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Neuropsychology Behind the Plate

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ABSTRACT
In baseball, plate umpires are asked to make difficult perceptual judgments on a consistent basis. This chapter addresses some neuropsychological issues faced by umpires as they call balls and strikes, and whether it is ethical to ask fallible humans to referee sporting events when faced with technology that exposes "blown" calls.

KEYWORDS
Perception; baseball; eye movement; umpiring; expertise

Introduction

'I never questioned the integrity of an umpire. Their eyesight, yes.' *Leo Durocher* (Light 2005, 303)

Baseball in America wouldn't be the same without heckling. While an underperforming player may become a target for insults, an umpire receives universal scorn and disrespect. Michael Tolley, the creator of the online insult repository www.heckledepot.com, stated that heckling in baseball is 'as much a part of the game as $5 hot dogs …' (McGovern 1999). Many of the top-rated umpire-directed heckles on Tolley's website center on visual impairment, including 'Lenscrafter called … they'll be ready in 30 min.', 'We know you're blind, we've seen your wife', and 'When your dog barks twice, it's a strike!' (Tolley n.d.) This impulse to tear down (or tear apart) umpires isn't unique to baseball, and can lead us to question what practical and ethical obligations players, umpires, and even sports fans have when trying to enforce the rules of our games. Previous work has investigated what it really means when an umpire makes a call, and what conflicts arise when that call is bad (Bordner 2015; Russell 1997). This paper will attempt to show how, from a neuropsychological perspective, it is truly impossible for umpires to live up to the standards we set for them, and that perhaps the lack of precision is exactly what makes games entertaining.

Performing under fire is nothing new for umpires, who are elite-level perceptual performers on par with the athletes on the field. The process of becoming an MLB umpire is arduous, and starts by attending a paid umpire school. After graduating near the top of their class, new umpires begin their career working in the lowest levels of professional baseball, progressing through each level of the minor leagues including Rookie, Class A Short Season, Class A, Double-A, and finally Triple-A (Rogers 1999). Even at the lower levels of the sport, umpires must show an ability to manage games, call pitches, and enforce all of baseball's myriad rules at each level. Those that cannot improve their accuracy within three years are dismissed. If an umpire manages to make it through to the Triple-A ranks, they have earned

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the right to be considered for a position in the major leagues. Many umpires do not make it past this stage, however, because turnover in the major league is so only about one opening per season. While the 68 Major League Baseball (MLB) umpires are well compensated, minor league umpires work for anywhere between $1900 and $3500 a month (MiLB.com n.d.). In a real sense, the path to becoming an MLB umpire requires 8–10 years of consistently high perceptual performance and low wages that create a pathway that is more selective than Juilliard, Harvard Medical School, or the US Navy SEAL training program.

Despite rigorous training and all their years of experience, major league plate umpires are incorrect in roughly 10–15% of their pitch calls behind the plate (Kim and King 2014; Moskowitz and Wertheim 2011). While incorrect calls have always bothered fans of the sport, the ability to easily scrutinize pitch calls grew considerably in 2008 when the MLB installed the PITCHf/x tracking system into every ballpark in baseball, a system which uses a set of cameras to track the location of a pitch 60 times per second (DiMeo 2007). PITCHf/x collects the velocity and trajectory of every pitch from every game, and has been integrated into television broadcasts directly, allowing viewers at home to see the exact location of the pitch relative to the strike zone in real time. In the past, fans had to use their own perception of the strike zone to lambast umpires, but now a blown call is broadcast for all to see in vivid HD. In a cruel twist of fate, modern video replay rules consider the calling of a ball or strike a judgment call by the plate umpire, and are not eligible for video review per MLB Rule 9.03a. This is a blow to the authority of the umpire, exposing the uncomfortable truth that a superior viewpoint and years of expert training still can result in a blown call (Collins 2010). Put plainly, umpires could get away with a lot more before the adoption of PITCHf/x, but their job isn't only getting harder because of increased transparency but also due to the performance of modern players.

