

Second-order networks, gambling, and corruption on Indian mobile phone networks

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Abstract

This article explores unintended effects of recent growth in India's mobile phone network. Using a case study of the Indian Premier League (IPL) – a popular cricket league that has encouraged mobile phone usage among fans – this article argues that India's large and inclusive mobile phone networks have enabled significant new gambling and corruption. The spatial possibilities of mobile networks have led to new organizational forms in gambling and corruption, with small-scale local activity increasingly supplanted by organized syndicates located in Mumbai and Dubai. Based on interviews with mobile phone users and participants in betting rings, this article shows that the IPL mobile network enables second-order networks of criminal activity by making it easier to administer illegal action and easier to escape detection. This article emphasizes three ways that mobile networks facilitate gambling. First, their functionality, portability, and near-universality allow for new flows of information and capital. Second, mobile networks allow for new scale and new organizational forms, allowing a shift from local bookies to national and international syndicates. Third, mobile networks have dramatically enlarged the gambling sector in India. These changes have helped turn cricket gambling into a global industry with India at its center.

Keywords

gambling, India, mobile communications, network effects, network theory, sports

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Introduction

In April 2013, the sixth playing season of the Indian Premier League (IPL) began with a crowd of 90,000 at Eden Gardens, Kolkata. As the stadium's video screens and the IPL mobile app counted down to the start of play, the crowd buzzed with excitement. Finally, the moment arrived. Brett Lee, a spiky-haired fast bowler for the Kolkata Knight Riders, took the ball and began his run toward the opening batsman, Unmukt Chand of the Delhi Daredevils. Lee's delivery bounced once, cut away from the flailing Chand, and sent his off-stump cartwheeling backward. The umpire raised his right index finger and fans roared their approval. The home team had taken a wicket on the first ball of the match.¹

The seconds that followed revealed the significance – and threat – of mobile phones for the IPL. Fans pulled out their phones and tapped messages. Were they live-Tweeting the action? Were they uploading videos to Facebook? 'No', one said. 'We're betting on the match'. Another added, 'With that wicket, the odds have changed'. They chatted excitedly in Bengali and continued on their phones (Interviews with mobile phone users, Kolkata, 2013).

This article uses a national case study to examine the relationship between mobile phone users and communication networks. It uses cricket, India's most popular sport, specifically the IPL – the richest, most popular, and most mobile phone-oriented league in the country – as a context in which to study mobile phone usage, network formation, and unintended consequences of networks.

Cricket is by far the largest sport in terms of television audiences, dollars spent, and news coverage, and the only sport with a consistent national following (Gupta, 2010). It has inspired a significant literature that uses cricket as a cultural lens on India's postcolonial identity and media (Agur, 2013; Astill, 2013; Gowariker, 2001; Guha, 2001; Majumdar, 2008). Along with Indian cinema, cricket is one of the country's largest sources of entertainment. Indian cinema has regional divisions, with centers of film production in Hindi, Tamil, Telugu, Bengali, Punjabi, and other Indian languages; distinct regional traditions in filmmaking; and different audiences (Dechamma and Sathya, 2010; Gehlawat, 2010; Mehta and Pandharipande, 2011; Velayutham, 2008). By contrast, cricket is a national pastime, with national tournaments, national broadcasting of matches, and a powerful national governing body.

Today, India is ushering in a new paradigm in the sport, a 'culture of speed – fast cricket delivered to dispersed audiences in real time by ever faster media' (Axford and Huggins, 2010: 135). This trend is explained by the rapid growth of Twenty20 cricket in the form of the IPL. Since its inaugural season in 2008, the IPL has upset purists and found legions of (mostly young) fans in India and other cricket-playing countries. The IPL is a globally oriented form of entertainment: it operates in English, makes prominent use of expensive foreign players, and broadcasts its matches to all cricket-playing countries. The league has spent years and considerable effort to integrate mobile phones into the league's branding and fan interactions. In these efforts, the IPL has sought to create a global spectacle that fans can watch and follow on their mobile phones.

This article focuses on the unintended effects of the IPL's mobile experiment. It begins by conceptualizing first- and second-order networks and then explores the mobile gambling and corruption that has emerged in India. It shows that the IPL network has

become the setting not only for massive amounts of gambling but also for acts of corruption by insiders with the ability to alter the outcomes of matches. The article argues that illegal and destructive elements of the IPL mobile network threaten to undermine the original intentions of the network.

