

Translating performances: the production of sports media broadcasts

When René Magritte painted a picture of a pipe and wrote beneath it ‘This is not a pipe’, he was drawing attention to the difference between representation and reality. The painting was, of course, an image of a pipe, as opposed to the pipe itself, and Magritte was asking viewers to keep the distinction between the two in mind. In any televised coverage of sport the same distinction is in place. A television image of a football game is not the actual game; it is a representation or depiction of the game. While we rarely refer to sports television producers as artists, their role is exactly the same. Like Magritte, they produce images that show a particular depiction of reality.

Within the study of art, art historians, theorists and philosophers have studied and written intensively on representations. The meaning of representations is discussed at length, and this forms a significant core of the discipline. But alongside the art historians are others who specialise in the study of artistic technique. These technicians are less interested in the meaning behind the representations themselves, and instead turn their attention to how the art work was produced. They are experts in brushes, paint and canvases, rather than in Madonnas or landscapes.

In the study of mediated sport there are plenty of equivalents of the first form of art historians. Many sociologists or advocates of cultural studies have examined intensively the representations produced by sports media. They have identified particular depictions of different genders, races, ethnicities, nationalities and many other factors. But unlike in the study of art, there are very few technicians who examine the exact methods by which sports media are produced. Some of these techniques may be learnt in broadcasting school, or on the job, but within academic literature the topic seems to be almost entirely missing.

Latour (1992) is famous for describing non-humans as the ‘missing masses’ in the study of society. While more recently authors have argued that the increased number of studies examining technology, animals and other non-humans means that non-humans are no longer missing (see Sayes, 2014), they remain missing

in the study of sports media. There is little attention to the exact technologies utilised by sports producers and how the assemblage of humans (such as commentators) and technologies (such as digital overlays) work together to produce the actor-network that is the sports media broadcast.

The goal of this chapter is to begin to remedy this deficiency. The chapter draws attention not to sports media representations but to the processes by which these representations are produced. It considers how humans and technologies assemble together to produce what we view to be a seamless television broadcast.

One of the most interesting aspects of a television broadcast is its global accessibility. A broadcast makes one game in a single location visible to countless people who are physically distant from where the game is happening. Broadcasts can also cross borders, with numerous countries often drawing on the exact same footage, subject of course to the inscriptions outlining each broadcaster's media rights. In this chapter the global nature of sporting coverage is considered through Collier and Ong's (2005) concept of a global assemblage. Following this, I examine China Central Television's production of the 2008 Beijing Olympic coverage, and the history of the broadcasting of the America's Cup.

Global assemblages

One of the central questions within this chapter is: how are global assemblages created? The term 'global assemblage' stems from Latour's (1987) term 'immutable mobile'. This in turn refers to the relatively stable configuration of an actor-network which can be displaced yet still holds its shape. The displacement refers to the way a certain set of ideas, or way of doing things, can be moved or used in any part of the world, while the idea of holding shape refers to the concept that it is stable enough to remain the same regardless of its movement (Law and Mol, 2001). Cooren et al. (2007, p. 157) explain the value of the concept:

By immutable mobile, Latour means an entity that can travel from one point to the other without suffering from distortion, loss, or corruption. The beauty of this concept is that Latour shows how much energy needs to be spent and how much technology has to be mobilized to sustain the immutability of a mobile, whether this mobile be information about the geographical position of an island, the data related to the location of an oilfield, or the statistics that go into an economic projection. In all these cases, information needs to be transported from one point to the other (it needs to be mobile) but scientists and technologists

have to find ways to maintain the integrity of some of its crucial aspects (they have to render it, to some extent, immutable). Unless they do it loses credibility.

This account demonstrates the value of the concept in relation to sports media coverage. A broadcast of a sports game can remain the same regardless of how many places in the world it is transmitted to, and how many televisions display it. The global movement of the coverage does not distort or change it in any way.

Earlier in this book, in Chapter 4, there was a discussion of how the graph acts as an immutable mobile, since it is a form that contains particular information that is not distorted when the graph is moved from point to point. The concept essentially relates to the idea that an actor-network can stabilise through a non-human actant in order to allow its transportation. Within television coverage of sport, it is a particular network of non-humans, including satellites and television screens, that allows this transportation, as well as inscriptions in the form of agreements between countries and broadcasters.

