

The Scope of Demands

When the kingdom of Piedmont-Sardinia dreamt of forming Italy in 1859, it set about forging a secret alliance with France, inspiring insurrections in Austria's Italian provinces, and conducting military maneuvers close to the Austrian border. The Austrians mobilized in response and war appeared likely. A compromise proposal was floated by the Powers according to which the Austrians would pull their troops back from the boarder in return for Piedmontese demobilization. In private diplomatic communications, the Austrians rejected this compromise, insisting the Piedmontese demobilize first. In cases such as this, costless communication is difficult, and is often thought to be impossible. All parties knew what the Austrians wanted; what they did not know initially was whether Austria was willing to fight rather than accept a compromise. Why should words uttered in private convince anyone? Austria had incentive to make the more substantial demand even if it were not willing to fight over the matter. But nevertheless, observers did learn from the Austrian refusal. The British ambassador to Austria even concluded that he had "not the smallest hope that the Austrian Government will agree to any such [compromise]."¹ How did observers reach this conclusion?

The ambassador may have drawn this inference because he believed that Austria, having made the threat, would not have wanted to be caught in a bluff, but this could be said of every threat and diplomats sometimes believe that threats lack credibility. Although a range of factors certainly affected the ambassador's conclusion, he likely made the following simple inference: in demanding more, Austria had given up the opportunity to achieve a compromise solution that Austria believed Piedmont was much more likely to have conceded without fighting; therefore, Austria is resolved to fight for the more substantial demand. Through this

¹ *British Parliamentary Papers*, 1859, v. XXXII, 213.

mechanism, the scope of state demands commonly conveys information about resolve to adversaries in international politics.

Despite literature in international relations that argues the contrary, such simple inferences are often quite rational in diplomatic relations. This chapter analyzes a model similar to Fearon (1995) in order to demonstrate that higher demands can increase perceptions of a state's resolve to fight for more favorable outcomes when two conditions hold. First, when negotiations produce a peaceful outcome, both sides must share in the bargaining surplus from avoiding war. This tends to occur when goods are only partially divisible or when settling on a negotiated solution is the outcome of a bargaining process in which both sides take part, rather than a take-it-or-leave-it offer from one side. Second, higher demands must be less likely to be accepted even when the associated threat is credible. This condition can hold when compromise may prove impossible even when the sides know that the alternative is war.² Many approaches to modeling international negotiation produce dynamics that satisfy these conditions in equilibrium; one such model is analyzed below.

These two signaling conditions imply that less resolved signalers do not necessarily have incentive to imitate the signals sent by more resolved signalers. The first signaling condition ensures that a compromise has value to types that prefer the compromise to war. Since a credible, high demand will not necessarily be accepted according to the second condition, the two conditions imply that equilibria exist in which less resolved types must weigh an intuitive tradeoff: demanding more holds the possibility of receiving a larger concession from an adversary, but also implies a lower probability of receiving somewhat less without having to fight for it. Thus, when states do make large demands, they run a risk, and since states would not be willing to run this risk unless a large concession (rather than an intermediate compromise) were sufficiently important, these threats convey information.

These dynamics allow us to understand when offers of compromise will be made even though they signal a measure of weakness by increasing an adversary's perception that the compromising state would be willing to make an even greater concession.³ This occurs only when an adversary

² Note that, as in the Fearon model, the options available to the sides must be more than simply making or not making a particular demand. If the target of a threat has only this binary choice, there can be no question of the *scope* of the demand. The result is that signaling will not be possible in contexts like the one analyzed here.

³ Slantchev (2010b) and Trager (2010) show why states would sometimes feign weakness in order to catch an adversary unprepared, but not why states might allow an adversary to infer that the signaling state is weaker than it is even when the adversary cannot make substantial preparations for conflict.

is believed unlikely to accede to maximalist demands. In such cases, states that are unwilling to fight if they are offered no concession and those states that would choose not to fight if they are offered just a moderate concession both send the same signal of willingness of to compromise. Only states that are willing to fight unless they receive a large concession send that signal. The less resolved states accept the appearance of weakness because they understand that making a maximalist demand runs a substantial risk of receiving no concession at all whereas making a moderate demand implies a higher likelihood of a moderate concession. This is why states are sometimes willing to make offers that signal a form of weakness. If, on the other hand, an adversary is believed likely to make a maximalist concession, offers of compromise either will not be made, or if they are, they will not lead to the inference that the conceding state is more likely to be willing to make further concessions. The reason is that, in this context, states that are unwilling to fight if they are offered no concession nevertheless make maximalist demands; if offers of compromise are made at all, and they may not be, such offers will be made only by a state that is willing to fight unless it receives some measure of compromise. An adversary will be able to conclude following a moderate demand, therefore, that a moderate concession is required to avoid conflict.

INFERENCES BASED ON THE SCOPE OF THREATS

A debate continues over how and whether adversaries learn from diplomatic conversations that occur away from the public eye, and more generally, whether these encounters play an important role in constructing the international environment of states. Intuition suggests that adversaries will not take each other's statements at face value, but, in one model meant to represent international bargaining, Fearon (1995) showed additionally that the scope of costless demands would convey nothing whatsoever to an adversary. The analysis below illuminates the assumptions on which this conclusion rests and demonstrates a simple rationalist mechanism through which the scope of costless demands can convey information in many international contexts.

The models described and analyzed in this book follow in the tradition begun in the seminal paper by Crawford and Sobel (1982). They showed that actions that in themselves have no effect whatever on player utilities and options can nevertheless have substantial effect on the equilibria of game theoretic models. These "costless signals" affect equilibrium behavior by conveying information. These models have been thought to represent talking well, since speech often appears to have substantial

effects on outcomes without directly affecting material contexts, or actor preferences and options. The effects that speech has on the course of events is usually the result of how other actors respond to it rather than a direct effect of the speech itself.

Most of the literature in economics and political science takes a different approach, modeling talk as costly in some fashion. By far the largest literature of this variety uses variants of alternating offer Rubinstein (1982) models. These articles have examined how player preferences over bargaining failure affect the results of bargaining, whether resolve can be signaled through delay in reaching agreements, the conditions under which bargaining outcomes will be efficient and other topics. In international relations scholarship, models that follow this approach include Powell (1988, 2002, 2004a, 2004b, 2006), Slantchev (2003), and Leventoglu and Tarar (2008). I do not follow this approach for several reasons. The most important is that these models are not designed to address questions related to when talking conveys information and effects the course of events as a result. On the contrary, these models assume that talking does so and therefore cannot pose the question.⁴

The question of how the scope of demands might convey information, the central question addressed in this chapter, has, however, been examined in this literature. One answer is that higher demands can convey resolve because such demands signal a willingness to accept *delay* in reaching a negotiated solution or even risk reaching a solution at all.⁵ Because this literature assumes that demands inherently affect actor payoffs and the choices available to actors later on, it has not addressed the conditions under which higher demands convey information in this fashion. Below, I describe such conditions. I also give conditions under

⁴ Relatedly, these models often assume a discount factor shrinks the benefits to be negotiated over in each round of negotiations. Thus, a bargaining tactic such as making a high demand has a direct cost resulting from the delay in reaching an agreement. In international politics, diplomats and leaders are sometimes keenly concerned to avoid delay, but this is a result of actions they believe other actors may take, not because the rewards of concluding an agreement are shrinking. Even though scholars often study the case where the discount factor has almost no effect (in the limit as the discount factor goes to one), the presence of the discount factor nevertheless drives the results of the model. This is particularly clear when the players are allowed to have different discount factors: even though the discount factors are arbitrarily close to one, a higher discount factor still produces substantial gains in the bargaining outcome. While discount factors have been interpreted in terms of the degree of player “patience,” there is no evidence that degree of patience is a frequent, principal driver of international political outcomes.

