufficient assurances.

When combining threats and assurances, player 1’s bottom line, denoted \( B_1^{ta} \), will be equal to its announced goal, \( g_1 \), if it can credibly commit to attack if it gets less and not attack if it gets more. That is, if \( g_1 < b_1^l \), then \( B_1^{ta} = b_1^l \); if \( g_1 \in [b_1^l, b_1^m] \), then \( B_1^{ta} = g_1 \); and finally if \( g_1 > b_1^m \), then \( B_1^{ta} = b_1^h \). These terms can be further superscripted for each of the
three types of player 1, for instance, $B_1^{lt}$, for the low bottom line type, and so forth.

### 5.1 Informative Assurances

There are many possible equilibria in the incomplete information version of the game. We describe two which illustrate some interesting possible patterns of behavior; details are available in an online appendix. First, we consider a fully separating equilibrium, described in Table I. In this equilibrium, the low-bottom-line type of player 1 is content to get the most it can from the most resolved type of player 2 by demanding either that type’s bottom line, or the most it can threaten for, whichever is less, $g_1 = \min(b_{l2}, b_{lt1})$. This encourages both types of player 2 to make a larger grab and set $x = \min(b_{l2}, b_{lt1})$, but there is no danger of war. The middle type of player 1 makes a threat and an assurance around the high type of player 2’s bottom line or the most it can threaten for, $g_1 = \min(b_{h2}, b_{mt1})$. This involves taking a risk because the more resolved type of player 2 will reject this threat and implement $x = 0$, inviting a war. Finally, the high-bottom-line type of player 1 threatens at $g_1 = \min(b_{h2}, b_{mt1})$ but offers no assurance, which leads to war. Each type of player 1 pursues a unique strategy, so the equilibrium is fully separating. Player 2 will know player 1’s type with certainty when it has to move.²

In this equilibrium, the threats and assurances are all credible, and player 1 never lies. The low-resolve type of player 1 makes a modest threat. This type has no need to make an assurance because its small threat is enough to identify its type to player 2. The middle type makes a larger threat along with an assurance. The assurance serves to distinguish the middle type from the high type. The high-resolve type makes an equally large threat, but does not offer an assurance because this would either lock it into an outcome it likes less than war or force it to pay too high a reputational cost for violating its assurance. The implications of this equilibrium are summed up in the following proposition.

**Proposition 4** Threats and assurances can be jointly informative when the low bottom-line type finds a larger threat too risky because it may provoke a war, while the high-bottom-line
type finds an assurance too costly because it does not want to get locked into a low issue resolution or pay a high cost for fighting after offering an assurance.

5.2 Uninformative Assurances

We next consider a partially separating equilibrium. In this equilibrium, illustrated in Table 2, the low and middle-resolve types of player 1 both behave the same as before. The difference is that here the high-resolve type of player 1 mimics the middle type by making a threat and assurance at an equilibrium level $g_1 = x^*$, which is derived in the online appendix. The high-resolve type also attacks on the equilibrium path, so it violates its assurance.

In this equilibrium, the types separate on threats but pool on assurances. Threats are informative because they raise player 1’s bottom line and enable the middle-bottom-line type of player 1 to distinguish itself from the low type. The assurances given by the middle and high-bottom-line types, in contrast, are not informative, since both types pool on the same goal, $g_1 = x^*$, accompanied by an assurance (as well as a threat). The absence of an assurance would be informative, and, off the equilibrium path, would cause player 2 to believe it was facing the high-bottom line type of player 1, leading to war. However, the presence of the assurance is not actually reassuring, since it does not alter the relative likelihood of facing a middle or high-resolve type. Thus, this equilibrium may shed light on cases where disingenuous assurances are offered, not in the expectation that they will be believed, but because their absence would be informative and provocative.

The partially separating equilibrium underlies the following proposition.

**Proposition 5** If the audience costs associated with assurances, $\alpha_a$, are low, false assurances may be offered by high-bottom-line types if their target is willing to meet a demand in the absence of new information that the first state is aggressive. The absence of an assurance would convince the target to challenge forcefully, while an assurance convinces it to comply with the demand.
5.3 The Tradeoff between Threats and Assurances?

