

## Fantasy baseball: A new way to gamble or just another game?

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### Abstract

The controversy over whether fantasy sports should be considered a new form of gambling was investigated. The predominance rule was used to operationally define gambling. This rule states that an activity is gambling if outcomes are due more to chance than to skill. Individuals active in a fantasy baseball league (commonly referred to as “owners”) and individuals who had never entered any type of fantasy league (“non-owners”) participated. Perceptions of skill-to-chance ratios were assessed and a content analysis of the specific skill and chance features involved in fantasy baseball was conducted. The results showed that fantasy baseball owners and non-owners judged outcomes to be more the result of skill. In an attempt to determine whether these results were supported by actual outcomes, a second study analyzed the records of a fantasy baseball league over an extended period. The findings of this additional study also suggest that skill may predominant over chance.

**Keywords:** fantasy sports, sports gambling, predominance rule, rotisserie

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### Introduction

There is controversy concerning the exact criteria that should be used to determine whether an activity is gambling or not. Academic researchers, addiction counselors, and those representing the legal system have diverse views concerning the criteria deemed to be appropriate (see Bernhard & Eade, 2005; Reber, 2000; Van Ingen, 2003). It seems that people who enter contests are looked upon in a favorable manner because these activities are usually considered a reflection of a competitive desire to achieve (Curry & Jiobu, 1984). However, when an activity involves the exchange of money, it often has a negative connotation and can be viewed as immoral or simply a waste of money (Bernhard, 2002). Better understanding of gambling issues has important practical implications. Some corporations have policies against gambling and may fire employees who are perceived to be gambling on company time or using company resources to gamble (Davison, 2009). It seems that in some of these cases (reported in Davison [2009]), the guilty parties were unaware that their actions

could be construed as gambling. Therefore, additional theoretical work needs to be done to determine what constitutes gambling.

There are clear and concise definitions of different types of gambling behaviors, such as recreational gambling, problem gambling, and pathological gambling (Bergler, 1958; Custer, 1984; Lesieur & Custer, 1984; Rosecrance, 1985). Gambling has also been identified with a variety of activities, including (but not limited to) many forms of casino gambling; lotteries; and betting on sports, horses, and dogs (Abt, Smith, & Christianson, 1985). However, specific definitions of gambling are less noticeable in the research literature. Several definitions have been proposed, but are often too broad. For instance, Reber and Reber (1995) defined gambling as encompassing those activities in which something of value is put at risk for the possibility of ultimate gain. Similarly, Bernhard and Eade (2005) broadly defined gambling as an activity that risks something of value, for example, substantial amounts of money, on an event whose outcome is undetermined. A shortcoming of these definitions is that they could also be used to describe participation in a contest, such as a spelling bee. For example, in a spelling bee, an entry fee is paid; that is, something of value is put at risk. When the entry fee is paid, the winner is unknown; that is, the outcome is undetermined. The situation is the same in playing slot machines. Money is put into the machine; that is, something of value is put at risk. The outcome of the play is unknown until after the machine handle is pulled. The application of these definitions could easily lead us to categorize a spelling bee as gambling when clearly the correct categorization would be that of a contest. Thus, we propose that these two current definitions of gambling are too broad. With such broad definitions, there is the danger that some activities could be labeled as gambling when they actually could be more appropriately viewed as a contest. An aim of the current study is to determine whether this might be the case with fantasy baseball.

It is useful to explore Reber's (2000) more complex definition of gambling. He believes that all activities that fit the general definition of gambling also need to have two underlying independent dimensions. The first dimension is flexibility. This is the extent to which the nature of the game resists attempts of the participants to alter the payouts. In inflexible games, the payout odds are set independently of the actions of the participants and nothing that the participants do will have any long-term effect on the payout. Such games are exemplified by roulette and lotteries. In more flexible games such as poker and blackjack, the skills of the participants are significant features in determining the eventual outcomes. The application of the flexibility dimension to a spelling bee could result in considering the spelling bee to be something akin to poker. In other words, the speller's skill level has some effect on the outcome, thus game flexibility, but the responses of other spellers are beyond control. The second dimension is referred to as the normative expected value (EV) of the activity. Here, the skill of the participant is the determining factor as to whether or not he or she will have a positive or negative expectation. The EV of a game is related to the probability of winning, but is unrelated to how much is wagered. Reber includes card games such as poker and blackjack, as well as horse racing and sports betting, as forms of gambling in which skill plays a major role in determining high or low EV. Just as skilled poker players may enter a poker game with positive expectations or positive EV, so may skilled spellers enter a spelling bee with the expectation that they may win. In both cases, EV can be applied to gambling and contests.

It should be noted that the EV of an enterprise is distinct from the “flexibility” factor. Reber (2000) argued that the EV of a game is based on either the mathematical properties when they are knowable (as in a game such as roulette), or the pragmatic operations of all of the contestants who participate. In this case, the EV is only an estimate calculated after sufficient data have been collected. For example, there can be an activity that is high in flexibility, but with long-term negative EVs. In these forms of gambling, the vast majority of people will lose, but not all. A participant’s skill level will often determine their success (A. Reber, personal communication, July, 24, 2008).

A social dimension has long been a common ingredient found in many activities, including most forms of gambling (Abt et al., 1985). Whether it has been wagering on cards, sports, horses, dogs, or any other form of gambling, the gambler has been known to find a venue and cohort to discuss, prepare, celebrate, and lament. According to Rosecrance (1988), wagering leads to the development of gambling social worlds. Within these gambling worlds, the participants will often develop their own unique vocabulary (Bernhard & Eade, 2005).