⁵ These models are reviewed in Ausubel, Cramton and Deneckere (2002). Note that studies have linked the scope of demands during wartime to the strength or resolve of the demanding side. Examples include Wittman (1979) and Reiter (2009). In these cases, costs may be incurred for each moment of delay, and so it may be reasonable to model such communication as a process that is inherently costly.

which higher demands may, in special circumstances, actually decrease adversaries' estimates of resolve. The approach employed in this chapter does not rely on a discount factor to generate a cost to making a risky offer that is unlikely to be accepted. As such, the costless signaling models are able to explain how the scope of demands can convey information even when there is no direct cost to sending a misleading signal. Following the costless signaling tradition, the models presented in this chapter assist in understanding when relations are too adversarial to allow for communication and when, despite appearances, they are not.⁶

The models that bear the most similarity to the models described in this chapter are Farrell and Gibbons (1989), Ramsay (2011), Sartori (2005), Kurizaki (2007), and Trager (2011). Unlike the first two, the approach used here does not rely on multiple equilibria in the game without costless signals to demonstrate that costless signals can affect equilibrium behavior. The models in this chapter also employ a standard crisis bargaining framework often used to analyze credibility in international relations rather than a double auction framework from the economics literature. Unlike Sartori (2005) and Kurizaki (2007), the models below allow costless demands to have scope rather than allowing only a choice to threaten or not. In all of these works, signaling occurs through different mechanisms from those analyzed here.⁷ Finally, unlike Trager (2011), the model below applies to cases where the players have opposite preferences over peaceful settlement outcomes on a single issue dimension. For instance, both may prefer to annex as much territory in dispute near their borders as possible. The amounts of territory demanded are questions of degree. In such cases, the model described below appears to be a good representation of international negotiation. If players may have strong or weak preferences over multiple issue dimensions, the model described in Trager (2011) may be more appropriate, although the mechanisms that allow for signaling are similar to those described here.⁸

⁶ Understanding when relations are truly zero sum turns out to be far more difficult than it appears at first glance. See Axelrod (1970).

⁷ Note that a number of models that allow states to choose the scope of a demand are not intended to analyze whether the scope conveys information. In fact, in these models, the state to which the demand is made has complete information about the preferences of the demanding state. Examples include Powell (2004a) and Filson and Werner (2008).

⁸ Even in negotiations in which separate issues appear to be involved, the model presented below is appropriate as long as the preference ranking of each side over the possible peaceful outcomes is common knowledge and the two states' rankings are precisely reversed.

A striking example of the signaling context analyzed below comes from the negotiations prior to the first Gulf War. In February of 1991, the US promised to begin a ground offensive unless Iraq withdrew from Kuwait City in two days and from Kuwait in seven. The US demand consisted of two essential parts: the requirement to leave Kuwait and the specific timetable for withdrawal. Iraq had already offered to leave Kuwait in 21 days and Kuwait City in four. The importance of the second US demand for a shorter timetable was that Iraq would not be able to unwind its positions and leave with its equipment in the shorter time frame. By this point in the conflict, a key US goal was to degrade the ability of the Iraqi army to threaten its neighbors. The Iraqi regime accepted the first US demand, but not the accelerated timetable.⁹ The US–Iraqi negotiations, conducted through Soviet mediation, concerned questions of degree: Iraq could not agree to the timetable, but refused to leave Kuwait. Iraq was largely convinced by this stage that the US would fight to restore Kuwaiti independence, but Iraqi leaders and analysts did not know whether the US would go to war rather than accept the Iraqi timetable for withdrawal.¹⁰ On February 23, the US bluntly informed the Soviets in a private exchange that the US would not accept the Iraqi timetable. The Soviets promptly communicated to the Iraqis that the US would invade unless Iraq agreed to a more accelerated timetable for withdrawal.¹¹

Costless statements in such contexts can convey information. Signaling is likely to be particularly effective when the signaling state is believed likely to be resolved to fight at least for a partial concession from the second state, and the second state is believed sufficiently likely to be resolved to fight rather than make a full concession to the signaling state. The claim is not, however, that in such cases states are likely to reach a compromise, which would be unsurprising. It is rather the quite different claim that in this context, attempts at communication will change the threatened states' beliefs about the threatening states' intentions. In fact, in such cases, when the threatening state demands a full concession, the threatened state will know for sure that the threat is credible even though it did not believe the threatening state would fight for sure for a full concession before the threat was made.

To understand the intuition for the signaling dynamics described below, consider what the Iraqi government could have learned from the

⁹ Even after the war began, when the Iraqi regime announced it was abandoning Kuwait, President Bush said US forces would continue to attack Iraqi soldiers who did not lay down their arms. See Pape (1996, 216–219).

¹⁰ Woods (2008, Chapter 8).

¹¹ *The New York Times*, The Eve of War: Four Days of Diplomacy, January 19, 2011.

scope of the US demand. First, note that Iraq was itself very unlikely to comply with a demand that involved such a significant degrading of its military capability. Second, with the US insisting on the accelerated timetable, the Iraqi government would be hesitant to unilaterally remove its troops from Kuwait at the slower timetable because Iraqi forces leaving their chosen and prepared positions would have been the more vulnerable to US attack. Thus, by insisting on the greater Iraqi concession of the accelerated timetable, the US ensured that no partial Iraqi concession would be forthcoming. Suppose, by contrast, that the US government insisted only on the slower Iraqi withdrawal. This, the Iraqis were clearly much more likely to do. From the point of view of the US government, it only made sense to insist on the accelerated timetable if the accelerated timetable were of sufficient importance to US policy makers. Put in this way, it is obvious that Iraqi decision makers could conclude from US statements that US resolve not to make a concession was high. In diplomatic crises, similar dynamics to these recur. Of course, governments are always confronted with a range of signals and indices; this is but one.

