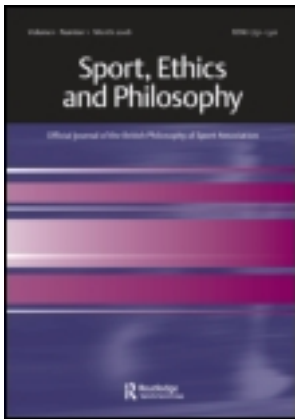


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ARE THERE ANY GOOD ARGUMENTS AGAINST GOAL-LINE TECHNOLOGY?

Emily Ryall

Despite frequent calls by players, managers and fans, FIFA's resistance to the implementation of goal-line technology (GLT) has been well documented in national print and online media as well as FIFA's own website. In 2010, FIFA president Sepp Blatter outlined eight reasons why GLT should not be used in football. The reasons given by FIFA can be broadly separated into three categories; those dealing with the nature and value of the game of football, those related to issues of justice, and those concerned with the practical implementation of GLT. This paper intends to evaluate these eight reasons in order to assess whether there are, indeed, any good arguments against GLT in football.

KEYWORDS goal line; technology; FIFA; football; justice

Despite frequent calls by players, managers and fans, FIFA's resistance to the implementation of goal-line technology (GLT) has been well documented in national print and online media as well as FIFA's own website.¹ In an attempt to clarify its view once and for all, FIFA president Sepp Blatter outlined in 2010, as part of his 'President's Column' on the FIFA website, eight reasons why GLT should not be used in football (Blatter 2010). Some of these reasons were concerned with the accuracy and reliability of the technology, others were historical and cultural, but all are the reasonably familiar ones that are perennially discussed by fans in pubs and online forums. It must be said, however, that despite the apparent clarification given by FIFA on its website in March 2010, it has never been consistent in its stance on this issue. Indeed, the very page where these reasons were given has now been removed from FIFA's website and no reference to it can be found.² A sceptic may ask whether this is further evidence of its wavering view, as there have been frequent times when FIFA representatives have both welcomed the possibility of this technology³ and fiercely opposed it.⁴ Although FIFA's current position is a tentative acceptance of GLT, as recently as March 2010 it said the 'door was closed' on the issue (BBC Sport Online 2010a). However, it was following a couple of clear and high-profile referring errors which were made during the 2010 men's World Cup finals three months later that FIFA once again changed its stance and instigated a new testing procedure open to developers of GLT which, if proven reliable, would be used in future competitions.

This paper intends to evaluate the eight reasons originally provided by FIFA in order to assess whether there are indeed any good arguments against GLT in football. FIFA's reasons were as follows: (1) The simplicity and universality of football means that it is the same game at whatever level it is played, and this is what accounts for its popularity and success. Implementing technology at the top level would undermine this; (2) The nature of football (its fluidity and rhythm) would be adversely affected with the use of GLT; (3) If GLT were to be introduced then it would 'open the door' to calls for other officiating technology; (4) Fans like to debate controversial decisions and enjoy the entertainment value provided by human error; (5) The technology isn't reliable enough; (6) The technology will undermine the quality of the referees; (7) The technology is too expensive to implement; and (8) The technology is too expensive to test.

The reasons given by FIFA can be broadly separated into three categories: those dealing with the nature and value of the game of football (1–3), those related to issues of justice (4–5), and those concerned with the practical implementation of GLT (6–8). Each reason will be considered in turn although many issues and arguments overlap in discussion.

1. The simplicity and universality of football means that it is the same game at whatever level it is played and this is what accounts for its popularity and success. Implementing technology at the top level would undermine this.

Blatter (2010) states that 'one of the main objectives of FIFA is to protect the universality of the game of association football' and 'the game must be played in the same way no matter where you are in the world' in order that everyone 'will be playing with the same rules'. If this is a legitimate reason not to introduce GLT, the implication must be that it would have a detrimental effect on the universality of the game. So there are two questions here: first, what does FIFA mean by the universality of the game? Second, to what extent would GLT damage this universality?

