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AVOIDING AND RESOLVING DISPUTES DURING SPORTS COMPETITION: OF CAMERAS AND COMPUTERS

JAMES A.R. NAFZIGER*

I. INTRODUCTION

A neglected aspect of dispute resolution in the international sports arena involves disputes involving the technical rules of the game and their application by judges and officials. The contrived or artificial nature of conflict in the sports arena presents unusual, if not unique, issues of dispute resolution. Although some sports provide for the resolution of disputes during competition – one example is the America’s Cup race jury in sailing – the rules of the game, or simply rules of competition, are generally immune from legal challenge. The Court of Arbitration for Sport (CAS) has articulated a rule of non-interference in rules of the game and their application. Consequently, in the waning moments of a football (soccer) game, players cannot seek to enjoin further play until the constitutionality of a penalty is reviewed. A yellow warning card or a red ejection is generally final. Nor may a basketball player, on a theory of proximate cause or scope of liability, challenge a basket resulting from a freak series of ricochets. Although rules of the game bear some similarity to rules and regulations in other administrative systems, their dual functions – first to provide for conflict and then to regulate it – set them apart. Rules of the game constitute a closed system that understandably is relatively free of external challenge.

This is not to say that disputes arising out of competition are non-justiciable. Quite the contrary: such issues as intentional infliction of physical injury, use of banned substances by athletes, and corruption of officials, not to mention spectator violence in the stands, generate business for the legal profession. Even when available remedies are limited to administrative challenges within sports associations, lawyers may be instrumental. High stakes, complicated rules, infrequent championships, and weak governing bodies increase the likelihood that the application of technical rules of the

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game may be at issue. The America's Cup in sailing is perhaps the foremost illustration of this tendency.\textsuperscript{1} With multi-million dollar hulls, infrequent races, more than six hundred pages of regulations, and the lack of a governing body, the disputes over hull design and racing infractions are legion.\textsuperscript{2} But the America's Cup is a special case and, even so, the rules themselves escape challenge during competition.\textsuperscript{3} Generally in the sporting world, technical rules are supreme with the possible exceptions of grossly unfair sanctions\textsuperscript{4} and, at least in theory, of unnecessarily risky rules.\textsuperscript{5}

A more difficult question is the reviewability of judgment calls and decisions by officials, who are often called upon to make split-second decisions. It is clear that their judgment calls generally must be protected if the game is to go on. Official discretion in the sports arena is primarily kept in check by the rules of the game, the standards of officiating, and the principle of good faith.\textsuperscript{6} Officials are therefore liable in tort law only for acts of gross negligence and bad faith.\textsuperscript{7} The CAS has ruled that officiating should be shielded from arbitral or judicial scrutiny unless it is conducted in bad faith or


\textsuperscript{3} See id.

\textsuperscript{4} See, e.g., the dictum to this effect in M. v. Ass'n Internationale de Boxe Amateur (A.I.B.A.), CAS Ad Hoc Div. (O.G. Atlanta 1996) 1996/006 \textit{in DIGEST OF CAS AWARDS 1986-1998}, at 413 (Matthieu Reeb ed. 1998), [hereinafter I CAS Awards]. In M. v. A.I.B.A., a boxer was disqualified at the Olympic Games in Atlanta for punching below the belt. The CAS, while refusing to review a video tape of the match on the basis that technical rules of sport were not within its jurisdiction, nevertheless agreed to review the sanction of disqualification. After doing so, the CAS concluded that the sanction was appropriate, and the boxer's petition was dismissed.

\textsuperscript{5} But see Agar v. Hyde, 173 A.L.R. 665 (2000), a leading case on the issue of institutional liability for failing to amend rules of play and thereby avoid unnecessary risks on the playing field. The High Court of Australia ruled in Agar that the International Rugby Football Board (IRFB), in establishing the rules of the game, had no duty of care to avoid serious spinal injury to a player participating in a more or less freewheeling scrum. Afterward, however, the IRFB amended its rules to provide for a precautionary crouch-touch-pause-engage sequence for scrum formation. For analyses of Agar and its significance, see Hayden Opie, \textit{The Sports Administrator's Charter: Agar v. Hyde}, 9 TORTS L.J. 131 (2001); Hayden Opie, \textit{Medico-Legal Issues in Sport: The View from the Grandstand}, 23 SYDNEY L. REV. 375, 378 (2001).