Collier and Ong (2005) extended the notion of an immutable mobile to the concept of a 'global assemblage' as a way to focus on actor-networks that have global reach, and which retain their form despite moving across international borders. The immutable mobile does not necessarily have to have a global form; it is often something that contains physically linked components and may only move short distances, whereas a global assemblage includes international components and is moved around internationally.

In terms of sport, broadcasts of some games or matches act as global assemblages. Broadcasts consist of an edited video recording of the match that is specifically designed to hold its shape or form while being globally distributed. As Cooren et al. (2007) describe in the account above, a fundamental aspect of the immutable mobile (or global assemblage) is the centrality of the technology in ensuring that the form of the entity is retained. In sport, distribution takes place either through traditional media broadcasting technologies such as television or, more recently, through online forms such as YouTube or other internet video sites. These technologies facilitate the movement of the sports form. The edited recordings work as global assemblages in that the audience receiving them generally understands and accepts them as depicting the match (Law and Mol, 2001). Therefore, it could be argued that the sports media relationship results in the stability of a global assemblage.

So the questions this chapter sets out to answer are: how did these global assemblages come into being? What is necessary for an actor-network to stabilise

into a global assemblage? These questions will be answered by examining two different cases. In the first case, the broadcasting of the Olympic Games is already stabilised as a global assemblage. Therefore the goal in this case is about understanding how the games retain their distinct form when confronted with changes in technology. In contrast, the case of broadcasting of the America's Cup was chosen because of the complexity of the technology that was required in order to mobilise the sport, with the question of whether it has achieved stability in the form of a global assemblage still in doubt. However, before examining the cases, the chapter provides a brief overview of the history of technology in sports broadcasting.

Technological developments in sports broadcasting

Stead (2008, p. 340) describes how sports media companies employ professionals to produce a sports media package that 'aims to attract, interest and excite their audience.' Therefore it is understandable that sports media produce a 'distorted' version of sport and not an objective and neutral presentation. Stead describes a number of techniques that media companies use to present sport in a more interesting way, such as commentary, expert analysis, an emphasis on the spectacular and presenting athletes in very particular ways. While these may seem simple, Whannel (1992) argued that these techniques developed in tandem with the technologies that facilitated their use. Similarly, Turner (2007) argues that the relationship between sports broadcasters and sports organisations has intensified owing to technological developments in the field of sports broadcasting.

Whannel (1992) describes how television broadcasting was only possible through the production of satellites that became sufficiently efficient in the 1950s to beam live coverage around the world. In essence, satellite technology needed to stabilise as a global assemblage to allow the production of television coverage. With satellites in place, it became possible to broadcast sport worldwide. The focus then turned to the production of a more realistic screen image, with the 1950s and 1960s characterised by improvements in camera and microphone technology, the most famous of which was the introduction of colour television in the 1960s. Ross (2008) describes how the Canadian Broadcasting Corporation used instant replay for the first time in 1955 when broadcasting *Hockey Night*. Replays were further developed in the 1960s,

with both the action replay and the subsequent slow-motion replay becoming commonplace. Replays altered the coverage of events significantly, with replays not only being played during matches but also allowing for extended panel-style discussion both before and after a match. In the 1970s the focus shifted to utilising electronic devices to edit images. For example, a new amplifier allowed the production of a 'tighter' image, meaning that any unimportant or unattractive parts of the image could be removed (Whannel, 1992, p. 61). Clear camera shots from a variety of angles, replays and commentary have all come to be understood as a normal part of the sports broadcasting experience.

In terms of the technologies available to viewers, Todreas (1999, cited in Turner 2007) argues that there have been three distinct eras of broadcasting development. First, the 1950s to 1975 included limited broadcasters and heavy regulation. During this era viewers had very little viewing choice. A second era emerged in the 1980s, with the advent of cable, or pay-TV, which provided viewers with a greater range of options. The third era emerged in the 1990s with the advent of digital technologies, which increased yet further the range of options available to the viewer through websites and online content. Similarly, in examining the changes that have occurred through moving to digital technology, Bull (2005) notes the way the movement from the Walkman or Discman to the MP3 player has revolutionised listening to music through the far wider range of options now available to listeners. Listeners now have a choice of thousands of songs on a single device, plus a range of methods for listening to them. However, it is not the user experience that is the focus of this chapter but media production. The following case study details the introduction of digital technology into broadcasting. The move from analogue to digital technology arguably created a range of new possibilities, but also some risks and problems.