Theoretical framework and methodology

This article highlights a distinction between first- and second-order networks. First-order networks are composed of the material components (the towers, switches, cables, and devices) that link users; second-order networks are social, user-driven by-products of first-order networks. By focusing on second-order network formation, this article shows the dynamism and instability of networks. It also emphasizes the ways that, as first-order networks expand, they can become sites for expected and unexpected outcomes. This article uses the concept of second-order networks to explain transformative change of large, complex communication networks. Over time, networks built for one purpose can produce flows (of information and capital) and social forces that alter or undermine the network's original goals. The concept of second-order networks offers a way of understanding the social evolution of networks and the ways that users can re-imagine and re-purpose large-scale networks.

To examine mobile networks in India, this article draws on participant observation and 85 interviews with mobile phone users, IPL team officials, and bookies.² Most of the research for this article took place at cricket stadiums across India (in Bangalore, Delhi, Hyderabad, Jaipur, Kolkata, Mohali, Mumbai, and Pune). Interviews with team officials took place either at team offices or by phone; interviews with bookies took place in private homes. Mobile phone users at matches were the largest source of data. User interviews focused on mobile phone usage in relation to the IPL, including the ways users followed the match; their routines before, during, and after matches; and the reasons they used a mobile device. Despite the illegality of gambling on cricket, users willingly showed how they used betting websites, contacted bookies, and make bets.

Gambling in Indian history

Contemporary gambling in India follows a rich tradition dating back to the Mughal Empire (Benegal, 2012; Birla, 2009; Hardgrove, 2002; Mukhia, 1969). Gambling on cricket in India owes much to the communication networks of the 20th and 21st centuries. The introduction of radio (1924) and television (1959) in India led to gatherings of cricket fans in bazaars and other public spaces, broadcast by shopkeepers who used cricket broadcasts to draw crowds who followed their regional team in the Ranji Cup or the national team in Test matches (Cashman, 1980; Ugra, 2005). In these large crowds, social relations determined trust; betters needed to know a bookie or be referred to one by a friend who could vouch for the better.³ Bookies established odds, collected bets, and enforced punishments for those unable to pay.

India has longstanding laws against gambling, but the government has struggled to enforce these laws. The Public Gambling Act of 1867 empowers federal, state, and local police to search the premises of suspected gaming houses and arrest or fine those caught

gambling in public (Indian Parliament, 1867). While the Public Gambling Act of 1867 has undergone modifications, it has not been amended to deal with online or mobile phone gambling. The Indian Contract Act of 1872 states in clear language that bets are unenforceable contracts (Indian Parliament, 1872). The Information Technology Act of 2011 requires Internet service providers (ISPs) to block overseas betting sites (Indian Parliament, 2011). But the legal onus is on ISPs to restrict access to online gambling sites; no law in India prohibits *users* from accessing sites outside the country.

Today, India's market for gambling on cricket is large, sophisticated, and rapidly growing. India has become the economic center of international cricket, accounting for more than 60% of all dollars spent worldwide on the sport (Gupta, 2010). Given this significance, it is a natural home for betting syndicates (Hawkins, 2013; Mahyera, 2012). Several studies have found that India accounts for a majority of the US\$40–US\$50 billion worth of bets on cricket worldwide each year (KPMG, 2010; Pandit, 2010; Sydenham, 2011; Waris, 2013). This article shows that in the past decade, mobile phone networks have become the primary carriers of cricket betting in India and drivers of new organizational forms in the gambling market.

Cricket and mobile gambling

The structure of cricket makes it susceptible to gambling. Cricket is an ordered and segmented sport, with a standard feature of play (a delivery of the ball from bowler to batsman), a set number of balls per over (six), and a set number of wickets per team (10) (Figure 1). These features distinguish cricket from more fluid sports such as rugby, hockey, and soccer/football and create special possibilities for betting. In each match, the fielding team seeks to take the wickets of 10 batsmen or, failing that, to restrict the batting team to as few runs as possible. Bowlers deliver six balls in succession in a unit of play called an 'over'. When the over is complete, the batsmen remain in place, while the fielding team changes position so that play proceeds from the opposite end, with a new bowler. In the IPL, matches last 20 overs (120 balls).