Today's players are tracked using an impressive battery of performance metrics, but baseball's history extends so far into the past that modern statistics we take for granted, like the miles-per-hour of a given pitch, are simply not available. Given that baseball developed before the majority of US households had running water or flush toilets, it isn't surprising that there are few accurate estimates of pitch speed during baseball's first half century. This makes comparison of players from these early eras difficult, but some isolated examples exist. One of the earliest tests was conducted in 1917 when Hall-of-Famer Walter 'The Big Train' Johnson was at the height of his powers—the year before he would win his second of three Pitching Triple Crowns by leading the league in wins, strikeouts, and having the lowest earned run average (ERA). Scientists at a munitions laboratory in Connecticut recorded his fastball as reaching 91.36 miles per hour (Associated Press 1939). This speed, while considered dominant for the time, is below the average pitch speed of 92.0 miles per hour for the 2015–2016 season, including only pitchers that threw 30 or more innings (FanGraphs.com 2016). This is not to claim that Johnson couldn't cut it in the big leagues today, but simply to point out that the average speed of pitches was slower at that time. There are many possible reasons for this difference, including the fact that relief pitching, the act of swapping in a new pitcher once a starter shows signs of fatigue, had yet to be adopted to stave off injury and keep an arm 'fresh'.

In previous eras of baseball, pitchers would often play games on back-to-back days and throw at a deliberately slower pace to preserve stamina. Today's pitchers rarely play entire games and typically take at least five days to recover after each game started. Modern pitchers can push themselves to 'leave it all on the field', rather than worry about performance

the next day or even the next inning. The difference in velocity produced by MLB pitchers then and now means that the task of both modern batters and umpires is more difficult now than it was in the early days of baseball. One indication of this is that all of the all-time career batting average leaders had all retired from baseball before World War II, with the notable exception of Ted Williams, who interrupted his baseball career to serve in both World War II and Korea, and didn't quit baseball until 1960 (Baseball Reference n.d.). Perhaps the real fireballers of yesteryear could go toe to toe with today's stars, but the depth of pitching talent in the modern bullpen would have been unthinkable in the early twentieth century.

With increased knowledge of the biological and physical aspects of throwing a baseball, pitchers regularly throw harder than was once thought to be physiologically possible. Even with a decreased pitch count and increased time for recovery, in today's MLB it is rare for a pitcher to play for any length of time before blowing out the ligament in their elbow and undergoing Tommy John surgery. Joe Kelley, starting pitcher for the Saint Louis Cardinals, explained that 'In the end, Tommy John is like death. It's going to get you' (Goold 2014). In a real sense, pitching in major league baseball regularly surpasses the physical limitations of the human body, straining ligaments to the brink.

Amazingly, the neurological and decision-making limitations facing umpires and batters at the other end of sixty feet and six inches are far more complex than the physical limitation of pitching arms, and involve a series of perceptual and cognitive processes that are not yet fully understood. Although our knowledge of how to maintain, augment, and repair a pitcher's arm has increased over time, we have not made comparable strides in how to improve perception and decision-making. In a real sense, the brain of an umpire has changed little since 1871 and is forced to contend with twenty-first century technology. Our brains, despite their impressive computational abilities, are fundamentally limited in ways most people do not recognize.

The Eye, Saccades, and Neural Transmission Rate

Most people experience the world around them as a stable, static perceptual experience. While our visual world feels like it is perfectly rich and detailed, studying the basic structure of the eye reveals that our view of the world is a construction which is cobbled together by our brains. The retina only supports full-resolution viewing in the very center of our visual field in an area called the fovea, and visual acuity drops off rapidly toward the periphery. Our eyes move to keep this sensitive area focused on different important areas of the world in front of us, gathering new information two to three times per second every moment that we are awake. When an object moves, our eyes either snap from one location to another or follow an object using a reflex that allows for smooth pursuit, effectively allowing us to 'keep our eye on the ball'. Both types of eye movements have their drawbacks, as a movement that abruptly jumps from one location to another induces momentary blindness during the transition and smooth eye movements work only when the object viewed moves slowly enough to be tracked on-the-fly.

Instead of moving their eyes to track an action, research in the laboratory and the field suggests that the best performers 'lock-on' to a specific target or and keep a 'quiet eye' before performing an action, meaning that they fixate their eye earlier and linger longer than average (Vickers and Adolphe 1997). In a study which tracked the eyes of umpires, researchers

found that experts set their gaze earlier and lingered longer than near-experts, suggesting that umpires who develop the ability to keep their eyes locked in a position, typically the release point of a pitcher, may be more successful than those attempting to follow the ball (Millslagle, Hines, and Smith 2013). This skill was also found in batters, who have a tendency to keep their eyes quiet but to make tracking motions with their heads when trying to hit the ball (Shank and Haywood 1987). Simply tracking the ball isn't enough, however, as batters are regularly faced with predicting where and when the ball will travel, a task made even more difficult with pitches that may rise, fall, break, or arrive off speed.

