International Negotiation

*Analysis, Approaches, Issues*

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A distinctive, though eclectic, approach to negotiation in general, and international negotiation in particular, has emerged in recent years. The purpose of this chapter is to pull together some of the common elements of the "negotiation-analytic" approach, in part by contrast with some of its close intellectual roots, decision analysis and game theory, including their behavioral variants, as well as the cognitive and social psychological study of negotiation. I will also describe a number of representative works, set forth the elements of a typical negotiation analysis, and highlight some promising developments and trends.

Rather than begin this task directly, I begin with the problem of how someone unacquainted with the analysis of international negotiation might most rapidly gain an appreciation and understanding of this subject in practice. Then I suggest an important missing ingredient from this rich set of insights—a logically consistent framework within which to relate various important analytic pieces from different disciplines, in particular from a prescriptive point of view. I argue that filling this need is a function of the emerging negotiation-analytic approach,

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an emergent body of work that seeks to generate prescriptive theory and advice for parties wishing to negotiate in a "rational" manner, without necessarily assuming that the other side is a strategically sophisticated, rational actor.

INTERNATIONAL NEGOTIATION IN PRACTICE

For a classical diplomatic view of international negotiation, Nicholson's brief *Diplomacy* (1963) is an apt place to start, followed by Henry Kissinger's comparatively massive work of the same name (1994). Moving beyond such insightful description is Iklé's minor classic, *How Nations Negotiate* (1964); Zartman's introductory essay in *The 50% Solution* (1987a) and his work with Berman, *The Practical Negotiator* (Zartman and Berman, 1982), extend, update, and complement Iklé's analysis. Yet negotiation typically proceeds in tandem with the actual or threatened use of power, whether military, economic, or of other sorts. In this regard, Schelling's *Strategy of Conflict* (1960) and *Arms and Influence* (1966), along with Craig and George's *Force and Statecraft* (1995), are extremely insightful.

Because the actual or threatened use of force may also provoke conflict spirals and escalation, a psychological perspective of this kind of strategic thinking is highly useful; among the best syntheses are Pruitt and Rubin's *Social Conflict* (1986), White's edited volume *Psychology and the Prevention of Nuclear War* (1986), and Jervis's *Perception and Misperception in International Politics* (1976) and *Psychology and Deterrence* (Jervis, Lebow, and Stein, 1985). Moving beyond force to means for influencing others to realize jointly cooperative potential is the subject of a very nice short book by Fisher, *International Conflict for Beginners* (1969). Of course, this broad understanding of international negotiation should be deepened with reference to particular negotiations; negotiations in specific areas, such as arms control and trade; by descriptions of third-party roles—for example, Rubin's *Dynamics of Third-Party Intervention* (1981) or Bercovitch and Rubin (1992)—as well as by the accounts of notable practitioners or observers, such as Thucydides, de Callières, Talleyrand, Bismarck, and Churchill.

A MORE SYSTEMATIC APPROACH

Generally missing from these rich accounts, however, is a logically consistent framework within which to relate their various elements to each other and to the whole. To what bodies of theory and empirical work might one turn for more systematic analysis and advice in a negotiation over a trade dispute or a global warming treaty?
Decades of psychological studies offer many powerful insights, but this approach conspicuously lacks a clear analytic structure or prescriptive theory of action. Instead, it has mainly sought accurate descriptions and rigorous explanations of how negotiators do act. What they should do often remains an implicit or ad hoc implication of this careful, descriptive work.

Decision analysis (such as Raiffa, 1968), the practically oriented cousin of decision theory, would seem a logical candidate to fill this prescriptive void. It suggests a systematic decomposition of the problem: structuring and sequencing the parties' choices and chance events, then separating and subjectively assessing probabilities, values, risk, and time preferences. A von Neumann-Morgenstern expected utility criterion aggregates these elements in ranking possible actions to determine the optimal choice. This approach is well suited to decisions "against nature," in which the uncertainties—such as the probability that a hurricane will strike Caracas in August—are not affected by the choices of other involved parties anticipating one's actions.

Yet when decision making is interactive—as is true in negotiation, where each party's anticipated choices affects the other's—assessment of what the other side will do qualitatively differs from assessment of "natural" uncertainties. Of course, the theory of games was developed to provide a logically consistent framework for analyzing such interdependent decision making. Full descriptions of the courses of action open to each involved party are encapsulated into "strategies." Rigorous analysis of the interaction of strategies leads to a search for "equilibria," or plans of action such that each party, given the choices of the other parties, has no incentive to change its plans. A great deal of analysis by game theorists seeks conditions for unique equilibria among such strategies. (See the classic discussions of von Neumann and Morgenstern, 1953, and Luce and Raiffa, 1957; for recent insightful assessments, with special regard to bargaining, see Roth, 1985; Aumann, 1989; Harsanyi, 1989; and Rasmusen, 1989.)

Game theory has been especially useful for understanding repeated negotiations in well-structured situations such as certain financial markets. It has offered useful guidance for the design of auction and bidding mechanisms, has uncovered powerful competitive dynamics, has usefully analyzed many "fairness" principles, and now flourishes both on its own and in applications such as microeconomic theory and the economics of industrial organization. With nonspecialist audiences in mind, a number of analysts have recently described some of the most useful contributions of game theory for understanding negotiating behavior (see, for example, Weber, 1985; Myerson, 1991; and Young, 1991).

Despite these signal successes, the dominant game-theoretic quest to predict equilibrium outcomes resulting from the strategic interactions of fully rational players often lacks prescriptive power in negotiations. "Negotiation analysis" has largely evolved to fill this gap, which derives from three major aspects of
mainstream game theory (elaborated later in this chapter). First, on standard assumptions, there are often numerous plausible equilibrium concepts, each with many associated equilibria—and no a priori compelling way to choose among them. Second, even where one party wishes to act rationally, the other side may not behave as a strategically sophisticated, expected utility maximizer—thus rendering conventional equilibrium analyses less applicable. A large and growing body of behavioral evidence suggests that people systematically and significantly violate the canons of rationality. Third, the elements, structures, and “rules” of many negotiating situations are not completely known to all the players, and even the character of what is known by one player may not be known by another. The frequent lack of such “common knowledge” limits—from a prescriptive standpoint—much equilibrium-oriented game analysis. Even where it is possible to bend such a situation into the form of a well-posed game and gain insights from it, the result may lose much prescriptive relevance.

THE NEGOTIATION-ANALYTIC
RESPONSE AND REPRESENTATIVE WORKS

If descriptive psychological approaches to negotiation lack a prescriptive framework, if decision analysis isn't directly suited to interactive problems, and if traditional game theory presupposes too much rationality on all sides, then “negotiation analysis” represents a response that yokes the prescriptive and descriptive research traditions. Using Howard Raiffa’s terms (1982), unlike the “symmetrically prescriptive” approach of game theory, wherein fully rational players are analyzed in terms of what each should optimally do given the other’s optimal choices, the “asymmetrically prescriptive/descriptive” approach typically seeks to generate prescriptive advice to one party conditional on a (probabilistic) description of how others will behave. An additional perspective is what Raiffa calls “externally prescriptive/descriptive,” a stance appropriate to advising third parties such as mediators and arbitrators about how best to act, given assessments of the protagonists.