Researchers have suggested that gambling is a rewarding activity with the propensity for addiction (Shaffer, 1997, 1999, 2004). Apparently, this can take place either in a social setting (Rosecrance, 1985) or in the solitude of one’s home in front of a computer screen. Shaffer (2004) posited that technical advances might be related to development of an addiction. Gambling seems to be particularly vulnerable to this occurrence (Shaffer, Hall, & Vander Bilt, 1997).

An activity that might be considered a new form of gambling (Bernhard & Eade, 2005), referred to as fantasy sports, appears to fit in neatly with these more traditional ways of gambling. It has been suggested that fantasy sports should be given the same legal status that is currently given to the older forms of gambling (*Humphrey v. Viacom, Inc.*, 2007). Fantasy sports appear to be similar to accepted forms of gambling in several ways. Traditionally, these activities have been enveloped in a social world where success is affected to some extent by skill level and there is something of value put at risk by the participants involved. Therefore, the primary aim of the current study is to determine whether there is merit in claims that fantasy sports are gambling. Such claims will be contrasted with the perceptions of fantasy sports players and non-players, as well as actual outcomes reflected in fantasy baseball league records.

### **History of Fantasy Baseball**

Fantasy sports can be traced to a restaurant in New York City called *La Rotisserie Francaise*, where in 1979 a group of baseball fans began the organization of a fantasy baseball league consisting of teams whose performance was based on the statistics of actual players from Major League Baseball (MLB) teams (Bernhard & Eade, 2005). One of the original fantasy baseball league participants was Dan Okrent, who is often referred to as the person who invented the rules for what is referred to as *rotisserie*, or *roto* baseball. Almost immediately, fantasy baseball fans began to formulate their own vocabulary, or jargon, applicable to their newly created activity. One of the more interesting terms is “owners,” which is used by

fantasy members who have drafted a team—they are the “owner” their team and “own” the players on it. By the early 1990s, rotisserie baseball had led to spin-offs such as fantasy football, fantasy basketball, and other fantasy sports (Ballard, 2004). Clearly, the early days of fantasy sports resembled the traditional forms of gambling, because they provided an important source of social relations, and money was put at risk for expected gain.

Initially, an “auction” style of drafting players occurred, where prior to the sports season the players from the real leagues were selected by the owners of the fantasy leagues (Ballard, 2004). In this style, owners were given a predetermined “bankroll,” which they could use to bid for players. Once this bankroll was depleted, the owners would no longer be able to acquire players. Thus, a fantasy manager bidding highly to get last year’s Most Valuable Player might later have such a small bankroll left that they might have to fill other positions with players with low value.

Although the auction style draft is still a popular method, recently many leagues began utilizing a “snake” draft of players. This change has been generated by the ease of its use in Internet “draft rooms,” where owners take turns picking players for their team. For instance, in a 10-team league, owners will begin round 1 of the draft by picking in order, starting with the first pick through the 10th, and then back in reverse draft order, with the owner picking 10th then picking immediately again to start the second round (i.e., the tenth drafter would get the 10<sup>th</sup> and 11<sup>th</sup> picks, the ninth drafter would get the 9<sup>th</sup> and 12<sup>th</sup> picks, and so on).

Early fantasy baseball leagues based success on how many statistical categories were won (rotisserie style). This style, which is still popular, bases league champions on this criterion. Today, it appears that a majority of these leagues are utilizing a point-scoring format to assess the league champion in what is often referred to as the head-to-head (HTH) style. Whereas the older rotisserie format is based on season-long statistics, HTH often utilizes a schedule of games in which one’s fantasy team will face a different fantasy opponent in the league on a weekly basis. In these HTH games, points are scored based on performances of real players in MLB. For instance, for batters, a single may be worth one point, a double worth two points, and so on. For a typical scoring breakdown for batters, see Table 1. Pitchers can also score points depending on their performance (using different statistical categories—see Table 2). Note that either an auction or a snake-style draft can be used regardless of the type of scoring format used. Many fantasy leagues have entry fees, and award monetary prizes to winners at the conclusion of play.

Recent estimates indicate a dramatic increase in fantasy sports popularity. For example, in a recent study, the Fantasy Sports Trade Association (FSTA) tracked the consumer behavior of fantasy sports participants. They estimated that almost 20 million American adults were participating in fantasy sports. This estimate is almost 3 times higher than it was a decade ago. It was also estimated that fantasy sports had a market size of more than \$1.5 billion (FSTA, 2007). More recently, it was reported on the FSTA home page that there are currently 32 million people in the United States and Canada participating in fantasy sports (FSTA, 2011). Considering that their 2003 report estimated participation to be 15 million adults (Hu, 2003), it could be that the popularity explosion of fantasy sports has not yet peaked.

Table 1  
*Typical scoring categories for fantasy baseball batters*

Batting category	Points
Singles	1
Doubles	2
Triples	3
Home runs	4
Batting average ranges	
.200–.219	1
.220–.239	2
.240–.259	3
.260–.279	4
.280–.299	5
.300–.319	6
.320–.349	7
.350–.374	8
.375–.399	9
.400 and above	10
Walks	1
Strikeouts by batter	–1
Runs scored	1
Runs batted in	1
Stolen bases	2
Caught stealing	1

FTSA research depicts an interesting demographic profile for those partaking in this activity. There is a preponderance of males (over 90%) with an average age of 36 years. Most are married, educated, and homeowners with an average annual salary of \$77,000. They spend about 5 hours per week on-line managing their teams (FSTA, 2010).