In the complete information games, threats strengthen a state’s bottom line and assurances weaken it, so there appears to be a tradeoff between threats and assurances, as Jervis (1976) argued. However, the incomplete information version makes clear that the model contains no disincentive to make assurances that a state is happy to honor. In any of the equilibria, a state that is making a threat at a level $g_1$ and would be happy to live with that outcome has no reason not to make an assurance as well. The assurance will not make it look willing to live with an outcome less than $g_1$, so its bottom line will not be weakened. Thus, the kind of audience-cost-based threats and assurances the model depicts do not seem to suffer from the tradeoff identified by Jervis between moves designed to reinforce deterrence and those designed to reassure the other side. Assurances in this model only make one look weak to the extent that one wants to look weak, in order to avoid war with the other side. Thus, if assurances are useful for domestic political purposes, for instance, if domestic audiences want to commit the state not to provoke an unnecessary war, there will be no international reason not to make them. However, as discussed in the next section, there will often be less of an international strategic incentive to make assurances.

6 Empirical Implications and Evidence

There are several empirical implications that can be drawn from the model regarding when threats and assurances are likely to be made. Threats are made whenever there is some range of deals that both sides prefer to war or, in the incomplete information version, when this is true for at least some types. Threats are widely useful because they serve a commitment function that raises a state’s bottom line and convinces the other side (or some types of the other side) to make a better offer. In the fully separating equilibrium, large threats can be provocative because they increase the chance of war, but even the low-bottom-line type makes a small threat to boost its payoff. Therefore, threats should be very common in
conflict bargaining situations.

Assurances, however, are not as widely useful. In the complete information case, assurances are only useful when there would be no deals that both sides prefer to war without them. Even then, they are only offered when a state wishes to lower its own bottom line in order to accept the other side’s bottom line and the audience cost associated with the assurance is great enough to accomplish this. In the incomplete information case, assurances are only informative and necessary when two conditions are met: (a) one state makes a large enough threat that other states would assume it was aggressive in the absence of an assurance and (b) the truly aggressive type would not want to make an assurance because violating it would be too costly. Assurances may also be offered when the cost of violating them is low if moderate and aggressive types pool on this behavior, but in this case the assurances are not informative.\(^3\)

The model therefore implies that threats can be useful for many types of states, but only states with relatively high ambitions have a need to make assurances. In the incomplete information equilibria, a state that makes the smallest possible threat has no need to make an assurance because its small threat in itself is enough to reveal that it is not the type that will attack if its demand is met. Only states that make larger threats and are thus suspected of being aggressive types have any possible need to offer assurances. In the complete information version, high ambitions are also likely to be associated with more assurances because this increases the likelihood that there will be no bargaining space without assurances.

Summing all this up, we expect that countries with relatively limited aims will communicate primarily with threats, whereas countries with greater ambitions will need to rely on both threats and assurances. We can apply this insight to the real world by comparing deterrence and compellence situations. We expect that threats will be made commonly in both deterrence and compellence cases, but that assurances will be more common in compellence, which typically signifies greater ambition. In deterrence, threats boost a state’s bottom line, but willingness to live with the status quo serves as an implicit assurance. In
compellence, threats are necessary to persuade the other state that the status quo is no longer acceptable, but once this has been conveyed, it leaves open the question of where the state’s ambitions end, especially if granting the concession shifts the balance of power in favor of the threatener. Because states engaged in compellence seek more than they already have, other states are likely to fear that they are the high-bottom-line type that might attack even if the demand is met. In order to counteract this perception, we expect that states which seek more than the status quo will make assurances more frequently. This gives us the following hypotheses:

**Hypothesis 1** Threats will be common and assurances will be rare in cases in which a state seeks to preserve the status quo, i.e. in cases of deterrence.

**Hypothesis 2** Threats and assurances will both be common when a state seeks to change the status quo, i.e., in cases of compellence.

We undertake an initial investigation of these hypotheses using two case studies. While two cases are not enough to definitively prove or disprove the hypotheses, they can at least tell us whether the hypotheses are plausible. The case studies we investigate are two of the most famous cases of deterrence and compellence in the twentieth century: the NATO attempt to deter a Soviet invasion of Western Europe during the Cold War and Nazi Germany’s attempt to compel Britain and France to accept its annexation of the Sudetenland. We selected these cases because we wanted to determine whether our model can provide insight into some of the most high-stakes cases of deterrence and compellence in the real world.

### 6.1 Cold War Europe

The first case is NATO’s attempt to deter the Soviet Union from invading Western Europe during the Cold War. Although the extent of Soviet aggressive intentions is debated by historians (Haslam 2003), Soviet ideology called for the spread of Communism, and Soviet leaders used force to spread it in Eastern Europe and the Third World. Therefore, Western
leaders believed that if left unchecked, the Soviet Union would pose a threat to Western Europe as well. During the early Cold War, tensions between the Soviet Union and NATO were particularly high over the issue of West Berlin. Khrushchev sought to change the status of West Berlin, while NATO sought to defend it (Taubman 2003, 396-7, 499-500).