When FIFA say that the game must be played in the same way everywhere, it is assumed they are referring to the constitutive rules of the game rather than rules of skill. As such, the universality of the game must apply to those rules that define what it is to play football rather than any other game that isn't football.⁵ In contrast, the universality of the game to which FIFA refers is ostensibly not concerned with how well one plays it and whether one is able to accurately execute a pass or scoring volley for example.⁶ FIFA, in its position of governing body, determines what the constitutive rules are, and therefore it alone determines what constitutes the game of football. However, although FIFA maintains it endorses such universality, it appears to undermine this by providing various sets of laws for different types of football (traditional, beach and futsal) and ten differing sets of regulations for various tournaments. Moreover, the 'official' FIFA designated form of football is arguably played by fewer participants than various street forms of the game in which many of the constitutive rules (including number of players and goals) are flexible according to the context and circumstances of those involved. For instance, Football for Hope, which is endorsed by FIFA on their website (and which held a street football tournament in South Africa at the same time as the 2010 men's World Cup with the backing of FIFA) explicitly states: 'The scene is familiar: a football, a pitch, two goals, two

teams. But the rules, the teams, and the way the game is regulated are all slightly different ... players use their pre-match dialogue as a space for agreeing on the rules of the game' (Streetfootballworld 2011).

FIFA's argument against GLT on the basis of preserving universality is therefore difficult to understand due to the already diverse nature of the game and its many forms. FIFA's response to this may be to argue that each variant has its own constitutive set of rules and therefore its own universality, but such a response would be to contradict the very notion of universality that it wished to maintain in the first place, not least because each version has its own rules in order to set itself apart from the conventional form of the game. It might be that FIFA would still insist that there is universality to the game (such as kicking a spherical object towards a goal) but this in effect waters down the whole notion that FIFA wishes to preserve, and ultimately undermines it as a reason to reject GLT.

Even if we accept there is universality to the game as FIFA decree, would the implementation of GLT undermine this? A possible answer might be found in considering the counter-example of cricket which has introduced similar types of technology to assist officiating at the top level of the game. In cricket, officiating or adjudicating technology⁷ is used to help (among other things) an umpire determine whether a batsman should be given out.⁸ Due to the expense and resources required, this technology is not available at lower levels of the game and in these cases it is left to the umpire to make the judgement by eye. However, there is no evidence to suggest that this means that the game of cricket is radically altered simply through the use of adjudication technology in one game but not in another. Whether it is a 20-over match between two village teams or a five-day Test between countries, the game being played is still cricket because the core constitutive rules remain the same despite the use of officiating technology in some matches. Similarly it is unclear how utilising GLT at the top level of football will undermine the game at lower levels. FIFA's response might be that cricket and football are fundamentally different in nature; cricket is disjointed, with breaks between innings, sessions, overs and balls, whereas football is fluid and could conceivably last a full 45 minutes before a break takes place. As such, FIFA may argue that in contrast to cricket, the implementation of such technology *would* change the nature of the game being played. This argument is further developed in discussion of subsequent reasons.

2. The nature of football (its fluidity and rhythm) would be adversely affected with the use of GLT.

This has always been at the core of FIFA's resistance to GLT as comparisons are made with other sports that utilise adjudication technology. These sports generally employ either the television replay (e.g. to assess whether a try has been scored in rugby), a visual reconstruction of play through a triangulation of statistical data (e.g. Hawk-Eye in tennis) or a graphic representation of sound waves (e.g. the ball touching the bat in cricket). All of these technologies require a break in the play in order to assess the outcome. FIFA has argued that this is not feasible in football since it is logically possible that both halves could be played without a single break in play (although one could respond by pointing out that this possibility is much less likely than the possibility of having a goal incorrectly awarded or disallowed). Problems with introducing the above 'replay' technologies could occur if play continues after a disputed goal had been scored. For instance, if the referee

stops play immediately after an incident to refer to a fourth official then he may prevent a scoring counter-attack. If he allows play to continue then it may affect the outcome of the entire half as there may be no natural break in which to reassess whether a goal had initially been scored. Such reasoning seems to have some weight since any forced break of the game in order to adjudicate whether a goal has been scored may affect the outcome of the game itself.⁹ However, FIFA seems to have provided a solution to this problem with its current requirements for GLT that require the referee to be notified immediately if a goal has been scored (this is discussed in more detail later). A cheaper alternative could be the solution adopted by the NHL, where a fourth official monitors play in real time via cameras placed above the goal and sends an immediate signal to the referee on the ground if in his view a goal is scored. Such an immediate signal to the referee would preclude a counter-attack and as such the fluidity of the game would be preserved.