Like decision analysis, negotiation analysis operates by decomposing the problem into characteristic elements (to be described shortly). Its prescriptions typically expect intelligent, goal-seeking action by the other parties, but not necessarily full game-theoretic (interactive or “strategic”) rationality. Such descriptive assessments of the others need not assume tactical naiveté; as contextually appropriate, the assessments can incorporate none, a few, or many rounds of “interactive reasoning.”

Works that embody the spirit of this work can be found as early as the late 1950s. Whereas Luce and Raiffa’s Games and Decisions (1957) was primarily a
brilliant synthesis and exposition of game theory’s development since von Neumann and Morgenstern’s classic work (1953), Luce and Raiffa began to raise serious questions about the limits of this approach in analyzing actual interactive situations. Perhaps the first work that could be said to be in the spirit of what I mean by “negotiation analysis” was *The Strategy of Conflict* (1960) by Thomas Schelling, followed by his *Arms and Influence* (1966). The point of departure of these works was game-theoretic but they proceeded with less formal argument, and their analysis had far broader direct scope. Though nominally in the behavioral realm, Walton and McKersie’s *Behavioral Theory of Labor Negotiations* (1965) drew on Schelling’s work as well as rudimentary decision and game theories. It highlighted distinctions between so-called integrative and distributive bargaining as well as the “intraorganizational” negotiations that take place in tandem with the bargaining between labor and management.

The first overall synthesis of this emerging field appeared with the publication of Howard Raiffa’s *Art and Science of Negotiation* (1982). An application and elaboration of some of these ideas in the context of the mammoth Law of the Sea negotiations, *Negotiating the Law of the Sea: Lessons in the Art and Science of Reaching Agreement*, was published by Sebenius (1984). A set of essays, structured simulations, and teaching notes commissioned by the National Institute for Dispute resolution resulted in publication of *The Manager as Negotiator and Dispute Resolver*, by Lax and others (1985). This approach was systematized into an overall method in the first part of Lax and Sebenius’s *Manager as Negotiator* (1986); the second part specialized the method to managerial negotiations within and among organizations. *Negotiation Analysis* (1991), edited by H. Peyton Young, furthered this evolving tradition. Sebenius (1992b) outlined a synthesis of this emerging field in a *Management Science* article, “Negotiation Analysis: A Characterization and Review,” later updated in Sebenius (2001). (This chapter draws directly on the analysis in the 1992 work.) Further contributions in the same vein include *Wise Decisions*, edited by Zeckhauser, Keeney, and Sebenius (1996); Raiffa’s *Lectures on Negotiation Analysis* (1997); and, adding insights from organizational and information economics, *Beyond Winning* by Mnookin, Peppet, and Tulumello (2000). In a trade context, Odell’s *Negotiating the World Economy* (2000) offered an extended demonstration of the power of these concepts in international relations theory-building. While negotiation-analytic in spirit, the common points of departure of the works cited here were formally analytic: game theory, economics, and decision analysis.

Meanwhile, another group of researchers was coming to a negotiation-analytic view, but from a behavioral starting point. With roots in the cognitive tradition pioneered by Kahneman and Tversky (1974) and elaborated by behavioral decision theorists (for example, Einhorn and Hogarth, 1988; Kahneman, Slovic, and Tversky, 1982; Bell, Raiffa, and Tversky, 1989), behavioral scholars began in the late 1980s and early 1990s to explicitly link their work to that of
Raiffa and his colleagues. In particular, Neale and Bazerman's *Cognition and Rationality in Negotiation* (1991), the more popularly oriented *Negotiating Rationally* by Bazerman and Neale (1992), and Thompson's *Mind and Heart of the Negotiator* (2001) pulled together and developed a great deal of psychological work on negotiation in an asymmetrically prescriptive/descriptive framework. These efforts began to systematically build up more structure on what had been, in the works of Raiffa and others, a largely ad hoc descriptive side of the ledger.

**ELEMENTS OF A NEGOTIATION-ANALYTIC APPROACH**

Full negotiation-analytic accounts (such as Sebenius, 2000) generally consider the following basic elements with respect to the actual and potential parties: their perceived interests, alternatives to negotiated agreement, the linked processes of "creating" and "claiming" value, and efforts to "change the game" itself. These basic elements can be found and analyzed in a negotiation between two monolithic parties as well as in the most complex coalitional interactions with varied communication and decision rules.

**Parties**

In the least complex negotiation, two principals negotiate with each other. Yet potentially complicating parties such as lawyers, bankers, and other agents may be present, as may multiple internal factions with very different interests. Multiple parties, which may change over time, tend to be the norm in most international negotiations. The crucial first step for an effective negotiation analysis is to map the full set of potentially relevant parties in the context of the decision processes.

**Interests, Issues, and Positions**

It is often important to distinguish parties' underlying interests from the issues under negotiation, on which positions or stands are taken. The connections among positions on issues and interests are rarely simple. Sometimes a focus on deeper interests can unblock a stubborn impasse over incompatible positions that relate only partially to the parties' real concerns; in other cases, emphasizing interests will only generate hopeless conflict when mutually beneficial agreement on certain overt issues could be reached. And focusing on issues and positions (rather than interests) can be tactically advantageous.

In virtually all cases, an important first analytic step is to probe deeply for interests, distinguish them from issues and positions, and carefully assess trade-

When individuals or groups with different concerns make up one side in a negotiation, it is no longer in general possible to specify overall trade-offs; however, carefully tracing which set of interests is ascendant according to the internal bargaining process of given factions may continue to provide insights. Wilson's work on "syndicates" (1968) suggests formal conditions under which a "group utility function" exists. One result of such analysis of interests may be the disaggregation of a side into factions whose interests are shared enough to justify treating the faction as another distinct party. For cases in which such disaggregation is not sensible, Keeney, Renn, and Winterfeldt (1983) discuss "value tree" analysis, whereby effective preferences of larger groups can be assessed for decision-making purposes, including international and broader policy negotiations.

Alternatives to Negotiated Agreement

People negotiate in order to satisfy the totality of their interests better through some jointly decided action than they could otherwise. Thus for each side the basic test of a proposed joint agreement is whether it offers higher subjective worth than that side's best course of action without agreement. In examining a negotiation, one should analyze each party's perceptions of its own—and the others'—valuations of the alternatives to negotiated agreement.

Alternatives to agreement may be certain, with a single attribute, such as an ironclad competing price quote for an identical new car. They may be contingent and multiattributed—for example, going to court rather than accepting a negotiated settlement can involve uncertainties, trial anxieties, costs, time, and precedents that contrast with the certain, solely monetary nature of a pretrial accord. Alternatives may change over time with new information, interpretations, competitive moves, or opportunities. Without agreement, the status quo ante may be superseded by something much worse for one side: a neutral island nation may intend to lease its naval base to one military power if current negotiations fall through with another. In multiparty negotiations, one side's alternatives to agreement may be the set of agreements that could be reached
by potential opposing coalitions. Outright threats by one party to change the no-agreement alternatives of another are common. Or the best alternative to negotiated agreement may be to keep negotiating: in arms control, for example, failure to agree may involve worse relations, forgone benefits, and altered settlement possibilities, but in any case necessity may remain for continued dealings among the same parties.

