Myopic Biases in Competitions

Joseph R. Radzevick

Don A. Moore

Carnegie Mellon University

Corresponding author:
Joseph Radzevick
CMU/Tepper
5000 Forbes Avenue
Pittsburgh, PA 15213
jrr2@andrew.cmu.edu

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Abstract

In four studies using both laboratory and field data, we show that the focal competitor's strengths and weaknesses feature more prominently in predictions of the outcomes of future competitions than do the strengths and weaknesses of the opponents. People are more confident when their own side is strong, regardless of how strong the competition is. We show that this effect is driven by the fact that people have better information about their own side than the other side, in part because they preferentially seek out information about their own side. Implications for theories of decision making in competitive settings are discussed.

Myopic Biases in Competitions

In competitive situations, those who understand what they are up against are more likely to be successful. Entrepreneurs need to understand their competitors in order to understand how (or whether) they should enter a new market. Success in battle is more likely when the generals understand the enemy's strengths and weaknesses. Effective election campaign strategies depend on who the opposing candidates are. This paper examines the psychology of competitor perception by applying recent theoretical progress to the problem of understanding competitions.

Previous research on this topic has manipulated the difficulty of the task and measured its effect on beliefs about relative performance. For example, Kruger (1999) found that people believed they were above average drivers but below average unicycle riders. Similarly, Windschitl, Kruger, and Simms (2003) examined a variety of "shared circumstance effects" in which the introduction of shared benefits increased individuals' predicted probabilities of winning a competitive task while the introduction of shared adversities decreased their predicted probability of winning. This occurred despite the fact that such adversities and benefits would affect the performance of the other competitors as well as their own.

In this paper, by contrast, we examine variations in the quality of the competition rather than variations in the difficulty of the task. While high quality opponents clearly make winning more difficult, this is not the same sort of difficulty as when test questions get harder for everyone. This difference is fundamentally important. When the test questions get more difficult, individual test-takers will be aware of their own scores, but may not be as aware of others' scores. When facing a stronger opponent, consideration of the task's increased difficulty necessarily involves an appreciation of the other side's strength. Studies have found that making others more salient reduces egocentric biases and reduces both better-than-average and worse-than-average effects (Alicke, Klotz, Breitenbecher, Yurak, & al, 1995; Kruger & Veed, 2004; Windschitl et al., 2003). So this raises the important question of whether, if difficulty varies only through the players' relative strengths, people are better at forecasting competitive outcomes.

Competitive Perceptions

Many scholars have argued that overconfidence can result from egocentric self-focus (Brenner, Koehler, & Tversky, 1996; Ross & Sicoly, 1979; Zajac & Bazerman, 1991). However, the failure to understand the competition only produces illusions of superiority among those who assume the competition is incompetent. If the blank spots in competitors' understanding of the other side are filled in with more accurate estimates of opponents' capabilities, then this oversimplified view would only produce excessive confidence among strong competitors when they face strong opponents. Such overconfidence will evaporate among those who perceive all competitors as weak. "Reference group neglect" is what Camerer and Lovallo (1999) called the tendency for competitors to be overly sensitive to their own capabilities and neglect to sufficiently account for the capabilities of the competitive reference group (see also Giladi & Klar, 2002; Klar & Giladi, 1997). When applied to the issue of competitor perception, these prior findings suggest that competitors will attend myopically to their own capabilities when predicting whether they will be victorious:

Hypothesis 1: Confidence in competitive settings will be overly influenced by focal competitors' capabilities and insufficiently influenced by opponents' capabilities.

There is, however, growing evidence that myopic biases in comparative judgments of the sort we have described are not necessarily egocentric effects. People show the same effects when they are predicting the performances of other, nonself, targets (Chambers & Windschitl, 2004; Moore & Kim, 2003). Therefore, we hypothesize that the effect we have predicted is not a purely egocentric effect:

Hypothesis 2: Individuals focusing on strong competitors will be excessively confident that those on whom they are focusing will win future competitions.

There is an ongoing debate about whether myopic biases in comparative judgments are a product of differential information or differential weighting. Researchers who argue that myopic comparisons are due to differential information point out that people usually have more information about the a focal target than about others (Moore & Cain, 2007; Moore & Small, 2007). As a result of this differential information, people make more accurate estimates of the target than of the opponent. The other side, about which people have less information, is perceived less accurately, and so people overestimate them when they are weak and underestimate them when they are strong. On the other hand, other research suggests that myopic comparisons are explained by differential weighting of information that they possess (Giladi & Klar, 2002; Kruger, 1999; Windschitl et al., 2003). We contribute new insight to this debate by measuring the weighting of targets and opponents in participants' judgments. In addition, we can examine the information participants have and what information they choose to acquire (in Study 4) in order to assess the role of differential information.

The Current Studies

In this paper, we have chosen athletic competition as a context in which to study competitive perceptions of contests featuring interdependent performance. Unlike most other types of contests, athletic competitions provide clear and unambiguous outcomes, which in turn provide unambiguous measures for testing our hypotheses. This clarity also minimizes ambiguity in the minds of our participants about the standards for success and failure. Research shows that motivated biases tend to be strongest when ambiguity creates an opportunity for the formation of idiosyncratic definitions of outcomes or measures (Kunda, 1987). Interpersonal comparisons are most likely to be egocentric when the standards for performance are ambiguous (Dunning, Meyerowitz, & Holzberg, 1989; Hayes & Dunning, 1997). Therefore, we have chosen a domain that offers a conservative test of our hypotheses.

In addition, athletic competitions provide substantial amounts of experience for participants. The teams in the studies we present each play numerous games against a variety of opponents, providing a great deal of clear feedback that tends to improve the accuracy of perceptions of ability (Mabe & West, 1982). In contrast, many other conflicts and competitions are unique instances in the sense that they will never be repeated with the same constellation of players, interests, and issues. By selecting a context that provides contestants with so much clear feedback, we again have opted for a conservative test of our hypotheses. Given that we have hypothesized the existence of systematic biases in predictions of future performance, experience and clear feedback are more likely to reduce such biases than to exacerbate them.

The first study we present examines betting on sporting events in Las Vegas casinos. The next two studies we present look directly at predicted outcomes of athletic contests. The fourth study offers additional evidence on the specific processes that produce the effects we document.

Study 1

Our first study seeks to test our hypotheses regarding focusing biases in comparative judgment within the context of sports betting, a situation where inaccurate predictions can have substantial monetary repercussions. While our theory clearly applies to betting behavior, sports betting also presents a number of challenges for testing our hypotheses. Betting on sports is illegal in most places, making it harder to find those who have the data and making them reluctant to share it. Additionally, in the legal market found in the U.S. state of Nevada, betting is carried out through anonymous spot transactions, making information gathering about bettors difficult there as well.