3. If GLT were to be introduced then it would 'open the door' to calls for other officiating technology.

This reason invokes the 'slippery-slope' argument and proposes that one thing will inevitably lead to another. It is perhaps unsurprisingly reflective of FIFA's general conservative ethos. These concerns are related to a perception that allowing GLT will lead to increasing calls for the introduction of technology that adjudicates offside and penalty decisions, as these decisions also have a high effect on the outcome of the game. Furthermore, if offside and penalty decisions are to be subject to adjudication technology, then perhaps so ought other fouls and infringements until every act in the game is regulated by technology rather than the natural (and potentially error-prone) observations of the referee. The argument presupposes that once technology is introduced to ensure that goals are correctly awarded, demands will grow that other aspects of the game are also given the same attention to ensure accurate decisions are made. This concern was illustrated by UEFA president Michel Platini:

The day we have GLT, five minutes after you will ask for offside technology. We will have that for 10 years and then you will ask for penalty area technology. I don't want this in the game. Football is human, football is organised by people and we have the most popular game in the world because it is human. (Walsh, 2011)

The problem with the 'slippery-slope' argument is that it is based upon an assumption that has no factual underpinning. If we wish to argue that allowing A will inevitably lead to D, we need to provide evidence for the causal relationship between the steps in between and not make judgements based on speculation or assumption. Too often, the 'slippery-slope' argument stems from an emotive reaction based upon fear regarding change rather than substantive argument. As suggested, that FIFA has consistently displayed its resistance to GLT is perhaps indicative of why it appeals to the slippery-slope argument as another reason for why it should not be introduced.

One way in which we might be able to judge whether FIFA's concerns might be genuine can be assessed through considering the use of technology in other sports. Indeed, there is some evidence that the 'slippery-slope' argument might carry some weight. Cricket, for instance, has gradually introduced technology to adjudicate other

aspects of the game. The fourth umpire can now use video replays to judge whether a ball was caught on the full, whether a batter has 'nicked' the ball, hit the glove or pad prior to a catch, and whether a player has been run out. Tennis also utilises adjudication technology for other aspects of the game such as foul serves, foot faults and net calls. If the path of technology in cricket and tennis can be applied to football, then perhaps FIFA has reason to be concerned. However, in contrast, other popular sports such as rugby league and rugby union haven't seen further implementation of this type of technology. Serious incidents of foul play might later be viewed as evidence in citing panels in order to assess whether individual players should receive a sanction, but during live play the referee relies upon his own senses and that of his touch judges in order to officiate the game.

Even if it can be shown that the 'slippery-slope' argument is reasonable, it does not necessarily follow that the conclusion is unwelcome. Those sports, such as cricket, which have allowed a greater use of officiating technology have deemed it beneficial to the sport. If infringements and foul play can be identified immediately, then the game arguably gains a greater level of justice. Whether this greater level of justice means that the 'human element' of the game, which FIFA so wishes to preserve, suffers as a result, is considered in more detail elsewhere in this paper.

4. Fans like to debate the controversial decisions.

Although this reason seems to be one of the weaker ones that can be given against GLT, it also seems to be the one that many aficionados and supporters favour. For them (and it seems for FIFA), it is these types of incident in sport that give it value and make it entertaining. That fans still argue about England's goal against Germany in 1966 and their more recent disallowed attempt in the 2010 World Cup, as well as countless incidents in club games, indicate that these events remain in footballing consciousness. Yet at the same time people seem wedded to the idea of justice and fairness and would protest vehemently if they or their team were unfairly penalised or given an undue handicap. Furthermore, in professional sport, where careers and livelihoods are dependent on fair and impartial decisions, the idea that sport is better by not implementing technology that would assist in sporting justice seems peculiar indeed.