\textsuperscript{6} See Crouch v. Nat'l Ass'n for Stock Car Auto Racing, 845 F.2d 397, 403 (2d Cir. 1988) (in reviewing a penalty decision, a court must defer to the authority of NASCAR decisions and interpretations of its own rules, absent an allegation of bad faith or violation of the law).

is the product of wrong circumstances. The rationale for this conclusion is, first, that technical issues are best left to trained officials, and, second, that sports federations should bear the ultimate responsibility to enforce rules of the game.

Fairness must always be a litmus of quality in sports. Maintaining a level playing field is, after all, the principal rationale for the relentless war on doping of athletes. But applying even the best rules is subject to human error. Subjectivity inheres in judging and scoring, especially in sports that put a premium on style, aesthetics, or general presentation, such as figure skating, gymnastics, synchronized swimming, and free-style skiing. How, then, can there be any full assurance of fair play and objectivity in judging? The answer is that, although such assurance is impossible, much can be done to increase the transparency and on-the-spot reviewability of decisions to the extent practicable.

8. CAS arbitrators do not review the determinations made on the playing field by judges, referees, umpires, or other officials who are charged with applying what is sometimes called “rules of the game” (one exception among others would be if such rules have been applied in bad faith, e.g. as a consequence of corruption). Segura v. Int’l Amateur Athletic Fed’n, CAS Ad Hoc Div. (O.G. Sydney 2000) 2000/013 in II DIGEST OF CAS AWARDS, at 680 (Matthieu Reeb ed., 2002) [hereinafter II CAS Awards]; see also M. v. A.I.B.A., in I CAS AWARDS, supra note 4, at 414 (traditionally, doctrine and judicial practice have always deemed that game rules, in the strict sense of the term, should not be subject to the control of judges, based on the idea that “the game must not be constantly interrupted by appeals to the judge”). In M. v. A.I.B.A., the CAS acknowledged in dicta, however, that

[t]he distinction between what can be submitted to a court or arbitral panel – the rule of law – and what cannot – the game rule – is vague .... A new approach tending to abolish this distinction is being seen which consists of holding the view that, in high level sport, applying the game rules very often has consequences in terms of property and financially, or may affect rights relating to personality, and is thus open to examination by the courts.

Id. The CAS did not, however, apply the suggested approach nor does it seem to have been generally adopted by sports bodies.

9. Id.

10. In the words of one leading commentator:

Do we really want to settle matches months later in court or some other forum, or should they be settled on the playing field? Will the public accept results that are obtained in the court-room or other forum rather than the playing field? Would it be possible for a judicial officer or other adjudicator to accurately determine the outcome of an event if a certain decision is overturned? ... One has to question whether interested parties could have some remedy at their disposal to undo the wrongs caused as a result of decisions that are incorrectly taken or not taken at all. One also has to question whether it would be possible for a judicial officer or other adjudicator to accurately determine the outcome of a race if such a decision, or lack of decision, is overturned.

Cornelius, supra note 7, at 629-30.

In particular, technological advances offer a significant corrective to error and unfairness. Ball-tracking technology, for example, uses super-slow-motion cameras to determine whether a power serve in tennis has landed a millimeter inside or outside a service box.\textsuperscript{12} It is apparent that computerized scoring and timing systems, as well as video replays, can help eliminate some of the subjectivity and opportunities for abuse by officials in both their initial decisions and in any review process that might follow. Accuracy may be particularly critical as the professional stakes in sport increase. Mistakes can be extremely costly to players and teams. A measure of justice may therefore be at issue.

