Cooperation in Competitive Miniatures Games: An examination of coopetitive behaviour

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Abstract

The following study uses competitive miniatures board games as a novel research environment to examine how, when and why individuals choose between cooperative and competitive strategies to advance their interests, both within the game match itself and within the broader community of gamers, and what factors affect these decisions. Drawing on literature from the study fields of *coopetition* (a situation of simultaneous cooperation and competition) and decision making, the study focuses on environmental factors and systemic features of the games and game cultures, and how these impact player decisions and perspectives on the competitive/cooperative paradox.

Findings supported value creation as a key motivator in player behaviour. Participants overall expressed a non zero-sum understanding of the coopetitive environment. The existence of a coopetitive tension within competitive miniatures games was acknowledged across the board, although its severity was perceived differently across participants. Participants also identified a number of key strategies and tools used to mitigate or navigate this tension. These included reciprocity, communicating intent, following the principles of clean play, and adhering to a set of unwritten rules and norms around sportsmanship and fairness. Players also identified a number of systemic features that results in negative experiences for them. These included gotchas, unclear rules, and a sense of imbalance that can result in a player feeling powerless and unengaged. Likewise, a number of systemic features that help reduce conflict were discussed. These included the existence of a tight ruleset, managing player expectations, and the establishment of a neutral authority to mediate disputes.

The findings are used to propose a model of human behaviour in coopetitive situations, intended to further develop understanding of coopetition and behaviour within bilateral coopetitive environments.

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1/ Introduction

The following study uses competitive miniatures board games as an innovative research environment to examine coopetitive behaviour - how, when and why individuals choose between cooperative and competitive strategies to advance their interests, both within the game environment itself and within the broader community in which this environment fits, and what factors affect these decisions. Drawing on literature from the study of *coopetition*[1] (a situation of simultaneous cooperation and competition) and decision making[2], the study focuses on the social, environmental and game design elements of competitive miniatures games, and how these elements influence player decisions and player perspectives on the competitive/cooperative paradox. The research involved the recording of a number of competitive miniatures game matches (Kawulich, 2005), followed by an offline verbal protocol (Shadbolt & Smart, 2015) with each player. This took the form of a video-assisted semi-structured interview. Participants were asked to provide their perspectives on the cooperative/competitive conflict in competitive miniatures game and what strategies they use to mitigate such conflicts. They were also asked to reflect on systemic or cultural factors that alleviate or aggravate conflict situations in competitive miniatures game matches.

The data from the recordings and interviews are then analysed, using communication and transcribed phrases as the unit of analysis, and discussed in the context of the existing literature on coopetition and decision-making. The existence of a coopetitive conflict within competitive miniatures games was acknowledged across the board, although its severity was perceived differently across participants. Findings supported a non zero-sum understanding of coopetition. Participants also identified a number of key strategies and tools used to mitigate this coopetitive conflict, as well as systemic factors

[1] Key coopetition references used include: Bengtsson & Kock (2000); Bengtsson, Eriksson & Wincent (2010); Bengtsson & Kock (2014); Bouncken et al. (2015); Brandenburger & Nalebuff (1995); Chin, Chan & Lam (2008), Granata et al. (2018); Hutter et al. (2011); Padula & Dagnino (2007); Raza-Ullah, Bengtsson & Kock (2014) and Ritala & Hurmelinna-Laukkanen (2009)

[2] Key decision making references used include: Bazerman & Moore (2013); Eylon & Allison (2002); Falk & Fischbacher (2006); Hayley & Fessler (2005); Henrich et al. (2005); Johannessen, Olaisen & Olsen (1997); Kalantari (2010); Kahneman (2003); Levitt & List (2007); Valley, Moag & Bazerman (1998) and Zultan (2012).

which either contribute to or alleviate coopetitive tensions. Finally, I use the findings from the research to develop a model of human behaviour in coopetitive situations, intended to further develop our understanding of coopetition and behaviour within bilateral coopetitive environments.

2/ Literature Review

The following literature review is divided into three sections.

First, I briefly delve into the limited literature on competitive miniatures games (henceforth abbreviated to 'CMGs'). While past studies of CMGs (ie. Carter, Gibbs & Harrop, 2014; Kankainen, 2016; Yarwood, 2015) have focused on the culture of miniatures gaming, I present an argument that CMGs also offer an ideal example of two individuals simultaneously competing and cooperating, a state of affairs which has been referred to as 'coopetition' in the academic literature (Bouncken, Gast, Kraus, & Bogers, 2015).

Second, I explore the concept of coopetition and the associated literature. This section begins with different definitions of the concept, then explores various facets of coopetition which have been described in the literature. These include: different perspectives on the formation of coopetitive situations; the importance of value creation in understanding coopetition; and the consequences of coopetitive situations on individuals operating within such a contradictory environment. Throughout, I reflect on CMGs in relation to these concepts and argue that CMGs offer a novel and fruitful environment in which to study coopetitive behaviour.

Third, I offer a brief overview of the literature on decision making, focusing on the influence of communication methods on the outcomes of bargaining games and the potential drawbacks of experimental settings within decision making studies. I also review the role of qualitative research within decision making and game theory research and the rich perspective provided by this approach.

2.1 The value of studying competitive miniatures games

Miniatures wargaming is a hobby which involves the use of miniatures (usually requiring assembly and painting) to depict a conflict on the tabletop. These games can vary widely in aesthetics: from historical, to sci-fi, fantasy, steampunk, or alt-history (miniwargaming, 2010; Ross, 2015; Yarwood,

2015). Strategic miniatures games share the following characteristics: a permissive ruleset which describes the mechanics, boundaries and objective of the game; rules or statistic profiles for each unit represented by a model on the table; and a randomness element (usually dice) (Carter, Gibbs, & Harrop, 2014; Yarwood, 2015). The purpose of this last element is to provide additional uncertainty to the game, or a gambling/risk mechanic, which provides what Burgun (2014) refers to as "imagined depth" (p.7) along with additional replayability by including a guaranteed element of uncertainty to which both players must adapt.

CMGs are a fundamentally coopetitive environment:

- They are competitive - each match[3] is designed to result in a winner and a loser. While there is rarely financial incentive for winning large events, winning is associated with significant social status within the game community, as well as a recognition of one's skill and time investment.
- They are cooperative - the game state exists largely as a result of discourse and agreement between two players. While a very tight, restrictive ruleset game like chess can function without any direct player to player communication, miniatures wargames cannot. As a baseline interaction, verbal declaration of actions and choices is required – indeed, in this study, such operational speech made up approximately one third of *all* verbal communication that took place during a game match.
- As a social hobby, they operate within a wider context of subcultural and societal norms, rituals and continued interactions beyond the matches themselves.

In other words, CMGs are multi-level games, with contradictory logics in play. The players are competing *directly* with each other, but are doing so within a fundamentally cooperative environment set within a larger subculture and society.

[3] Throughout this study, the term 'match' will be used to describe one playthrough of the game, whereas the term 'game' will be used to describe the game system as a whole. Contrast this for example to an athletic team sport like football, where a match can be referred to as 'the game'

I will use the role of information in CMGs to illustrate this friction. A common rule included in most modern miniatures games is defining what is open information and what is hidden information: open information is information that must be shared with an opponent, while hidden information does not. An example of open information is the base rules or statistics of a model. An example of hidden information is the location of a model in hidden deployment. However, no ruleset can effectively state *how* this information must be provided. Rather, the rules usually state that such information must not be withheld when requested. As one might expect, there is a significant amount of discussion within wargaming communities in response to this information gap. An example is given below from an online message board about the game *Warmachine* by Privateer Press, where a player asks exactly how much information should be provided on request:

If I ask, "does [this model] have a magical weapon?" Am I expected to know to ask, "can any [other model] give him magical weapon?" Because I might be in the wrong, but I'm gonna be a little jipped when next turn you cast, giving the guy magical weapon, but then telling me "you asked about him, not ***him****." (DecoyElephant, 2015, May 12)*

You can see here how providing information strategically could provide a legal in-game advantage, but also how social norms and communication expectations might interact with the decision to use this information strategy. This raises a number of other questions: exactly how much information is each participant expected to include and exclude in this basic piece of "open" information? Is there a strict trade-off between competing and cooperating, when sharing information? What systemic features help reduce the friction between the cooperative and the competitive? These are the sort of questions this research aims to address.

In conducting my literature review, I have found that research around CMGs to date has tended to come from an ethnographic perspective, focusing on the hobby and its virtual and real-world subcultures (ie. Carter et al., 2014; Kankainen, 2016; Yarwood, 2015). Consequently, I have found that

little research has been done surrounding the intricacies of competitive miniatures games in terms of their operation as a multi-level, competitive game built on shared cooperative discourse, or the factors which influence player decisions and interactions within this game environment.

2.2 Coopetition: Cooperating and Competing

Defining Coopetition

CMGs are both cooperative and competitive, and feature multiple overlapping levels. Each level comes with its own set of players, rules, strategies, tactics and scope (Brandenburger & Nalebuff, 1995). This complexity comes from the multiple interacting levels and game models. In this way, it is similar to a large number of contemporary business environments. For example, firms are competing within specific offering markets against a number of producers and suppliers of similar offerings (Mathur & Kenyon, 2001). At the same time, they are also often cooperating with these same competitors to achieve mutual gains or create value outside the competitive arena of the market offering. This simultaneously competitive/cooperative environment with multiple interacting levels has been termed *coopetitive* (Brandenburger & Nalebuff, 1995). Since Brandenburger and Nalebuff (1995) introduced the term and concept of coopetition to the academic business literature, it has slowly gained traction in academic publications. This is highlighted with a number of journal issues dedicated to the concept: International Studies of Management and Organization released an issue in 2007 (Volume 37, Issue 2), International Journal of Entrepreneurship (Volume 8, Issue 1) released in 2009 and Industrial Marketing Management released in 2014 (Volume 43, Issue 2) (Bengtsson & Kock, 2014; Bouncken et al., 2015).

Despite this traction, a precise academic definition of the term *coopetition* remains contested (Bouncken et al., 2015). As a consequence, research around coopetition remains fragmented and difficult to generalize (ibid, 2015). The literature offers a number of definitions. The seminal article on

coopetition by Brandenburger and Nalebuff (1995) defines coopetition as "*looking for win-win as well as win-lose opportunities"* (p.59). Bengtsson and Kock (2000) describe it as "*the dyadic and paradoxical relationship that emerges when two firms cooperate in some activities, such as a strategic alliance, and at the same time compete with each other in other activities"* (p.412). Bengtsson, Eriksson, and Wincent (2010) later broaden the definition "*a process based upon simultaneous and mutual cooperative and competitive interactions between two or more actors at any level of analysis (whether individual, organisational, or other entities)"* (p.200). Bouncken et al. (2015) very broadly define it at "*an interorganizational relationship that combines "cooperation" and "competition""* (p.577), but additionally suggest a more refined integrative definition: *"coopetition is the strategic and dynamic process in which economic actors jointly create value through cooperative interaction, while they simultaneously compete to capture part of that value"* (p. 591).

I propose that Bouncken et al. (2015)'s definition of coopetition ideally describes strategic, competitive board games. The two players (as economic actors) come together and informally agree to jointly create value – in this case, they agree to play a match of a game, as per pre-established rules, to create a valuable experience. This experience cannot come to be unless two or more players cooperate in creating it - such is the nature of a multiplayer game. The players also understand that the game will result in a winner and a loser, and if both players are playing to win (which is assumed to be the case in a competitive game environment), then the players are essentially competing to capture a greater share of the value created by this match.

Another aspect of the coopetition concept that remains somewhat unclear in the literature is the nature of the balance between cooperation and competition, and how cooperation and competition interact within the coopetition relationship (Bengtsson & Kock, 2014). While the literature reviewed and the definitions cited earlier share common ground in viewing coopetition as something that is, at its core, the simultaneous existence of both cooperation and competition in a relationship, this

relationship is sometimes conceived as a point on a continuum between cooperation and competition, distributed equally or with one logic dominating (Bengtsson & Kock, 2000). In other words, coopetition is sometimes seen as a zero-sum equilibrium - the only way to increase cooperation is at the cost of competition, and vice versa:

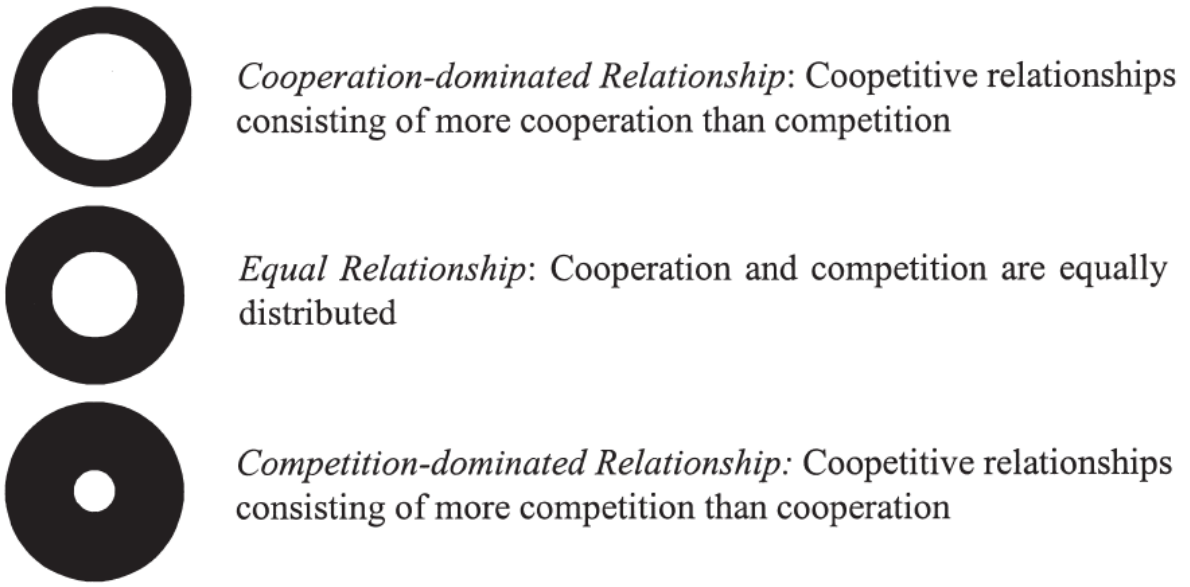


*Figure 1 - Different types of coopetitive relationships, (*Bengtsson and Kock, 2000, p416)

In contrast, Luo (2004)'s typology views coopetition not on a single continuum, but on two – one for competition and one for cooperation, clearly breaking from the zero-sum perspective (Zineldin, 2004). Chin, Chan, and Lam (2008)'s adaptation of Luo (2004)'s coopetition typology divides coopetitive players into 4 broad categories:

Name	**Type**	**Characteristics**	**Examples**
Monoplayers	Low Competition / Low Cooperation	Low interaction	Hi-tech supplier, ie. microprocessor developer
Contenders	High Competition / Low Cooperation	Strict/focused cooperation	Drinks producers who share bottle recycling services
Partners	Low Competition / High Cooperation	Pooled resources, capabilities	(Corporate) Co-ventures ie. Skinny Mobile and Spark
Adapters	High Competition / High Cooperation	High interdependence	Sony & Samsung (developing 7th generation LCD TVs)

Table 1 - Chin et al. (2008)'s adaptation of Luo (2004)'s coopetition model
Examples added by the author

This dualistic typology of coopetitive situations is later presented by Bengtsson et al. (2010) as "coopetition on two continua" (p.199), implying greater levels of granularity and independence between the cooperative and competitive axes. The authors present this 2 continuum model as one that results from a process-based understanding of coopetition, which focuses on activities as the unit of analysis, rather than contextual approach which focuses on the behaviour of individuals or entities, following Brandenburger and Nalebuff (1995)'s game theoric approach.

This understanding of coopetition allows the paradoxical relationship to be maintained as long as both logics remain in play, rather than perceiving it as a state of affairs to be resolved when one logic dominates the other. This model then allows for both high levels of competition and high levels of cooperation, or low levels of both, or anything in between. The 2-dimensional typology of coopetition is especially suitable to the study of CMGs perceived as a coopetitive game, as high levels of cooperation between the players does not necessarily entail low levels of competitive behaviour (or vice versa), as will be demonstrated later in the study.

How Coopetition Arises

Coming from a binary cooperative / competitive paradigm perspective (Bengtsson et al., 2010), coopetition can occur either as the result of cooperative issues 'invading' a competitive game environment, where two or more players are aiming to seize an opportunity to change the game to mutual benefit, or when competitive issues invade a previously cooperative environment (Padula & Dagnino, 2007). While Brandenburger & Nalebuff (1995) explain coopetition as a response to the limitations of the competitive paradigm (ie. Porter, 2004), Padula & Dagnino (2007) present evidence for the establishment of a coopetitive situation as an intrusion of competition within an established cooperative game structure - usually as firms attempt to reach an advantage and appropriate the value created from the collaborative situation.

An example of two firms moving from a primarily competitive relationship to a coopetitive relationship is Sony and Samsung during the development process for 7th generation LCD panels for flat-screen televisions (Raza-Ullah, Bengtsson, & Kock, 2014; Ritala & Hurmelinna-Laukkanen, 2009). While both companies were competing aggressively in a number of other electronic goods markets, both recognized an opportunity for targeted cooperation that would result in mutual gain. Sony needed Samsung's large LCD TV expertise to establish their Bravia brand, and Samsung could use Sony's brand and production expertise to become the largest panel producer in the world. And thus the jointly-owned subsidiary *S-LCD* was established to meet this need. In another example, two of the world's largest automobile manufacturers, Toyota and General Motors, collaborated in the development of fuel cell-powered cars in order to expand the size of the potential automobile market in the United States (Chin et al., 2008).

In contrast, as an example of firms that began in a coopetitive relationship and eventually moved towards a more typical competitive paradigm, we can look at the development of the first iPhone. Apple and Google – competitors in a number of offering markets - worked together closely in the development and marketing of the iPhone, with a number of Google's proprietary apps included with the device. With the release of Google's competing Android operating system, the relationship began to transform into aggressive competition and Google's involvement in the iPhone project and Apple gradually declined – although a number of Google's apps remain available via Apple's online store (Raza-Ullah et al., 2014). Competitive issues are more likely to intrude in a cooperative relationship within an unstable, loosely regulated environment than in a stable, established one (Padula & Dagnino, 2007). In regards to CMGs, this proposition might lead one to expect that the quality and rigor of a game's ruleset (as perceived by its playerbase), or the cultural norms around the game, will impact whether an action leads to increased frictions within the coopetitive environment.

One approach to managing coopetition is to appoint an intermediary or subsidiary to coordinate the cooperation between the two firms while the firms continue to engage in competitive behaviour, as happened in the Sony/Samsung cooperation with the establishment of the *S-LCD* joint-subsidiary (Ritala & Hurmelinna-Laukkanen, 2009). Recently, Granata, Lasch, Le Roy & Dana (2018) observed this approach in the context of the micro-firm wine industry in the Languedoc-Roussillon region of south-eastern France. While small-scale wine producers competed against each other vigorously in the regional market, they recognised the value of cooperating in the saturated national and international marketplaces. This coopetitive relationship was managed with the aid of a neutral collective organisation - *Pic Saint Loup (PSL)*. Firms cooperated through the framework of the PSL organisation in order to present a unified product to larger markets, while individual member micro-firms continued to compete with each other regionally. PSL completely abstained from marketing in the regional market - member firms were free to compete in this sphere as they wished. The collective structure not only helped managed the tensions of coopetition, but also provided "external recognition and ensured compliance with barriers to entry" (Granata et al., 2018, p.340). The PSL organisation thus provided a defined space with defined boundaries for cooperation, served to manage the expectations of participant members, and set the rules to access the potential gains in larger markets.