Evidently, decision analysis (including multiattribute value and utility theory) can often help assess alternatives to agreement. When there are many possible alternatives—for example, many potential purchasers, each with associated uncertainties and costs of discovery for the seller—optimal search theory can provide strategies for searching efficiently and valuing the expected findings from the search (Lax, 1985). When the parties’ alternatives to agreement are interdependent, concepts from game theory—including the dynamics of threats and counterthreats as well as the many variants of coalitional analysis—can help bargainers understand their alternatives (Luce and Raiffa, 1957; Raiffa, 1982).

Although this evaluation provides a strict lower boundary for the minimum worth (the “reservation price”) required of any acceptable settlement, alternatives to agreement also play tactical roles. The more favorably that negotiators portray their best alternative course of action—whether this means a course that is less costly, more efficient, or less risky, with earlier benefits, more desirable linked attributes (such as reputation), or fewer undesirable ones (such as bad precedents)—the smaller the ostensible need for the negotiation and the higher the standard of value that any proposed accord must reach. Moves “away from the table” that shape the parties’ alternatives to agreement can strongly affect negotiated outcomes. Searching for a better price or another supplier, cultivating a friendly merger partner in response to hostile takeover negotiations, or preparing an invasion should talks fail to yield a preferable outcome may have greater influence on the negotiated outcome than sophisticated tactics employed “at the table” such as clever opening offers or patterns of concession.¹ This poses an interesting problem of allocating scarce effort at the table versus away from the table (Lax and Sebenius, 1985).

Representing the Structure

Imagine that two negotiators have thought hard about their underlying interests in different possible settlements of the apparent issues. Further suppose that they have a relatively clear, if possibly changing, assessment of their trade-offs and have compared them to the value of their best no-agreement alternatives. Each has a sense of any “rules of engagement” that structure their interaction. From the viewpoint of each party, a set of possible agreements has been envisioned. Assume that an analyst were privy to the results of these evaluations by each side, along with the (likely asymmetric) distribution of information about interests, beliefs, no-agreement options, and possible actions; these evaluations
need not be common knowledge of the parties. The situation might be familiarly represented as in Figure 14.1.

The origin represents the value of failing to reach agreement; each side's best alternative to agreement implies the location of this point. The "Pareto frontier" in the northeast part of the graph represents the evaluations of the set of those possible agreements on the issues that could not be improved on from the standpoint of either party without harming the other. In general, neither side knows the location of the frontier, only theoretically that it is there. The entire shaded region—bounded by the two axes and the frontier—is the "zone of possible agreement." In general, each party has its own perceptions of this zone. (In a purely distributive bargain, with no room for joint gains beyond the fact of agreement, the shaded region would collapse to a diagonal frontier.) Since this representation is quite general, it can in principle encompass the whole range of possible interests, alternatives, and agreements.

**From Structure to Outcome: Favorable Changes in the Perceived Zone of Possible Agreement**
This is the point at which game-theoretic and negotiation-analytic approaches tend to diverge. A game theorist would typically tighten the specification of the situation, presume common knowledge (in the sense of Aumann, 1976) of the
situation and strategic rationality of the parties, and, by invoking a rigorous concept of equilibrium, investigate the predicted outcomes of the interaction. Indeed, as Rubinstein's insightful commentary noted, "For forty years, game theory has searched for the grand solution" that would achieve a "prediction regarding the outcome of interaction among human beings using only data on the order of events, combined with a description of the players' preferences over the feasible outcomes of the situation" (1982, p. 923).

For many negotiation analysts, game theory's fully rational, equilibrium-based approach, dependent on common knowledge, can be problematic, for reasons alluded to at the start of this chapter. Postponing a fuller comparison of these two different approaches, this section first discusses the typical negotiation-analytic orientation: on actions that can change perceptions of the zone of possible agreement and, typically, affect those perceptions in ways expected to yield favorable outcomes.

Since each party should accept any settlement in the zone of possible agreement rather than revert to no agreement, Schelling (1960) made the potent observation that the outcome of such bargaining structures could best be unraveled by a "logic of indeterminate situations." Without an explicit model or formal theory (equilibrium-based or other) adequate to confidently map structure and tactics onto bargaining outcomes, how can an individual negotiator or interested third party decide what to do? In the (often implicit) view of many negotiation analysts, the negotiator's subjective distribution of beliefs about the negotiated outcome conditional on using the proposed tactics must be compared with his or her subjective distribution of beliefs about the outcome conditional on not using them. The tactic is attractive if the former distribution gives a higher expected utility than the latter.

Such "improvement" has a subjective basis analogous to Rothschild and Stiglitz's characterization (1970) of a subjectively perceived "increase" in risk. Specifying these distributions may require an internalized and subjective model of the bargaining process since no such general model often exists for prescriptive purposes; where there is a well-developed and applicable game-theoretic model, of course, it should be used. And of course, the "better" the empirical and game-theoretic basis for the assessment, the "better" the subjective distributions of outcomes.

Much negotiation-analytic work consists in improving the basis for assessing such outcome distributions. To do this, analysts pay attention to the special structure and dynamics that derive from the joint decision making among parties, some of whom may be "boundedly" rational. The following two sections investigate two lines of analysis intended to improve the basis for assessing outcome distributions. It will then be useful to revisit the different emphasis of the game-theoretic approach.
Improving the Basis for Assessing Outcome Distributions I: Fundamental Processes of Negotiation

At bottom, negotiation processes involve both actions to enhance what is jointly possible through agreement ("creating value") and actions to allocate the value of agreement ("claiming value").

Creating Value. In most negotiations, the potential value of joint action is not fully obvious at the outset. "Creating value"—reaching mutually beneficial agreements, improving them jointly, and preventing conflict escalation—requires an approach often associated with "win-win," "integrative," or "variable-sum" encounters: to share information, communicate clearly, be creative, and channel hostilities productively. Yet regardless of whether one adopts a cooperative style or not, it is useful to have an analytic guide as to the underlying substantive bases for joint gains and how to realize them by effective deal-crafting (see Lax and Sebenius, 1986, ch. 5).

First, apart from pure shared interests, negotiators may simply want the same settlement on some issues. Furthering their relationship, or acting in accordance with an identical interest, such as a shared vision, ideology, or norm of equity, may create value in an agreement. Interests, such as "good relationships," are analogous to the economist's "public goods" in that all sides can simultaneously "consume" them without diminution.

Second, where economies of scale, collective goods, alliances, or requirements for a minimum number of parties exist, agreement among similar bargainers can create value.