During its infancy, fantasy sports began in a similar fashion as the traditional forms in that it had a social network of avid individuals (Bernhard & Eade, 2005). Just as it has with some of the traditional forms of gambling (e.g., poker), the advent of the Internet has changed the composition of how league owners interact and thus the social networking that occurs. For the first decade and a half of its existence, fantasy owners would meet on-site to share in the camaraderie that is inherent in the drafting of players for the upcoming season. A typical meeting place for this event would be at the home or business of the chairperson of the league (commonly referred to as the “commissioner”). If league owners were coworkers, it would not be unusual for the draft to take place at the conference room of the corporation where they were employed.

During the 1990s, the Internet made life easier for fantasy sports fans. Up until that time, fantasy league owners were known to search through box scores in daily newspapers to find the statistics of their players (Davis & Duncan, 2006). Currently, league owners enjoy their activity without having to spend hours manually compiling statistics. Today, several Web

Table 2  
*Typical scoring categories for fantasy baseball pitchers*

Pitching category	Points
Wins	1
Losses	2
Earned run average ranges	
4.01–4.50	1
3.51–4.00	2
3.01–3.50	3
2.51–3.00	4
2.01–2.50	5
1.76–2.00	6
1.51–1.75	7
1.26–1.50	8
1.01–1.25	9
0.00–1.00	10
Quality starts	5
Complete games	10
Shutouts	10
No-hitters	10
Strikeouts by pitcher	1
Saves	5
Blown saves	–5
Walks & hits/innings pitched ranges	
1.21–1.30	1
1.11–1.20	2
1.01–1.10	3
0.91–1.00	4
0.00–0.90	5

site services such as CBS Sports, ESPN Fantasy Sports, Yahoo! Sports, and the *Sporting News* provide real-time up-to-the minute statistics (Hu, 2003). For example, as an MLB player hits a home run and scores for his real-world team, this is immediately reflected in added points for the fantasy team who has this player.

Although the change brought about by the Internet has had its advantages, in some ways, it has also led to a drop-off in the social exchange component that was so prominent in its early days. Rather than meeting at a restaurant or conference room where good-natured banter was done in a group atmosphere, much of today's fantasy sports activities are conducted without any face-to-face interaction. Similar to the traditional forms of gambling, in fantasy sports, a large portion of owners are now conducting business in isolation. However, not unlike the older forms of gambling, many of those involved in fantasy sports revel in an environment in which they are surrounded by other passionate participants.

## Are Fantasy Sports a New Form of Gambling?

Is participation in fantasy sports a form of gambling? Although we found no empirical study that specifically investigated this question, some researchers, counselors, company executives, university administrators, and writers have the perception that fantasy sports fits at least a broad definition of gambling. It has also been reported that fantasy sports participants are involved in a gambling culture (Bernhard & Eade, 2005).

The Council on Compulsive Gambling of New Jersey (CCGNJ) views fantasy sports as a “gateway” to more traditional forms of gambling (J. Beck, personal communication, July 23, 2007). The CCGNJ managerial assistant reported that in their presentations to high school students, CCGNJ counselors urge these young people to avoid fantasy sports. They highlight the issues that they feel can lead a young person from fantasy leagues to illegal sports gambling. Such issues include the possibility of spending significant amounts of time and losing large sums of money in the fantasy leagues.

Recently, four employees working for the Westlake office of Fidelity Investments, located in the Dallas/Fort Worth, Texas, area, were fired because they had violated the firm’s “gambling policy” by participating in fantasy football leagues. One of the individuals fired said that he was interrogated as if he were an international gambling kingpin (Davison, 2009). Similarly, some university administrators have included fantasy sports bans in their gambling policies and have required that literature be given to student athletes prohibiting them from participation in any fantasy league that awards a prize or requires a fee to participate (“Don’t Bet on It,” 2005). Supporting these views, one sportswriter reported that fantasy football “is a form of gambling, pure and simple” (Magee, 2003).

In contrast, the National Football League (NFL) currently views fantasy football as a nongambling activity; however, this has not always been the case. The NFL currently allows its players to participate in fantasy football leagues. However, initially the NFL considered fantasy football as a gambling activity and adamantly opposed it. Some have questioned whether the added interest the fantasy game was creating for the real game and the resulting added revenues that were being generated might have been the reasons that the NFL reassessed its position (Magee, 2003). In addition, *Sports Illustrated* reported that no one has ever been arrested for participating in a fantasy league and that it is not considered to be gambling (Ballard, 2004).

The legal system has its own criteria for determining whether an activity is gambling. Generally under common law, gambling involves three elements: (1) the distribution of prizes (2) according to chance (3) for a consideration (*Lucky Calendar Co. v. Cohen*, 1955). The key legal element in identifying whether a game or contest is gambling depends on whether there are contingent factors that are out of the control of the players. This chance element in a game is legally assessed by the “predominance test” or “dominant factor test” (In re *Allen*, 1962).