Figure 1 shows a typical live feed of an IPL match. This is the 11th over of Bangalore's innings, as indicated by the decimal places on the lower left side. Bangalore is midway through its chase of 146 runs needed to beat Delhi's score of 145. On the top half of the image, we see the key players. There are two batsmen (one at either end of the 22-yard track at the center of the pitch), with the batsman facing the current ball on top. There are also two bowlers listed, with the bowler delivering the current over on top. The other bowler delivered the balls in the previous over and will return to bowl the following over. On the bottom half of the image, we see the play-by-play description for each of the six balls in the over. This particular over featured four singles (balls 2, 3, 5, and 6), a six (hit over the boundary, much like a home run in baseball), and a 'dot ball' (no run). The play-by-play shows the structured nature of cricket. Each ball and each over present a multitude of betting options. Gamblers can bet on anything from how many runs were hit off a particular delivery (e.g. 1 run off ball 10.2) to whether there will be any sixes or wickets in an over (in this case there was one six and no wickets). The structure of cricket, with balls and overs as modular units of a team's innings, facilitates spot-betting (bets placed

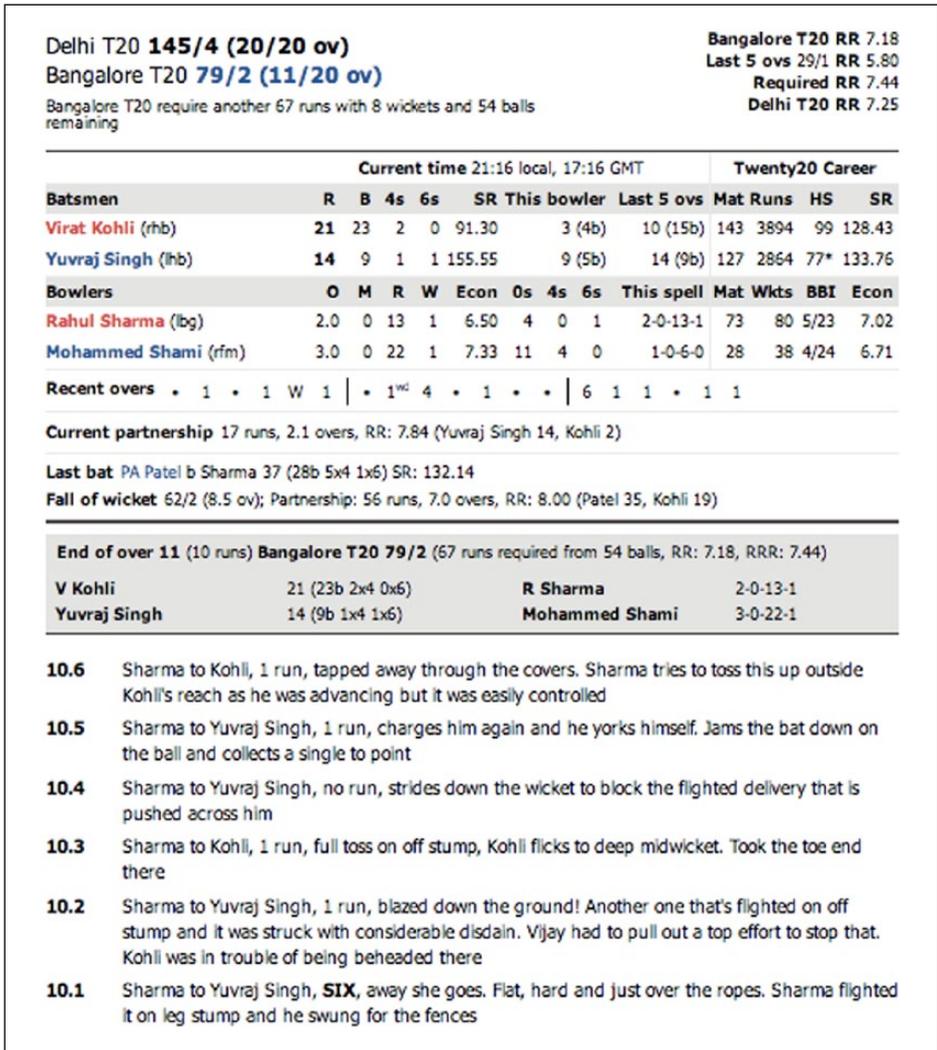


Figure 1. Cricket as a structured game.
 Source: *ESPNcricinfo (2013a)*. Screen shot of match page used in Figure 1.

on a specific action, as opposed to the result of the entire match). In each ball, the central figure is the bowler. For that over, he chooses the pace and placement of six balls and is therefore in a unique position to determine the course of play. In the Twenty20 format of cricket, each ball matters more than it would in longer formats (One-Day and Test). This increases the chance that a match will turn on a single ball and makes Twenty20 betting more volatile (Interviews with mobile phone users, Mumbai, Jaipur, Hyderabad, and Chennai, 2013).