The philosophy of sport literature is replete with discussion on fairness and justice – so much so that it arguably accounts for the greatest proportion of academic thought in this domain, whether this centres on doping, cheating, spoiling or the characters and virtues of those involved. So to say that it doesn't really matter whether sport is fair or not seems to be inconsistent with the amount of time and effort devoted to discussing it. Sport is based on a notion of fairness, however that notion is defined. If players didn't think that they were being given a fair chance (and this includes handicaps in sports such as sailing and golf), then they would soon give up participating. As such, it would be absurd to argue that officials (at the behest of governing bodies such as FIFA) provide these controversial incidents so that fans have something to argue about in the pub. Referee Jorge Larrionda didn't disallow England's goal against Germany in 2010 because he was being unfair, he simply made a mistake in his observation. As far as Larrionda was concerned he was attempting to be as fair and consistent with the rules as possible; it was his observation skills that let him down. As is noted with reference to FIFA's other reasons, human error is something that FIFA is happy to accept and even embrace. FIFA's response may be that since these incidents are rare, the benefit gained from them in entertainment

value outweighs the cost to the game itself. What FIFA doesn't consider in this response, however, is the cost that is borne by individual stakeholders, such as managers, players, club owners and investors. Such a cost–benefit analysis, which FIFA appears to adopt with this reason, is a very crude tool to use at the business end of the game.

As Collins (2010) notes, not only must justice be done in sport, justice must be seen to have been done. Yet, justice is not the same as accuracy. As illustrated, an official can be unbiased or unpartisan but still make errors in accuracy; this is reflected in phrases such as 'it all evens out in the end' or 'you win some, you lose some'. This is what fans and FIFA seems to be implying when drawing upon this reason against GLT. Yet additional problems have arisen since the introduction of television replays and technological insight when an official's perspective (epistemological privilege)¹⁰ is incongruent with other perspectives such as the one given to millions of viewers by the television camera.

In the pretechnological era, these advantages, with the help of low-level technologies such as lines, nets, posts, and the bails on the cricket stumps, made ontological authority mesh smoothly with epistemological privilege and umpiring and refereeing worked well. New technologies, however, degrade the epistemological privilege of the umpire and referee. In some cases the epistemological privilege has moved to the crowd or the remote television viewer. This often means that there is disharmony between the ontological authority and the epistemological privilege leading to loss of credibility of the match official and the sport. (Collins 2010, 136)

The point that Collins makes was aptly illustrated in the 2010 World Cup when Argentina scored against Mexico despite television replays showing there was an offside infringement.¹¹ A replay of the incident immediately after the initial decision to award the goal was shown inside the stadium to spectators, players and officials alike. In this case, there was a clear disparity between the referees' ontological authority and the epistemological privilege given to others via technology. In order to explain this disparity further, it is useful here to refer to Collins's distinction between two types of justice: *presumptive justice*, where justice is assumed to have been done from the position of the official who exercises ontological authority, and *transparent justice*, where justice is seen to have been done from all other perspectives. Prior to the television replay, presumptive justice was sufficient (since everyone had to accept the official's decision), but when replays of incidents are now available to all both inside and outside the stadium, it has become increasingly inadequate as the perspective awarded to others (spectator, coach, player) through this technology provides them with more ontological authority than the official designated to adjudicate on these matters. This disparity between the information accessible to those not in an officiating capacity and the officials themselves therefore supports the need for GLT. As Tijs Tummers, secretary of FIFPro (the professional players' union) technical committee said of the Argentina incident,

[The referee] would undoubtedly have heard that Tevez was offside, the whole stadium had already seen it by then via images on the scoreboard. Yet, because the referee was not allowed to rely on video images, he had to award the goal which he knew should have been disallowed. You could see the doubt in his eyes. Technology does not undermine the authority of referees, it only helps them. (BBC Sport Online 2010b)

Despite this, FIFA seems unwilling to recognise or accept the part that technology currently plays (via television replays) in providing players and spectators with an epistemological privilege to which they previously did not have access. On the few occasions it has recognised the existence of this epistemological viewpoint and the problems provided by television replays, its answer is to reduce the amount of replayed action allowed to be shown in the stadium in order to re-establish some of the official's ontological authority.