Case study: the broadcasting of the 2008 Beijing Olympic Games

The summer Olympic Games could be argued to be one of the most famous examples of a global assemblage. As a ritualised event, it includes specific features such as the torch relay, the parade of athletes and victory ceremonies that include the playing of the winner's national anthem (Roche, 2000). These

aspects are now understood as stable aspects of the Olympic Games that occur at every Olympiad despite it moving to entirely different international venues every four years.

However, Horne and Whannel (2012) point out that a significant aspect of the actor-network of the Olympic Games is the televised aspect. The Olympic Games are produced as a television event, with television taking precedence, rather than it being merely a live event that happens to be recorded and then shown on television. Horne and Whannel (2012, p. 149) use a controversial example from the 2008 Olympic Games to illustrate the vital place of television within the actor-network of the Olympic Games: the 'digitally enhanced' fireworks that were part of the opening ceremony:

Part of the firework display was 'real' and live, but other parts appeared to have been pre-recorded and used to enhance the television image ... While there clearly were real fireworks, the full display could not be properly seen either from inside the stadium or from immediately outside it ... Only on television could the whole production, complete with digital augmentation, be properly perceived.

The example of the fireworks illustrates the importance of the television coverage as part of the actor-network of the Olympic Games. If the television coverage was not important, there would be no need to digitally enhance the fireworks in this way. Therefore, the production of the television coverage forms a vital part of the global assemblage that is understood to be the Olympic Games. For most people who watch the games, it is their entire experience of the Olympic Games. With this in mind, the following case study details the work involved in producing the television coverage of the 2008 Beijing Olympic Games.

This case uses the work of Liang (2013). This writer does not describe himself as working from an ANT perspective, but his arguments resonate strongly with the ANT point of view. Like Latour, Liang (2013, p. 475) argues that both the 'material and social' are important, indicating an intention to pay equal attention to both the human and non-human within his study. His work is unique in focusing on the actual work that occurs at the production level, which is why it is so relevant in understanding the question of how a global assemblage comes to be created. As discussed earlier, among those examining sports media it is more common to discuss cultural meaning than to examine the work performed in production, so Liang's (2013) work is an important exception to this rule.

To explain why there is so little work examining media production processes, Couldry (2008) argues that media have become black-boxed as benign and natural rather than institutionalised. This is understandable since in the early days of media coverage the media were the only way in which people who were not at an event could access any news about what was happening. However, today, the media instead aim to attract viewers in order to maximise commercial gain. Couldry (2008) notes that the black-boxing process has ensured that the networks that make up the media have become hidden from view. With this in mind, Liang's (2013) work is useful for unpacking the black box that has become 'media coverage'.

Liang's focus is not only the production of the coverage but also the introduction of digital broadcasting technology as a mode of broadcasting. As described above, the move from analogue to digital has been identified as a significant shift in broadcasting and in society (see, for example, Bull, 2005; Turner, 2007). In the case of the Olympic Games, the role of the broadcasters was to ensure that television coverage was produced that mirrored the kinds of broadcast that had featured at previous games, thereby ensuring the continued production of the global assemblage known as the Olympic Games. As outlined below, Liang (2013) identifies that digital technology opened up a range of potential new broadcasting methods. However, equally, it is noted that the anti-programme of 'limited time' meant that the full potential of the technology was not utilised during the Olympic Games despite the large resources allocated to it.

Time is again identified as a scarce resource in this case (Woodward, 2013), as in many other cases described in this book. In this case, Liang's (2013) description of the broadcasters' reasons for not using all the potential provided by digital technology is identical to the reasons why elite athletes do not easily enrol technologies. In both cases, the anti-programme of 'limited time' forms a significant barrier, with both groups aware that they have time to utilise only a limited actor network.

Liang argues that the move to digital broadcasting in China, as adopted by the national broadcaster, China Central Television (CCTV), brought about a complete change in the way that broadcasting took place. He explains how in the previous era of video tapes the processes of production and broadcasting took place independently, out of necessity. The physical tape needed to be completed by the first group before being edited by the second group. As the tape existed as a physical object, it needed to be physically passed from one group to the

other. In contrast, by the 2008 Olympic Games the improvements in the digital platforms meant that the two processes could be integrated. Liang (2013, p. 473) states:

With a crucial material link in the process (the videotape) being removed, TV content came to be stored, edited, produced, and broadcast purely via digital files. TV making henceforth transformed from a 'material' era to an 'immaterial' era.