According to the predominance rule, games of pure chance, such as slot machines, are gambling and consequently illegal or subject to regulation. Games of pure skill, such as

chess, are not gambling. For games with a mixture of elements of chance and skill, the predominance test requires the court to decide whether “uncontrollable chance” or “player skill” predominates in determining the outcome of the game (Balestra & Cabot, 2007). The percentage of chance required for a game to be gambling varies among states, but usually 50% or more is the test (see <http://www.gambling-law-us.com> for a summary of state laws). Although the courts have not decided upon a definite means to determine the predominance of skill or chance (Boswell, 2008), academics have provided expert testimony on the statistical predominance of skill in poker (*Raley v. People of the State of Colorado*, 2010).

The application of the predominance test is still at issue for fantasy sports. A recent court case challenging the legality of fantasy sports never reached the chance or skill issue because the challenge resulted in a pretrial dismissal (*Humphrey v. Viacom, Inc.*, 2007). But the federal law (USA) has made an explicit exception to fantasy sports, stating that they are games of skill (Unlawful Internet Gambling Enforcement Act, 2006), whereas two state attorney generals have published opinions that fantasy sports are gambling (see La. A.G. Op., & Fla. A.G. Op., 1991). Consequently, the legal categorization of fantasy sports is an open question.

### **Assessment of Fantasy Baseball**

The diversity of views from real-world settings described earlier suggests that a more formal assessment of fantasy baseball is due. Such a formal assessment could be the beginning of a body of empirical work that could guide decision makers in the private sector, education, counseling settings, and legal determinations. Because current definitions of gambling partly depend on the views or attitudes of participants as to the predominance of skill or chance (Reber, 2000), the informed attitudes and views of owners is one logical beginning point for the formal assessment of fantasy baseball. A second angle of assessment is the analysis of actual win-loss records from a fantasy baseball league.

One possible way to assess the status of fantasy sports as gambling is to use the predominance rule as the basis for an operational definition of gambling. The predominance rule proposes that if the outcome of a game or contest is predominantly the result of skill, then the activity is not gambling. If the outcome is due mainly to chance, then the activity is considered gambling. Therefore, estimates of the skill-to-chance ratio could be used to operationally define whether fantasy sports are gambling. A second way to assess the status of fantasy sports is to analyze the actual records of a fantasy sport’s league. If fantasy sports are predominantly games of chance, then over time no particular team or teams should outperform other teams. Chance factors will be evenly distributed across teams and will result in roughly equal win-loss outcomes.

The major objectives of the current study were to explore the skill-to-chance estimates of fantasy baseball owners and non-owners (who have never been involved in fantasy baseball) and to see whether these perceptions are supported by actual win-loss records. To achieve these objectives, all participants in Study 1 were asked to estimate the amount of

skill involved in fantasy baseball. Non-owners were included in the study because of the possibility that the owners' estimates could be biased in the direction of perceiving higher levels of skill than may actually exist. In Study 2, we analyzed actual fantasy baseball league records for 12 teams across nine seasons.

From the experience of the first author, who has been a fantasy baseball owner for 18 years, we predicted in Study 1 that both owners and non-owners would judge that fantasy baseball outcomes are due more to skill than chance. We based this prediction on our expectation that fantasy baseball owners would think that chance elements would cancel each other out and that knowledge and skill will be predominant. To a lesser extent, we felt that this would also apply to non-owners. Study 2 was included to determine whether the results of Study 1 were supported by actual outcomes. A final hypothesis relates to the two distinct formats available to owners of fantasy teams. Considering the structures of the two formats, we expected owners of the rotisserie format to perceive more skill than those involved in the HTH leagues. Specifically, we felt that the variability involved in playing different opponents every week in the HTH format would be viewed as being a chance factor (for example, playing a "hot" team). In contrast, we felt that those playing the rotisserie style would believe that chance factors would even out over the full season.

### Study 1

This study compares estimates of the skill-to-chance ratios in fantasy baseball outcomes of owners and non-owners. In addition, owners' skill-to-chance estimates are compared for the HTH versus rotisserie formats.

### Method

**Participants.** A convenience sample of 173 participants took part in the study. The sample was composed of 117 participants who have never been fantasy baseball owners (i.e., fantasy baseball participants) and 56 participants, who at the time of data collection were fantasy baseball owners. The non-owner sample, which was composed of college students enrolled in undergraduate psychology courses offered at a rural 4-year college in the Rocky Mountains (USA), was composed of 64 (55%) women and 53 (45%) men. The non-owners' mean age was 21.71 years ( $SD = 6.59$ ). Sixty-seven non-owners (57%) were Caucasian, 23 (20%) were Hispanic or Latina(o), 11 (9%) were African American, one (1%) was Asian American, and 14 (12%) identified themselves as other, or did not declare an ethnicity. The owners were composed of 55 men and one woman (mean age = 32.5 years,  $SD = 11.1$ ). Forty-seven owners (84%) were Caucasian, four (7%) were Asian American, two (4%) were Hispanic, and two (4%) were African American. One participant reported their ethnicity as "other." Owners' approximate annual mean salary was \$78,085 ( $SD = \$65,888$ ). The mean length of time of fantasy baseball ownership was 7.62 years ( $SD = 4.99$ ). All but one participant reported residing in the United States, with 18 (32%) residing in Connecticut, nine (16%) in Colorado, seven (13%) in New York, and the remainder in 14 other states. The demographic profile of the owner

subsample was fairly similar to the overall national profile of owners reported by the FTSA.

**Materials.** The non-owner's questionnaire asked for demographic information and whether these participants had ever been fantasy baseball owners. An extensive description of fantasy baseball was included in the questionnaire. The fantasy baseball description was pilot tested with 15 students enrolled in a junior-level psychology research methods course. The pilot testing was conducted to make certain that the description was clear and understandable.