Other research establishes similar patterns of firm behaviour in regards to the establishment of a coopetitive relationship for the purpose of international competition. While independent firms in a regional cluster may come together under an industry association with the intent of pooling resources and achieving mutual economies of scale in international export operations to the collective benefit of all member participants (ie. Boehe, 2013), the dynamics of the coopetitive relationship have been shown to change over time. Felzensztein, Gimmon & Deans (2018) conducted a 10-year mixed methods longitudinal study of such a regional cluster in the Chilean salmon industry. The findings went against expectations in that regional cooperation actually *decreased* over time. While the coopetitive

arrangement remained, and the firms continued to cooperate in regards to export operations, firms reacted to changes in the arrangement and regional environment by increasing inter-firm competition. This parallels the situation in Languedoc-Roussillon studied by Granata et al. (2018) - individual firms increased cooperation in areas where it was mutually advantageous to do so and they could create additional value. This situation in turn affected the domestic situation, where firms responded by increasing individualistic behaviour and either reducing cooperation or increasing competition at the regional level. These findings again highlight the interdependent, multiple layers of coopetitive relationships: from the global, to the regional, to the local, to the individual. These multiple levels are likewise present in CMG environments: from the social, to the subcultural, to the individual, to the match (see Figure 3 later in this section).

The cases discussed above demonstrate that competition and cooperation are fluid concepts in complex, multi-layered environments – environments like business, or competitive miniatures games. The combination of the two concepts offers a perspective of coopetition as a continuous, multi-level synthesis between the competitive paradigm and the cooperative paradigm (Bengtsson et al., 2010).

Value Creation

Value creation is a core tenet of coopetition theory in the literature (Bengtsson & Kock, 2000; Bouncken et al., 2015; Bouncken, Laudien, Fredrich, & Görmar, 2017; Brandenburger & Nalebuff, 1995; Mathur & Kenyon, 2001; Raza-Ullah et al., 2014).

Coopetition occurs because would-be competitors see an opportunity to create mutual value through cooperating. Of course, different perspectives exist on exactly how this value is created in coopetitive situations. The dominant stream of thought in the literature follows Brandenburger and Nalebuff (1995)'s game theoric perspective in conceiving the shift from competition to coopetition as a move from a zero-sum competitive equilibrium to a win-win relationship, for example a Stag Hunt scenario:

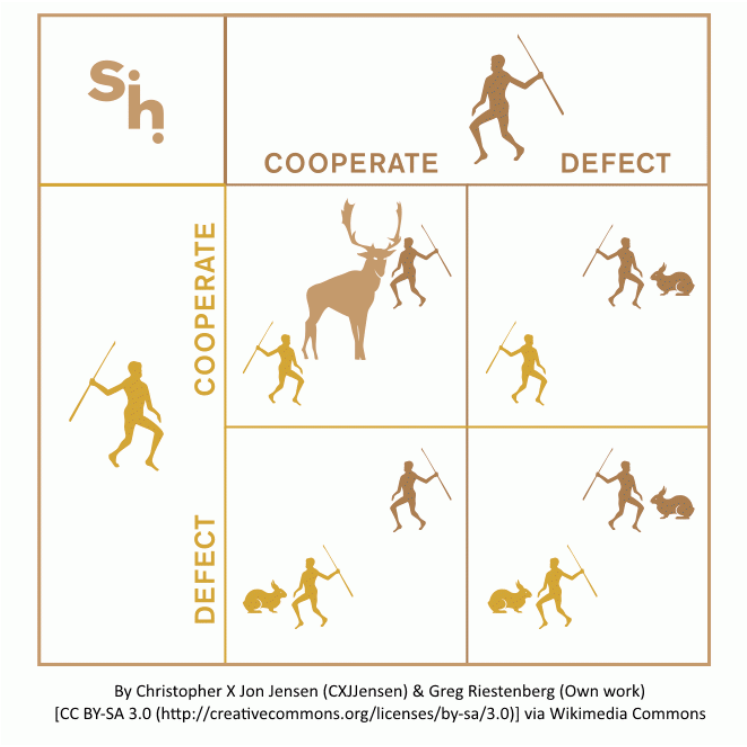


Figure 2 - the Stag Hunt scenario

The Stag Hunt scenario is played by two players, here given the role of hunters. Each hunter is out hunting independently for rabbits. A deer suddenly appears, but the deer requires at least two hunters to ensnare it. The hunters each have an independent choice. If they both continue hunting for rabbits, they are guaranteed to bring one pound of rabbit meat home. If they both choose to work together, they can bring down the deer and snag 10 pounds of stag meat between them. If either chooses to hunt the deer while the other chooses to hunt rabbits, the lone deer hunter comes home with nothing. The decision is thus one of trust and coordination on the part of both players.

We can adapt this analogy to a business context. Due to a change in circumstances, two or more business people see an opportunity to create new value and expand the market by cooperating. The change in circumstances could be for example: a change in rules and regulations; the introduction of new technologies and processes; new network potentials, or the introduction of new players to the game (Brandenburger & Nalebuff, 1995; Ritala & Hurmelinna-Laukkanen, 2009). Following the Stag Hunt analogy, they see a “deer” and recognise that despite being competitors in the hunt for “rabbits”, they all stand to gain by working together on catching the deer. Creating value (ie. ‘catching the deer’)

and then appropriating that value (ie. 'dividing the stag meat') is perceived by the game-theoric perspective to be an essential part of coopetition. The analogy also applies to CMGs. Two players come together to create a shared valuable experience, which would otherwise not be possible without cooperation (the game match) and then move to appropriate this value within a competitive framework. The intent is that winner of the match then reaps a larger share of this created value.

An alternative perspective focuses on a resource-based view of coopetition, specifically the benefits of cooperatively developing and leveraging knowledge, technologies and resources to be used in a competitive environment, developing what can be described as a *collaborative advantage* (Dyer, 1997; Hansen & Nohria, 2004) as opposed to the more established concept of the resource based-view of competitive advantage (ie. Barney, 1991; Porter, 2004). This focuses on the creation of new resources and capabilities via the use of resources outside the organisation, and is particularly appealing to highly specialized, highly-technology dependent industries such as biotech (Quintana-García & Benavides-Velasco, 2004). This perspective focuses on multiple-point competition and market interdependence, following Mathur and Kenyon (1997) in focusing on the *product offering* as the focal point of competitive business strategy, rather than the *firm itself*, with an emphasis on creating value. Such value creation opportunities do not come without risks. While there are certainly benefits to be gained in entering a cooperative relationship with competitors in order to create value in the form of innovations and improvements, there remains a competitive aspect to the arrangement. Following the game theoric perspective, the issue of appropriating the value created remains, however with the potential of additional competitive risk – the coopetitive state of affairs may have also relatively strengthened your competitors, and/or created opportunities for knowledge leaks between organisations (Quintana-García & Benavides-Velasco, 2004; Ritala & Hurmelinna-Laukkanen, 2009; Zineldin, 2004). From the perspective of resources, there are the additional resource costs of establishing the relationship, hidden operational and maintenance costs, dependencies, time and attention spent on coordination and control mechanisms (Zineldin, 2004).

As will be demonstrated in *Section 4.2 Results / Discussion*, value creation was a strong motivating factor for many of the participants in my study, both in choosing to come together to play a match and within the match environment itself. This was true to the point where players would sometimes willingly sacrifice potential personal gains within the match in order to expand the total created value of the match experience.

Individual Impacts of Coopetition

While some coopetition research has been focused at the firm or departmental level (Ritala & Hurmelinna-Laukkanen, 2009; Tsai, 2002), there is also an individual element to coopetitive situations. For instance, Bengtsson and Kock (2000) demonstrated that it is difficult for individuals within coopetiting firms to adapt and maintain the contradictory logics of competitive and cooperation interactions that must be maintained in order for the arrangement to function. The contradiction results in an emotional ambivalence for participants. Raza-Ullah et al. (2014) present this emotional ambivalence as a result of actors (both between and within participating organisations) cognitively beginning to appraise the potential benefit and harm that can come as a result of the paradoxical situation that is coopetition. The consequences of cooperation for individuals are associated with positive emotions like trust and confidence, which results in a sense of mutual, collective interest. The consequences of competition, on the other hand, are associated with emotions like fear of loss, distrust and greed. The ambivalence between these conflicting emotions results in tension (Raza-Ullah et al., 2014). This contrasts with the societal level analysis of competition and cooperation within fields like economics, which broadly assumes that competition is a positive influence that strengthens companies, whereas cooperation between competitors is believed to inhibit this (Bengtsson et al., 2010). In order to manage these individual-level tensions, firms engaged in sustained coopetition often divide the competitive and cooperative imperatives between different departments. Focus on cooperation is more likely to occur in areas further from the consumer, for example product development and manufacturing, whereas competition occurred closer to the product offering, for example within marketing departments (Bengtsson & Kock, 2000).

Of particular relevance to the present study of coopetitive behaviour within a social gaming environment, Hutter, Hautz, Füller, Mueller, and Matzler (2011) examined the communicative behaviour of individuals participating in community-based contests, specifically open design competitions. In such contests, despite the formal structure of competition with winners and losers, participants continuously share ideas and knowledge with other members because of their desire to socialize and participate in the community. Results of this mixed methods study indicated that the winners in these types of competitions tended to be what they termed 'communititors' – individuals who engaged in highly competitive behaviour, but simultaneously cooperated extensively with other participants, by offering positive comments and constructive criticisms on other submissions (Hutter et al., 2011). This category differs from the 'adapter' type in Chin et al. (2008)'s typology – whereas the adapter is characterised by mutual dependency in order to achieve their own competitive goals, the communititor *could* achieve their competitive aims in the competition without cooperation but chose to engage in cooperative behaviour regardless. Communitors won 5 of the 6 final awards and were proportionally overrepresented in the top 30 places compared to other behaviour groups. In contrast, the 'pure' competitor types who submitted a high number of quality ideas but engaged relatively little with other participants took 1 of the 6 final awards, while also being overrepresented in the top 30.

Coopetition: A Multi-Level Game

The Hutter et al. (2011) study reveals an environment with an additional level of interaction above that of the design competition – the online community – where engaging in highly cooperative and reciprocal behaviour was shown to improve their odds of victory within the competition. This emphasises the interactive, multi-level aspect that is the heart of coopetition. The social community level and the competition level have their own logic - the former incentivizes cooperative behaviour while the latter incentivizes competitive behaviour. Nevertheless, both levels are part of the same 'game'. This is the type of environment that coopetition seeks to describe.

Coopetition is fundamentally a multi-level phenomenon (Bengtsson & Kock, 2014). At its core, coopetition is concerned with the mutual existence of different paradigms, or game states: the cooperative and the competitive. More often than not, however, the coopetitive game is itself embedded in, and subservient to, the norms, cultures and beliefs that shape every day social interaction (itself another level):

> *"To understand multilevel processes and influences in coopetition, it is important to account for the inherent tension in coopetition, and potential conflicts and dilemmas that can develop through the linkages <u>at multiple levels</u>"* (Bengtsson & Kock, 2014, p. 184) (emphasis added)

I argue that CMGs are an excellent illustration of the multi-level aspect of coopetition, and potentially also the tensions that can arise as a result.

On one, highly competitive level - the match itself - players are competing one-to-one, according to a formal, written set of rules, and an unfortunate turn of fate or poor decision by one player almost always results in a direct benefit to the other player. On another level, participating in a board game is a voluntary, cooperative endeavour, and players are required cooperate in order to make the game match a reality. At this level, players are required to uphold the discourse required to maintain the game state. This might involve agreement on the game effects that are in play, resources used and remaining by both players, the current score, or explicit mutual agreement on achieving physically difficult model placements (for example, when a model is intended to be placed at an *exact* distance from another, or on an unstable sloped surface).

At higher levels, the players are subject to expectations of interpersonal behaviour dictated by their individual goals and beliefs, the game's subculture, the national culture(s) or even state laws. All these different sets of rules and 'game-levels' continuously interact with each other. For example, doing something on the board that might be considered highly unsportsmanlike (but legal in-game) can

result in offending or insulting the opponent. This can degrade the degree of cooperation between the players, leading to increased hostility. In the short term, this could result in a tenser, much less forgiving game experience for both players, and in the long-term, have repercussions on the personal relationship between the players or for the game culture as a whole. The following diagram illustrates the interactions between the different levels involved and a 'downward' direction of influence from the mass societal level, all the way down to the specific match being played:

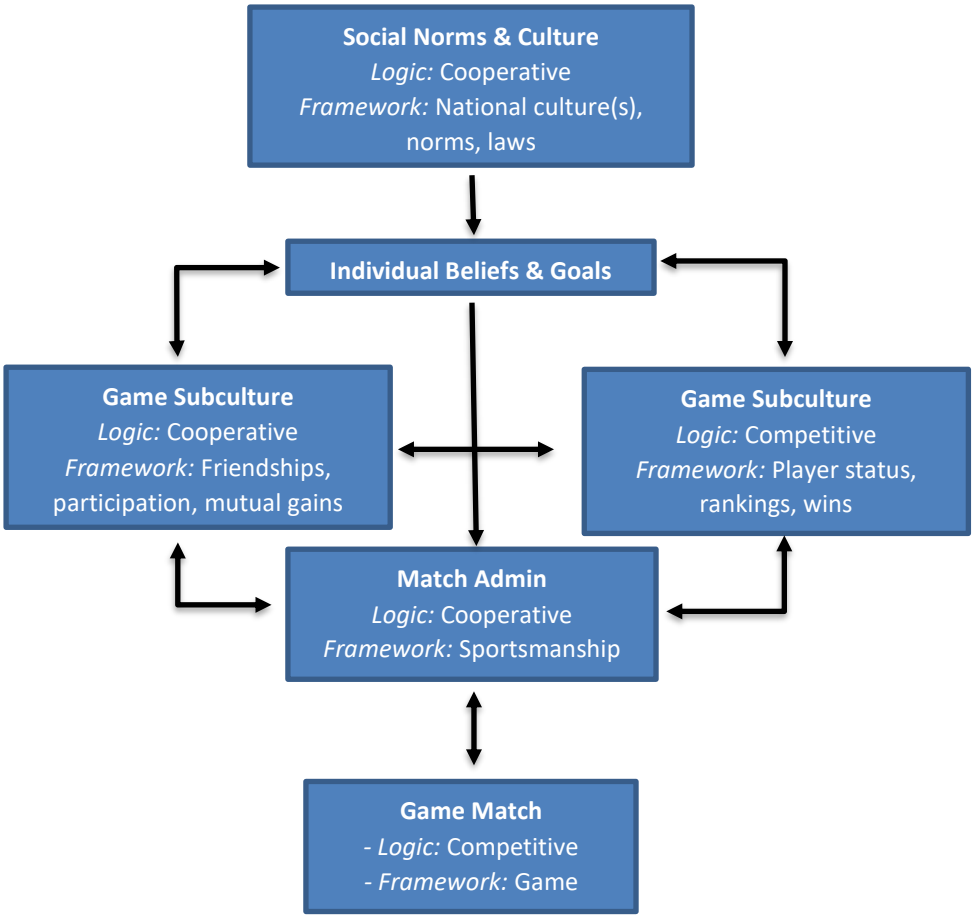


Figure 3 - The multiple interacting levels at play in a CMG match

A recent high-profile example can be taken from the Warhammer 40000 Las Vegas Open tournament held in the last week of January 2018. This event is a very large wargaming tournament for the very popular Games Workshop miniatures wargame Warhammer 40000 (abbreviated as '40k'), which consistently holds very large competitive tournaments worldwide. This is in spite of Las Vegas Open Head Judge and 40k commentator SaltyJohn's (2018) admission that 40k is not especially well-

designed as a tight, competitive game. In the 2018 edition of the event, Alex Fennel played Tony Grippando in the semi-final of the grand event. The event was running behind schedule, and Fennel and Grippando had therefore agreed to play as quickly as they could to keep the tournament on time, going so far as to help each other with administrative tasks like moving large numbers of figures and pre-measuring distances. At some point during the match, Fennel forgot to move one of his units in the correct phase of the game. When he attempted to correct this (which in wargaming communities is referred to as 'asking for a take-back'), Grippando denied him, stating the rules as written meant he had to forfeit the opportunity to move his units as the time to do so had passed as per the rules of the game (FrontlineGaming, 2018a). Live audience reaction was highly negative and critical of Grippando's decision, as prolific 40K Blogger TasteTaste (2018) notes on the *Blood of Kittens* website:

> "*It was the sort of thing you find in other games and systems, but in Warhammer 40k we typically have unwritten sportsmanship rules."*

There were immediate consequences to Grippando's action. He lost the grand final match on a similar timing technicality, in which his opponent *specifically* referred to the aforementioned incident when denying him the take-back (FrontlineGaming, 2018b). Directly after the match, Riot Games President Marc Merrill, who was in the audience, donated a $5000 sportsmanship award to a charity of Fennel's choice as recognition of his sportsmanship (Merrill, 2018, Jan 29). We see here a clear influence of unwritten ethical and subcultural standards directly impacting the result of the match. Likewise, we also see what happened within the game match environment but not within the jurisdiction of the game rules themselves (specifically, within the discourse between the two needed to maintain the game state) having an impact outside the confines of the match.

In the business world, coopetition occurs between firms who are competing on one or more product offering, but also cooperating in other markets and opportunities. They seek mutually beneficial situations without disadvantaging themselves in the competitive sphere. In most cases, firms choose

to cooperate in such arrangements in order to create value[4], and then compete in order to appropriate that value. From this perspective, I argue that the concept of coopetition as applied in business is very similar to the concept of coopetition as applied to competitive miniatures board gaming, and will use my study as illustration.

Coopetition is a complex arrangement characterised by the fluid interaction and interplay of multiple levels, each of which features one of two conflicting game states - cooperation or competition. Cooperation is driven by a mutual desire amongst participants to create value in some way, but also the simultaneous desire to appropriate some of this value.

2.3 Decision Making and Games

In order to understand how and why players make the decisions they do within coopetitive environments – for example: how they resolve conflicts; how they choose between cooperative and competitive strategies; and how environmental and systemic factors contribute to these decisions - I delved into the broad literature on decision making. I begin with an introduction to bounded rationality as a model which displaced classical models of rational decision making by incorporating human limitations in order to better predict and describe real-world decision making. I then review some of the literature on factors likely to affect individual decision making in a coopetitive environment, namely communication and reciprocity. Finally, I discuss some of the problems with experimental decision making studies and make a case for the value of CMGs as a research environment, and for the value of qualitative methods within decision making research.

[4] For example, in business 'value' could be profits or resources resulting from a new product, process or service which the firm could not create without engaging in this cooperative arrangement.

Bounded Rationality

Classical rational models of decision-making are concerned with self-interested decision makers. These are assumed to follow a methodical step-by-step process of identifying problems, gathering all the data available and evaluating all potential alternatives before selecting the best outcome (Kalantari, 2010). While these models are useful as prescriptive tools to help decision-makers assess information systematically, they have limited application as descriptive models. This is because classical models are normative in nature – they are focused on how decision-making *should* be made at a procedural level, rather than how decision-making actually occurs in the real world. They are therefore limited in helping us understand and predict the decision-making behaviour of humans in the real world. Most contemporary work in the decision-making discipline is rooted in the bounded rationality model developed by Herbert Simon (Simon, 1955; Simon, Egidi, Marris & Viale, 1992).

Bounded rationality's core tenet is that decisions are made by human beings with human limitations (for example: limited memory; limited time; limited knowledge; emotional sensitivity; or cultural preferences). In other words, decision makers are *bound* in their ability and capacity to make *objectively* rational decisions. These limitations lead to what Simon called *satisficing* – the chosen decision is often the best alternative accessible to the decision maker within these cognitive boundaries, rather than what a detached and omniscient observer might consider to objectively be the best decision (Byron, 2005). Decision makers essentially 'make do' with what they have. Via the concept of satisficing, Simon additionally introduced the concept of heuristics to the discipline of decision-making. Heuristics are an approach to decision-making which rely on simplifications of the world and its interactions, and are used to make choices or understand something in the face of overwhelming detail and complexity (Kahneman, 2003). In other words, the 'best' decisions in Simon's model are thus perceived to be *substantively* rational, despite not being procedurally rational (Kalantari, 2010).

