Bargaining and War

Kenneth Waltz's "third image" of the causes of war (1959), which was the foundation for what came to be known as "structural Realism" or "Neo-realism," was inspired, as we have seen, by Jean-Jacques Rousseau's description of a world of predatory rulers. But it is unclear from what Rousseau wrote why a world of predatory rulers had to be as conflictual as it was, since, as I pointed out in the previous chapter, competing predators would appear to have an incentive to reach agreements to share the benefits of rule among themselves.

Kant, like Rousseau, thought it was obvious that a world of predatory rulers would be a world in which war was frequent, but, bad as this was, he believed it was nonetheless better than the alternative, since a lasting peace among predatory rulers would have prevented achievement of the justice and prosperity that he expected would be the eventual consequence of recurring wars. Once justice and prosperity had been achieved, he thought, peace might be possible. But like Rousseau and nearly all other writers on this subject, he had little to say about why war occurs at all.

Thus if we are to evaluate these ideas we must think about why wars occur, and we should begin by thinking about wars among predatory rulers. To do that, we must write down what seem to be the relevant properties of such a world and see if they have any clear-cut implications for the occurrence of wars.

Warring Predators

As we saw in the previous chapter, a contest in forcible disarmament is not the only form that a contest in killing and destruction might take, but it is the obvious place to begin in thinking about wars among competing economic predators. There are two reasons why one economic predator might expect to gain from forcibly disarming another: if one controls valuable territory, then the other might expect to gain from capturing it; and if both are trying to exploit the same producers, then either could increase his gains by eliminating the other.

A contest in forcible disarmament might lead to the disarmament of either side, and the probability with which either outcome might occur would be a function of the military capabilities of both sides. Thus such a contest resembles in some ways an athletic contest—though it would be more accurate to say that many athletic contests and other games were designed to resemble military contests. This helps account for much commonsense reasoning about war, which is based on the idea that wars are contests that either side might win or lose, with a probability that is determined by their relative power or military capabilities.

However, the analogy between contests in forcible disarmament and athletic contests might lead one to ask whether wars can have only two outcomes, since athletic contests can end in ties, and it is often said of a war that it ended in a stalemate. But athletic contests end in ties because the rules by which they are conducted specify when the game ends and the score might be tied at that point. When people want to avoid ties, then the game is continued until one side or the other wins. There are no rules that specify when a war should end, and therefore if a contest in forcible disarmament ends before either side has been disarmed it is because the combatants chose to end it—which they might have done because they saw no immediate prospect of either defeating the other.

Thus the problem with much commonsense reasoning about war is not that it assumes that wars have only two outcomes but that it overlooks the fact that such contests can be interrupted if the combatants choose to stop fighting, and therefore it assumes that after war begins states no longer face a choice between fighting and not fighting. But if rulers can decide to stop fighting or continue, they can also make any decision to stop fighting conditional on the acceptance of an agreement of some sort. Economic predators, for example, could agree on a redivision of the valuable territory that they are fighting over, instead of continuing to fight until one or the other had been disarmed. And, indeed, many wars have ended in just this way. But this is something they could have done without fighting at all, and therefore the fundamental problem in explaining the occurrence of war is to explain why the participants had to fight before reaching an agreement that settles whatever is in dispute between them.[1]

This implies in turn that, even if there are only two ways that a contest in forcible disarmament can end, there can be many possible outcomes of a war, since a war can be ended by an agreement, and there are many possible agreements that might be reached. In a contest between economic predators, for example, the territory they control could in principle be divided in indefinitely many ways. And therefore, if we are to explain why states fight on the basis of their expectations about the likely consequences

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1. This is the main theme of Blainey 1988.

of fighting, we must take into account their expectations not only about the likely outcome of a contest in forcible disarmament but also about the outcome of the bargaining process that might accompany it.

The first major writer to point this out and attempt to determine its implications was a Prussian military officer, Carl von Clausewitz, who lived from 1780 to 1831 (Clausewitz 1976). Like Hobbes, Clausewitz wrote in an arresting style that lends itself to quotations taken out of context. In addition, he never finished his great treatise, *On War,* and it was published by his wife after his death. As a result, he has been misunderstood almost as often as he has been quoted. Moreover, while his analysis was surprisingly modern and sophisticated, we can now see that at the heart of it is what is commonly called the bargaining problem, whose full complexity has only become apparent as a result of the analytical techniques developed by game theorists.

Clausewitz wrote, "War is . . . an act of force to compel our enemy to do our will" (1976, 75). From this it followed, he claimed, that "the aim of warfare is to disarm the enemy," since "[i]f the enemy is to be coerced you must put him in a situation that is even more unpleasant than the sacrifice you call on him to make," and "[t]he worst of all conditions in which a belligerent can find himself is to be utterly defenseless" (77). "Force," he wrote,

> is thus the *means* of war; to impose our will on the enemy is its object. To secure that object we must render the enemy powerless; and that, in theory, is the true aim of warfare. (75; emphasis in original)

But the enemy can be expected to resist this outcome, and this resistance must be countered if he is to be disarmed. "Each side, therefore, compels its opponent to follow suit; a reciprocal action is started which must lead, in theory, to extremes" (77).

Statements such as these have led some people to interpret Clausewitz as an apostle of total war. But such an interpretation overlooks the qualifying phrase *in theory* that appears in these quotations. In practice, Clausewitz wrote, war does not usually look like that at all.

In practice, Clausewitz wrote, "war is simply a continuation of political intercourse, with the addition of other means," a statement that is often quoted but, in light of such statements as the ones quoted previously, often interpreted as mere cynicism. However, Clausewitz meant this statement to be taken literally:

> We deliberately use the phrase "with the addition of other means" because we . . . want to make clear that war in itself does not sus-

pend political intercourse or change it into something entirely different. (1976, 605)

Thus at the heart of Clausewitz's discussion of war in practice, or, as he sometimes called it, "real war," is the fact that war is typically accompanied by the same bargaining process that preceded it and that will continue after it ends.[2] And the reason this is possible is that, as Clausewitz put it, "war does not consist of a single short blow," and therefore negotiations with the enemy need not await his complete defeat (79).

One implication of this fact, Clausewitz wrote, is that "real war" may actually consist not of a contest in forcible disarmament that is interrupted by a negotiated settlement but of a contest in killing and destruction in which the adversaries do not even try to disarm each other. Rulers may instead simply fight over a particular piece of territory or even engage in military operations whose object "is neither to conquer the enemy country nor to destroy its army, but simply *to cause general damage*" (Clausewitz 1976, 93; emphasis in original). "What is more," he wrote,

> a review of actual cases shows a whole category of wars in which the very idea of *defeating the enemy* is unreal: those in which the enemy is substantially the stronger power. (91; emphasis in original)

Thus Clausewitz claimed that a ruler could be optimistic about the outcome of war, even though he was not optimistic about defeating the enemy in a contest in forcible disarmament—a possibility that is overlooked entirely by most commonsense reasoning about war.

"Warfare thus eludes the strict theoretical requirement that extremes of force be applied," Clausewitz wrote, and "[t]he probabilities of real life replace the extreme and the absolute required by theory."

> Once the extreme is no longer feared or aimed at, it becomes a matter of judgment what degree of effort should be made; and this can only be based on the phenomena of the real world and the *laws of probability. . . .* reality supplies the data from which we can deduce the unknown that lies ahead.
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> From the enemy's character, from his institutions, the state of his affairs and his general situation, each side, using the *laws of probability,* forms an estimate of its opponent's likely course and acts accordingly. (80; emphasis in original)

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2. Clausewitz sometimes calls war in theory "absolute war," and he sometimes refers to "real wars" as wars with "limited aims" (1976, book 8).

However, while "[t]heory must concede all this,"

> it has the duty to give priority to the absolute form of war and to make that form a general point of reference, so that he who wants to learn from theory becomes accustomed to keeping that point in view constantly, to measuring all his hopes and fears by it, and to approximating it *when he can* or *when he must*.
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>   A principle that underlies our thoughts and actions will undoubtedly lend them a certain tone and character, though the immediate causes of our action may have different origins, just as the tone a painter gives to his canvas is determined by the color of the underpainting. (581; emphasis in original)

What Clausewitz seems to be saying is that, while states that are fighting may not actually try to disarm each other, they must bear in mind the fact that they could, and absolute war, even though it never occurs, must be the "measure of all their hopes and fears."

But "[i]f theory can effectively do this today," he wrote,

> it is because of our recent wars. Without the cautionary examples of the destructive power of war unleashed [by Napoleon], theory would preach to deaf ears. No one would have believed possible what has now been experienced by all. (581)

It is striking to compare this statement with Thomas Schelling's comment about the limited nature of the Korean War: "It is a strange spectacle, and indeed what makes it plausible is only that it actually occurred" (1960, 130). The expectations of Clausewitz's readers were conditioned by experience of the limited wars of the eighteenth century. The expectations of Schelling's readers were conditioned by experience of the total wars of the twentieth century. But Clausewitz and Schelling agree that, as Schelling put it, "[w]ar is always a bargaining process" (142), that the nature of wars is determined by states' choices rather than the technology that is available, and that to explain why they choose to fight the wars they fight one must understand the bargaining process that wars are part of.

But this means that there are two fundamental puzzles about war and not just one: we must explain not only why states must fight before reaching an agreement, when they could have reached an agreement without fighting, but also why they chose to agree to fight only a limited war, when the outcome of a contest in disarmament would have been different.

To someone familiar with the modern literature on bargaining, Clausewitz's solution to both puzzles practically leaps off the page. It has two parts. Here is the first:

> if one side cannot completely disarm the other, the desire for peace on either side will rise and fall with the probability of further successes and the amount of effort these would require. If such incentives were of equal strength on both sides, the two would resolve their political disputes by meeting half way. If the incentive grows on one side, it should diminish on the other. Peace will result so long as their sum total is sufficient—though the side that feels the lesser urge for peace will naturally get the better bargain. (Clausewitz 1976, 92)

Translated into modern terminology, this says that a contest in disarmament (absolute war) is the disagreement outcome in any bargaining over the terms of a settlement that might substitute for war. Thus the more optimistic a ruler is about the outcome of absolute war, the better the terms he will demand and expect in any agreement he might accept instead, and vice versa; and if the demands of the two adversaries are compatible, an agreement can be reached without fighting.