To make certain that the participants understood the description of fantasy baseball, a 10-item quiz was included. The quiz response format used a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Scores were calculated by summing all responses. Scores could range from 10 to 50, with higher scores reflecting more accurate and more confident knowledge of fantasy baseball. A single item also asked the participants to rate their general baseball knowledge on a scale from 1 (*could not explain the real game of baseball*) to 5 (*could explain very well the real game of baseball*). Estimates of the skill-to-chance ratios in fantasy baseball were also requested. These estimates required that participants pick one of 11 possible skill-to-chance ratios. The skill-to-chance ratio response options were in increments of 10% and ranged from "skill = 100% and chance = 0%" to "skill = 0% and chance = 100%." Each ratio response option was given a numeric value such that 1 represents skill = 100% and chance = 0%, 2 represents skill = 90% and chance = 10%, 3 represents skill = 80% and chance = 20%, all the way to 11 represents skill = 0% and chance = 100%.

The fantasy baseball owner's questionnaire asked for demographic information and also asked these participants to list all the features of fantasy baseball that required skill and all the features that reflected chance. The skill and chance listings functioned to make the details of the game more salient before the skill-to-chance ratios were estimated. The listings also provided some insight into specific factors that were viewed as skill or chance components. Estimates of the skill-to-chance ratios in the HTH and rotisserie designs were requested. The format for obtaining these skill-to-chance estimates was the same as that used in the non-owner's questionnaire. Information about the importance of the monetary prize in fantasy baseball and how the monetary prize affects interest levels was also collected.

**Procedure.** The non-owners were recruited at a small college in the Rocky Mountains (USA). The fantasy baseball owners were recruited through e-mail sent to league members or former league members of the first author, who is also a fantasy baseball owner. A total of 16 participants were contacted in this manner. Forty other participants were recruited through a fantasy baseball Internet bulletin board. The e-mail and bulletin board postings described the study and functioned as a consent form. All participants, regardless of how they were recruited, were blind to the expectations of the researchers. Consent to participate was given when the participant clicked on the questionnaire Internet address contained in the e-mail or bulletin board posting. When the participant completed and submitted the questionnaire, a debriefing message appeared.

## Results

**Owner results.** The owner's questionnaire asked the participants to list as many skill and chance features of fantasy baseball as they could think of. Content analyses of the skill features and chance features were conducted. One-hundred twenty-eight responses reflected skill features. Three broad skill themes in the owner responses were identified: the ability to select good players (66% of responses), effective player scheduling (17% of responses), and miscellaneous skills (17% of responses). Player selection features included the ability to effectively use the waiver wire (selection from a list of real MLB players who had not yet been chosen for any of the fantasy teams; these players are also referred to as free agents), knowing when to make or not to make trades, knowing who the best players are to draft, being able to effectively use the point categories, and the ability to create a balanced and competitive player roster. Player scheduling features involved knowing when to select or to bench a certain player for specific games, knowing whom to match up with whom, and recognizing when to make modifications in the roster. The miscellaneous responses were typically very general statements, such as knowing how to use a computer and the Internet, the ability to filter good information from bad, and having the patience to manage a team for 162 games.

One hundred and six owner responses identified chance features. Three broad chance themes in the owners' statements were identified: unpredictable player performance (68% of responses), league procedures that introduce chance (23% of responses), and miscellaneous chance factors (9% of responses). Player performance features included unexpected injuries; natural variation in player performance from game to game; the unanticipated call-up of new talent; and the possibility of the real MLB team going on winning or losing streaks, which owners felt could affect a player's opportunities for fantasy points. League procedure features included the unpredictable volatility of the HTH format, and the chances one takes when drafting relatively unknown players. Miscellaneous responses included the influence of the weather, player suspensions, and the effects of real MLB managers who play favorites that are not clear to the public.

The owners also estimated the skill-to-chance ratios in HTH fantasy baseball and rotisserie baseball. In the skill-to-chance estimates, the HTH format was judged to involve less skill compared with the rotisserie format. More specifically, the mean estimate of the HTH format was judged to involve approximately 65% skill and 35% chance. In comparison, the rotisserie format was estimated to involve approximately 75% skill and 25% chance. Thus our hypothesis that the owners would perceive outcomes predominantly due to skill in both formats was supported. A two-tailed paired samples *t* test revealed that the amount of estimated skill was higher for the rotisserie format ( $M = 3.42$ ,  $SD = 1.82$ ) compared with the HTH format ( $M = 4.48$ ,  $SD = 1.78$ ),  $t(32) = 3.89$ ,  $p < .005$ . Also, a strong direct relationship between estimates of the skill-to-chance ratio in the HTH and the rotisserie formats was found, such that higher skill estimates in one format were associated with higher skill estimates in the other format,  $r(41) = .76$ ,  $p < .005$ . Of the participants who have played both the HTH and the rotisserie formats, 24 (69%) felt the two formats were different, while 11 (31%) felt there was no difference.

Concerning the importance of playing for money, 46 (90%) of the owners reported they would be just as likely to participate in fantasy baseball even if there was no monetary prize, whereas five (10%) reported they would be less likely to participate. Finally, 36 (73%) reported that their interest level would not decrease if there were no monetary prize, whereas 13 (27%) reported that their interest level would decrease.