The \textit{Lindland} controversy,\textsuperscript{13} on the eve of the 2000 Summer Olympic Games in Sydney, is a case in point. A controversial wrestling match between two competitors for a place on the United States Olympic team resulted in an acrimonious, time-consuming, and ultimately questionable series of arbitration and litigation.\textsuperscript{14} One can say that both wrestlers went to the mat of formal dispute resolution. The underlying controversy involved judgment calls. When the loser of the match, Matt Lindland, appealed the decision, an administrative ruling by USA Wrestling’s Standing Greco-Roman Sport Committee upheld it in deference to the discretion of mat officials.\textsuperscript{15} Lindland then brought legal action, claiming procedural irregularities in the process of reviewing his grievance about the judgment calls.\textsuperscript{16}

A video tape of the match was available that might have settled the matter.\textsuperscript{17} Unfortunately, in the interest of shielding mat calls from routine review, the protest committee refused to accept videotaped evidence\textsuperscript{18} even though the official rules of the Federation of Associated Wrestling Styles (FILA) encourage its use in such circumstances.\textsuperscript{19} In so doing, the protest committee not only failed to avoid a legal battle, but violated at least the spirit, if not the letter, of the Amateur Sports Act.\textsuperscript{20}

\begin{footnotes}
\item [14] See \textit{Lindland}, 230 F.3d at 1036.
\item [15] \textit{Id.} at 1037.
\item [16] \textit{Id.} at 1038
\item [17] \textit{Id.}
\item [18] \textit{Id.} at 1038.
\end{footnotes}
Reliance on technology is not the last word in officiating and judging, however. It is far from an unmixed blessing. The necessary technology may be unavailable or prohibitively expensive, especially in developing countries. Often the technology is beyond the means of sports organizations wherever they are located. Also, use of technology, particularly video replays, can be intrusive; indeed, it can be intolerably disruptive of competition. Sometimes technology may be a poor substitute for human perception, vigilance and decision on the field of action. Judgment calls generally depend on a fine balance between perceptions and second evaluations. Reliance on technology, as a routine arbiter of activity, may even be disastrous if it breaks down or fails in the course of competition. Moreover, technology-based reversals of official calls and decisions may undermine the authority and legitimacy of the officials based on the principle that "the referee is always right – even when he is wrong."\(^2\)

As a legal consideration, the procedures for video filming, review and access to video tapes require not only substantial resources, but effective regulation. The review process requires skill and great care. In *Jones v. Welsh Rugby Union*, an English court imposed a temporary injunction against suspension of a player who had neither access to nor an opportunity to comment on the video film upon which the suspension was based in part.\(^2\) Such are some of the pitfalls of technology as a means of dispute resolution.

Despite these disadvantages, the use of technology to help resolve disputes and ensure greater fairness is becoming commonplace in sports. Two examples highlight this trend: the recent computerization of scoring in figure skating after a judging scandal during the 2002 Olympic Winter Games and expanded use of video replays in both domestic and international competition.

II. CORRUPTION OF OFFICIALS DURING COMPETITION: SKATEGATE AND THE NEW JUDGING SYSTEM

The integrity of international figure skating was compromised by a judging controversy at the 2002 Winter Olympics Games in Salt Lake City concerning allegations of score-fixing by judges. When Russians Elena Berezhnaya and Anton Sikharulidze were declared the winners of the pairs

\[\text{hereinafter "Amateur Sports Act".}\] The Act provides as follows: "[t]he parties may offer any evidence they desire and shall produce any additional evidence the arbitrators believe is necessary to an understanding and determination of the dispute. The arbitrators shall be the sole judges of the relevancy and materiality of the evidence offered." 36 U.S.C. § 220529(b)(5).


event in figure skating, their victory surprised many who believed that Canadians Jamie Sale and David Pelletier had outperformed the Russians. A French judge, Marie Reine Le Gougne, promptly informed International Skating Union (ISU) members that she had agreed to give high marks to the Russians in exchange for a Russian judge’s support of the French ice dancing team, which won a gold medal in their competition.

The ISU responded to the “Skategate” scandal by suspending Le Gougne and the President of the French skating body for three years and the 2006 Olympics. Later, Le Gougne retracted her statements and denied that she had been pressured by superiors to vote for the Russians. A brief investigation by the ISU revealed no evidence of Russian complicity in the alleged conspiracy. The Executive Board of the International Olympic Committee (IOC) ratified the ISU council’s decision to throw out the French judge’s score and award gold medals to both the Russian and Canadian teams. It was the first time in Olympic history that a decision by a skating judge had been overturned, controversial as judging in that sport had been.

The IOC President, emphasizing the cooperative spirit between the ISU and the IOC, described the double award of gold medals as “a matter of fundamental justice.”