Here is the second part of Clausewitz's solution to these puzzles:

> When we attack the enemy, it is one thing if we mean our first operation to be followed by others until all resistance has been broken; it is quite another if our aim is only to obtain a single victory, in order to make the enemy insecure, to impress our greater strength upon him, and to give him doubts about his future. If that is the extent of our aim, we will employ no more strength than is absolutely necessary. (92)

This second statement says that if military operations are not designed to disarm the enemy, their purpose is to influence his expectations about what the outcome of absolute war would be, were it to be fought. Thus the function of "real wars" is to reveal information about the adversaries' military capabilities.[3]

Taken together, these two ideas raise two important questions. The first is whether, if rulers' expectations about the outcome of absolute war are sufficiently consistent, they would always be able to reach an agreement without fighting.[4] The second is whether, even if this is not true, they might nonetheless only need to fight wars that are not very costly or even, perhaps, engage in other types of conflicts that, while inefficient, are nonetheless much less costly than military conflicts would be—interruptions of trade, for example.

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3. This is the central theme of Blainey 1988. The idea is developed in Wagner 2000.
4. This is the main claim made by Geoffrey Blainey (1988).

Whatever the answers to those questions may prove to be, Clausewitz's two ideas clearly imply that the belief that the increasing costliness of war might in itself be sufficient to make war obsolete is unwarranted: the costliness of absolute war might make an agreement to avoid it desirable, but rulers can nonetheless choose to fight wars that they expect to be less costly instead. That is why the belief that World War I had demonstrated that war was too costly to be repeated was misguided and may even have contributed to the occurrence of World War II.

Let's Make a Deal

Clausewitz's analysis of war gives us further reason to take seriously Kenneth Waltz's analogy between wars and strikes.[5] It implies that, to understand what happens on the battlefield and its consequences, we must understand not only the military contest but also the bargaining process that accompanies it. This poses a very complicated set of problems, and thus we should not be surprised if formal models prove to be necessary in thinking about it.

Let us begin by asking whether we should expect predatory rulers with consistent expectations about the outcome of a military contest to be willing to reach a peaceful agreement dividing valuable territory between them rather than fight over it. A contest in forcible disarmament (Clausewitz's absolute war) resembles a costly lottery, since there is some probability that either side might win. Winning such a contest would imply control over all of the territory in dispute. By agreeing to divide it up rather than fight, however, rulers could avoid both the costs and the risks associated with a military contest. Thus the choice between a war and a negotiated settlement involves a choice between a sure thing and an uncertain prospect.

Such a choice is represented in figure 5. Arrayed along the vertical axis are all the probabilities of winning the contest, from zero to one. Arrayed along the horizontal axis are all the possible fractions of the territory in dispute that a ruler might receive, from zero to one. The lines in the figure represent possible points of indifference for some particular ruler between getting some fraction of the territory for certain and fighting a contest for all of it with some specific probability of winning. The straight line, for example, represents the preferences of a ruler who is always indifferent between getting some fraction q of the territory and fighting a contest in which he expected to get all of it with a probability p of the same size. The curved line, on the other hand, represents the preferences of a ruler who, if

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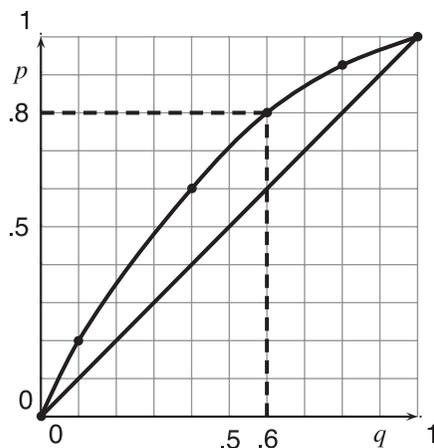5. See the discussion at the beginning of the previous chapter.

Fig. 5.   Choice between a lottery and a sure thing

confronted with some probability p of winning all the territory, would accept a lesser fraction q for certain instead. (In the figure, for example, this ruler would accept 60 percent of the territory as equivalent to the value of a contest for all of it that he had a probability of winning of .8.)

We have seen that Clausewitz was not bothered by the idea that expectations about the outcome of war could be represented by probabilities. Nonetheless, it is important to be clear about what these probabilities represent. The modern answer is that they are personal or subjective probabilities, which means they represent the odds at which a ruler would be prepared to bet on the outcome of a war. Thus they represent points of indifference between the gamble associated with war and a hypothetical lottery with known probabilities leading to the same outcomes, and therefore they are really just preferences. That does not imply that they are arbitrary, however. Rather, they incorporate all the information that a decision maker believes to be relevant to determining the outcome, in the same way that a person who bets on the outcome of a sporting event tries to take into account everything that he or she knows about the contestants and believes to be relevant.

Thus figure 5 is just a way of summarizing the preferences of someone choosing between a sure thing and a lottery: the probabilities represent points of indifference between the actual lottery and some hypothetical lottery with known probabilities, and the lines in the figure represent points of indifference between this lottery and possible divisions of the prize. Moreover, there is no right answer to the question of what either

should be. The two lines in the figure merely represent two possible sets of preferences—there are indefinitely many possible lines like the one that is bowed upward in figure 5 and indefinitely many that might sag downward as well. S-shaped curves, or curves with more complex shapes, are also possible. (You might ask yourself what your points of indifference would be, if the quantity at stake were a sum of money and the probabilities were actual gambles.) Moreover, nothing I have said so far requires that any decision maker actually thinks in these terms at all: a decision maker need not map out how he would respond to all the possible choices he might confront in order to choose between some particular contest and some particular proposed compromise. Thus figure 5 helps us organize our thinking but does not necessarily represent the way a decision maker organizes his.[6]

While there may be many divisions of disputed territory that an individual ruler would prefer to fighting a contest for all of it, if a contest is to be avoided both rulers have to accept the same settlement, and making a settlement more attractive for one requires making it less attractive for the other, as figure 6 illustrates. Now each point on the horizontal axis represents a possible division of the territory in dispute, between a fraction that goes to the ruler on the left (q) and the remaining fraction that goes to the ruler on the right ($1 - q$). The left vertical axis represents the left ruler's probability of winning the military contest (p), and the right vertical axis represents the right ruler's probability of winning ($1 - p$). The curve starting at the left-hand side of the horizontal axis is the indifference curve from figure 5, and the other curve is the corresponding indifference curve for the other ruler. In figure 6, it is assumed that the probability that the ruler on the left will win is .8. The question we are interested in is whether there must be some division of the territory along the horizontal axis that both will prefer to fighting over all of it.[7]

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6. Figure 5 illustrates the fact that we can use a divisible good to measure what a gamble is worth to someone, or a gamble to measure what the good is worth, but there is nothing that measures both independently of each other. If we use the gambles on the vertical axis to measure the value of various quantities of the good on the horizontal axis, then the probabilities on the vertical axis are von Neumann-Morgenstern utilities, which are the basis for contemporary expected utility theory. (The justification for the idea that people would want to maximize their expected utility is that, if the value of the outcome of every choice is measured by the probability of winning the same gamble, then maximizing expected utility is equivalent to maximizing the probability of winning that gamble.) Thus there is little connection between "utility" as defined by expected utility theory and the classical concept of utility, which presupposes a way of measuring levels of personal well-being. For a useful introduction to expected utility theory, see Raiffa 1968.
7. For an influential discussion of this question, see Fearon 1995b. For some criticisms of Fearon's answer, see O'Neill 2001.
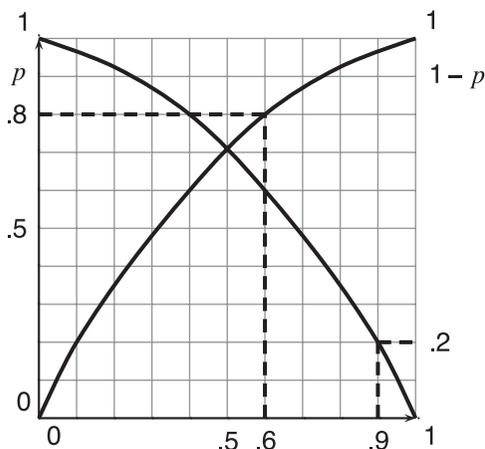
Fig. 6.   Choice between a contest and a bargain

As figure 6 is drawn, there are many such divisions: the ruler on the left will prefer any division giving him more than 60 percent of the territory, and the ruler on the right will prefer any division giving him more than 10 percent. Thus any division giving the ruler on the left between 60 percent and 90 percent of the territory will be preferred by both rulers to fighting a contest for all of it. Moreover, it is easy to see from figure 6 that this will be true regardless of how likely it is that the ruler on the left will win: reducing p will shift the range of possible agreements to the left along the horizontal axis (as Clausewitz claimed it would), but it will always exist.[8]

The reason this is true is that the lines of indifference between contests and bargains represented in figure 6 are bowed upward, which means that, for every probability of winning, both rulers would accept a smaller fraction of the territory in dispute as a substitute for fighting a contest for all of it. If instead each would accept only a fraction equal to the probability of winning, there would be no agreement both would prefer to fighting and only one agreement they both would be willing to accept: one in which $q = p$ and $1 - q = 1 - p$. And if both curves sagged downward, there would be no agreement they both would accept as an alternative to fighting. Thus

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8. This is why Wittman (1979) argued that the balance of power affects only the terms of a negotiated settlement that might be accepted in lieu of war but not whether war occurs or not. However, as we will see, figure 6 leaves unclear why war occurs at all, and therefore Wittman's reasoning was incomplete.

the answer to the question we started with is that there may be agreements both rulers would prefer to fighting, but there need not be.[9]

There are, however, reasons to believe that often there will be such agreements. One reason is that in choosing between sure things and gambles people often do have preferences that resemble the ones in figure 6. (Ask yourself the following question: If you had a lottery ticket that gave you a 50 percent chance at winning $1,000,000, would you refuse to sell it if the most you could get for it was $500,000?) And the other reason is that a war is not just a gamble; it is a very costly contest.[10] Thus it may well often be true that a ruler confronted with the prospect of a costly and risky contest for valuable territory would be willing to accept a division of the territory giving him a fraction of it that is smaller than his probability of winning all of it.[11]

A reason for thinking that this might not be true of both rulers is that, if the issue is a possible redistribution of territory that is already distributed between them, then any compromise agreement would entail one side's surrendering some territory to the other. If, for example, the ruler on the left controlled 50 percent of the territory in dispute but could defeat the other with a probability of .8, then he would prefer war to the status quo, and to avoid war the ruler on the right would have to appease him by surrendering some of his territory.[12] Often people seem to be willing to accept

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9. By convention, indifference curves bowed upward like the ones in figure 6 are said to represent aversion to risk, curves that sag downward are said to represent risk acceptance, and indifference curves that are straight like the one in figure 5 are said to portray risk neutrality. Because the probabilities in these figures are also von Neumann-Morgenstern utilities, such curves are sometimes also said to represent diminishing marginal utility, increasing marginal utility, and linear utilities, respectively. All these terms are very misleading. These curves merely reflect an individual's points of indifference between gambles and sure things, and since such indifference points will be influenced by both the risk involved and the values an individual places on the objects in question, there is no way to know what actually determines them. It is best to think of them as simply reflecting an individual's preferences, like any other indifference curve.