While umpires get a reprieve from having to understand when the ball arrives at the plate, they are held to a high standard when proclaiming where it arrives. The visual system of an umpire faces the same basic issue that all humans face each day—making sense of a three-dimensional world given two-dimensional input. While the PITCHf/x system can utilize several high-resolution cameras strategically placed at divergent angles around the ballpark, umpires are forced to analyze information from their position behind the catcher. In addition to the demands of tracking the three-dimensional flight of a ball utilizing a single viewpoint, umpires are forced to contend with the raw speed generated by pitchers. In calculations of speed, the average pitch in major league baseball will travel from the pitcher's hand to home plate in approximately 400 ms (Adair 2002). If it wasn't difficult enough to form a perceptual estimate after viewing such limited input, batters, catchers, and umpires are forced to contend with the questionable architecture of the visual system.

In the primate brain (along with many other mammals), the most powerful region associated with visual processing is located far away from the eyes at the back of the head. This quirk of cerebral real estate means that it takes any visual signal additional time to travel to the back of the head for processing. In macaque monkeys, this signal takes on average 77 ms to reach the back of the monkey head (Nowak, Munk, Girard, and Bullier 1995), and will take longer inside our bigger human skulls. In a real sense, this means that we live roughly 100 ms in the past, though most people never feel like their vision lags behind the world. Recent research argues that this is because our brain may be projecting our perception forward in time, simulating what we expect to happen and revising our perception after an event occurs (Maus, Ward, Nijhawan, and Whitney 2012).

Filling in these temporal gaps is nothing new for the visual system. Every time our eyes jump from location to location, the visual signal is suppressed (Volkmann 1986). This leaves a gap in time, which our brain fills in retroactively in a phenomenon highlighted in the 'Stopped Clock Illusion' (Yarrow, Haggard, Heal, Brown, and Rothwell 2001). In this illusion, our brains fill in the time between saccades with an image, backfilling the perceptual gap with an image of where the saccade landed. This effect may be responsible for pitch framing, a technique where catchers quickly move a ball that is pitched outside the strike zone back inside without the umpire noticing.

Recent research into pitch framing has shown that catchers have a wide range of talent when deceiving umpires, but that a successful pitch framer can often earn their pitcher a slight but significant edge (Pavlidis and Brooks 2014). By plotting where an umpire's typical pitch boundaries are located, it is possible to see how far a catcher can extend the strike zone. What makes one pitch framer better than another is still under debate in the baseball literature, however what we know about how our brain backfills images can help guide our theory. With an umpire having to move their eyes, we know that there exists a short, roughly 100-ms window of opportunity where the catcher may be able to change the position of

the ball with a brief, slight movement and trigger the umpire's brain to reinterpret the pitch with this new information. This ability, not unlike a magician or pickpocket's ability to distract, could be trained in catchers by making them privy to the short time when umpires may be distracted by eye movements.

Although pitch framing has become an immediately accepted part of baseball, it poses ethical issues to the game. While promoting pitch framing, general managers are trying to gain an advantage through a catcher's ability to exploit psychophysiological deficits in the umpire's perceptual system. By providing this advantage, catchers are essentially breaking the rules of baseball. From a fairness perspective, should teams receive a small but significant edge because some players are better at breaking the rules? This also poses stronger issues when arguing from formal theory, especially when considering Bernard Suits' argument that not playing a game according to the rules functionally means you aren't playing the game at all (2014). Clearly, we can sidestep this issue by saying that the umpire's ontological authority makes all debate fruitless, but in a PITCHf/x era the disparity between what is called and what might have been called has never been more transparent (Collins 2010).

When catchers pitch frame, they are deliberately trying to break the rules to their favor, but is this an injustice? In a sense, catchers from opposing teams also can attempt to tip the scales in their favor, so there is little outcry from fans. Similar conscious rule-breaking happens in other sports as well, and typically isn't considered to invalidate the game. In basketball, fouling a shooting player is clearly against the rules; however, fouls are used strategically in a variety of situations. A 'good' foul may occur when it is preferable to send a player to the foul line rather than to allow them to hit a routine shot. At the end of a game, it may be advantageous for the trailing team to commit fouls rather than allow time to expire from the play clock. Breaking a rule doesn't immediately mean that a game is invalid or an injustice has been committed, but smaller, clearer injustices influence sporting events on a daily basis.

