

Chapter 6

Managing Games within Games: Do Baseball Managers Have Beautiful Minds?

A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be.

Wayne Gretzky, former NHL star

Late in a game during the 2001 National League Divisional Series between Arizona and St. Louis, Cardinals' manager Tony LaRussa faced a decision common in baseball – to let a right-handed hitter bat against a right-handed pitcher for the Diamondbacks or to pitch-hit with a left-handed batter. Commonly, hitters perform better against pitchers who throw from the opposite side than they are hitting. LaRussa chose to stick with the original hitter. After the game, reporters quizzed him about the choice. LaRussa's answer illustrated one of the most basic skills utilized by managers during the late innings in close games. To make an intelligent choice, he needed to look beyond the single decision at hand to the sequence of decisions likely to unfold, anticipate the likely outcomes of those decisions, and reason back to his most favorable decision at the present. In short, he had to put himself in Arizona manager Bob Brenly's shoes and consider the decisions Brenly would likely make down the line to determine

his own best choice now.

Figure 6.1 depicts a simplified version of such a sequence of decisions using a basic flow chart. In the diagram there are only two sequences in the decision process -- first LaRussa's choice about the hitter and then the reaction by Arizona manager Bob Brenly. However, the essential elements of the strategic setting would fall out the same even if another sequence or two were added as is often the case for MLB managerial situations.

[INSERT FIGURE 6.1 HERE]

In the diagram, LaRussa looks ahead to the possible outcomes after Brenly's decision to determine the option most favorable to Brenly. Clearly, Brenly will not choose the two middle options that would lead to an expected batting average of 0.33. Instead, LaRussa can see that if he changes to a lefthanded pitch hitter, Brenly's move will be to bring in the lefthanded reliever. The stable outcome of this "game" and the best LaRussa can do is to keep the righthanded batter facing the current righthanded pitcher. In fact, this is the essence of the reasoning that LaRussa explained to the reporters inquiring about his decision. He chose at the first step by looking ahead at the different options for Brenley and how Brenly's would limit his own options. LaRussa determined his most favorable outcome by working backward from that point. The most strategically-minded MLB managers can look many moves ahead in an effort to manipulate the consequences of the fact that once a player is removed from a game, he cannot be reinserted.

A SCIENCE OF GAMES?

The reasoning processes described above and frequently required of MLB managers represents just one kind of strategic situation or strategic “game” – a decision setting where two or more parties attempt to select the best strategy based on a course of action taken or expected by another party. All kinds of strategic games crop up in athletics for owners, managers, and players as well as in other kinds of business and personal pursuits. In fact, an entire field of academic study called game theory has developed around the study of games defined in this way. The Ron Howard film, *A Beautiful Mind*, based on Sylvia Nasar’s 1998 biography of Nobel Economics Laureate John Nash attracted attention to the field because of Nash’s pioneering contribution to game theory as a graduate student at Princeton in the 1950s.¹ The term game theory arose from the study of games of skill and chance ranging from casino games to tic-tac-toe. During the twentieth century, great minds formalized these ideas with mathematics.

During the 1950s and early 1960s, hype about game theory’s promise far outstripped actual work on making it applicable to analyzing real decision making. Some thought that it would come to dominate completely the technical analysis of decision making because it explicitly incorporated interactions between decision makers. By the 1970s the hype faded and the field fell into obscurity for twenty years. Critics assigned it to the trash heap of interesting academic ideas that failed to produce much in the way of tangible results (such as chaos theory). However, a few theorists and practitioners continued to plug away through the 1970s and 1980s. By the late eighties and early nineties, the range of applications swelled far beyond the nuclear

deterrence models of the fifties and sixties. Economists and others studying management began to investigate its uses for business strategies such as pricing, location, innovation and imitation. The applications widened to other business practices such as auctions, contracts, incentives along with a variety of non-business applications involving family relationships, politics, and everyday personal decisions. By 1994 enough momentum had gathered for the Nobel Prize to be awarded to Nash along with two other pioneers in the use of game theory in social science applications – John Harsanyi and Richard Selten, although Nasar reported that some on the Swedish committee still failed to see its importance. While game theory no longer holds out the promise to become the sole means for analyzing decisions, it has become a widely recognized and useful tool with which to consider certain kinds of decisions. More recent practitioners have even suggested utilizing it to estimate better the risks of terrorist threats to companies and their insurers.

The study of strategic games is now a staple course in the better MBA programs and is widely utilized in other graduate programs across the country. While the frontier level work and much of the academic use of strategic games tends to be dominated by extensive use of mathematics, its key features can be grasped by simple diagrams or tables along with some clear, logical thinking. The study of strategic games does not necessarily render a set of hard and fast rules that can be applied in every kind of decision making scenario. Instead, it identifies the essential elements of particular games, effective means for finding the best strategy or best set of strategies, and common game scenarios and strategies.

For the concepts regarding strategic games to be of use, a few essential elements of a decision making situation must be clearly defined. First, the number of decision makers

involved must be identified. In most sports settings this number is two – one coach or manager against another or one player against another. In business, the number maybe two or more depending on the particular setting. Next, the timing of player decisions must be set out, whether simultaneous, sequential, or a mixture of the two. As discussed below, sport environments provide examples of all of these. Baseball pitching moves are sequential while steal-pitch out decisions are more or less simultaneous. In addition, whether a game is to be repeated by the players with each other or with new players can matter for outcomes. Third, the information available to the decision makers must be specified. including whether players share the same information or hold private knowledge. In sports situations, much of the relevant information about player capabilities and the like is public knowledge, although information about injuries may sometimes be less than fully revealed. Fourth, the actions or decisions available to the decision makers along with the payoffs to the players must be laid out. These payoffs may include monetary or psychological benefits or costs, but for a game to be analyzed accurately , the payoffs must be relatively accurate. Generally speaking, the more a decision making environment can be paired down to very simple terms, the easier it is to use the concepts from game theory to analyze it.