10. Only the probabilities of winning are represented explicitly in figure 6, but not the expected costs of fighting. The expected costs would nonetheless affect the shapes of the indifference curves.

11. If this were not true, it would be hard to explain why wars are often ended by negotiated settlements before either side has been completely disarmed.

12. This example illustrates a flaw in commonsense reasoning about war that is more fundamental than the fact that it overlooks the possibility of negotiated settlements: even if a compromise is not possible, whether a ruler prefers war to the status quo or not depends not just on how optimistic he is about the outcome of war but on the status quo distribution as well. Even with a probability of winning of .8, the ruler on the left will prefer the status quo to war as long as he already controls at least 60 percent of the territory. Since compromises that are preferred to war may not always exist, this is something that we must bear in mind.

greater risks to avoid what they consider to be losses than they would accept to achieve possible gains of the same size, so the ruler on the right might have an indifference curve that sagged downward rather than the one attributed to him in figure 6.[13]

However, war is not just risky; it is also costly. Moreover, there is good reason to expect that the indifference curve of the ruler on the left would be bowed upward. Thus there might still be compromise settlements that both would prefer to fighting.

What have we learned from all this? When force is used not to disarm an adversary but to harm people or destroy their property (or, as Clausewitz said, "to cause general damage"), it is obvious that its purpose must be to compel an agreement that both the perpetrator and the victim would prefer to a continuation of the conflict, and therefore contests in punishment must be part of a bargaining process. A contest in disarmament, however, is a contest to determine how much punishment two adversaries can subsequently inflict on each other: the winner of such a contest can use force to punish the other without organized resistance.[14] As Clausewitz wrote:

> War is nothing but a duel on a larger scale. Countless duels go to make up a war, but a picture of the whole can be formed by imagining a pair of wrestlers. Each tries through physical force to compel the other to do his will; his *immediate* aim is to *throw* his opponent in order to make him incapable of further resistance. (1976, 75; emphasis in original)[15]

Thus every contest in disarmament leads to, and is motivated by, a subsequent contest in punishment, in which the winner of the contest in disarmament has an extreme bargaining advantage over the loser. Clausewitz claimed, however, that bargaining did not have to await the outcome of

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13. Risk acceptance might also be caused by domestic political incentives—for an interesting discussion of this possibility in the context of World War I, see Goemans 2000. Evidence that aversion to losses makes people risk acceptant is emphasized by the experimental psychologists who developed prospect theory (Kahneman and Tversky 1979). However, the gamble associated with war involves not just a probable loss but a probability of a large gain combined with a larger probability of a large loss. The evidence that people are risk acceptant in those circumstances is not so clear. For a discussion of some of the pitfalls to avoid in thinking about attitudes toward risk, see O'Neill 2001.

14. In debates about the use of nuclear weapons during the cold war, a distinction was made between the countervalue and counterforce uses of weapons. Countervalue military contests are contests in punishment, and counterforce contests are contests in forcible disarmament. The first war in the Persian Gulf was an example of a counterforce contest. The ongoing conflict between Israel and the Palestinians is an example of a countervalue contest.

15. Here Clausewitz is talking about what he elsewhere calls "absolute war," not "real war."

the contest in disarmament but could precede it or accompany it. It should now be clear that, in the case of warring economic predators at any rate, there is good reason to take this claim seriously. To explain why *any* war occurs, therefore, one must explain why the adversaries could not have reached an agreement without fighting.

Bargaining and Fighting

It might appear that, if there is a range of divisions of disputed territory that two rulers both prefer to fighting over all of it, they will be able to agree on one of them rather than fight. However, when strikes occur it is obvious that there is a range of wage bargains that both labor and management prefer to shutting down the firm, or the industry, and yet strikes sometimes occur anyway. Thus while we have learned that there might often, perhaps even always, be compromise settlements that predatory rulers would prefer to fighting over disputed territory, that does not imply that they will in fact be able to agree on one without fighting.

In the case of strikes, as in any bargaining situation, the problem is that, while there are many agreements that both sides prefer to shutting down the firm, they have conflicting preferences about which of those agreements should be chosen, and strikes are a means of resolving that disagreement. But it is surprisingly difficult to explain exactly how a strike does that, why strikes are sometimes resorted to and sometimes not, or why some are so much longer and more costly than others. Explaining why wars occur is even more difficult.

As we saw in the previous chapter, attempts by economists to explain costly delays in reaching mutually beneficial agreements in situations resembling strikes have focused on the construction of explicit models of haggling (i.e., exchanges of offers and counteroffers that precede agreement). But there are several ways in which the bargaining process associated with war is more complicated than the one economists have focused on.

First, the essence of any bargaining process is the combination of a common interest in avoiding disagreement with conflicting interests as to the terms of an agreement. In the sort of bargaining situations exemplified by strikes, the disagreement outcome (a failure ever to agree) is fixed and is just an extension of the situation that exists while haggling occurs (in the case of strikes, the firm or industry is shut down). In the case of wars, the disagreement outcome (war) is not fixed but is the product of decisions made by the antagonists. Moreover, if Clausewitz is right, the disagreement outcome (absolute war) need not be the same as the war that is fought while the antagonists exchange offers and counteroffers (real war).

Second, the recent literature on bargaining by economists has focused on the role played by private information about the preferences of the bargainers, which they have a strategic incentive to misrepresent. In explaining wars, however, Clausewitz (implicitly) and Blainey (more explicitly) emphasize the role of conflicting beliefs about military capabilities, something that seems irrelevant to understanding strikes (though unregulated strikes, of course, have often been violent).

And third, the literature on bargaining typically assumes that the bargainers can be confident of getting any agreement they might accept. But the emphasis by structural Realists on the anarchic nature of international politics and the influential role the Prisoner's Dilemma game has played in shaping many people's beliefs about its implications make such an assumption problematic in any explanation of the occurrence of war. Indeed, some structural Realists would say that the fundamental cause of war is that agreements between or among states are unenforceable.[16] In an intellectual environment that has been largely shaped by debates about structural Realism, one might almost say, paraphrasing the remarks by Clausewitz and Schelling about limited war quoted earlier, that were it not for Clausewitz it might be hard to get some people to take the subject of this chapter seriously.

If we are to follow the lead of the recent literature in economics about bargaining, we must deal with each of these complications. The obvious place to begin is to think about what Clausewitz called "absolute war," or a contest in disarmament. Even if Clausewitz is right in thinking that such wars rarely occur, this is the war that will take place if no agreement is possible, and therefore this is the war that the probabilities in figure 6 refer to. The nature of such a war will be determined by the strategies chosen by each side, but it seems safe to assume that each will choose what it believes to be the optimal strategy for disarming the other, given the expected strategy of its opponent, and therefore the properties of such a war can be assumed to be independent of the bargaining process.

Even so, there is no reason to think that all contests in disarmament are alike. But if we are to model the haggling process associated with absolute war, we must construct a model of haggling while fighting, and the nature of this process will be affected by how the war is fought. One of the disconcerting results of the economics literature on bargaining is that many conclusions about bargaining are dependent on seemingly minor properties of the process by which offers and counteroffers are exchanged. If that process is affected by how contests in disarmament are fought, we must be cautious about the generality of any conclusions we might reach that are based on assumptions about how a war is to be fought.

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16. See, for example, Jervis 1978.

Because of the central role that Ariel Rubinstein's work on bargaining has played in the economics literature on the subject, a natural place to begin is to see if it could be applied to an analysis of bargaining that might take place during a contest in forcible disarmament.[17] Rubinstein's model is based on two plausible assumptions: (1) bargainers alternate in making offers and counteroffers to each other, with the process ending when one bargainer accepts another's offer; and (2) they prefer agreements reached sooner to agreements reached later. One reason for the latter assumption might be that they discount future benefits, and another might be that delaying agreement would entail some risk that they would not be able to reach an agreement at all. Both seem potentially relevant to thinking about war.

Rubinstein showed that in a bargaining game that incorporates these assumptions there is only one Nash equilibrium that remains an equilibrium at every stage of the bargaining process.[18] While a rigorous proof of this proposition is difficult, it is not so difficult to acquire an intuitive understanding of why it is true. Suppose the bargainers are negotiating over the division of a sum of money, and consider the possibility that an equal division might be an equilibrium. If this is an equilibrium at every stage of the bargaining process, then even if an equal division is not the opening offer, the other bargainer would counter with it and expect it to be accepted. But he could not get it until his turn came to make an offer, and therefore he should be willing to accept less than that now in order to avoid having to wait. Thus the assumption that an equal division is a sub-game perfect equilibrium leads to a contradiction. To avoid such a contradiction, each bargainer must be indifferent between accepting what the other proposes immediately and getting his own demand one period later. There is only one division that satisfies this requirement, and it is the Rubinstein solution to the bargaining problem.

The importance of the requirement that an equilibrium continue to be an equilibrium at every stage of the bargaining process can be seen most clearly by thinking about prestrike negotiations. In such negotiations a bargainer who is dissatisfied with the most the other side is willing to offer can hope to do better only by shutting down the firm. But that would be costly for both sides, and at every stage thereafter either could make the other choose between accepting an offer or paying the cost of extending

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17. For an exposition of Rubinstein's work, see his own account in Osborne and Rubinstein 1990. See also Muthoo 1999. For a nontechnical discussion of the economics literature on bargaining, see Muthoo 2000.

18. Game theorists call a Nash equilibrium with this property a "subgame perfect" equilibrium. As noted in the previous chapter, there are indefinitely many Nash equilibria in such a bargaining game, a fact that seemed for many years to imply that the concept of an equilibrium alone was not strong enough to imply anything about the bargaining problem.

the strike. The symmetry of their positions might suggest an equal division of the gains from agreement, but a bargainer who has the chance to make the first offer gains a slight advantage from the fact that the other would be willing to accept a bit less in order to avoid initiating a strike—an advantage that would alternate between them at every stage of the strike were one to take place.[19]

This reasoning implies that, if the amount of money to be divided and the extent to which each bargainer discounts future benefits are both commonly known, the bargainers should be able to reach an agreement without a strike: they already know everything they need to know to reach an agreement, and they also know that a strike would be costly but would not change anything. But if one believed that a strike would change what the other believed about one of these values, he might expect to get a more favorable agreement by striking. This, then, is a possible explanation of the fact that sometimes bargainers are able to reach agreement quickly and sometimes they are not. To complete this explanation, however, we would need to show how a strike could affect their beliefs.