A BARGAINING MODEL WITH A DISCRETE SET OF COMPROMISE OUTCOMES

In order to relate the discussion closely to previous literature on these topics, the model I shall describe is similar to the well-known model of cheap talk communication in Fearon (1995), except in these three respects: (1) states have a discrete set of compromise solutions available, (2) both sides are uncertain about the other's resolve, and (3) states are uncertain about each others utilities over compromise outcomes rather than over each other's costs of war.¹² These modifications in the model often better fit the facts of international politics. For one, negotiations often center on a few discrete options, and this is sometimes because only a discrete set of options are practical. (I consider an extension to a divisible issue space in Appendix A.) For another, no statesman could claim to have certain knowledge of how adversaries weigh proposed compromise solutions against one another and this is precisely what diplomats often strive to communicate.¹³

¹² O'Neill (2001) argues against thinking about the "issue space" negotiated over as a space in which one could define a sensible measure of distance between the possible outcomes. I take the standard approach here for simplicity and, again, to relate the results to previous scholarship.

¹³ With additional restrictions on the type utility functions, this model is equivalent to one in which uncertainty is modeled as being over the costs of war. The choice to

As in Fearon (1995), the game described here has two players, a “Signaler” and a “Target” indexed by $i \in I \equiv \{s, t\}$, and four stages. In the first stage, Nature draws utility functions $u_i^z(x)$ for each player i over outcomes in the bargaining space $X \equiv [0, 1]$ (with generic element x) according to the independent, commonly known, discrete distribution functions $h_i(u_i^z)$. For each player, there are three possible utility functions, so $h_i(u_i^z)$ has support $\{u_i^l, u_i^m, u_i^h\}$. The superscripts l , m , and h will be used in several places in the model and can be interpreted as “low,” “medium,” and “high.” In reference to the utility functions, the superscripts indicate the level of resolve of the player in a sense described below. The players have directly opposed preferences over the set of compromise outcomes so that, for all z , $u_s^z(x)$ is strictly increasing in x , while $u_t^z(x)$ is strictly decreasing in x . Player utility functions are the private information of each player.

In the second stage, the Signaler has the opportunity to send a message $y \in M$ to the Target from a large but finite set of messages. Assume that $m, h \in M$ s.t. $m \neq h$. After the message is sent, the Target chooses one of three settlement outcomes $\{x_l, x_m, x_h\}$, where $0 < x_l < x_m < x_h < 1$.¹⁴ In the final stage, the Signaler chooses $r \in R \equiv \{0, 1\}$, where $r = 1$ indicates a decision to initiate a war and $r = 0$ indicates peace, and then the game ends. If war occurs, the Signaler wins with probability p , the Target wins with probability $1 - p$, and the victorious player attains its most preferred outcome in X , 1 for the Signaler and 0 for the Target. Players have commonly known costs of fighting c_i . $\mu(u_s^z | y)$ represents the Target’s updated beliefs about the Signaler’s type u_s^z given signal y in a particular perfect Bayesian equilibrium. The game is represented in Figure 3.1. To highlight the elements of the game most clearly, only one of the branches at the Signaler’s messaging node and the Target’s response nodes are shown. The superscripts on player utility functions at peaceful outcomes and the initial move by Nature are also suppressed.

In order to relate this model closely to other models in the literature, I shall assume that uncertainty about preferences relates only to player preferences over the compromise outcomes rather than to the extreme

model uncertainty as being over player utilities for compromise outcomes was made largely for clarity of exposition. On this point, see the discussion of the Fearon model in Appendix A.

¹⁴ The assumption that the Target cannot choose the extremes of the bargaining space, which would guarantee war for sure by the assumptions made below, simplifies the cases to consider in the analysis. This assumption does not have substantively important implications, however, and in particular, allowing the Target to choose an extreme outcome does not eliminate costless signaling equilibria in the model.

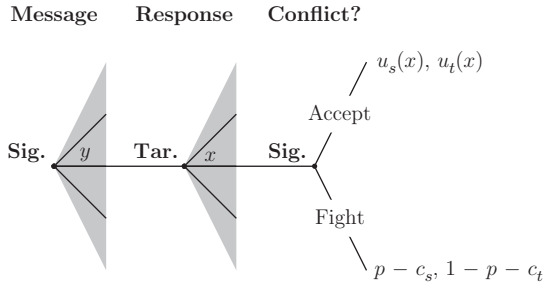


FIGURE 3.1 The Signaling Game

outcomes. Thus, we can set $u_s^z(0) = u_t^z(1) = 0$ and $u_s^z(1) = u_t^z(0) = 1$ for all z . This implies that expected utilities for war are $w_s = p - c_s$ for the Signaler and $w_t = 1 - p - c_t$ for the Target.

I also make several assumptions about player preferences. First, players prefer war to their least preferred outcome in X (formally, $w_i > 0 \forall i$) and prefer at least one of the three possible negotiated outcomes in the interior of X to war (formally, $u_s^z(x_h) > w_s$ and $u_t^z(x_l) > w_t \forall z$). Second, each player is uncertain whether the other will or will not fight if offered anything but its most preferred compromise outcome. In other words, both sides are uncertain whether the other would be willing to fight rather than accept any but its most preferred of the three compromise solutions. Formally, for the Signaler, this implies $u_s^l(x_l) > w_s$, $u_s^m(x_m) > w_s > u_s^m(x_l)$ and $w_s > u_s^h(x_m)$. For the Target, this implies $u_t^l(x_h) > w_t$, $u_t^m(x_m) > w_t > u_t^m(x_h)$ and $w_t > u_t^h(x_m)$. Figure 3.2 is an example of Signaler-type utility functions that satisfy these assumptions.

This sort of uncertainty implies the possibility that there may be no negotiated solution that both sides prefer to war *ex ante*. This implication is controversial because it is often supposed that preferences should be modeled with weakly risk averse utility functions, which imply that a mutually preferred negotiated solution must exist when the good in contention is divisible. I nevertheless assume the sort of uncertainty described above because it represents what we see in cases. When Britain and Germany negotiated over Czechoslovakia before the Second World War, for instance, neither side knew whether the other would accept a negotiated solution in which Germany annexed only the Sudetenland. In fact, the essence of compromises is often an agreement that neither side knew the other would accept at the start of negotiations. Compromise frequently involves both sides giving up something that each had claimed to be unwilling to give up. To model this sort of uncertainty in the conventional way requires assuming that there are types that will agree to such compromises and types that will not. This directly implies, however, that

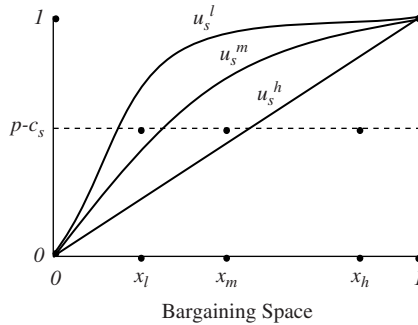


FIGURE 3.2 An Example of Signaler Utilities

there is a possibility that a negotiated solution may not exist to which both sides are willing to agree. Why this sort of uncertainty exists, and how it should be reconciled with traditional modeling approaches are difficult questions. That such uncertainties exist and should be accounted for in models of international politics is certain, and justifies the structure of uncertainty assumed here.¹⁵