Fortunately, the betting lines themselves are available and can provide some information about bettors' beliefs and their betting behaviors (Avery & Chevalier, 1999). The movement of the betting line indicates the direction of public opinion for a game's outcome. If the line moves in favor of a team (favorites must win by more points or underdogs can lose by fewer points), the implication is that bettors have positive net confidence in that team's ability to cover the spread. If the line moves against a team (favorites must win by fewer points or underdogs can lose by a greater number of points), the implication is that bettors are more pessimistic regarding the team's ability to cover the spread.

Our hypotheses lead us to expect that people will make more confident predictions for the performance of teams on which they are focusing, especially when those teams are good. As a result, the betting lines will tend to move in favor of these teams. We also predict the greatest movement will occur when the team involved is a strong team. Since the Las Vegas sports betting market is geographically fixed and Nevada law stipulates that all bets must be placed in person, potential bettors do not all have equal access to the market. Fans of a particular team represent one group likely to focus on that team. Therefore, games played between teams with fan bases likely to have greater representation in the Las Vegas market are more likely to show predictable line movement in favor of those teams. In particular, we expect that betting line movement will indicate a preponderance of money being bet on strong teams with more fans that are close to Las Vegas.

Method

To test these hypotheses, we examined data from the 2003 and 2004 National Collegiate Athletic Association (NCAA) Division 1-A college football seasons. Of the games in the initial dataset, several did not include line data (these were games against opponents outside Division 1-A for which no line was posted and some early season games for which line data were unavailable) and therefore were excluded. We also chose to exclude any other games played in the first full week of each season or earlier because up to that point, all teams had not played prior games from which to compute a value for team strength. This left a total of 1203 games remaining in the sample.

For the betting line portion of the data set, we obtained archival data from a major handicapping service (DonBest.com, 2004). These data provided us with the opening and closing lines for each game from three Las Vegas casinos (Excalibur, Stardust, and Mirage). For subsequent analyses, the casino lines were averaged together.

Measures

Confidence

We measured aggregate bettor confidence as the movement in the betting line for each game. Line movement was computed as the difference between the average closing and opening lines, representing the aggregate confidence of bettors in the market.

STRENGTH

For each of 117 teams in the league, we recorded the outcome (0=loss, 1=win) and the margin of victory or defeat for each game that it played. From these we were then able to compute the measure of team strength as the team's average scoring margin over its opponents up to that point in the season.

FOCUS

We designed the variable to measure the degree to which bettors in Las Vegas were likely to be focusing on each team. *FOCUS* was a function of (1) the institution's proximity to Las Vegas and (2) the size of the team's institution. We determined the proximity score from the institution's distance from Las Vegas (in miles) by reversing its direction and rescaling it between 0 and 1 such that it was a linear function of the school's proximity to Las Vegas. The closest team (University of Nevada at Las Vegas) had a proximity score of 1, and the farthest team (University of Hawaii, 2758 miles away) had a proximity score near 0. Institution size was based on the school's 2001 undergraduate enrollment, which provided a very rough proxy for the relative number of likely fans in each team's primary fan base.

Results and Discussion

Descriptive statistics

Initial findings are consistent with the results of other betting market studies. The opening and closing betting line were adequate predictors of actual outcomes, with both correlated .66 with game final score differentials. About half the time (49.62%) the team favored by the opening line won by more than the line predicted, and half the time it did worse (49.96%). The rest of the time (.42%) the final scoring margin was equal to the opening line.

Line movement was generally small, with a total range of 14 points (-7.5 to 6.5) from the perspective of favorites. The average movement was slightly toward favorites at 0.0884. Taking the absolute value of line movement in each game and averaging across all games shows that the average amount of line movement was 1.4 points (*SD* = 1.2 points) per game. Correlation between the opening and closing line was .99. At both the opening and closing lines, basic betting strategies such as betting on favorites, underdogs, home teams, or away teams were all successful less than the 52.4% needed to make betting profitable.

Hypothesis testing

Or hypotheses predict that competitive confidence will be overly influenced by focal competitors' capabilities and insufficiently influenced by opponents' capabilities, and that this will result in overconfidence among those focused on strong competitors. We tested our hypotheses through regression analyses using line movement as the dependent variable and the game as the unit of analysis. The control variables included the opening line and the game's final score. The other independent variables were school *FOCUS*, *STRENGTH*, and the *FOCUS* **STRENGTH* interaction term for each of the two teams playing. For each game, we took the focal team (Team 1 in the regression) to be that team whose *FOCUS* score was the higher of the two teams playing. The results of this regression appear in Table 1.

The significant, positive effect of the *FOCUS *STRENGTH* interaction term is consistent with our hypotheses. The results suggest that colleges whose fans could more easily get to Las Vegas to bet (because there were many of them and/or they were close to Las Vegas) saw more betting on their teams, but only when those teams were strong. It is worth noting that although the *FOCUS *STRENGTH* interaction term is significant for the focal team ($\beta = .15$, $p < .05$), it is not significant for the opponent, Team 2 ($\beta = -.01$, n.s.). This is consistent with the notion that opponent capabilities are not taken into account sufficiently.

Naturally, we would expect this focusing effect to have a larger influence on games in which there was a large disparity between the two teams with respect to Las Vegas bettors' focus on them. For example, when Arizona State University played the University of North Carolina, we would expect that Arizona State might have had more bettors in Las Vegas focused on them because the institution is both big and relatively close to Las Vegas. Using this logic, we can divide games into thirds based on the disparity between the two teams in their *FOCUS* scores. For each third, we can test the relationship between the focal team's *STRENGTH* (as measured by the average points over opponent at that point in the season) and movement in the betting line. The result is three correlations of .16, .24, and .33. The first of these correlations is for the one third of games in which the two teams were most similar in *FOCUS* scores. All three correlations are significantly different from zero ($p < .01$), and the third is significantly greater than the first, $p < .05$. Consistent with our predictions, when the disparity in bettor focus is greatest, the focal team's strength wields an undue influence on movements in the betting line.

Two additional features of the results in Table 1 merit mention. First, the opening line has a significant influence on line movement. The negative sign on this coefficient suggests that line movement tends to moderate extreme opening lines. When the opening line implies a particularly extreme prediction of the game's outcome, bettors bet on the underdog, and the resulting line movement implies a less extreme prediction. Second, while the hypothesized effects we have found are statistically significant, they are very small. As we mentioned previously, the line moves an average of 1.4 points per game. The regression we conducted had an R^2 value of .11, meaning that all the predictor variables we included, in combination, only account for 11% of the total line movement. The unique influence of the *FOCUS* **STRENGTH* interaction term is a small fraction of this line movement.

Our results suggest that focusing biases have a predicable effect on line movement. What is noteworthy is not only that bettors show the tendency to bet on their teams most strongly when the teams are good, but also that the book makers do not anticipate it. If this pattern in betting behavior exists, why do book makers not incorporate into the opening line as other such biases appear to be (Avery & Chevalier, 1999)? One possibility is that, because the effect is small, the betting line would only need to be adjusted by fractions of a point that are below the minimum increment of .5. Also, a line bias in itself is not a problem for the book makers. The inefficiency only becomes a problem for the book maker if it leads to a profitable betting strategy (Gray & Gray, 1997), which does not appear to be the case for the effect we document. Finally, the small size of the effect may help the bias avoid detection from sports books in the first place. In any case, the fact that this bias exists at all in the high-stakes Las Vegas sports betting market is testimony to the influence that focusing effects can have on predictions.