Before considering that question, let us see whether this reasoning could be extended to a contest in forcible disarmament.

Fighting while Bargaining

Wars are unpleasant, which is reason enough to believe that warring rulers would prefer to reach agreements sooner rather than later. But unlike strikes, a contest in forcible disarmament can end before the combatants decide to end it: one or the other side might be defeated and therefore be unable to continue fighting. Part of the uncertainty associated with war is uncertainty about how long that will take, and therefore any delay in reaching agreement might entail not only the unpleasantness of further fighting but also some risk, however small, that the contest might reach a decisive conclusion before an agreement could be reached. A ruler who rejects an offer in hopes of getting a better one later, therefore, faces a risk that the war will be over before his demand can be accepted.[20] This is an additional reason for preferring to avoid postponing an agreement.

Of course, if the war ends there is a chance that a ruler might win, but there is also a chance that he might lose—it is that uncertainty that creates the possibility of an agreement in the first place. Postponing agreement is therefore a compound gamble: there is some chance that the war will end decisively before one's own demand can be accepted, and if it does there is

19. If the time between offers is small, this advantage will be small and the division will deviate only slightly from equality.
20. Think of the possibility that Saddam Hussein was holding out for a better deal at the onset of the second war in the Persian Gulf in 2003.

some chance that one might be defeated. Even so, exchanging offers while fighting occurs on the battlefield will often be feasible.

Thus there is reason to think that Rubinstein's analysis of bargaining is relevant to a contest in forcible disarmament (Clausewitz's "absolute war"). Note that Rubinstein's model implies that there is an advantage to being the bargainer who makes the first offer. In bargaining over the forcible redistribution of territory, it is obvious who that would be: the ruler who is dissatisfied with the current distribution would have to initiate a contest in forcible disarmament to change it, and therefore the satisfied ruler would have the advantage of making the first offer.[21]

But Rubinstein's analysis implies that, if both the information in figure 6 and each ruler's points of indifference between agreements now and agreements later are commonly known to both rulers, they should be able to reach an agreement without fighting. One has only to state that condition to see how difficult it is to satisfy it. But if Clausewitz and Blainey are right, a failure to satisfy it does not imply that they must fight an all-out contest in disarmament until one or the other is incapable of fighting further. Rather, war itself might reveal the information they need to reach an agreement, in which case war would be, as Clausewitz famously said, "simply a continuation of political intercourse, with the addition of other means." What we need to consider is how these "other means" could make an agreement possible if it were not possible at the outset.

One obvious possibility is that what happens on the battlefield reveals information about the combatants' relative military capabilities. In thinking about the significance of this fact, however, we must be careful to distinguish between two possible effects of battlefield outcomes on the expectations of the two rulers.

One is that they might become less uncertain about the ultimate outcome of the contest: as the contest progresses, it may seem more and more likely to both of them that one or the other will eventually win (as the outcome of a football game may seem less uncertain at the end of the third quarter than it did at the outset). But our discussion implies that this is irrelevant to the question of whether they could reach an agreement or not. As they become less uncertain of the outcome, the probabilities in figure 6 deviate more and more from equality. But as we saw, changing the probabilities has no effect on their interest in reaching agreement; it merely changes the terms of any agreement they might reach. Thus as the contest progresses one or the other might be willing to accept more and more unfavorable terms as it seems more and more likely that he will eventually lose, but the ability of the two rulers to reach an agreement

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21. A model of absolute war with these properties is presented in Wagner 2000.

without fighting would not be affected by that fact, and anticipation of it prior to war is no more relevant than the fact that one might eventually win, since that information is already contained in the probabilities represented in figure 6.

What is important instead is that the rulers' expectations might become more *consistent.* If we label the two rulers i and j and call the probability with which each might win p_i and p_j, respectively, then consistency of their expectations requires that $p_j = 1 - p_i$, as is the case in figure 6. If this is not true, and the difference between p_i and p_j is great enough, then there may be no agreement they both prefer to fighting. One can readily see from figure 6, for example, that if they both expect to win with a probability of .8, then each would have to be given at least 60 percent of the territory if he were to choose not to fight, which is impossible.

But even if their expectations are not inconsistent enough to rule out the possibility of any mutually acceptable agreement, they may nonetheless be inconsistent enough to motivate fighting. For any inconsistency implies that each would expect experience on the battlefield to make the other less optimistic about winning and therefore willing to accept a less favorable agreement than he would be willing to accept prior to fighting. Thus while an agreement might have been possible prior to war, one ruler might expect to be able to get a better one by fighting, *while the other believed that to be unlikely.*[22] This has a very important counterintuitive implication, which is that the possibility of ending a war with a negotiated settlement *might actually make war more likely than it otherwise would be.*

To see why this is true, look again at figure 6 and imagine that the expectations of the two rulers are somewhat inconsistent but not inconsistent enough to eliminate a range of possible divisions of the territory on the horizontal axis. Then if the status quo is within that range and it is not possible to reach an agreement after fighting begins, both rulers will prefer the status quo to fighting, and therefore neither would choose to fight. If, however, fighting does not rule out the possibility of subsequent agreement, then a ruler might expect that fighting for a while would reveal his true military strength and therefore lead to an agreement with more favorable terms.[23]

On the other hand, if the rulers' initial expectations are so inconsistent that no agreement is possible prior to fighting, then the possibility of a negotiated settlement after fighting begins means that any war that occurs may be less costly than it otherwise would be, since it can be ended by mutual agreement if their expectations become consistent enough in the

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22. If they both believed this to be true, their expectations at the outset would have been consistent, and therefore they would be able to reach an agreement without fighting.
23. Similarly, if strikes always led to the dissolution of the firm and never to agreements, one would expect fewer strikes to occur.

course of fighting. Thus the availability of negotiated settlements may make peace more or less likely, depending on the circumstances.

Before exploring the implications of this point, let us look more closely at exactly how battlefield outcomes might lead rulers to revise their expectations and what else, if anything, they might reveal.

Learning from Fighting

Learning from battlefield outcomes is based on inductive reasoning, an example of which was discussed at the very beginning of chapter 1: if one believes that it is more likely that an anonymous dog in the dog pound would resemble a Labrador retriever if it were a Labrador retriever than if it were not, then the fact that it resembles a Labrador retriever increases one's confidence in the hypothesis that it is one. If, on the other hand, it has characteristics that it would be expected to have if it were a pit bull, then one will be skeptical of the claim that it really is a Labrador retriever.

Similarly, it is plausible to think that military leaders begin a war with an idea of how it will be fought, which leads them to think that certain battlefield outcomes are more likely than others. If these expectations are borne out, then their confidence in them will increase, but if not they will decrease.

As noted in chapter 1, this reasoning can be justified by the axioms of probability theory. One's expectations prior to receiving new information are represented in a "prior" probability distribution (like, e.g., the ones in figure 6), and new information leads to a revised, or "posterior," probability estimate, which is a conditional probability: the probability that one's hypothesis is correct, given that the event in question occurred. For this to be possible, two other conditional probability estimates are required: the probability that the new event would have occurred if one's hypothesis was correct and the probability that it might have occurred if one's hypothesis was incorrect. The formula that allows one to compute a posterior probability from this information is called Bayes's rule, and the process is called Bayesian updating. Bayes's rule implies the relation between prior and posterior probabilities just described.[24]

Note that all these probabilities are based on some understanding of how the war will unfold and not just on knowledge of the number of some objects in a larger universe (like the number of aces in a deck of cards). But, like scientific theories, this understanding will be based on both creative guessing and deductive reasoning. Thus learning can consist not merely of Bayesian updating but also of the discovery of possibilities that

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24. An account of all this in the context of scientific reasoning can be found in Howson and Urbach 1993. People often make mistakes in such reasoning, which is an important example of how human decisions may not be a "reflective equilibrium."

one had not thought of. For example, in the second war in the Persian Gulf the advance of U.S. forces in Iraq apparently was initially more difficult than expected because the Iraqis decided to use irregular forces to attack the extended supply lines of U.S. troops as they advanced toward Baghdad. But newspaper accounts indicate that this was an Iraqi strategy that U.S. military planners had not anticipated. It is important also to note that there were disagreements among military commentators about how much revision this unexpected development required in initial U.S. expectations about the eventual outcome of the war.

In discussing how Rubinstein's bargaining model might be extended to an analysis of bargaining while fighting, I implicitly assumed that the military contest proceeded continuously in the background while rulers exchanged offers and counteroffers and that victory or defeat could come at any time. However, while that might be true of the final stages of a military contest, this discussion of learning from battlefield outcomes calls attention to the fact that many wars are made up of discrete battles, and battles early in the contest do not entail much risk of total defeat. Such battles can have two effects: (1) they can change the probability that one side or the other will eventually win, and (2) as just noted, they can convey information about what those probabilities are.

But if a battle is fought with the second effect in mind, then bargaining will be delayed until its outcome has been observed. Moreover, this would continue to be true until both sides thought that no more favorable information could be conveyed by further fighting. This perhaps helps explain why, even though there may have been prewar attempts to reach a negotiated settlement that failed, once a war begins peace negotiations typically do not occur throughout military conflicts but are resumed only toward their end. As Paul Pillar wrote in an important study of peace negotiations, "the opening of peace negotiations usually must await a common perception of the trend of military events" (1983, 199). Thus while an exchange of offers and counteroffers could occur throughout a military contest, it usually does not.

Moreover, while battles can both change the balance of military capabilities and convey information about it, it is possible for battles to be fought whose only function is to convey information. Such battles can occur even in the midst of a contest in disarmament. Consider, for example, General von Falkenhayn's discussion of the German military position at the end of 1915, during World War I, which includes the following passage describing plans for the battle of Verdun:

> the strain on France has almost reached the breaking point. . . . If we succeeded in opening the eyes of her people to the fact that in a military sense they have nothing more to hope for, that breaking point would be reached. . . . To achieve that object the uncer-

tain method of a mass break-through, in any case beyond our
means, is unnecessary. We can probably do enough for our pur-
poses with limited resources. (Falkenhayn 1920, 249)[25]

But it is clearly also possible that battles might convey information about
relative military capabilities even though they are not part of a military
contest that would eventually lead to the complete disarmament of one
side or the other. This appears to be what Clausewitz had in mind when he
wrote that in "real wars" states might not try seriously to disarm each
other at all.