Simon's model of bounded rationality was picked up and further developed by psychologists Amos Tversky and Daniel Kahneman, who performed a number of experimental studies in decision-making (Kahneman, 2003). These studies highlighted a number of "errors of intuitions" (ibid, p. 698) in human decision making, which supported Simon's bounded rationality model. Tversky & Kahneman employed a two-system model view to understand the decision-making process on a cognitive level, with the two systems being labelled *intuition* and *reasoning* (Kahneman, 2003). Intuition, which Kahneman labels *System 1* thinking, is characterised by haste and automatic, effortless, 'gut reaction' decisions. Reasoning, or *System 2* thinking, is a slower, analytical, and conscious form of decision-making. A number of published experiments demonstrate errors of judgement that result from System 1 cognitive processes, including; the ease of recall bias towards more recent information over older information; the insensitivity to base rate and sample size biases when evaluating the probability of an event; the tendency to overvalue information which confirms one's current perspective over information that challenges it (Bazerman & Moore, 2013); or the immediateness of affect responses and their ability to guide later responses (Finucane, Alhakami, Slovic, & Johnson, 2000).

Such experiments have also been conducted to demonstrate bounded rationality processes within competitive environments - for example, the escalation of commitment and competitive irrationality. We can see this objectively irrational competitive behaviour in auction environments, where two competitors are betting on something mutually valuable, but also attach separate value to their competitor *not* winning the item - for instance, in the case of a two player conflict where the introduction of a new resource would guarantee victory to whichever player acquires it first. In addition, there can be a psychological imperative to avoid sunk costs, which can compel individuals to 'stay the course' despite contradictory information, in order to justify previous decisions (Ku, 2008; Ku, Malhotra, & Murnighan, 2005). As such, we find that participants in auction situations tend to behave irrationally and overcommit, sometimes to the point of mutual loss (Bazerman & Moore, 2013; Ku et al., 2005). Ku et al. (2005) present this phenomenon as *competitive arousal*, which combines the

logic of the escalation of commitment with emotional and perceptual factors such as time pressure, social facilitation, the fear of sunk costs and the first-mover advantage.

Qualitative Research in Game Theory and Decision Making

Game theory has traditionally been researched from a quantitative perspective, grounded in mathematics and economic theory through the use of models based on rational assumptions of behaviour (Arrow, 2003). However, a recent body of research in game theory has begun to approach the study of game situations qualitatively, specifically looking at the thinking process behind game decisions. Krockow, Colman, and Pulford (2016) demonstrate this approach through the use of qualitative study into a Centipede game, using concurrent verbal protocol. The Centipede game is a game of perfect information introduced by Rosenthal (1981), where two players take turns in deciding whether to take a larger share of an ever-increasing pot (thereby ending the game), or pass the pot to the other player to make the same decision. While the rational decision for Player 1 is to exit the game at the first node (Aumann, 1998), empirical results from the Centipede game demonstrate that players rarely follow expectations of rational behaviour and the decision to exit is taken most often at the third node or later (Falk & Fischbacher, 2006; McKelvey & Palfrey, 1992).

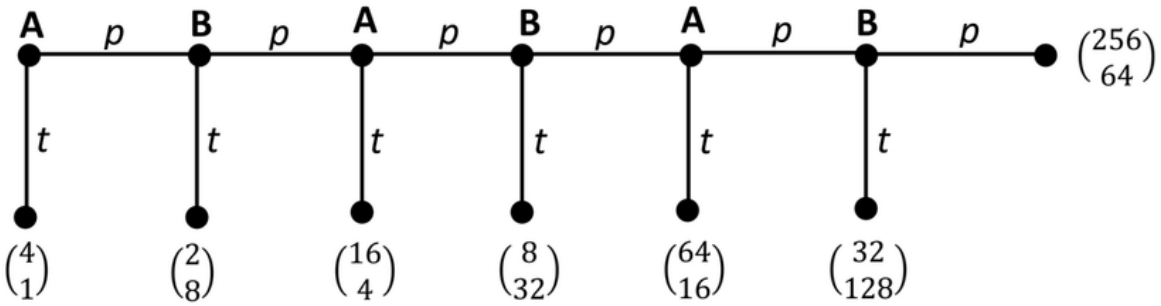


Figure 4 - A centipede game
Note the increasing total payoff, but alternating uneven distribution of this payoff at each node.
Source: https://www.researchgate.net/figure/Centipede-game_fig2_328026797

The Krockow et al. (2016) study documented some findings about the thinking process of the participants, which cannot be deduced from a strictly quantitative approach. These include emotional and social considerations (ie. altruism, trust, generosity, reciprocity, spite) or non-rational tactical considerations (ie. probing, gambling). The study demonstrated the wealth of information available by focusing on the game participants and what *they* consider to be influential factors in making in-game decisions rather than the in-game decisions themselves. These results calls into question the "simplistic economic assumption" (Krockow et al., 2016, p. 760) of traditional game theory research by using qualitative methods to reveal the complex reasoning behind what may at first glance appear to be irrational or non-optimal decision making. These reveal instead a number of substantively rational decision-making heuristic processes, pro-social behaviours, relationship building and other influential 'external' factors[5].

Information is managed differently whether the participant views themselves as located in a cooperative setting or a competitive setting. This can depend not only on how the participant sees their role in the game, but in the influence of external factors on the game. Gezelius (2007) discovered a similar type of conflict in strategic information management in commercial Norwegian fishing fleets, focusing on inter-ship information trading regarding the location of potential fishing spots. While fishing was a fiercely competitive activity tied to significant social status, the competition occurred within an environment heavily mediated by social norms. Captains who would give false information and 'cheat' would suffer heavy long-term social sanctions, as did those who repeatedly failed to reciprocate on useful tips, despite this being the most immediately rational strategy in the game. As a result, the strategic use of information, specifically around ambiguity, sharing and concealing information, was different in practice than predicted in game theory models (Gezelius, 2007).

Another distinction in how information management differs between cooperative and competitive contexts is provided as a result of Eylon and Allison (2002) investigation into participants' willingness

[5] See for example the results from McKelvey & Palfrey (1992)'s and Nagel & Tang (1998)'s centipede game studies, which demonstrate that the rationally optimal play is rarely chosen.

to share information in these different environments. It was discovered that participants preferred to share ambiguous information in cooperative situations, and non-ambiguous information in competitive situations. This result was also mediated by the familiarity of the task - ambiguous information was also preferred when working on familiar tasks, and unambiguous information on unfamiliar tasks.

With my study, I seek to expand on this body of work in qualitative research into game behaviour by exploring player perspectives on how game environments, game features and systemic factors affect and influence player behaviour.

Communication and Reciprocity

Valley, Moag, and Bazerman (1998) conducted a communication experiment which found that interactive communication during the bargaining or negotiation process increases the likelihood of reaching an efficient (or mutually beneficial) outcome. In addition, the results demonstrated that the *medium* of communication had a significant impact on the efficiency of outcomes. Specifically, face-to-face communication was *far* more effective in achieving an efficient outcome than written communication, and also more effective than phone conversation. These results highlight not only the importance of non-verbal, non-semantic methods of communication (for example, tone and body language), but also the importance of open communication during negotiations and bargaining. Valley et al. (1998) propose that face-to-face communication may incentivize being truthful, and to a certain extent, empathising with the other party's perspective and objectives: *"Even under conditions of assymetric information, in face-to-face bargaining the social interaction comes to resemble honest information sharing rather than the deceptive signalling assumed by game-theoric analysis"* (Valley et al., 1998, p. 230). While deception, distrust and self-interested behaviour are default assumptions in

the rational economic model, these do not appear to hold in face-to-face communication[6], which appear to reduce the likelihood of such opportunistic behaviour.

Zultan (2012)'s research into the impact of pre-play communication also reveals the influence of social dynamics and relationship building on game behaviour. The experiment in question involved an ultimatum game: Player 1 is given a sum, and makes Player 2 an offer to split the sum into two shares. If Player 2 accepts the offer, they split the sum accordingly. If Player 2 rejects the offer, neither player gets anything. Rational economic behaviour predicts that Player 2 should accept any offer above 0% – after all, something is better than nothing. Bazerman and Moore (2013) note however that offers below 20% are usually rejected by Player 2 in these games. Zultan (2012)'s results show that allowing participants to engage in pregame communication significantly increased the mean offer made. However, *acceptance* of the offer was significantly higher only when participants were not restricted in their pre-game communication, as opposed to when they were instructed that they could discuss anything *except* the upcoming game. Overall, these findings build on Valley et al. (1998)'s findings discussed earlier – open, face to face communication may help build trust and feelings of reciprocity, which influence behaviour towards mutually beneficial outcomes.

Reciprocity can be defined here as a mutual exchange between individuals or groups, or a 'response in kind'. It is a powerful determinant in human behaviour, demonstrated in a number of experimental game studies (Bazerman & Moore, 2013). Reciprocity is one of the core mechanisms in understanding the evolution of cooperation amongst many species, including humans, in contradiction to the basic individual rationality of natural selection (Axelrod & Hamilton, 1981; Nowak, 2006). This not only includes direct reciprocity, which can be understood in terms of an agreement or barter between two entities, but also indirect reciprocity, which can be understood in terms of behaving according to a set of rules or norms in order to establish a reputation within a group to reap later rewards.

[6] In contrast, such 'economically rational' self-serving behaviour is commonly observed in anonymous, competitive market environments (Falk & Fischbacher, 2006).

Falk and Fischbacher (2006) propose a theory of reciprocity which includes *perceived kindness* of an action as a central element in decision making within bilateral interactions. The emphasis on perception is important, as it considers that the reciprocating actor puts themselves in the other players' shoes, and also presupposes a degree of bilateral bargaining as a result of personal interaction (in contrast to interactions within impersonal competitive markets, which have shown different types of behaviour). Perceived kindness is affected by the options available to the other player, and their decision given those options. This is placed alongside reciprocation (the response to experienced kindness or unkindness) and utility, which is the material payoff *plus* the reciprocity utility – the utility the player gets from rewarding/punishing the other players as they see appropriate. The assumption behind this theoretical model is that decision makers find inherent value in rewarding or punishing certain types of behaviour. Falk and Fischbacher (2006)'s reciprocity theory helps explain a number of 'non-rational' experimental results in bilateral game behaviour, for example: why players usually reject offers below 20% of the total sum in ultimatum games (Bazerman & Moore, 2013); why participants in sequential prisoner's dilemmas games will usually choose to cooperate *if* the other player opts to cooperate first (sacrificing potential short term gain for long term reciprocal benefits); or why players in centipede games often carry on beyond the first two nodes despite the optimal rational strategy being to exit at the earliest node (McKelvey & Palfrey, 1992).

Zultan (2012)'s and Valley et al. (1998)'s findings support Johannessen, Olaisen, and Olsen (1997)'s theoretical framework, which proposes that in negotiation situations, the possibility of a mutually beneficial win-win outcome is more likely in situations where the problem is well-defined and the motives, value system and preferences of involved parties are displayed and expressed ahead of time. This effect is moderated by the concreteness and vividness of the information, in line with the predictions of an affect heuristic (Bazerman & Moore, 2013; Finucane et al., 2000). Johannessen et al. (1997)'s framework potentially explain the significant difference between restricted and unrestricted pre-game communication in the Zultan (2012) study – unrestricted communication allows players to

establish their respective expectations and preferences ahead of time, thus making an agreement more likely.

The influence of communication, reciprocity and bounded rationality are important in the context of my study as they can serve to explain, or at least provide a context for, participant decision making. One of the distinctive features of board games and CMGs in the modern gaming environment is their physical embodiment. These games are played using physical models and tools (dice, cards, measuring instruments) by two players who are both present in the same room at the same time and communicate face to face using words, tone, and gestures. Players always have the opportunity for unrestricted, unfiltered, direct communication before and after each match. Given the geographic boundaries of board gaming communities and the aforementioned physical limitations, players are additionally quite likely to have future interactions with the same opponent, and the gaming community in their area. Therefore, we can see how the experimental results and models discussed above could be used as a lens to interpret participant behaviour and perspectives.

Decision Making Experiments and the Problem of Ecological Validity

While such experimental studies have been very useful for identifying specific decision-making mechanism of the human mind, they come with their own set of limitations. One of these is the problem with real world generalizability, specifically in terms of ecological validity or environmental generalisability (Johannessen et al., 1997; Levitt & List, 2007). The experimental setting is designed for establishing causality by carefully controlling variables, but in doing so there is a loss of contextual variables which have a large impact on decision-making and the decision maker.

Even in an experimental environment, controlling variables can prove very difficult. Haley and Fessler (2005) demonstrated that participants in an economic dictator game are significantly more likely to

engage in non-rational cooperative and prosocial behaviour while being 'observed' by stylized eyespot markings than when under control conditions. This result raises the question of whether subjects are sensitive to what could, in an experimental setting, be classified as external inputs and to what extent these inputs influence behaviour within the game. Here, the mere feeling of being 'watched'[7] significantly influenced participants to behave more altruistically and non-rationally.

The experimental setting *itself* is designed specifically to observe and monitor participants, and as a result these participants might respond by acting as they believe they are expected to act, which includes pro-social and altruistic behaviour (Levitt & List, 2007) and other social desirability biases. Such findings may also raise concerns regarding experimental economic games – if something as seemingly minor as being passively watched by a simulated observer can significantly affect decision making, the validity of published experimental decision-making or game theory studies is open to criticism.

Experimental lab studies can also be critiqued for purposely not incorporating external variables which are crucial to real world decision-making. While this is useful for establishing relationships between variables, it affects external validity and thus predictive capacity. Take for example the 'one-shot' experimental design[8] that is often used in economic game experiments (Levitt & List, 2007). This design is intended to remove social reciprocity from the experiment. The problem with this design is that real life decisions are usually *not* made in one-shot situations, and social relationship considerations like reciprocity are an important descriptive element of real world decisions (Levitt & List, 2007). The economic strategies of these subjects are also not sourced from a void – they are

[7] This is similar to what is commonly referred to as the Hawthorne or observer effect, named after a set of experiments conducted by Mayo and Roethlisberger at a manufacturing plant in the 1920s (Hawthorne effect, 2018).

[8] Participants in one-shot experiments will only interact with specific game partners once during the games' playthrough, and not interact with that partner again during the experiment.

rooted in previous experiences, behaviour and an established understanding of how human relations work (Gezelius, 2007; Henrich et al., 2005). Such considerations are considered external to the laboratory environment, but nonetheless influence the results, sometimes in significant ways.

How an experiment is framed and presented to its participants has been shown to have an influence on player behaviour within economic behaviour games. Framing has been demonstrated in a number of experimental settings, for example in the Asian Disease problem, which demonstrates how risks concerning potential gains are perceived differently from risks concerning potential losses, even when they are statistically identical scenarios (Kahneman, 2003). In the Asian Disease experiment, a mysterious disease is predicted to kill 600 affected people. Two groups of participants are presented with two possible solutions to the problem and asked to select the best option (Group 1 gets A vs B, Group 2 gets C vs D):

> **A:** "200 people will be saved"
> **B:** "there is a 1/3 probability that 600 people will be saved, and a 2/3 probability that no people will be saved"
> *vs*
> **C:** "400 people will die"
> **D:** "there is a 1/3 probability that nobody will die, and a 2/3 probability that 600 people will die"

In the first group, most participants choose A, and in the second group, most choose D (Kahneman, 2003). Since these are statistically identical scenarios (A=C and B=D), but framed differently, the difference in choice between the two groups of participants can be attributed to how the outcomes are framed.

The wording of instructions and the restriction of potential decisions in an experiment can also alter behaviour within an experiment. Participants in a dictator game who have been instructed that giving nothing is the least generous alternative behave differently to participants who have been instructed

that the rules allow them to give any portion of their sum to the other player, or to confiscate up to the maximum sum amount from the player (Levitt & List, 2007).[9]

Besides the effect of variables not accounted for and framing effects, a number of experimental economic behaviour studies are restricted in terms of the population to which the findings can be generalized, on account of their population samples. First, the subjects tend to be undergraduate students easily accessible to university researchers, or corporate executives undergoing a professional education course, rather than a random sample more representative of a wider, varied population (Henrich et al., 2005; Levitt & List, 2007). Second, cultural context is important in understanding an individual's behaviour. Henrich et al. (2005)'s experiments in a variety of non-European, small scale societies across the world demonstrate the significant impact that cultural differences have on economic and prosocial behaviour within these economic games. The results of a number of ultimatum game playthroughs showed that within societies with strong norms of sharing and trading, there were a high number of generous offers and almost no offer rejections, whereas with smaller-scale foraging, self-sufficient societies, there were more low offers and consequential rejection rates.

The following study uses CMGs as an environment from which to draw information around strategic decision-making within a complex, real world coopetitive environment. CMG matches can be considered as a kind of halfway point between experimental and ethnographic research environments. Tournament games feature a number of experimental characteristics: they are played in a regulated atmosphere in which game and format rules constraint behaviour and possible choices, in which participants complete a predetermined task, within a predetermined timeframe, at a predetermined location. As a research environment, this provides the researcher a degree of control and reliability. At the same time, they are fundamental rituals of the CMG culture and community, and not designed at all for experimental purposes. Player decisions made within the match have

[9] As an aside, I recognize the irony that studies using experimental designs showing the effects of framing are used to support claims that experimental designs can have (unintended) framing effects!

repercussions and consequences beyond the immediate match environment. Matches share a lot of features with the 'real world' in terms of complexity, external pressures, cultures, or norms, and are therefore not subject to many of the aforementioned criticisms of experimental environments.

Conclusion

Players of CMGs get together to play a match because they find it to be a fun thing to do – they are co-creating a mutually valuable experience. At the same time, these games are designed to be competitive. One player will win and one player will lose. At the individual level, the paradox of coopetition is essentially one of decision making. Individual players in these game situations are required to make a number of decisions at multiple interactive levels – at the board game level, how they interact with the other player as an opponent, as a fellow member of a game community, or as a fellow citizen. This complex situation poses a number of questions regarding how players think and make decisions in these situations. These questions include:

1. How do players perceive the conflict between cooperation and competition within the coopetitive environment that is CMGs?
2. What strategies do they use to manage the conflict during games, and mediate between cooperation and competition?
3. What factors influence players' decision to compete or cooperate?
4. What systemic features help to reduce – or serve to increase - coopetitive tensions in these games?

These are the questions this study seeks to explore, using the setting of CMG matches played in a competitive tournament environment.

3/ Method

Research design overview

Given my experience and long-standing connections with CMG gaming communities around the world, this study necessarily qualifies as an ethnographic study (Stewart, 1998). I have been playing CMGs since 1996, starting with Games Workshop games like Warhammer Fantasy Battles and Warhammer 40000. I have volunteered as a community builder and tournament organiser (for Warmachine and Guild Ball) in both Europe and New Zealand. I was familiar with the majority of the participants of this study prior to the match recordings and interviews, either through face-to-face interactions at tournaments, or via interaction in online communities.

My study took part in two stages. The first stage was a participant observation study. by use of audio/video recording of a number of CMG matches (Kawulich, 2005; Walshe, Ewing & Griffith, 2011). This was followed by a thematic/ content analysis of these observation videos (Bordens & Abbott, 2005), which aimed to identify the key themes and moments of the match, as framed by the research questions. The results of this analysis were then used to inform the second stage of the study: an offline verbal protocol analysis with the players involved (Shadbolt & Smart, 2015). This took the form of semi-structured interviews and sought to identify the thinking process and awareness behind the information sharing and communication strategies used by the players. I also sought to discover how the players perceived the environmental and systemic factors that influenced their decisions within the coopetitive environment that was the CMG match. An applied thematic analysis method was used to analyse the data derived from both stages of the study (Guest, MacQueen & Namey, 2014).