Judgment and Bias

Although umpires face basic perceptual issues, there are yet-more difficulties in calling balls and strikes. Even if an umpire had bionic, PITCHf/x-like perceptual precision, would they be 100% accurate with their pitch calling? Modern research in judgment and decision-making suggests that even if umpires were gifted with perfect sight, they may still be influenced by their own beliefs and biases. This phenomenon isn't specific to umpires; human beings have been shown to possess implicit biases that can shape our behavior even when we are unaware of their influence (Greenwald and Banaji 1995). In recent years, research into implicit racial bias has shown that people may make biased decisions based upon stereotypes of race (Fazio, Jackson, Dunton, and Williams 1995; Greenwald, McGhee, and Schwartz 1998), gender (Nosek, Banaji, and Greenwald 2002), and disability (Strohmer, Grand, and Purcell 1984; Thomas, Doyle, and Daly 2007), without any awareness of their own bias.

While an umpire is expected to provide a stable strike zone, they cannot help but be influenced by the game situation at hand. For example, if a batter has two strikes, an umpire will be far less likely to call a borderline pitch a strike (Green and Daniels 2014). Similarly, when a pitcher is about to walk a batter, an umpire's strike zone will expand, meaning that they are more likely to call the next pitch a strike. Another bias extends into the postseason, when the strike zone has been shown to grow, favoring pitchers. Luckily, while these types of bias may be pervasive across baseball, teams should be impacted roughly equally. Unfair

treatment may come into play when umpires are faced with other types of bias that target teams differently.

During the 2015 MLB season, Chicago Cubs manager Joe Maddon was ejected from a game for arguing the strike zone with plate umpire DJ Rayburne. While having a manager (especially Maddon) ejected from a game is not an uncommon occurrence, Maddon's criticism of the strike zone was directed specifically at Rayburne's bias to favor a number of veteran players from St. Louis over the rookies that batted in the Cubs lineup. While Maddon's on-field rant cannot be written in polite company, he summed up his argument post-game by saying 'You play a veteran club with a veteran battery and you have guys that barely have a month in the big leagues. I'm not going to take it. Our guys deserve equal treatment' (Gonzales 2015). Maddon is describing the Matthew Effect (Merton 1968), a rich-get-richer bias that appears in nearly every area of human decision-making. This effect was shown to influence the intellectual development of students, where those labeled as 'slow readers' receive less instruction, read less, and eventually become self-fulfilling prophecies.

Research conducted by Jerry Kim and Braden King have analyzed PITCHf/x data that supports Maddon's claim that umpires implicitly reward and punish players. By looking at 756,848 pitch calls from the 2008 and 2009 MLB seasons, it was observed that plate umpires tend to change their strike zone for a variety of different reasons, with large changes observed in things like player status and smaller changes related to conditions like the race of the player (Kim and King 2014). In a real sense, all-star pitchers are more likely to get the benefit of the doubt over unestablished players. It will be interesting to see how the Chicago Cubs players are treated now that they have at long last won the World Series and are no longer considered 'cursed'.

This form of bias is more than just an officiating phenomenon but is behind many of the cues of quality we take for granted today. While a bias against certain players certainly seems unfair, human decision-making follows several tried-and-true heuristics which may introduce bias in some situations, but in our day-to-day life help accurately guide our decisions with a minimum of effort. The fact of the matter is that all-star players typically do perform better than their less-celebrated counterparts, so it isn't unreasonable for an umpire's brain to assume that they are indeed performing better, even if they aren't. This same process happens when we decide to purchase brand name vs off-brand products, often opting to pay more for a label that we know and trust (Park and Lessig 1981).

While our intuition may suggest that errors in perception and errors in judgment are fundamentally different, the gap between our eyes and our hearts may not be nearly as distinct as we would like to believe. It may be the case that our perception is far from insulated from our social and physical environment, and the world around us may literally change the way we perceive the world around us (Bruner 1957, 1992). Students asked to walk up a hill estimate the slope of the hill as being greater when asked to carry a heavy backpack up it than when not carrying a backpack (Bhalla and Proffitt 1999). Golfers who are performing well report seeing the size of the hole as larger compared to those that are struggling (Witt, Linkenauger, Bakdash, and Proffitt 2008). Even baseball players appear to see the ball differently based upon their play (Witt and Proffitt 2005), and even have commented on this phenomenon; Mickey Mantle reporting after a home run that the ball was 'as big as a grapefruit'.

