

# Joint Action and Social Bonding Between Professional Chinese Rugby Players



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# Abstract

The key assertion of this dissertation is that mechanisms responsible for coordinating physical movement in social interaction must be more fully incorporated into a cognitive and evolutionary anthropology of social cohesion. To explore and substantiate this assertion, I conduct research with professional Chinese athletes who participate in the competitive interactional team sport of rugby union. I utilise ethnographic and pseudo-experimental methods in order to examine the specific relationship between joint action and social bonding. Results provide evidence for a relationship between athletes' perceptions of success in joint action and social bonding. Interestingly, this relationship appears to be mediated by "team click" —a novel construct, theoretically grounded and ethnographically substantiated, which pertains to the subjective feeling associated with optimal interpersonal coordination. Considered in light of existing debates on the process mechanisms of social cohesion, these results suggest that processes of psychophysiological alignment achieved through interpersonal movement regulation could be central to the formation of durable social bonds and the transmission of cultural practices between individuals and within groups.

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# 1

## Thesis Outline

The human capacity to cooperate within cohesive social groups is a fundamental explanation for our species' evolutionary success. It is therefore surprising that sport—an ubiquitous organiser of modern social life across cultures—has not been more intensively studied for evidence concerning the cognitive and evolutionary foundations of human sociality (Blanchard, 1995; Downey, 2005). An integrated scientific study of the social, cognitive, and physiological mechanisms associated with participation in collective group exercise (broadly construed), and the ecological dynamics by which these mechanisms are constrained, stands to offer novel insights into the science of human cognition, cooperation, and evolution.

Whirling Sufi dervishes, late-night electronic music raves, Maasi ceremonial dances, competitive team sports, or the modern cult of Cross-fit—endless examples can be plucked from across cultures and throughout time to exemplify the human compulsion to come together and move together. It is easy to imagine how exertive and coordinated group activity would have served important survival functions in the past, such as hunting, travel, communication, and defence (Sands & Sands, 2010). More puzzling, but also more relevant to the study of human behaviour and evolution, is the persistent recurrence of group exercise in social life, cross-cutting shared cultural practices as varied as religion, sport, music and play, even when its substantive rewards are less obvious or immediate. Social scientists have long speculated about the benefits of energetic group activities for social cohesion (Durkheim, 1965). It is not yet clear, however, how or whether group exercise uniquely generates social cohesion, or in what ways particular mechanisms vary by activity and culture.

In this dissertation I attend specifically to the relationship between joint action and social bonding in the group exercise context of professional rugby in China. Experimental evidence from the behavioural synchrony and mimicry literatures suggests that high quality coordination of movement between co-actors in joint action may be a powerful source of positive affect, blurring of self-other agency, pro-sociality, and cooperation (Mogan, Fischer, & Bulbulia, 2017). Beyond these literatures, the relationship between less tightly coupled joint action and social bonding is yet to be thoroughly tested. Anecdotal and observational evidence from anthropology and psychology—particularly the psychology of “flow” (Mihaly Csikszentmihalyi, 1992; S. A. Jackson & Csikszentmihalyi, 1999)—suggests that perceptions of joint action success may set the psychological foundation for processes of affiliation and cohesion. Various neurological, cognitive, and sociological strands of evidence support this proposal. Perceptions of successful synchronisation of behaviour in joint action appears to have positive implications for individual psychophysiological function, health, and subjective well being (Wheatley, Kang, Parkinson, & Looser, 2012). Likewise, there is well-documented evidence of a link between psychosocial isolation and ill-health and developmental and neurocognitive deficits in behaviours key to dynamic interpersonal interaction (e.g. Blakemore & Frith, 2005; Baron-Cohen, 1991). An account of the full significance of the role of proximate mechanisms of movement regulation and coordination in social bonding is yet to be fully articulated. This dissertation attempts to address this gap through theoretical synthesis and empirical research.