Even without technical, academic study of strategic games concepts, some individuals seem to possess an innate ability to analyze situations and make superior choices than other people. Great chess masters may not ever study game theory formally, but they exhibit great skill in the ability to look ahead and reason back through a series of potential moves and counter-moves. Likewise, among the managers in sports and business as well as everyday individuals

who routinely face strategic game environments, some display an uncanny ability to pick out the key elements of the strategic possibilities and to make decisions that align with those suggested by a more technical and formal analysis.

This is not to say that the decisions of sports managers, entrepreneurs, corporate executives, or chess masters, fall perfectly in line with game theory. On the one hand, people have limited computational abilities so that not all possible outcomes or combinations may be analyzed. The advantage of IBM's "Big Blue" computer and its programmers in playing world champion Gary Kasparov lay primarily in exploiting this advantage in computation speed to weigh more moves than Kasparov. Managers of all kinds adopt rules-of-thumb and use hunches to bridge these computational gaps. On the other hand, the formal analysis of game-like decisions by game theory has its own limitations. Strategic game analysis models decision making and all models demand simplifications of reality. As a result, these models do not incorporate all of the rich detail of complex decision settings. Accordingly, many situations are either not amenable for study by strategic game analytics or are only beginning to be studied. Further, decision making has and always will require judgement and discretion. Individuals possess creative, imaginative elements and the ability to judge fine nuances on-the-fly that no model can fully incorporate. This was actually one of Kasparov's advantages over Big Blue, and one of the major reasons why he could perform so well against a competitor with tremendous computational capacity.²

LOOKING AHEAD – REASONING BACK

The strategic setting where two baseball managers make moves and countermoves during the late innings of a game illustrates a sequential game. Their decisions resemble moves on a chess board where players alternate moves over some time frame. The means of solving for the best strategy involves looking ahead through the sequence of decisions and reasoning back as was illustrated in Figure 6.1 between the choices of Tony LaRussa and Bob Brenly. The official term for this method is “rollback” or “backward induction.” Chess masters attain their status largely because of the ability to look far ahead in the game, evaluate possible combinations of moves, and reason back to the implications for the current move better than their opponent. Their abilities in this regard stagger the mind. Baseball or business managers who perform better than others when facing a series of sequentially connected decisions possess the same kind of ability, if not to the same degree. Many other examples of sequentially-linked strategic decisions arise in sporting events. For example, in an America’s Cup sailboat race, the skipper of the leading boat typically chooses to imitate the trailing boat’s maneuvers at least toward the closing part of the race. By pursuing this second-mover strategy, he may reduce the speed of his boat, but he also reduces or eliminates the opportunity for the trailing boat to find a more favorable wind. The America’s Cup example also illustrates that choosing first is not always the preferred position. Moving second permits the skipper of the lead boat to maintain an informational advantage over the second boat’s captain.³

The quote from NHL legend Wayne Gretzky that heads this chapter subtly generalizes the kind of thinking discussed here. Great players have either the ability to reason quickly out

or the innate ability to assess situations and see situations unraveling before they actually do so as to take action now that results in a desirable outcome. This ability, described by players like Gretzky, permits them to see the game as if it were being played at a slower pace – everything is happening at the same speed for them but their foresight allows them the sense of a more leisurely pace. In fact, effective strategists across all kinds of decision making areas – business, military, politics – share this trait in common. While some individuals probably possess a greater or lesser gift for sequential strategy from birth, the talent can be nurtured and sharpened through study and practice. In part, writing out the possible decisions in the game tree format noted above can be quite useful in bringing a decision into better focus. Writing down sequential decisions in this way is not as simple as it may appear at first glance. It requires the ability to collect and condense the key information and decisions while excluding extraneous facts. However, the process of parsing the information itself promotes clearer thinking about strategy.

STICKING WITH A STRATEGY OR MIXING STRATEGIES?

Former University of Texas football coach Darryl Royal was fond of the expression, “you gotta dance with the one that brung ya.” He usually meant that his team needed to stick to a particular strategy that had been successful in the past regardless of the game situation or moves by the opponent. Similarly, some coaches are fond of saying, “we are just focusing on what we do best and not worrying about the other team” or some variant of that statement. John Wooden,

for instance, often paid little attention to the particular strategy and tactics employed by his upcoming opponent, choosing instead to work on his own team's strengths and weaknesses independent of the opponent in most, but not all, situations. He viewed the game as involving relatively little strategy.⁴

In the terminology of strategic games, this kind of strategy selection chosen independently of the opponent's choices is referred to as a "dominant" strategy. Such thinking is relatively common among many coaches as well as by individuals making strategic decisions for other kinds of organizations, sometimes correctly but sometimes without a sound basis. Dominant strategies may crop up in settings where two or more opponents must choose simultaneously or even if the decisions occur sequentially, ignorance about the path chosen by the opponent means that, in effect, the decisions are simultaneous. When opponents must choose in ways that result in simultaneous choices being made, the analysis of the strategy options can proceed by using a matrix outline the possible choices for the players and the outcomes based on the possible combinations of their choices.