Evidence is mounting that our visual perception is influenced by our physical and psychological circumstances. It also appears that we see what we want or expect to see, and

umpires are no exception. Research has shown that when given an ambiguous image, people see it in the way that serves them at the time of perception (Balcetis and Dunning 2006), which could explain why two opposing fans may see the same replay and both conclude it is conclusive in opposite ways. Umpires are influenced to see the ball as being either in or out of the strike zone based upon their situation including the pitch count, the players involved, and the stakes of the game.

Despite the demands of fans, pitch-callers are still human and face the same biases and limitations we share. Behavioral scientists know that their bias can contaminate an experiment without awareness, and great pains are taken to maintain validity by keeping subjects and experimenters as blind as possible to condition. There is no good way to keep an umpire blind, no pun intended. A plate umpire, who is disinterested in the game of baseball, compartmentalizes calling balls and strikes, and isn't influenced by game situations wouldn't be human. In a real sense, it will be much easier to build a machine that calls strikes than fundamentally change the foibles of human cognition and perception.

Building a Better Pitch Caller

If a plate umpire is handicapped by their fundamental neuropsychological limitations, what can we do to improve their performance? One solution may be to have them begin their training at a younger age to take advantage of the inherent neuroplasticity of youth. While MLB umpires have worked through many years of intense practice, it might be possible that shifting their training into childhood could pay dividends. While many children begin playing baseball from a young age, umpires typically begin their training after high school or college at a time where their brain already has started to exhibit less neuroplasticity. While adult brains can create new neural pathways, the flexibility found in a child's brain allows for much more adaptation. Therefore, children can survive and recover from having half their brain surgically removed, an operation that no adult could recover from. It's been hypothesized that the reason Michael Jordan couldn't cut it in minor league baseball was because his brain wasn't young enough to re-wire itself for elite-level baseball play despite having the body of an elite-level athlete (Klawans 1996). It seems unlikely that fathers will prefer buying their children their first umpire mask over their first glove, but early training could produce better umpires.

Other possibilities for improving umpire performance are to change physical aspects of the field, a strategy that the MLB has adopted in the past. Around the turn of the twentieth century, Amos 'The Hoosier Thunderbolt' Rusie vexed hitters with his blistering speed and slightly spotty control. Rusie prompted the MLB to move the mound backward from fifty feet from home to sixty feet and six inches in 1893 when one of Rusie's wild pitches put a future hall of famer in a coma for four days. While moving the mound back did decrease strikeouts and increased hits across the league it didn't deter Rusie—the year after the mound was moved back he still led the league in wins, starts, shutouts, all while maintaining a startlingly low ERA of 2.78, roughly half of the league average of 5.33. Eventually Rusie's career would be cut short by contract disputes, arm troubles, and eventually poor play, but his impact on the game of baseball remains to this day.

In later years, two major changes lead to a period of pitching dominance. The first was the strategic adoption of relief pitching and the second was an expanded strike zone in 1963. These changes led to a spate of low-scoring games for many seasons. This trend

reached an extreme in 1968, when the league ERA and batting average, 2.98 and .231, respectively, were at their lowest since the 'dead-ball' era when game-used baseballs weren't replaced until they started to unravel. The next season the MLB made a drastic course correction, reinstating a smaller strike zone and lowering the height of the pitcher's mound from 15 inches to 10 inches. It's up for debate whether lowering the mound decreased or increased the rate with which pitchers suffer arm injuries, but it is certain that it had a positive effect for batters, rebounding to their historical averages.