## 1.1 Theoretical Grounding

A combination of recent advances in neuroimaging technologies (C. Frith, 2007), emerging neurocomputational theories of brain function (Friston, 2010; U. Frith & Frith, 2010; Clark, 2013), and constructive attempts to extend the theoretical paradigm of human social cognition to account for inter-individual processes of interaction and coordination (Sebanz, Bekkering, & Knoblich, 2006; Dale, Fusaroli, Duran, & Richardson, 2014), has created an opportunity to examine in finer-grained detail the relationship between coordinated and exertive group activities and social cohesion. It is now more clearly understood that basal human capacities for physical movement regulation and coordination set the foundation for social cognitive systems whose resources are distributed between brains, bodies, and physical features of task-specific environments (Hutchins, 2000; Kirsh, 2006; G. Semin & Cacioppo, 2008; Gün R Semin, Garrido, & Palma, 2012; Coey, Varlet, &

Richardson, 2012). Human cognition appears to be driven by a processes of “active inference” (Friston, 2010) about the world. Agents generate top-down interoceptive predictions about the state of the world and test these representations against bottom-up sensory evidence (Clark, 2013). In this account, perception, representation, emotion, and action are unified by the logic of prediction-error management, and neurocognitive components interact to align the organism with its expectations (Pezzulo, 2014). Conceiving of social cognition in this way, as an embodied, embedded, and immediate process of inference, centralises the role of automatic movement regulation strategies—traditionally classed as “lower-cognitive” processes—in establishing and maintaining the transfer of cultural information between individuals, within groups, and throughout populations—traditionally thought to be executed by “higher-cognitive” processes (Claidière, Scott-Phillips, & Sperber, 2014).

A review of the available literature suggests that successful joint action in humans is contingent on the ability to share functionally equivalent task representations. Considering the cognitive principles of “active inference” referenced above, shared task representation amounts to minimising prediction error in social cognitive systems involving two or more co-actors (G. Semin & Cacioppo, 2008; U. Frith & Frith, 2010). Humans appear to employ an array of explicit and implicit behavioural strategies in order to achieve this. The ways in which co-actors “close the loop” (C. Frith, 2007) on joint action through deliberate ostensive communication has been the traditional focus of developmental, comparative Tomasello, Carpenter, Call, Behne, and Moll, 2005, and social psychologists (Sebanz et al., 2006). More recently, however, analysis of dynamic coupling of co-actors in joint action scenarios reveals that synchronised movement implicates an array of implicit and pre-perceptual cognitive processes of alignment and prediction error minimisation (Schmidt, Fitzpatrick, Caron, & Mergeche, 2011), which, in addition to more explicit forms of communication, could be central to the generation of feelings of self-other merging, self-other distinction, and perceived reliability and trust associated with social bonding (Marsh, Richardson, & Schmidt, 2009). By interrogating the ways in which component mechanisms and system dynamics of joint action generate social bonding, this dissertation seeks to offer a novel contribution to the cognitive and evolutionary anthropology of social cohesion.

## 1.2 Team Click

Recent research in cognitive and evolutionary anthropology has made a ceremony of invoking one particular passage from Durkheim (1965, pg. 217) to capture the “collective effervescence” of exertive and coordinated group activity found in arenas as diverse as music making, dance, military drills, and sport: “Once the individuals are gathered together, a sort of electricity is generated from their closeness and quickly launches them to an extraordinary height of exaltation” (McNeill, 1995; Konvalinka et al., 2011; Fischer & Xygalatas, 2014; Mogan et al., 2017). Indeed, this passage powerfully captures the role of collective activity in generating positive emotional states and joint arousal, and lends itself nicely to the hypothesis that the visceral “electricity” of group activity is attributable in part to neuropharmacologically mediated affective mechanisms associated with pain and reward (Dunbar, 2008; Cohen, Ejsmond-Frey, Knight, & Dunbar, 2009; Fischer & Xygalatas, 2014; Launay, Tarr, & Dunbar, 2016). What is not so effectively evoked in this passage, however, is an aspect of group activity heavily scrutinised in the domain of competitive interactional team sports and other technically demanding joint action scenarios such as music making and dance, namely, the *quality* of movement synchronisation in joint action. For highly skilled practitioners, often the ecstasy of joint action is contingent on the extent to which the actions of one individual *click* into place with the actions of another—when expectations for joint action are completely aligned. Fine-tuned sensitivity to the intricacies of joint action, and the psycho-social effects of this sensitivity, suggest that a full explanation of the link between group exercise and social bonding must involve more than just a generalised, neurobiologically mediated, affective mechanism. Indeed, a full array of cognitive mechanisms involved in movement regulation and coordination must be considered.