5. The technology is not reliable enough.

Another of the key reasons given in opposition to GLT is that it is not reliable enough, and FIFA has consistently indicated that unless the technology is 100% accurate then it would not be accepted. FIFA's first set of trials with GLT was abandoned in 2008 due to reliability issues and its 'unsuitability for football'. However, following some clear officiating errors in the 2010 World Cup, FIFA reassessed its decision and restarted tests with two companies; one that utilised a magnetic field (GoalRef), and the other that utilised cameras positioned above the goal (Hawk-Eye). The two stages of testing required the technology to pass the following criteria under both day- and night-time conditions and in a variety of climatic conditions: visual and vibration signal to referee's watch within one second of a goal being scored, signal range covering the whole pitch, 100% recognition of free shots on goal,¹² and a 100% statistical and dynamic accuracy.¹³ FIFA's demand for total reliability meant that all providers failed the initial testing in February 2011. However, most companies maintained that this was due to not being provided with enough information about the testing venue and being given insufficient time to set up their equipment. Consequently, FIFA extended its deadline for submission and put in new testing phases in Autumn 2011 and Spring 2012.

FIFA's demand for absolute accuracy in the technology when it insists on preserving a game that includes the possibility of human error appears to be an attempt to defend contradictory positions. That FIFA representatives have gone as far as to say that officiating mistakes are integral to the nature of the game ('We have to keep the human factor and that includes refereeing error': Wilson 2006) illustrates this tension. This alludes to one of the other reasons FIFA gives against GLT, whereby a small degree of human error is believed to hold an entertainment value; yet this does not extend to mistakes made by technology. FIFA may indeed be correct in its belief that we are more forgiving of mistakes made by humans (with which we can empathise and view as part of a wider narrative on the individual) than we are of technological error. Nevertheless, FIFA may well deliberately be setting the bar too high. The notion that technology can ever be 100% accurate is disputable, not least because there are almost an infinite number of variables to take into account and it can never be possible to replay the situation as it was. All sports that utilise officiating technology have seen instances where the technology has failed or produced results that are incongruent with later analysis and the judgement of experts. Additionally, despite the manufacturers of Hawk-Eye insisting that their product is 100% reliable (Hawkins 2009), all technologies tolerate a degree of statistical error which means that incorrect decisions will undoubtedly be made at some point. This fact, as noted by Collins and Evans (2008), is often forgotten or neglected by those using them and as such, subsequently affects public perception when the technology makes crucial mistakes. Both logic and practice seem to suggest that it is unfeasible to expect any technology to be

completely infallible and it may be that FIFA's insistence on absolute reliability is essentially a cover for its conservative attitude and stance. Its request for 100% accuracy when it is not achievable in principle (in the real world, not in models) undermines the notion that the test, and FIFA's view, is impartial.

6. It will undermine the quality of the referees.

One of the concerns that FIFA has with the implementation of GLT is that referee authority will be undermined as officials will abdicate their responsibilities and turn to technology to make difficult decisions instead. This unease resonates with FIFA's desire to preserve the 'human element' of the game, as outlined in previous discussion, and mirrors similar concern found in other sports. For instance, recent debate in rugby union has focused upon the apparent over-willingness of the referee to turn to the fourth official in what often appear to be straightforward decisions. However, although the implementation of Hawk-Eye in cricket led to concerns that it would reduce umpires to the status of counting-men and coat-stands (which incidentally was their original status in the early game), these fears were arguably shown to be unfounded as, several years after its introduction, evidence suggests that umpires still generally make most (correct) decisions with their own eyes rather than referring to technology. Equally, although there has been discussion about the apparent speed that rugby referees turn to the television match official (TMO), responsibility for referral and the question that is asked (for instance, 'Is there any reason why I cannot award the try?') still ultimately rests with the referee.