The results are important given the large number of people poised to take advantage of inefficiencies in the market and thereby correct them. At the same time, field studies such as this one are also necessarily fraught with problems. It is based on a number of assumptions, including the fact that alumni of a university are fans of (and focus on) its football team, and that proximity to Las Vegas is a good proxy for the frequency with which these individuals bet in the Las Vegas sports books of the three casinos from which we were able to obtain data. Our second study seeks to address these limitations by directly examining the beliefs of the competitors themselves.

Study 2

So far, our contention has been that opponent capabilities are too often neglected. As a result, we predict that confidence will be relatively insensitive to the strength of the competition. When competitors are universally strong, we expect to find that they are likely to be more optimistic about their chances of winning than they will be when all competitors are weak. In contests composed of weak competitors, we do not expect to observe overconfident estimates of success:

Hypothesis 3: Overconfidence will be reduced among weak competitors, even when they compete against weak opponents.

We should note a departure from the way egocentrism has been studied in the organizational literature. Prior work has examined the ways in which egocentrism leads people to self-serving judgments, such as the beliefs that they are more deserving, fair, ethical, or virtuous than others (Babcock, Loewenstein, Issacharoff, & Camerer, 1995; Drolet, Larrick, & Morris, 1998; Greenberg, 1990; Messick & Sentis, 1983; Wade-Benzoni, Tenbrunsel, & Bazerman, 1996). Instead, we hypothesize that self-focus can eliminate the belief in the superiority of one's own side. There has been some important work that has highlighted the potentially self-critical nature of egocentrism (Ross & Sicoly, 1979). However, such work is specifically about a focus on the self, and has not previously been shown to apply to group or organizational identities. Instead, we show how confidence about future victories is moderated by the asymmetry of people's focus on their own teams, groups, and organizations relative to their focus on their competitors.

Method

Participants

Participants were recruited from a pool of 722 Carnegie Mellon University undergraduate and graduate students who were members of the university's four intramural soccer leagues. There were a total of 78 teams across four leagues: major, intermediate, minor, and women only. Teams were sorted into these respective leagues based on strength, with the best teams placed in the major league, weaker teams in the intermediate, and still weaker teams in the minor league. Teams in the women only league tended to be the weakest of all since better female players routinely played for teams in the other leagues. The larger leagues were further subdivided into divisions of between four and six teams. All 722 members of the four intramural leagues were invited through email and campus fliers to participate in the study by completing an internet questionnaire on upcoming league playoff match-ups. Participants were eligible to win a $100 cash prize lottery, with the probability of winning directly proportional to the accuracy of predictions on which teams would win the playoff matches. A total of 180 players out of the 722 in the pool completed the web-based questionnaire. The players in the sample were representative across leagues as well as individual teams in the sense that all teams were represented and no one team or league dominated the sample.

Procedure

An internet questionnaire was accessible to participants during the period between the end of the regular season and the announcement of actual playoff match-ups. The website presented participants with all possible pairings of teams in their respective divisions and asked them to make predictions about the outcomes of possible post-season playoff matches. Questions used the following format: “If Team A were to meet Team B, what is the probability that Team A would win?” The order in which teams appeared in the questions was counterbalanced. All data were collected before the actual playoff matches had been announced.

Results

We computed each participant’s confidence as his or her average predicted probability of winning, both for his or her own team and for other teams. These predictions were used as dependent variables in mixed ANOVA with three independent variables: league (which varied between-subjects and had four levels), target (which had two within-subject levels: own team vs. other teams), and order (which was a between-subjects variable that controlled for our counterbalancing of the question’s order). This analysis was carried out at the level of the individual participant and also included each participant’s team’s record of wins as a measure of team capabilities.

The results reveal that participants estimated that their own teams would be more likely to win (M = 67%, SD = 24%) than would other teams (M = 52%, SD = 17%), F (1, 107) = 33.9,

$p < .001$. The results also reveal the sensible result that teams with more wins were predicted to win more often, F (1, 107) = 75.6, $p < .001$. However, these two main effects are qualified by a significant target X record interaction, F (1, 107) = 75.6, $p < .001$. This interaction (illustrated in Figure 1) shows that, consistent with Hypothesis 1, the effect of the focal team's record of wins on predictions of future success was stronger when members of that team were the ones making the prediction than when others were making the prediction. For example, members of teams with a record of four net wins predicted their team had over a 90% chance of winning its potential playoff games. Players predicted that teams with a record of four net wins for which they themselves were not members only had a 70% chance of winning their playoff games.

The results also reveal another main effect for league: The stronger the league, the more likely its teams were predicted to win, F (3, 107) = 5.33, $p = .002$. However, this main effect is qualified by a significant target X league interaction, F (3, 107) = 5.3, $p = .002$. This interaction (illustrated in Figure 2) shows that, consistent with Hypothesis 3, the effect of the focal team's league was stronger when members of that team were the ones making the prediction than when others were making the prediction. Players in the women's league (lowest competitive level) predicted that their own teams had a 56% chance of winning any given game, while players in the major league (highest competitive level) predicted that their own teams would have an 81% chance of winning any given game. Players in the major league held these confident beliefs even though their potential opponents were also of the highest quality.

Discussion

The results suggest that participants were, on average, overconfident regarding their performance, given that the average predicted probability of winning was above 50% across all competing teams. Our more interesting result is that our respondents' level of confidence was moderated by their teams' records. Respondents predicted better future performance for their own teams than they did for other teams, but this difference between predictions for the respondents' own teams and other teams decreased when the performances of respondents' teams were bad. Members of teams with a record of two net losses or worse predicted their team had less than a 50% chance of winning its potential games, similar to the predictions made for those teams by non-members. The tendency to overestimate their own teams' future performance (relative to others' predictions for their own teams' future performance) increased substantially for members of good teams.

This was also true across leagues. The worst teams in the weakest league showed the least overconfidence, and the best teams in the strongest league showed the most overconfidence. Players in the stronger leagues were consistently more confident about their teams' probability of winning post-season games than were players in the weaker leagues.

The data from Study 2 are imperfect in a number of ways. Most notably, team strength may be confounded with players' commitment, and it is possible that players' motivation leads both to the team's success and to overconfident predictions of future success (Kunda, 1990; Sanitioso, Kunda, & Fong, 1990). It could be that the greater levels of confidence expressed by members of better teams are a result of the fact that teams perform better when their players are committed to their team's success. The third study addresses this shortcoming and attempts to test our hypotheses in a different competitive domain in which we ask participants to predict the performance of teams of which they are not members.

Study 3

In this third study, we asked participants to make predictions about the future performance of professional basketball teams in the NBA. We expected that when people naturally focus on a particular team (e.g., because they care about whether that team wins or loses), the team's strengths and weaknesses would feature more prominently in predictions. As a result, when focused observers are making predictions about teams they particularly love or hate, they will be more confident of the teams' chances of winning in the future when those teams are strong. However, the predictions of less focused observers (e.g., people who do not care whether the team wins or loses) will not show this bias to the same extent.