Space

Unlike the bazaar-based networks that emerged as a result of national broadcasts of matches, today's cricket gambling networks are international. The growth of Dubai as a commercial center, a relaxing of visa restrictions on Indians entering the United Arab Emirates (UAE), and the proliferation of flights between the two countries have all helped make the UAE the largest hub outside India for gambling on cricket (Hawkins, 2013). Dubai is far enough from India for bookies to operate without fear of arrest or harassment by Indian authorities, yet close enough to keep an eye on local operations in India (Interview with IPL team official, Chennai, 2013). One of the largest players in the UAE gambling underworld is D-Company, a notorious crime syndicate led by Dawood Kaskar, a Mumbai-born gangster. D-Company has used Dubai as a base, collecting data on teams, players, and matches in India and Pakistan and making phone calls to bookies who take bets in cities around the region (Unnikrishnan and Shekhar, 2013).

In interactions between bookies and betters, India's mobile networks are an essential means of communication. Mobile networks grow out of pre-existing social networks based on language, village, school, religion, or family ties. Most gamblers indicated that they had started with a known and trusted bookie. After gaining experience with small, simple bets, many users moved on to more sophisticated and larger betting. One better in his late 20s said,

My uncle and brother introduced me to someone who took bets. He only accepted small bets from us. After some time, I got impatient with small bets. I started making larger bets with people I met through work. When you place a bet with someone who is a family friend, it's fun. When it's someone who is a friend of a friend, or just a business relationship, it's different. You get nervous sometimes. Will the person pay if he loses? What will he do if you lose and are slow paying? (Interview with mobile phone user, Mumbai, 2013)

Bookies said that mobile networks allow them to maintain a spatial distance with the league: far enough away to avoid attracting unwanted attention from police or rivals, yet close enough to have a sense of the market and rival players (Interview with bookie, Chennai, 2013). Gamblers and bookies referred routinely to certain places as hubs: Delhi, Mumbai, and Dubai were the most commonly mentioned. From these hubs, bosses seek to create new patterns of interaction, in which they control the activities of local operatives and the flows of information that sustain the organization.

Informational hierarchies

Betting syndicates distribute the odds for a match in real-time, via mobile phone. With these odds, bookies in different cities collect bets and send updates back to their superiors. The quality, granularity, and frequency of updates via mobile phone depend on a bookie's status within the organization. A dozen bookies might work for the same organization in one city, but the internal politics of the organization determine who gets the most valuable information. Interviews with bookies shed light on these hierarchies. One bookie spoke about an upcoming match: 'There is information out there, but I don't

<u>Code</u>	<u>Meaning</u>
CSKtossbat	If Chennai win the coin toss, captain M.S. Dhoni will elect to bat
7-1-nb	In the 7th over, the 1st ball will be a no-ball (illegal delivery)
11:05 W	In the 11th over, the 5th ball will be a wicket
19o3b 6	In the 19th over, the 3rd ball will be hit for 6 runs
Malinga 0.3w	Lasith Malinga's 3rd delivery of the match will be a wide
Kallis-W-lbw	Jacques Kallis will be out leg-before-wicket

Figure 2. Coding bets in text messages.

have it. Maybe next week. I'm down the food chain' (Interview with bookie, Chennai, 2013). In networks of participants in cricket betting, mobile phones are *not* a leveler; they allow for organizational hierarchies and differentiated speed and quality of information flows.

A text message can convey all the information that the parties need to place a bet and can be coded so that the message fits on a single line of text. Figure 2 shows examples of real codes mobile phone users sent via text message during matches and the meanings of those codes.

Bettors used a fairly standard order of codes to describe bets. In the case of spot-bets, bettors tended to indicate the over, then the ball, then the action. In the case of non-time specific actions (such as an action by a bowler who might begin bowling at any point in the match or the method by which a batsman will get out), bettors tended to name the player or team first, followed by the action on which the bet is based. Bettors often used colons or dashes to separate components of the code. For example, in the second example above, the better used dashes to separate 7 (the 7th over), 1 (the 1st ball of the over), and nb (a prediction that the delivery will be a no-ball).

