

23

Game Theory—Advanced

Game theory is a branch of mathematics that studies decision-making by people and entities in strategic relationships with one another, where the decisions of one have an impact on the outcome for the other. Although the term “game” suggests something frivolous, game theory principles have been applied to economics (five Nobel prizes), law, insurance, and war. Game theory is also a science, because hypotheses have been generated from the mathematics and have been tested with research.

The Game

A “game” is defined by its four components: players; rules; payoffs; and choices and strategies. The **players** in divorce settlement negotiations are the two teams, each made up of a party and his attorney. The party has goals and potential payoffs; the attorney knows the rules of the game and helps the party remain a rational player. The **rules** are the statutory and case law, local rules, and the local practice culture. There are fewer rules in settlement negotiations because agreements can be reached that fit the circumstances of a family well and that are unlikely to be ordered by a court if the case were litigated. This frees the parties and their attorneys to engage in a problem-solving effort that can create value for the parties. The **payoffs** are the values accrued by the party in the negotiations, which might be gains but also limitations

on losses. Payoffs can include time with children, a certain support amount and term, and desired property, but they also can be a limitation, such as only having to pay a certain support amount when that amount was expected to be higher. Finally, to be a game, the players must have at least one **choice** and more commonly a series of choices, which becomes a **strategy**.

The value in playing the divorce game well is in providing the parties with optimal payoff structures and substantially reducing the amount of conflict and disputes between the parties. This is particularly valuable when there are minor children involved, requiring parties to have a continuing lifelong relationship. The postdivorce parenting relationship is critical to child adjustment and development. Applying game theory principles to divorce occurs in a larger context in which steps are taken in the analysis and planning prior to negotiations. These involve goal-based planning; setting content and axiomatic standards; and effective information management.

Goal-Based Planning

Game theory-based negotiations challenge four basic assumptions in traditional family law. First, legal outcomes are not viewed as goals; they are viewed as short-term means for accomplishing the long-term goals of the parties. Second, the interests of the parties are not viewed as in opposition to one another; the parties' long-term goals for their children and their financial lives are likely more in concert than dissimilar. Third, the negotiation process is not seen as a competitive conflict in which each party is seeking advantage; the process aims at optimizing payoff value for *both* parties.¹ This invariably includes some differences between the parties, but the first stage of negotiations is a cooperative process, that is, a process in which value is increased for both parties, only moving to compromise when the goals of the parties have been optimized as much as possible. Fourth, game theory does not view divorce negotiations as a *zero-sum game*. In a zero-sum game, the pot is limited to 100 percent, and any advantage one party gets is a disadvantage to the other party.

1. John Nash is known for many contributions to game theory, one of which was his assertion, later confirmed in research, that by engaging in cooperative negotiation in which both parties, and their attorneys, seek solutions that are good for both of them, the settlement can be optimal for both.

This is an essential mindset for attorneys. Parenting children to become successful adults is not a zero-sum game, but parties enter a divorce process being told to play zero-sum games: who gets to make what decisions and how much time each parent gets to own the children. Likewise, financial planning is not a zero-sum game, but when the parties enter the divorce process, they are faced with the distribution of the estate and future income, which is a zero-sum game. This change in mindset illustrates the enormous advantage of negotiating to settlement, rather than litigating. Negotiations can focus on planning for the parties' futures, rather than distribution of money and children in the present.

Are Parties to a Divorce Rational?

Game theory assumes that players are rational, but often divorcing parties seem to be making irrational choices. The attorney fees for a dispute over Christmas ornaments, for example, might cost hundreds of dollars more than the value of the ornaments. Game theory has repeatedly found that in fact even when people appear to be irrational, they are frequently actually rational. Attorneys might assume that the objective value, such as money, is the payoff, but subjective values, such as a sense of fairness or a desire to see that the other party reaches goals, might dominate the negotiations.

This can challenge assumptions made by attorneys. For example, parties in a case might choose a substantially unequal division of property, not in a tit-for-tat goal of a reduction in support, but for the sole reason that it helps both parties reach their long-term financial goals. This is irrational if the focus is on the objective value of the property but might be rational when subjective values are involved.

Five-E Standards

There are five game theory standards: (1) the clients are **educated**, particularly with regard to the implications of their agreements; (2) the agreements reached are **effective**, that is, they accomplish the long-term objective and subjective goals; (3) the agreements are **equitable**, perceived by the parties as being fair; (4) the agreements are **equilibrant**, that is, the payoff structure for one or both parties cannot be improved without reducing the value to the other party; and (5) the payoff structure in the agreement is **envy free**, that is, while the parties have loss in the divorce process, both financially and with regard

to their involvement with their children, neither party would trade his or her settlement package for the settlement package of the other party. These "Five-E Standards" can be best met through a cooperative, rather than competitive, bargaining process.