Third—and most interestingly—though many people instinctively seek "common ground" and believe that "differences divide us," it is often precisely the differences among negotiators that constitute the raw material for creating value. Each class of difference has a characteristic type of agreement that makes possible its conversion into mutual benefit. For example, differences in relative valuation suggest joint gain from trades or from "unbundling" differently valued attributes. Differences in tax status, liquidity, or market access suggest arbitrage. Complementary technical capacities can be profitably combined. Probability and risk aversion differences suggest contingent agreements or bets. Differences in time preference suggest altering schedules of payments and other actions. Sebenius (1984) formally characterizes such optimal betting, risk sharing, and temporal reallocations; a general discussion of differences in probabilities and attitudes toward risk can be found in Pratt and Zeckhauser (1989). These observations point up value of a "differences orientation" with knowledge of the characteristic "technologies" for converting differences into mutual benefit. More broadly, much work on optimal contracting (for example, Hart, 1995), as well as classical economic studies of gains from trade and comparative
advantage, directly bears on the kinds of agreements that create value on a sustainable basis.


Claiming Value. Crucial aspects of most negotiations, however, are primarily “distributive,” “win-lose,” or “constant-sum”; that is, at some points in the process, increased value claimed by one party implies less for others. Several broad classes of tactics used for claiming value in these kinds of bargains have been explored (see, for example, Schelling, 1960; Walton and McKersie, 1965; Raiffa, 1982; and Lax and Sebenius, 1986). Such tactics include shaping perceptions of alternatives to agreement, making commitments, influencing aspirations, taking strong positions, manipulating patterns of concessions, holding valued issues “hostage,” linking issues and interests for leverage, misleading other parties, and exploiting cultural and other expectations. By means of these tactics, one party seeks advantage by influencing another’s perceptions of the zone of possible agreement.

Sustaining Value. Finally, because value that is created and claimed may often endure only as long as the agreement is observed, the question of sustaining value assumes particular importance—although in principle this consideration could be treated as the intertemporal extension of value creation. For example, in negotiations between a developing country and a mining company, an agreement reached before the mine is constructed that is relatively favorable to the company may be subject to almost immediate renegotiation on terms more advantageous to the country once the mine is built and the risk is “sunk.” The generic problem of securing “insecure contracts,” defined in Lax and Sebenius (1981) and discussed in Raiffa (1982), involves possibilities of structuring con-
tendent contracts, repetition, linkage, the institutionally plausible equivalents of performance bonds, compliance norms, and various enforcement mechanisms.

Managing the Tension Between Creating and Claiming Value: The Negotiators' Dilemma. In general, the benefits of cooperation are not fully known at the outset of a negotiation. Colloquially, the parties often do not know how large a value pie they can create. The way in which they attempt to expand the pie often affects its final division, while each side's efforts to get a larger share of the pie often prevents its expansion in the first place and may lead to no pie at all or even to a fight. Consequently, creating and claiming value are generally not separable processes in negotiation. This fact undermines much otherwise useful advice (that, for example, presumes that "win-win" situations have no "win-lose" aspects or that "integrative" bargains are unrelated to "distributive" ones).

Each negotiating party tends to reason as follows: If the other parties are open and forthcoming, I can take advantage of them and claim a great deal of value; I should therefore adopt a value-claiming stance. By contrast, if the other parties are tough and adopt value-claiming stances, I must also adopt such a stance in order to protect myself. Either way, a strong tendency operating on all parties drives them toward hardball. Because mutual hardball generally impedes value creation, competitive moves to claim value individually often drive out cooperative moves to create it jointly. Outcomes of this dynamic include poor agreements, deadlocks, and conflict spirals. (Valuable social-psychological insights into factors leading to stalemate conflict escalation and deescalation can be found in Pruitt and Rubin, 1986.) This tendency, closely related in structure to the famous Prisoner's Dilemma, has been dubbed the "Negotiator's Dilemma" (see Lax and Sebenius, 1986, ch. 2 and 7).

A number of economists have demonstrated versions of this result in more narrowly drawn situations, specifically, that the negotiators' rational self-interested behavior when bargaining with incomplete information can lead to ex post Pareto-inefficient equilibria. For example, Chatterjee (1982, 1985) discusses the inefficiencies that can result when parties possess private information, and Myerson (1979; Myerson and Satterthwaite, 1983) demonstrates the trade-off between ex ante honest revelation of privately held information and ex post Pareto efficiency in bargains with incomplete information.

By contrast, much early game-theoretic and economic analysis of bargaining simply assumed that negotiated agreements would be "efficient" or "Pareto-optimal," in that they would create all possible value and leave no potential joint gains on the table. For example, the so-called Nash solution (1950), along with other like approaches to cooperative games (in which binding commitments are possible), posited Pareto optimality as a reasonable feature of a negotiated outcome. Despite a world peppered with needless deadlocks, poor agreements,
soured relationships, strikes, and wars, some classically trained economists (still) react with incredulity that "rational" bargainers might walk away from unrealized joint gains. By contrast, most negotiation analysts anticipate the likelihood of ex post Pareto-inefficient agreements and devote considerable effort to helping the parties "expand the pie" and manage the creating-claiming tension most productively.

Much negotiation advice is aimed at productively managing the inherent tension between creating and claiming value, especially on a sustainable basis (see Lax and Sebenius, 1981, and Raiffa, 1982). In analyzing the large number of tactics, approaches, and procedures offered to improve the effectiveness of negotiation, it is useful to focus on how a given suggestion manages the inherent tension between creating and claiming value. Many approaches naively ignore or deny the tension by simply advocating either a "win-win" or a "win-lose" philosophy. Consider the successful characteristics of a tit-for-tat approach as analyzed by Robert Axelrod (1984). Being forthcoming permits the exchange of information essential to get the joint process of creating value under way; being provachable prevents exploitation of this openness by a value claimer; and being forgiving looks beyond a forceful response to attempted exploitation to getting the cooperative process back on track rather than seeing it escalate. In short, this approach—the subject of considerable focus and controversy (see, for example, Mansbridge 1990)—offers one coherent response to managing the creating-claiming tension.

Of course, there are many more. For example, Fisher and Ury, in their popular and influential Getting to Yes (1981), offer a less analytic approach called "principled negotiation," with rules of thumb to "separate the people from the problem," "focus on interests, not positions," "invent options for mutual gain," and "insist on objective criteria." Bazerman and Neale (1992) and Thompson (2001) both offer advice that can best be interpreted as managing this underlying tension. Moreover, various criteria and procedures for ensuring "fair division," such as those described by Raiffa (1982), Young (1991), and Brams and Taylor (1996), offer analytic fairness rationales and methods for parties who accept them. This acceptance can help the parties escape the negative consequences of excessive "claiming" behavior. Mediation by conventional means as well as procedures such as the "single negotiating text" and the "postsettlement settlement" represents another class of actions that seek to manage this tension between creating and claiming value. Antrim and Sebenius (1990) describe how Singapore's Ambassador T.T.B. Koh employed a combination of these approaches as a de facto mediator in the Law of the Sea negotiations. Many other devices and process innovations are aimed at the same goal (see Raiffa, 1982, and Lax and Sebenius, 1986).