 The possibility of revealing information without actually attempting to
defeat one's adversary implies, as Clausewitz suggested, that the contest I
originally described might not occur at all, even though expectations about
its outcome would motivate any agreement that might be reached. Thus the
wars that we see are not necessarily good guides for constructing a model of
a war that would be fought if the aim were only the complete disarmament
of the enemy. And even if such a contest began, peace negotiations might
take place in the context of a cease-fire agreement, which could be accepted
because both sides thought there was no further information to be revealed
by fighting. This reinforces my earlier comment about the difficulty of con-
structing a truly general model of bargaining and war.[26]

Revealing Private Information

The preceding discussion of bargaining while fighting is very different
from the literature about bargaining that has been developed by econo-
mists. To understand why, we must look again at figure 6. There are two
elements of figure 6 that will influence the terms of an agreement that the
two rulers might accept as an alternative to war. One is their probabilities
of winning the contest, and the other is the shapes of their indifference
curves. We have just seen that if they have inconsistent estimates of their
probabilities of winning and believe that fighting could change them, they
could have a motive to fight for a while in order to improve the terms of a
deal. We must now consider whether the same might be true of their indif-
ference curves.

 Part of the answer to that question is the same as the one just given
about the probability of winning: battles also convey information about
the costs that a contest in disarmament would entail.[27] As already noted,

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25. I owe this example to Hein Goemans.
26. There are now a number of different models of bargaining while fighting. For summaries
of recent work on the subject, see Powell 2002 and Reiter 2003.
27. This perhaps helps explain why the point of military operations might be, as Clausewitz,
said, "neither to conquer the enemy country nor to destroy its army, but simply *to cause gen-
eral damage.*"

while the costs of fighting are not explicitly represented in figure 6, they will influence the shapes of the indifference curves that are portrayed there. And therefore battlefield outcomes can influence not only the probabilities on the vertical axes but also the points of indifference between probabilities and territorial divisions.

However, two rulers with the same expectations of the consequences of fighting a contest in disarmament, including expectations about its costs, might nonetheless have different points of indifference between territorial divisions and probabilities of winning. Moreover, by misrepresenting his preferences a ruler could improve the terms of the agreement. The question we must consider, then, is whether fighting would also be a way of revealing information about the true preferences of the two bargainers. That is the question that has been the main focus of the literature on bargaining developed by economists.[28]

A technique for constructing game theoretic models of this problem was developed by John Harsanyi, for which he received a Nobel prize in economics (Harsanyi 1967–68). It is based on the idea that, while a player of a game might not be certain about the preferences of another player, he might nonetheless have an idea of what range of possible preferences he might have and be able to assign each of them a probability. If the second player knows that the first has only probable knowledge of his preferences, then whatever the second player's preferences actually are, his choices would be influenced by his knowledge of the first player's uncertainty. Thus one might imagine that the uncertain player confronts one of many possible players, each of whose choices would be determined by his true preferences, and those choices might therefore reveal information about what that player's preferences actually are. Each of the possible sets of preferences that a player might have is commonly said to determine his "type."

Clearly, learning from the choices made by someone who has an incentive to mislead you is a far more complex problem than learning about an adversary's military capabilities by observing battlefield outcomes. Battlefield outcomes cannot be faked, and therefore the probability with which they were expected to occur is only a function of one's prior understanding of how the war would be fought, how weapons would work, how well trained and motivated the military forces were, and so forth. The probability with which an adversary would be expected to make

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28. For a survey, see Kennan and Wilson 1993. Note, however, that in bargaining in the context of war the preferences of more people than the ones conducting the bargaining are relevant. Information about the reactions of domestic political actors, or the decisions of potential allies, is not revealed by learning about the preferences of the people conducting the bargaining but can be garnered by observing the course of the war just like information about military capabilities.

a choice one can observe, however, will be a function both of whatever his true preferences happen to be and the effect he expects his choices will have on one's own expectations. If he is also known to be uncertain about one's own true preferences, then the problem is even more complex and there are often multiple equilibrium combinations of choices.

Many game theorists would claim that I have exaggerated the difference between learning about preferences and learning about relative military capabilities. The reason for this claim is that, if two people with common prior probabilities always update them in accordance with Bayes's rule, then their probabilities will remain the same. Any differences in their probabilities must therefore be the result of their having been exposed to different information, and therefore if I learn that another person's probability estimate is different from my own I should infer that he knows something I do not know and change my estimate accordingly. Thus, in the situation represented in figure 6, both inconsistent probability estimates and inconsistent beliefs about each other's true indifference curves would be the result of private information that the two rulers had an incentive to conceal, and both could therefore be revealed by the choices they made during any bargaining that accompanied fighting.[29]

Clearly one's enemy may have an incentive both to feign confidence in his military capabilities that he does not really have and to conceal some of them so that one cannot take countermeasures against them. And therefore knowledge that he is unexpectedly confident of winning a military contest ought to make one wonder if he knows something one does not know. That does not imply, however, that his bargaining behavior is a perfect substitute for battlefield outcomes as a source of information as to his true military capabilities, since even if one had access to all the information he had one might disagree with the inferences he drew from it. This is not only because one might doubt his competence as a military strategist but also because, like science, learning about war is only partly a matter of Bayesian updating. A military contest is like a very costly experiment that tests competing theories about how the war will unfold, and just as scientists with different theoretical commitments frequently disagree about what they think experiments will reveal, so equally well-informed military strategists may disagree about what battlefield outcomes to expect.[30]

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29. See, for example, the discussion of this question in Fearon 1995b.
30. This is an example of an issue one would be unlikely to think of if one had not subjected one's thinking to the discipline of a formal model. For a discussion of the relevant theory, see Geanakoplos 1989 and 1992. For an interesting discussion of war as a way of testing competing theories, see Smith and Stam 2004. For accounts of competing bets and heated disputes between scientists backing different hypotheses, see Glanz 1998 and 1999. See also the discussion from a Bayesian perspective of the strength of scientists' beliefs in the truth of their ideas in Press and Tanur 2001.

A plausible reading of Pillar's book on peace negotiations is that statesmen rely primarily on battlefield outcomes for information about military capabilities and then reveal any remaining private information during the bargaining process that accompanies peace negotiations (Pillar 1983). However, while Pillar interprets war termination as a bargaining process, his book was written before models of bargaining with incomplete information were available and therefore does not actually investigate this question. There are many historical studies that criticize statesmen's failure to learn rapidly enough from battlefield outcomes (e.g., Iklé 1991) but few careful studies of exactly how they do it. This is an important research frontier in the study of war.[31]

The theory of games with incomplete information had a big impact on the literature about deterrence during the cold war, where the issue was how political leaders could reveal prior to war whether they were really willing to carry out deterrent threats if they were challenged. Much of that literature assumed that bargaining ended when war began and therefore whatever war had been threatened would occur if a defender who was not bluffing was challenged.[32] This overlooks the fact that, as Clausewitz said, "war in itself does not suspend political intercourse or change it into something entirely different." However, the cold war literature on limited war is consistent with Clausewitz's idea that the function of limited war is to reveal information about absolute war, which might mean that absolute war never occurs.[33]

Bargaining, War, and Alliances

Like most discussions of both war and bargaining, the analysis so far has been couched in terms of a contest between only two predatory rulers. But wars can involve more than two states. We must therefore consider what effect adding more rulers would have.

With more rulers, alliances become possible. Alliances can affect not only the conduct of war but also the bargaining process that might accompany it. In thinking about these added complications, I will follow the same analytical strategy employed earlier and consider first what effect they would have on a contest in disarmament (Clausewitz's absolute war)

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31. For a pioneering study of how German and French leaders responded to the same course of events on the battlefield during World War I, see Goemans 2000.
32. This assumption is reflected in Fearon's (1995b) pioneering article on this subject.
33. For example, one of the main themes of the recent history of the Korean War by William Stueck (1995) is that the Korean War can usefully be considered to have been a substitute for World War III.

and then introduce the possibility of bargaining over the terms of a negotiated settlement that might be accepted as an alternative to such a contest.

The idea of subjective or personal probabilities seemed sufficient as a way of capturing the uncertainty associated with a contest in disarmament between two rulers, since they contained all the information that was important in making a choice between fighting such a contest and accepting a division of the territory in dispute instead. However, in thinking about contests among varying configurations of allies it will be necessary to think about the effect of shifts in alliances on the probability with which one side or the other would be expected to win. Shifts in alliances would lead to realignments of the military forces that would fight each other, and it is the distribution of those military forces that would determine the degree of confidence that a ruler would have about his ability to disarm his adversary. So if we are to think about the effect of alliances we must say something about the effect of any particular distribution of military forces on the probability of winning or losing.

As I pointed out earlier, personal probabilities are both subjective and nonarbitrary: they reflect the choice that a person would make between the uncertain prospect he actually confronts and a lottery with the same outcomes and known probabilities, but these choices would obviously be based on everything that person knew that he thought might affect which outcome occurred. Thus there are two potential sources of disagreement about the effect of any particular distribution of capabilities on the expected outcome of war: there might be disagreement about what capabilities were relevant or how they should be measured and disagreement about what any particular distribution of capabilities implied about the probability of winning or losing.

While any assumptions we make about these issues will be arbitrary, we must make some assumptions if we are to think about the relation between alliances and war. I will therefore make assumptions that reflect the way these issues are often discussed, while bearing in mind that they are arbitrary. If such assumptions lead to conclusions that differ from claims commonly made by writers on the subject, they can provide the basis for a counterexample to those claims. But before leaping to any conclusion as to what the right answer to the question really is, we would need to consider whether different assumptions would lead to different conclusions.

To get the analysis started, then, I will assume (1) that military capabilities can be measured at least to the extent that one can determine the ratios between them (so that one can say, for example, that one side has twice the military capabilities of the other) and (2) that the ratio between the probabilities with which each side might win a military contest is the same as the ratio between their military capabilities (so that, e.g., if one

side is twice as strong as the other, it is twice as likely to win a contest in disarmament between them).[34]

Thus, if we label the military resources of state i as r_i and the probability that one state will disarm another p, in a two-state contest

$$\frac{p_i}{1 - p_i} = \frac{r_i}{r_j} .$$

This implies that

$$p_i = \frac{r_i}{r_i + r_j} .$$

And therefore the probability of victory of each state can be equated with the percentage of total military resources that it controls.