Users with more advanced phones can access gambling apps and websites. These tools give users a wider range of options on the type and size of bets they can make and allow for more fluid and complex betting (including derivatives). Some of these tools offer features that predict match or spot-bet outcomes based on current data. Importantly, these tools require registration; while users may (and often do) use false names and details, the registration requirement allows administrators to track user behavior, identify problematic users, and (at least temporarily) remove troublemakers.

Security

Since the 2008 Mumbai terrorist attack, the Indian government has developed increasingly stringent processes of identification for users purchasing SIM cards. These include a registration process, a mandatory photocopy of government ID, and a fingerprinting program that has been announced but not yet implemented. Gamblers suggested two common methods of circumventing the rules: (a) using contacts in mobile service providers to obtain SIM cards before they reach the market or (b) stealing previously sold SIM cards. Gamblers had a detailed understanding of the network hardware and the

essential role SIM cards play in identifying users. Gambling rings in India face scrutiny, harassment, and occasional arrests. As one mobile phone user in Jaipur said,

I'm such a small operator, the police probably don't care. But if I make it easy for police to prove that I make bets, they might ask me for bribes. You don't want to have that problem, because it never goes away. (Interview with mobile phone user, Jaipur, 2013)

As numerous users demonstrated, it is relatively easy to code bets to abbreviate the text so that it fits onto a single line and so that the meaning is not obvious to those other than the two parties. In Figure 2, the codes are fairly straightforward: experienced gamblers, who know the common cricket metrics and the league's teams and players, can decode these and other simple codes. The goal with simple codes is 'to prevent the guy beside you from seeing your bets and identifying you if he sees your phone. He could be police. He could work for the IPL' (Interview with mobile phone user, Bangalore, 2013).

In some cases, participants want the meanings of codes to be clear to a specific person, but not to third parties. One said, 'the best way to hide the meaning of a bet is to make it look like an ordinary text message' (Interview with mobile phone user, Chennai, 2013). That user showed me a message saying, 'M. Singh wants to wait for dinner'. This meant that Chennai Super Kings captain Mahindra Singh Dhoni would opt to bat second if he won the toss. The user had altered Dhoni's name to M. Singh, which is his middle name and a common surname in the north of India. The user had also added the detail about dinner, which was code for batting. Through this type of practice, users with a mutually understood set of codes can transmit information that conceals its meaning even if intercepted by third parties such as rivals or police. To avoid confusion, users must have agreement on the meanings of the codes and trust each other to convey a precise message in the correct sequence. This typically requires that they know each other well (Interview with bookie, Chennai, 2013).

Odds in real-time

One of the most valuable aspects of mobile phone networks is the way they allow users to monitor changing odds as the match progresses. As one user said, 'I know the score. What I need to know is what that means for the odds. They change by the minute' (Interview with mobile phone user, Kolkata, 2013). Numerous users showed mobile-oriented websites and apps, designed for use during matches as odds evolve. Some even changed bets during the interview. If users are able to follow the odds as they change (i.e. with each ball in the match), they can engage in more sophisticated forms of betting; they can also cut losses and offload losing bets to those with a higher appetite for risk (Interviews with mobile phone users, Mumbai and Chennai, 2013). The arrival of mobile networks has made cricket gambling more fluid, with a large and rapidly evolving stream of bets related to each match. These changes have made gambling networks more difficult for the league and police to monitor (Interview with IPL team official, Delhi, 2013).

The IPL takes a firm line against gambling at matches and those who attempt to take bets inside the stadium risk being ejected (IPL, 2014). In matches across India, the author

never saw anyone making bets in person. Instead, all observed gambling took place on mobile phones. The league is aware of the popularity of real-time betting but has few tools at its disposal to regulate or curtail fans' behavior. A team official in Delhi said,

The IPL has a code of conduct for all of us who work for the league, so we can't make bets. But we can't stop millions of fans – the people who fill the stands and buy our merchandise – from going to websites outside India and betting on matches. And we're totally powerless when it comes to micro-bets. That stuff can't be controlled. (Interview with IPL team official, Delhi, 2013)

Gambling syndicates

As a result of their utility in gambling, mobile phone networks have transformed and dramatically enlarged the gambling sector in India. Mobile networks allow not only for new economies of scale and scope for bookies but also, and more worryingly, for the formation of national and international networks that can evade criminal justice systems. Interviewees with memories of gambling before mobile phones and the IPL said that a sea-change has taken place in recent years: as a result of new communication networks and the arrival of the IPL, India has graduated from localized networks of bookies to large-scale multi-layered organizations with much wider reach (Interviews with bookies, Chennai and Jaipur, 2013).