One of the big mysteries of competitive team sport, particularly at the elite level, is the elusiveness of peak team performance. While each individual athlete may exhibit expert-level competence in sport-specific skills, the much sought-after aggregation of these components, i.e. a team that consistently performs “in the zone,” and “firing on all cylinders,” in reality often proves frustratingly difficult to achieve and sustain.<sup>1</sup> The moment in which everything “clicks” into place in team sport can, for various reasons, disappear as abruptly as it arrives, if indeed it

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<sup>1</sup>As King and De Rond King and de Rond (2011, p. 568) note in their ethnography of the 2008 Cambridge University rowing crew who participated (and who were eventually victorious) in the famous annual Boat Race against Oxford University, while the search for collective rhythm is a universal in human social interaction, the physiological and psychological complexity of finding that rhythm “...is extremely difficult to attain; collective performance is a possibility not a certainty.”



arrives at all. But when “team click” is cultivated, and sustained, it is celebrated as the ultimate, albeit often inexplicable magic of sporting feats. For athletes, coaches, and spectators alike, “team click” can be a hugely powerful sensation. As theologian Michael Novak explains, “[f]or those who have participated on a team that has known the click of communality, the experience is unforgettable, like that of having attained, for a while at least, a higher level of existence” (White & Murphy, 2011, p. 11).

As has been extensively documented in the psychological literature of “flow” (Mihaly Csikszentmihalyi, 1992) and optimal human performance in sport (S. A. Jackson & Csikszentmihalyi, 1999), athletes engaged in team coordination often report total absorption in and complete focus on the task at hand, a transformation of the experience of time (either speeding up or slowing down), and a blurring or transcendence of individual agency, or a “loss of self” (Mihaly Csikszentmihalyi, 1992; S. a. Jackson, 1995; S. A. Jackson & Csikszentmihalyi, 1999; McNeill, 1995). Research suggests that flow often occurs in scenarios in which there are clear goals inherent in the activity, as well as unambiguous feedback concerning extent to which goals are either being achieved or not. In addition, scenarios most conducive to the experience of flow are those in which the technical requirements are challenging but achievable if practitioners are able to extend slightly beyond their normal perceived capabilities (Fong, Zaleski, & Leach, 2015). The coalescence of these factors is intrinsically rewarding and autotelic (Mihaly Csikszentmihalyi, 1975), activating both “hedonic” and “eudaimonic” dimensions of subjective well-being (Huta & Ryan, 2010; Fave, 2009). The vast majority of flow research has focussed on the experience of the individual athlete, musician, or performer. However, recent attempts have been made to extended an analysis of flow and its antecedents to the level of the group and dynamics of interpersonal coordination—a phenomenon termed “group flow” (Sawyer, 2006).

The experience of flow has by now been extensively studied by psychologists and neuroscientists, from which a series of neuropharmacological (Boecker et al., 2008), neurocognitive (Dietrich, 2006; Dietrich & Audiffren, 2011; Labelle, Bosquet, Mekary, & Bherer, 2013), and psychological (Mihaly Csikszentmihalyi, 1992) theories for its emergence have been tabled. However, throughout this process, the social dimensions of optimal human experience have been less scrutinised, despite strong anecdotal and observational evidence of phenomena such as “team click,” and “group flow.” Despite the fact that the phenomenology of flow is experienced and described at the individual level, considering the prevailing theoretical paradigm outlined above, it should be expected that the cognitive mechanisms responsible for the phenomenology are embedded in and distributed throughout brains, bodies,

and other other resources of the task-specific environment (Kirsh, 2006; Marsh et al., 2009; Noy, Levit-Binun, & Golland, 2015).

Importantly, team click appears to have psychological consequences relevant to social bonding and affiliation. Tightly synchronised activity in particular, found in team sports such as rowing, can help dissolve the boundaries between individual and social agency: “In rowing...it feels like you have at your command the power of everybody else in the boat. You are exponentially magnified. What was a strain before becomes easier. It is absolutely the ultimate team sport” (Brown, 2016). Blurring of agency between self and team may be responsible for facilitating affiliation and trust between teammates in competitive environments often involving high stress and uncertainty: “...you always wanted a guy who would go into the trenches with you and he always played consistently well...he could really play and was just one of the good lads that you enjoyed his company” (Fox-Sports, 2017). The experience of team click may in this sense act as a social diagnostic tool, a powerful signal of commitment to joint action and willingness to cooperate (Reddish, Bulbulia, & Fischer, 2013). In this dissertation, I draw upon these related strands of evidence from cognitive, neuroscientific, and psychological, and anthropological literatures, in order to develop a novel theoretical account of the relationship between synchronised interpersonal joint action and social bonding, and the mediating role of “team click.”