**Non-owner results.** To give informed skill-to-chance estimates, it was imperative that the non-owners understood fantasy baseball. To assess whether the non-owners understood the fantasy baseball description in the questionnaire, an overall mean score on the 10-item quiz was calculated ( $M = 38.92$ ,  $SD = 5.53$ ). The range of possible scores was 10 to 50, with higher scores reflecting more accurate and more confident knowledge. The mean score represents 78% of the highest possible score. A two-tailed independent samples  $t$  test showed that the men's knowledge scores ( $M = 39.70$ ,  $SD = 4.68$ ) did not differ from the women's scores ( $M = 38.28$ ,  $SD = 6.10$ ),  $t(115) = 1.39$ ,  $p = .17$ . Also, the fantasy baseball knowledge scores were modestly correlated with participants' evaluations of their general baseball knowledge,  $r(100) = .21$ ,  $p = .03$ . Again, a two-tailed independent samples  $t$  test revealed no gender differences in the men's ( $M = 3.63$ ,  $SD = 1.07$ ) and women's ( $M = 3.44$ ,  $SD = 1.01$ ) estimates of their general baseball knowledge,  $t(98) = 1.00$ ,  $p = .32$ .

To test our hypothesis that the non-owners would also perceive HTH fantasy baseball outcomes as predominantly due to skill, we calculated a mean score ( $M = 5.43$ ,  $SD = 1.76$ ). This score implies that the non-owners perceived that outcomes were due to about 55% skill and 45% chance; thus our hypothesis was supported. A two-tailed independent samples  $t$  test revealed that the owners perceived a greater amount of skill in outcomes (65% skill to 35% chance) compared with the non-owners,  $t(169) = -3.28$ ,  $p = .001$ .

Additional non-owner exploratory analyses were also conducted. A two-tailed independent samples  $t$  test revealed no gender differences in the men's ( $M = 5.31$ ,  $SD = 1.49$ ) and women's ( $M = 5.52$ ,  $SD = 1.97$ ) skill-to-chance estimates,  $t(113) = -.65$ ,  $p = .52$ . That is, both the women and men judged the skill-to-chance ratio to be approximately 55% skill to 45% chance. Also, two groups were formed to determine whether the skill-to-chance ratio estimates were different for those who scored high versus low on the fantasy baseball knowledge quiz. With the overall knowledge mean score as a cutoff point, non-owners who scored 40 or higher composed the high knowledge group ( $n = 61$ ), whereas those who scored 39 or lower composed the low knowledge group ( $n = 53$ ). A two-tailed independent samples  $t$  test revealed no difference in skill-to-chance ratio estimates for the high knowledge ( $M = 5.26$ ,  $SD = 1.64$ ) versus the low knowledge ( $M = 5.55$ ,  $SD = 1.85$ ) groups,  $t(112) = .87$ ,  $p = .39$ . Finally, no relationship was found between estimates of the skill-to-chance ratios and knowledge of fantasy baseball,  $r(114) = -.08$ ,  $p = .39$ .

**Discussion (Study 1).** The results of Study 1 supported our hypothesis that skill would be the perceived predominant influence in fantasy baseball outcomes for both owners and non-owners. As expected, the owners' estimates of skill-to-chance ratio in the HTH format were higher than those of the non-owners. The non-owners' estimates still reflected the perception that outcomes were predominantly due to skill and not to luck. In addition, no gender differences were found in non-owner perceptions. Also, as expected, the owners'

estimates of the skill-to-chance ratios reflected their perception of more skill being involved in the rotisserie format compared with the HTH format.

## Study 2

### Method

A set of fantasy baseball league records was obtained by the first author. The records are for the 2002 through the 2010 seasons from a league operated by CBSSports.com. Sixteen teams played during this period. Four teams were dropped from this analysis because they participated in only one or two seasons. We felt that one or two seasons was not enough time to establish a reliable record. The remaining 12 teams included in this analysis participated in four to nine seasons. The mean number of seasons in which teams participated was 7.00 ( $SD = 3.53$ ). The league records consisted of the number of games won, lost, and tied by team for each season. For each team, the total number of games won, lost, and tied were calculated. Also, the percentage of games won by each team during the period was also calculated. The percentage of games won across all teams ranged from 42% to 61% ( $M = 50%$ ,  $SD = .10$ ). To determine whether some teams did better over time compared with others, we divided the teams into two groups. Teams that won 50% or more of the games played during the period were labeled elite teams ( $n = 5$ ), whereas teams that won 49% or less of the games played were labeled non-elite teams ( $n = 7$ ).

### Results

**Games won-lost.** The five elite teams played a combined total of 839 games, of which 464 were won and 375 were lost. Chi-square analysis revealed that the number of wins was greater than the number of losses ( $\chi^2 = 9.44$ ,  $df = 1$ ,  $p = .002$ ). The seven non-elite teams played a combined total of 1,112 games, of which 512 were won and 600 were lost. A second chi-square analysis revealed that the number of games lost was greater than the number of games won ( $\chi^2 = 6.96$ ,  $df = 1$ ,  $p = .008$ ). In addition, the elite teams won a significantly higher percentage of games compared with non-elite teams ( $\chi^2 = 8.09$ ,  $df = 1$ ,  $p = .004$ ), and the non-elite teams lost a significantly higher percentage of games compared with the elite teams ( $\chi^2 = 8.31$ ,  $df = 1$ ,  $p = .004$ ). It should be noted that the results of the last two chi-squares are not completely independent of each other (see Figure 1).