Method

The study was conducted during the break in the 2003-2004 NBA professional basketball season around the league's All-Star Weekend. Participants were provided with information about each team's performance during the first half of the season and were asked to use that information as well as their own knowledge to predict each team's performance in the second half of the season. In this study's results, we compare participants' predictions with the optimal use of the information we provided them, and find that, as hypothesized, their focus on a team interacts with the team's actual strength to influence their predictions.

Participants

A total of 136 students in three different undergraduate business courses at Carnegie Mellon University were asked to complete a questionnaire that asked them to predict the performance of teams in the NBA. As in Study 2, participants were eligible to win a lottery based on the accuracy of their predictions. Here, the lottery winner would win the right to decide which charitable organization would receive a $100 donation. One hundred four students completed the questionnaire about the 29 teams in the NBA. However, because some participants failed to answer some questions for some teams, we only have 2998 rather than 3016 team-level observations.

Procedure

Participants were directed to a website that presented them with two pages of questions, the order of which was counterbalanced. One page of questions involved predicting what percentage of games would be won during the second half of the season (a span of approximately 30 games) by each of the NBA's 29 teams. We provided information on each team to reduce noise in the data by ensuring that all participants had at least a minimum amount of information upon which to draw. This information included two indicators of prior performance: (1) record of games won and lost in the first half of the season and (2) record in the last 10 games played. It also included two facts about each team's second-half schedule: (1) a measure of second half schedule difficulty, namely the combined win-loss record to date of all opponents to be played and (2) the split between home and away games left to play. We expected that first half record, record in last 10 games, and home/away ratio would be positively related to second half performance while record of remaining opponents would be negatively related. These predicted relationships were not divulged to participants.

The other page of questions asked participants about both their knowledge of and rooting interest for each team. Participants rated their knowledge of and rooting interest for each team on 5-point scales.

Measures

STRENGTH

We measured the strength of each team as its winning percentage in the first half of the season.

Confidence

We measured confidence in the given team as the predicted percentage of games that the team would win in the second half of the season.

Knowledge

We measured participant knowledge about each team as the reported score on the knowledge question from 1 (for "Very Low") to 5 (for "Very High").

Liking and Disliking

We coded the question on rooting interest using the range -2 (for *"strongly dislike"*) to 2 (for "*strongly favor*"). Positive responses (1 or 2 on the rooting scale) were coded as 1 or 2 on the Liking measure with all others coded 0. Similarly, negative responses (-1 or -2 on the rooting scale were coded as 1 or 2 on the Disliking measure with all others coded 0. We then standardized the liking and disliking measures using z-transformations.

Results and Discussion

Table 2 shows means, standard deviations, and bivariate correlations between the measures. A few aspects of these results merit mention. First, the correlation between performance in the first half and performance in the second half is strong, $r = .71$. Second, the correlation between people's predictions and teams' actual performances in the second half is weaker, $r = .49$. On average, people could have made better predictions than they did by simply predicting that each team would win games at the same rate in the second half as it did in the first half. Third, as Figure 3 would suggest, it would appear that the relationship between a team's previous winning percentage and whether people root for the team is curvilinear. Teams that win more often are more likely to be loved or hated. However, while teams that perform well have more fans or enemies, this relationship is modest in the current data set. The correlation between participants' rooting interest and performance in the first half of the season is only .09 for liking and .05 for disliking. Fourth, people know more about teams that they like ($M = 3.94$). People report knowing less about teams they dislike ($M = 3.04$), and the least about teams about which they are indifferent ($M = 2.35$).

Hypothesis 2 predicts that the effect of team strength on predictions of future performance would be magnified by participants' focus on that team. Thus, we hypothesized significant interactions between *STRENGTH* (i.e. the team's record in the first half of the season) and both liking and disliking on participants' predictions of performance in the second half. The key test for our hypothesis was conducted using a linear mixed model. The results of these analyses are presented in Table 3. This table juxtaposes the models in which participants' predictions serve as the dependent variable (Models 1-4) with the optimal prediction models in which teams' actual second-half records serve as the dependent variable (Models 5-8). Individual participants were included as random effects in all models but do not appear in the table. The coefficients presented in each model have been standardized.

As hypothesized, *STRENGTH* does interact with disliking, but contrary to our hypotheses, its interaction with liking is weak (see Table 3, Model 3) One explanation for this may be that liking only had a "wishful thinking" effect (Krizan & Windschitl, 2007). The more someone is rooting for a team, the more they believe they will win regardless of the strength of the team. However, the absence of a Liking*STRENGTH* interaction effect may be attributable to a more substantive explanation. Liking has a strong correlation with the knowledge held about a team (r = .41). We speculated that when fans liked a team, they knew more about it, and then that team's prior strong performance dominated predictions of the team's future success. Indeed, we found that *STRENGTH* interacts with knowledge as predicted (see Table 3, Model 4). The addition of this Knowledge**STRENGTH* interaction is significant ($\beta = .12$, $p < .05$) and its inclusion improves the fit of the model ($\chi^2 = 4.16$).

None of these subjective factors were actually useful for predicting teams' actual performance in the second half of the season, as the inclusion of those variables does not improve the fit of the model ($\chi^2 = 7.39$, n.s.; $\chi^2 = 4.29$, n.s.; $\chi^2 = 0.90$, n.s). As the second half of Table 3 shows, the four objective pieces of information given to each participant did prove useful for predicting performance in the second half ($\chi^2 = 5495.42.$, $p < .001$). Only two of these indicators exerted a significant influence on participants' forecasts, the team's first half winning percentage ($\beta = .73$, $p < .001$) and the team's record in its last ten games ($\beta = .08$, $p < .001$).

It is also noteworthy that the strength of opponents in the second half of the season is significantly related to actual winning percentage ($\beta = -.13$, $p < .001$) but not to predicted winning percentage ($\beta = -.07$, $p =$ n.s.). This result highlights an important feature of the bias we document, specifically the fact that focusing on one competitor implies insufficient focus on the other side. Normatively, when predicting the outcomes of competitions, people should make assessments based equally on both competitors. However, as we show, the opponent is not always taken into sufficient consideration. It appears here as if the opponents' strength is underweighted, but we must also note that this measure of differential weighting is not typical because we provided participants with these strength measures, rather than eliciting them from participants. In Study 4, we use more standard elicited strength measures.

Furthermore, our post hoc analysis from Study 3 lends further support for the crucial role that knowledge plays in competitive judgments. In Study 3, we obtained our measure using only self-reported values from a scale. Study 4's design allows us to track participants' actual acquisition of information about each side in the contest to further investigate this important issue.

Study 4

Study 3 suggested that participants had more information about the teams on which they are focusing than they do about their opponents, but we have not yet demonstrated why this occurs. It is often reasonable to assume that people have access to more information about their own side. However, our theory leads us to make an even stronger claim, namely that when gathering information, people will attempt to collect more information about their own side than they will about the opposing side. In this study we test this hypothesis:

Hypothesis 4: People seek out more information about their own side than they do about their opponents.