Here Liang interprets the digital era as no longer requiring a physical object as the vehicle for circulating the images, but because of his focus on the 'material' he notes how the participants in his study were still very aware of working with particular technologies despite the 'immaterial' nature of the digital age. For example, he describes how there were concerns about remembering to save footage to the correct part of the server in order to allow it to be edited. In this example, although the digital server does not technically physically exist, broadcasting personnel clearly treated the server as a significant actant in the production of the broadcast. They acknowledged the need to use the server correctly in order for it to act as an intermediary rather than as a mediator.

This example suggests that the transition from analogue to digital increased the complexity of the actor-network that produced and broadcasted sport. In the analogue era the tape presented a finished product from the production team. It was highly stabilised and immutable, not subject to accidental deletion or alteration. In contrast, digital files are far more ephemeral. They needed to assemble with the correct part of the server in order for them to work, but also remained subject to accidental deletion or loss in a way that was not possible with a physical tape.

One feature that Liang (2013) described as occurring as a result of the move to digital was the creation of a new device called the Express Video Service. Prior to the digital era, a physical copy of the video tape had to exist in order for editing to commence. As a result, it was not possible for editing to take place until the event was concluded. In contrast, the Express Video Service featured 'real-time recording, playback, and editing functions in an online environment' (p. 479), which meant that editors could access the live stream of the event at any time and could commence editing while the event was still running. Liang (2013, p. 475) recognises the symmetry of the human users and the technologies in producing this outcome:

In this case, the agency of users (the organizational customers) helped reconfigure the material features of the network technology, while the technology people helped users realize their creative goals by tapping into the technological affordance and added new features to the prototype.

In this description Liang points out that the various actors hold different roles and therefore have different understandings, and one aspect of moving into the digital areas was to bring these different groups together. The digital platform acted to allow users to perform different actions, and because of the immediacy provided by the platform, the 'technology people' were able to instantly respond to users' needs and consequently improve the digital platform. The digital technology, 'technology people' and users all contributed equally to the improvement of the prototype.

As previously discussed, one of the largest changes in moving from analogue to digital was the way that, with the digital platform, production and broadcasting could be undertaken simultaneously. This technological shift resulted in two groups working together who had not done so before, and Liang (2013, p. 478) found through interviews that bringing them together was perceived as generating new forms of creativity, as one interviewee (a broadcaster) described:

The sports people have the best minds. They often come up with ideas how a new technology might help realize a certain vision. Conversely, I would float my ideas and see if they could help improve the television production process. We would then toy with the ideas and try to find a proper channel, such as the Football World Cup, to turn these ideas into technological reality.

The scenario contrasts greatly with the cases described in Chapter 5, where sports coaches and scientists were not able to work seamlessly together because they brought different understandings to the scenario, even though their goal might be the same one, of producing a more effective athlete.

However, despite the apparent willingness to work together, Liang (2013) argued that the resultant Olympic coverage was not as creative as it could have been owing to a lack of familiarity with the technology, and the processes involved in working with the technology. Essentially, the limited time available and the impossibility of practising the coverage of an event the size of the Olympic Games acted as anti-programmes towards the best possible production. Again the actant 'time' proved significant. While a large number of resources were utilised, such as allocating an individual support technician to

every media maker, the lack of familiarity with the new technology meant that the media makers did not feel they performed as well as they could have. For example, Liang (2013, p. 482) described a revealing scenario that occurred after the games:

The International Olympic Committee (IOC) hosted its Golden Rings Awards to honour the best Olympic programs by TV rights holders. CCTV's feature team was asked to submit one program to compete for the award. I was surprised to learn that the producer submitted an entry that was broadcast in the run-up to the Games and not during the Games. The producer later explained that he could not recall any outstanding feature during the Games that merited a submission. The extraordinary pressure during the Games constrained the creativity of media makers.