A clear example of a dominant strategy crops up in baseball with regularity. A pitcher throwing a 97 mile per hour fast-ball may observe that the batter does not even come close to swinging quickly enough to make contact with the ball. Throwing a fast-ball to the batter is a dominant strategy for the pitcher regardless of the hitter's strategy. While not using the terminology of game theory, television commentators sometimes refer to the same idea when they note that when a hard-throwing pitcher is overpowering a hitter with a fast-ball, throwing a slower pitch such as a change-up, slider, or curve ball only provides the batter with a chance to

make contact. This merely expresses the dominant strategy in slightly different words. Table 6.1 illustrates such a situation for a pitcher who chooses between his fast-ball and slider with the hitter guessing as to which one he will throw. The numbers in the table represent the percent of time the batter gets a hits based on the combination of the pitcher's decision and the batter's guesses. To find out if the pitcher has a dominant strategy, he considers the outcomes based on the hitter's anticipation of the pitch. If the hitter anticipates an off-speed pitch, then the pitcher is better off throwing a fast-ball. If the hitter anticipates a fast-ball, then the pitcher is still at least as well off throwing a fastball as an off-speed, so the pitcher's best option is to always throw the fast-ball.

[INSERT TABLE 6.1 HERE]

Another example of a dominant strategy is the common practice of throwing a fast-ball to a hitter when the bases are loaded and the hitter already has three balls in the count. Most pitchers throw a fast-ball more accurately than other pitches, and, typically, want to avoid walking the batter and forcing home a run. However, the dominance of this strategy depends on the game situation. If it is late in the game and the pitcher's team leads by several runs, the pitcher may fear giving up a grand slam home run as much or more than forcing in the runner on third with a walk.

In addition to dominant strategies, strategic games sometimes present dominated strategies – that is, strategies that should be avoided regardless of what strategy is chosen by the

opponent. An obvious example in baseball occurs in the last half inning of a tie game where the home team advances the winning runner to third base with less than two out. Table 6.2 displays this choice scenario. Now, the pitcher has three options from which to choose – fast-ball, change-up, or slider. If the pitcher chooses fast-ball, the hitter does best by anticipating fast-ball. If the pitcher selects a change-up, the hitter optimizes by choosing change-up. However, if the pitcher chooses a slider, then the hitter does just as well guessing fast-ball or change-up as slider, so that guessing slider is never a clear best choice no matter what the pitcher does. In other words, it is a dominated strategy for the hitter. Likewise, the pitcher can go through his best choices depending on what the hitter is guessing. If the hitter guesses fastball, the pitcher maximizes outs by throwing the change-up. If the hitter guesses change-up, then the pitcher's best option is a fast-ball. If the hitter is guessing slider, then any of the three pitches produces the same likelihood of an out. Just as for the hitter, slider is never the first best option for the pitcher, so it is dominated. The net result is to remove slider as an option so the table collapses to the four cells to the upper left. Now, the players reevaluate based on the reduced set of choices. In general, as decision-making contexts become more complicated, solutions for finding best strategies in simultaneous games can sometimes be found by taking step by step procedures and making use of the ideas of both dominated and dominant strategies. The decision maker can see if a strategy or strategies is dominated, eliminate it, and then see if a strategy is dominant among the remaining strategies.

[INSERT TABLE 6.2 HERE]

Through selecting a dominant strategy or by eliminating dominated strategies, managers and players often find a single-best or “pure” strategy. While single-best strategies are easy to find in sports, many situations do not have a single strategy that is always best. In the vocabulary of strategic games, a mixed-strategy solution is one where it is best to mix in two or more strategies. For instance, while a pitcher may occasionally face a hitter who can be overpowered by a single pitch, such a dominant strategy is not usually the case. Instead, MLB pitchers typically find their best course of action is to mix different kinds of pitches. The mixed strategy will lead to lower batting performances by the hitters than selecting a single pitch strategy.

Table 6.3 illustrates a situation where such a mixed collection of pitches is best. It is the same as Table 6.2 except that the dominated selection of slider is removed.

[INSERT TABLE 6.3 HERE]

If the pitcher throws only fast-balls to batters and batters come to expect fast-balls, the batters will average 40 percent hits. If the pitcher chooses only off-speed pitches and batters come to expect this, batters will hit 70 percent. If the hitter anticipates the wrong type of pitch, then the pitcher can always get the hitter out. It is easy enough to see that by mixing pitches, the pitcher can lower the batter’s average below 40 percent. The critical decision for the pitcher is to select the best proportion of the various kinds of pitches just as a poker player needs to select the right

proportion of time to bluff. Effectively mixing strategies does not usually mean a fifty-fifty split of two possible choices or splitting three choices equally in thirds. Instead, the best mix depends on the relative position of the outcomes expected.

Figure 6.2 shows how the best combination of mixed strategies is found. The vertical axis marks the hitting average of batters, and the horizontal axis marks the percent of fast-balls the pitcher chooses to throw. The diagonal lines show the hitting percentage for batters if they guess only fast-balls or only off-speed pitches as the pitcher increases the percentage of fast-balls thrown.

[INSERT FIGURE 6.2 HERE]

For example, if the pitcher throws only fast-balls but the hitters anticipate only off-speed pitches, the batting average is zero. If the pitcher throws no fast-balls and the hitters anticipate only off-speed pitches, the batting average is at 70 percent. The diagonal line starting at 70 percent on the left axis and declining to zero on the right axis depicts these combinations. The graphic indicates that the pitcher lowers batting averages to their lowest point by throwing about 64 percent fast-balls – the point where the two diagonal lines cross. With this proportion, hitters will bat about 25 percent. If the pitcher chooses proportions above or below this number, the hitters can raise their average by guessing only fastball or only off-speed, depending on the direction that the pitcher deviates from the optimal percentage. The optimal ratio of fast-balls to off-speed pitches will depend on the pitcher's abilities. For instance, if he throws an extraordinarily good fast-ball,

then the line representing the percent hits when the hitter guesses fast-ball will shift down and to the right so that the point where it intersects the other line will be farther to the right.