### 1.3 Joint Action in Group Exercise

There is considerable variation in the nature and dynamics of joint action, even within the sub-category of group exercise. Joint action in group exercise ranges from tightly coupled dyadic or group activities such as rowing, synchronised diving, or dance sport, to interactive competitive team sports like basketball, ice hockey, and rugby, through to more loosely coupled (but still time- and space-coordinated) mass participation activities such as marathons and triathlons. It is sensible to assume that, as the scale and requirements of these contexts vary, so too will the psychophysiological mechanisms most responsible for enabling successful joint action, feelings of team click, and social bonding (Mogan et al., 2017; Launay et al., 2016).

Interactive and co-active team sports in particular contain dimensions of complexity that are not directly addressed by the existing experimental literature concerning synchrony or joint action. The competitive nature of these sporting practices means that co-actors in joint action scenarios will perform roles that either facilitate or obstruct shared goal achievement, depending on team assignment (Renshaw, Davids, Shuttleworth, & Chow, 2009). Competitive joint action scenarios

facilitate two modes of communication between individual participants: more predictable behaviour between cooperators and less-predictable action behaviour between opponents (Glover & Dixon, 2017). Thus the competitive dimension of interactive team sports introduces complexity, whereby subunits of cooperating co-actors coordinate their behaviours around a shared goal (winning the specific contest) (Passos, Cordovil, Fernandes, & Barreiros, 2012), and co-actors from both teams coordinate with each other around the higher order shared goal of completing a competitive game. In addition, interactive team sports involve the nesting of coordinated subunits of actors and sub-phases of actions (Vilar, Araujo, Davids, & Button, 2012). For example, a dyadic joint action such as passing a ball between two attacking players in association football is nested within a larger attacking sub-phase goal of advancing towards the opposing team’s goal in order to score a goal, which is in turn nested within a larger shared goal of beating the opposing team in a 90 minute match, and so on. These dimensions of complexity in interactive team sports increase the overall degrees of freedom of joint action tasks, thus demanding higher technical competence in order to successfully establish functional interpersonal synergies capable of reducing such uncertainty and behaving adaptively (Duarte, Arajo, Correia, & Davids, 2012).

### 1.3.1 Rugby Union Football

Rugby Union (hereafter rugby) is an interactional team sport played on a rectangular field (100m x 70m), by two teams, usually of 15 players, who physically contest possession of an egg-shaped ball that can be used to score points (IRB, 2014).<sup>2</sup> “Rugby sevens” (hereafter Sevens), the version of rugby that is the focus of this research, is a shorter 7-on-7 version of rugby. Sevens is a highly interactive and physiologically demanding sport at all levels at which the game is currently played, even more so than the 15-a-side version of the game. Sevens requires players to participate in frequent bouts of intense (anaerobic) activity such as sprinting, physical collisions, tackles, and grappling, separated by short bouts of low intensity activity such as walking and jogging. Sevens requires high levels of interdependence between team members due to the uncertainty and complexity of interactive coordination tasks. At the elite level in particular, the physiological costs and complexity of joint action requirements of sevens are amplified.

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<sup>2</sup>Descending from a variety of locally-specific folk-games played in pre-industrial England, all loosely grouped as “football”, rugby developed within the elite public school system as a deliberate physical activity arbitrated by rules and regulations, before circulating through the arteries of England’s colonial empire as a leisurely pastime—a “sport” (Dunning & Sheard, 2005).