Despite the ISU and IOC’s prompt response to Skategate, it remained a cause célèbre. During the 2002 World Figure Skating Championships, demonstration marchers chanted “[h]ey hey, ho ho, secret judging has got to go,” and a poster dubbed the ISU the “Axel of Evil.” Skategate, however, was not the first incidence of questionable collusion among figure skating judges. Earlier instances of unethical collusion among judges, often linked with politics, had already tainted the legitimacy of the sport. At the 1999 World Championships in Helsinki, for example, it was evident that Russian

23. George Vecsey, To the Barricades! Yes, Even in Figure Skating, N.Y. TIMES, Mar. 30, 2003, § 8, at 5.
25. Id.
26. Id.
28. Id.
30. Id.
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and Ukrainian judges were communicating with each other by tapping their feet. This impropriety, revealed on video tape, resulted in a brief suspension of the judges, but not a reversal of results, which included the award of a gold medal to the same Russians who were to share the gold medal in Salt Lake City.

Skategate was really the last straw. With the strong encouragement of the IOC, officials of the ISU, meeting in March 2002, decided to reform its judging system. Two general approaches to the problems were introduced on an experimental basis: electronic scoring and, more random, anonymous judging. The first alternative is an "anonymous" or "interim" system of judging that employs fourteen judges, all of whose scoring is to be reported and displayed anonymously. The scores of nine of the fourteen judges are then randomly chosen by a computer. Only those nine scores count. In contrast to the traditional scoring system, the judges are barred from discussing their marks.

As a second alternative to the existing system of scoring, ISU President Ottavio Cinquanta introduced a "New Judging System" of scoring to deter bloc voting by judges and to overcome the subjectivity and confusion of the existing system. Under the New Judging System, the existing 6.0-based scoring system is to be replaced by exacting criteria for judging every aspect of performance. This system contrasts with the traditional, highly discretionary 6.0-based system that relies on each judge's determination of all scoring elements. The new system uses computers and video to aid the judges in determining scores. Each judge has a flat touch screen depicting the skater's performance as it is taking place. Bordering the image of the skater is an L-shaped frame. The name of the particular jump element, spin, or other sequence that a skater is executing appears on the left side of this frame. Each specific element is assigned a value. For example, a triple lutz is worth

32. Id.
33. Id.
34. Id.
35. Id.
36. Id.
37. Communication No. 1207, International Skating Union, New Judging System Figure Skating/Ice Dancing, (Apr. 16, 2003) [hereinafter "ISU Communication 1207"].
39. ISU Communication 1207, supra note 37.
40. Press Release, International Skating Union, Year-end Update – Figure Skating Judging for the 2002-03 Season and Beyond (Dec. 27, 2002) (on file with author).
41. All of these maneuvers will be referred to as "elements" hereinafter.
By touching the bottom portion of the screen, each judge may then subtract points for errors in execution and also edit any mistakes as a particular performance progresses.

The New Judging System provides not only a more accurate evaluation of the technical aspects of performance, but also a method for assessing artistic factors. Five factors—skating skills, transition, performance, choreography and interpretation—are scored on a 10-point scale. An explanation of each factor appears on the judges’ touch screens to assist them in their evaluations.

This reform requires several new administrators. Two “technical specialists,” experienced in figure skating, sit at their own computers. One specialist identifies each particular element and its degree of difficulty as it is being executed and sends that information to the judges’ computers. The second specialist’s function is to monitor the work of the first specialist. The two specialists, working together, may then review video film and make any necessary corrections. Another new administrator, the “technical controller,” ensures that the information the technical specialists send to the judges is accurate. The controller also moderates an apparently mandatory Event Review Meeting to provide feedback among the judges regarding the application of regulations during a particular event. A “judge coordinator,” formerly known as a referee, provides organizational support for the judges and also performs some of the duties of a referee, for example, by identifying overtime or undertime performances, as well as vocal music violations and costume or prop deficiencies. Finally, an “event referee” coordinates the panels of judges to ensure that events function within the existing rules.

The New Judging System also includes a process for randomly selecting judges’ scores in order to minimize the effect of any cheating or sharp deviations from the norm by judges. With eight judges on a panel, for example, only five scores are to be used; with ten judges, seven scores; and with twelve to fourteen judges, nine scores. Computers help identify any anomalies that may require further investigation. The new system also allows officials to identify suspicious patterns in scoring, although the identity of individual judges remains confidential. ISU President Cinquanta remarked that individual judges’ scores would be reviewed three times per year rather than just once per year, as has been the practice.