Participants

My study comprises the recordings of six matches. These were spread across a four different CMG systems in order to reduce the influence of system-specific intricacies over the collective data. For the purpose of the study, lacking an acceptable definition in the literature, I have defined a *competitive* miniatures game system as one where only the result of the game and 'points' earned within the framework of the game match have influence on the placings at the end of the tournament. This is in contrast to a game like Warhammer 40000, where subjective scores like painting, list composition or sportsmanship usually have an impact on the final standings (Carter et al, 2014).

The four game systems featured in the following study are *Guild Ball* by Steamforged Games, *Warmachine & Hordes* by Privateer Press, *Infinity* by Corvus Belli and *Blood Bowl* by Games Workshop. In addition to meeting my definition for competitive systems as above, all four systems have well established international tournament communities and tournament circuits. Overall, three matches were recorded for Guild Ball, three were recorded for Warmachine, two were recorded for Blood Bowl and one was recorded for Infinity. Two of the recordings - one for a Warmachine match and one for a Blood Bowl match - were partially corrupted during recording and so were not used in the study. Out of the two remaining Warmachine matches, one was not used primarily for practical reasons, specifically the additional time it would take to transcribe and code the match, and the two interviews that would result from this, relative to its potential contributions to the study. Ultimately I chose to use the Warmachine match that occurred at a later stage in the tournament in the hope that it would feature more experienced players and thus a lower number of technical questions and interactions. Each match is referred to in the study by an abbreviation of the system, and for Guild Ball also the number for the match – GB1, GB2, GB3, WM, BB and INF.

The choice of six matches was a practical one. All the match data was collected over a period of two days, at an event I organised in collaboration with a local hobby and wargames distributor. The

distributor provided space and prize support and coordinated the overall event, with the assistance of a number of tournament organisers, or *TO* for short. One TO was allocated per system, as is common practice. Recording six matches across four systems required attending the two days of the event to collect data. All tournaments were either three or four rounds per day (depending on the number of players taking part in the tournament). Six recorded matches resulted in a potential 12 interviewees for the verbal protocol stage of the study, which is the figure recommended by Guest, Bunce & Johnson (2006) with thematic analysis studies that have a narrow research scope and relatively homogeneous sample. This was the case with my sample as noted in the Demographics section below. Similarly, this number also allowed for some expected attrition in the number of players willing to participate in the verbal protocol stage of the study. In total only 1 recorded participant declined to take part in the interview stage.

Sampling

The study followed a purposeful sampling strategy (Hignett & McDermott, 2015). Participants were recruited during a gaming tournament in the Auckland area, which - along with Wellington and Christchurch - hosts most of the large wargaming events in New Zealand. Auckland in particular was chosen for reasons of geographic convenience. Specific matches were selected for recording during each tournament, in consultation with the tournament organiser. Emphasis was put on including more experienced players as this was expected to reduce the number of mechanical questions during the match (ie. questions on how the game rules work) and puts more emphasis on contextual game information, player interactions and information strategy. In one instance, recording the match best fitting these criteria would have resulted in a participant being recorded twice, so an alternative match was set for recording. Shadbolt & Smart (2015) also recommend the use of experienced participants for verbal protocol analysis, as these are less likely to feel embarrassed about describing their expertise in detail. An experienced player is also more likely to understand why they did something in

the context of the game, compared to a learner who is still processing the logic and nuances of the game rules and strategies.

Participants were informed of the purpose and objectives of the study, both prior to and at the beginning of the tournament, and consent was sought via a signed form. No particular ethical problems were foreseen regarding recording as the recording of games, especially competitive top table games, is commonplace in larger events (ie. Privateer Press, n.d.; Steamforged Games, n.d). The videos were not posted publicly and the participants have been anonymized in the results / discussion. As there were no particular ethical concerns foreseen in regards to the subject matter, a low risk ethics application was submitted. As part of the consent process, participants were asked if they are willing to participate in the follow up verbal protocol at a later date, either in person or online. All but one participant agreed to participate in the verbal protocol interview. The recording of the match under discussion was made available to participants at least one week ahead of the interview, in order to give them time to review the match.

Demographics

In terms of demographics, I would classify all twelve recorded players as NZ European males between 25-45 years old. In my experience, this sample is representative of the general wargamer population in New Zealand, where younger to middle-aged European males are a clear majority. I have met a small number of women and transgender individuals in wargaming, although they have usually been less interested in the competitive aspect of miniatures games and more on the other aspects of the hobby (for example: collecting; modelling; painting; casual gaming and/or community). No women took part in the four tournaments involved in this study.

All participants stated that they had played or were actively playing a variety of other game systems in addition to the system they were playing while being recorded. Most participants had started with

Games Workshop games such as Warhammer Fantasy Battles or Warhammer 40k, and as such these systems were a common reference point for examples during the interviews. The majority of participants had started in the hobby at a young age. The average (mean) length of time spent as an active player of miniatures games was 18.9 years, with 15 being the least and 27 being the most.

While I aimed to record players who were experienced with the system in the study, there was some variation in the level of player skill. Three of the twelve recorded participants could be classified as having an intermediate understanding of the game system they were playing - while familiar with the core logic and most rules, they had a number of questions regarding interactions and some of the more nuanced rules in the system. This resulted in an expected skew of questions towards rules clarifications and discussions around technical questions in these matches. The other nine players had an advanced understanding of the rules, with most rules clarification surrounding model-specific rules and recent rules changes to the game.

Materials

The matches were recorded by the use of either an Android smartphone or a GoPro video camera, set on a camera stand beside the gaming table. The choice of device was based on which room was used for the match, as multiple matches were recorded simultaneously. The follow up verbal protocols were captured using a handheld audio recording device (in this case, the same Android smartphone) when conducted in person. Online interviews were conducted via Facebook Messenger and recorded using the Audacity programme.

Procedure

Stage 1

In the first stage of the study, a live video recording was made of each match. When possible, the camera began the recording prior to beginning of the match to include the pre-match rituals and discussions. This pre-match section can be very important in several games. It can involve interactive procedures like list selection (where each player aims to select an optimal roster for the matchup or scenario) or the definition of terrain (which requires specific agreement between the players as to what each piece of terrain on the table represents in terms of rules). Pre-game communication is also an important source of data as it has been shown that strategic communication has an effect on player strategy in the game (Zultan, 2002) and that social interaction has an effect on cooperation in bargaining (Roth, 1995).

This method of 'participant as removed observer' was chosen in order to minimize disruption to the natural exchanges and discussion occurring within the game, which would otherwise be disturbed by the physical presence of another active person to interact with or consider (Bryman & Bell, 2015; Kawulich, 2005). To help achieve this, participants played their recorded match in a sound-insulated (and well-ventilated) room, separated from the other games in the tournament. This was very effective in limiting interpersonal interaction to only between the two participants. In addition, given that the rest of the tournament area was unusually warm due to some climate control difficulties with the venue, the players were happy to be in an independently climate controlled space. In two instances, I was asked to assist players with a menial TO tasks, such as providing cards or tokens, but interaction was otherwise entirely between both participants in all matches.

The video recordings were then transcribed, with notes and memos correlating particular speech segments and interactions to the game situation being played out on the board. Thematic content

analysis (Guest, MacQueen & Namey, 2014) was performed on this data using the *NVivo* software, with a focus on the dynamics between players, the use and seeking of information (either strategic, or operational), the use of non-game-related communication, and any other specific that may have stood out in regards to strategic information or competitive/ cooperative interaction.

The process of thematic analysis for this Stage 1 was informed by two principles. First, the broad approach of identifying themes via recurrence, repetition and forcefulness (Owens, 1984) was followed. Second, a combination of background literature and analytic objectives will be used to inform the categories used to analyse the data - in a way, the "categories earn their way into the analytic scheme" (Morse & Mitcham, 2002, p31).

Below are some examples of phrases, moments of significance or themes that were deemed to merit particular attention in the context of the research questions:

- Ambiguousness of information (ie. Eylon & Allison, 2002)
- Conversational maxims violated (ie. Grice, 1975; Gezelius, 2007)
- Queries for game information (ie. as regards to rules)
- Queries for strategic information (ie. as regards to potential avenues of action)
- Strategic advice offered/requested
- Moments of conflict, either situational, systemic or personal
- *Takebacks* (a term indicating the reversing of a game state decision, outside the specific scope of the rules) allowed
- Language acts (eg. declarations, or *operational* speech) required by the rules

While Stage 1 of the study has its own results/ discussion section, its purpose was primarily to inform the second stage of the study. I note post-fact that this method was excessive in terms of its labour intensity relative to its benefits, but it did serve to give me a very detailed understanding of each match, which proved helpful during the second stage. The purpose of the Stage 1 analysis was

ultimately to inform - and provide some degree of triangulation for - the Stage 2 results. This provides additional richness, depth and strengthens the validity of the findings (Hignett & McDermott, 2015).

Stage 2

The second stage of the study was an 'offline' verbal protocol (Shadbolt & Smart, 2015) informed by the results of the thematic analysis from Stage 1. The term 'offline' here refers to the interview taking place after the actual event, as opposed to a concurrent verbal protocol which occurs concurrently with the event. During this verbal protocol, I sat down with participants and gave them the opportunity to comment retroactively on the match and the decisions they made, with a focus on events of interest within the match. An 'offline' verbal protocol was chosen rather than a concurrent protocol as the latter would irrevocably disturb the natural flow of the match. As the study is framed around verbal communication and use of information and the cooperative/ competitive dynamics between two individuals, this would provide distorted data.

The verbal protocol occured in the form of a semi-structured interview, where key moments and themes (informed by the analysis of the video data from Stage 1) was presented to the players and commentary elicited. The semi-structured interview format was chosen as I came prepared to the interviews with a number of questions informed by the results of Stage 1 analysis, but also wanted to leave myself the opportunity to follow new discussions points raised during the interview . Video recording is an ideal format for protocol analysis as it captures more information about the situation than audio recordings or textual transcription, highlighting the "total task environment" (Shadbolt & Smart, 2015, p172) thus providing a richer aid for the expert to elaborate on the situation. With some interviews taking place up to three months after the match was played, the use of video helped to mitigate the time gap between Stage 1 and Stage 2 of the study.

Questions were divided into two parts. The first part was general, with examples from the recorded matches used to illustrate questions. This part sought to illicit participants views on what makes a miniatures game competitive, how they perceived the conflict (if any) between the cooperative and competitive in these types of games, how this conflict can be reduced, and how they perceive the use of information within these games. The second (larger) part of the interview was the offline verbal protocol. This involved asking participants what their thoughts and feelings were in regards to particular situations in the recorded match. The interviews were then again transcribed, analysed and coded using NVivo in the same manner as the transcriptions from the video recordings in Stage 1.

In both stages, text (as transcribed speech) was used as a proxy for experience (Guest et al. 2014), and phrases and utterances were used as the unit of analysis. In the first stage, the transcription stands in for the game discourse when paired with appropriate notes and memos, and in the second stage, the text stands in for the reasoning process and experiences of the players.

Limitations

As a primarily qualitative, exploratory study intended to develop some ideas and theories regarding what influences player decisions in a coopetitive bilateral game environment, this study is necessarily limited in its generalizability, both in terms of population and environment. Participants in this study were sampled selectively and consisted entirely of young to middle aged European males living in New Zealand. While I feel this is generally representative of the miniatures wargaming community in New Zealand, this cannot be said for miniatures wargaming worldwide, let alone bilateral coopetitive situations worldwide. Research by Henrich et al. (2005) referenced in *Section 2.3* highlights the pronounced differences that culture, environment and social norms can have on economic and game behaviour.

Many of the criticisms levelled at experimental game behaviour studies in the *Literature Review* section can also be aimed at this study. Competitive Miniatures Games are still distinct from real-world game and business behaviour in many respects. For instance, readers will note that participants in this study consistently displayed a regard for their opponent's participation and enjoyment of the game. While this is not uncommon in bilateral bargaining or game situations, this behaviour is not observed in anonymous competitive market environments (Falk & Fischbacher, 2006).

In regards to the methodology, the decision to transcribe entire matches, code and quantify this data in Stage 1 was very labour intensive related to its theoretical rewards in the context of this study. I settled for a brief overview and discussions of the results, as this sort of analysis was not the intended outcome of this study. Stage 1 could potentially have been a very interesting, self-standing study into how communication is structured within CMGs and the influence of systems on this communication. However, this would have required a larger population (more matches and more systems) and a lot more transcription time, which I could not commit within the scope of a two year, part time research project.

4/ Results and Discussion

This section is divided into two connected parts. The first half focuses on findings from the first stage of the study, namely data extracted from the transcription of the match recordings. This section compares different matches (using both quantitative and qualitative data) in order to highlight differences between systems as well as the degree of variance in communication styles between different pairs of players. While it does not relate directly to the research questions, it provides both a richer context for the second half of this section and an avenue for further research in this area.

The second half of this section discusses the interviews stage of the study. To begin, I focus on player's perceptions of competitive miniatures gaming: what attracts them to these games and the different elements which make up its culture. I then look at their perspectives on the coopetitive environment, the friction between the competitive and the cooperative while playing matches and participating in tournaments, and their perspectives on how this conflict can be reduced or eliminated. I discuss how the concepts of sportsmanship, fair play, and friendship interact with competitive tournament culture, competitive games design and the importance of clarity in rules writing. I also discuss and explore their perspectives on what causes negative experiences within these games and how this can be related to the paradox of coopetition.

Throughout this section, player participants are consistently referred to anonymously by the abbreviation *Px*, with *x* being a number between 1 and 12.

4.1 Results / Discussion - Stage 1

In the following section, I provide the results from the analysis of Stage 1 data, and discuss these results and the recorded matches. Comparisons between different matches will be made as a way of illustrating the influence of system and player dynamics. As described in the methodology section,

Stage 1 of the study involved recording 6 matches across 4 different competitive miniatures game systems. These videos were then entirely transcribed and thematically analysed, and notes were added to the transcript to include any interesting moments or events which were not adequately conveyed in the transcript, such as tone, body language or thinking time. While the initial intended purpose of Stage 1 was to inform Stage 2, the coding process nevertheless provided some insights into how verbal communication in CMGs is structured. The following transcription word count and coding charts for Stage 1 provides a starting point:

Word Counts

The transcription word count for each match is provided below:

System / Match Reference ID	Total Word Count (transcription)
Guild Ball 1 (GB1)	5270
Guild Ball 2 (GB2)	4333
Guild Ball 3 (GB3)	8483
Warmachine (WM)	9959
Blood Bowl (BB)	5190 (missing pregame and first turn)
Infinity (INF)	11628

Table 2 - Match transcription word count

Codebook – Stage 1

Code Name	Description	Number of Matches	Occurrences
Operational	Declarations of actions, decisions. Information which must be communicated for the game to operate	6	599
Seeking Confirmation	Seeking clarification or confirmation from opponent	6	397
Seeking Confirmation (game state)	Stating an intended game state or asking questions about the state of the game at the present moment ie. health, distance, resources allocated, Line of Sight.	6	212
Seeking Confirmation (rules)	Asking questions about rules, how they work, a model's rules/stats, card, etc.	6	175
Define Terrain	Defining terrain - important in most games. Establishing agreement	4	10
Donating Strategic Info	Includes thinking out loud about options, giving away potential moves or rules information that wasn't asked for	6	193
Admitting Mistake	Admitting a game-related mistake to an opponent	5	29
Making Strategic Suggestion	Offering advice on a play to make or options in game	5	17

Strategic Talk (about game)	Discussing what is happening or has happened in the game, without dispensing strategic intent or information ie. current or past states without direct expression of future states or potential future states, general scenario rules	6	136
Humour or Memes (non meta)	Participants joking or making meme references	6	59
Meta Talk	Discussing the meta game (ie. the 'game about the game')	6	43
Personal Info (game related)	Mentioning personal history related to the game (ie. previous successes with a particular model, mistakes you made last round, how your tournament is going)	6	34
Conflict	Some kind of tension or disagreement in the game	6	26
Conflict (game state)	Conflict over game state	5	19
Conflict (rules)	Conflict over interpretation or application of a rule	4	6
Conflict (personal)	Conflict between players as people, rather than within the game	1	1
Dice Talk	Feelings or discussion about dice rolls and luck, and the ensuing anger/elation	5	23

Asking for Strategic Info	Asking what your opponent is planning / their strategy	6	18
Rules Correction	Correcting rules error	4	17
Offering Assistance	Offering help in game	5	11
The Threat Question	The common, and often problematic, "how far can this model go/hurt me from" question.	3	11
Personal Info (non game)	Discussion about the individual (person) playing the game, but specifically non game aspects	4	6
Takeback	A player changes their mind about something after declaring it	2	5
Small Talk (non game)	Talking for the sake of talking on matters of no importance or direct relevance to either the players as people or the game	3	4

Note: Figures for specific matches are available in chart format in Appendix 1.

Stage 1 - Discussion

This section provides a discussion and review of the more prominent codes discovered in the analysis of the matches in Stage 1 of the study. Specific examples from the data are offered in order to provide the reader with a greater understanding of how codes were developed and how interactions are structured within the context of CMGs. This section also places some emphasis on the quantitative results provided in the codebook above, in order to analyse the type of communication in each match from a proportional perspective (ie. how much of each match consisted of which code) as well as a comparative perspective (ie. how different matches compared to each other).

The most populated code with the highest number of occurrences, in all matches, was **Operational**, with 599 total references, and a mean 33.9% of utterances across all systems. This code was used to categorize any chunk of speech that primarily involved communicating a player decision, the operationalisation of that decision, or the result of a roll or action. The high occurrence count of this code is not particularly surprising, given that CMGs rely heavily on verbal declarations of intent and choices in order to function. Below are two examples of operational speech[10]:

Ex.1: *P4: Gets tackle. Passes back to Pin Vice, -1 Dice because I'm engaged. I'll dodge of that Second Wind back here. Ball is on Pin Vice.*

P3: Bag of Quaffers and Second Wind Decimate.

What is happening on the table: This example is from a Guild Ball match. P4's model makes an attack, steals the football from the target, successfully passes it back to the friendly model Pin Vince (with a die penalty), then dodges back thanks to the Second Wind ability. P4 responds by putting two abilities on Decimate (a model on his team).

[10] Appendix 3 includes a glossary of technical jargon and an explanation of the basic mechanics of each game system, for interested readers.

Ex.2: *P12: I'm just going to move up to the corner, he will go to there.*

P11: So he's got close combat weapon and he's got ranged weapon. I don't have any counters, no AROs yet.

P12: Cool, I'll chain rifle that.

P11: One chain rifle or two. Cause some have two….

P12: Just the one.

P11: [rolls] *Nope, it's down.*

P12: He might as well go again now.

What is happening on the table: This example is from the Infinity match. P12 moves a model, P11 declares no responses, and then P12 declares an attack with a chain rifle. Both players roll their dice, and the result is that P11's model is wounded. P12 declares his intention to make another attack with the same model.

An aspect of the data not revealed in the quantitative figures in the above codebook is how the operational speech was structured between different matches. In alternating activations systems like Guild Ball, where players take multiple short turns over the course of a game round (1 turn = 1 model activation), the uninterrupted operational speech was usually limited to a few sentences before the other player responded. In the older and more common "I Go, You Go" systems like Warmachine, where players take one long turn each over a game round (1 turn = all model activations), operational speech tended to come in big uninterrupted chunks. Infinity is an anomaly, as it is an "I Go, You Go" system on paper, but every activation gives the opportunity for an opponent reaction. In terms of operational speech and interaction, Infinity functioned more like an alternating activation system. These findings demonstrate the impact of game design on the opportunity for player interaction, and therefore an opportunity for communication. I described in *2/ Literature Review* how interactive forms of face-to-face communication increase the likelihood of mutually positive outcomes in negotiation situations (ie. Valley, Moag, & Bazerman, 1998; Zultan, 2012). CMGs can be compared to a face-to-

face negotiation situation. They usually involve two parties, trading information, reacting to this information, and competing to get the best outcome for them. This level of interactivity was also something participants referred to as a positive aspect of miniatures games:

> *P2: Over that period of wargame playing, and I dunno if it's an age thing as well, I've become a bit more discerning about the idea of the interactivity between two people being as equal as possible in terms of the mechanics of the game.*

Two other large codes - **Strategic Talk** (136 occurrences, coverage 11.6% average) and **Donating Strategic Information** (193 occurrences, coverage 9.5% average) - are closely related, but with one important contextual difference - the *Strategic Talk* code refers to discussion of the past or present state of the match, but does not divulge any new information or tactical options to the opponent, unlike *Donating Strategic Information*, which does. Examples are provided below to help illustrate.