The first proposition gives sufficient conditions for an equilibrium to exist in which the Target's beliefs are affected by the Signaler's cheap talk message. So long as both sides are sufficiently unlikely to be the least resolved type (the type unwilling to fight even if it is offered its least preferred of the three settlement outcomes), an equilibrium exists in which the least resolved and middle resolved Signalers claim they will fight unless the Target offers at least x_m and only the most resolved Signalers claim to be willing to fight unless they are offered the maximal concession x_h . Thus, when the Signaler says it will fight unless it is offered a maximal concession, the Target knows for sure that this is true. When the Signaler admits that it will settle for x_m , the Target knows that the Signaler would accept x_m , but is unsure whether the Signaler would also accept x_l . In fact, upon hearing the demand for x_m , the Target revises upwards its belief that the Signaler would not go to war if it were offered only x_l .

¹⁵ A variety of circumstances can justify violations of global weak risk aversion of leader preferences. A leader might believe that an outcome at least as good as x_m is necessary for the viability of the state or for the leader to remain in power, for instance. The leader therefore draws no strong distinctions between lesser outcomes, leading to a violation of risk aversion around x_m . Or, some units of a good such as territory may be inherently more valuable than others. Similarly, Powell (2006) points out that commitment problems result in incentives that look very much like issue indivisibilities that make compromise impossible. The uncertainty assumed in the model might therefore result from uncertainty over whether an adversary thinks about the negotiation in these terms. For the view that assumptions about risk preferences in international politics are incoherent, on which understanding the assumptions about uncertainty made in the model are perhaps less controversial, see O'Neill (2001). For a discussion of related issues, see Reiter (2009, Chapter 3) and Gottfried and Trager (2016).

The next section describes how the equilibrium works algebraically as an example of a costless signaling logic for more technical readers. The subsequent section discusses the dynamics of signaling.

Equilibrium Algebra

In this equilibrium, when the least resolved Target type, u_t^l , observes the Signaler claim to be the most resolved type ($y = h$), this Target type offers the maximalist concession x_h because the Target knows that any other offer results in war. Other Target types are not willing to accept such a poor outcome, however, and refuse to compromise at all. In response to the message h , the two more resolved Target types offer x_l , knowing that this will result in war. This implies that the expected utility of sending the strong signal, h , is $h_t(u_t^l)u_s^l(x_h) + [1 - h_t(u_t^l)]u_s^l(x_l)$ for the least resolved Signaler type, u_s^l , because that type is not willing to go to war under any circumstances. The expected utility of sending h for the Signaler type whose resolve is in the middle range, u_s^m , is $h_t(u_t^l)u_s^m(x_h) + [1 - h_t(u_t^l)]w_s$ because that type prefers to go to war rather than accept x_l .

How will the Target respond when it observes the signal m ? The Target knows that the Signaler will accept x_m rather than fight, but the Target also understands that the Signaler may be willing to accept x_l as well. However, as long as the probability that the Signaler is the least resolved type, u_s^l , is not too high and as long as the Target is not the most resolved type, the Target will settle for x_m . If the Target is the most resolved type, it risks war by offering x_l . This implies that the expected utility of sending the signal m is $(h_t(u_t^l) + h_t(u_t^m))u_s^l(x_m) + [1 - h_t(u_t^l) - h_t(u_t^m)]u_s^l(x_l)$ for the least resolved Signaler type and $(h_t(u_t^l) + h_t(u_t^m))u_s^l(x_m) + [1 - h_t(u_t^l) - h_t(u_t^m)]w_s$ for the moderately resolved Signaler type.

In this context, would the less resolved Signaler types be willing to admit that they are not the most resolved type, as the equilibrium requires? They would if their expected utilities for sending the signal m are greater than their expected utilities for claiming to be the most resolved type by sending the signal h . The expected utilities just stated imply that the least resolved Signaler type prefers to send the signal m when

$$\begin{aligned} & [h_t(u_t^l) + h_t(u_t^m)]u_s^l(x_m) + [1 - h_t(u_t^l) - h_t(u_t^m)]u_s^l(x_l) \\ & \geq h_t(u_t^l)u_s^l(x_h) + [1 - h_t(u_t^l)]u_s^l(x_l). \end{aligned}$$

Moderately resolved Signalers also prefer to send the signal m when

$$\begin{aligned} Eu_s(m | u_s^m) &= [h_t(u_t^l) + h_t(u_t^m)]u_s^m(x_m) + [1 - h_t(u_t^l) - h_t(u_t^m)]w_s \\ &\geq h_t(u_t^l)u_s^m(x_h) + [1 - h_t(u_t^l)]w_s. \end{aligned}$$

Notice that both conditions are satisfied as long as the probability that the Target is the least resolved type, $h_t(u_t^l)$, is not too high. If it is, then the prospect of achieving the very favorable deal, x_h , is too tempting, causing the less resolved Signaler types to misrepresent their levels of resolve, and signaling equilibria of this form become impossible. Proposition 3.1 formally describes the properties of this equilibrium and gives the sufficient condition for its existence: the probability that the players are the least resolved types cannot be too high.¹⁶

Proposition 3.1: If $h_i(u_i^l)$ is sufficiently low for all i , a perfect Bayesian equilibrium exists in which the signals m and h are sent with positive probability and

$$\begin{aligned}
 (1) \quad & \mu(u_s^h | h) = 1 \ \& \ \mu(u_s^h | y) = 0 \ \forall y \neq h \\
 (2) \quad & \mu(u_s^m | m) = \frac{h_s(u_s^m)}{h_s(u_s^l) + h_s(u_s^m)} < 1 \ \& \ 1 > \mu(u_s^l | m) \\
 & = \frac{h_s(u_s^l)}{h_s(u_s^l) + h_s(u_s^m)} > h_s(u_s^l) \\
 (3) \quad & \mu(u_s^l | y) = 1 \ \forall y \neq m, h.
 \end{aligned}$$

When the signaler is somewhat more convinced that the Target is the least resolved type, an equilibrium with informative signals but different properties from those described in Proposition 3.1 can also exist. This equilibrium requires that player utility functions take on odd forms that are not contemplated in the international relations literature, however, and I therefore do not focus these equilibrium dynamics. Proposition 3.2 further demonstrates that whenever the Target is believed sufficiently unlikely to make the maximalist concession x_h , any separating or semi-separating equilibrium will have the properties described in Proposition 3.1. This means that the model gives us a strong empirical expectation: when there is reason to believe that the states involved are each unlikely to accept their least preferred among the three settlement outcomes, signaling will have the properties described in Proposition 3.1.