We have not tested the mediating relationship our theory predicts—that the asymmetric focus on and asymmetric information about one's own side compared to the competition drives the outsized influence of the capabilities of one's own side on predictions of competitive outcomes. Study 4 tests this hypothesis as well:

Hypothesis 5: Disparities in the information individuals collect about their own side and opponents will mediate the effect of their own side's strength on the predicted chances of winning.

Method

Participants and Task

Participants were 158 undergraduate students at Carnegie Mellon University. They participated in exchange for course credit and also had the opportunity to win cash prizes based on the accuracy of their predictions. Participants were asked to make predictions about a game that was played during Week 9 of the 2005 season of the National Football League (NFL). Before making these predictions, they read a passage about one of the teams and were given the chance to view statistical information about the prior performance of each team.

Participants were assigned to one of three team match-ups. The strong-strong game featured two of the strongest teams in the league; the weak-weak game paired two of the weakest teams; the strong-weak game pitted a strong team against a weak opponent. Strong teams had won at least 75% of their games and weak teams had won at most 25%. The focal team and the opponent were counterbalanced. So for the strong-strong game between the New York Giants and the Seattle Seahawks, half the participants predicted whether “their team” (unbeknownst to them, the Giants) would beat the “other team” (unbeknownst to them, the Seahawks). For the other half, the Seahawks were the focal team and the Giants were the opposition. This same procedure was used for the weak-weak game pitting the New York Jets against the New Orleans Saints and the strong-weak game between the Cincinnati Bengals and the Baltimore Ravens.

Procedure

First, participants read an instruction packet that outlined the task, including a detailed overview of the information viewing program they would be using. In this overview, they also were provided with the league-wide averages and ranges of each performance statistic. They were also told that their participation made them eligible for a number of cash prizes (ranging in value from $10 to $30), and that they started out the experiment with 10 lottery numbers for this lottery.

Because we wanted to manipulate participants’ focus and examine how they gather information, we presented each team and their performance statistics anonymously so as to minimize the influence of existing team allegiances and knowledge. However, in order to induce participants to focus on the target team, we had them read a brief written passage designed to focus attention on the focal team (Kahneman & Lovallo, 1993; Moore & Kim, 2003). This passage described teams using very general language (e.g. “Your team plays most of its games on Sundays”) and included the same text in all conditions.

After reading this passage, participants viewed boxes on a computer screen containing information about the two teams. There was a pair of boxes for each team’s winning percentage, points scored per game, yards gained per game, points allowed per game, and cumulative turnover differential. Thus, participants had the opportunity to view ten total pieces of information across the two teams (five statistics for each of the two teams). We used the Mouselab (Johnson, 1996) program to collect data on what information participants viewed and for how long. Participants had to click on a box to open and view its contents and then had to close it again before they could open a different box. They were told that they could open one box at no cost. For each additional box they opened, it would cost them one of their ten lottery numbers. This feature was included to parallel the real costs of gathering intelligence (such as time and money). Viewing the same box multiple times carried no additional cost.

After they had viewed as many of the statistics as they wanted, participants completed prediction sheets for which they were asked to provide a probability estimate that their focal team would win the game. Participants could earn up to an additional 30 lottery numbers for accurately predicting the game's outcome. In order to encourage participants to report their best estimates of the probability of their team winning, we used the quadratic scoring rule (Selten, 1998). It rewarded high probability estimates when the focal team won and rewarded low probability estimates when the focal team lost.

Finally, participants were asked to rate each team's strength on a 100 point scale and guess the identities of the two teams in their match-up.

Results

Manipulation Checks

Participants' perceptions of team strength corresponded with the assigned conditions for each of the match-ups. Weak teams were rated as weak (mean strength rating = 29.9, SD = 14.8), and this is significantly below the scale midpoint of 50, $t\ (101) = 13.75$, $p < .001$. Strong teams were rated as strong (M = 74.5, SD = 11.12), and this is significantly above 50, $t\ (80) = 19.8$, $p < .001$.

In presenting participants with their given match-up, we concealed the identities of the two teams. For the most part, this was successful, as only 4.4% of participants guessed the true identity of their own team and only 1.9% guessed the identity of the opponent. Neither of these are significantly different from the 3% hit rate we would expect if participants were guessing randomly (given that there are 32 teams in the NFL), *Chi-squared* (1) = .90, p = .343 for own team and *Chi-squared* (1) = .78, p = .377 for opponent.

Estimated probability of winning

Despite the minimal emotional investment participants had in the team that we assigned them, they nevertheless tended to make predictions favoring “their” teams. On average, participants predicted that “their” team had a 54% chance (*SD* = 20%) of winning, and this is significantly above 50%, t (157) = 2.66, $p < .01$.

However, consistent with our Hypotheses 1 and 2, this general effect was moderated by the strength of the competitors. When both competitors were strong, participants predicted that their team had a 58% (*SD* = 16%) chance of winning. When both competitors were weak, participants predicted a 51% chance (*SD* = 18%) of winning, and these two means are significantly different from each other, t (131) = 2.54, p = .012. The elimination of overconfidence in the weak-weak condition is, of course, consistent with Hypothesis 3.

Naturally, participants in the strong-weak condition estimated a high probability (*M* = 82%, *SD* = 10%) and participants in the weak-strong condition estimated a low probability (*M* = 29%, *SD* = 14%) that their teams would win.

Information gathering

Furthermore, consistent with Hypothesis 4, participants gathered more information about their own teams than they did about their competitors. They looked at an average of 2.06 (*SD* = 1.01) different pieces of information about their own teams but only 1.82 (*SD* = 1.12) about their competitors. This difference is revealed to be significant by a paired-samples t-test, t (153) = 3.93, $p < .001$. In addition, they looked at information about their own teams (M = 43.5 seconds, SD = 48 seconds) over twice as long as they did for opponent information (M = 19.1 seconds, SD = 38 seconds), t (153) = 5.66, $p < .001$.

Mediation tests

We predicted that the focus on one particular team would lead participants to selectively gather information about that team, and that this selective information gathering would lead people to make more extreme estimates of that team's strength (stronger for strong teams and weaker for weak teams). Finally, we predicted that these more extreme estimates of focal teams would make people more like to predict victory for strong teams and defeat for weak teams. In order to conduct a comprehensive test of this mediational hypothesis, we needed a measure of the degree to which participants expected strong teams to win and weak teams to lose. So we took participants' predicted win probabilities and, for weak teams, subtracted the predicted win probability from 100%.