Information Management

Effective information management is a guiding game theory principle that applies throughout the entire negotiation process. Optimal agreements are reached when information is **public** (both parties have the information), **verifiable** (either by document or because the source is trusted), **perfect** (both parties know the history of the game prior to making a choice, e.g., the objective and subjective goals undergirding prior proposals by the other party), and **complete** (both parties know the rules and payoff structures).

This is different than an affirmative duty to disclose. In the game theory approach, if information is relevant to the goal-based planning process, it must be disclosed, but some information is not relevant. That one of the parties is having a secret affair is not relevant to the planning process, but that one party is expecting an increase in income is.

Game Theory Bargaining Presumes Solutions

A number of solution theories have been proffered by game theorists for different types of games and games of increasing complexity. John Nash, of *A Beautiful Mind* fame, developed a solution to games, called the Nash Equilibrium, which combines a cooperative stage in which parties increase value for themselves and for one another with a non-cooperative or compromise stage, which addresses any remaining differences between parties by making obvious a point of equilibrium that drives the final compromises. Bayes Rules play an important part in reaching that point of equilibrium. The *convergence of expectations* achieved as parties update their beliefs helps identify the solution to the game, even when narrowed to a remaining difference.

Cooperative and Compromise Bargaining

Game theory negotiations achieve optimal outcomes when the parties first bargain cooperatively, each attempting to improve the payoff structure for themselves *and* for the other party, often thought of as

growing the pie. By updating beliefs with increasing information about the objective and subjective goals of the parties, each party is able to make increasingly valuable proposals. The mindset at this point in negotiating is to continue to try to improve the payoff value to both parties, or at least to one party, without diminishing the payoff value to the other party. Only when satisfied that the parties have improved the payoff structure as much as possible for each of them, without diminishing that of the other, do they move to the compromise stage of bargaining on any remaining differences.

Game Theory Facilitates Optimal Outcomes

Game theory is not a means for gaining an advantage in hardball negotiations. It offers a perspective and tools to facilitate optimal outcomes for both parties, which are particularly helpful when children are involved. The presence of attorneys on the teams adds objectivity, knowledge, and rationality to the game, enhancing the probability of optimal outcomes, but only if the attorneys challenge the more competitive assumptions of traditional law.

Game theory-based negotiations also have another benefit to divorcing spouses when they are going to have continued involvement with one another, particularly when children are involved. Traditional law models a competitive and ultimately destructive process to families: taking short-term positions on issues, bolstering one's position, undermining the other position, and negotiating with the goal of winning. In game theory, this is known as the Grim Strategy. In other words, traditional divorce law promotes (or at least facilitates) re litigation. Game theory-based negotiations model identifying long-term objective and subjective goals, looking for optimal solutions for both parties in a cooperative discussion with good information management, narrowing the unresolvable differences, and looking for either a compromise or a trade-off point of equilibrium. The latter is much more conducive to healthy family functioning and is a better model for problem-solving to children.

Summary

Game theory negotiations are shaped by a mindset and a number of techniques. This chapter introduced some of the principles and techniques that can produce better negotiated settlements. The mindset includes respectful behavior with a focus on the long-term goals of

both parties, beginning with cooperative bargaining, and engaging in a goal-based planning process rather than a competitive process. The techniques include good information management, treating financial settlement and parenting as nonzero-sum games, and setting content and axiomatic standards for optimal outcomes for both parties.²

2. For more detail on both the mindset and techniques of game theory-based negotiations, see KENNETH H. WALDRON & ALLAN R. KORITZINSKY, *GAME THEORY AND THE TRANSFORMATION OF FAMILY LAW: A NEW BARGAINING MODEL FOR ATTORNEYS AND MEDIATORS TO OPTIMIZE OUTCOMES* (2015) and KENNETH H. WALDRON & ALLAN R. KORITZINSKY, *WINNING STRATEGIES IN DIVORCE: THE ART AND SCIENCE OF USING GAME THEORY PRINCIPLES AND SKILLS IN NEGOTIATION AND MEDIATION*. The latter is in digital form only: <https://www.unhookedmedia.com/stock/winning-negotiation-and-mediation-strategies>.