Example of *Strategic Talk* from the Blood Bowl match:

> *P7: Going to get the ball. See if I can not drop it - my half was going so well, until I dropped the ball on that gutter runner's head and watched him run away!*
>
> *P8: Unfortunate… 5 rats down, jesus.*
>
> *P7: And I somehow have numbers. Not quite sure how that works but I somehow have the numbers…*
>
> *P8: Tackle, Strong Arm….*
>
> *P7: They do nothing. Break tackle means he makes 1 dodge on a 1+ but...*
>
> *P8: Righty. Three dudes on the line...*

What is happening: P7 declares he is going to retrieve the ball, and reflects on how he ended up in his current situation. P8 points out that P8's team has a lot of players out of action, and P7 remarks that he surprisingly has a numbers advantage as a result. P8 wonders about two abilities on P7's models

and whether they are likely to have any influence on his upcoming play, which P7 denies. P7 then suggests another ability that could be relevant (Break Tackle). P8 then commits to a play.
A number of options are discussed but all of them are restricted to the present state of the match and there is no discussion of future intent or plans.

This contrasts to *Donating Strategic Information*, which is focused on future options or plans, or giving away information without being asked:

> *P9: One fury there, or I can pop over there and start doing some damage to the snake, seems like a good idea. Or I can stop you scoring points, which is probably better.*
>
> *P10: I have a hunch I'm going to clock myself. Actually if you blow out enough it doesn't really matter. But yeah definite the right option here.*
>
> *P9: Over this side?*
>
> *P10: Yeah you just want to help prevent me scoring points*

What is happening: P9 is quite worried about P10s ability to score points here, and P10 is worried he is going to run out of time on his clock and lose that way. P10 confirms that it is in P9's interest to prevent him scoring points (P10 is actively giving P9 strategic advice).

The **Seeking Confirmation** code followed Operational in terms of total occurrences (397 references, mean coverage 16.5%), not only in the aggregate but in all but one game system. Again, this is not particularly surprising, given that the game state in CMGs is both complex and continuously changing as the match progresses. It is necessary for both players to regularly seek confirmation on their understanding of the current state of the board to make sure they are 'in sync' with their opponent, and that their understanding of how a given rule applies to a board situation is correct and agreed upon.
In this instance, Blood Bowl was the outlier at only 8.8% of total speech coding as *Seeking Confirmation*. This can be explained by Blood Bowl's simpler system and clearer board state. Unlike

the other systems, Blood Bowl is played on a grid and has a relatively low number of variable in-game effects to keep track. Essentially, much more information on the game state is immediately apparent following a glance at the board, in comparisons to other systems that require agreement on very precise positioning, player cards which track health values, or a variety of tokens to keep track of active effects and conditions. This finding provides further evidence that systemic game features may have an influence on how communication is structured within a game match.

Figure 5 - A demo of Blood Bowl
Note the sidelines of the board, where a lot of the game information is stored, visibly and openly.[11]

The **Conflict** code appears in all matches, despite low total coverage (26 total occurrences, 3.2% mean). *Conflict* was defined here as a tension or disagreement that needed to be resolved for the game to continue. In all matches, these were resolved amicably by discussion without referral to external mediation (ie. Tournament Organiser). All conflicts were either a response to an administrative error (such as not spending a resource point), or a disagreement on the state of the game (a measurement, or order of operations). There is one exception, the one instance of a personal conflict, where a player made a statement at the end of the match by which he strongly implied he

[11] Image source: Gilder, K. (2017, Sept 15). Blood Bowl, the true game of Fantasy Football. *Gamespace.com.* Retrieved from*: https://www.gamespace.com/all-articles/news/blood-bowl-the-true-game-of-fantasy-football/*

had not enjoyed the game at all. His opponent made a comment indicating he felt some personal responsibility in this, which the player denied and insisted he not take it personally.

In all cases, the conflicts were resolved after brief discussion. The Infinity match had the highest number of conflict occurrences (9 occurrences, 7.24% coverage), which I attribute primarily to the relative complexity of that system, both in terms of how applying rules interactions and in terms of handling a 3rd physical dimension of gameplay. Unlike the other systems recorded in this study, which are played almost entirely on a 2-dimensional plane (with some abstract rules to represent difference in elevation), Infinity is played on 'real' 3d terrain. This results in greater scrutiny required for determining line of sight between two models, and how line of sight interacts with terrain. There are also a number of abstract timing rules, such as being to perform actions at an abstract point in the middle of movement, which require a greater level of agreement between the two players compared to the other systems. Because of this added complexity and need for agreement on abstract placing, there were more opportunities for conflict than in other systems.

Figure 6 - An Infinity tournament table
Note the multiple levels of elevation, lack of grid, and circle tokens next to models.[12]

[12] Image source: The Dice Abide. (2017, August 25). *Infinity battle reports: Gencon 2017 with PanO*. Retrieved from: https://www.thediceabide.com/blog/2017/08/infinity-battle-reports-gencon-2017-with-pano

The **Humour/Memes** code appeared in all 6 matches despite a relatively low total coverage (59 occurrences, 2.4% mean coverage). Most of these jokes and references were 1 or 2 lines interspersed throughout every match, usually as a response to a random die roll, a player decision, a mistake, game culture jokes, or just trying to fill 'dead air'. For example, the Guild Ball matches had several references to Patrick van Valzah, aka Pat van Value, a well-known figure within the international Guild Ball community that has had accessories with his likeness produced:

> *P2: Would you like this goal with Pat Van Value's face on it?*
>
> *P3* (in response to making a significant tactical error)*: Pat, you failed me!*

In this way, players create a shared experience in referring to the Pat van Value meme, a reference which is exclusive to the Guild Ball community.

The **Meta Talk** code (43 occurrences, 2.4% mean coverage) is closely related to the *Humour/Memes* code. This code was used to describe players discussing aspects of the game and game culture, but not necessarily directly relevant to what is happening in the match. In competitive games, the term 'meta' is used to refer to the agreement within the game culture about which units or strategies are considered especially strong or weak at a given time. Some have referred to this as an abbreviation of the phrase "**m**ost **e**ffective **t**actic **a**vailable" (ChelseaStaub, 2015), but it could also have come from the term 'metagame' - essentially, the game about the game - the constantly evolving process by which popular strategies and choices are countered. The term 'meta' is also sometimes used in miniatures games to refer to a specific gaming community.

In the following exchange, P1 is referring to Gutter, a very popular model over the lifetime of Guild Ball. P2 defends his unfamiliarity with Gutter's abilities by stating that he does not play with or against her much in his area, to which P1 replies (jokingly) that this is the wrong way to play:

> *P1: I just assumed you knew [Gutter's] playbook off by heart since she's in every single game of Guild Ball ever played.*
>
> *P2: Maybe in [your area], up here we do things a little differently.*

<u>P1:</u> You do them a little wrong-ly.

Humour and meta discussion are both used to help build the connection between the two players as members of their game communities, and establish a common ground for interaction both within and outside the match they are playing. This is not surprising given that board games are fundamentally social affairs, and miniatures wargamers put heavy emphasis on the social aspect (even highly competitive players). The importance of the social aspect in competitive miniatures wargames will be expanded on in the discussion for Stage 2 of the study.

Stage 1 - Conclusions

While the first stage of the study was initially intended to solely provide material for discussion in Stage 2 of the study, during transcription and review of the data and codes, a number of interesting points were discovered.

First, a number of differences between player behaviour and interactions between matches could be attributed in part to systemic differences between the different games. For example, a system like Blood Bowl played on a two dimensional grid space with few tokens (closer to chess than a tabletop wargame) required less interaction between the players in terms of agreeing on the game state than a far more complex, three dimensional system like Infinity. Likewise, a greater level of abstraction and complex interactions in a system like Infinity led to a higher number of *conflict* situations than in other less abstract systems. This hypothesis is not something that is followed through in the second half of this thesis, as it deviates from the research questions, but is identified as a future research option in *5/ Conclusion*.

Secondly, by classifying communication in this way, we can develop an estimate of *how* players converse with each other in these environments. Across all matches, approximately 33% of communication was operational talk - discussion necessary for the game to function. Players continuously ask each other questions about the game states or the rules - working together to

maintain the shared game state and ‘correctly’ apply the rules to the situation in the game. Non-match related social interactions, such as humour and memes, regularly find their way into matches. CMGs are fundamentally social affairs, and players take the opportunity to joke and laugh with opponents in their own ways.

Overall, the results of this classification provides strong evidence for classifying CMGs as coopetitive game systems, where cooperation and competition must exist simultaneously for the system to function. While the data set here is far too small to generalize the results or draw self-standing conclusions on its own, it can be used to reinforce or support the arguments or viewpoints presented by the participants in the second half of the study.

4.2 Results / Discussion - Stage 2

The following section is the heart of the study. Informed by the data collected in Stage 1, I engaged the participants in one-on-one offline verbal protocols (Shadbolt & Smart, 2015) in order to obtain their perspectives on a number of topics aligned with the research questions. These interviews where then transcribed and thematically analysed (Guest, MacQueen & Namey, 2014) as described in *Section 3 – Method.* The results of this analysis is presented below, alongside a discussion of the results. I begin by discussing participant motivations in playing miniatures games, and then move into defining the features of a *good* competitive game. This moves into a discussion based on the research questions. First, I examine player perspectives on the conflict between cooperation and competition within the CMG environment, and discuss some of the interpersonal strategies used to manage this conflict. Next, I examine some game elements and factors that result in conflict situations or negative experiences. Finally, I discuss both social and game system features players use to reduce coopetitive frictions and mitigate potential coopetition conflicts.

4.2.1 Participant experience and motivations

The interviews began with a discussion of the players' background in wargaming and why they played CMGs. Participants had a range of motivations for participating in the CMG community. The social and community aspects were identified as most important by the majority of participants. This is important to remember as I continue the discussion and reflect on the influence of the social and community aspect on decision-making and the competitive/cooperative dynamics within CMG matches:

> *P10: Probably social would be highest.*
>
> *P7: Generally enjoy the people side of it, the social side, hanging with guys […] I don't mind playing rat shit armies just to be there with the boys.*

P6: Yeah it's always been the social aspect most of all.

P5: The social aspect is real good, good reason to get out of the house.

The strategic and competitive aspect, unsurprisingly, was also a motivation for participation in CMGs. Players enjoyed the ability to think about the metagame, compete against other players and test their skills:

P1: I like the competitive aspect of them more than the hobby side.

P5: I also like the competitive aspect of pitting myself against somebody else and seeing where I stack up.

P4: Also [I] *do a lot of competitive sports, been doing competitive pursuits most of my life [...] so the competitive side of things has been a big part of everything I've done.*

In addition to this, there was also an element of continuous self-improvement contained within the competitive aspect. Players often justified decisions in game that were irrational from a short-term competitive perspective (such as giving opponents tactical or strategic advice) as helping them become better players, or improving their play in the long run:

P2: By helping him, I feel like it gives me a little bit of extra understanding potentially in a future situation I could find myself in.

P9: I guess going through that [talking plans through with opponents], *it helps you practice and get better about what not to do.*

Whether the social or the competitive was more important depended on the specific system itself for a number of participants. These approached certain game systems with a more competitive mindset and had higher expectations of themselves:

P9: Warmachine I feel I am more competitive and frustrated if I don't do as well as I know I could do. Games like 40k and Blood Bowl it's "this is sweet, we'll just play a game and what happens, happens".

> *P4: This weekend we had a Warmachine event ….the hobby side of things was by far the most important aspect of that weekend for me, whereas going to the Guild Ball [event], the competitive side was clearly more important.*

Just under half the participants (5/11) mentioned an active, but not dominant interest in the hobby aspect of their games (ie. painting, modelling):

> *P4: More recently the hobby side has become more important, in general the competitive side… now is pretty even spread between all 3.*
>
> *P12: It was mostly the hobby side of it then but as I got into it more now it's turning more into the gaming side.*

The hobby aspect (being able to hold, construct and paint physical models) was mentioned by all participants as having some value, although only a minority *specifically* mentioned it as being of special value. This indicates that while the painting and modelling aspects of these games *is* attractive and important, they are overall considered tertiary behind the social and gameplay aspects.

Reviewing these perspectives, it is important to understand the time and context in which these views were expressed. In 2019, in the Western world, there are almost endless activities and products competing for your attention and money. This statement is no exception for competitive gamers and hobbyists. Video games are especially popular, and a massive entertainment industry. The rise of esports has also resulted in a large number of competitive, socially oriented computer games with massive player bases and subcultures (Stevens, 2018), with LAN tournaments being equivalent to board gaming conventions in many ways. Amongst the participants, I noticed that the social aspect - meeting people face to face and playing games against a range of people, both friends and strangers - was a key motivation in choosing to play CMGs. CMGs offer a level of interaction with an opponent that is not offered in video games, because players are required to directly interact with each other in a face-to-face, cooperative fashion in order to administer the game, so that a game match is both possible and (hopefully) mutually enjoyable for both players.

4.2.2 What makes a (good) competitive game

The term competition is defined by the Collins English Dictionary, as "a situation in which two or more groups are trying to get something which not everyone can have". By this definition, competitive games are at their core zero-sum games: players are chasing an objective, and only one player can claim that objective first. Building a strictly competitive game is therefore not difficult - make an objective, invent a set of rules that explain how one can obtain this objective (such that one player's gain can only come at the cost of another's loss or potential gain), and build from there (Osborne & Rubinstein, 1994). This simple definition however says little about the player *experience* of the competitive environment. What makes such games feel good, fun and worthwhile? This section delves into this question. I asked participants about what makes a *good* competitive miniatures game, in order to elicit their perspectives on what different design or systemic features lead to a good coopetitive experience.

Game balance was a foremost consideration in many participants' minds. CMGs are asymmetrical games (Schell, 2015). Unlike symmetrical games such as chess, where both sides have the exact same composition of pieces, CMGs usually have entirely different force compositions on either side. Much like real world conflicts, forces can vary drastically in terms of size, type and number of units. Equivalence is achieved by having players beginning the game with an equal number of 'points' which can be spent on different types of units, like a currency. More powerful units have a higher cost, and weaker units have a lower cost. In other words, while players might not be equal and their forces might not be equal, it was considered important that they begin the match at an equal *baseline* level. An asymmetrical game is a difficult, if not impossible system, to balance perfectly, but results in a dynamic and evolving metagame that is often seen as more valuable by players than truly balanced, symmetrical system (Schell, 2015; Extra Credits, 2012).

A game with a good balance was described as one with parity between players in terms of the *opportunity* to win, and therefore ties into the importance of a competitive game being designed

around the high impact of skill (where the better player win the vast majority of the time). This was seen as a contributor to a quality competitive games experience:

> *P1: The difference in skill between the players is more noticeable than in most other systems.*
>
> *P4: [This game] favours players that are well practiced in the matchup.*
>
> *P7: You want tournaments to come down to skill.*

The alternative to the outcome of a game being determined by player skill is the outcome being determined by randomness. A certain level of randomness is desirable in games, as randomness provides a constant unknown to which players must adapt, making games feel a little bit different every time (Burgun, 2014). Randomness also provides an opportunity for lower skill players to beat high skill players, despite making poorer decisions, on account of 'getting lucky'. In this way, randomness can serve to make a high-skill ceiling, competitive game more appealing to lower skill and newer players (ChannelFireball, 2012; Cook, 2009). Some participants felt that high degrees of randomness provided opportunities for exciting stories and moments to remember when playing the game. These moments were thought to 'even out' if a sufficient number of rolls occurred in the game, so these spikes didn't *usually* end up in a negative games experience - which means that *sometimes,* of course, they did. Participants perspectives on the role of randomness in CMGs was in line with what Cook (2009) and Flinn, Ponzi & Muehlenbein (2012) propose in discussing the effects of testosterone on competitive play:

- When playing against strangers, testosterone levels ran as expected - winner testosterone levels increase after achieving victory, and loser testosterone levels decrease after suffering defeat.
- When playing against friends, winner testosterone actually decreases (as the expected dominant behaviour is suppressed), while loser testosterone falls briefly but quickly restabilizes.

- When playing games considered to be games of luck - games where victory or defeat can be primarily attributed to good or bad luck rather than players' decision, both winner and loser testosterone remain unchanged (Cook, 2009).

For the purpose of this study, the key message is that games of luck do not result in a *competitive rush* for the winner, and that playing with friends results in a different kind of competitive dynamic to that of playing against strangers. When playing against friends, the focus is primarily on shared experiences, exciting stories and relationship building through humble victories and mutual 'smack talk' (Cook, 2009). The discussion of the role and impact of randomness in CMG game systems can be contrasted to several participants' comparisons to chess. Chess was seen as an archetypal example of a competitive game – an ideally balanced, positionally precise, skill-based game devoid of randomness. Indeed, chess is almost perfectly symmetrical, outside of a small first mover advantage to the White player (Chessgames.com, 2019).

Over half the participants also brought up the value of interactivity in the competitive experience. Having a stake in a shared experience with an opponent and a sense of agency in each match was an important contributor to a positive shared experience for several of the participants. A game which had a low-level of interactivity, which allowed one player to effectively 'shut out' his opponent from the match, was seen as one that lead to a breakdown in cooperation as the affected player withdrew from the game, resulting in a poor competitive experience. Interactivity was also related to specific game features, such as complexity, which could encourage or discourage interaction. For one participant, complexity was seen as promoting *cooperative* interaction. In this way, the level of interactivity in the design of a game was related to its quality as a competitive experience:

> *<u>P12:</u> All those rules interactions that occur […] even though you're working against each other, you really have to work together because of the complexity, to help the game go through smoothly.*

With this statement, P12 is highlighting the coopetitive nature of CMGs, falling short of only using the specific academic term. Players are working against each other in a competitive framework, but in order to do so optimally, are required to work together and cooperate effectively.

Finally, the existence of an established, formal tournament culture was mentioned frequently in determining what makes for a good competitive game. This theme was tied with one of managing expectations - a concept that is discussed in the coopetition literature in regards to reducing uncertainty, either through the use of informal norms (ie. Gezelius, 2007) or the establishment of neutral organisations to manage and stabilize coopetitive business relationships (ie. Granata et al. 2018). An established tournament culture and tournament circuit meant that players could go into a CMG tournament anywhere and expect certain behaviours from opponents. As a result, players of CMGs who adapt the established conventions and travel internationally to a tournament are able to enter into an enjoyable, well managed, highly competitive game with an opponent whom they had never met before. One participant explicitly referred to such an experience:

> *<u>P10:</u> On that trip to Europe, I was able to play 5 people who I'd never met before, all German, and didn't have any issues. Even with the language barrier, there was never an issue.*

For many game systems, this culture is in part formalized in writing, via tournament rules documents. These document contains description of what is expected of both players and tournament organisers. All four systems looked at in this study have such documents:

- Guild Ball - Regional Cup document (Steamforged Games, 2018)
- Warmachine - Steamroller 2018 document (Privateer Press, 2018)
- Infinity - Infinity Tournament System (ITS) document (Corvus Belli, 2019)
- Blood Bowl - NAF Tournament Guidelines document (NAF, 2019)

For our participants, tournament culture implied both a set of formal and informal rules, and a particular mindset. The degree of competitiveness was sometimes considered relative to your

particular placement in a tournament, with the higher tables (ie. the matches with undefeated players) considered to be more competitive. This in turn would result in a tighter interpretation of the rules, a lower likelihood to forgive errors, and a higher likelihood to call a judge to adjudicate a disagreement:

> *P10: I imagine that if* [my opponent and I] *were playing top tables, the dynamic would have been quite a bit different as to how tight people were doing things. Being in the bottom third, tended to be a bit more relaxed as well.*

Participant responses to the question of "what makes a good competitive game?" highlight the fundamental coopetitive nature of CMGs. Participants were concerned with the game providing an interactive environment, where *both* players started at an equal baseline, and skill and play experience were rewarded. While no single game feature was considered as *essential* to contributing to a quality competitive game experience, a number of the mentioned features will arise later in the discussion when looking at negative experiences, and features that mitigate these experiences.