A further reason for the pressure felt by the media makers was the belief that the introduction of digital technologies introduced a higher degree of risk. This was described in an interview with an engineer:

If the system works well, everything is fine and more efficient. But should there be a breakdown, it will result in a catastrophe. Unlike the tape era, when a glitch on one single machine would only have a local impact, this time a problem at the systematic level would have a systematic impact. That's the downside of a complex, interconnected system. (Liang, 2013, p. 480)

The argument made by this engineer is the same as that made by Latour (1999a): that any point in an actor-network can affect any other point and potentially generate unexpected outcomes. In this case the technology of the video tape acted to limit the size of the actor-network, since the circulation of the data on the tape could be achieved only through the circulation of the physical tape. By contrast, the immediacy of the circulation offered by digital technology meant that the actor-network suddenly increased in size. While on the one hand, new, novel and creative solutions were then able to be generated, on the other, greater risk also resulted through mistakes also being able to circulate rapidly through the actor-network.

Liang's (2013) study of the broadcasting of the 2008 Olympic Games highlights the way that the technologies used for production and broadcasting have a significant impact on the way that footage is generated. His findings fill a significant gap in the literature, in examining the processes that took place within broadcasting and the role of technology within this environment. Further work in this area would be beneficial in order to understand the role that changing technology plays in the media broadcasting of sport.

When watching televised sport, we cannot fail to be aware of the immense number of technologies involved in production, such as cameras, headsets, cables, microphones etc., so it is surprising that so little attention has been directed at these elements.

Moving to image enhancement

While the previous case examined the introduction of digital technology in the production of a single mega-event, the following case examines how computer-based broadcasting enhancements have influenced a particular sports event over a number of years: the America's Cup. First, however, the background to computer-based technologies is discussed.

Owens (2005) documents how a range of different computer-based technologies have been introduced into sports broadcasting that have been met with various degrees of interest. Some of these have become ubiquitous within sport, while others have not been so successful. For example, one of the more ubiquitous is the virtual field-of-play lines that are now commonplace within sporting coverage. These consist of virtual lines 'drawn' on the field that demonstrate where particular play zones are, or similar. Such lines have also been extended into showing where an athlete is in relation to a world record and have been used in sports such as athletics and swimming. Virtual field-of-play lines add to the excitement of the viewer by presenting additional information in an easy-to-understand manner. But not all enhancements have been so successful. For example, Owens (2005) describes how an enhancement introduced into ice hockey, which made the puck easier to see by making it glow, was not greeted with enthusiasm by fans. As a result, it was only used for three years in television coverage of hockey before it was removed.

Virtual field-of-play lines and a glowing puck are small examples of two technologies that have been introduced into sports coverage with the goal of making the coverage more accessible and popular with viewers. In order to understand how technologies such as enhancements develop over time, it is necessary to examine the step-by-step process of their historical development. Latour (1991) demonstrates this process through the examine of the Kodak camera. He describes the different actor-networks that made up the camera at different stages of its existence. Parts of the actor-network included small physical technologies that could be replaced or upgraded, such as gelatin, replaced by soluble gelatin, but also included what would traditionally by considered much larger

actants, such as the existence of a mass market for cameras. Latour demonstrates how the camera existed and exists in a continual state of flux as it changes based on the make-up of the actor-network. Related to this argument is the question of when the actor-network stabilises and becomes an immutable mobile or global assemblage. In the following case, the America's Cup is examined through the same method in order to track the efforts made by broadcasters to turn the event into a global assemblage.

Case study: the broadcasting of the America's Cup, 1983–2013

The America's Cup is a high-profile sailing event that began in 1851. The format involves different countries issuing challenges to win the cup, but the USA continued to win the cup until 1983, when it was won by Australia (Andrews, 1992; Bentley, 2013). Unlike the case of the Olympic Games, the America's Cup is not a widely popular international event, despite the desire of those running the event to make it so. Therefore, where the case of the Olympic Games was about producing a consistent broadcast despite a change in technology, the case of the America's Cup is about the efforts of those involved in the cup to produce an event that may one day reach the status of the Olympic Games or FIFA World Cup, in becoming a global assemblage. Therefore in this case study the development of the America's Cup in terms of broadcasting is followed from 1983 to 2013. It is more difficult to argue that the actor-network that makes up the America's Cup is a global assemblage, for two reasons. First, an unusual quirk of the America's Cup is the way the winner of a race is entitled to choose the venue and rules for the next cup. Therefore, the format of the event is unstable, with great variation between cups. Second, despite the efforts of those involved in the America's Cup, it fails to attract any significant global attention. Sports journalist Tripp Mickle (2012) speculates that there are several reasons for the lack of global interest. First, he suggests that the expense of the yachts means it is beyond the means of most sailors to compete, resulting in fewer than twenty yachts competing, often from the same wealthy countries with some history of sailing success. Second, he suggests that the race is not globally popular as sailing does not work easily as a spectator sport. The rules of sailing are complicated and difficult for the layperson to understand, and, in terms of viewing, it is difficult to make out the position of the boats relative to each other or to the race course. Additionally, the timing of races is determined by wind and weather

conditions, making it difficult to ascertain precisely when races will be held. For example, in the 2013 America's Cup, numerous races were cancelled or postponed because of wind conditions, leaving spectators in doubt about when the next race would occur.