Picking the right proportion of fast-balls, though, covers only half of the pitchers job. Once the appropriate proportion of the various pitches is chosen, then the selection of pitches leading to this proportion needs to be random. If a pitcher throws 100 pitches and the best mix is 64 percent fast-balls and 36 percent off-speed pitches, the 36 off-speed pitches need to be randomly mixed in among the 64 fast-balls. This need for randomizing may be obvious. Yet, pitchers and pitching coaches sometimes employ pitch combinations that do not reflect mixing at random. They often refer to saving an “out pitch” for when the batter has two strikes – usually referring to a particular kind of pitch. If this “out pitch” is a slider, though, then mixing it in more frequently when the batter has two strikes creates a pattern that hitters can exploit. Instead, a random pitch choice based on the overall proportion desired is the optimal decision.⁵ It is important to note that “random” does not imply an even split between the possible pitches. Instead, it means randomizing the optimal proportions of each.

The list of examples the importance of managing a situation by using a mixed-strategy, finding the right proportion to mix, and randomly using the mix could go on using example from sports or from business. Several can be found in tennis such as the choice between hitting to the backhand or forehand on the serve or during a rally, hitting to the baseline or using a drop shot, or hitting a passing shot to the right or left of the player at the net.⁶ Penalty kicks in soccer, penalty shots in hockey, play calls, snap counts, and blitzes in football along with other sports situations from other sports also fit into this kind of mental calculus. In business settings,

examples of simultaneous decisions leading to dominant, dominated, and mixed strategies are quite common ranging from labor negotiations to pricing competition, advertising and beyond. For example, in their book, *Thinking Strategically*, Avinash Dixit and Barry Nalebuff utilize the concepts to analyze matters such as magazine cover decisions for Time and Newsweek. In many situations, simultaneous games are repeated over and over so that a time element does enter and reputation building may matter as discussed below.

INCENTIVES & DILEMMAS: COOPERATING WHILE COMPETING

Differences of opinion exist with regard to the nature of the National Collegiate Athletic Association. From the perspective of basic economics, the NCAA operates as a cartel where cooperation places restrictions on competitive interests, attempting to maximize revenues among members by restricting payments to players among other things.⁷ Others view the NCAA as a benign, if sometimes misguided, organization regulating amateur athletic contests between colleges and universities. In this view, it is a bit like a local civic organization that organizes community activities. Certainly, within the halls of the NCAA complex in Indianapolis and in its many publications, one will never hear or find words such as “cartel,” “business venture,” or “employee.” Rather, the organization possesses its own self-invented vocabulary describing its governance of college sports. According to this vocabulary, the association provides rules and assistance to “student-athletes” and coordinates the activities of “member institutions.”

Regardless of the overall view of the organization’s objectives and practices or the

vocabulary used to describe it, the member schools face an ongoing strategic game that presents a difficult “managerial” dilemma. On the one side, the schools desire to cooperate to achieve some kind of mutual benefit. On the other hand, the underlying reason for cooperation is so that the schools can compete with each other on the playing field. Whether to achieve more money or merely bragging rights, the coaches, players, alumni, and administrators are primarily concerned with their own school’s success. If this competitive motive runs amok it can lead to illicit inducements to players, out-of-season practices, and the like. As a result of such actions, the cooperative benefits to the association as a whole will diminish if not altogether vanish. The long term stability of the organization depends on striking a successful balance between competitive and cooperative incentives.

The compete or cooperate dilemma faced by the NCAA and its member institutions shares similarities with a dilemma from one of the most intensely studied of all games – the “prisoner’s dilemma.” This game derives its name from the following decision environment: two prisoners are accused of committing a robbery in which they jointly participated. They are interrogated separately, and the two strategies available are either to confess or not confess. A critical element to this game is that the players choose, more or less, simultaneously. Even if they are interrogated at different times, their lack of information on the other person’s decision means they must act as if they are choosing at the same time. In terms of outcomes, both would escape with no prison time if each refuses to confess. If one confesses and one does not, the confessor receives a short sentence and the non-confessor receives a long sentence. If they both confess, then they both receive short sentences. While the best outcome for both is to not

confess, the dilemma is obvious – the threat of the other prisoner cutting a deal leads both prisoners to confess and to end up with an outcome that could be improved for both if they could cooperate effectively. A multi-person variety of the same game is known as the “hostages’ dilemma,” explaining why it is so common for a few terrorists to hold many hostages at bay.

In business settings, such prisoner dilemmas are quite common. For instance, two rival companies may undercut each other with lower and lower prices. Both firms could increase profits through a tacit if unwritten commitment to maintaining higher prices, but because each company fears the other company will renege on this commitment, both find themselves suffering the prisoner’s dilemma. Organizations who are party to cartel arrangements such as individual nations making up OPEC frequently find themselves in a similar situation.

Agreements to limit oil production present the possibility of higher oil revenues and profits to OPEC nations. However, these agreements provide a strong incentive for secretive cheating on these quotas and producing additional barrels of oil. If enough nations cheat on the production quota, prices drop and revenues-profits drop.