4.2.3 Perspectives on the cooperation / competition conflict

The main driver behind the interview questions was the cooperative/competitive conflict present in CMGs. I was interested in how players perceive this conflict (if at all), how they responded to it in their matches and within their gaming communities, and how it has manifested to them over their time playing CMGs across a number of different systems. Is the conflict seen as zero sum, or is there opportunity for mutual gain? How do social, cultural and personal factors influence player decisions within this coopetitive environment?

Perspectives on whether the conflict existed at all, whether it was a zero-sum trade-off (Bengtsson & Kock, 2000) between the two, or whether it was a multi level framework (Luo, 2004; Chin, Chan & Lam, 2008) differed between the participants - even amongst those discussing the same game system. While participants acknowledged that there existed a conflict between the cooperative and competitive aspects of the game, they differed in their opinion in how severe this conflict was, and how much it could be mitigated. What all participants did agree on is that ultimately, there are aspects of playing CMGs that are more important than victory in any given match.

Pure competition is a zero-sum interaction - one competitor can only gain at the cost of the other's competitor's loss. In contrast, cooperation is a mutual gain interaction - cooperative agents engage in cooperation precisely because they have more to gain from the arrangement than non-engagement. One of the aims of this study was to gain an understanding of how players within a coopetitive environment perceive the conflict between the cooperative aspects and competitive aspects within these games. Is there a trade-off between the two, as proposed in the Bengtsson and Kock (2000) model in Section 2.1? Is it possible to have a match be both highly competitive *and* highly cooperative, as suggested by Chin, Chan, and Lam (2008)? And if so, what factors influence the achievement of this outcome?

A clear majority of participants in the study expressed an active interest in achieving a game that is rewarding and interactive for both players, sometimes going so far as to jeopardize their victory in order to reduce the gap between themselves and their opponent:

> *P6: I want to have a competitive game against the person I'm playing with where we both have fun, and that doesn't happen when you just catch an opponent out because they have no idea what's going on.*
>
> *P9: Warmachine players in New Zealand tend to value getting the win in a game when their opponent has played the best game they can, not by making a stupid mistake.*

Player strategies for managing the conflict in practice included clear communication (especially expressing intent before moving models or rolling dice), and sometimes going as far as 'holding back' so they wouldn't totally 'annihilate' their opponent, namely achieve a victory so total that the opponent would not get any sense of satisfaction out of the game:

> *P12: I've had a few games where you end up just completely annihilating the other side, and it's interesting I don't get a lot of enjoyment out of that? I've even had it to the point where, not so much in tournament games but I guess friendly games where that's happening, you start backing up a bit going " whoa hang out, smashing a bit too hard, going to back up a bit". Not going to be fun for the other person.*

At the same time, we see from the above quote that, participants were consciously less considerate of their opponent's enjoyment of the game in terms of giving them a 'fair go' within the tournament environment, specifically compared to matches played in a casual format. It was more important to get a convincing win in the match and deal with the social aspects later. This perspective is reflected in the earlier discussion on tournament culture. Perhaps this difference in approach to competition between friendly games and tournament games is also mediated by familiarity with an opponent, as mentioned in Cook's (2009) and Oxford, Ponzi & Geary's (2010) studies on the relationship between competition and testosterone?

Results so far support the theory that coopetition occurs when players come together to create mutual value, and simultaneously compete in order to appropriate this value (Bouncken et al. 2015). The competition aspect is however mediated by cooperative social and environmental factors. Players will interact differently based on the competitive stakes of the game, and ultimately do not wish to leave their opponent empty handed as a result of a total victory. Similar to the results seen in ultimatum, dictator or bargaining games (Bazerman & Moore, 2013; Falk & Fischbacher, 2006; Haley & Fessler, 2005), competitive miniatures gamers do not derive maximum enjoyment from the experience of 'smashing' their opponent in every match – or, in other words, appropriating close to 100% of the created value. Different norms of reciprocity, fairness, cooperation and sportsmanship

factor into the equation when they start dominating the match, and they will willingly ease back and let their opponent have some fun - at least, outside of high stakes, highly competitive matches.

One participant firmly stated that CMGs are at baseline a zero/sum affair in terms of cooperation and competition, *but* that this trade-off can be mediated by the quality and design of the ruleset:

> *P3: Without the perfect ruleset, there's always a trade-off.*
>
> *P3: So there's a tension in maintaining game state, versus giving* [game information] *away…. you give away advantage when you do that because they might have forgotten.*

The view expressed here is that there are and will always be opportunities for 'grey' areas in the ruleset which can be abused in a competitive setting, without *directly* acting uncooperative – a view which support for Chin, Chan & Lam's (2008) multi level framework of coopetition. For example, there are sometimes opportunities to affect the outcome of the match, using features outside of the match itself, such as chess clocks. Chess clock use is common in CMGs, to ensure that both players have an equal share of play time allocated for that round. However, at present, there are a number of grey area in terms of exactly when the clock starts, or when you can pause it, or when one player forgets to flip it back to the other player when their turn ends. The rules don't tell you what to do when you don't follow the rules, and these situations create the opportunity for either cooperation and a mutually agreeable solution, or a conflict situation to be resolved.

Examples of Mutual Gain and Zero Sum situations

One example of mutual gain that occurred across multiple matches and systems is players helping their opponents to measure an intended move. From a rational, competitive perspective, it is to each player's advantage to have their opponent use up as much game time as possible measuring placements and seeking agreement on these, especially in a system that uses chess clocks or timed

rounds in a tournament setting. This not only gives the inactive player more time to consider their response, but less time on a clock results in more pressure later in the game (running out of clock time incurs a significant penalty in all timed systems). Despite this, players across multiple systems regularly helped opponents measure out moves in order to speed up the game and increase accuracy, an outcome desired by both players.

Across all recorded matches, the final stage of the Warmachine match was the clearest example of an instance where the game was both highly competitive - in that stakes were at their highest point in the game, and both players wanted to win - but also highly cooperative. In this situation, the player with a significant lead at the time (*P9*) was actively helping the losing player (*P10*) by not only assisting him measure out a potential path to victory, but also offering specific tactical advice as to how this could happen. When asked about this, players responded with allusion to the 'extra' value to be gained by engaging in cooperative behaviour even at this decisive point in the game, either on a social level or in the long-term competitive benefits of helping them become better players:

> *P9 (winner):* *I think it was mainly because at that point I was clearly in a winning position, I sort of wanted to give [P10] the option of a potential assassination, otherwise it's not really fun if the opponent gives up. I wanted to let him know he's got this possible way to win, I guess….I guess going through with assassination plans with your opponent sort of lets you know if you've made any mistakes in your turn to expose your caster, or block charge lanes, or Line of Sight to your caster. So I guess going through that it helps you practice and get better about what not to do.*
>
> *P10 (loser):* *Yeah, we knew where he had to get to and we knew what had to die, but it was more to do with how do we activate it in the correct way, so you don't shoot yourself in the foot and have an accidental gotcha that stops what you were trying to do.*

Note P10's repeated use of the word "we" in describing this final series of events. This expresses a sense of cooperative, shared involvement to this highly competitive moment of the game, which would ultimately determine the winner and loser of the match. A similar justification of "understanding the other's position to help me in the future" was also given in relation to other matches:

> <u>P2:</u> *I'm thinking I need to be aware of those positions when I'm playing. So if my opponent's not helping me and I'm going for a goal run, by helping him, I feel like it gives me a little bit of extra understanding potentially in a future situation I could find myself in.*

In contrast to the above example of mutual gain cooperation in the defining competitive moment of a match, a clear zero sum event occurred near the end of the recorded Blood Bowl match. In this situation, one player (*P7*) had a significant board advantage and was very likely to win, barring an exceptional streak of luck from his opponent. Given the situation, the opponent (*P8*) offered to concede. P7 refused this offer as he wanted to maximize his casualties count for the tournament, in the hopes of securing a secondary tournament prize for maximum casualties. P8 responded to this by playing his last turns excessively defensively and running his players away, effectively removing any chance he had of forcing a draw, but also denying any chance at additional casualties to P7. When asked about this situation, the winning player responded:

> <u>P7:</u> *That's fair enough. I had an opponent do that in [a previous tournament game] too.*

Effectively, P7 accepted his opponent's response not as spiteful, but as a valid strategy within the confines of the tournament.

We therefore have two examples occurring in the same time frame but resulting in opposite outcomes. In the Warmachine instance, players focused on value creation beyond the confines of the match, putting at risk victory in the match to do so. In the Blood Bowl match, the winning player felt

confident in having secured the match and tried to extract additional value from the game (maximizing his casualties count), and the losing player denied him this, at no apparent benefit to himself and forfeiting his (admittedly) very slim chance at obtaining a draw.

The difference between these two outcomes in similar situations raises questions about expectations in terms of the scope of the match vs the scope of the tournament, and also of reciprocity. Falk and Fischbacher (2006)'s theory of reciprocity gives us a framework with which to understand player reactions in the aforementioned Blood Bowl sitation. P8's offer politely indicated that he wished to cease playing. P7 refuses P8's offer to concede, with the intent to rack up additional casualty points. P8 had additionally indicated that he was not really enjoying himself at this stage of the game, as a result of being so far behind, in part due to bad luck. It is possible that P8 *perceived* P7's decision to play on as an act of 'unkindness', even perhaps humiliating in some way. This would explain his decision to deny P7 any further gains, and simultaneously deny his own slim chances at forcing a draw (a very unlikely potential payoff to the alternative course of action of playing on). Unfortunately, P8 declined to comment on the match, so I cannot verify the above thought process.

Reciprocity

At the simplest level, reciprocity means responding in kind – positive behaviour is rewarded with positive behaviour, and negative behaviour is rewarded with negative behaviour. Reciprocity has consistently been demonstrated to be a powerful determinant of human behaviour in game situations (Bazerman & Moore, 2013; Falk & Fischbacher, 2006; Gezelius, 2007; Kahneman, 2003). Therefore, it is unsurprising that my interviews with participants indicate that reciprocity is an important consideration in determining how they interact with opponents over the course of a match.

A frequent response evoked by players when confronted with a cooperative/competitive conflict situation within a game situation was to follow their opponent's lead in how the game would be

played, in terms of the level of cooperation or conflict that would be present. One participant presented a unique perspective on this dynamic, which is expressed by what I will call the "David Cameron Spectrum" (named not after the former UK Prime Minister but UK-based miniatures wargamer of international repute):

> P3: *The game starts and you're like, ok: there's the David Cameron end of the spectrum where everything is incredibly nice, then there's the ultimate douchebag end of the spectrum, where you tend to 'rules lawyer' each other. And the game starts off in the middle. I'll try to ride the middle as much as possible and the opponent can push it either towards the David Cameron end, or the douchebag end. And I'll just go "that's fine". You play miniatures games long enough and you'll find "The Guy" that plays every game on the douchebag end of the spectrum, and the guy who is David Cameron……..you want to get technical and dicky - I'll get technical and dicky. If you want to be nice about the game - I'll be nice about the game.*

The underlying theme expressed here is *reciprocity*. A number of participants mentioned 'feeling out' the opponent and adjusting their behaviour in the game accordingly - how tightly and literally they adhered to and interpreted the rules of the game, how much leeway they would give their opponent on administrative or clerical errors, and even how much strategic information they are willing to offer their opponents during the game. Reciprocity is a common tactic in negotiation situations (Brett, Shapiro & Lytle, 1998; Weingart, Thompson, Bazerman & Carroll, 1990), so it is not surprising to see this behaviour manifest in CMG matches, which (as discussed in Stage 1 of the results) share many traits with face-to-face negotiation situations.

There were a number of factors which players considered in assessing an opponent during the early matches of the game. These included: the opponent's experience level; the opponent's leniency in applying the rules; the perceived intent behind information shared or omitted; the level of familiarity with an opponent at a personal level; and the opponent's social behaviour and demeanour.

If players perceived an opponent to be inexperienced and unfamiliar with the rules, this was interpreted as a signal to be more lenient or forgiving, and offer advice during and after the match:

> *P7: [Opponent] is a newer player, so with a newer player sometimes it's almost more respectful to explain to them what you're doing, and as you said discussing tactics and what not, is giving him some options, especially near the end when I had ⅔ of his team in the casualty bin, what he could have done differently.*
>
> *P3: That's one of the things when you sit down with someone new, that has no idea what you're doing. They are like "oh I've never see* [this model] *before!". You sort of interpret that as a sliding towards the Dave Cameron end of the scale. "Ok this'll be a nice game then, probably won't offer stiff competition so it won't matter if I start off too nice"*

For some, reciprocity was one approach used in determining how they managed strategic information - if their opponents were forthcoming with valuable information that would help them play a better game, they were more willing to offer the same level of openness in return. Although most participants did not specifically identify that being open with information and forgiving administrative mistakes would result in reciprocity in their opponents, they did note that it was a sort of behaviour that they aimed for - it was a preferred state of play, even when playing a highly competitive game.

Falk and Fischbacher (2006)'s theory of reciprocity is especially applicable in this situation. CMG systems are for the most part open information systems. This means that all game state information and rules information is available to both players at all times during the match, and neither player can legally withhold any such information from the other if asked. The only information kept hidden and private in these systems is in regards to strategic planning and future decision making[13]. As such, offering some of this private information to the opponent, for example warning opponents of possible counterplays to their current action, can be seen as a softening of the competitive aspect of the game.

[13] There are minor exceptions to this rule. In Infinity, for example, there are specific types of information ("Private Information") which can explicitly be hidden from opponents during a match. This can result in interesting coopetitive dynamics. The role of deception in CMGs is discussed briefly later in section *4.2.5 Social vs Competitive*.

On the flip side, holding back information that results in a negative 'gotcha' situation can be perceived as an escalation of competition. This situation is illustrated in the DecoyElephant quote referenced in *2/ Literature Review*:

If I ask, "does [this model] have a magical weapon?" Am I expected to know to ask, "can any [other model] give him magical weapon?" Because I might be in the wrong, but I'm gonna be a little jipped when next turn you cast, giving the guy magical weapon, but then telling me "you asked about him, not ***him****." (DecoyElephant, 2015, May 12)*

As identified by Falk and Fischbacher (2006), the key factor here is *perceived intent* in what information is shared and how is it shared. In the above, DecoyElephant attributes ill-intent (specifically, an attempt to gain a competitive advantage by obscuring information) to his opponent's failure to remind him/her about the ability for a model to grant the *magical weapon* ability to other models, and reacts negatively. However, the line is not always that clear cut. As explained via the concept of bounded rationality, human beings are fallible, and sometimes players just forget:

> *P10: It's open information but it's kind of grey - are they purposely holding that information back or did they just forget? Cause I've done that a few times.*

The question then becomes how one differentiates legitimate forgetfulness from strategic obscuring of information. Sections *4.2.5 Social vs Competitive* and *4.2.6 Avoiding and Reducing Conflict* describe some strategies and heuristics used by players to help assess such situations.

Familiarity with an opponent was mentioned as a factor which would impact reciprocity - if you were on good terms with an opponent before the match had even started, you were likely to be more forgiving in the match:

> *P1: If I'm playing someone that's one of my friends and they go in for something that's a poor decision I'll probably tell them that. Which I won't do to most people.*

<u>P5:</u> The fact that we didn't pull out the rulebook [in response to a rules query] *was predicated on the fact that I knew who I was playing and we were both happy with the result.*

These comments are in line with Cook (2009)'s statements of how playing with friends affects testosterone in winners and losers – the competitive high from winning is lower when winning against friends than against strangers. CMGs are also methodical, slow-paced affairs, and players have time to consider their actions and the consequences. Furthermore, players with an established relationship with an opponent are going into the match with previous knowledge and expectations of certain behaviours from the opponent, which helps avoid unpleasant surprises.

How reciprocity in CMGs operates is well illustrated by the following quote, in regards to a 'takeback' situation:

<u>P5:</u> To me, he would have been perfectly within his rights to say no, and I wouldn't have held that against him, but it also meant that I would have been watching a lot more closely the other way and would have impacted my offerings of assistance, like later on…

On one hand, P5 states that his opponent could have opposed his decision to change his mind before rolling the dice, as this would be playing by the rules as written. Furthermore, he states that "he would not have held this against him" - but immediately follows this statement by describing how this decision on the part of his opponent would have led him to be more reserved, less likely to assist his opponent in the later parts of the match, and generally shifting towards a more conservative and strict application of the rules that is less permissive of administrative (non-strategic) errors. The way the statement is phrased presents a picture of the two different logics of interaction at play - the cooperative and the competitive - and their relationship. In this scenario, while the competitive aspect of the game would likely have remained at the same level, there would be an additional tension between the players and the degree of cooperation would have reduced. The reason for the reduced cooperation would not be an increase in competitive drive, but specifically a response to a lower degree of cooperation from an opponent - a shift from the David Cameron end to the douchebag end, if you will.

Takebacks – outside the game rules, by definition

A takeback is when a player makes a decision in a match, communicates it to their opponent (verbally, or by other means, such as placing a token or rolling dice) and then later changes their mind and attempts to revert the game state back to before the decision was made - effectively taking the decision back (hence the name). Takebacks exist outside the defined game environment - the rules don't tell you what to do if you are not following the rules. As such, they cannot be addressed within the rule system and forever remain in a nebulous space between the game match environment governed by that set of rules and the social/cultural environment of the game culture governed by another set of rules and expectations - much like the cooperative/ competitive conflict that characterises these board games.

Strictly competitive behaviour would prescribe not allowing opponents takebacks under any circumstances. Despite this, five instances of takebacks were observed during the matches, and the later interviews indicated that there was a strong consensus amongst participants of when a takeback is or is not allowed within a competitive environment. This points to the strength and potency of the unwritten rules of behaviour governing CMG culture. Takebacks are a clear situation of a cooperative/competitive conflict which can result in highly negative play experience for one or both players. They cannot be resolved via a formal ruleset, but are a tension mediated via the use of a number of informal rules and norms. These rules are explicitly stated in Section *4.2.5 Social vs Competitive*. Takebacks are one example of a conflict situation and potentially negative experience that was observed during the matches. Such situations are described and discussed below.

4.2.4 Conflict Situations and Negative Experiences

> *<u>P2:</u> I think some games systems lend very well to an ongoing, fairly consistently even social contract and I think* [this game] *is very attractive because of that. Some games definitely don't.*

A focus point of the interviews was trying to pinpoint what situations within the coopetitive environment of CMGs resulted in negative experiences. The approach taken was to use conflict situations from the recorded matches in the first part of the study (if any) and use these specific examples as springboards to discuss these types of situations in a broader context. The focus here was particularly on negative experiences and conflict situations brought on by systemic conditions - specifically, if there was something in the design of the game or in the operation of the tournament which resulted in negative experiences, rather than a focus on the actions of their particular opponent. The focus of this section is on systemic conditions because, as mentioned in the section *4.1 Results / Discussion - Stage 1*, the number of personal conflict situations observed in the study are almost non-existent. However, I also offered participants the opportunity to discuss conflict situations in their past experiences, some of which turned out to be personal in nature (ie. a problem with a specific opponent).