Consistent with the analyses reported above, our manipulation of focus was positively correlated with these predicted outcomes, because focusing on a team made participants more likely to predict victory for strong teams and defeat for weak teams, as indicated in Table 4, Model 1. This relationship, however, is completely mediated (using the criteria offered by Baron & Kenny, 1986) by the tendency for participants to look longer at information about the focal team as summarized in Table 4, Models 2 and 3 (Sobel test; $z = 3.39$, $p < 0.001$). Furthermore, the effect of this differential attention on predicted outcomes is partially mediated by differences in the extremeness of estimated strength of each team, as summarized in Table 4, Models 4 and 5 (Sobel test; $z = 3.01$, $p < 0.01$). These results are consistent with Hypothesis 5.

Consistent with our predictions, participants spent more time looking at information about their teams than their opponents. This led them to make more extreme estimates of the capabilities of their teams than of the opponents, rating their teams as stronger when the teams were strong and weaker when the teams were weak. This difference in extremeness then tended to lead participants to predict that their teams were more likely to win when they were strong and less likely to win when they were weak.

Discussion

We must note the modest size of the effects in this study. We believe that this is in large part due to the fact that the allegiances people felt to the teams assigned them was likely to have been quite low. Nevertheless, these results provide some crucial support for the hypothesis that individuals attend more to their own side than they do to the opponent. This is consistent with prior research showing the greater influence of evidence concerning focal hypotheses (Fox & Levav, 2000; Idson, Krantz, Osherson, & Bonini, 2001). Moreover, people often have access to more intelligence about their own side and put more trust in the source of that information. It is therefore not surprising that they would rely more upon it (Kruger, Windschitl, Burrus, Fessel, & Chambers, in press). However, we demonstrate that these natural tendencies are exacerbated by a bias toward self-focus in the information acquisition stage itself. When given equal opportunity to gather information about both sides, participants tended to select the information about their “own” team.

General Discussion

Knowing how to place winning bets depends on being able to accurately predict the outcomes of games. Knowing whether to enter a new market depends on forecasting one’s performance relative to one’s competitors in that market. Knowing whether to invest in additional productive capacity depends on anticipating how the firm will perform relative to other incumbents in the market. The evidence presented here suggests that human prediction is systematically imperfect. Specifically, when predicting the outcomes of future competitions, people attend too closely to focal competitors and attend insufficiently to the influence of opponents. The effects we document are the result of an information search that is simpleminded in the sense that Cyert and March (1963, p. 121) used the term: Decision makers relied too heavily on information about their own teams—information that is often easy to obtain and is close at hand—and failed to attend to information about the competition.

In this paper, we have demonstrated this effect several different ways. Each of the four studies finds similar patterns in the predictions of the outcomes of athletic contests. In each case, strong teams were predicted to be more likely to win by those focusing on them than by those not focusing on them. The first study found initial support for the effect in the movement of the betting line from sports books in Las Vegas casinos. Though mostly suggestive, the results motivate the direct tests of our predictions in the other three studies. The second study examined predictions of who would win match-ups in intramural soccer competitions and found that when making predictions regarding their own teams (on whom they were presumably focusing), people were significantly more confident than were others, but especially when the team was good. The third study replicated this effect when respondents were asked to predict the performance of professional basketball teams of which they were not members, but whom they happened to be supporting or otherwise following. The fourth study replicates these effects and also provides process evidence of how asymmetric information gathering about the focal team and the opponent lead to myopic predictions of competitions.

What We Did Not Find

We should point out two things that we did not find. Although our theory of focusing biases in comparative judgment would imply that those focused on weak teams could predict them more likely to lose than would those not focused on them, we did not find this effect in our studies. We believe that the reason for this failure is not that the effect only works in the positive domain. After all, numerous studies have already documented the tendency for people to believe that they are actually *below* average on difficult tasks (Kruger, 1999; Moore & Kim, 2003; Moore & Small, 2007; Windschitl et al., 2003). A more plausible explanation for our failure to find the worse-than-average effect in our sample is that it was cancelled out by a general tendency toward optimism. Evidence has found that wishful thinking leads people to make optimistic predictions for one's preferred team (Babad, 1987; Babad & Katz, 1991; Price, 2000). Indeed, the strength of this wishful thinking effect seems stronger in athletic contests than elsewhere (Krizan & Windschitl, 2007). This optimism obviously can exist concurrent with the focusing bias we have described. Such concurrence would mean that while predictions regarding the future performance of one's preferred team are consistently overoptimistic, those predictions are also more strongly influenced by the focal team's abilities than are predictions for other teams. In keeping with this, we should note that in Study 4, where participants' affiliations with teams was the weakest, we did find some evidence of worse than average effects, as those participants predicting the game between two weak teams who had the greatest information viewing disparity between the focal team and the opponent believed the focal team had less than a 50% chance of winning the game.

A second possible explanation is that our studies did not really include any truly weak teams. Studies 1, 3, and 4 all included professional athletes. Meanwhile Study 2's contestants, while not professionals, were nevertheless players who had self-selected into playing on an intramural team. The contestants were not, as in other studies, assigned to tasks randomly once they showed up to the experiment. Perhaps if we had been able to include some truly incompetent teams playing against other incompetents, we would have found that predicted probabilities of winning would fall farther below 50%.

Something else that we did not find was strong evidence for differential weighting. In Studies 1, 3, and 4 we had measures of team strength that were separate from our participants' comparative judgments of the likelihood that one team would beat another. Differential weighting would manifest itself in higher weightings of the strength of one's own team compared to the opponent's strength when these two were used as independent variables and the predicted chance of winning was the dependent variable (Chambers & Windschitl, 2004; Moore, 2007). The results of Study 3 do appear to show that the focal team's strength is weighted more heavily than the competition, but this is a logical consequence of the way the question was asked. Participants predicted the average winning percentage over the second half of the season against a variety of different opponents. As a result, the average strength of this set of diverse opponents had less variance, and so less room to exert an influence, than did the strength of the focal team, which varied much more widely. The optimal models (Columns 6-9 of Table 3) show that in this context, differential weighting is indeed sensible.

By contrast, there is little evidence of differential weighting in the results of Studies 1 and 4. Instead, the causal factor in producing myopic predictions appears to be selective information acquisition. This is most clear in Study 4. Participants collected more information about the focal team and so made better estimates of its capabilities. Participants knew less about the opposition, and so tended to overestimate the capabilities of weak teams and underestimate the capabilities of strong teams (cf., Brenner et al., 1996). When it came time to predict who would win, participants appear to have weighted these two individual team estimates similarly.

Implications

The effects we document suggest a systematic blindness in strategic vision. All four studies suggest that when making predictions about future competitions, people neglect to make adequate consideration of the competition. We do not believe that such inattention to the competition is unique to athletics. Indeed, for the reasons outlined in the introduction, we believe that athletic competitions furnish a conservative test of our hypotheses, and that the biases we document may be stronger in competitions with more ambiguous outcomes and less clear feedback. For example, evidence suggests that negotiators tend to focus too much on themselves and too little on understanding the other side (Bazerman & Carroll, 1987; Bazerman, Curhan, Moore, & Valley, 2000; Moore, 2005; Neale & Bazerman, 1983). For instance, when considering buying something, people routinely fail to consider the seller's possible responses to one's offers and what they would mean for one's own optimal initial bid (Ball, Bazerman, & Carroll, 1991). Likewise, people fail to use the sensible principle of backward induction when anticipating the competitors' moves and counter-moves (Camerer, 2003). Results from this literature generally suggest that full consideration of competitors or the strategic setting quickly runs up against most people's cognitive limitations.