Proposition 3.2: For $h_t(u_t^l)$ sufficiently low, any pure strategy equilibrium in which Signalers do not pool on a single message has the properties described in Proposition 3.1.

In cheap talk models of this sort, so long as the probability that the Signaler is the least resolved type is sufficiently low, the possibility of

¹⁶ All proofs are contained in Appendix A.

communication never increases the probability of war and sometimes communication makes war less likely. This result is proved as Proposition 3.3. Note that this is in contrast to models of signaling based on reputation and other models in the literature.¹⁷

Proposition 3.3: For $h_s(u_s^l)$ sufficiently low, no pure strategy PBE of the game with the cheap talk stage has a higher probability of war than the same game without communication.

A principal effect of the partial issue indivisibility in this model is to ensure that the Target does not capture all the gains from agreeing on a negotiated solution that both prefer to war. Many bargaining contexts will result in outcomes in which the gains from agreement are shared between the parties, however. As long as the gains from agreement are shared among the players and uncertainty is the sort characterized above, costless signaling is not impossible. The dynamics are the same as those described here in essential respects. These matters are addressed further in Appendix A.

DISCUSSION

Communication is possible between adversaries because some Signaler types admit that they are not the most resolved of the possible Signaler types. These types are willing to reveal this information, in spite of the fact that they also have incentive to misrepresent themselves as more resolved than they are in order to achieve a more favorable bargain, because demanding more sometimes also entails a risk they are unwilling to run. The risk is that an increased demand will be resisted where a more moderate demand would not be, with the result that the parties will not agree on a negotiated solution and a Signaler who had misrepresented its preferences may even be forced to fight rather than accept the unilateral action by the Target or the no agreement outcome. The strategies of the players in a signaling equilibrium are represented in Figure 3.3.

Signaling relies on the fact that when the Target believes that no compromise is possible that will avoid conflict, it makes no compromise in its actions.¹⁸ This is the risk of overstating one's resolve. Thus,

¹⁷ Sartori (2005), Slantchev (2010a, 136–141).

¹⁸ Note that the incentive not to make a concession that appears to have no chance of placating an adversary is particularly strong when the concession influences the states' prospects in a conflict. That is not modeled explicitly here for simplicity, but is a feature of many historical international negotiations.

Signaler	Demand a Middle Range Concession	Demand a Middle Range Concession	Demand a Full Concession
	Accept Whatever Is Offered	Accept If at Least a Middle Range Compromise Is Made; Fight Otherwise	Accept If a Full Concession Is Made; Fight Otherwise
Target	If a Middle Range or Full Concession Is Demanded, Make One	If a Middle Range Concession Is Demanded, Make One	Do Not Make a Concession
	Otherwise, Do Not Make a Concession	Otherwise, Do Not Make a Concession	
	Least Resolved	Intermediate	Most Resolved

FIGURE 3.3 Player Strategies in a Signaling Equilibrium

this form of signaling can only occur in contexts in which the scope of demands is an issue, that is, when more than two non-conflict outcomes are possible. If the only choice of the Signaler is to threaten or not threaten and the only choice of the Target is to back down or not, in the signaling context analyzed here, no communication of resolve will be possible because demanding more carries no risk of getting even less at the bargaining table and therefore the incentives to misrepresent imply that no semi-separating equilibria exist.

Unlike in many other models of diplomatic signaling, therefore, resolve is not conveyed through risking conflict.¹⁹ When the most resolved Signaler types send a signal that other types are unwilling to send, the probability that war occurs decreases. This is because only the Signaler has the option to initiate conflict and when resolved

¹⁹ See Slantchev (2010a, 136–141) for a discussion of other models in the literature on this point. In a general class of crisis bargaining games with one-sided incomplete information, Banks (1990) demonstrates that more resolved states will run an equal or greater risk of conflict compared to less resolved states. As Fearon (1995) illustrates, however, more resolved states will not always be able to incur such increased risks to signal resolve. Further, as Fey and Ramsay (2011) demonstrate, Banks' result does not extend to the two-sided incomplete information context.

Signalers send such a signal, they are more likely to get a better offer and therefore less likely to initiate a conflict. Further, for most parameterizations of the model that seem reasonable, the existence of signaling mechanisms of the type described here either does not increase the likelihood of conflict or actually causes the probability of war to decline.

To understand the signaling dynamics, first note that the Signaler cannot conjure credibility out of nothing. If the Target starts out largely convinced that the Signaler will not fight even if offered its worst outcome, private diplomatic signals will not convince the Target otherwise. To see why, consider the Target's dilemma when the Signaler demands a compromise. The Target knows the Signaler would accept the compromise outcome, but will wonder if the Signaler would accept its least preferred outcome without going to war. If the Target is too convinced that the Signaler is the least resolved type following the compromise demand, then the Target will offer the Signaler the worst settlement outcome, in which case Signalers will never make compromise demands and signaling will not occur. Signaling therefore requires that there is a high enough probability at the start of the interaction that the Signaler is a "Compromiser" – a type that would fight unless the Target concedes at least the compromise outcome. So long as this is sufficiently high, then the Target will not be too certain that the Signaler would accept its least preferred outcome following a compromise offer, and therefore at least some Target types will concede to a compromise demand. These dynamics are illustrated in the vertical axis in Figure 3.4.

Proposition 3.1 makes clear that signaling will be possible as long as both sides are sufficiently unlikely to be the least resolved types. But if those probabilities are not very low, other factors come in to play. For instance, as the horizontal axis in the Figure 3.4 illustrates, if the Target is initially believed very likely to be the most resolved type, signaling may again fail. Here, the reason is that demanding a compromise is too unlikely to produce one, so Signalers gamble on making the highest demands even when they would accept less. Even though those high demands are unlikely to be accepted, if they are, at least the payoff will be better than the compromise outcome. The figure also shows one way that power dynamics can influence signaling. Higher Signaler capabilities can make the Signaler more willing to bluff, potentially eliminating a signaling equilibrium. On the other hand, higher Target capabilities can make the Target more willing to risk making additional demands following a compromise proposal by the Signaler, once again eliminating the possibility of communication.