It may that FIFA's concern can be interpreted as suggesting that referees will show a form of cowardice in neglecting their responsibilities and lead to a poorer quality of official. Yet it is not clear how this would be the case. With the ongoing professionalisation of many sports and the investment in training of officials by governing bodies, it seems highly likely that the quality of officials will increase rather than decrease, as many become full-time professionals competing for selection at the highest level. Furthermore, this rise of professionalism and the desire for governing bodies to ensure that their sports remain popular and entertaining means that the quality of officials and their ability to make correct decisions is a vital contribution to this. For a good game is one which is seen to be just, and since players do not have the impartiality or epistemological authority to ensure this is always the case, referees and umpires will always be necessary. As such, the introduction of technology that assists with the accuracy of judgements made by officials in games is unlikely to counteract the other factors involved in ensuring standards of officiating are kept high.

7. The technology is too expensive to implement.

One of FIFA's practical concerns about the introduction of GLT is the cost of implementation. Yet, considering that FIFA is one of the wealthiest sports governing bodies (its 2010 financial report stated over \$1,280 million in reserves and a growth of over \$200 million from the previous year) (FIFA 2011), and that other, less affluent, sports use officiating technology, it is not clear how this reason can be substantiated. Hawk-Eye's managing director, Paul Hawkins, estimated the cost of installing his system is between £125,000 and £250,000 (Ziegler 2010). Moreover, Hawkins suggested that technology companies would probably install their technology free of charge as part of a sponsorship

deal (as has happened in sports such as tennis), thus decreasing any costs further. FIFA's response may be that the type of technology that is required is different to that utilised by other sports and therefore has a far higher cost, and that it would need to be rolled out to all top-flight international and club competitions. Yet when FIFA seems to be prepared to spend millions of dollars in events, marketing and directors fees, among other incidental expenses, rather than ensure that competitions at the highest level are fair and the outcomes just, arguably its priorities might need to be called into question.

8. The technology is too expensive to test.

Again, many of the points raised previously can be applied here. Football would be the last in a long list of sports to utilise officiating technology and therefore it ought to be able to benefit from previous testing. The difference is regarding the type of technology FIFA is prepared to use. It will not accept the use of television replays or the assistance of a fourth official reviewing play but will require a direct signal to be sent to the referee within a second of a goal being scored. As discussed previously, due to the nature of the game of football, which does not contain many of the natural breaks in play that occur in other sports such as tennis, cricket, rugby or American football, a different type of technology may well be required. If it is unclear whether a shot on goal is successful (if, for instance, it rebounds off the bottom of the crossbar and back on to the field) it is not necessarily the case that there would be a natural break in play that would immediately follow (since play would continue unless stopped by the referee), and therefore there would be no clear time frame in which the incident could be reviewed. Since the continued play could result in a scoring counter-attack by the opposing team, any technology would have to be able to work within these constraints, and hence this is why FIFA stipulates that the referee must be notified before any significant play can continue. The sport with the greatest similarity to football that uses a form of GLT is NHL ice hockey, where an assistant judge is positioned behind the goal and watches footage from cameras placed directly above the rink. If that official sees a goal then a button is pressed that immediately notifies the officials on the ice. The video cameras positioned above allow the assistant referee to have a view of the game not afforded to those on the rink itself. Nevertheless, FIFA has rejected this type of system in favour of an original product which does not require any additional human officials. It is FIFA's choice as to how much investment it makes in testing appropriate technology; there are many tried, tested and utilised systems that are used successfully by many other sports but which FIFA rejects. Ultimately, FIFA's reasoning that the testing and implementation of GLT is 'too' expensive is one that is based upon judgement rather than fact.