43. *Id.*
44. ISU Communication 1207, *supra* note 37.
45. *Id.*
46. *Id.*
47. *See Vecsey, supra* note 23.
Reaction to the proposed reforms was mixed. Ron Pfenning resigned from his position on the ISU’s technical committee, after his dismissal from refereeing the World Figure Skating Championships in 2003.\textsuperscript{48} The ISU claimed that Pfenning was planning a breakaway group while still working with the ISU technical committee.\textsuperscript{49} The ISU also feared that Pfenning would not comply with the anonymous or interim judging system that had been adopted for that competition.\textsuperscript{50} In response to the more general criticism of the new system, several skating luminaries, including Ron Pfenning, organized a World Skating Federation (WSF)\textsuperscript{51} to replace the ISU. Scott Hamilton, a 1984 Olympic gold medalist, joined the new organization.\textsuperscript{52} The IOC, however, pledged to support the ISU.\textsuperscript{53} In March 2003, Hungarian judge Judit Fuerst-Tombor, after endorsing the WSF, was withdrawn from judging the women’s competition at the World Figure Skating Championships.

III. THE USE OF CAMERAS IN DOMESTIC AND INTERNATIONAL COMPETITION

A. Domestic Competition

The use of video cameras to facilitate review of calls by officials has become an integral part of many sports competitions. The Professional Golfers’ Association (PGA), for example, uses video for important decisions.\textsuperscript{54} In the 2000 Honda Classic, golfer Brian Gay attempted a putt for a birdie.\textsuperscript{55} The ball wavered on the edge of the cup as Gay approached the hole.\textsuperscript{56} When he reached the cup, he made a motion to indicate that the ball

\textsuperscript{48} Clarey, supra note 24.


\textsuperscript{50} Id.

\textsuperscript{51} The WSF is skeptical of the system of anonymous judging, questions the qualifications of ISU President Cinquanta because he is a speed skater, not a figure skater, and limits its memberships to figure skaters, as opposed to the ISU’s representation of both figure and speedskaters. The WSF promotes a system of checks and balances based on the traditional (6.0-point scale) scoring system, which is now seventy-years-old. The new organization is averse to the use of technology, preferring to establish an ethics committee to handle any allegations of impropriety among judges. By contrast, the New Judging System emphasizes technology to solve the judging problem. See Vecsey, supra note 23.

\textsuperscript{52} Vicki Michaelis, Splinter Group Doesn’t Faze ISU’s Cinquanta, USA TODAY, Mar. 26, 2003, at 10C.

\textsuperscript{53} Id.

\textsuperscript{54} Ivan Maisel, Down But Not Out: You Didn’t Have To Be Dudley Hart To Feel Like a Winner at the Honda Classic, SPORTS ILLUSTRATED., Mar. 20, 2000, at G7.

\textsuperscript{55} Id.

\textsuperscript{56} Id.
was still moving before it fell into the cup.\textsuperscript{57} The rule that came into question establishes that a ball is in play from the time the player reaches the hole, without reasonable delay, plus ten seconds. Afterward, the ball, whether it is actually moving or not, is considered at rest. When NBC officials decided incorrectly that the putt was good, Gay believed that he was tied for first place.\textsuperscript{58} After the tournament, however, a PGA tour official reviewed a video of the putt and determined that sixteen seconds had passed from the time of Gay's arrival at the hole before the ball dropped into it.\textsuperscript{59} The violation of this rule cost Gay one stroke and moved him into a tie for fourth place.\textsuperscript{60}

In England, the use of film and video dates back to at least 1947 in recording photo finishes in racing, but its use to assist officials is a recent development. Since 1993, video replays have been used in football (soccer) and are also used in rugby and cricket. Video recordings have also been accepted as evidence by courts in personal injury actions and other challenges of incidents and calls on the playing field.\textsuperscript{61}

Video replay systems are expanding in both professional and collegiate football in the United States. Under a Referee Replay Review system, both the use of video replay by the National Football League (NFL) and its significance have increased. In 1999 there were 195 reviews of plays, 29\% of which resulted in reversals, whereas in 2001 there were 258 reviews of which 34.5\% resulted in reversals.\textsuperscript{62} In January 2002, a video replay during a playoff game between the New England Patriots and the Oakland Raiders overturned what was initially ruled to be a costly fumble by the Patriots' quarterback Tom Brady. Two weeks later, Brady was hailed as the most valuable player at the Super Bowl.