In addition to noting the frequency of prisoner dilemma situations, much academic study, in terms of mathematical theory, experimentation, and observation of real world prisoner dilemmas has been devoted to assessing ways that decision makers find their way out of the lose-lose outcome and to the best possible outcome. These studies focus on the degree and nature of the cooperation between parties necessary to achieve the improved outcomes. Early research on the subject proposed a “tit-for-tat” strategy as a means by which game players frequently found their way out of such dilemmas when the game is repeated over many periods. One book on the

subject labeled these kinds of situations as *Co-opetition*.⁸

The NCAA case is especially interesting from a managerial perspective because when viewed as a cartel (or simply as an association with a cooperation-competition incentive dilemma), the NCAA has been incredibly successful by historical standards. (In fact, it has been voted the most successful monopoly in existence by the economics faculty at Harvard. The faculty use the term monopoly to include multiple firms acting as one as they do in a cartel.)⁹ Most cartels fall apart or become ineffective in short order because of their inherent instability. Usually, the competitive interests of members overwhelm the cooperative schemes. The desire of each member to gain relative to the other members through finding loopholes in the agreement or outright cheating undermines the cooperative agreement, leading the cartel members back to the non-cooperative, purely competitive outcome akin to the “confess-confess” outcome of the prisoner’s dilemma.

For instance, OPEC gained from cooperation on limiting oil production in the 1970s but floundered because of individual countries pursued their own gains in the years since except for a very recent revival. As a result, oil price in inflation adjusted terms were much lower throughout the 1990s than in the 1970s. In college athletics, the agreement that restricts benefits to athletes permits member schools to gain a greater share of the rewards from games; however, the lure to undercut this agreement, either through offering benefits not covered by the agreement or by cheating on the agreement, is strong for schools and their fans.

No doubt, the NCAA has suffered from numerous breakdowns in cooperation among the members. Many illicit gifts and loans to athletes from boosters and occasionally coaches have

been widely documented. Spearheaded by a suit brought by the University of Georgia and the University of Oklahoma, the big football revenue schools won the right to negotiate their own television contracts in 1984 – a blow that essentially eliminated the NCAA as a cartel in terms of the cooperative restrictions on the presentation of output but not on inputs (players). Previously, In the early 1950s, Big Ten and Pacific-10 schools had chafed against very severe limits imposed on the number of televised games. Because of the threat of losing these schools, the rest of the membership and the television committee reached a compromise permitting a larger number of telecasts. In spite of these wounds, the cartel effects of NCAA restrictions on athlete benefits have endured with schools continuing to gain the benefits of this cooperation.

How has the NCAA achieved this unusual longevity? Several factors have gone into its ability to thwart the lose-lose outcome. One is the transient nature of the people being harmed by the agreement to restrict inducements to college athletes. College players are in school for only a short time. Also, the educational backdrop behind college athletics has shielded the NCAA from antitrust suits in court regarding players. While recognizing the essentially commercial nature of college athletics, federal courts have consistently refused to grant college athletes the status of employees along with the antitrust protections that such a status would entail. (Interestingly, the NCAA was not successful in its attempt to extend pay restrictions to assistant coaches, losing a class-action suit and a big damage award.) Further, many states have made the NCAA restrictions a matter of statutory law by passing their own restrictions on payments to players and contacts with agents. All of these circumstances and events have worked to diminish the competitive incentives that often spell doom for such broad cooperative

agreements.

Similar kinds of incentive dilemmas have also surfaced among professional sports leagues. For instance, in 1981 the Houston Rockets reached the NBA Finals, losing to the Boston Celtics. By 1983, though, the Rockets plummeted to the bottom of the league. Over the summer, they drafted 7'4" Ralph Samson out of the University of Virginia as the first player selected in the entire draft. Even with Samson, the team did not fare better. By the last month of the 1983-84 season, the team and coach began to receive criticism as the media began to suspect that they were intentionally losing games in order to secure themselves once again the top draft selection again. Whether on purpose or by happenstance, the Rockets "attained" the worst record and selected another seven foot college star, Hakeem Olajjawan, as the first overall pick of the 1984 draft. With their twin seven footers in the starting lineup, the Rockets' fortunes quickly turned around as they reached the NBA Finals in Olajjawan's rookie season, again losing to the Celtics.

The Rockets had not been the first nor last team suspected of losing games intentionally in order to secure a better draft position. As a response to this backwards incentive and behavior, the NBA instituted a system by which the draft order for all of the non-playoff teams were based on lottery draws. Teams with lower records were no longer guaranteed a better draft position. This system also had its problems. The Orlando Magic gained the top spot two years in a row – the second year after just narrowly missing the playoffs. To make this less likely, the NBA adjusted the lottery system so that the worst teams would have a higher likelihood of being selected and the worst team could not fall in the draft order below a certain point. This change,

though, resulted in outcomes very similar to those before the institution of the lottery system. Losing games could still pay dividends by raising the likelihood of improving the team's draft position. Other American sports also utilize the worst-picks-first draft system.

The NBA bounced back and forth in its attempts to permit lower performing teams to gain preferential draft treatment while taking away or reducing the incentive for them to lose games. The initial lottery system drastically reduced the incentive to lose games but turned out to help the "best of the worst" too much. The pre-lottery system and the current lottery system provide little incentive for bad teams to win. In contrast to American sports, the organizational structure of the English Football Association (soccer) and for the most part soccer leagues across the world developed in such a way as to provide a very different way of dealing with poor performing teams. The English teams are divided into a twenty team Premier League, then a First Division, and so on. At the end of a season, the three teams with the worst records in the Premier League are "relegated" to the First Division for the next season, while three teams from the First Division move up to the Premier League. Interestingly, the "relegation" system used in English soccer avoids the incentive dilemma faced by American sports leagues by establishing a set of rules in which winning is important even for teams with poor season records. The leagues relegate poorly performing teams to the lower division – an outcome all teams desire to avoid. In contrast, the usual systems in place in U.S. sports load almost all value on reaching the playoffs and winning championships, thereby creating little incentive for teams with bad records to play as well as they can once they are deep into the season.