While most users spoke about minor bets involving small sums and a few people, some also described illegal betting syndicates that have grown around the IPL. The largest of these organizations have operational advantages (e.g. access to extra SIM cards) and, as a result, the ability to switch phone identities rapidly; they also have connections in the league (from groundskeepers who can give tips on the condition of the pitch to players who can pass on information from dressing room discussions). Repeatedly, betters and bookies made the point that mobile phone networks had changed the business of gambling on cricket in India. Better liked the range of options at their disposal and the fluidity of betting (with odds evolving as the game progressed). Bookies said that they were able to expand their business without needing to be physically present in one particular location. For all participants, the spatial dynamics of mobile phone networks had made gambling an invisible *and* omnipresent aspect of the game.

For a betting syndicate to thrive, it requires a mix of bookies in a given locale and bosses who keep a safe distance. Bookies take bets, enforce payment, and monitor the betting scene in a city or neighborhood. They have personal connections with individual betters, with businesses (bars and restaurants are common places for bookies to arrange meetings), and with individual police officers. Bosses take a cut of bookies' earnings, in exchange for new contacts, new markets, and police protection. Although there is a natural tension between bookies and bosses, they need each other. Without a boss and his network, a bookie is a solo operator who may be squeezed out by competitors. Without bookies, a boss has no one to translate a business plan into action. One bookie in Chennai said,

Am I more or less powerful than ten years ago? Well, I have more money now. And I supervise people now. But ten years ago, it was more of a hobby for me. Now it's a business. I have a boss

who comes to Chennai once a month. He wants things done this way, that way. And he has a boss somewhere. So I guess we're all richer now, but I don't feel more powerful. Now my job is to keep the money coming in and not make mistakes. (Interview with bookie, Chennai, 2013)

Mobile phone networks link bookies to bosses and add to the complexity of their relationship. On the one hand, bookies can be more confident because they have access to those who can provide them with valuable information or offer protection. On the other hand, bookies must be careful with their phones because they are potential sources of evidence in police investigations. The longer a bookie–boss relationship endures and the friendlier the parties become, the greater the likelihood that they will become careless with text messages or calls. This problem encourages one-off, 'disposable' connections for specific purposes (Interviews with mobile phone users, Mumbai and Delhi, 2013).

Gambling syndicates are based on network features and profit from network effects. Bookies and betterers said that local operatives rarely make bets to strangers unless they are recommended (and guaranteed) by a trusted third party. The 'enforcer' status of bookies has continued in the mobile age, and a syndicate's ability to collect depends on the number and quality of its local operatives. At the same time, the very existence of a syndicate makes betterers wary of renegeing on bets by hiding out in another city. The largest syndicates have contacts throughout India and are adept at chasing debtors across state lines. These syndicates profit from network effects, which create not only economies of scale and scope but also an enforcement capacity that smaller, localized gambling rings cannot match.

Weaknesses

Just as mobile networks have strengthened new gambling syndicates, they also contain an inherent weakness. One of the challenges for these networks is a high turnover of the primary communication technology used to link its participants. It is common for users in India to change phones or numbers, and users often own multiple phones. Bookies pointed out the ways that they limit their digital trail to avoid police scrutiny (Interviews with bookies, Jaipur and Chennai, 2013). Occasionally, in their efforts to keep ahead of police, bookies break off contact with betterers – sometimes deliberately and sometimes by accident following a change of SIM card or phone number. Several users reported that they had lost track of preferred bookies in this manner (Interviews with mobile phone users, Kolkata and Mumbai, 2013).

Inside betting and corruption

The largest challenge in policing corruption in the IPL is that money is the main motivator for players, team staff, and officials in the IPL (Interviews with IPL team officials, Delhi, 2012 and 2013). IPL franchises are short-term and contractual in nature, with players who often do not know each other coming together for a 2-month season and then dispersing at the end of their contracts. Although teams base their advertising around a handful of international marquee players, the IPL is composed mostly of young Indian players yet to make a name for themselves and yet to make their fortune. For many

players, this is their one chance to make their mark as a cricketer or, failing that, earn a financial windfall. Interviewed bookies said that players tend to trust only bookies they know personally (Interviews with bookies, Jaipur and Chennai, 2013). Inside betting networks thus tend to follow existing social relations.