Therefore, NATO’s strategy in Europe was focused on defending the status quo. Although the United States and NATO ultimately desired the downfall of Communism, their primary policy approach, especially in Europe, was containment rather than directly challenging the Warsaw Pact (Gaddis 2005). Because NATO was engaging in deterrence with the limited goal of preserving the status quo, Hypothesis 1 would predict that threats would play a more prominent role in this case than assurances.

An investigation of NATO’s strategy for deterring the Soviet Union from attacking West Berlin or Western Europe confirmed that the strategy was centered on threats, particularly nuclear threats. A policy document issued by the US National Security Council in 1953 stated, “The major deterrent to aggression against Western Europe is the manifest determination of the United States to use its atomic capability and massive retaliatory power if the area is attacked” (National Security Council 1953, 11). In 1954, NATO released a strategy document which stated that even a purely conventional Soviet attack on Western Europe would require NATO to immediately use nuclear weapons (NATO 1954, 233). As Soviet nuclear capabilities grew, the US and its allies began to move toward a “flexible response” strategy that did not entirely rule out the possibility of conventional war with the Soviet Union. However, the threat to use nuclear weapons remained. A 1968 NATO strategic concept stated, “Should an aggression be initiated, short of a major nuclear attack,...[t]he first objective would be to counter the aggression without escalation...However, NATO must be manifestly prepared at all times to escalate the conflict, using nuclear weapons if necessary” (NATO 1968, 362). US and NATO policy documents are not entirely devoid of assurances, but threats play a more prominent role.

As a supplement to this qualitative analysis of US and NATO documents, we also per-
formed a quantitative content analysis of US presidential statements directed at the Soviet Union. We collected statements made in the context of militarized interstate disputes against the Soviet Union between 1950 and 1989 (Maoz 2005) from the *Public Papers of the Presidents of the United States* (Peters & Woolley 2014). We then developed content analysis dictionaries of threatening and assuring phrases, using methodology similar to McManus (2014). When counting only explicitly threatening and assuring phrases, we found that the president uttered 19.5 times as many threats as assurances. Counting implicitly threatening and assuring phrases as well, threats still outnumbered assurances by 2.3 to 1.

Both the qualitative and the quantitative evidence fits with our first hypothesis that threats are likely to dominate assurances in deterrence situations. As a defender of the status quo in Western Europe, the NATO did not exhibit much concern that the Soviet Union would perceive its intentions as aggressive and therefore did not feel the need to make as many assurances. NATO’s strategy appears to have been successful, although we cannot know for sure what the Soviet Union would have done in the absence of NATO’s threats.

### 6.2 Sudetenland Crisis

Having observed that the dynamics of Cold War deterrence fit with our model, we now turn to the case of Nazi Germany’s attempts to compel Great Britain and France to accept a series of aggressive German moves in the run-up to World War II. In particular, we focus on the Sudetenland crisis, the last example of peaceful compellence by the Nazis before World War II.

When the Sudetenland crisis took place in 1938, the full extent of Hitler’s ambitions was not yet known. However, clues that Hitler was aggressive were already apparent, as he had previously violated the arms limitations placed on Germany in the Versailles Treaty and annexed Austria. His demand that Czechoslovakia relinquish part of its territory was also a clear indicator of expansionist designs.

Because Hitler was engaging in compellence and making ambitious demands, Hypothesis
2 would predict that Hitler would make a substantial number of assurances to try to persuade Britain and France that his ambitions were limited. However, because Hitler was domestically secure and did not seem to have any desire to maintain a trustworthy international reputation in the long-run, his domestic and international audience costs for violating assurances were small. Therefore, this situation is best represented by the partially-separating equilibrium. In this equilibrium, the absence of assurances would raise alarm, but the presence of assurances is not fully reassuring. Based on our model, we would therefore expect assurances to play an important role in Hitler’s strategy and yet not fully alleviate British and French concerns.