There is evidence to suggest that dynamic coupling occurs between dyads and sub-units of attack and defence in rugby (Passos et al., 2011; Correia et al., 2014). Passos and colleagues Passos et al. (2011) for example find that functional coupling tendencies emerge between attacking dyads and adapt to specificities of the task environment. Correia and colleagues Correia et al. (2014) show that coupling tendencies also emerge between co-actors of opposing teams in rugby, for example, in a 1-on-1 attacker/defender sub-phase. These results are confirmed in similar joint action contexts in other equivalent sports such as basketball and association football (Duarte et al., 2013). There is evidence to suggest that the establishment and maintenance of functional interpersonal synergies in rugby joint action depend on an athlete's perception of affordances of the task-specific cognitive system made up of constraints including other athletes, the physical environment, and the rules of the game (Passos et al., 2012).

Very little direct empirical evidence specific to rugby can be used to substantiate a link between joint action and team click, and team click and social bonding. Rugby is, however, a sport heavily associated with “social bonding” in the more popular discursive sense, particularly in all-male social organisation common in the elite educational institutions of England and Commonwealth countries in which rugby originally developed (Dunning & Sheard, 2005; Richards, 2007; Collins, 2008).<sup>3</sup> “Rugby is a game for barbarians played by gentlemen,” or so the saying goes.<sup>4</sup> Different inflections on this adage have been reproduced by people in all parts of the world that rugby has reached (including China), presumably as a way of linking the nature of rugby's physical requirements with social virtues of fair play, cooperation, and moral integrity. Although direct experimental evidence concerning rugby is scant, the physiological demands, joint action complexity, and social-historical trajectory of rugby suggests that it is extremely suited to an investigation of the social bonding effects of joint action in group exercise.

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<sup>3</sup>Rugby union has been the site of much criticism worldwide due to the fact all-male social spaces cultivated by rugby appear to support and sustain hyper-masculine and hyper-normative behaviours, including gender-related violence (Cosslett, 2014; Guinness & Besnier, 2016).

<sup>4</sup>The origins of this oft-cited Rugby adage is unclear. The phrase is supposedly the adopted motto of the British Barbarians Football Club, established in 1890 (Dunning & Sheard, 2005, p. 34). The complete phrase reads “Rugby is a game for barbarians played by gentlemen, football is a game for gentlemen played by barbarians.” However, official club history cites its original motto as, ‘Rugby Football is a game for gentlemen in all classes, but for no bad sportsman in any class’ (Starmer-Smith, 1977, p. vii). Some sources attribute the saying to British writer and poet Oscar Wilde (1854-1900) (David, 2015)

## 1.4 Cultural Variation

In addition to micro-level details and dynamics of joint action, macro-level variation in the cultural contexts of joint action also vary extensively. Importantly, macro-cultural expectations appear to frame and direct micro-level movement dynamics of joint action. As sporting anecdote indicates, different teams from different places and times appear to play the same game in very different ways—embodying different “styles” of play. While there is very little literature devoted to examining the effect of cultural variation on joint action and social bonding in particular, there is extensive evidence to suggest that cultural variation impacts on processes of cognition (Nisbett, 2003; Hoshino-Browne et al., 2005), social learning (Mesoudi, Chang, Murray, & Lu, 2015), and prosocial behaviour (Yuki, Maddux, Brewer, & Takemura, 2005; Yuki, 2003). It has been suggested that cultural environments structure joint action scenarios in ways that help “smooth” coordination by providing equivalent expectations between co-participants (Vesper et al., 2017). Indeed, as anecdote and observations concerning suggest, perception of “team click” is not necessarily limited to the most proximal dimensions of joint action perception, but is rather contingent on the snug fit between a given joint action and a whole assemblage of hierarchically ordered expectations.<sup>5</sup>

### 1.4.1 Rugby in China

Rugby union football and the People’s Republic of China are subjects not commonly heard uttered in the same breath. Nonetheless, the Olympic status of rugby union, and the deep Olympic logic of the state-sponsored Chinese sports system, means that today hundreds of professional Chinese rugby players are meaningfully engaged in one of the world’s most physiologically strenuous interactive team sports. Rugby has been a professional sport in China for seven years (in the form of the Olympic event rugby sevens), before which it had existed as a non-professional university sport for 20 years, first established in 1990 at the Chinese Agricultural University, Beijing. Rugby is part of a large collection of “cold-gate”<sup>6</sup> sports in China, with a relatively small participation base compared to other interactive team sports like basketball or football. However, due to the persistent Olympic focus of the Soviet-modelled Chinese competitive professional sports system (*juguo tizhi*), rugby’s

<sup>5</sup>It is also important to bear in mind that, while the neurological, cognitive, and psychological theories from which the predictions of this dissertation strive for universal generalisability, these theories are nonetheless heavily grounded in Western epistemological assumptions, intuitions, and “WEIRD” empirical evidence (Henrich, Heine, & Norenzayan, 2010).