Not only does the relegation system penalize poor performing teams, but it also creates

excitement among fans whose teams are near the bottom of the league as the season nears its end. While league championships are highly valued by English soccer fans, keeping their favored team in the Premier League also stirs interest and drama. Unlike U.S. sports league where cellar dwelling teams often play out the season in front of nearly empty stadiums, the teams at the bottom of the Premier League frequently maintain fan interest to or near the very end of the season. For example, at the end of the 2000 season, Bradford City staved off elimination with a victory at the end of the season. Not only was the contest played before a packed stadium, but the post-game celebration took place in the city of Bradford rivaled any championship celebration in the U.S. Likewise, at the end of the 2004 season, a long-standing English power, Leeds, fought to avoid relegation after three seasons of financial mismanagement. The fan interest in the avoidance of relegation was summed-up by a pre-teen boy who wept as the team faced imminent defeat and the finality of relegation. His bare-skinned chest read "Leeds Till I Die."

Major League Baseball, like other sports leagues, also faces the dilemma of striking a balance between competition and cooperation. The MLB case has dominated much of the discussion of these kinds of problems in recent years due to its perceived and real financial problems. The 1998 World Series matched the New York Yankees against a seemingly unlikely opponent, the San Diego Padres. Although the Padres lost the series, the opportunity to play in baseball's hallmark event marked a great achievement for the franchise which had previously played in it only in 1984. However, losing ace pitcher, Kevin Brown, through free agency to the despised Los Angeles Dodgers during the off-season quickly soured the accomplishment.

The indignity even prompted the Padres' owner to write a feature editorial in the *Wall Street Journal* in which he complained about the free agent system that allowed large-market, wealthier teams such as the Dodgers to entice and hoard talented players.

Similar complaints about the viability and competitiveness of "small market" teams arise by or on behalf of these teams in almost every season. However, the proposed contraction of two MLB franchises during the 2001-02 winter by the MLB commissioner's office expanded these kinds of complaints into a maelstrom of calls for a more cooperative financial relationship between teams. Montreal and Minnesota were the most likely targets. In the midst of the mounting controversy, the Padre's owner published a second *Wall Street Journal* editorial, "Damn Yankees," in which he alleged that MLB's structure permitted unfair dominance for teams such as the Yankees, placing many of the teams in smaller cities in financial peril.¹⁰ Again, he prescribed a more cooperative arrangement among MLB teams with a greater degree of revenue sharing so that teams in smaller cities could be more competitive. Even beyond those with a vested interest such as the Padre's owner, much is made in the media of the downside of teams bidding players away from each other with ever-escalating salaries and the advantages held by teams in the largest markets. To limit bidding wars and the advantages of larger cities, owners – with consent from players' unions under terms of collective bargaining agreements – have adopted several cooperative mechanisms such as revenue sharing, the amateur draft, salary caps, and "luxury taxes."

One point forgotten in these kinds of analyses is that MLB along with other sports leagues are not unique. A sports league is essentially a joint ventures among rivals. Joint

ventures between rivals exist outside of sports venues. Striking a correct balance between cooperation and competition carries with it important implications for customer value and ultimately league revenues and profits just as it does in any joint venture between business entities. On some matters, such as scheduling and rules, it is obvious that cooperation among and mutual agreement between the separate MLB teams is essential. On other matters such as on-the-field strategy, it is just as obvious the teams must behave as pure rivals, competing rather than cooperating. Many issues, though, fall in between these two extremes requiring a delicate balancing of cooperation and competition. Too much of either cooperation or competition can create destructive and destabilizing incentives for the league. Competition among the individual teams is the very heart of what a league provides, yet too much competition can have undesirable effects. Cooperation can lead to improved financial performance but too much cooperation can stifle individual and team incentives for improvement and produce a poor product for consumers.

While some cooperation is necessary, often lost in the rhetoric about “small market teams,” competitive balance, revenue-sharing, free agency, salary caps, and the associated calls for more cooperation is the fact that too much cooperation can be bad for a joint venture, even one involving sports leagues. Competition of all sorts – between teams on the field, between players for home runs, between clubs for innovative ways to market the games such as night games and broadcasts – can provide customer-building effects that are frequently overlooked in the rush by many analysts to think that more cooperation is all that is needed. These issues were first addressed back in Chapter 3, where the emphasis was on the fact that cooperation as well as competition can increase the customer base. It does not make sense that a league’s rules

should be so restrictive as to make, say, Kansas City, just as likely to win pennants as the New York Yankees. After all, the Yankees do have the largest fan following of any team. On the other hand, MLB teams as a unit would not benefit from the Yankees winning every championship, but as many economists have pointed out, the Yankees were much more dominant in the pre-free agency era than they have been in the post free-agency era. The Dodgers, while vilified by the Padres owner because of their supposed monetary advantage, appeared in only one World Series from 1982 through 2001 compared with the Padres' two.

The National Football League has been held up as a model for MLB because of its revenue-sharing plans and restrictive limits on free agency that significantly reduce the off-the-field competition between teams. For the critics of Major League Baseball, the ills of the game can nearly all be laid at the feet of "too much competition." If only MLB would adopt hard salary caps or some other stringent deterrent to free agency, then MLB fortunes would improve or so the story goes. In this view, the popularity of the NFL in recent years is almost exclusively attributed to its revenue-sharing plan.