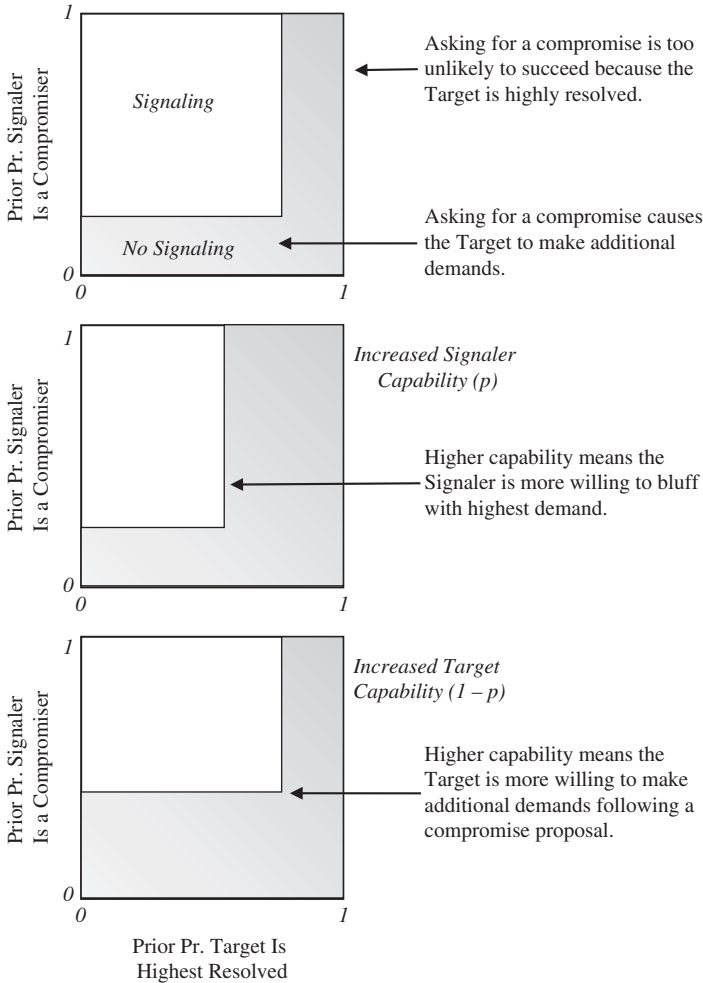


FIGURE 3.4 Signaling Equilibrium Dynamics

An example of the effect of communication on the probability of conflict is shown in Figure 3.5. On the left-hand side of the figure, communication strictly decreases the probability of war. As it becomes more likely that the Signaler is the most resolved type, the benefit of communication increases up to a point and then the probability of conflict in the equilibrium without communication falls discontinuously to be equal to the likelihood of conflict in the cheap talk equilibrium. The reason for this is that, as the Target becomes more convinced that the Signaler is the most resolved type, the Target becomes less willing to risk conflict even without a credible signal of resolve. On the right-hand side of the figure, as the Target becomes still more convinced that the Signaler is the most resolved type, the Target becomes less convinced that the

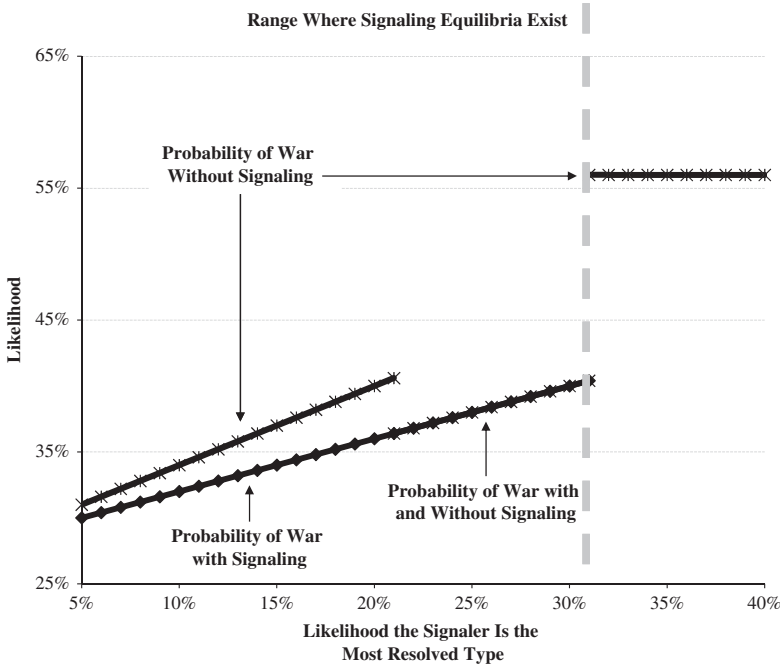


FIGURE 3.5 The Probability of War

Signaler’s resolve is in a middle range. Therefore, the Target becomes less likely to be willing to offer a middle range compromise in response to a less than maximalist demand by the Signaler. The result is that the Signaler becomes unwilling to make less than maximalist demands, the communication equilibrium breaks down, and the probability of conflict increases dramatically.²⁰

The primary reason these results are different from those presented in Fearon (1995) is the fact that in the Fearon model, the Target captures all of the benefit from avoiding war. The Target’s disproportionate share of the benefits of peace results from (1) the take-it-or-leave-it aspect of the model and (2) the infinitely divisible issue space. This is because, in that model, when the Target of a threat knows the Signaler’s type, its take-it-or-leave-it equilibrium offer leaves the Signaler indifferent between choosing war or peace. As a result, the Signaler has no incentive to reveal information: although peace may result, the nature of the peace is such that the Signaler finds war an equally compelling alternative. If either of these two assumptions is relaxed, the Target need not capture all of

²⁰ Parameter values for this simulation are $p = .5$, $c_i = .15 \forall i$, $x_1 = .25$, $x_2 = .5$, $x_3 = .75$, $u_s^1(x) = x^{\frac{1}{5}}$, $u_t^1(x) = (1-x)^{\frac{1}{5}}$, $u_s^2(x) = x^{\frac{9}{10}}$, $u_t^2(x) = (1-x)^{\frac{9}{10}}$, $u_s^3(x) = x^2$, $u_t^3(x) = (1-x)^2$, $h_s(u_s^1) = .3$, $h_s(u_s^2) = 1 - h_s(u_s^1) - h_s(u_s^3)$, $h_t(u_t^1) = .2$, $h_t(u_t^2) = .4$, $h_t(u_t^3) = .4$.

the gains from a negotiated solution, the Signaler can therefore have an incentive to reveal its type, and the scope of a costless demand can convey information to the Target.

While the take-it-or-leave-it model with an infinitely divisible issue space is interesting to study, it is likely that in most bargaining contexts, the players expect the benefits of peace to be spread more evenly between the players.²¹ When states are highly resolved and willing to go to war over a particular set of issues, they still often have a strong preference for getting their way through the threat rather than the costly use of force. For this reason, resolved states are thought to have an incentive to reveal their types. In the Fearon model, by contrast, not only unresolved, but also resolved states have no incentive to reveal their types. If they do, they end up with their war payoff and if they are not able to, they still get their war payoff. Thus, what prevents costless signals from conveying information is *not merely that unresolved types have an incentive to misrepresent themselves as resolved* (that is true in the model analyzed here as well), but also that both resolved and unresolved types have no incentive to make their signals credible.

In many real world crises, a model in which even successful signalers receive no benefit from success does not appear to correspond actors' understandings of the situation. In the Cuban Missile Crisis, for instance, although the Kennedy administration was willing to initiate conflict with the Soviet Union through an air strike on Cuba, members of the administration were very glad to have forced the removal of the missiles without having to do so. That US policymakers were so relieved at the resolution of the crisis indicates that the Soviets were unable to capture all of the gains from peace in this case, as Targets are in the majority of instances of successful coercion.