To make things as easy as possible, let us assume there are only three predatory rulers who might participate in a contest in disarmament. If one attacks another, the third could either join in or not. If it were to join the fight we must consider how that would affect the probabilities associated with the outcomes. One possibility is that, if two rulers both fight the third, then the third state faces the sum of the military resources of the other two, and therefore the probability that this lone state k will win will be

$$\frac{r_k}{r_i + r_j + r_k} .$$

The probability that the other two will be victorious will, of course, be the complementary probability, which implies that, if two of three equally powerful states fight together, they will be twice as likely to defeat the third as each would be separately.

But what happens if the two rulers who fought together succeed in disarming the third? Many writers assume, implicitly or explicitly, that they will then divide the territory of the defeated ruler between them. But if they could do that, one might wonder why there could not have been an agreement dividing the disputed territory among all three rulers at the outset. Much of the literature assumes that this is not possible.[35] But this begs the question raised by Clausewitz's analysis of war, which is why states cannot reach negotiated settlements without fighting. It makes more sense to ask

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34. For references to the literature about contests that conform to these assumptions, see Skaperdas 1998.
35. See, for example, the important recent contributions to the literature by Schweller (1998) and Powell (1999, chap. 5), both of which explicitly make this assumption.

first how a contest in disarmament would be fought and then to consider what negotiated settlements might be feasible as an alternative to it.

If an absolute war is a contest in disarmament fought until one state has rendered its adversary incapable of further resistance, and the point of such a contest is to enable a predatory ruler to capture all the territory in dispute, then if there are three rulers an absolute war would be a contest in disarmament fought until every state but one had been disarmed and one ruler therefore controlled all the territory. If two rulers fought a third and disarmed him, therefore, then the contest would not be over until they had fought each other.

The probability that state i will eventually disarm the others if it begins as state j's ally is the probability that states i and j will win the first stage of the contest times the probability that state i will defeat state j in the second stage. In the following analysis I will initially assume that defeat entails the destruction of the third state's military capabilities—for reasons that will become clear, the possibility that the defeated state has military resources that can be transferred to the victors after its armed forces have been destroyed will be examined separately in the next chapter. If defeat entails the destruction of a state's military capabilities, then the relative power of the two victorious allies will be unchanged by the defeat of the third state.[36] The probability that state i will eventually disarm the others if it begins as state j's ally is therefore

$$\frac{r_i + r_j}{r_i + r_j + r_k} \left(\frac{r_i}{r_i + r_j} \right),$$

which reduces to

$$\frac{r_i}{r_i + r_j + r_k}.$$

Thus with these assumptions each ruler faces the same probability of defeating the other two whether it fights alone or fights with an ally in the first round of the contest. Each would therefore be better off sitting out the first round and then challenging the winner, since no matter what the distribution of military resources, the probability with which any state will win a contest against either of the other two will be greater than the probability with which it would win a contest against the other two combined.

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36. It is possible that fighting the first round might weaken the allied states, but so long as neither expects to be affected proportionately more than the other this would not affect their prewar expectations.

But the other two would then prefer to join together to fight such a state rather than fight each other first, and that is therefore how we should expect this contest to be fought.[37]

It is instructive to compare this conclusion with Kenneth Waltz's famous claim that the potential danger posed by a powerful ally would lead weak states to ally with each other to "balance" the power of stronger ones rather than to "bandwagon" with stronger states against weaker ones. As we saw in our discussion of Waltz's claim in chapter 1, the argument Waltz gave for it is incomplete. A state forced to choose between a stronger and a weaker ally confronts a complex tradeoff: if it joins the stronger side it will confront a more powerful adversary after victory, but if it joins the weaker side victory will be less likely.[38]

In the little model of absolute war just discussed, these two factors exactly cancel each other out, and therefore states should be indifferent between the two possibilities. Moreover, if powerful allies can be expected to bear a larger proportion of the costs of war than weaker ones, then a state would actually prefer a more powerful ally.[39] This example illustrates once again how easy it is to overlook the implications of even simple assumptions.

Nonetheless, the implications of these assumptions seem very counterintuitive. Before accepting the implications at face value, we need to consider whether there is something wrong with the assumptions.

The conclusions we arrived at are the result of the way military resources are assumed to accumulate as compared to probabilities: military resources are added together to produce greater strength, whereas probabilities are multiplied. That is why, if all three rulers have equal resources, a ruler who fights both the other two together faces the sum of their resources and therefore has a one-third probability of winning, whereas if he fights them separately he has a fifty percent chance of winning each contest, but the accumulation of risk implies that he has a probability of beating both of them separately of only .25.[40]

If alliances combined military capabilities in a way that was not sim-

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37. If the states all have the same military capabilities, for example, then in a contest in which two first fought the third each would have a probability of winning of one-third, whereas a state that sat out the first round would have a probability of defeating the survivor of .5. But then each of the other two would have a probability of defeating both the others of only .25, and they could therefore do better by joining together to fight the third before fighting each other.

38. For Waltz's argument, see the discussion in chapter 1. See also the discussion of it in Powell 1999, chap. 5.

39. This is one of the assumptions in Powell's analysis of this question (1999, 162).

40. Moreover, a state that combines its military forces with its allies' forces increases the probability of winning the first round of the contest but exposes itself to the risk that it might be defeated along with its ally.

ply additive, that is, if there were economies of scale in alliances, fighting an alliance would be more risky. Using the notation in Powell 1999, let g be a parameter that describes the possible effect of economies of scale in alliances. Then the probability that state i will win a military contest if it initially allies with state j will be

$$\frac{r_i}{r_i + r_j} \left[\frac{g\,(r_i + r_j)}{g\,(r_i + r_j) + r_k} \right],$$

which reduces to

$$\frac{g r_i}{g\,(r_i + r_j) + r_k}.$$

If $g > 1$ and $r_j > r_k$, then the value of this expression would be increased if state i allied with state k instead of state j, and now Waltz's claim would be supported.[41]

However, even if there are economies of scale in alliances, they might not be great enough to outweigh the advantage of waiting out the first round of the contest and just fighting the winner. Moreover, it is also possible for coalition warfare to be inefficient, so there might be diseconomies of scale in an alliance. If so, a weak state would actually prefer to fight alone.[42] Thus there are many possible combinations of factors that might, in any given situation, lead a state to prefer balancing to bandwagoning, to have the opposite preference, or to be indifferent between them, and therefore, contrary to Waltz, no general statement can be made as to what states will do.

In talking about absolute war in a two-state setting, I pointed out that, while the optimum way of conducting such a war posed a complicated strategic problem in its own right (since each state's strategy depended on the expected strategy of the other side), there was good reason to think that the solution to that problem was independent of any bargaining that might take place between the two adversaries. Expectations about the outcome of that contest could then be taken as the disagreement outcome in bargaining over the terms of a negotiated settlement.

This discussion of a three-way contest in disarmament implies that, as one might expect, expectations about its outcome depend not just on the military capabilities of the adversaries and the strategies they employ but also on information about the effect of alliances and perhaps also about which alliances will form. Nonetheless, the solution to the problem of how

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41. On this point see also Skaperdas 1998.

42. For a possible example, see the statements of British policymakers about defending France in the period before World War II quoted in Schweller 1998, 150.

to fight a three-way contest in disarmament is also independent of any bargaining that might occur, and, given the other requisite information, expectations about its outcome can also be represented as a set of probabilities that express how optimistic each state would be about eventually emerging as the sole winner of such a contest. Moreover, if all states are equally matched they would each be far less optimistic about winning such a contest than if there were only two states.

In the simple case we first looked at, for example, if all states have the same military capabilities they would each expect to win a contest in disarmament among them with a probability of one-third, and therefore each might be willing to accept less than one-third of the territory in dispute rather than fight for all of it. This is because, while two of them could, with a much higher probability, capture all the territory, they would still have to fight each other for control over it. Of course, they might anticipate being able peacefully to agree about how to divide it, but if so there seems to be no reason all three states could not do the same. That is the question we must now examine.

Unfortunately, the analysis of *n*-person bargaining is much less developed than the analysis of two-person bargaining. Moreover, it is even more difficult to construct a model of bargaining while fighting when there are more than two states than when there are just two. Perhaps the best we can do is construct a plausible scenario and identify this as an important question for future research.

Suppose, then, that a contest in disarmament among three states begins with a contest between two of them against the third. If the two allied states win, then the second stage of this contest will be a two-state contest like the one examined previously. With complete information the two victorious states will therefore agree to a division of the territory without fighting.

Now suppose that bargaining during the first stage of the contest takes place as follows: one ruler proposes a division of territory to the other two. Each in turn can accept the offer or propose another. If both accept then the conflict ends and the division is implemented. If a ruler whose turn it is to respond proposes another division then the contest continues, and if no one has been defeated by the next period the other two respond to that proposal. The contest continues in this way until one side has been disarmed or all the participants accept a division of the territory.

This is a scenario that resembles the Rubinstein two-person bargaining game. There is a three-person version of Rubinstein's game that has been discussed in the literature, in which there is a subgame perfect equilibrium set of offers similar to the ones that characterize the two-person bargaining game. As in the two-person case, therefore, with complete information one might expect that agreement would be immediate and

therefore the military contest would not occur.[43] However, if expectations about the contest were not consistent, then there might be an incentive to fight more limited wars to reveal information about what to expect should an absolute war be fought. Thus the relation between bargaining and war in a world of three states appears to be qualitatively similar to the relation when there are just two.

There is one striking difference between a three-state world and the two-state case discussed earlier, however, which is that in the three-state case a war of all against all is the disagreement outcome in any bargaining that may occur even if the only wars that occur are bilateral wars. This is because a war between state i and state j that reveals information about state j's military capabilities has implications for the terms of a negotiated settlement involving a possible war among all three states. Thus the outcome of a war between states i and j could lead to a revision of the territory held by state k, even though state k did not participate in the conflict. In this situation everything concerns everybody, whether they all participate in a military conflict or not.

Bargaining, War, and the Balance of Power

We saw in chapter 2 that in Western political thought the concept of a state system dates back at least to fifteenth-century Italy and that what Kenneth Waltz called "balance-of-power theory" has long been an important element of thinking about it.[44] One controversy about state systems concerns how to explain the ability of states to maintain their independence. Another concerns the effect of systems of independent states on human welfare. The most important issue in the latter context is the frequency of warfare, though the Prisoner's Dilemma game has led many people to doubt the ability of independent states to cooperate in the pursuit of any common interest. What Waltz called balance-of-power theory includes controversies about how to explain both the ability of states to maintain their independence (often called the stability of state systems) and variations in the frequency of warfare among them.