Officials use video replay in both National Hockey League (NHL) and National Collegiate Athletic Association (NCAA) competitions.\textsuperscript{63} In the NCAA semifinal championship game in 2003 between New Hampshire and
Cornell, a goal was reversed when video replay revealed that the puck had been redirected with a high stick in violation of NCAA rules.\textsuperscript{64} Often, however, instant replay in hockey is ineffective because of the exigencies of competition. The NHL's commendable practice of resuming play as quickly as possible after an interruption may inhibit use of video replay to correct referee errors. For example, in one match, the New Jersey Devils were denied a goal because the replay process was too slow.\textsuperscript{65} Although a video film revealed a goal that officials had failed to see, it was too late because the puck had already dropped and play had resumed.\textsuperscript{66} The rules prevented any adjustment of the score.\textsuperscript{67} Referees are instructed to take extra time if they think a play might be reviewed, but communication with the on-ice officials and those "upstairs" is often impaired.

Video replay is used by National Association for Stock Car Auto Racing (NASCAR) competitions as well.\textsuperscript{68} Although cameras are not as common as in football or hockey, a driver complaining about another driver's actions may request an immediate review of video tape.

The National Basketball Association (NBA) adopted the use of instant video replay, beginning with the 2002-03 season, in four situations: if a basket is made at the end of the first, second or third quarters with no time remaining; if a basket is made at the end of the fourth quarter with no time remaining and the result will affect the outcome of the game; if a foul is called at the end of the first, second or third quarters with no time remaining; or if a foul is called at the end of the fourth quarter or overtime with no time remaining and a free throw may affect the outcome of the game.\textsuperscript{69} The Women's National Basketball Association (WNBA) later adopted similar rules for video review.

\textsuperscript{65} Kevin Allen, \textit{Devils Take Defense Against Senators 1-0; NJ Survives No-Goal Call, Now Leads 2-1}, USA TODAY, May 16, 2003, at C11.
\textsuperscript{66} Id.
\textsuperscript{67} NHL rules provide that: ""[N]o goal may be awarded (or disallowed) as the result of video review once the puck has been dropped and play has resumed following the first stoppage of play after the potential goal."" Shawn P. Roarke, \textit{Devils Blank Sens for 2-1 Lead}, May 15, 2003, at http://www.nhl.com/cupcrazy2003/seriesm/game3 recap.shtml (last visited Oct. 9, 2004).
\textsuperscript{68} Chris Jenkins, \textit{Controversy Envelops Earnhardt's Record Victory; Fellow Racers Question Pass}, USA TODAY, Apr. 7, 2003, at C10.
\textsuperscript{69} NBA rules state as follows: "Instant replay reviews will be conducted and processed in two minutes or less by the game officials. The call made during play will only be reversed when the replay provides the officials with a 'clear and conclusive' basis to do so." NATIONAL BASKETBALL ASSOCIATION, 2002-2003 NBA SEASON MEDIA INFORMATION (2002-2003), available at http://www.kki.is/skjol/2002-2003%20Media%Information.pdf (last visited Oct. 10, 2004).
of last-second plays beginning with the 2003-04 season. Referees can use the video to determine whether a shot was worth two or three points, a boundary violation has occurred, or a shot-clock or backcourt violation has occurred.

At least one study has shown that errors by officials are surprisingly uncommon. In the 2003 season of collegiate football in the United States, the Big Ten Conference of the NCAA introduced a behind-the-scenes system of video replays, with no effect on games, simply to help the league evaluate findings that had revealed that 15-20% of some 13,000 plays would have been overturned if video challenges had been available. The pilot program revealed, however, that only 50 of 11,000 plays were determined to be reviewable, of which about one-half (less than one-quarter of one percent) would have been overturned. In 2004 the Big Ten decided, therefore, to permit designated observers to monitor play on the field and challenge. The observers have the discretion to halt play for a review of the call and to reverse it in the event that a replay would clearly show “conclusive evidence” of error. Coaches, however, are unable to challenge calls under this system.