While these tweaks to the physical playing field and strike zone have helped maintain the delicate balance of power between hitters and pitchers, an often-overlooked consequence is that these tweaks also change the accuracy of plate umpires. Lowering the pitcher's mound curbs the amount of downward momentum that pitchers can use, but in most cases the slightly reduced velocity will not help umpires. Moving the pitcher's mound back, even slightly, will force pitchers to work harder as well, but will have a larger consequence to the hitter and plate umpire's perceptual system by increasing the amount of time the ball is in flight and allowing for more information to enter the eye. Even an increase of a twentieth of a second of visual information could have massive implications in calling balls and strikes accurately. Other strategies such as growing or shrinking the strike zone may help batters exclusively while providing no real advantage to umpires. In fact, a smaller strike zone may make umpires less accurate, as the area of 'borderline' pitches begins to shrink. At the time of this writing, the MLB has proposed changes to shrink the strike zone in 2017, moving the lower boundary of the zone up several inches from the bottom of the knee to the top. It will be interesting to see whether this increases or decreases umpire accuracy now that we have detailed pre–post comparison data through the use of PITCHf/x.

The elephant at the ballpark remains the adoption of pitch-tracking technology to automatically call balls and strikes. Many fans remain deeply pessimistic of the technology and claim that the interchange between umpire and pitcher is a feature of the game, rather than a bug. Figuring out what a plate umpire's zone looks like is part of a pitcher's game preparation, rather than something to be ironed out and digitized. If a batter is called out with a borderline pitch, the batter's fans may call for an automated strike zone while the pitcher may be lauded for clever placement.

Some fans simply are against the intrusion of more technology into the game of baseball. These fans appreciate the consistency of the game, and that the critical equipment hasn't changed. The regulation baseball bat (no more than 2.61 inches around and 42 inches long, made of solid wood) and baseball (216 individual stitches around a cowhide cover, three layers of wool yarn, and a cushion cork pill) would feel as familiar to players today as to those from as far back as World War II. Many of the most lauded stadiums, such as Wrigley Field and Fenway Park, have a historical and cultural significance, while still being modern working sports venues. For many, changing the game of baseball is as distasteful as updating a Renoir or adding CGI characters into Star Wars. In recent years, the MLB has instated new rules to protect players, increase the pace of play, and increase accuracy through video challenges. Regardless of which new rules are proposed, there will always be a population of baseball purists that object to any change to the rules of the game.

Does baseball, or sport in general, become more enjoyable with the more accurate officiating? Transparently inaccurate play calling can severely damage enjoyment of a game, but not every injustice is created equal. When a home run ball is pushed foul by a gust of wind, fans understand that the game isn't always fair to players. We can accept that the game

isn't equal or fair, and that is a major reason why we watch in the first place. If games didn't have element of unforeseeable provenience or tragedy, they wouldn't be worth watching. We want to see our team not just win, but overcome adversity. In this way, officiating doesn't need to be perfect. Officiating only needs to be accurate enough to make us feel as if the natural randomness of sport wasn't encroached upon by human bias or incompetence.

Fans should take a long look at whether features like PITCHf/x during live broadcasts increase the satisfaction they get from being spectators. We like knowing world records because we fantasize that maybe they'll be broken. We like knowing statistics because we think that maybe our team will perform better than average. This knowledge can get us more involved in the game, but I would argue that knowing the precise location of a pitch typically yields more frustration than enjoyment. Viewing a sport through a legalistic lens misinterprets why people watch in the first place. Fans do not choose optimal teams. Enjoyment isn't just about wins and losses—there are bad wins and good losses. Being a fan is more about fantasy, community, and entertainment than it is about the technicalities of the rules. Enjoyment requires a personal connection, and sometimes a sense of communal righteous indignation at the damn umpires is precisely what we need to connect with those around us.

From a psychological perspective, there is a very good reason to keep the human element in pitch calling—we like having someone to blame for our team's failures. Heckling is a tradition simply because when something bad happens humans need someone to blame. In order to preserve our state-of-mind, we often display a self-serving bias where we attribute success to ourselves and failure to outside circumstance (Beckman 1973; Miller and Ross 1975). When our favorite team dominates the opponent, we are more than likely to credit their superiority to the competition. When our favorite team crumbles, we begin searching for someone to blame, and umpires make for great scapegoats. While this bias clearly exposes our hypocritical nature, it also is in line with the unspoken rule all games share to simply 'have a good time'. While removing human error from officiating may make the game more precise, these biases, errors, and even blown calls are important elements in the hedonic enjoyment of a game. Hall-of-Famer Billy Evans, a major-league umpire from 1906 to 1927, was prescient when he claimed that 'The public wouldn't like the perfect umpire in every game. It would kill off baseball's greatest alibi—We wuz robbed'. It's just not as much fun to heckle a PITCHf/x camera.

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