<sup>6</sup>*lengmen xiangmu*, a term that refers to a profession, trade, or branch of learning that receives little attention

recently acquired Olympic status (announced in 2009) in the form of rugby sevens means that it has now been inducted into the state-sponsored competitive sports system and is one of 33 sports featured in the all important quadrennial National Games. Ten of China's collection of 32 provinces and municipalities that participate in the National Games have full time men's and women's rugby programs.

While football and basketball have matured as standalone market-based professional industries, most other sports in China (i.e., all other Olympic events, including rugby) exist primarily due to the support of the enormous state-sponsored national provincial sport system. Whereas the commercial basketball and football industries might offer a small percentage of prospective athletes incentives of fame and fortune, the benefits of a state-sponsored sports programs like rugby are more modest. Chinese youth either gravitate or are ushered by their parents towards sporting careers primarily due to potential life-course opportunities such as access to tertiary education and post-athletic career employment (in the government sports system). The extent to which an athlete is able to maximise these potential benefits depends on the strength of an athlete's performance record (*chengji*). The most important measure of a province's success in state-sponsored sporting terms is the National Games, a quadrennial multi-sport event hosted on rotation by provincial capital cities (Hong & Hua, 2002). The amount of funding a province and its provincial sporting institutes and programs receive is decided to a large extent by results at the National Games.

The history of sport and exercise in China's modern transformation is, in many fascinating ways, emblematic of that history itself. The introduction in the late 19th Century of a new ethics of group membership centred around the activities of the nation-state, required importation *en masse* of novel linguistic, cultural, and social categories and practices (L. Liu, 1995). Throughout the 20th Century, physical culture (*tiyu*) became a primary pedagogical vehicle for fostering an explicit link between the strength of the physical body and the strength of the Chinese nation (Morris, 2004, p. 32; Brownell, 1995, p. 49). From the initial embrace of the Olympic Games by an urban Chinese elite at the turn of the century, through to Beijing's eventual hosting of the Olympics in 2008, and now the use of sport as a site of domestic commercial consumption, physical culture has provided the means through which new and normative ways of thinking and behaving have been publicly displayed and transmitted. Inherent in this process has been the tension and interaction between imported categorical modes of group membership fostered by the state (i.e., civil society, citizenship), with more local and indigenous understandings of social identity centred on intragroup relational processes rooted in Confucian, rural, and

dynastic cultural traditions (Fei, 1992). Physical culture in China choreographs—perhaps more explicitly than any other facet of contemporary Chinese life—the interaction between imported and traditional modes of group membership at the psychological heart of China’s culturally-specific patterns of sociality.

The professional Chinese rugby players that form the focus of this dissertation are young men and women predominantly from rural areas of China’s northeast, and are therefore likely subject to relational modes of group membership made predominant and durable by persistent cultural and linguistic processes associated with group membership in contemporary China (J. Liu, Li, & Yue, 2009). In addition, athletes are members of a relatively small and stable team environment, for which access to benefits should require attention to the maintenance of productive intragroup relationships, more so than processes of intergroup mobility or comparison (Schug, Yuki, & Maddux, 2010), even though intergroup comparison is an inherent component of competitive interactional team sport. I expect the metaphors of family to be prominent in the scaffolding of team processes, and I also expect to find a tension between loyalties to the team, and loyalties to an athlete’s pre-existing relational networks of family and friends (Yang, 1994). Thus, the specific cultural setting is such that I do not necessarily expect to encounter the type of public representation or testimony of group membership common in Western sporting parlance, more indigenous to the rugby pitches and boathouses of Oxford or any high school American Football movie produced in the 1990s. Instead, in my ethnography and in the subsequent field studies, I expect to find evidence of a link between joint action, team click, and social bonding expressed in cultural representations that may vary distinctly in structure and content from Western intuitions.