Four systemic features were identified – gotchas (a surprise or unexpected feature), the question of whether rules should be interpreted as written or as intended, situations where a player felt helpless (in regards to their impact on the match), and inequity between players.

Gotchas

"Gotcha" is a jargon term. As general slang, it is defined on Urban Dictionary as "an annoying or unfavourable feature of a product or item that has not been fully disclosed or is not obvious". In CMGs specifically, it refers to a rule or model ability which gets an additional level of power from an

opponent forgetting it is in play, and usually triggers at an unusual time. One participants defined gotchas as "*things that another player may not be aware of, but may also dictate how effective that* [model's] *activation is." (P4)*

For a specific example, there is a shared ability in Guild Ball and Warmachine called "Counter Charge". This ability allows an inactive model to charge an active enemy model out of turn *if* the enemy model ends its movement within a certain distance. Once the active model has been moved and counter charged declared, the game state changes irreversibly - new information has been disclosed, and the player who moved the model cannot move back to the precise spot in which they were previously (unless they used a proxy base). If the active player forgot the ability existed and had not planned for it, it can result in their plans for the turn falling apart completely. The outcome of this interaction is often a sense of frustration or helplessness on the part of the active player. It can have a negative effect for the inactive player too, if they felt that they gained an advantage not through their own strategic play, but through an inadvertent mistake on their opponent's part.

Gotchas were brought up repeatedly in interviews, always with a negative connotation, as something players want to avoid or was associated with 'underhanded' play:

> *P10: I find with WM it's meant to be open information game, and whilst we play it quite competitively in NZ, we don't like to win on the classic gotchas.*
>
> *P5: At least in my experience in the NZ scene, most players who are looking to compete strongly don't want to win off the gotcha. They want to beat you straight up.*
>
> *P6: I want to have a competitive game against the person I'm playing with where we both have fun, and that doesn't happen when you just catch an opponent out because they have no idea what's going on.*

P3: Some of those abilities is in the gotchas? You saw at [US national tournament] *top 8 last year, where half the games had someone getting hit by counter charge? At that level, they all sort of devolved into wanting to win very hard.*

P9: Yeah I don't like to get gotchaed myself [….] and I prefer to let my opponent know, so they are informed when they go in as well.

Across the board, gotchas were seen as undesirable, both for participants and for their opponents. One participant mentioned that being open and forthcoming with gotchas was an important part of his approach to the game, in order to avoid negative experience and feel that his opponent played the best game they could. He was a little taken aback at the end of the interview after seeing the parallel between withholding information strategically and these surprise 'gotcha' moments:

P4: It was interesting what you said about the push dodge [a type of model action] *being an option, and the comparison between that and other gotchas within the game... yeah like you said the strategic withholding of information, and whether you include that in the same category as […] things people tend to forget.*

While gotchas can provide engaging in-game interactions that require active thinking, providing a high-impact input factor into player decision-making similar to what Burgun (2014) calls "input randomness", the comments from participants in this study indicate that the negative aspects of gotchas outweigh the positive. While these can be mitigated with active vigilance from *both* players, doing so results in a loss of power from these abilities, and thus a loss of competitiveness. The trade-off discussed in the above quotes is not directly between competition and cooperation, however, but between competition and fun, or competition and a 'fair win'. This trade-off between competition and the social aspects discussed in relation to gotcha is expanded upon in *Section 4.2.5 – Social vs Competitive.*

Rules as Written vs. Rules As Intended

A common tension situation discussed across all systems is the conflict between Rules as Written vs Rules as Intended (abbreviated as RAW vs RAI). This refers to a situation where the rules as written in the rulebooks prescribe that situations or interaction be played out in a particular way which conflicts with a player's intuitive understanding of how a rule *should* work (either in terms of game mechanics, or in terms of representing a real life scenario). This usually results in a negative experience - players might *feel* that the game they are playing is broken, or that their opponent is exploiting a technical loophole in order to gain an unfair advantage (which leads back to concerns of balance/parity and managing expectations). This struggle between RAW vs RAI can get complicated because often a player's intuitive understanding of how a rule *should* work could in fact not be what the games developer had in mind when writing the rule - therefore, some gamers argue, lacking a clear understanding of designer intent, we should follow a RAW approach:

> *P3: It's like spirit of the law versus letter of the law in game terms. A lot of people believe that you should be paying the tax that's printed, and not arranging your financial affairs to pay less tax….. people are like "you shouldn't do that, you shouldn't do that." And then there are the letter of the law people…*

P3's comparison between financial or commercial law and business ethics is an excellent parallel for the conceptual conflict underlying the RAW vs RAI debate. I present as a recent example the case of Martin Shkreli. Shkreli was an American businessman, CEO and hedge fund manager who achieved notoriety for buying up the rights to the potentially life-saving medicine Daraprim and hiking up the market price by 5500% (Carrier, Levidow & Kesselheim, 2017). By the letter of the law, Shkreli's company Turing Pharmaceuticals was within their rights to operate in this way. However, in this case due to the nature of the product in question, this business strategy had serious ethical and moral implications and resulted in public outrage. This resulted in business consequences for Shkreli and

Turing, including a tarnished public image (LaMattina, 2016) and antitrust lawsuits (Bloomberg Law, 2019).[14]

An example of a RAW vs RAI conflict in CMGs is beautifully illustrated and narrated by Imgur[15] user dhamster (2013), using the following photo:

Figure 7 - Shooter and Wheels

In the above scenario, the player named "Wheels" (in the white shirt) decided to keep his entire army of (also white) bikes in reserve at the start of the game, so that he could deploy reactively. The other player, "Shooter" (smiling, on the right) responds by setting up a large part of his force in a conga line across Wheels' deployment zone. In normal circumstances, this would not be allowed, but because Wheels has no models on the table, there are no restrictions for Shooter to place his models. However, the same rules which forbid placing friendly models too close to enemy models, also forbid enemy models *entering the table* within a certain distance of friendly models. Therefore Wheels is not able

[14] Shkreli was convicted in 2018 on separate fraud charges and is currently serving seven years in a US federal prison (Long & Hays, 2018). The price of Daraprim had remains at 750 USD per pill according to prescription drug price tracking website goodrx.com (as of May 2019)

[15] Imgur is a very large online-image sharing community / message board. www.imgur.com

to deploy any models on the table at all. Wheels must forfeit the game, and Shooter is granted a technical victory.

Intuitively, a player interpreting this situation is likely to conclude that this scenario is not intended by the rules - what kind of designer designs a game to NOT be played, after all? However, an argument could also be made that these anti-deployment rules were put in place to control this kind of situation - a kind of 'mutually assured destruction' that prevents Wheels from keeping all his models off the table in the first place. Without communication from the games designers, players cannot deduce designer intent, and therefore the only fair and objective resolution is to follow rules as written. This is the other side of the argument - we can see how there is a friction between the two that could arise in tense moments of competition. One participant in the study gave an example of RAW vs RAI conflict from an earlier version of the Warlord Games World War 2 miniatures game *Bolt Action*:

> *P11: Used to be that airstrikes placed pins on all units within set radius of the target, just before they came in at the beginning of the next turn. So what a lot of people would do when an airstrike was coming is run those troops directly towards the enemy, in the hopes of putting as many pins on ENEMY units as possible and further away from their OWN units. Which is incredibly gamey and doesn't feel true to life, in WW2.*

Such conflict situations especially apply to tournament situations, where you are usually playing opponents against which you have not played in the past and have not had the opportunity to achieve previous agreement about how to administer specific rule interactions. It is therefore important for competitive tournament play that the understanding of how the rules function is as unified as possible. If one player expects a rule to interact in one way, and plans their strategy for their turn around this expectations, and their opponent expects it to work in another way, this creates the conditions for conflict.

Helplessness/Non-participation

Another example of a negative systemic experience that came up is when a player feels like they have no agency in a match, especially if it happens early to mid game:

> *P2: Experiences where the value of the interactivity side of the game, that social contract just reduced to the point of feeling non-existent, feeling like a non-participant in a game, feeling like it doesn't need to be you - in fact it could actually be no one. There's so little value in your input of what's going on. At the time it would be like, I dunno, I'm getting absolutely hosed or something, and probably at least half of that is my fault but putting yourself into such a position where maybe you're losing so badly, where you're like "that's it". What I'm adding to the game in any sense, any context is so incredibly reduced, it becomes a little bit bittering I guess.*

On one hand, one of the reasons humans plays games, besides enjoyment, is we believe that games have a perceived usefulness (Hamari & Keronen, 2017) - they can help us obtain something. Games are systems where our decisions and actions lead to identifiable outcomes. As discussed in Section *4.2.1 Participant Experience and Motivations*, having a sense of agency or control over the outcome of a competitive game is fundamental to the experience. A competitive outcome determined by random factors outside our control does not feel rewarding (Bentley, 2014; Cook, 2009; Garfield, 2013). A game system or situation where players feel like they lack agency is not one that competitive players enjoy. As P2 put it above, in such situations, your opponent might as well actually be no one.
The second part of this is that CMGs are social games. As indicated in *Section 4.2.2*, participants played competitive games because they wanted to test themselves against, and interact with, other players. Victory only felt satisfying if the opponent had a fair chance. If the opponent lost because of something outside their control, or made a non-strategic error (such as getting gotcha-ed by an ability they forgot was in play), it did not feel rewarding (or not as rewarding as it otherwise would) for the winning player.

Inequity between players

Negative experiences were noted to occur as a result of a lack of balance, specifically within the army selection options. This results in a sense of inequity between players. Simply speaking, in a competitive setting, there is an expectation that players will be on equal footing at the start of the game (Schell, 2015), and the winner/loser will be determined primarily as a result of player skill (sometimes with a small element of luck, to keep things exciting and varied). Situations where the perceived power gap between the 'weak' lists and 'strong' lists is so significant that a player feels they do not have a meaningful input into the outcome of the game result in a negative experience:

> *P2: If you're outside the tournament circuit, and you come into the tournament circuit with your list that you like, that you're happy with. You kind of end up in the shark tank of a very refined field, which at times, is all kinda the same list design or it's all looking for the same competitive edge, and it all comes at it from the same angle, and that's pretty depressing.*
>
> *P9: 40k is often with a power creep every new codex so whoever gets first turn wins, you destroy half your opponent's army in the first turn. And then the other person can't really retaliate.*

A second example of inequity which was brought up was in regards to tournament administration - specifically, uneven time allocation between players during game rounds. CMG tournaments run for an allocated amount of time, usually the minimum number of rounds to establish an undefeated player under a standard Swiss-system tournament structure. For a 16 player tournament, this means four rounds, for 32 players this goes to five rounds. Because tournaments operate within a limited timeframe (usually a weekend), rounds must be timed in order to ensure the event finishes on time. As such, there must be regulations put in place to ensure a winner and loser for each round if the round timer is reached before the match has reached its conclusion. A number of interviewees referred to past tournament experiences where their opponents have taken much longer turns than

they have, thereby resulting in a significant competitive disadvantage for the participants. In this case, the imbalance was the result of time round time being used unequally:

> *P10: Generally the more negative experiences probably go back to old 4th, 5th, 6th edition Warhammer tournaments. You play through really quick, they play really slowly… meaning that you really couldn't either get a full game out or get to the stage in the game where you have a decisive conclusion to it.*

Some modern CMGs, like Warmachine or Guild Ball, have followed the example set by competitive chess and moved to using chess clocks set to half the round time (rather than turn timers) to help avoid this problem. However, even this solution was thought to create certain conflict situations of its own:

> *P3: The clock pausing shouldn't be in the game. While it's mechanically correct, it fosters arguments every single time*[16].

The next section expands on the idea of the casual experience vs the competitive experience in CMGs by looking at the interaction between the strong social and cultural norms within CMGs, and how these can often be seen to come into confrontation with the competitive mindset.

4.2.5 Social vs Competitive

The social aspect and the competitive aspect of CMGs were repeatedly brought into contrast during the course of the interviews. In CMG communities, people get together not only to play games, but also to talk about rules, models, new releases, industry news, strategies, popular meta options, high-profile matches or game memes. The matches and the social aspects of the game are interconnected in the culture - one cannot exist without the other. In contrast to esports or card games like Magic the Gathering, material prize support for CMG tournaments is not very impressive, even at the largest

[16] An example of such an argument, drawn from my interview with a participant, is given later under *Section 4.2.6 Avoiding and Reducing Conflict.*

competitive events. Nevertheless, there are intangible rewards on the line. Tournament winners receive praise for their play and credibility within the community. Their views and opinions on the meta and the state of the game are taken more seriously compared to players who have not achieved high placings in tournaments. This is similar to the Gezelius (2007) study into the influence of norms on strategic behaviour within commercial fishing communities, where fishermen competed in a race to meet their quota first. Despite being in direct competition, captains who broke the unwritten rules of interaction within this race were punished. In the case of these fishing communities, this meant being excluded from the 'in group' – 'cheaters' stopped receiving help, information or advice during difficult times in the fishing season. This type of behaviour is reflected within CMG communities: while everyone is there to compete, there are a number of unwritten rules and norms that mediate behaviour in dealing with 'grey' areas, and failing to follow these norms usually results in punitive, reciprocal behaviour. Because the social aspects of the community are considered so important, these norms act as a barrier against undesirable 'overly competitive' behaviour:

> *<u>P2:</u> while it's competitive, you're looking for a winner and I guess you're looking for someone that's going to lose the game, the social aspect is so consistently strong that I don't ever feel that the competitive aspect would neglect that. I like the competitive aspect, that's really neat. But the social aspect has this massive, massive… I feel that's actually more important.*

From analysing matches and conducting the interviews, I developed an understanding that for many participants, the cooperative/competitive dynamic was viewed less as a trade-off between cooperating and competing, and more as a trade-off between the social aspects of the game (including the adhering to the norms and expectations of the tournament culture) and what many would consider to be 'extreme' competitive behaviour.

Some participants described CMGs as a type of social contract[17]. A social contract, defined by the Merriam Webster dictionary, is "an actual or hypothetical agreement among the members of an organised society or between a community and its ruler that defines and limits the rights and duties of each". Similar to most other forms of social organisation, whether it be a state, a community or the business world, a number of rules are in play in the CMG community. Some of these rules are written down in the form of tournament documents or codified in core rules. These are usually prescriptive in nature, and state the general guidelines of the organisation, what can and cannot be done within the constructed environment that is the match and the environment that is the tournament. Like nation states or the business world, there are also formal enforcing authorities which make sure that the rules are followed, punish deviation and serve as mediators and arbitrators to resolve disputes. A number of participants acknowledged that one could gain an advantage by legally withholding information strategically, or willingly taking advantage of 'gotcha' rules without reminding an opponent of the effect, but this was perceived negatively, as something that shouldn't or did not have to be done to win (despite being acknowledged as advantage):

> *P3: I do not think it's part of being successful. I think people who cheat like that don't believe they're good enough to win on their own. So they've just gotta take the unscrupulous part.*
>
> *P5: There are definitely gotchas, where someone may brush over a rule when explaining it to the other person. I think that's a strength of the NZ scene, the implied social contract when somebody asks about a model you won't brush over a rule, or you'll give them the full thing.*
>
> *P6: No, I don't think it's important to being successful. I think realistically you can make opponents aware of pretty much everything and you can still outplay them and it feels pretty good to do so. I mean, yes it could be a successful strategy, choose to withhold information and gain an advantage from that but I don't think it's something you need to do, no.*

[17] The social contract as a concept has a long history in European political philosophy, most notably Hobbes' *Leviathan* (1651) or Rousseau's *The Social Contract* (1762), to the point where it has become a common phrase. I have chosen a dictionary definition here for clarity.

Perhaps this sense of uneasiness can be related back to the different sense of reward competitors receive from defeating a stranger versus defeating a friend (Cook, 2009). P6 recognizes that one could get a legal advantage by using information in this way, but also recognizes winning in this way would not "feel pretty good" in the same way that winning while adhering to the rules of fairness and sportsmanship would. P6 acknowledges this type of information strategy as potentially effective, but implies that it would feel bad to do so, and is unnecessary. Similarly, P3's use of the words "cheat" and "unscrupulous" clearly label this kind of behaviour as being undesirable and unsportsmanlike (despite such behaviour not actually being illegal under the rules of the game).

The unwritten rules of Sportsmanship/Fairness

The themes of 'fair play' or 'sportsmanlike' behaviour came up in all but one interview when discussing conflict situations within these games. Participants shared a general ethos about the boundaries to competitive behaviour they expected from their opponents, and this held across the different game systems observed in the study. But what are the unwritten rules, or norms, that players seek to abide by across multiple CMG systems, and the adherence to which is used to avoid or mediate potential conflict situations? This section attempts to codify some of these unwritten rules, based on data obtained from the interviews conducted as part of this study.

Rule 1: Information - it is ultimately the affected player's responsibility to ask for information when uncertain:

The exchange of information is a fundamental element in the cooperative aspect of CMGs. Players are required by the rules of the game to share certain pieces of information, but there remains the question of exactly how much information should be shared beyond what is explicitly required by the rules. One of the 'grey spaces' that occurs in coopetitive game systems with open information is precisely *when* information should be provided, and *how much* should be provided.

P10: At the top levels, if you ask "what's [this model's] range", but don't ask if there's no other ways to increase it, it's a grey area on the question.

This is one area when the competitive and the cooperative aspects clash with each other - players are held responsible by the rules (and each other) to be forthcoming with open information, but a player can often gain an advantage over another by withholding information. On one end of the spectrum, the careful use of information can be considered a competitive strategy, and on the other end, being obscure and restrictive with information is frowned upon. While it was considered good practice to offer information and not seek to deceive or misdirect enquiries, sometimes players simply forgot what an ability did or how two rules interacted, and made errors as a consequence. Like Simon's (1955) Bounded Rationality model, participants recognised that factors such as time, limited perspective and human cognitive capacities were factors in determining how much information was ultimately shared:

P1: When I try to play a game I'll try to give my opponent - to a specific degree, information that is useful to them.

P12: Sometimes it's a lot easier and quicker for the person on the side of the model to say "oh if you go there, I can see you".

P10: It's supposed to be open information but there's so many different armies, so many different rules, so many different interactions that I feel most people tend to be a lot more clear on the potential stuff their stuff can do. You'll never catch everything but those little distances can be a big thing.

This perspective on good competitive practice reflects Eylon and Allison (2002)'s findings that individuals in competitive situations preferred to share non-ambiguous information in competitive context, whereas ambiguous information was preferred in cooperative environments. Eylon and Allison (2002) also note that ambiguous information tends to be richer and more open-ended than

non-ambiguous information, and is required for "excellent performance on well-known tasks" (p.201). Thus, from this perspective, we could conclude that participants in CMGs had a normative preference for sharing non-ambiguous information for its clarity[18], but also because limiting their communication to clear, unambiguous information in practice limits their opponent's *potential* performance and access to additional information, which results in a competitive benefit.

Ultimately, in practice, it was thought to be the affected player's responsibility to ask for information, and to deal with the consequences if they did not:

> *P1: I think the onus in terms of winning the game is on your opponent to know what your stuff does. But I think it's reasonably sportsman-like to tell them as best you can.*
>
> *P10: The onus is probably on me* [as the active player] *more than my opponent to inquire about that.*
>
> *P9: If you're looking at like the opponent's list during list selection, and you don't know what it does, I think it's your prerogative to find out what it does before the game starts.*

A note on deception

Three of the four systems involved in this study are open information systems - this means that all game state information and rules information is available to both players at all times during the match, and neither player can legally withhold any such information from the other if asked. The only information kept hidden and private in these systems is in regards to strategic planning and future decision making.