As the model would predict, during the Sudetenland Crisis, Hitler combined his threats to attack Czechoslovakia with assurances that his ambitions were limited. Portraying itself as seeking merely to protect the German people, Nazi Germany undertook a propaganda campaign highlighting alleged injustices faced by Germans in the Sudetenland (Weinberg 1980, 321). Although Hitler actually preferred a war with Czechoslovakia to a negotiated settlement, he engaged in negotiations with Britain and France in order to convince them that he was reasonable (Weinberg 1980, 431-435). During one of their meetings during the crisis, Hitler assured British Prime Minister Chamberlain that the Sudetenland “was the last of his territorial ambitions in Europe and that he had no wish to include in the Reich people of other races than Germans.” He further assured that he “wanted to be friends with England” (Churchill 1948, 307-8). Therefore, Nazi Germany’s behavior fits with Hypothesis 2, which states that both threats and assurances will be common in cases of compellence.

Since this case is best represented by the partially separating equilibrium, our model would predict that Hitler’s assurances would not be fully convincing. Whether other countries actually believed the assurances is a complicated question. On the British side, there is evidence of at least some skepticism. Of course, Chamberlain publicly declared that the Munich Agreement would lead to “peace in our time,” but days later he told lawmakers not to give too much weight to the phrase, which was “used in a moment of some emo-
tion.” According to the same account, Chamberlain privately told his Foreign Secretary that he had prepared the Agreement partially based on the calculation that a violation of it would make Hitler’s aggressiveness clear to the world (Feiling 1946, 381-2). Furthermore, Churchill’s account suggests that while the British government did not fully trust Hitler, it believed that the Munich Agreement would give Britain more time to make military preparations (Churchill 1948, 326-7). Therefore, in keeping with the model’s predictions, it does not seem that Hitler’s assurances truly alleviated fears that he was aggressive.

7 Conclusion

Threats and assurances are part of the fabric of international bargaining. In our model, threats strengthen a state’s bottom line and thereby enable it to extract greater concessions from the adversary. Assurances weaken a state’s bottom line and enable it to avoid war if there is otherwise no range of deals that both sides prefer to war. Threats and assurances can be used in combination if moderate types want to demonstrate that they are neither too weak nor too aggressive, so that the adversary will get war by challenging and peace by complying. Where the cost of violating assurances is low, aggressive types may pool on offering them, rendering them uninformative but still potentially effective if their target will comply with the demand absent any new evidence of aggressive intent.

Our model indicates that it is possible to make both threats and assurances simultaneously without one weakening the other. However, there is not always a positive incentive to make both types of statements. Threats are more likely to be made alone than assurances, particularly in cases where the threatener is not viewed as overly aggressive. Returning to the example of the threat, “One more step and I shoot” (Schelling 1966), our model shows that it is not always necessary to voice the implicit, “And if you stop I won’t.” For example, a homeowner defending his or her home from an intruder is likely to be a moderate type who does not want more than for the intruder to leave. Therefore, it usually goes without saying
that the intruder can avoid getting shot by obeying the homeowner’s order. In contrast, a home invader typically has more aggressive ambitions, which might make a homeowner fear that compliance would still result in violence. It thus fits with our model that a home invader is often full of assurances, such as, “Do what I say, and nobody will get hurt.”

Our initial empirical exploration gave support to the hypotheses derived from the model about when threats and assurances are most commonly made. In the Cold War case, a status quo power attempting deterrence relied primarily on threats rather than assurances. In the Sudetenland case, an aggressive state used assurances to try to hide the extent of its ambitions, but the assurances were not fully believed because they were too cheap.

Two avenues for further research seem promising. At the theoretical level, the signals we have been considering are of the “tying hands” variety, where no cost is paid unless the commitment is violated (Fearon 1997). It would be interesting to compare this case with signals that more closely approximate “sunk costs,” such as troop mobilizations or withdrawals, blockades, etc. In particular, sunk cost signals may involve more of a tradeoff between threats and assurances than is apparent in the tying-hands case. How the two types of signal combine is also of interest; for instance, a blockade could be combined with an assurance or a threat with a troop withdrawal. For example, the Cuban Missile Crisis involved threats and assurances as well as actions such as blockades and plane overflights.

On the empirical side, we have a number of studies of audience costs associated with threats but almost none on assurances. More research is needed on how likely domestic and international audiences are to punish actors for violating assurances under various conditions. Assurances will only be persuasive if audiences punish states for attacking when they have promised not to. Domestic audiences, at least hawkish ones, may be more likely to punish leaders who fail to back up threats than those who fail to honor assurances. Dovish audiences may have the reverse tendency. Tingley (2014)’s work offers a promising start to this line of research, but further experiments would be useful to study these questions.
Notes

1. Player 1’s selection of $g_1$ does not affect the payoffs in this version, so it can choose any level of $g_1$.

2. Off the equilibrium path, for any move other than the three expected from each type, we assume that player 2’s beliefs shift to the most resolved type of player 1, $b^h_1$.