Sometimes in these controversies the balance of power refers to the

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43. For a discussion of this game, see Osborne and Rubinstein 1990, 63–65. In the three-person game, any convention about how goods should be divided can be supported by strategies that reward someone who rejects a deviant offer by giving him all the gains from bargaining in the following period, and therefore subgame perfection does not guarantee uniqueness in the three-person game. But it is not clear in this context where such a convention might come from. However, for the purposes of this discussion it does not matter what the outcome of this bargaining game is expected to be, so long as, with complete information, there is an equilibrium outcome.

44. For general surveys of writings on this subject, see Claude 1962 and Sheehan 1996.

distribution of military capabilities among individual states, and some-
times it refers to the distribution of capabilities between alliances. Com-
mon sense suggests (wrongly) that war between two states is least likely
when their military capabilities are equal. Often it is assumed implicitly
that if states are to maintain their independence, then weak states must
"balance" against the power of strong ones. Common sense might also
suggest that balancing would serve to reduce the likelihood of war when
there are more than two states, though many writers have denied this.

It seems likely that the availability of negotiated settlements as an
alternative to war will have an impact on both the frequency of war and
system stability. We have seen that negotiated settlements that everyone
prefers to war may not always exist, and in the next chapter we will see that
the necessity that agreements be self-enforcing may reduce further the
number of agreements that are feasible. Nonetheless, it is obvious that
states often do accept such agreements and that Clausewitz was right in
claiming that the possibility that they might be accepted has a profound
impact on both the likelihood of war and how it is conducted. Before look-
ing at factors that may restrict the availability of negotiated settlements,
therefore, let us consider what effect their availability might have on con-
troversies about the balance of power and its significance.

The Distribution of Power and the Likelihood of War

Common sense suggests that war between two states is least likely when
their military capabilities are equal, but commonsense reasoning fails to
take into account the effect of fighting on the bargaining that accompanies
it. Donald Wittman (1979) argued that, since the distribution of military
capabilities would affect the terms of any agreement they might accept but
not whether they both would prefer an agreement to war, the balance of
power should have no effect on the likelihood of war. Geoffrey Blainey
(1988) claimed, however, that states would be more likely to agree on the
terms of an agreement if their capabilities were unequal than if they were
equal. As we have just seen, the fact that a mutually acceptable agreement
exists does not mean that states will not fight, so Blainey might be right.
However, the argument that he gave for his claim was both incomplete
and confused, so we must decide for ourselves whether there is any reason
to believe that it is true.

Blainey's fundamental claim was that "[w]ars usually begin when two
nations disagree on their relative strength, and wars usually cease when the
fighting nations agree on their relative strength" (1988, 293). The reason
he gave for this claim was that disagreements about relative strength lead
to disagreements about relative bargaining power (115–19). As we have
seen, there is good reason to take this claim seriously.

The reason Blainey thought that war was more likely when power was distributed equally than when it was not was that he thought states were most likely to disagree about their relative strength when they were equal (108–24). One has only to state this claim to see a serious problem with it: if states disagree about their relative strength, how can one say whether they are equal or not?

The only reason Blainey gave for believing this proposition was true was that warring states find it easier to reach agreement after fighting than before fighting began—otherwise the war would not have occurred. But when a war ends, Blainey claimed, one state has revealed that it is stronger than the other. From this he concluded that peace was most likely when there was a "clear preponderance of power" (113).

Not only is this not a valid argument, but its plausibility rests on a confusion between *uncertainty* and *inconsistent expectations.* As we saw, as a war progresses states may become less uncertain about how it will end, but this implies nothing about whether the two states' expectations are consistent—indeed, if they are both maximally uncertain their expectations *must* be consistent, since they would both assign equal probabilities to winning and losing.[45] Since it is the consistency of their expectations that is important in reaching agreement, states that are maximally uncertain about the outcome of war may have no difficulty in agreeing on the terms of a negotiated settlement they would both prefer to fighting, if a negotiated settlement is possible at all. This would be compatible with another intuition that is common in the literature, which is that negotiated settlements are most likely in wars that are stalemated.[46]

Nonetheless, it is possible to construct an argument in support of the proposition that equality of power can make war more likely. But doing so reveals that the proposition is not always true.

As we have seen, the balance of power between or among states can be thought of in two ways: as a distribution of subjective probabilities assigned to the possible outcomes of a contest in disarmament between or among those states and as a measure of the distribution of the military capabilities among them on which such probability estimates would be based (e.g., size of armed forces, nature and number of weapons systems, size of population, quantity of industrial production, and so forth). How-

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45. However, the consistency of their expectations might not be common knowledge, so it would still be possible for one ruler to feign confidence he did not really have.

46. I suggested earlier that a stalemate is best thought of in terms of expectations about the length of a military contest rather than which side is more likely ultimately to win. Nonetheless, one reason a war might be expected to last a long time is that the two sides are thought to be evenly matched. The importance of a "mutually hurting stalemate" in producing negotiated settlements of civil wars has been emphasized by William Zartman. See his essay in Licklider 1993 and the discussion of that thesis in other essays in that volume.

ever, some of the factors that might be expected to influence the outcome of a contest in disarmament are more easily identified and observed than others. In addition to the factors just mentioned, for example, the training, morale, and fighting spirit of a state's armed forces, as well as the nature of the strategies that will be employed in fighting, are also important. Thus some of the factors that determine the probability with which a state will win a military contest are more easily observed than others.

It is plausible to think that the more evenly matched two states are with respect to the military capabilities that can be observed and measured, the greater the significance of the factors that cannot be so easily observed. Just as the quality of the coaching may determine the outcome of a professional football game but have little effect on the outcome of a football game between a professional and a high school team, so the outcome of a war between two equally powerful states may be determined by which side has the better generals, but not even the best general could enable Guatemala to disarm the United States. And it is easy to see how each of two rulers could believe in his own military genius even though it was common knowledge that their military forces were evenly matched. This provides a possible justification for Blainey's claim and also solves the problem of how one could say that two states were evenly matched even though they disagreed about their relative military capabilities.

However, we have seen that, if rulers are to reach a negotiated settlement, they must have consistent beliefs not only about their probabilities of winning a military contest but also about the cost of doing so. And it is clearly possible for rulers who agree that one is much more likely to be able to disarm the other nonetheless to disagree about the cost the stronger state would have to pay. The U.S. war in Vietnam may be an example of this: it was perhaps the great disparity in military power between the United States and North Vietnam that made political leaders in the United States underestimate the ability of North Vietnam to impose costs on the United States, and the ability of North Vietnam to force a revision of that estimate led to a settlement of the contest that was far less favorable to the United States than the one it had expected at the outset.[47]

Of course, inconsistent expectations about a contest in disarmament are not sufficient for fighting to occur. A ruler must also be optimistic enough about his ability to alter the expectations of his opponent at an acceptable cost to make it worth his while to try. Thus "real war," like "absolute war," is a costly contest with an uncertain outcome. But the probabilities assigned to the possible outcomes of real war need have little relation to the probabilities assigned to the outcomes of absolute war.

47. The bargaining process that accompanied the termination of the war in Vietnam is examined at length by Paul Pillar (1983) in the book referred to previously. Pillar interprets the war in Vietnam as primarily a contest in the imposition of costs.

Even if a ruler hopes to alter the enemy's beliefs about his own relative military strength, the aim may not be to show that he is stronger than the enemy but merely to show that he is not as weak as the enemy thought. And it is possible that the point of the contest will not be to affect the enemy's estimate of the probability of winning the contest at all but to influence his estimate of the costs that winning would entail. Thus it is possible to hope to gain a bargaining advantage by losing battles, which helps explain why Clausewitz claimed that weak states could hope to gain by fighting stronger ones and why military forces might be used not to disarm one's adversary but merely "to cause general damage."

We saw that what is true of two-state contests seems likely also to be true of multistate contests. Thus Wittman was right in claiming that there is no general connection between the distribution of military capabilities between or among states and the likelihood of war.[48]

The Distribution of Power and the Independence of States

As already noted, the phrase *balance of power* is sometimes used to refer to the distribution of military capabilities among individual states and sometimes to the distribution between warring alliances. When it refers to individual states, it often has meant not that the individual states were equally powerful but that no individual state was powerful enough to defeat all the others combined. As we saw, that was how Saint-Pierre used the term.[49] Similarly, Friedrich Gentz wrote early in the nineteenth century that "if the states system of Europe is to exist and be maintained by common exertions, no one of its members must ever become so powerful as to be able to coerce all the rest put together" (quoted in Gulick 1955, 34).

If this condition is satisfied, weak states could perhaps preserve their independence by joining together to oppose strong ones. And if they do, then the power of strong states will be balanced by the power of an opposing coalition. This is how the distribution of power among individual states, "balancing" (to use Waltz's influential terminology), and the distribution of power between opposing coalitions are related.

As the seventeenth-century tract by the Duke de Rohan discussed in chapter 2 illustrates, the history of Europe can plausibly be told as a history of states forming balancing coalitions to oppose attempts by power-

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48. Note that this discussion has been based on the assumption discussed previously that states rely primarily on battlefield outcomes in revising their expectations about their relative military capabilities. The question of the relation between the distribution of power and the likelihood of war is much more complex if one assumes that each side knows its own true capabilities but misrepresents them and that that information is revealed in the course of making offers and counteroffers.

49. See the discussion in chapter 2.

ful states to establish hegemony over them: first Spain, then France under Louis XIV and Napoleon, then Germany under the kaiser and Hitler, and then the USSR after World War II. Moreover, the tendency for such balances to form could be offered as an explanation of the fact that none of those attempts was successful.

However, those would-be hegemons had allies. Moreover, while no European state succeeded in eliminating all the others, balancing did not protect the independence of states in the ancient Chinese Warring States System, the Greek city-state system, or the subsequent Hellenistic one.[50] And, in spite of what Waltz claimed about balance-of-power theory, no one has offered a valid argument for the proposition that weak states should always be expected to ally with each other against strong ones.

In addition, it is not even clear why balancing would protect the independence of states. It might do so if the equality of power between coalitions prevented war from occurring, since if no war occurred no state could be defeated. But the frequency of war in the European state system seems to rule out that possibility. Moreover, we have already seen that the idea that equality of power between antagonists makes war less likely than it otherwise would be is itself based on invalid reasoning. But if wars between evenly matched antagonists occur, then one would expect that at least some of the time the potential hegemon would win. And even if it lost, one must ask why it would not be eliminated by the members of the victorious coalition.[51]

In Europe, balance of power thinking can be traced back at least as far as the Renaissance, when warring princes competed for control of northern Italy, and it flourished in the eighteenth century. That was a time when, as Rousseau's writings illustrate, international politics could plausibly be said to have consisted of struggles among predatory rulers for control over valuable territory. In those circumstances, as we have seen, everyone is in conflict with everyone else, even if they might ally temporarily, but compromises are possible because territory is divisible. This implies a different relation between the balance of power and the ability of states to maintain their independence.