**Seasons won-lost.** The five elite teams played a combined total of 30 seasons. Chi-square analysis revealed that the elite teams won significantly more seasons than they lost ( $\chi^2 = 4.80$ ,  $df = 1$ ,  $p = .028$ ). The seven non-elite teams played a combined total of 47 seasons. An additional chi-square analysis reveal that the non-elite teams did not lose significantly more seasons than they won ( $\chi^2 = 1.04$ ,  $df = 1$ ,  $p = .307$ ). However, the elite teams won a significantly higher percentage of seasons than the non-elite teams ( $\chi^2 = 6.45$ ,  $df = 1$ ,  $p = .011$ ), and the non-elite teams lost a significantly higher percentage of seasons compared with the elite teams ( $\chi^2 = 8.38$ ,  $df = 1$ ,  $p = .004$ ). It should be noted that the results of the last two chi-squares are not completely independent of each other (see Figure 2).

Figure 1. Percentage of games won and lost by team type

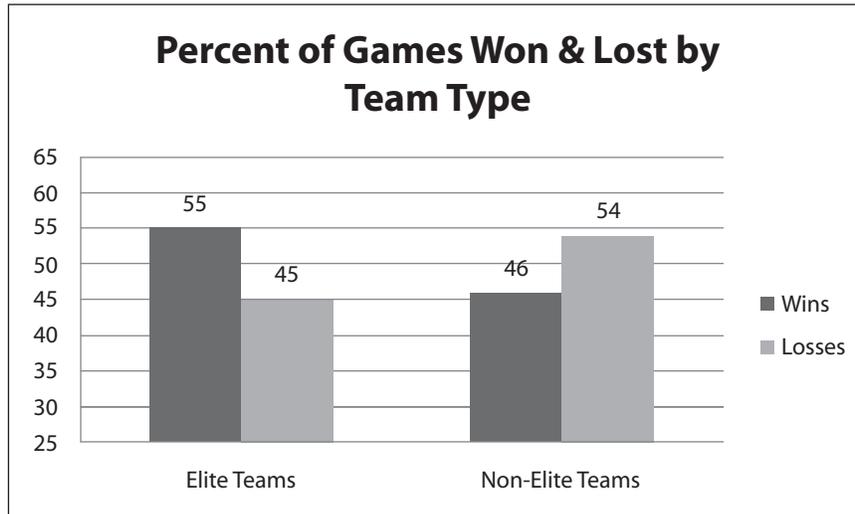
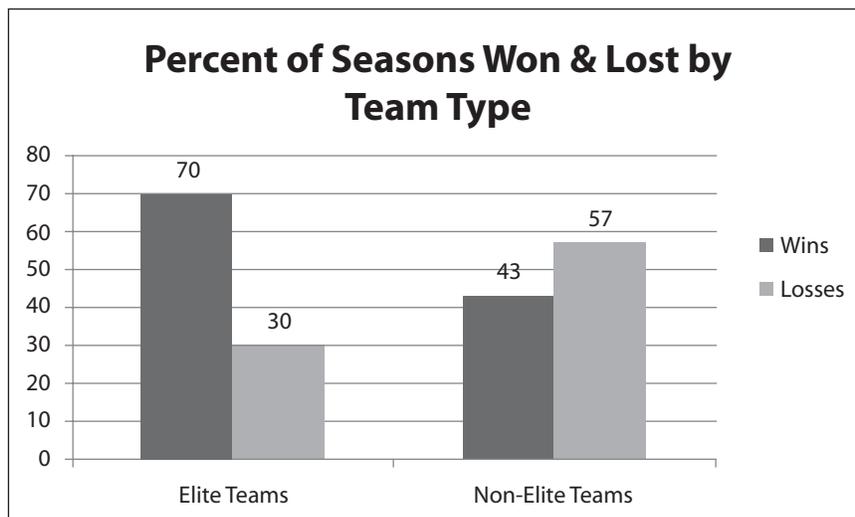


Figure 2. Percentage of seasons won and lost by team type



**Discussion (Study 2).** At the game level, elite teams won significantly more games than they lost and non-elite teams lost significantly more games than they won. Elite teams won a higher percentage of games than the non-elite teams and the non-elite teams lost a higher percentage of games compared with the elite teams. At the season level, the elite teams won significantly more seasons than they lost and won a higher percentage of seasons compared with the non-elite teams. Also, the non-elite teams lost a significantly higher percentage of seasons compared with the elite teams. However, the non-elite teams did not lose significantly more seasons than they won. From these results, one could conclude that some teams do significantly better over time than other teams. This occurs at the game level

and at the season level. To us, this implies that some significant amount of skill is reflected in fantasy baseball outcomes.

### **General Discussion**

The controversy as to whether fantasy sports (in particular fantasy baseball) should be considered a form of gambling was investigated by comparing the perceptions of owners and non-owners about fantasy baseball and by analyzing actual fantasy baseball league win-loss records. Because of the vagueness of current definitions of gambling (see Bernhard & Eade, 2005; Reber & Reber, 1995), Study 1 used the predominance rule as a way to operationalize gambling. Under the predominance rule, an activity is gambling if outcomes depend more on chance than on skill. The results showed in their perceptions, owners and non-owners agreed that there is more skill than chance involved in fantasy baseball outcomes. However, the non-owners felt that there was somewhat less skill involved than the owners did. We speculate that this difference could be due to a number of factors, including a better knowledge of fantasy baseball, the illusion of control over outcomes, or attempts to justify the time spent playing fantasy baseball. Further research in this area would be revealing. The analysis of fantasy baseball league records in Study 2 reinforces the results of Study 1. That is, elite teams do better at the game and season level over an extended period compared with non-elite teams. This implies that, as the perceptions of owners and non-owners suggest, skill factors may be predominant over chance factors.