Our theory might be able to help account for a number of other empirical regularities. In sports betting, it is well known that betting volumes increase dramatically as the quality of the competition goes up: college sports receive fewer bets than do professional sports; games between weak teams receive fewer bets than do games between strong teams; and regular-season games receive fewer bets than do post-season games, in which only the best teams are represented (Manteris & Talley, 1991). The football game that sees the highest betting volume of all is the game between two of the strongest professional teams: the Superbowl (Manteris & Talley, 1991). Some of this could also be explained by it being more "fun" to bet on games with stronger competitors. However, it is entirely inconsistent with bettors' interest in betting to win money. Half the competitors lose, even in the Superbowl.

Other evidence suggests that entrepreneurs may be vulnerable to these same sorts of myopic biases when they decide whether to enter new markets. When the task is easy, too many competitors are eager to enter new markets to compete with each other; when the task is difficult, potential competitors are too reluctant to enter (Moore & Cain, 2007). This effect is moderated by entrants' attention to other potential competitors (Moore, Oesch, & Zietsma, 2007). This might help explain why rates of entry are often highest in "simple" industries such as restaurants, bars, retail clothing stores, and hobby shops (U.S. Small Business Administration, 2003). These are the industries in which a large number of people imagine that they know how to run a successful business, both because they have personal experience as customers and because many people share the required basic skills. However, the consequences of high rates of entry are intense competition and high rates of exit.

Of course, many industries have developed geographical consolidation such as that found in auto manufacturing in Michigan and computer technology in California's Silicon Valley. These local concentrations occur in part because the visibility of local successes helps build the confidence of other potential entrants (Sorenson & Audia, 2000). However, this has the ironic result of producing new entrants in precisely those locations where they are most likely to encounter strong competitors (Sørensen & Sorenson, 2003). Perceptions of difficulty are also likely to change over time as industries go through phases of legitimation and institutionalization

(Hannan & Freeman, 1989). High rates of successful entry can often make entry appear easy, and myopic entrepreneurs may be more likely to enter an industry in this phase. These businesses are also those most likely to fail when increasing organizational density leads to increased competition. Research on density delay has obtained results consistent with these expectations (Carroll & Hannan, 1989; Hannan & Carroll, 1992).

Prescriptions

Our results offer a clear practical message to managers, investors, and sports bettors. It is a lesson that is obvious in its truth but easily forgotten: Understand the competition. There is advice available for managers interested in understanding their competitors better (Fuld, 1985; Sammon, Kurland, & Spitalnic, 1994). However, this work assumes that the problem is getting inside information about rivals' corporate secrets. It does not address the fact that most managers will naturally have access to far more information about their own firms than about their competitors and that this information will be salient, individuated, and compelling (Kahneman & Lovallo, 1993). Managers who display the tendencies of participants in our fourth study and intentionally seek out more information about their own firms than about their opponents will only exacerbate the natural asymmetry in information and focus.

The prescription is clear: Managers need to actively seek out information on the capabilities of their competitors and incorporate that information into their judgments. Firms need to invest in intelligence regarding competitors and use that intelligence in their competitive analyses. New entrants ought to devote as much time to understanding their future competitors as to understanding their own capabilities. As Sun Tzu (500 B.C./2002) is said to have admonished military planners, "Know thine enemy as thyself." More recently, in an interview in which he was discussing the American failure to understand its enemy in Iraq, then Secretary of

State Colin Powell quipped that "even the most brilliant strategist must occasionally take into account the presence of an enemy" (O'Rourke, 2004). As fundamental a lesson as this is, it is routinely ignored. Human intuition is imperfect in its judgments, narrow in its attention, and bounded in its capacity. When people make strategic decisions that rely more heavily on their intuitions than on systematic and careful analysis, the result is that they will focus too much on what they know: themselves, their teams, and their organizations. Understanding how these biases operate is an essential step in reducing their costs, and we hope that the present research can contribute to this goal.

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TABLE 1

Results of Regression Analyses for Betting Line Movement (Study 1)

(Standardized β weights for independent variables)

	Model 1	Model 2	Model 3
Actual final score difference	0.12**	0.12**	0.12**
Opening line	0.01	-0.27***	-0.27***
Team 1 *FOCUS*		0.05	0.03
Team 1 *STRENGTH*		0.36***	0.23***
Team 1 *FOCUS*STRENGTH*			0.15*
Team 2 *FOCUS*		-.04	-0.03
Team 2 *STRENGTH*		-.25***	-0.24***
Team 2 *FOCUS*STRENGTH*			-0.01
R^2	.02***	.11***	.11***
Change in R^2		.09***	.01*

*p < .05

**p < .01

***p < .001

TABLE 2

Descriptive Statistics (Study 3)

Variable		Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.
1.	Predicted second half win percentage	.48	.19								
2.	Actual second half win percentage	.50	.16	.49							
3.	First half win percentage (Strength)	.50	.13	.64	.71						
4.	Record in last ten games	.50	.17	.48	.52	.62					
5.	Team's second half opponents' strength	.50	.03	.03	-.08	.08	-.03				
6.	Team's second half home game percentage	.50	.04	-.09	.21	-.18	-.07	-.01			
7.	Knowledge of focal team (1 to 5)	2.62	1.25	.05	.07	.06	.02	-.02	.04		
8.	Liking	0	1	.17	.07	.09	.04	.03	-.02	.41	
9.	Disliking	0	1	.08	.08	.05	.04	-.02	.03	.09	-.11

TABLE 3

Results of Linear Mixed Model Analyses (Standardized Coefficients) for (1) Participants' Predictions of Teams' Second Half Winning Percentages and (2) Actual Second Half Winning Percentages (Study 3)

	(1) Dependent Var.: Participants' predictions of 2nd half record				(2) Dependent Variable: Teams' actual 2nd half records			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Constant	0.00	-0.03	0.00	-0.02	-0.37	-0.37	0.00	-0.37
Actual second half win percentage	0.04	0.03	0.02	0.03				
First half win pctage (*STRENGTH*)	0.80***	0.78***	0.52***	0.78***	0.93***	0.93***	0.73***	0.93***
Record in last 10 games	0.14***	0.14***	0.13***	0.14***	0.08***	0.08***	0.08***	0.08***
Team's 2nd half opponents' strength	-0.07	-0.06	-0.01	-0.07	-0.75***	-0.75***	-0.13***	-0.75***
Team's 2nd half home game percentage	0.06	0.04	0.01	0.03	1.48***	1.47***	0.34***	1.47***
Knowledge of focal team		0.12***	0.12***	0.01		0.01	0.01	-0.04
Liking		0.09***	0.09*	0.13**		0.01	0.02	0.04
Disliking		0.03	-0.13**	-0.12*		0.03*	-0.06	-0.06
Liking*STRENGTH			-0.00	-0.05			-0.02	-0.04
Disliking*STRENGTH			0.16**	0.14**			0.09*	0.08
Knowledge*STRENGTH				0.12*				0.05
Overall χ^2	3523.39***	3826.24***	3852.93***	3861.96***	5495.42***	5516.35***	5528.45***	5530.99***
Likelihood Ratio χ^2		128.39***	11.40**	4.16*		7.39	4.29	0.90