There are two ways in which states might lose their independence: they might be disarmed in a military contest, or they might agree to give up their independence in a negotiated settlement. But these are in reality not two ways but one, since disarming a state only weakens its bargaining power but does not determine what will happen to it. Thus whether any

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50. For a comparison of the history of Europe with the history of China that focuses on this question, see Hui 1999 and 2000.

51. This last question is perhaps why some authors have claimed that balancing is something that only satisfied states would engage in. However, as we saw, Waltz explicitly denied that this was true.

particular distribution of military capabilities among states leads to a loss of independence for one of them depends on both the preferences of their leaders and their bargaining power.

If rulers are warriors trying to maximize their ability to profit from the labor of others and there are economies of scale in predation, then they might all be better off if they joined forces, and therefore any conflict between them would only be about the terms on which they would give up their independence. All three states might therefore disappear even though they were all militarily equal. Thus in Europe many of the "little monarchs" that Hobbes wrote about disappeared into the armed forces of big ones.[52] Fustel de Coulanges claimed that the conquest of the ancient world by Rome was facilitated by the fact that aristocratic leaders in many city-states thought that submission to Rome would protect them from popular forces at home (1956, 373–74). And the recent conquest of much of Afghanistan by the organization known as the Taliban was made possible in part by the fact that leaders of opposing groups expected to profit from submitting to it (Rashid 2000, 35).[53]

If giving up their political independence is very costly for the leaders of states, however, then only relatively weak states would have to agree to do it. Thus equality of power among individual states will lead to system stability, but system stability will not require "balancing."

Waltz made an influential distinction between "internal" and "external" balancing, which seems to imply that they are just two ways of doing the same thing (1979, 118). But according to Waltz, internal balancing consists of "moves to increase economic capability, to increase military strength, to develop clever strategies." Since the distribution of such capabilities among all states will influence the distribution of any goods to be divided, all states can be expected to be interested in strengthening their own capabilities relative to others'. If no state has a natural advantage over all the others, the result of such competitive efforts might well be that states are and remain relatively evenly matched, just as one team need not dominate the National Football League forever even if there were no rules whose purpose is to avoid the creation of "dynasties."

If so, and if the leaders of all states also place a high value on remaining independent, then this will lead to agreements among them that pre-

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52. See, for example, Henry Kamen's (2003) recent account of how the Habsburg family used the scanty resources of the Spanish monarchy to organize predators from all over Europe to share in the benefits of a global empire. For an analysis of the organization created by entrepreneurial Spanish monarchs, see Glete 2002, 67–139.

53. Formal models of interstate war usually assume that the size of the object in dispute is fixed and an actor that loses its independence loses everything. But this clearly need not be true. Waltz himself said that "the system won't work if all states lose interest in preserving themselves. It will, however, continue to work if some states do, while others do not, choose to lose their political identities, say, through amalgamation" (1979, 118).

serve their independence, even though wars may be necessary to reveal the true distribution of power. But this does not imply that states have engaged in "external balancing," if that consists of joining with weak states against stronger ones or forgoing the opportunity to absorb defeated states when it arises.

It is not surprising to discover that this is Clausewitz's own explanation of the ability of European states to maintain their independence. The reason "even gifted commanders and monarchs . . . had to be content with moderate success," he wrote, "lies with the balance of power in Europe." Political relations among European states, he said,

> had become so sensitive a nexus that no cannon could be fired in Europe without every government feeling its interest affected. Hence a new Alexander needed more than his own sharp sword: he required a pen as well. Even so, his conquests rarely amounted to much. (Clausewitz 1976, 590)

And the reason conquests rarely amounted to much was that the military resources available to states were limited and commonly known:

> Their means of waging war came to consist of the money in their coffers and of such idle vagabonds as they could lay their hands on either at home or abroad. In consequence the means they had available were fairly well defined, and each could gauge the other side's potential in terms both of numbers and of time. War was thus deprived of its most dangerous feature—its tendency toward the extreme, and of the whole chain of unknown possibilities which would follow. . . .
>
>   The conduct of war thus became a true game, in which the cards were dealt by time and by accident. In its effect it was a somewhat stronger form of diplomacy . . . in which battles and sieges were the principal notes exchanged. Even the most ambitious ruler had no greater aims than to gain a number of advantages that could be exploited at the peace conference. (589–90)

The French Revolution and Napoleon removed the limits on France's military resources, Clausewitz wrote, and made them more difficult to measure. However, the other states of Europe were able to recover from their surprise before it was too late, and therefore even "the terrible Bonaparte" was unsuccessful. Nonetheless, we should note, France did not lose its independence.

Note that there are two elements to Clausewitz's explanation of interstate conflict in Europe prior to Napoleon: the fact that the military

resources available to states were limited and the fact that they were commonly known, or, as he put it, that "each could gauge the other side's potential":

> The enemy's cash resources, his treasury and his credit, were all approximately known; so was the size of his fighting forces. No great expansion was feasible at the outbreak of war. (590)

One possible interpretation of what he wrote is that it was the limits that were important:

> Knowing the limits of the enemy's strength, men knew they were reasonably safe from total ruin; and being aware of their own limitations, they were compelled to restrict their own aims in turn. (590)

One might infer from these comments that states were able to maintain their independence because no one had the ability to threaten it.

However, Clausewitz denied this:

> Even a royal commander had to use his army with a minimum of risk. If the army was pulverized, he could not raise another, and behind the army there was nothing. That enjoined the greatest prudence in all operations. Only if a decisive advantage seemed possible could the precious instrument be used, and to bring things to that point was a feat of the highest generalship. (590)

Thus absolute war even in the eighteenth century was risky, and what enabled states to minimize the risk of complete defeat was the fact that their capabilities were commonly known, which enabled them to fight limited rather than absolute wars. Our discussion of the relation between bargaining and war helps explain why this might be true.

By removing many of the limits on the capabilities of eighteenth-century states (which, as Clausewitz said, "in a sense consist only in man's ignorance of what is possible"), the military revolution that the political revolution in France made possible made it more difficult for states to have a common understanding of what their relative capabilities were. As a result, in the wars with Napoleon,

> There seemed no end to the resources mobilized; all limits disappeared in the vigor and enthusiasm shown by governments and their subjects. . . . The sole aim of war was to overthrow the oppo-

nent. Not until he was prostrate was it considered possible to pause and try to reconcile the opposing interests.

"Will this always be the case in the future?" he asked. "From now on will every war in Europe be waged with the full resources of the state, and therefore have to be fought only over major issues that affect the people?" Clausewitz declared himself unable to answer this question (593).

The French Revolution compelled the predatory rulers of Prussia, Austria, and Russia to make war "a concern of the people," as Clausewitz put it, which is consistent with Kant's claims about the effect of recurring wars on the constitution of states (592). Kant's answer to Clausewitz's question about what the effect of this change would be was optimistic. The nineteenth century seemed to support such optimism, but the twentieth century did not. In deciding whether Kant may be right in the longer run, we must bear in mind the distinction Clausewitz made between the magnitude of states' capabilities and their ability to estimate them consistently.[54]

Bargaining and the Recurrence of War

Before discussing the effect of the recurrence of war, let us consider what we have learned about how to explain it. Blainey's explanation for the recurrence of war during the eighteenth century was that those wars were indecisive and indecisive wars tend to produce short periods of peace. The reason the Napoleonic wars led to a lasting peace, he claimed, was that they were decisive (Blainey 1988, 112–13).

Blainey thought that indecisive wars produced short periods of peace because peace required "a clear ladder of international power," which indecisive wars did not establish (1988, 109). As we saw, his justification for that proposition was that wars end when one state shows that it is clearly stronger than the other. But if eighteenth-century wars were indecisive they must have ended even though no state had done that. Thus eighteenth-century wars are not explained by Blainey's thesis; they are counterexamples to it. Blainey claimed Clausewitz's support for his idea, but, as we have just seen, Clausewitz's explanation of the limited nature of eighteenth-century wars was that statesmen found it *easy* to arrive at a mutual understanding of their military capabilities, and his explanation

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54. For a discussion of Clausewitz's own ideas on the relation between war and the development of the European state and his involvement in the reform movement in Prussia stimulated by the wars with Napoleon, see Paret 1985.

for the "decisive" nature of the Napoleonic wars was that this ability was upset by the French Revolution.[55]

The analysis of the relation between bargaining and war offered previously implies that two conditions must be satisfied for a ruler to try to overturn a prior peace settlement by going to war: (1) there must be some change that leads him to think that his bargaining power has increased by more than another ruler (or rulers) believe, and (2) he must place a higher value on a military contest that might reveal his true military capabilities than on the terms of the existing settlement. What Clausewitz said about eighteenth-century warfare implies that rulers considered it a safe and inexpensive way of revealing small changes in their relative bargaining power and that this was the result of the fact that they had a good common understanding both of their relative military capabilities and their reluctance to take large risks. Thus they all felt free to challenge prior agreements "as soon as a change of circumstances shall have given fresh strength to the claimants," as Saint-Pierre said.[56] Since rulers in the eighteenth century were engaged in constant attempts to engineer changes in their circumstances, relatively frequent but limited wars were to be expected.

How things might have been different after Napoleon's wars is not so clear. But Clausewitz's discussion of the recurrence of war in the eighteenth century reinforces the importance of our earlier observation that the ability to bargain while fighting, while it may reduce the severity of war, may also increase its frequency.

What Next?

Throughout this discussion I have assumed that land is valued by rulers only for its contribution to their wealth or the wealth of their extended families or their followers. But land can be a source of military capabilities as well, and therefore the redistribution of land might lead to the redistribution of military capabilities and thus a change in the expected value of a military contest. This, of course, was true of Europe in the eighteenth century, and it is what the literature on the balance of power has always assumed.[57] Thus our analysis of warfare among predatory rulers is seriously incomplete.

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55. For an interesting argument that it is the length of wars and not their decisiveness that determines how much information they reveal, see Smith and Stam 2002.
56. See the discussion of Saint-Pierre's ideas in chapter 2.
57. This can be confirmed by even a cursory reading of any standard work on this subject, for example, Gulick 1955.

Moreover, I noted earlier that in thinking about the relation between bargaining and war one could not, as most of the literature on bargaining does, ignore the question of how agreements are to be enforced. Yet so far I have ignored it. When there is a connection between the object in dispute and the relative bargaining power of the adversaries, this problem is especially complex. I will try to correct both these deficiencies in the next chapter.