3. Given the positive incentive to make assurances found in the Informative Assurances equilibrium, one might infer that assurances will be very widespread, since in some equilibria they are useful and in others merely unnecessary. However, in light of the strong and pervasive incentive to make threats, we feel that assurances will still be less prevalent.

4. We consulted Pedlow (1999) to identify the relevant strategy documents to consider.

5. More details on the statement collection and coding process are available in the appendix.

6. Supporting our assertion that the threats themselves, rather than simply the existence of nuclear weapons, were influential, Fuhrmann & Sechser (2014) show that nuclear alliance commitments have a greater effect than nuclear weapons deployments on the success of general deterrence.
References


Table 1: Informative Assurances Equilibrium

<table>
<thead>
<tr>
<th>Player/Choice</th>
<th>Type</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Threat at $g_1 = \min(b_2^l, b_1^l)$</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>Threat and assurance at $g_1 = \min(b_2^h, b_1^{mt})$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Threat (no assurance) at $g_1 = \min(b_2^h, b_1^{mt})$</td>
</tr>
<tr>
<td>Player 2:</td>
<td>Low</td>
<td>If threat at $g_1 = \min(b_2^l, b_1^l)$, set $x = \min(b_2^l, b_1^l)$</td>
</tr>
<tr>
<td>Choice of $x$</td>
<td></td>
<td>Otherwise, implement $x = 0$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>If threat at $g_1 = \min(b_2^l, b_1^l)$, set $x = \min(b_2^l, b_1^l)$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If threat and assurance at $g_1 = \min(b_2^h, b_1^{mt})$, set $x = \min(b_2^h, b_1^{mt})$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Otherwise, implement $x = 0$</td>
</tr>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Not Attack if $x \geq B_1^{ta}$, Attack otherwise</td>
</tr>
<tr>
<td>Attack or</td>
<td>Middle</td>
<td>Not Attack if $x \geq B_1^{inta}$, Attack otherwise</td>
</tr>
<tr>
<td>Not Attack</td>
<td>High</td>
<td>Not Attack if $x \geq B_1^{hta}$, Attack otherwise</td>
</tr>
</tbody>
</table>
Table 2: Uninformative Assurances Equilibrium

<table>
<thead>
<tr>
<th>Player/Choice</th>
<th>Type</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Threat at $g_1 = \min(b_2^l, b_1^l)$</td>
</tr>
<tr>
<td>Threat/Assurance</td>
<td>Middle</td>
<td>Threat and assurance at $g_1 = x^*$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Threat and assurance at $g_1 = x^*$</td>
</tr>
<tr>
<td>Player 2:</td>
<td>Low</td>
<td>If threat at $g_1 = \min(b_2^l, b_1^l)$, set $x = \min(b_2^l, b_1^l)$</td>
</tr>
<tr>
<td>Choice of $x$</td>
<td></td>
<td>Otherwise, implement $x = 0$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>If threat at $g_1 = \min(b_2^l, b_1^l)$, set $x = \min(b_2^l, b_1^l)$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If threat and assurance at $g_1 = x^<em>$, set $x = x^</em>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Otherwise, implement $x = 0$</td>
</tr>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Not Attack if $x \geq B_1^{ta}$, Attack otherwise</td>
</tr>
<tr>
<td>Attack or Not Attack</td>
<td>Middle</td>
<td>Not Attack if $x \geq B_1^{mta}$, Attack otherwise</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Not Attack if $x \geq B_1^{hta}$, Attack otherwise</td>
</tr>
</tbody>
</table>
Figure 1: The Game Tree

Player 1

\[ g_1 \]

Player 2

\[ x \]

Player 1

\[ \text{Attack} \quad \text{Not Attack} \]

\[
\begin{align*}
& p(x) - c_1 \\
1 - p(x) - c_2 \\
& u_1(x) - k \\
& u_2(x)
\end{align*}
\]
Figure 2: Player 1’s Bottom Line: Baseline Case

\[ u_1(x) = p(x) - c_1 \]
Figure 3: Player 1’s Bottom Line: With Threat

\[ u_1(x) - \alpha_t \]

\[ p(x) - c_1 \]

Utility

0

1

0

1

\[ b_1 \]

\[ g_1 = b^*_1 \]

X

37
Figure 4: Player 1’s Bottom Line: With Assurance

\[ u_1(x) = p(x) - c_1 - \alpha a \]

\[ g_1 = b_1^a \]

\[ b_1 \]

\[ X \]