The trouble with the degree of cooperation practiced by the NFL is that it effects owners' incentives negatively. Cooperative agreements between teams that restrict the ability to go after players or to pay a penalty for mediocrity can ultimately serve to diminish incentives for teams to excel. In a variety of NFL cities, the complaint of fans over the years has not been about their owners spending too much money, but rather, the fact that the owners of their franchise have little incentive to compete. Instead, the owners of the Bengals, for instance, can consistently place a poor team on the field but rest easy knowing that they will be as financially secure as the

best teams in the league. The NFL popularity likely owes much more to the product it has to offer than to its policies limiting competition for players. As discussed in Chapter 3, football translates well to television, and leading executives from the NFL such as Pete Rozelle and Tex Schramm consciously geared the game to increase its TV appeal.

In comparing the compete-cooperate dilemma in sports leagues to joint ventures in business that require rivals to cooperate, a couple of points require further explanation. Sports leagues are different in that the on-the-field competition is “zero-sum.” One team’s victory means another team’s defeat. This fact has prompted some observers, even among the ranks of economists, to see sports leagues as a place where competition between teams best serves the interest of fans and owners if restricted to non-financial, on-the-field matters. Any off-the-field, financial competition, in this view, merely means a shifting of money from one league pocket to another in an effort to win games. In contrast, businesses operating in other settings do not face this kind of zero-sum world. One company’s gain does not necessarily dictate another company’s loss. Absolute performance matters rather than just relative performance so that competition between firms benefits consumers.

Contrary to the view that in sports only on-the-field competition benefits customers is the fact that competition and absolute performance standards matter in sports and that cooperation and relative performance matter outside of sports. Two rival companies can gain, and in some cases help consumers to benefit also, by cooperating rather than competing. Likewise, sports teams can sometimes gain by competing rather than cooperating. Off-the-field competition between teams to develop new ways to market their products -- night baseball, radio and

television broadcasts, and other ways -- may draw some dollars from other teams, but it also can draw new fans. Baseball teams not only compete with each other on-the-field but they also compete with other entertainment offerings. Competition between teams also provides incentive for constant improvement . This can be seen at the individual level. Developing hitters who can hit more home runs or longer home runs is valued by consumers. The pursuit of excellence in the front-office also matters to the quality of the product offered to consumers.

CHANGING THE NATURE OF THE GAME

A relatively recent and novel mix of cooperation and competition cropped up during the summer of 2001 when the Colorado Avalanche set out to resign three of their top players – forward Joe Sakic, defenseman Rob Blake, and goalie Patrick Roy. These three had been instrumental in helping the Avs capture the 2001 Stanley Cup, but all became unrestricted free agents after the season. In most sports settings, three superstar free agents would rarely be signed the same year as teams would decide to spend vigorously to try to keep one or two of them at the expense of losing one or two. Typically, the money required to sign one or two of them would make signing all three highly unlikely.

However, the Avs changed the nature of the game by negotiating not only simultaneously with all three players but negotiating cooperatively with all three as a group.¹¹ The team and the players knew going in that if all three stayed with the team, another Stanley Cup would be an attainable goal. The team offered the three players similar money with some differences in

contract length – Roy being relatively old by sports standards received the shortest term deal. Although each player received lucrative salaries, the team gained by being able to sign all three for less than the amount that would likely have been necessary in negotiating with all three separately. The three players gained by being able to not only stay with the team but stay with the team with the full compliment of superstars from the prior championship season. The cooperative-sharing of information led to a better outcome for all participants. Obviously, this tactic would not work in every similar situation. It requires a team willing and able to spend considerable money as well as players willing to take less than full market value in order to stay put and play with a team with championship potential. Not all teams or athletes fit the bill.

Game strategy theorists refer to like tactic used by the Avs as a “strategic move.” Strategic moves change some important underlying feature of the game being played. In the Avs case, they rearranged the order of negotiation from a sequential negotiation with separate players to a simultaneous negotiation, thereby altering the available choices as well as the payoffs presented to the players and the franchise. All strategic moves change something either in the order of play, the information available to players, the moves available to players, or the payoffs to players that induces a change in the outcome of a game.

Commitments in the form of promises or threats are a common means of strategically altering the nature of a game by either altering the beliefs of rivals (or partners) regarding the likelihood of a particular course of actions. In baseball, pitchers of yesteryear such as Don Drysdale, Bob Gibson, and Nolan Ryan as well as a current pitcher such as Roger Clemens have used their ability to throw extremely hard not just to throw the ball by batters but to change the

nature of the game through implicit (and sometimes explicit) threats. Each of these pitchers has whizzed his 95 mile-per-hour fast-ball near or even at batters who he felt crowded the plate too much or lunged toward outside pitches too much. The threat is clear and credible – “stand to close or lunge too much and I will throw a 95-mile-per-hour fast-ball right under your chin.” For the batter, the game now changes from just trying to guess the type of pitch or location of it, to also worrying about inciting the anger of the pitcher. Certainly, a lot of pitchers at the major league level and below attempt to employ such threats. However, once a pitcher achieves a high level of success, then he may be able to enforce the threat without as much recourse from the league, thereby making the threat even more credible. No doubt, by the last few years of his career, Nolan Ryan had become such a baseball icon that he could knock down batters with relative impunity.

Analogous situations arise in business. A large company may respond to what it perceives as overly aggressive price cutting by a smaller competitor by slashing price to retaliate and punish the rival or even attempt to drive it out of business. This practice may not maximize profits in the near term, but it may serve a purpose of establishing a reputation for the company that changes the decision calculus of future price cutters. Whether in sports or business, for threats or promises to be of use in altering the nature of a game, they must be credible. Whether the MLB pitchers noted above or unions who go out on strike, credibility is acquired over time through reputation through carrying out threats and promises.