$*p < .05$ $**p < .01$ $***p < .001$

TABLE 4

Results of Linear Regressions Testing Mediational Relationships (Table Cells Show Standardized β Coefficients), Study 4

	Model 1	Model 2	Model 3	Model 4	Model 5
Dependent variable	Predicted outcome	Difference in look length	Predicted outcome	Differential extremeness of rated strength	Predicted outcome
Manipulation of focus	.18*	.48***	.02	.06	-.01
Difference in look length			.33***	.28***	.17*
Differential extremeness of rated strength					.59***
Adjusted R^2	.03*	.23***	.11***	.08***	.42***

*$p < .05$

**$p < .01$

***$p < .001$

FIGURE 1

Estimated Probability of Winning as a Function of Teams' Regular Season Records (number of wins minus number of losses) (Study 2)

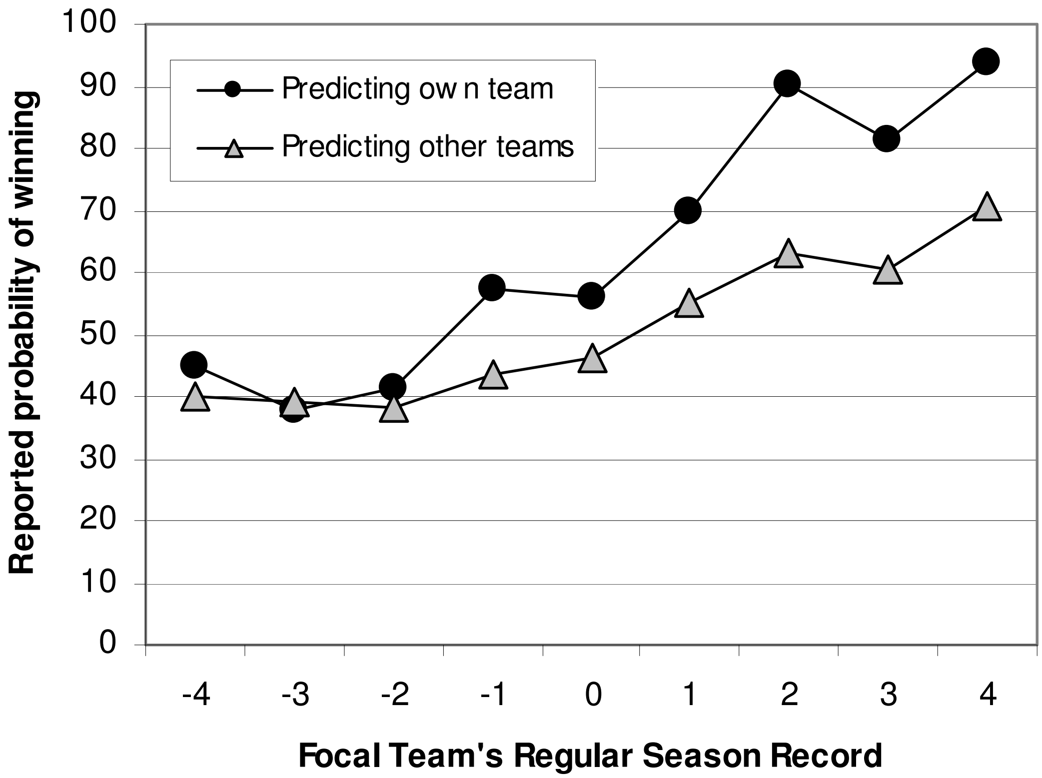

FIGURE 2

Estimated Probability of Winning as a Function of League (Study 2)

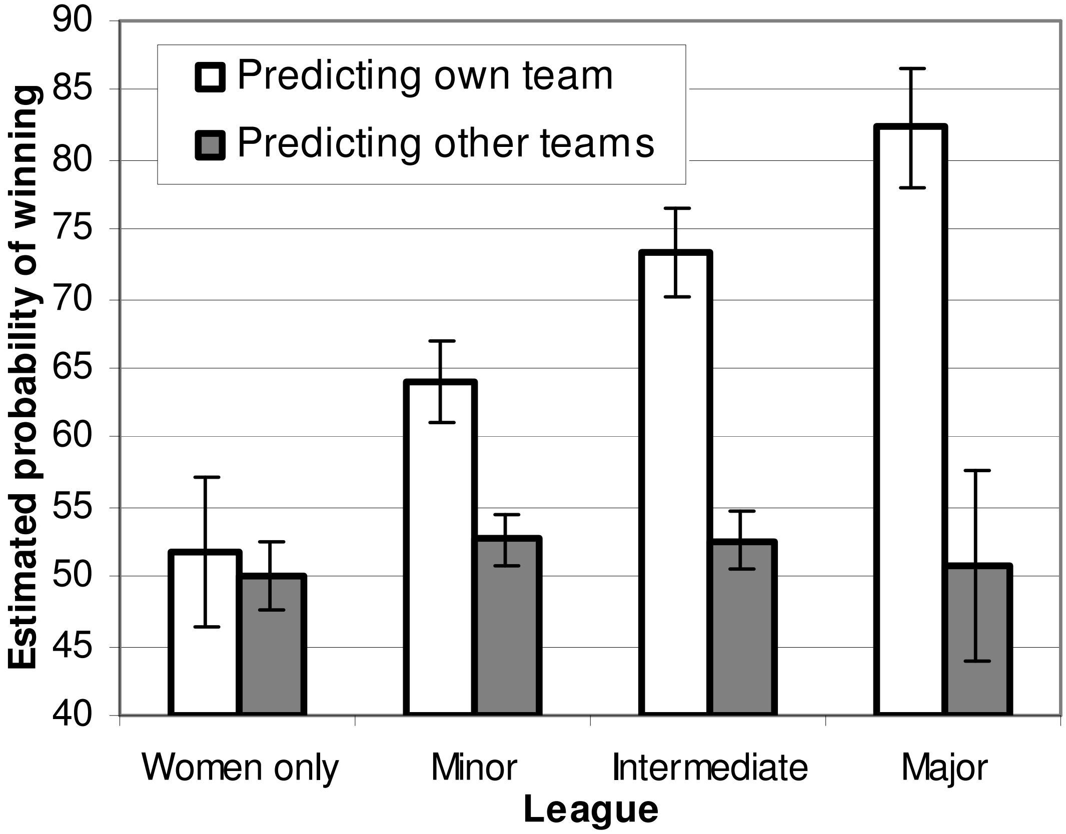

FIGURE 3

Actual and Predicted Percentage of Games Won as a Function of Rooting Interest

(Study 3)