Despite these difficulties, since Australia's victory in 1983, which brought the race to the attention of many new viewers, broadcasters have recognised the potential for the America's Cup to become a globally popular event. Since that time broadcasters have sought ways to increase the global popularity of the sport. In essence, they have attempted to transform sailing into a global assemblage. Therefore, with this goal in mind, the following now documents how the sport has experienced significant change over the last thirty years both in terms of operation and broadcasting. It begins by providing a brief history of broadcasting the cup, then considers the question of whether the cup has become a global assemblage. To date, there has been very little academic work examining the America's Cup, so the discussion below draws upon a variety of media releases, journalistic articles, websites, blogs and policy documents as well as one academic article.

A brief history of broadcasting the America's Cup

ESPN describes its 1983 coverage of the America's Cup as a pinnacle moment in its being treated as a serious television network. ESPN made a last-minute decision to televise the final race when the series was tied 3–3, and despite the coverage coming from a single camera in a helicopter, which resulted in the boats appearing as simply two tiny dots in the ocean, the ratings recorded a weekday afternoon record (Stewart, 1992). Such an indication was a strong one that interest in sailing was out there, motivating broadcasters to improve the coverage to attract more viewers.

The following event in 1987 included a far larger pool of nations and subsequently attracted greater media attention (John and Jackson, 2011). Therefore, from 1987 onwards, broadcasters began to turn their attention to how to present sailing most effectively to a wider audience. The first development, included in 1987, was the use of on-board cameras that were placed on boats near the challenging yachts. However, on-board cameras were only partially effective because the boat with the camera had to be in precisely the right place at the right time in order to record the action, something that was not always possible, leading to a very unstable actor-network. Further, on-board cameras did not show the

tactics and nuances, or explain the rules, so the footage was not particularly useful. Gladwell (2009, para. 4) describes how a potential solution was trialed in 1987, 'consisting of the yachts being "shot" using accurate survey equipment located on hills around the race course, and the output used to produce a GPS track of the yachts'. However, while the system appeared to have promise, it did not work effectively, so again the broadcasting of the cup did not stabilise to include GPS technology at this time.

In 1991 a team of graphics and GPS specialists came together and produced a workable system that overcame the anti-programmes identified above (Gladwell, 2009; Stewart, 1992). The graphics team produced computer-generated graphics of the boats using techniques from the film industry. These were then linked to a GPS black box which was placed in the boat, allowing the boats to send and receive real-time data that allowed the plotting of their exact position (Gladwell, 2009). Therefore, the coverage included computer-game-like animations of the boats that demonstrated their relative positions to each other and the course. Additionally, the 1992 cup coverage included cameras that allowed steady aerial filming from a helicopter that produced live overhead viewing of the position of the boats (Bentley, 2013). These developments significantly improved the presentation of sailing for television, as viewers were now able to understand the exact positions of the boats in relation to the race.

There was, however, still one anti-programme yet to be overcome, and that was the inability to see both the boats and their relative positions simultaneously. In 1992 the coverage was only able to switch back and forth between the aerial view and the animated view, without a link between the two (Bentley, 2013). The simultaneous-viewing problem was not solved until 2010, when the same team of technicians came back together in order to take the next step in improving television coverage of the race. This time the improvements to the coverage were directly linked to other changes that took place in the America's Cup format. The 2010 America's Cup was won by *Oracle USA*, owned by Larry Ellison, but the victory followed years of court battles over the rules which led to sponsors and competitors pulling out of the race (Mickle, 2012).

Larry Ellison proved to be highly determined to turn the America's Cup into a global assemblage. As mentioned briefly earlier, one of the unusual quirks of the America's Cup actor-network is the lack of an overall organising body. Rather than having an international overseeing body, such as FIFA for football, the America's Cup allows the winner of a race to choose the venue and rules for

the next cup. Consequently, Larry Ellison, of *Oracle USA*, planned significant changes for 2013 with the goal of increasing global spectator interest in the sport (Mickle, 2012).