One reason the gains from cooperation are shared in real world cases is that no continuously divisible issue space exists in many instances or, for complex reasons outside the scope of the questions considered here, in practice, actors do not consider the issue space divisible. Fearon (1995, 389–390) and Powell (2006) note that mechanisms, such as randomization devices or alternating possession of the good, exist to make the issue space divisible, and that therefore indivisibility is generally not by itself a rational explanation for war. They also emphasize, however, that for complex reasons, states often act as if issues are indivisible. This may result from the elite framing of what is at stake in the conflict,²²

²¹ The discussion here does not directly bear on, and does not constitute a critique of, the central theses of Fearon (1995) related to the nature of rationalist explanations for war.

²² Goddard (2006).

from inherent features of the issues involved,²³ from the logic of commitment problems,²⁴ from the positions of other powers that limit the options of the two states,²⁵ or because the set of potential issues in contention in particular cases is not large enough.²⁶ Yet another reason issues may be indivisible in practice has to do with bargaining reputation. As Schelling has pointed out, the US would have a hard time offering to give up California and then establishing a credible commitment to give up no additional territory. It is the unavailability of other salient lines that leads to a sort of indivisibility of the initial grouping of territory.²⁷ Still another reason for indivisibility relates to what moral codes allow leaders to demand and offer each other. Hitler could demand the Sudetenland, and even that the West stand aside while he occupies Czechoslovakia in the name of protecting Germans in the Sudetenland, but he could not demand “three quarters of Czechoslovakia.” At the Munich conference and in the diplomacy that preceded it, neither side considered such demands and offers.

Besides issue indivisibility, another reason Targets often are not expected to garner all gains from cooperation is that bargaining outcomes that are preferable to both sides often require actions taken by both sides. Each side may be willing to withdraw its troops from a border, but only if the other side also does so. Saddam Hussein may have been willing to withdraw his forces from Kuwait on a particular timetable, but only in return for a public guarantee of their safety from the United States. If neither side can achieve the preferred compromise outcomes unilaterally, we should expect that the sides negotiate and – if they reach agreement – that they share the bargaining surplus between them.

²³ Hassner (2003). Even territory is less easily divisible than it might appear. Often, given military technologies available at the time of a crisis, some groupings of territory are considered much more defensible, and thus much more valuable than others. A striking example is Hitler’s calculation in 1941 that since war with the US was likely, control of the entire European landmass was essential to preserve German territorial gains. This made Hitler less willing to compromise on lesser territorial gains and resulted in the decision to attack Russia. On this point, see, for instance, Kershaw (2007, pp. 54–90). Fearon (1995, pp. 389–390) discusses the rise of nationalism in making territory less easily divisible.

²⁴ Powell (2006).

²⁵ Fearon (1995, pp. 389–390) mentions the practice of compensating a state for territorial acquisition of a rival state with territory somewhere else as a means of making the issue space convex. In many cases, however, this proved impossible because of the attitude of third powers. France’s call for compensation in Belgium for Russian gains in the Ottoman territories prior to the Crimean War, for instance, was objectionable to Britain. See Puryear (1931, p. 272).

²⁶ The implications of “issue linkages” are discussed in Fearon (1995, pp. 389–390), Morrow (1992) and Trager (2011).

²⁷ Schelling (1966, Chapter 2).

Another important driver of the signaling dynamics of the model is the assumption that both sides are uncertain whether the other would or would not be willing to fight rather than accept some compromise solution. As a result, when the Target believes the Signaler is a type that would be unwilling to make a compromise that the Target would accept, the Target no longer has any interest in making concessions to the Signaler. This gives less resolved Signalers a disincentive to misrepresent themselves as more resolved than they are.

The assumption that both sides are uncertain whether the other would accept a compromise appears uncontroversial in that it faithfully represents the subjective states of international actors in crises. However, the implication of the assumption is that it is possible that no compromise exists that both sides prefer to conflict. Put in this way, the assumption appears more controversial, but we can think of this assumption as merely a simplification of a more complex strategic process that is not modeled explicitly. To see this, note that virtually all crisis bargaining models share the following property: for some combinations of player types, war occurs with certainty.²⁸ Whether this results from an explicitly modeled strategic context or directly from the preferences of actors is not important for the present inquiry. Thus, the assumption that player preferences can produce war could be justified by embedding many prominent crisis bargaining models from the literature in the game presented here. This would substantially complicate the analysis, as well as obscure the dynamics of the current framework, which is why the simpler approach is adopted here.

It is thus in a restricted set of cases that the logic of Fearon's take-it-or-leave-it model might be expected to operate: when the Target of a threat can unilaterally choose from a set of options that approximate a divisible issue space and when the signaler has few options short of conflict or acquiescence. In such cases, costless signals will not convey information. One might suspect, however, that such cases are relatively rare in international politics either because, in practice, inherent indivisibilities exist or because compromise outcomes preferable to conflict require the give and take agreement of both sides. Of course, signals may nevertheless convey little to adversaries for other reasons. A claim to be willing to fight for a large concession, for instance, will likely signal little to the adversary when all sides believe that the state making the claim believes that the adversary is likely to be willing make the large

²⁸ Examples include Fearon (1994a), Schultz (2001), Kurizaki (2007), Trager (2010) and many other models.

concession. Such threats may be effective even when they are not credible in themselves.²⁹

The analysis here also demonstrates why states would make compromises even though doing so will often result in the perception that they would accept outcomes involving even greater concessions – thereby encouraging an adversary to demand these additional concessions. In the informative equilibrium characterized in Proposition 3.1, when the Target sees the Signaler send the signal that only the intermediate concession is important, the Target knows the Signaler is less likely to go war if the Target makes no concession at all to the Signaler. Nevertheless, the Signaler sometimes still prefers to send the signal that it would settle for the compromise position. The reason is that by demanding too much, that which the Target is relatively unlikely to give up, the Signaler risks getting nothing at all. By demanding only the compromise, the Signaler increases its chances of getting something. Proposition 3.2 demonstrates that this dynamic will be associated with any offer of compromise when the players are each believed, prior to the diplomatic signal, to be sufficiently unlikely to be willing to settle for their least preferred compromise outcome.