This section has described the fundamental negotiating processes of creating value, claiming value, and managing the inherent tension between the two on
a sustainable basis. A deep understanding of this can improve the basis for assessing the kinds of subjective outcome distributions that link structure (parties, interests, no-deal options) and result. Yet there is another, complementary line of reasoning and investigation.

Improving the Basis for Assessing Outcome Distributions II: Behavioral Insight

A fully rational baseline analysis helps reveal the possible responses of a rational other side. Urging consistent, if not fully rational, behavior on the subject of one's advice is often wise. After all, well-structured, repeated negotiations may penalize departures from rational behavior. Yet many negotiating situations are neither well structured nor repeated nor embedded in a market context. And while negotiators normally exhibit intelligent, purposive behavior, there are important departures from the "imaginary, idealized, super-rational people without psyches" (Bell, Raiffa, and Tversky, 1989, p. 9) needed by many game-theoretic analyses.

Considerable empirical work—such as that cited earlier by Bazerman, Neale, Thompson, and their colleagues—offers considerable insight into how people actually behave in negotiations. Excellent reviews of the psychological side of negotiation can be found in Bazerman, Curran, and Moore (2000) and, focusing especially on developments on the social-psychological side, in Bazerman, Curran, Moore, and Valley (2000). Complementing this work is the burgeoning research in experimental economics (Kagel and Roth, 1995), what Colin Camerer (1997) described as a "behavioral game theory," and Richard Thaler (1992) dubbed "quasi rational economics." This work blends game-theoretic and psychological considerations in rigorous experimental settings. Two related levels are consistently important, the individual and the social:

- **Individual negotiating behavior:** As negotiators, people have different histories, personalities, motivations, and styles. Systematic characteristics of individual cognitive processes can both help and hinder the process of reaching agreement. For example, negotiators may be anchored by irrelevant information, subject to inconsistencies in the way they deal with uncertainty, hampered by selective perception, obsessed by sunk costs and past actions, prone to stereotyping and labeling, susceptible to influence tactics and manipulation by the way in which equivalent situations are framed, liable to see incompatible interests when joint gains are possible, and tempted to use a variety of potentially misleading heuristics to deal with complexity, ambiguity, and conflict.

- **Social negotiating behavior:** In groups of two or more, especially where there is some perceived conflict, a variety of social-psychological dynamics come into play that may enable or block negotiated outcomes.
For example, a powerful norm toward reciprocity operates in most groups and cultures. Tentative cooperative actions by one side can engender positive reactions by the others in a cycle that builds trust over time. By contrast, social barriers can involve aspects of the interactive process that often lead to bad communication, misattribution, polarization, and escalation of conflict, as well as group dynamics that work against constructive agreements. Such dynamics may be especially pronounced when negotiations involve players of different genders, races, or cultures. Group dynamics can involve pressures for conformity, a hardening of approach by a representative before an “audience” of constituents, bandwagon effects, and the individual taking cues from the behavior of others to decide on appropriate actions in the negotiation.

This experimentally based work is developing an empirical grounding for the behavioral basis of much a priori theorizing in economics and game theory. For negotiation analysis, these experimental approaches to actual behavior help remedy a key defect of prior game-theoretic work. While for the most part not prescriptively framed, this body of work also provides rigorous evidence and theory on how people are in fact likely to behave—to inform assessments of outcome distributions and against which to optimize as appropriate.

Changing the Game

Much existing theory proceeds from the assumption of a well-specified and fixed situation within which negotiation actions are taken and agreements determined. In effect, analysts posit a mapping between the structure of the known situation and the ultimate outcome. Yet purposive action on behalf of the parties can change the structure of the situation and hence the outcomes. Often actions can be understood as a tacit or explicit negotiation over what the game itself will be. Sebenius (1983, 1984) began to investigate this phenomenon, dubbing it “negotiation arithmetic,” or “adding” and “subtracting” issues and parties.

To proceed further down this line of analysis, we need to ask precisely what determines a game’s perceived configuration. One answer seems simple and compelling, yet it has deep implications for the analysis and practice of negotiation. The game is simply whatever the parties act as if it is. Rubinstein (1982, p. 919) takes a similar view in attempting to increase the real-world relevance of game theory when he argues that a game-theoretic model should include only factors that are “perceived by the players to be relevant” (emphasis in the original). There is no a priori reason why this or that issue or party should be included or why this or that interest should be excluded. If the parties deal with a particular set of issues, alternatives to agreement, and possible agreements, then those elements in fact make up part of that game.
This means that a perfectly legitimate, highly relevant, and potentially valuable form of analysis may involve a search for ways to change the perceived game, even though the menu of possibilities may not be common knowledge. Walton and McKersie (1965) focused on how negotiators seek to change perceptions of the game by what they called “attitudinal restructuring.” More tangibly, a country may wish to enlist the aid or assistance of others in achieving a particular objective. The process of choosing and then approaching and persuading others to go along may best be studied without the common assumption that the game is fully specified at the outset of analysis.

Conceptually, of course, one could argue that if the “supergame” of all possible issues and parties were specified at the outset, this phenomenon would not exist; this approach, however, would be to define a very real set of dynamics out of analytic bounds. As Kenneth Oye (1979) noted, many linkages have been forged that were unanticipated by analysts or practitioners (such as the Eisenhower link between the Suez affair and monetary policy or the Third World link between development assistance and Special Drawing Rights). As such, “adding and subtracting” issues and parties, “attitudinal restructuring,” and systematic investigation of how perceptions of the game can be changed comprise another analytic leg on which negotiation analysis stands. In the context of competitive strategy and the kind of thinking that underlies it, Brandenburger and Nalebuff (1996) develop a powerful logic for “changing the game” that provides an overall approach and many ingenious examples of this phenomenon.

Lest this sound like a conjuring trick, let me quickly offer a typical example as described by Smith and Wells (1975). In the early 1960s, Chilean appropriation of Kennecott Copper’s El Teniente mine seemed increasingly likely. In preparing to negotiate the terms of expropriation, such as the timing, compensation, and any continued management involvement with the mine, Kennecott sought early on to involve a variety of other parties to change the nature of Chile’s alternatives to agreement on Kennecott’s preferred terms. Somewhat surprisingly, the company offered to sell a majority interest in the mine to Chile. Kennecott planned to use the proceeds of this sale of equity along with the money from the U.S. Export-Import Bank to finance the expansion of the mine. The Chilean government guaranteed this loan and made it subject to New York State law. The company then insured as much as possible of its assets under a U.S. guarantee against expropriation. The mine’s output was to be sold under long-term contracts with Asian and European customers, and the collection rights for these contracts were sold to a consortium of European banks and Japanese institutions.

The result of this elaborate maneuvering was that customers, governments, and creditors shared Kennecott’s concerns about future changes in Chile. A potent coalition to worsen Chile’s alternatives to agreement had been tacitly built. Moreover, the guarantees and insurance improved Kennecott’s alternative if no
deal could be worked out with the host country. When no agreement could be reached and Chile acted to expropriate the operation, Kennecott was able to call this host of parties in on its side. In effect, Kennecott engaged in a tacit process of coalition formation by adding parties to worsen the other side's alternatives to negotiated agreement. Though the mine was ultimately nationalized, Chile's worsened unilateral alternative to Kennecott's preferred outcome seemed to give the firm a better position in the dealings than those of similar companies such as Anaconda that did not take such actions.