B. International Competition

Technology is somewhat less common in international competition. One problem is the divergence among different sports cultures concerning expectations about the role of referees and the margin of appreciation for errors and infractions. In international competition, it is apparent that judges or referees from different countries behave differently. Scientific precision in officiating is therefore more controversial. Moreover, because discrepancies between national and international rules may confuse players in international competition, somewhat greater tolerance, especially in team sports, may be expected. Also, the principle of equality among all athletes,

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71. Id.
73. Id.
74. Id.
75. Id.
76. Id.
78. Id. at 224-25, 232.
whether they are nationals of technology-endowed or technology-poor countries, helps account for this lesser reliance on sophisticated cameras, computers and timing systems.  

In the World Cup for Soccer, for example, the Fédération Internationale de Football Association (FIFA) has placed extra assistant referees behind goal lines but has ruled out the use of video replays because of a determination that their use is unsuitable in fast-moving, non-stop sports like football (soccer). The International Tennis Federation (ITF) also relies on the human eye to make and correct calls.

Technology is nevertheless becoming more common. The International Amateur Athletic Federation (IAAF), which governs track-and-field competition, has established protest procedures whereby referees have recourse to video film. Similarly, FILA, the international wrestling federation, encourages video replay of controversial mat calls. In 2002, the International Cricket Council (ICC) approved the use of video replay in its matches. A third umpire may review video film after being consulted by one of the first two umpires.

Rowing competition is a prime example of reliance on cameras and sophisticated timing systems, not only to review outcomes, but also to determine outcomes in frequently close races. Several cameras and cables are placed along a course to allow officials to note when shells pass points marked every five hundred meters. Three different cameras are placed at the finish line to record the exact times that shells cross the finish line. Although four judges sit at the finish line to determine the winner, photo-finish cameras, taking 1,000 photos per second, provide assistance when a race is

79. Id.
82. For a good summary of the IAAF protest procedures, as found in Rule 146 of the IAAF Handbook, see Cornelius, supra note 7, at 633.
83. See text accompanying notes 19-22.
85. Id.
87. Id.
88. Id.
In *Neykova v. Int'l Rowing Fed'n (FISA) & Int'l Olympic Comm. (IOC)*, the CAS arbitrated a dispute between two NOCs resulting from a photo-finish in the women's single sculls event during the 2000 Olympic Games in Sydney. According to an official Swatch camera-and-timing system, only twelve one-thousandths of a second separated the first two sculls at the finish line. The NOC of the losing rower challenged the accuracy of the technical equipment in recording a split-second finish despite somewhat conflicting evidence from an unofficial television video. The CAS, citing its earlier award in *M v. A.I.B.A.*, confirmed the integrity of the official system whatever the margin of error might have been in the photo finish. Most importantly, *Neykova* emphasized that race judges, after interpreting video film, must ultimately make the decisions. The CAS will not disturb the decision of judges when endorsed by recognized sports bodies, although this deference seems to be subject to the exceptions in *M v. A.I.B.A.* that have been cited in later CAS awards.

IV. CONCLUSION

As technology improves, international sports federations and their constituent national organizations are relying increasingly on computers and cameras for judging, determining results and reviewing controversial decisions. Disparities among countries in the availability of technology and resources to pay for it constrain wiring of the global sports arena. Other issues of fairness and practicality constrain reliance on technology. The human element of judging, however prone to error and subjectivity, often seems preferable to the expense, intrusion, and disruption of electronic referees.

Figure skating and other sports of aesthetic merit and athletic style have presented particularly troublesome issues because of the subjectivity of judging and complexity of scoring. Apparent corruption of officials at the 2002 Winter Games in Salt Lake City prompted reforms that rely heavily on computerization of scoring.

Video replays are becoming a more common arbiter of sports competition.

89. *Id.*
91. *Id.*
92. *Id.* at 677.
94. *Id.*
95. *Id.*
Reliance on video cameras has several disadvantages that merit continuing concern, and reliance on split-second timing systems, as in rowing, has also sparked disputes. Despite the controversies and the economic constraints, however, it is likely that the sporting world will welcome limited and carefully managed use of cameras and computers to overcome the vicissitudes of the human eye and conscience.