SIGNALING HYPOTHESES

The analysis of the model suggests the following hypotheses will hold when (a) adversaries are each believed sufficiently unlikely to settle for highly unfavorable outcomes and either (b1) the issue space exhibits indivisibilities or (b2) compromise outcomes are expected to result from the give and take agreement of both sides. Whether these conditions hold in individual cases is difficult to determine, and therefore it is particularly difficult to code for these factors in a standardized way across cases. Therefore, I state the following hypotheses without these conditions since they are likely to hold much of the time. *Hypotheses 3.1–3.3* follow directly from the discussion of the model. *Hypothesis 3.4* states that the higher the capabilities of the state making a concession relative to the state to which the concession is made, the more likely observers will conclude that the conceding state will not concede more. This follows loosely from Proposition 3.2, which implies that when the probability that a state is willing to accept an unfavorable compromise is low, then a concession to that state increases the probability that the conceding state would make further concessions. The rationale for *Hypotheses 3.4* is that

²⁹ See Fearon (2002) for a discussion of this point.

if a state is strong relative to another, it is less likely that the stronger state would accept the most unfavorable outcome. Many other hypotheses can be derived from the model; the four advanced here can be evaluated with available data.

Hypothesis 3.1: Private threats and offers will often cause observers to believe the state making the statement is more likely to be willing to carry out the threat or offer.

Hypothesis 3.2: Increases in the scope of demands will increase the certainty with which inferences from the threats are drawn.

Hypothesis 3.3: Offers of partial concession will increase the perception (though never to certainty) that an even greater concession would also be accepted.

Hypothesis 3.4: The higher the capabilities of the state making a concession relative to the state to which the concession is made, the more likely observers will conclude that the conceding state will not concede more.

THE EMPIRICAL RECORD

Specific tests of the signaling hypotheses are reserved for the empirical section of the book, but some initial observations about the empirical record can be made here. Figure 3.6 gives a picture of how the model of the scope of demands relates to inferences drawn in the British documents prior to First World War. Recall that the bar at the top of the figure indicates the fraction of all private diplomacy inferences explained by the mechanisms described in the chapter. Almost 5 percent of inferences from private diplomacy are grounded in the observation that a state's high demands risk that no agreement is reached and many of these explicitly conclude that this demonstrates the resolve of the demanding state. In 1908, for instance, the British noted that Austrian unwillingness to compromise on the issue of Austrian annexation of Bosnia and Herzegovina might prevent a more general agreement between the powers, and that this therefore indicated Austrian resolve on the issue.³⁰ Several times in the course of negotiations over the status of Morocco in 1906, the intractability of one or other of the powers was seen as risking an agreement and therefore as conveying information. In one instance,

³⁰ Gooch and Temperley (1979, v. 5, pp. 420–421).

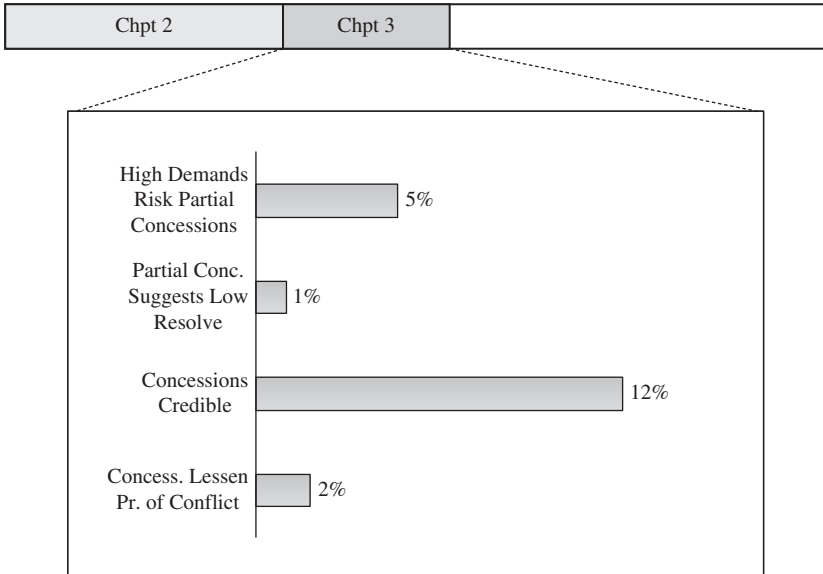


FIGURE 3.6 How Private Diplomacy Works

Note: The proportions shown are of the mechanisms by which private-diplomacy, security-related inferences were drawn in internal, British Government documents in the *Confidential Print* between 1855 and 1914. The bar at the top represents the total number of mechanism codings in the inference dataset; the area in the Chapter 3 portion represents the fraction of these mechanisms addressed in the chapter.

German insistence that France relinquish control of the Moroccan police force led the British to conclude that because Germany was unwilling to pursue negotiations for an intermediate compromise, Germany was more likely to be resolved to insist on the full concessions it was demanding.³¹ Similarly, concessions were often made specifically in order to avoid the failure of negotiations. Thus, when the Germans did make concessions on the Moroccan police force, all sides understood that this was done in order to ensure that the conference for adjusting disputes would remain in session.³²

German threats in Morocco and the conclusions that other powers drew from them also had longer-term influences on the international order. These were among the German actions that led the British to conclude that Germany was more aggressive than other nations. This conclusion, in turn, directly influenced the solidarity of other powers in relation to Germany. As Eyre Crowe put it, between Britain and France “there had emerged an element of common resistance to outside dictation

³¹ Gooch and Temperley (1979, v. 3, part 2, p. 274).

³² Gooch and Temperley (1979, v. 3, part 2, p. 288).

and aggression, a unity of special interests tending to develop into active co-operation against a third Power.”³³

Like other models, including those described in subsequent chapters, the mechanism of communication described here predicts that offers of concession will often be found credible. Indeed, 12 percent of inferences made by the British from private diplomacy are offers of concession that the British believed were sincere. The data also show a number of instances where concessions were taken to indicate that the conceding side would likely make further concessions to avoid conflict. The British understanding of Russian actions in the Balkans in the years before the First World War provides some striking examples. In 1912, for instance, the British concluded that Russia’s tepid support for Serbia indicated that Russia was “anxious to avoid being dragged in to a European war” and might therefore make additional concessions.³⁴ The British drew a similar conclusion in 1913 when Russia urged the session of the fortress of Silistra from Bulgaria to Romania. The British view was that Russia urged this on its nominal ally, Bulgaria, because Russia wished to prevent a broader European war “almost at any price.”³⁵

CONCLUSION

Leaders can learn a great deal about the intentions of other leaders from the scope of the demands other leaders make. The magnitude of a demand conveys information because of the risks involved in larger demands. The demanding state may end up worse off than if it had negotiated for a compromise outcome that is more likely to be forthcoming. This conclusion is particularly certain when compromise outcomes require the give and take agreement of both sides or the issue space consists of discrete alternatives and when adversaries each believe the other relatively unlikely to accept the negotiated outcome that each most prefers. In such cases, compromises will be offered even though these compromises increase the perception that the compromiser would be willing to settle for even less than the compromise offered. This appears to be a commonly used and intuitive signaling mechanism in international politics.

³³ Gooch and Temperley (1979, v. 3, part 2, p. 403).

³⁴ Gooch and Temperley (1979, v. 9, part 2, p. 217).

³⁵ Gooch and Temperley (1979, v. 9, part 2, p. 508).