Although the specific methods Kennecott employed were particular to the context, their intention was clear and a staple of negotiation-analytic advice: to affect the bargaining range in a favorable manner by adding parties who altered the no-agreement alternatives. Parties may also be added in order to generate joint gains or to extract value from others. Though perhaps less commonly, parties can also be "subtracted"—separated, ejected, or excluded—from larger potential coalitions. For example, the Soviets were excluded from an active Middle East negotiating role in the process leading up to the Camp David Accords, which involved only Israel, Egypt, and the United States. Similarly, the Eighteen Nation Disarmament Conference in the early 1960s proved unwieldy and gave way to largely bilateral U.S.-Soviet talks over a nuclear test ban. Whether adding or subtracting players, however, this class of coalitional tactics can have potent effects on negotiated outcomes.

Consider an example illustrating the problem of "negotiation design," or how best to structure (or restructure) ongoing or prospective negotiations. In the late 1980s and early 1990s, various governments sought to decide on how best to structure upcoming negotiations to deal with global warming. For example, would the negotiations best be carried out in separate bilateral encounters, in small groups of like-minded or geographically proximate countries, in large blocs, or on a global basis? Who should be included and excluded? Should a sequential process be constructed? And should the issues be limited to targets for carbon emissions, for example, or should chlorofluorocarbons and acid rain be linked? Should the negotiations also concern debt, financial transfers, population policy, and the like? To sort out these questions, a variety of negotiation analyses proved useful—for example, asking, for various possible configurations of the negotiations, which blocking coalitions were to likely arise, and how they might best be dealt with. How could the negotiations be organized such that there are sufficient potential joint gains to attract the key players? Which rules of procedure should be avoided because they are most likely to keep the most painful conflicts salient and to impede effective joint problem solving? (Analyses of such "negotiation design" issues for the climate change talks, the diplomacy of chlorofluorocarbon control, and the Law of the Sea negotiations can be found in Sebenius, 1984, 1991a, 1995a, 1995b, 1995c.)
These questions exemplify the problem of "negotiation design," or how best to configure a game in order to improve the chances of either a desired outcome or a stream of outcomes. Other examples of this include the design of organizational dispute resolution "systems" (see Ury, Brett, and Goldberg, 1988) and optimally matching various alternative dispute resolution mechanisms to different classes of disputes (for example, Sander and Goldberg, 1994).

Admitting conscious actions to change the perceived game means that the parties need not limit themselves to creating and claiming within the fixed configuration of Figure 14.1. Indeed, each side typically seeks to learn about the other side's situation and what is jointly possible, to advantageously influence the other side's perceptions, and to favorably change the elements of the game. An improvement in party 1's no-agreement alternative shifts the vertical axis to the right, leaving the bargaining set generally more favorable to that side. If party 2's no-agreement alternative worsens, the horizontal axis shifts downward, worsening its prospects. A successful commitment to a bargaining position cuts off an undesired part of the zone of possible agreement for the party who makes it. A new, mutually beneficial option (for example, suggestion of a contingent rather than an unconditional contract) causes the frontier to bulge upward and to the right, reducing the parties' "conflict of interest" (see Axelrod, 1970). When issues change or other basic aspects of the game vary, including perceptions, each side's understanding of the basic picture in Figure 14.1, the zone of possible agreement, will be transformed. These possibilities add evolutionary elements to the analysis.

The Approach as a Whole

Figure 14.1 can now be seen to visually summarize the extended negotiation-analytic "model" of possible joint action. Parties determine the axes; interests provide the raw material and the measure; alternatives to agreement imply the limits; agreements hold out the potential; within this configuration, the process consists of creating and claiming value, which gives rise to characteristic dynamics; yet the elements of the interaction may themselves evolve or be intentionally changed. In this sense, the elements of the approach form a logically consistent, complete whole oriented around perceptions of the zone of possible agreement.

In the skeptical view of Harsanyi (1982b), this negotiation-analytic approach might boil down to "the uninformative statement that every player should maximize expected utility in terms of his subjective probabilities without giving him the slightest hint of how to choose these subjective probabilities in a rational manner." Yet as described earlier, distinct classes of factors have been isolated that appear to improve subjective distributions of negotiated outcomes. Understanding the dynamics of creating and claiming value can improve prescriptive
confidence. Psychological considerations can help, as can cultural observations, organizational constraints and patterns, historical similarity, knowledge of systematic decision-making biases, and contextual features. Less than full-blown game-theoretic reasoning can offer insight into strategic dynamics, as can blends of psychological and game-theoretic analysis. When one relaxes the assumptions of strict, mutually expected, strategic sophistication in a fixed game, Raiffa's conclusion is appealing: that some "analysis—mostly simple analysis—can help" (1982, p. 359).

CONTRASTING NEGOTIATION ANALYSIS WITH TRADITIONAL GAME THEORY

As just explained, in contrast to a game-theoretic preoccupation with solution concepts and equilibrium analysis, negotiation analysts typically focus more on subjective perceptions of the zone of possible agreement, as well as on how those perceptions change. They presume that each party can at least roughly assess and reassess the attractiveness of its no-agreement alternatives. The set of possible agreements that, from the standpoint of each involved party, is better in value or utility terms than no agreement, constitutes the zone of possible agreement. Because each party should accept any settlement in the zone of possible agreement rather than no agreement (assuming that the process does not generate spite, conflict escalation, or its equivalent), Schelling (1960) made the potent observation that the outcome of such a situation could only be unraveled by a "logic of indeterminate situations." In trying to develop such a logic, negotiation analysts tend to focus on actions that can change perceptions of the zone, typically in ways subjectively expected to yield more favorable distributions of negotiated outcomes.

Let me underscore the radically subjective character of typical negotiation analyses, in at least four important senses. First, subject to the calculus of probabilities, it is presumed to be up to the parties how they assess the probabilities of different events; they are not constrained by an interactive logic to hold specific, "consistent" beliefs. (This is closer in spirit to the views of Kadane and Larkey, 1982a, 1982b, on subjective probability and game theory than the more classical view as expressed by Harsanyi, 1982a, 1982b.) Second, subjective perceptions of the parties' underlying interests are taken as sovereign (and not immutable). Less tangible concerns for self-image, fairness, process, precedents, or relationships can have the same analytic standing as the "harder" or "objective" interests such as cost, time, and quality that are common to traditional economic approaches. (This does not in principle differ from game-theoretic presumptions but underscores the subjectivist character of negotiation analy-
sis.) Third, one side is not bound to regard the "other side" as acting in accord with the precepts of game-theoretic rationality; the other side's likely behavior must be subjectively assessed in light of available evidence. Fourth, while empirical evidence and analytic bargaining models certainly should influence sophisticated views of the probability distribution of negotiated outcomes conditional on various possible actions, that conditional distribution is ultimately a subjective assessment.