Fixing the results of entire matches is likely to attract attention, so those in a position to shape the outcome of matches tend to use spot-fixes. These involve pre-determined outcomes on individual balls for small- or medium-sized gains at low risk. Players can make money on the side by engineering certain events at agreed-upon moments in the match. For example, in the third over, the first ball will be a certain type of delivery. To the trained eye, certain tendencies (e.g. an excessive number of illegal deliveries by a bowler or too many easy balls left alone by a batsman) encourage suspicion, but it is difficult to *prove* player involvement. For young players with single-season contracts and no endorsement deals, inside spot-betting offers an additional stream of revenue that helps to satisfy requests for cash from friends and family, and funds a more glamorous lifestyle. On their own, a few bad plays and inside bets do not alter matches, but they allow criminal syndicates to associate themselves with the IPL, and this undermines the legitimacy of the league. Despite the scrutiny and risks of the participants being noticed, match fixing is a perennial threat to the league. Delhi police estimate that more than US\$30 million is gambled on the average IPL match, and considerably more on playoff matches (Mudgal IPL Probe Committee, 2014). The scale of the betting market and the tendency for matches to end in the final over (sometimes on the final ball) make it tempting for players and bookies to make deals. Especially when high-ranking teams lose unexpectedly or rapidly to low-ranking teams, the payoffs can be very handsome for those who engineer the outcome (Hawkins, 2013).

Since the IPL's inception in 2008, there have been frequent whispers and allegations of inside betting, mostly involving junior players and small stakes. Under former chairman Lalit Modi, the IPL flourished but its finances had troubling features: the IPL became a home to fast money, a murky ownership structure, and conflicts of interest among league elites (Agur, 2013; Ali, 2012; Singh and Sruthijith, 2010; Thakur, 2010; Vij-Aurora, 2012). Journalistic and criminal investigations eventually found enough evidence that Modi was jailed for his involvement in embezzlement and misuse of funds (Gollapudi, 2013). In the years since Modi's departure from the league, the IPL has endured allegations of inside betting and match fixing, but (until recently) not on the scale of the Modi years.

Those who believed that the IPL had cleaned up its act were shocked in 2013 when a new corruption scandal involved multiple teams' management and the head of the Board of Control for Cricket in India (BCCI). In May 2013, in the lead-up to the IPL playoffs, Delhi police arrested three players from the Rajasthan Royals and 11 bookies for spot-betting and match fixing (ESPNcricinfo, 2013d). The allegations concerned three matches in Jaipur, in which bowlers from Rajasthan let the batting team hit pre-determined run totals during certain overs, allowing bookies to profit on pre-match bets and real-time changes in the odds. A second and related corruption case became news the following week, as the league prepared for its championship match in Kolkata. Gurunath Meiyappan⁴ of the Chennai Super Kings was summoned to Mumbai by police for questioning about his participation in inside betting (ESPNcricinfo, 2013b). Using calling

records and intercepted phone conversations, police found that Meiyappan had been in regular contact with bookies and had made bets on several of his own team's matches (Mudgal IPL Probe Committee, 2014).

The IPL's championship match (in which Chennai lost to Mumbai) took place against a backdrop of scandal and police investigation of gambling and corruption (Ugra, 2013). N. Srinivasan insisted that his dual roles (as head of the BCCI and managing director of a company that owned a team in the middle of a corruption scandal) posed no threat to the league's credibility (ESPNCricinfo, 2013c). In the ensuing months, N. Srinivasan was forced to resign from the BCCI governing board, and a retired Supreme Court justice established an investigation into the league. Dozens of players and officials were compelled to testify before the committee. Several prominent figures, including Meiyappan, were jailed based on evidence from telephone surveillance and calling records (Mudgal IPL Probe Committee, 2014). The initial investigation by former justice Mukul Mudgal has concluded, and Mudgal has called for a larger investigation into the league, with involvement from the Central Bureau of Investigation (CBI). With support from India's Supreme Court, Mudgal will continue his investigation into IPL corruption. He has announced that he will pursue criminal charges against Srinivasan and 12 other Indian cricket figures whose names remain sealed in an envelope, along with the charges against them (ESPNCricinfo, 2014a, 2014d).