Ellison introduced a number of changes to the cup. Perhaps the most controversial was the change in boat design. While unique boat technology has always been a hallmark of the America's Cup, highlighted by the 'winged keel' that won Australia its historic race in 1983, the changes introduced for 2013 were particularly significant (Bentley, 2013). Ellison allowed the racing of carbon-fibre catamarans that used wing sails rather than soft sails. This style of boat is able to travel very fast, up to 50 miles per hour, therefore arguably making races more exciting (Mahler, 2013). Further, it is able to sail in a wider variety of wind conditions, making weather delays less likely (Mickle, 2012). However, there were a number of problems with the new boats. First, the boats were so expensive to build that there were only four challengers (competing teams) for the cup, as opposed to ten or more as in previous years. Second, the boats are far more difficult and potentially dangerous to sail than previous styles. For example, in 2013 a capsized catamaran killed British Olympic gold medallist Andrew Simpson. As a result, the actor-network for racing expanded to include new safety gear such as crash helmets (Mahler, 2013).

This technological development is particularly interesting through the contrast with other sports in which governing bodies must carefully weigh up the value of new technological developments in terms of fairness, safety and other relevant rules. This was illustrated very effectively in the case of the polyurethane swimsuits. Even though the faster times had the potential to make swimming more exciting, FINA chose to ban these swimsuits on the grounds that they felt they were unfair and in breach of the rules. By contrast, the actor-network that makes up the America's Cup has no such governing body to consider whether changes in regulations are fair and the best thing for the sport. Consequently, changing the sport in order to increase viewer interest is far easier. It provides an interesting case study as a corporate model of sport.

The other revolution came in the broadcasting of the cup. Ellison chose the seas around the city of San Francisco as a venue partly because of its suitability as an ideal backdrop for a television broadcast (Bentley, 2013), but, more importantly, there were some significant technological improvements to the broadcasting of the 2013 America's Cup. The first was the introduction of Liveline, a system that combined overlays with real-time live footage. In a media interview, one of the main developers of the technology, Stan Honey, explained:

People wanted to see the real boats and crew sail, handling and puffs on the water, and at the same time wanted to have aids to interpretation such as lay lines, mark circles and advantage lines showing who's ahead and behind. (Bentley, 2013, para. 33)

In order to achieve the simultaneous viewing of the positions of the boats and the actions of those on the boats, the broadcast coverage included lines drawn on the ocean to show the boundaries of the course, the start and finish lines, wind direction, current lines and other course markers on top of the live footage of the boats (Bentley, 2013; Mickle, 2012). The footage also included the boat speed and the distance between any two boats, leaving viewers in no doubt of which boat was ahead. Liveline's goal was explicitly to make sailing attractive and easy for the uneducated spectator to understand (Fisher, 2012).

Liveline was also utilised by umpires, who watched the race on screen and not live (ACEA, 2012), although this part of the actor-network is not the focus of this chapter. In attempting to produce coverage that the layperson understood, the graphic overlays acted as intermediaries by translating the occurrences within the race into a form that viewers could understand.

To produce the graphic overlays, the actor-network was extended further to include a variety of new actants. Three helicopters equipped with cameras, precise GPS and navigational recorders filmed every race, with all their data being sent to the main control centre. Each boat was fitted with GPS units, microphones and three cameras, which also transmitted data to the control centre. At the control centre about sixty people, including commentators, were employed to use the data derived from the helicopters and the boats and to produce a streamlined television production (Fisher, 2012). Therefore, the television coverage may have briefly stabilised into a form that the layperson could understand, but it required a much more extensive actor-network in order to produce this effect. The control centre also acted as an oligopticon, with data from numerous physical locations all sent to one central point, but only as long as the connections between the various locations held. However, unlike WADA, who used data in order to police athletes, the data was used to produce effective television coverage. The more information that was able to be fed to the control centre about the exact details of the race, the more data the producers had to work with in order to produce more effective coverage. This perhaps reflects a similar

perspective to that used by the producers of reality television, where maximum surveillance of the participants is undertaken in order to produce the most interesting coverage.