Three sets of reasons may explain why many negotiation analysts deemphasize the solution concepts and equilibria that characterize the bulk of relevant game theory and mathematical economics while still endorsing work for many purposes:

Many Solution and Equilibrium Concepts, Many Possible Equilibria

Though there exist many game-theoretic solution and equilibrium concepts, with various appealing properties and different predictions, it is often neither a priori nor empirically clear which is the "best" or most applicable. For example, as central as the minimax criterion is to classical game theory in purely competitive situations, if player 1 believes that player 2 is not employing a minimax strategy, perhaps on the basis of experience or empirical studies, there are often strategies superior to minimax for player 1 (for example, Kadane and Larkey, 1982a). More generally, Shubik (1982) and Mas-Colell (1989), for example, describe an impressive number of candidate solution concepts for cooperative games.

Even with as powerful and ubiquitous a concept as that of the Nash equilibrium in noncooperative games (see, for example, Kreps, 1989), it is often impossible, even with the imposition of increasingly stringent requirements or refinements, to limit a game's equilibrium outcomes to a unique or even small number of points—see, for example, sequential equilibrium (Kreps and Wilson, 1982), perfection and subgame perfection (Selten, 1982), and stability (Kohlerberg and Mertens, 1986). Often there is an infinitude of such outcomes. As Tirole (1988) noted when explaining why "we are now endowed with nearly a dozen refinements of perfect Bayesian equilibrium," the "leeway in specifying off-the-equilibrium-path beliefs usually creates some leeway in the choices of equilibrium actions; by ruling out some potential equilibrium actions, one transforms other actions into equilibrium actions. Hence it is not surprising that one often ends up with a continuum of perfect Bayesian equilibria" (p. 446).

Despite insights into how rational players might select from among multiple Nash equilibria, the rationale for a particular choice may ultimately seem arbitrary. As Kadane and Larkey (1982a, pp. 115–116) remark, "We do not understand the search for solution concepts that do not depend on the beliefs of
each player about the others’ likely actions, and yet are so compelling that they become the obvious standard of play for all those who encounter them.” This seems especially apt in light of their observation that “solution concepts are a basis for particular prior distributions” and hence “the difficulty in non-zero sum, N-person game theory of finding an adequate solution concept: no single prior distribution is likely to be adequate to all players and all situations in such games.” For negotiation analysts, therefore, this becomes a matter for assessment, not analytic assumption.

These considerations might suggest that rather than discovering multiple equilibria and imposing restrictions to winnow them down to a single predicted outcome, negotiation analysts should perhaps pause before winnowing and instead assess a (subjective) distribution over the plausible equilibria. If this issue of “multiple concepts, multiple equilibria” were the only question, however, equilibrium methods might still be the mainstay of those interested in prescriptive approaches to negotiation. Yet, as I will next argue, important premises for meaningful equilibrium analysis itself may not hold for purposes of prescription (conditioned on accurate description).

**Significant Departures from Full Game-Theoretic Rationality**

As elaborated earlier, although people in mixed-motive situations normally exhibit intelligent, purposive behavior, there are important and systematic departures from the “imaginary, idealized, super-rational people without psyches” needed by von Neumann and Morgenstern’s expected utility maximizers, let alone as required by sophisticated concepts of sequential strategic interaction just alluded to. And although the work of experimental economists and others have been making admirable progress in redoing the game-theoretic program in a more behaviorally faithful form, another perhaps more fundamental set of considerations has led negotiation analysts away from an equilibrium focus.

**Questionable Knowledge of the Game’s Structure, Rules, and Possible Moves**

Luce and Raiffa (1957, p. 49) noted that a fundamental requirement of game theory is that “each player . . . is fully aware of the rules of the game and the utility functions of the players . . .” and that “this is a serious idealization which only rarely is met in actual situations.” Although a great deal of theory, some of it ingenious, has been developed for such games of “incomplete information” (see, for example, Harsanyi, 1967–1968), most of it rests on the assumption that the rules of the game and the utility functions are “common knowledge” in the sense of Aumann (1976)—that each player knows this information, knows that the others know it, that the others know that he knows it, and so on.
Imagine that an analyst sought to give advice to one party in an extremely simple price negotiation in which a potential buyer and seller negotiate over time about how to share the “surplus” over their reservation prices that would result from a sale. One might naturally model this situation as Rubinstein’s canonical bargaining game (1982), in which two players who must share a pie of size 1 make sequential alternating offers, with a discounting factor $d$ in operation. The result that there is a unique subgame perfect equilibrium to this game—in which the offering player offers $d/(1 + d)$—is elegant and insightful, yet it depends absolutely on the full structure of this encounter being common knowledge. If the players did not have common priors on any number of what in practice would be tactically variable elements of the game as specified (for example, the sequence of offers, the length of time between offers, and the mutually expected “rationality” involved in offer and acceptance decisions), Rubinstein’s analysis would be inconclusive. A cautionary discussion of Harsanyi’s doctrine of “common priors” can be found in Sebenius (1984, esp. ch. 4) and Sebenius and Geanakoplos (1983).

Moreover, although not a criticism of this spare model, one might expect a range of other frequently encountered factors to be potentially decisive—and the players may not plausibly have common knowledge of them. Take the role of expectations. One player might have just read Schelling’s classic “Essay on Bargaining” (in *The Strategy of Conflict*, 1960) and become convinced that she might shape the other player’s expectations by making an unchanging sequence of offers within the zone of possible agreement. She might also use other contextually dependent ploys to attempt a credible commitment such that the other player would come to believe that he faced a “take it or leave it” offer that was better than no agreement. Adding in these expectational and commitment considerations, the result might be impasse or acceptance of her fixed offer—even though these outcomes were not in equilibrium. (In this connection, see the “thought experiment” and empirical results of Roth and Schomaker, 1983b). Further, the essence of many simple distributive bargains involves each player’s uncertainty about the other’s no-agreement alternatives and hence reservation price. Most equilibrium results require the probability distributions from which these reservation prices are drawn to be common knowledge among the players. In practice, that condition is often unmet, with each party potentially engaging in strategic manipulation of the other side’s perceptions of no-agreement alternatives (as well as the subjective valuation of those alternatives).

More generally—as illustrated in the earlier section on changing the game—the full set of actual and potential players, interests, beliefs, issues, alternatives to agreement, rules, and agreements is often only imperfectly known, and even the character of what is known by one party is not known by the others. Indeed, purposive action by involved or excluded parties can often change the set
of involved players, bring in or exclude issues, raise or lower the salience of different interests, alter the rules of the interaction, or take other actions to change the collective perception of the game's configuration. In practice, this may mean that relatively few negotiating situations conform even approximately to the exacting requirements of common knowledge (including the common prior distributions of negotiator "types"—arrayed by reservation prices, utility functions, and so on—required by Harsanyi's analysis).