PUSHING TO THE EDGE OF DISASTER

During the 1999-2000 NHL playoffs, the Philadelphia Flyers star center, Eric Lindros, suffered a concussion from a hard but legal hit from New Jersey's Scott Stevens. This concussion came shortly after Lindros had returned to the Flyers from an absence from a concussion earlier in the season. In fact, over his career, Lindros had suffered several concussions and had become concerned about his health. He had also become frustrated with the Flyers and the physicians retained by the team. His concerns over his health and frustrations with the team led him to not report to training camp in the fall. During the course of the season, it became clear that he wanted to be traded to another team, but not just to any team. Instead, he gave the team a short list of other teams with which he was willing to play.

Flyers GM Bobby Clarke, a man known for his own intransigence as both a player and executive, dug in his heels, stating that there would be no trade of Lindros. As the season progressed, rumors surfaced suggesting a likely trade with Toronto. The rumors turned into admitted talks between the two clubs but never resulted in a trade. As a result, Lindros sat out an entire season. In the end, Clarke traded him to the New York Rangers. Although all the behind the scenes maneuvering and the exact extent to which Lindros or Clarke were responsible for the meltdown never became clear, one or both sides were playing game theory hardball.¹²

Labor bargaining scenarios have often played out this way where one or both parties make strong demands and then set their feet in stone and refuse to budge even though compromise would seemingly have some benefit to both sides. On occasion, the movement to such unwavering positions may take place in a series of gradual steps. Whether gradual or all at

once, this kind of behavior is known as “brinksmanship” in the terminology of strategic games. The reason for it is obvious – a desire to issue a threat that makes the opponent capitulate much more than would otherwise be obtained.

To play this kind of edgy strategy takes nerve and a willingness to live with the consequences of a breakdown in negotiation. If the rival party knows that the other party will not go through with the consequences, then the brinksmanship play will be viewed as merely a bluff and be ignored. It is this assessment of the credibility of the play that often leads to breakdowns in negotiation. Since the early 1970s, MLB and the players’ union have failed to reach agreements leading to a number of work stoppages, mostly of short duration but with exceptions of 1981 and 1994. In 1981 over 50 regular season games were cancelled during the middle of the season and in 1994 nearly the same number were lost as well as all of the playoffs and World Series. In both cases, the owners desire to rein-in free agency led the parties tried to play their hand to the edge. In both cases, the players came out as more willing to live with the consequences.¹³

TAKEAWAYS

1. Identifying a few key characteristics of a situation such as the timing of decisions and the information held by yourself and the rival can by itself make a person a better strategist.
2. Just like baseball managers, effective business strategists look ahead to the range of likely

outcomes and decisions and work backward when decisions involve connected sequences.

3. When a decision must be made at a point in time, looking for a strategy that is best or worst regardless of the rival's choice may help solve or, at least, pair-down the problem.
4. When no single best strategy appears, strategies should be randomly mixed based on relative strengths rather than divided equally among possible strategies as bluffing in poker and pitching illustrate.
5. Making moves that change the nature of a game are not only an effective tool but may help to alleviate seemingly hopeless situations and one used by the Colorado Avalanche to keep three key, free-agent players.
6. Threats and promises must be credible to influence rivals. One should not push to the brink unless willing to live with the consequences of going over the edge.

Notes

1. Sylvia Nasar, *A Beautiful Mind: A Biography of John Forbes Nash, Jr., Winner of the Nobel Prize in economics, 1994* (New York: Simon & Schuster, 1998).
2. See Avinash Dixit and Susan Skeath, *Games of Strategy* (New York: W.W. Norton, 1999), pp. 65-70 for a more thorough discussion of the contests between Kasparov and “Big Blue.”
3. Avinash Dixit and Barry Nalebuff, *Thinking Strategically* (New York: W.W. Norton, 1991), p. 10 provide a detailed example of this kind of thinking in America’s Cup racing.
4. See John Wooden (with Jack Tobin), *They Call Me Coach* (Chicago: Contemporary Books, 1988).
5. The use of an “out pitch” may be a desirable tool, if the relative combinations change once a hitter obtains two strikes. It may be that with two strikes, a dominant strategy may arise.
6. Dixit and Nalebuff, *Thinking Strategically*, pp. 172-183, discuss the tennis serve example.
7. This perspective on the NCAA is presented at length by the author and colleagues in Arthur Fleisher, Brian Goff, and Robert Tollison, *The NCAA: A Study in Cartel Behavior* (Chicago: University of Chicago Press, 1992).
8. See Adam Brandenburger and Barry Nalebuff, *Co-opetition* (New York: Doubleday, 1996).
9. The most recent vote is reviewed by Robert Barro, “The Best Little Monopoly in America,”

Business Week (December 9, 2002), p. 22.

10. John Moores, "Damn Yankees," *Wall Street Journal*, Tuesday May 14, 2002.

11. More detail on this unique bargaining strategy is provided in a *Rocky Mountain News* story by Jim Benton, "3 into 1 is Answer for Avs," www.rockymountainnews.com, July 10, 2001.

12. An informative article on Clarke as Flyer General Manager is "Flyer Fans Paying Price for Clarke's Glory Days," *USA Today.com*, May 1, 2002.

13. Michael Leeds and Peter von Allmen, *The Economics of Sports* (Boston: Addison-Wesley, 2002), Chapter 8, provide an extensive overview of labor negotiations in sports.