The results of the broadcasts

The actor-network was effective for producing the graphic overlays as desired, but it is difficult to ascertain whether the resultant coverage was effective as a television product that was desirable to watch. On one hand, within the US market, the 2013 America's Cup produced higher ratings than all previous cups put together. However, the rating was still not high, particularly in comparison with other popular American sports such as American football and baseball. Further, there is an argument that the popularity of the cup was not due to Ellison's changes or the graphics work, but rather to the incredible comeback by *Oracle USA*, who were down by seven races only to clinch the series over *Emirates Team New Zealand* 9–8. In New Zealand the ratings can be argued to have been very impressive, with a quarter of the population tuning in to the races, but this is unsurprising given that New Zealand has the largest number of sailors per capita in the world (Daniels, 2013; Noonan, 2013).

The rating numbers fall far short of the Olympic Games, with its undoubted global interest. It appears that the America's Cup is still struggling to find the global form that would allow it to reach international popularity. Daniels (2013) argues that, despite the changes introduced by Ellison, and the excitement of the final races between *Oracle USA* and *Emirates Team New Zealand*, the event has too many anti-programmes at work for it to attain global popularity. The first is cost. With the cost of building and maintaining the yachts estimated at between US \$100 and \$200 million, Daniels suggests that it is simply impossible to obtain sponsorship to offset such large costs. The television ratings are not high enough to generate that level of sponsorship. He also suggests that it is difficult to generate interest since it is not a sport that people can participate in on their own, unlike the popular sports of football or baseball. What Daniels argues is that, while other sports events have become global assemblages through having an actor-network that includes utilising sponsorship and television rights to cover the costs of the event, because of through global interest in the sport, the America's Cup has not yet found a similar workable form. Therefore, it will not be surprising if the cup sees

further changes in years to come as sailing enthusiasts attempt to continue to reconfigure the America's Cup in order to reach this level of stabilisation and global interest.

Conclusion

For many sports or sporting events the relationship between sport and the media is an important one. Broadcasting rights and sponsorship provided by the media can provide significant income and allow sport to function. However, as Couldry (2004) points out, the workings that occur to produce sports television coverage are often concealed from view. Therefore, one of the goals of this chapter was to examine the processes that produce television coverage, paying particular attention to the technologies within these processes, with the aim of understanding how the actor-network stabilises to produce sport as a global assemblage.

This chapter has only scratched the surface of this particular area of study. While a few of the technologies that affect the production and broadcasting of sports coverage have been identified and discussed, a large amount of work still needs to be done to examine the range of other technologies that affect sports broadcasting and how these assemble with other human and non-human actants in order to produce sporting coverage. Ethnographic studies that examine how sports coverage comes into being would be of benefit to complement the variety of work that exists on media representation. While representation is an important area of study, examining media products without acknowledging the technologies that contribute to producing them misses half the story. In the study of sports media, technologies are still the 'missing masses' (Latour, 1992).

As this chapter has shown, the capacities of technology profoundly affect how broadcasts appear. In Liang's (2013) study of the broadcasting of the Olympic Games, the assembling of the production and broadcasting teams led to more creative coverage than when they operated independently. At the same time, these teams were aware that they were not working to the full potential of the technologies they were using, owing to the anti-programme lack of time. Similarly, in the broadcasting of the America's Cup broadcasters knew exactly what would improve the coverage for viewers as far back as 1987, but it was not until 2010 that the technology existed that would allow the coverage to take that form. These examples show how the availability of technologies, their actor-networks and their abilities act to influence profoundly the form that sports broadcasting

takes. Technologies act, and the realm of sports media requires more studies that acknowledge their role in the production of sports coverage.

These two cases also highlighted the issue of stability, and the concept of the global assemblage was employed to discuss this. In the case of the Olympic Games, sports coverage has been and is a stabilising entity. The existence of, and desire for, global coverage of the games has worked to ensure the continued funding of and interest in the Olympic Games. The effect of this arrangement is that broadcasters are not motivated to change or improve Olympic coverage profoundly, but prefer to keep it recognisable as Olympic coverage while still incorporating the latest technology. Consequently, digital technology was not introduced into the games in order to counter an anti-programme, but simply to continue the effective coverage that already existed.

In contrast, the coverage of the America's Cup has not yet reached a stabilised form, so broadcasters are strongly motivated to introduce new technologies and enhancements in order to increase ratings. The America's Cup is a particularly unusual case since the rules are not governed by a global body. Instead, Larry Ellison is able to direct the cup with an unusual amount of power. Despite his efforts, the America's Cup has not yet managed to become a stable global assemblage.