Even where important information is "almost common knowledge," equilibrium results may sharply diverge from the fully common knowledge situation (Rubinstein, 1989). The critical role of common knowledge can be seen in remarks by the preeminent game theorist Robert Aumann (1989, p. 31), who at one point unequivocally concluded, "The common knowledge assumption underlies all of game theory and much of economic theory. Whatever be the model under discussion, whether complete or incomplete information, consistent or inconsistent, repeated or one-shot, cooperative or non-cooperative, the model itself must be assumed common knowledge; otherwise the model is insufficiently specified, and the analysis incoherent." Although later research by Aumann and Brandenburger (1995) and others began to weaken this conclusion, the presumption of common knowledge for analytic tractability remains central to most game analyses. By contrast, as discussed earlier, non-game-theoretic analyses can yield useful advice in situations that lack some degree of common knowledge.

These three factors and related considerations—the number of plausible solution and equilibrium concepts along with the multiplicity of equilibria in many games, the deviations from fully "rational" behavior, the frequent lack of common knowledge, and widely scattered empirical results (for an example and other references, see Sebenius, 1992b)—cast doubt on the ease with which the structure and rules of a given situation can be reliably mapped onto a unique negotiated outcome. They hardly invalidate the game-theoretic program; after all, the body of existing theory is anything but static and is making significant progress. Yet these considerations have led a number of negotiation analysts to deemphasize equilibrium methods in favor of other approaches that seem to yield useful prescriptive theory and advice.

Roger Myerson (1991, p. 114) argues that a decision-analytic approach to conflict situations becomes impossible once one begins trying to think the interaction through from all parties' perspectives; one is inevitably led to a Nash equilibrium concept and, by implication, to a game-theoretic analysis. Yet this implication need not follow. Full, mutually expected "strategic rationality" is not necessary—or often appropriate—for this analysis. Moreover, by focusing on the subjective distribution of possible negotiated outcomes, the game-theoretic problem of "multiple concepts, multiple equilibria" is mitigated. Although some degree of common knowledge is generally present (for example, that the par-
ties are negotiating), there may be insufficient common knowledge of all the elements of the game to "close" a fully interactive (game) model; nevertheless, useful prescription is possible, conditional on one side's perceptions (after an appropriate degree of interactive thinking). "Fairness" principles developed by theorists of cooperative games can be quite helpful in pointing to mutually acceptable outcomes, although asymmetric advice might suggest strategic actions that lead to an outcome more favorable to one side. The question of external verifiability of this approach is no worse, or better, than for decision analysis in general.

Measured against an "equilibrium" standard, a subjective assessment of the distribution of possible negotiated agreements that only implicitly embodies the interactive elements may seem analytically thin. Yet complementary standards—logical consistency, systematic insight into the negotiation process, or practical utility—may be more appropriate for evaluating the work of negotiation analysts and suggesting new directions for investigation.

It would be an unfortunate mistake to characterize this new approach as an "alternative" to game theory. Indeed, it might clumsily be called "nonequilibrium game theory with bounded rationality and without common knowledge" (or "decision analysis with a strong interactive flavor" or "strategically sophisticated psychology from a prescriptive point of view"). While some might think that "decision analysis plus" or "game theory minus" would be descriptively appropriate, the comparatively bland "negotiation analysis" instead seemed an appropriate label to distinguish this approach from its intellectual forebears and cousins.

**FURTHER DIRECTIONS AND CONCLUSIONS**

These basic elements—interests, alternatives to agreement, creating and claiming value, and moves to change the game itself—are present in negotiations that have very different structures and operate according to very different procedures. At the simplest structural level, the negotiation involves monolithic parties in a bilateral encounter over a single issue. Yet where sovereign nations negotiate with each other across a bargaining table and have complex domestic interactions that take place in tandem with the external bargaining, so-called two-level games are the result. Strictly speaking, where negotiation takes place through negotiating agents, whether lawyers or diplomats, or where a result must survive legislative ratification, the underlying structure of a two-level game is present. These have been studied in a number of settings, notably by Putnam (1988), Putnam and Bayne (1987), Lax and Mayer (1988), Mayer (1992), Raiffa (1982), and Lax and Sebenius (1986), as well as in Chapter Eleven of this volume.
Negotiations also take place in more complex structures. For analyses, see Weeks (1988), who deals with the development of an international debtors' "alliance," and Raiffa (1982). For example, Raiffa's analysis starts with two monolithic parties negotiating over a single issue, expands to the multiple-issue case, and ends with a full coalitional analysis with many issues, unrestricted alignments of the parties, internal divisions, and a process that continues over time. Lax and Sebenius (1986) likewise deal with the two-party case, negotiations through agents that involve ratification and bargains with internal-external elements and negotiations involving hierarchies, as well as those involving linked networks of agreements that evolve over time. Watkins and Passow (1996) focus on linked systems of negotiations, while Watkins and Winters (1997) analyze the complex roles of mediators and other "interveners." Negotiations in more specialized structures such as different international corporate governance and decision processes (for example, Sebenius, 1998) as well as transnational "epistemic communities" (Sebenius, 1992a) have also been investigated.

Considerable negotiation-analytic work has been done on various dynamics of negotiation including momentum, time-related costs, and action-forcing events by Watkins (1998); see also Watkins and Lundberg (1998). Building on Lax and Sebenius (1991a), Sebenius (1996) analyzes the question of path dependence in multiparty negotiating dynamics, in particular investigating the optimal sequence of other parties with whom one should deal in attempting to build or break complex coalitions. More generally, Watkins and Rosegrant (1996) pick apart the sources of power in coalition building.

Of course, there are many other related topics, ranging from game-theoretic concepts of fairness for purposes of mediation and arbitration to various arbitration and voting schemes. One of the most intriguing topics involves the tension between necessary joint learning about the problem at hand and the efforts by each party to prevail. This is especially important in negotiations over scientific disputes and where the substance of the issues is unclear or not well understood (see Apelbaum, 1988, for an insightful, extended discussion).

Even as game theorists and behavioral scientists will continue to make valuable progress in understanding negotiation, a complementary prescriptive approach has been developing that conditions its prescriptions on the likely behavior of the other side, fully "rational" or not, and regardless of whether the "game" is fixed and entirely common knowledge. In describing the logic of negotiation analysis and the concepts and tools that can facilitate it, this chapter has not stressed the many useful ideas that arise from focusing on interpersonal and cultural styles, on atmosphere and logistics, on psychoanalytic motivation, on communication, or on other aspects.

Yet because the logic is general, it can profitably accommodate insights from other approaches as well as from experience. The basic elements of this logic—parties' perceptions of interests, alternatives, agreements, the processes of cre-
ating and claiming value, and changing the game—become the essential filters through which other factors must be interpreted for a meaningful assessment of the zone of possible agreement and its implications for the outcome.

NOTE

1. In many settings, visibly improving one's no-agreement alternatives will improve one's outcomes; many examples and laboratory experiments provide empirical support for this intuition. Yet there are instances in which this will not be the case. For example, in a marriage, finding a potential replacement mate during a dispute might seriously damage the value one's spouse places on the marriage. Or a disgruntled subordinate whose boss is known to value loyalty might be better off if he did not generate other offers before going to his boss to improve his job; the breach of loyalty could reduce the boss's sense of obligation to keep his employee happy. No general model exists of how such tactics affect the distribution of outcomes, assessment experience, limited empirical evidence, equilibrium calculations, and logic.