Overall, the results of Studies 1 and 2 support the Unlawful Internet Gambling Enforcement Act, which has excluded fantasy sports as a form of Internet gambling, but run counter to the position of the CCGNJ. The current studies are important because they provide scientific evidence that can be considered by opposing parties as the debate moves forward on the nature of fantasy sports.

In light of the present research, we propose that further theoretical work needs to be done on the basic nature of gambling. Current definitions of gambling propose that gambling is an activity that places something of value at risk in the hope of making a gain in an underdetermined outcome (Bernhard & Eade, 2005; Reber & Reber, 1995). As mentioned earlier, these definitions do not clearly make distinctions between entry fees and wagers, or between a prize or wager payoff, or whether skill or chance drives outcomes. From current definitions of gambling, entering something akin to a spelling bee could be considered gambling. That is, money is paid as an entry fee in the hopes of winning a monetary prize.

Even the application of Reber's (2000) dimensions of flexibility and EV fail to exclude a spelling bee from gambling. For example, a spelling bee would be quite flexible in that some would do well (high EV) and others not so well (low EV). The amount won would be based on skill. As for its EV, it could be negative, neutral, or positive depending on how the monies were collected and distributed. If each contestant paid an entry fee and all the fees were distributed as prize money, the game would be a zero sum game. If the organizers took out a small amount to pay for "running the game" then the game would have a negative EV because less money would be available to be distributed in order to make it a fair game. This would be the case even though some highly skilled contestants would still maintain

a long-term positive EV. If the organizer put in “added money” (such as from a sponsor), then the game would have positive EV even though some less skilled contestants would still play with long-term negative EV (A. Reber, personal communication, July 24, 2008).

Given these concerns, it might be valuable for researchers to further explore the predominance rule as one criterion for determining whether an activity is gambling. The advantages of the predominance rule are that it is theoretically parsimonious, it can be operationalized easily, it may more clearly distinguish between contests and activities traditionally considered to be gambling, and it is recognized by the legal system as a legitimate way to make the distinctions explored in this research. An important contribution of Study 1 is that it has demonstrated the usefulness of the predominance rule in gambling research. Study 2 tends to confirm the results of Study 1. In the future and as accumulated evidence begins to mount, such findings may be more amenable to legal purposes.

Despite our initial empirical findings concerning the skill-to-chance ratio of fantasy baseball, there are additional questions that need to be addressed to move the issue forward. On the one hand, the findings of Study 1 seem to be in line with Reber’s EV theory, which states that some forms of gambling have an EV that depends on the skill of the participant, whereas others do not. On the other hand, what adds support to the position taken by the Unlawful Internet Gambling Enforcement Act is that in Study 1, non-owners also viewed fantasy baseball as more skill based. For a court or anyone to rule that an activity meets or does not meet the predominance rule, some formal empirical supporting evidence may be useful. As a starting point in ultimately determining the status of fantasy sports, responses of the participants in Study 1 suggest that fantasy baseball may not be a form of gambling, but rather may be more akin to a contest.

Because there appears to be little research in this area, we consider the current studies to be initial steps in a line of research that could help to clarify the nature of gambling and, more specifically, the nature of fantasy sports. Several issues need to be addressed before any definitive conclusion concerning the status of fantasy sports can be made. First, we based the skill-chance determination on the perceptions of team owners and college student non-owners. As can be said about real sports performances, perceptions can be swayed by biases. An illusion of control that many gamblers possess (Langer & Roth, 1975) may have affected the owner perceptions in Study 1; however, the non-owner perceptions also indicated that skill was predominant. The convergence of perception across two very different populations increases the internal validity of our findings. However, an exploration of the viewpoints of other populations is recommended. Assessments of gambling counselors, gambling researchers, the spouses of fantasy baseball owners, athletes, and other adult populations could be evaluated. Convergence of perceptions, one way or another, would increase our understanding of fantasy baseball.

Study 1 used the predominance rule to operationally define gambling, whereas Study 2 used actual and objective win-loss records. However, a potential problem with real win-loss records is that skill level may not be static. Over time, skill could increase or decrease relative to other players. Losers of previous seasons may expend more time and energy in hopes of improving their record. In an analysis of skill and chance components involved

in poker card playing, Fielder and Rock (2009) proposed that skill should be viewed as “relative” to other players, rather than as an “absolute” characteristic. In other words, skill is relative to those you are playing against. Therefore, one could conclude that if the skill level of players is similar, then only chance factors remain to determine outcomes. Fielder and Rock concluded that “poker is in a continuum between being a game of chance and being a game of skill” (p. 57). They mentioned that this should put its legal status in question. To determine the extent to which skill level is dynamic or static across time, the analysis of additional league records might be revealing.

Study 1 found that differences existed in the skill-to-chance estimates between different forms of fantasy baseball. For example, owners of the more complicated rotisserie style perceived this game to involve more skill than the HTH fantasy style. With this being the case, another recommendation for future research is to further investigate the different forms of fantasy sports within a particular sport and across different fantasy sports.

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