In the blur of hotels, flights, and matches of an IPL season, mobile networks are the ideal way for those making inside bets to coordinate the participants and their actions. While veteran players guard their phone numbers or hire personal assistants to manage calls, junior players sometimes give their numbers to journalists or other people they meet, in the hope of landing an interview or making other useful connections (Interview with member of the Madras Cricket Club, Chennai, 2013). Team administrators book entire hotels to avoid having undesirable or distracting neighbors and closely monitor entrances to watch out for bookies (Interview with IPL team official, Chennai, 2013). Thus mobile phones are essential for anyone wishing to have a discreet conversation with a player.

In the IPL, mobile networks facilitate corruption by acting as conduits for illegal activity among spatially dispersed participants. To date, the evidence suggests that mobile networks have allowed for significant new flows of information and capital and that mobile networks have created the conditions for powerful new networks and criminal syndicates, based in Mumbai and Dubai (The Hindu, 2013). While networks of corruption are not new (see Gupta, 2012; Visvanathan, 1998), these changes in organizational forms show the scale of informational flows on mobile networks. In interviews, participants were nearly unanimous: in the IPL, significant amounts of corruption exist (often subtle, sometimes not), and mobile networks provide the essential link in much of this corruption.

Conclusion

Seven years into the IPL experiment, total dollars spent on above-board media (broadcasts, IPL-related websites, social media) represent a small fraction of the tens of billions of dollars spent on league-related gambling. These massive and mostly illegal flows

reveal the new spatial dynamics at work in India's mobile phone networks. So too do they show how India, despite being a low-income country, has made use of virtual production and consumption of information over distance. Today, India's cricket gambling market involves a complex set of interactions directed from afar, conducted in face-to-face meetings, and coordinated by the sophisticated use of mobile phones.

Mobile gambling in India has grown as a result of network effects and has brought structural change to the country's gambling market. Localized betting on cricket, which developed in bazaars during the early days of radio and television, has been supplanted by syndicates (based mostly in Dubai and Mumbai, with operations across India) that rely on flows of information among participants. These flows involve interactions among betters, bookies, and bosses, each with a function in a spatially dispersed, hierarchical network. The spatial distribution of syndicates gives them power since they cross jurisdictional boundaries and are more nimble than the institutional actors that pursue them. Mobile networks are essential tools in betting since they provide the critical links among participants and allow for new economies of scale and scope.

But mobile networks are imperfect tools. They are subject to surveillance and seizure, and bosses must rely on local operatives to make personal contacts and enforce the terms of agreements. Thus, we see the limits of network effects. No organization is entirely divorced from spatial constraints; the fact that criminal syndicates have set up in locations (the UAE and Pakistan) close to India is a reminder of the continued role of proximity in social networks.

The IPL mobile network shows how a second-order network, once on a certain scale, is beyond the control of its creators. The functionality of mobile phones, the structure of a Twenty20 match, the low cost of handsets and minutes in India, and the ease of maintaining anonymity have together generated network effects and fostered second-order gambling and corruption. These outcomes show the difficulty of controlling large-scale communication networks, especially those that cross national borders. India's mobile phone network has become both an indispensable element in a host of criminal activities and a major challenge for league administrators and police trying to limit the influence of mobile gambling on matches. In this sense, the IPL offers an important lesson in the power of users and the flexibility of mobile networks as carriers of information and capital.

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Notes

1. Each batting team has 10 wickets. A player bats until he is out (or, in the parlance of cricket, he 'loses his wicket'), at which point he leaves the field. Teams tend to place their best batsmen in the top half of the batting order, which means that the loss of a top-order batsman – in this instance for zero runs – is a major setback.
2. The author conducted all interviews.
3. Bookies and betters are not mutually exclusive; often bookies place bets and betters take bets from others.

4. The team is owned by India Cements, whose managing director is N. Srinivasan. He was until recently the president of the Board of Control for Cricket in India (BCCI) and thus the official who oversees the Indian Premier League (IPL). To avoid conflict-of-interest questions, Srinivasan handed operational control of the team to his son-in-law, Gurunath Meiyappan. Srinivasan has been removed from the BCCI governing council while the Indian Supreme Court hears evidence in a corruption case against him. In the meantime, Srinivasan has become chairman of the International Cricket Council, the body that oversees cricket worldwide.

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