## 1.5 Overview of research

During a two year period between August 2015 and September 2017, I spent three separate periods in China during which time I conducted a total of 10 months of ethnographic research with the Beijing Men’s Provincial Rugby Team, as well as two field studies, for which I sampled from a broader population of professional Chinese rugby players from 9 different provinces. Between August 2015 — March 2016, I spent seven months in Beijing engaged in participant observation and conducting unstructured and semi-structured interviews ( $n = 30$ ), and informal surveys ( $n = 4$ ) with the Beijing Men’s Rugby Team. In July — August 2016 I returned to China for a further two months, during which time I continued ethnographic observations of the Beijing team, while also conducting two pseudo-experimental field studies

spanning two other locations in addition to Beijing: Hebei province and Shandong province. Finally, I spent one month in Beijing and Tianjin between August — September 2017 during which time I conducted follow-up structured interviews with 10 athletes who participated in the Chinese National Games, as well as follow up interviews with athletes from the Beijing Men's Rugby Team.



## 1.6 Thesis Overview

This dissertation consists of the following contributions:

1. **Introduction**
2. **A novel theory of social bonding through joint action.** This section features an introduction to the phenomenology of “team click” as a potential mediator of the relationship between perceptions of joint action and social bonding. The theoretical synthesis outlined in this section forms the basis of study predictions *Selections from this section, including study predictions, are included in my CoS assessment materials.*
3. **Introduction to the ethnographic setting.** In this section I outline in detail the joint action requirements of rugby, as well as the cultural specificities of the niche in which the joint action occurs (China).
4. **Analysis of ethnographic data.** In this section I present the results of analysis of interviews, participant observation, and informal ethnographic surveys collected with the Beijing men’s rugby team. I find evidence of performance-related anxiety, strongest among younger less experienced athletes. I also find evidence for an overlap of individual and team agency, with more experienced athletes emphasising individual agency and younger athletes emphasising team agency. In addition, I find strong evidence for the phenomenology of “team click” among athletes. The terms and discourses encountered through ethnographic observation, particularly regarding perceptions of joint action, notions of “team click,” and understandings of social bonding, inform the design of survey items for subsequent field studies.
5. **National Tournament survey study.** In this section I report the methods and results of the national survey study, in which I test the prediction that the relationship between perceptions of joint action and social bonding is mediated by “team click.” *Selections from this section are included in my CoS assessment.*
6. **Training Experiment.** In this section I present the results of the controlled field experiment. The training experiment was designed to further test the relationship between joint action, team click, and social bonding in an environment in which performance was less influenced by external sources of explicit performance feedback (i.e., winning or losing the game). 58

Professional Chinese rugby players (men = 30) participated in a between-subjects design involving two manipulations of a common rugby training drill known as “invasion drill” (Passos et al., 2011). In the “low uncertainty” condition, athletes were primed with information to suggest that the training drill would be very easy to complete (2/10 difficulty rating). In the “high uncertainty” condition, athletes were primed to expect the training drill to be relatively difficult (8/10 difficulty). Pre and post survey measures were recorded, along with video footage of each experimental trial. It was predicted that those athletes in the high-uncertainty condition would experience higher levels of team click and social bonding owing to higher than expected positive violation of expectations around group performance. Athletes in the “low uncertainty” condition would on average experience less positive violations of expectations, and thus would feel less strongly the phenomenon of “team click” and flow-on feelings of social bonding. Video footage was analysed for evidence of dynamic coupling between co-actors as well as defenders (Schmidt et al., 2011; Richardson, Garcia, Frank, Gergor, & Marsh, 2012; Passos et al., 2012), and these data were compared to psychological measures. Results are yet to be fully analysed.

7. **General Discussion.** In this section I make inferences about the findings of each empirical chapter, identify weaknesses, and point towards future research directions.
8. Conclusion

## 1.7 Timeline for Completion

I propose the following 11 month timeline for completion:

### 2017

**September:** Prepare for CoS Viva, Analyse training experiment

**October:** Analyse training experiment and prepare report

**November:** Finalise training experiment chapter, analyse ethnographic data

**December:** Analyse ethnographic data

### 2018

**January:** Prepare ethnographic chapters

**February:** Prepare general discussion

**March:** Compose introduction and conclusion

**April:** Submit 1st Draft

**May:** Compose 2nd Draft

**June:** Submit 2nd Draft to EC

**July:** Final submission

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