Conclusion

Despite its long-standing resistance to GLT, which culminated in the eight reasons hitherto discussed, it now seems that FIFA has accepted that ultimately they are inadequate. The primary objective for FIFA must be to ensure a fair game that is justly officiated; otherwise the game itself, and public perception of it, will diminish. The growing problem that exacerbates the issue is with the adoption of other technologies both within and outside the stadiums (such as big screen replays, which FIFA has little control over) that diminishes the ontological authority of the referee by providing players,

managers and spectators with an epistemological position to which they previously had no access. As such, it is more apparent than ever before when justice, which is the essence of good sport, is not seen to have been done. There is some evidence to suggest that FIFA might justifiably be concerned with the slippery-slope argument, whereby a precedent will be set for the introduction of other officiating technology, but if the aim is to ensure the game is as just as possible then it should welcome these possibilities. The adoption of officiating technology in other sports has generally passed without a call for a reversal of implementation, and therefore GLT is likely to be as equally accepted in football. Indeed, for many sports, the wait for an official's decision to be flashed up on a large screen is now part of the spectacle and entertainment value of the game. While this might not occur in the same way in football due to FIFA's requirements for a direct signal to be sent to the referee, it does indicate how justice and entertainment can successfully marry. Additionally, that there are already many different forms of football endorsed by FIFA, and many differences in standards of pitches and officials throughout the various levels of the game, undermines FIFA's argument regarding the preservation of universality within the game, and it is not clear how GLT would have an adverse effect upon this. There may be something to be said in relation to the reliability of technology, but this is a factor that is ubiquitous in other sports too. Despite FIFA's wishes, no technology is infallible and all contain a degree of measurement error. Whether any error that occurs following its implementation is accepted by those involved will be an issue that will undoubtedly be discussed when it happens.

One final defence that could be given in support of FIFA's original position is that although all of these reasons taken separately do not appear to be enough against the weight of argument in favour of GLT, taken together they do justify FIFA's conservatism to a greater extent. Yet even FIFA seems to have reluctantly accepted that the reasons for implementing GLT are superior to those opposing it as they begin steps to introduce it into the game. It seems that the demands for a just and well-officiated game in the light of other technological developments, in addition to the enhanced epistemological position now given to those watching the game, have demonstrated the weakness of FIFA's original stance against GLT.

Notes

1. One only needs to search the archives of various media outlets, e.g. BBC News Online, LexisLibrary, FIFA.com, to provide evidence of FIFA's stance.
2. Although the original link to FIFA's reasons (Blatter 2010) is no longer available, a cached copy is provided in the reference list.
3. For example, 'When we can find accurate technology to determine if a ball has crossed the line, in order to settle goal disputes, FIFA will be in total support of it' (Blatter 2003).
4. For example, '[We] believe that football is a game for human beings and, as such, we should improve the standard of refereeing - and not turn to technology' (Blatter 2009).
5. One might think of a game such as futsal, which though bears similarities to, and is a derivative of football, is not football since the constitutive rules differ – for example, the number of players the size of the pitch, the size of the ball, in addition to the fact that it has its own name.
6. For further analysis on distinguishing between constitutive rules and rules of skill as well as regulative rules and auxiliary rules, see Fraleigh (1984) and Torres (2000).

7. As this paper is solely concerned with technology that assists with decision-making on the field of play, the terms officiating or adjudicating technology will be used interchangeably.
8. For instance, whether the batsman 'nicked' the ball before being caught by a fielder, or whether the ball would have hit the stumps had the batsman's legs not got in the way.
9. As kindly pointed out by one of the reviewers for this paper, such discussion highlights two conflicting goods at stake here: whether fairness and justice according to the rules of the game is more important than an internal good of the game, namely its continuity. FIFA, it appears, have opted for the most conservative solution and have prioritised the latter over any real examination of this problem and the issues involved.
10. Collins calls this 'epistemological privilege' since the official is in a unique position to adjudicate what is the case, i.e. whether the ball has crossed the goal line.
11. This can be seen here: http://news.bbc.co.uk/sport1/hi/football/world_cup_2010/8766605.stm.
12. It must detect the ball crossing the goal line when it is fired at an open goal from a variety of positions on the pitch.
13. It must detect the ball crossing the goal line when it is stationary and moved across by another object (e.g. a goalkeeper) or spinning and moved over the goal line, again being held by a moveable sled.

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