The fourth system - Infinity - specifically mentions certain types of information which can be kept hidden from opponents during the match. This type of information is known as *Private Information*. The purpose of private information is to keep the state of a matchup uncertain, as it allows a player

[18] See Section *4.2.6 Avoiding and Reducing Conflict* for more on clarity and the principles of 'clean play'.

to keep specific information about the composition of their force private (ie. specific unit costs, or the location of stealth/parachuting troops). Participants noted that this mechanic allowed for interactive strategies, using deception and misdirection:

> <u>P11:</u> *It just seemed really dumb we would only take a picture if we were deploying a hidden camo troop, but within the game, taking a picture can be used for several things…. So we just got into the habit of saying "turn around, I'm going to take a picture now". Just cause otherwise if you don't do that* [it is obvious you have no hidden information]*… again it's that open and closed information aspect of things.*

This type of deception is built into the game mechanics of Infinity itself, and therefore players have come to expect a degree of deception around this type of information. Unsurprisingly, the Infinity match features a few instances of 'playing around' private information, where each player was probing for some hints of what the hidden information might be, and the other player trying to mislead or derail the question without either revealing anything or lying.

Despite the potential competitive benefits to be gained, deception was absent from all other observed matches, with one exception. In this match, one player willingly used a variety of techniques, including reverse psychology and offering misleading strategic advice, in order to gain an advantage in the game. This is legal under the rules of the game, as the player never offered any objectively false information. In this instance, both players seemed to have derived some enjoyment from the mini-game aspect of this information battle, but this is not always the case:

> <u>P1:</u> *[Opponent's] pretty sneaky. Because that's how that group of people play and many people don't like it. It's not underhanded but they will try throw you off.*

Rule 2: Give the inactive player the benefit of the doubt in regards to gotcha situations:

Gotchas result in awkward, mutually unpleasant situations, which players wish to avoid. While it is considered courteous to offer information to an opponent that will avoid such a situation, this is limited to one or two reminders at most, as there is the idea that you have to draw the line somewhere - both for competitive reasons and for practical reasons:

> P9: *If it's something that's quite key, and if it's a model they know has that rule and they've just forgotten, then it's kinda their fault, if you've already told them what the model has.*
>
> P12: *I guess it's like if they've moved and I've given a reminder… If you've already made them aware that this figure has Line of Sight to that corner they are coming around?*

Rule 3: State intent, seek agreement:

The game state requires a meaningful level of continuous cooperation to maintain. While a part of it can exist objectively in the positions of models and the placement of tokens, most of this cooperation takes place in the shared mental space between two players. As such, regularly 'checking in' with an opponent as to the state of the game, or whether a particular movement is legally acceptable before committing to it, helps maintain a state of clean play and is seen as sportsmanlike behaviour. In games without grids, this includes using proxy bases when possible and seeking confirmation on any measurements:

> P9: *… and as long as you measure correctly and your opponent agrees, that reduces a lot of the conflict, as you can both see exactly what is in distance and what is not.*
>
> P4: *I want to move here, and this is the intention. I'm within 1" of this guy, and outside 1" of this guy. Making sure that my opponents are aware is kind of how I like to play the game.*
>
> P4: *As long as you are declaring what you're doing before you go ahead and do it, seeking confirmation from an opponent, and you're also less likely to… trigger abilities you don't foresee, especially if it's open discussion.*

Rule 4: Accept administrative error in regards to takebacks:

Players agreed that takebacks are acceptable when the game state has not changed, or when it can be restored to a pre-decision physical and information stage. For example, if a model had been moved and no indicator of its pre-decision physical location remained, then a 'fair' takeback was not possible. This is why players in games without grid systems aim to use proxy bases as much as possible - they allow players to clearly and unambiguously declare intended placement on the board without losing the existing game state. Similarly, if dice had been rolled, or the opponent had made a decision in response to or after hearing the original decision (both new information entering the game), then the original decision could not 'fairly' been taken back.

It is the affected player's responsibility to ask for a takeback as a result of an *administrative* error if they believe the takeback can be fairly applied (ie. the game state has not changed and is easily recoverable prior to the administrative mistake). At the same time, the unaffected player can decline if they choose (as per the rules). However, this is likely going to have reciprocal consequences throughout the game, resulting in greater tension and 'rules lawyering' – in other words, a decline in cooperation. There was a strong consensus amongst players on where takebacks were and were not acceptable, even in highly competitive contexts:

> *P3: Where the game state is the same and no decisions have been made, and it sounds like procedural or arithmetic errors, I'd wind the game back every time, whether it's good for me or bad for me. Because it's a game state maintenance error, not a player error.*
>
> *P5: As soon as he rolls the dice, I get new information from what the dice roll is… that's where I'd have drawn the line.*
>
> *P6: Nothing about him changing his mind there changes the game state at all. To be honest, sometimes even in high level games, I would allow takebacks in these situation if it wasn't going to change game state.*

The above norms of sportsmanship and fairness are a crucial mechanism for trying to resolve coopetitive conflicts in CMGs, which occur outside the match space governed by game rules. Other

examples of mechanisms and procedures for avoiding and reducing conflict are discussed in the next section.

4.2.6 Avoiding and Reducing Conflict

The final area of focus during interviews was to ask players for potential solutions to coopetitive conflicts they had encountered, either in the match observed or in their general gaming life. Strategies used to mitigate or avoid these situations where also elicited. Participants were quite forthcoming in identifying strategies they use or have used in the past, and also systemic solutions they have found from one system to another. Features and strategies mentioned included a tight ruleset, managing expectations and *clean play*, and the existence of a central authority to mediate any disputes in an agreeable and impartial way.

Tight Ruleset

> *P1: I think generally having a tight ruleset and rules that are easy to implement makes it more straight forward to be cooperative. If both I and my opponent know the rules and they are clear, then there should be no conflict between us playing the game as it's intended and also cooperating to have a good time, making sure the game flows smoothly.*

One consistent theme that came through the interviews when participants were describing what helps a game system be played competitively is 'tight' rules. A tight ruleset was described in a myriad of ways:

- easy and practical to implement
- follows an internal, consistent logic
- avoids using 'roll offs' to cover up ambiguity
- non-ambiguous and clearly worded

A tight ruleset has to be practical and easy to implement, particularly in regards to rules surrounding model movement and line of sight. Rules that require a myriad of measuring tools or a qualitative judgement on whether X% of a model was obscured for Line of Sight purposes were discussed as fostering negative experiences due to the ambiguity. The ruleset should strive to avoid ambiguous interpretations and 'grey areas'. The rule should clearly state how an interaction functions, and the wording and language used in the rules should reflect this clarity as much as possible:

> P10: *It's got reasonably - as far as gaming goes - tight rules, where there's not usually any grey areas… you have the classic example of "I think it does this" vs "I think it does that" - we'll just read the rulebook and it'll tell us exactly how it is.*

Usually, this low level of ambiguity in a ruleset evolves over time as the game rules are tested in practice and evolve to match the rigor of the preferred *rules as written* approach of the competitive environment:

> P4: [This ruleset is] *a lot tighter, cleaner, less ambiguity in the wording, and it's had time to bed in, in that some of the more interesting interactions have been discovered, worked through.*

Some systems mentioned in interviews used *roll offs*[19] to mediate disagreement, which was seen as an attempt to mask over a loose ruleset:

> P7: *[Privateer Press]'s rulesets are always tighter, in general. There's not as much of it in Blood Bowl, things are fairly well defined, but GW games tend to have a "two rules clash - roll a d6" approach.*

Some rulesets additionally use *timing steps* in order to break down the more complex interactions. Many participants saw these as a positive feature. While they are not often referenced during a match, in the circumstances where they applied, the timing steps helped to clearly delineate and segment the interaction, thus providing an unambiguous, impartial solution to the conflict:

[19] In a roll off - each player rolls a die and however rolls the highest number wins. Ties are re-rolled.

> *P10: Warmachine has followed others in having the timing steps and things like that. You always forget the way they go, but they are there, so you know this happens, then this happens, then this happens, which prevents the grey area issues.*

The perspectives discussed align with Padula and Dagnino (2007)'s prediction that competitive issues are less likely to be disruptive for a cooperative system in an environment that is stable and well-established and "make the trade-off between cooperation and competition, ceteris paribus, more serious" (p.40). Phrased another way, a tight ruleset helps maintain a coopetitive environment where high competition and high cooperation can be maintained. The role of a tight ruleset was seen as highly important in reducing conflict or tension situations by the participants, and a loosely-regulated environment was seen as one that could be abused or exploited:

> *P6: When I was younger and starting to play in tournaments, joining the competitive side of it, there was definitely room for that to be abused by one of the other players because of… I guess the weakness of the ruleset.*

One participant offered a nice normative summary of what CMG players expect from a ruleset:

> *P3: The game is supposed to help you maintain the game state in a manner where your priorities don't conflict as often as possible.*

Managing Expectations

Another opinion that was raised regularly throughout the interviews was that negative experiences or conflict could be avoided by following the principles of *clean play*, a method of gameplay execution which relies on demonstration and seeking agreement at each step. Another method used to reduce conflict situations was communication - specifically, seeking your opponent's agreement on *the game state* regularly and methodically. Both techniques tie into the identified themes of *Resolving through Agreement* and *Managing Expectations*[20].

[20] See Appendix 2 – Code Book: Stage 2.

Whereas a tight ruleset was seen as necessary for providing the *environment* for conflict-free coopetition, clean play is a method by which players strive to clearly and unambiguously implement the rules in the physical realm, on the game board. When it comes to measuring, participants referred to the use of a grid (as in chess, or many board games) as being a gold standard for concise measurements, as it offered unambiguous, absolute measurement units. A model is either located within a square/hex/circle - or it is not. However, as the spiritual descendants of traditional miniatures wargames, in which estimating tabletop distances is seen as a skill, most CMGs do not use a grid. The next best practical alternative to the grid in terms of measurement accuracy is premeasuring. Premeasuring is when players can measure any distance on the board at any time using various measuring tools. The regular use of proxy bases, measuring sticks and "measuring widgets" is encouraged (Curkov, 2018). These devices allow participants to measure discrete distances as close to the game board as possible, which results in a more accurate measure from both players' perspectives. Proxy bases (which 'stand in' for a model during a movement) were usually used to declare an intended course of action, in order to seek an opponent's agreement on the legality of the action (both in terms of rules and spatial geometry) **before** rolling dice or otherwise changing the game state irreversibly. In this way, they also serve as placeholders to return models to their original location in the event of an administrative mistake, so the game state can be rewound without either player gaining or losing an advantage.

In practice, the purpose of clean play is executing the rules of the game in a transparent way that seeks opponent agreement at every step, thereby avoiding any potential contentious and irreversible situations. Participants used terms like 'social contract', and put an emphasis on agreement and discussion in order to avoid conflicts:

> *P4: There is a social contract, so if… I purposely play a very clean game, but I try to know my opponent's stats and abilities very well, I can take the time… when I'm measuring I'll put down proxy bases and state my intentions that I would like to be here and within a certain distance of this model, using measuring sticks to make sure it's clean.*

<u>P6:</u> The rest of it is just discussing with your opponent. That's just the thing that's stressed again and again, if you're playing or running tournament you know - communicate beforehand, talk about the terrain - what does it do, how does it affect your models?

<u>P11:</u> Even some sort of gamey thing like slicing the pie[21] on particular models, we will… if it looks reasonably possible, we will usually let it go.. we just make the assumption that if it is reasonably possible, we will let the other person do it.

Clean play comes back in part to reciprocity, and in particular the clear communication of intent, which is integral to Falk and Fischbacher (2006)'s theory of reciprocity. Signalling intent clearly will necessarily affect the perception of an action – whether the player is genuine in trying to play fair, or whether it is perceived that they are trying to sneak something by their opponent in order to gain an advantage. Establishing intent behind a movement, tactic or ability before rolling dice or executing removes ambiguity and potential conflict situations, precisely because in an environment which exists as the result of cooperation between two players, these conflict situations are situations of disagreement.

Communication is also a key part of clean play. The principles of clean play can be related to a face-to-face negotiation process – one player is proposing an action on the table, communicates this clearly, demonstrates it on the table if required (using widgets and proxies), and then offers their opponent the chance to accept this as a legal move, or question it. Consistent with Valley et al. (1998)'s findings on face-to-face communication and bargaining, and Johannessen, Olaisen, and Olsen (1997)'s theory that mutually beneficial outcomes are more likely in situations where the situation and

[21] "Slicing the Pie" is a term for positioning a model around a corner such that you can only draw Line of Sight from a sliver of a model to another model, but not to another model immediately next to the target model. This is almost impossible to precisely measure on the board, as even a 1mm shift in either direction can result in a great reduction in the Line of Sight arc. As a result, this requires formal expressions of intent and agreement between both players.

interests are well-defined ahead of time, clean play is a method used and praised by participants as one that results in a more positive *and* more competitive game experience for all involved:

> *P5: Especially in a game like Guild Ball where the ruleset has very clearly stated at the start that it is an open information game, both sides are obligated almost by the rules to ensure that both players are clear as to how any activation will interact with the others, and for that to work you have to be in communication and working together to get a clear picture of the board state.*

Clean play can be seen as a systematic method of managing expectations, a strategy for managing player interaction and maintaining a good player experience. Managing expectations ties in heavily with the tournament culture of CMGs discussed in section *4.2.2*. A game with a strong tournament culture - including a clear tournament document that lays out expectations of both opponents - helps to bring both players into a similar mindset in terms of what they can expect from the match and each other, thereby reducing negative experiences and conflict situations. When asked to discuss negative gaming experiences they have had in the past, having different expectations of how the game should be played was raised a number of times:

> *P2: Sometimes people just click really well, they come in with the same level of expectation, or sometimes you get people who just don't click with that… their sense of what is value in a game experience, and the social experience of gaming maybe doesn't line up with yours necessarily either way.*
>
> *P5: He wasn't prepared for the level of… tightness I expected from the ruleset. So it wasn't a particularly unpleasant game, but he was getting more and more, visibly upset across the table. Coming up against somebody who was expecting the game to be played quite crisply and cleanly can be quite tilting, and quite… a bit of an eye opener.*

The establishment of a tournament document to formalise the tournament culture rules is much like the establishment of a central, neutral authority to manage cooperative arrangements, which we will discuss in the following section.

Central Authority

Another theme that arose in regards to helping mitigate conflict situations or negative experiences was the existence of a central authority to mediate the cooperative/competitive dynamics. The concept of a central mediating authority is discussed in two different forms - first, in the form of a central authority that serves as a 'master interpreter' of the rules, and secondly, as a live dispute mediator.

In the first instance, the 'master interpreter' role, the central mediator takes the form of a point of reference for complicated rules interactions. This form of mediation serves to increase confidence in the stability of the game and the coopetitive arrangement. Competitive players will usually be aware of the official rulings made this central authority and where they can be accessed. This central point of reference usually takes the form of a regularly updated Frequently Asked Questions (FAQ) or errata documents put out by the game company themselves. It can also take the form of a dedicated online rules forum, where players can post rules questions and have their questions answered conclusively by a certified rules lawyer (usually skilled volunteers who have access to game developers, or even the games developers themselves). These forums are then searchable in the future, or the ensuing rulings published in a database or document for rules questions in the future. These documents are then used to inform future formal rules changes. Clearly, there is an overlap between the role of the central authority as a mediator for rules debates and a tight ruleset - the process by which FAQ and rulings are produced serves to tighten the ruleset, ironing out errors and reducing the ambiguous grey areas. One player described a rules conflict within one of Infinity's earlier editions where this process failed to operate, resulting in an enduring friction within the playerbase:

> *P11: Back in N2 there was a lot of ambiguity around certain rulings. There were 2 or 3 around certain units and certain abilities that had been interpreted by players to go both ways. And the FAQ was about as clear as mud.*
>
> *Interviewer: Do you remember how those conflicts* [were resolved] *in the community?*

P11: Community wise? Generally, on the forums it was a lot of shouting as to it being this way or to it meant to be this other way.

One factor which was highlighted as contributing to the presence of a central authority was the willingness of the games development team to stay involved with the community, to engage with the current metagame, and keeping the communications channels open in regards to constantly improving the game:

P3: And I think that comes from the designers of the game being more interactive with the community, in terms of how they go about providing information and being more open in their willingness to provide guidance when resolving these.

The second manifestation of a central authority discussed was as a live dispute mediator. In a tournament setting, this takes the form of a judge or tournament organiser. Referees like this are a common practice in many competitive settings, and facilitate an impartial resolution in instances of disagreement. The role of the judge is to provide a clear, decisive arbitration to a conflict situation:

P12: The good thing about tournaments is if neither of you agree, you just call in the TO - get them to make the call.

P11: Tournament organiser, that's the highest level of escalation.

The role of a central authority is a recurring one in coopetition research. Bengtsson and Kock (2000) describe the role of an intermediate actor is "sometimes needed to coordinate and define how to compete and how to cooperate with each other" (p.423) in situations where established norms fail to mediate the coopetitive relationship. For example, Sony & Samsung established and worked through the intermediary company S-LCD to produce the 7th generation LCD TV screens as a way to isolate this area of cooperation and separate its logic from the competitive aspects of the companies (Raza-Ullah, Bengtsson, & Kock, 2014; Ritala & Hurmelinna-Laukkanen, 2009). Granata, Lasch, Le Roy, and Dana (2018) discuss the establishment of the Pic Saint Loup organisation in south-eastern France to manage

the nationally cooperative affairs between regionally competing firms, thereby acting as both a coordinator and mediator.

As an illustration of the expectations put on the role of the judge in CMGs, one participant noted a particularly negative experience for him arose as a result of a judge refusing to make a call on a situation which was outside the rules, but also not within the control of either player within the match:

> <u>P6:</u> [the TO said that] *"the two of you* (the players) *need to make a decision", basically. Which in hindsight wasn't ideal - if the TO is asked to make a call, he should make it, even if the call was "you both lose because you screwed up your clock management" then at least it would have been his decision rather than ours I guess?*

The experience left a bad taste in this player's mouth because of the expectation that the judge make a clear, unambiguous decision that would have resolved the matter, even if it had not gone in his favour. In essence, the player felt that the judge had failed in his duty to decisively resolve the conflict situation, and instead put the responsibility back on the players.

A tight ruleset, clean play principles, a formal management of expectations via official tournament document, and the establishment of a central authority to resolve disputes – these mechanisms are used to build sense of competitive camaraderie amongst competitive miniatures game players and a sense of reliability within the tournament environment. The clear universal ruleset and tournament documents combine to form a sort of universal shared language which allows for collaboration, similar to the role of the printing press and standardized national print-languages in Benedict Anderson's *Imagined Communities* (1991). Players of CMGs put a high emphasis on the social aspect of tournament play, which is closely followed by a desire for healthy, fair and equitable competition. Following the guidelines and strategies discussed in this section helps make this a reality.

5/ Conclusion

This study has used competitive miniatures games as a novel environment to explore and develop the concept of coopetition, observing player behaviour during matches and later discussing their perspectives on the coopetitive nature of the CMG environment.

To the best of my knowledge, this study is the first to use a specific type of board game to explore interactive coopetitive behaviour. This environment has been presented as a halfway point between the controlled (but difficult to generalize) environment of the laboratory, and the uncontrolled, real world environment that is the subject of ethnographic study. CMGs are particularly well suited to the study of coopetitive behaviour on account of their complexity and dependence on constant communication between both players to function, something which cannot be said for all types of board games.

While the existence of the coopetitive paradox was acknowledged by all participants, the severity of the conflict between competition and cooperation differed between participants. Some expressed this as a zero sum trade-off, manifesting as 'nice guy vs douchebag', where overly competitive behaviour resulted in undesirable social consequences. These social consequences then often resulted in a decline in cooperation. Competing at the cost of the social aspects was perceived negatively. Other participants did not see such a zero-sum trade-off between competition and cooperation, indicating that the simultaneous existence of both was possible as long as appropriate systemic measures were in place and norms of behaviour adhered to.

Findings also supported the coopetition literature (Bengtsson & Kock, 2014; Bouncken et al., 2015; Brandenburger & Nalebuff, 1995) in regards to value creation as a key motivator in coopetitive behaviour. Players were focused on ensuring an enjoyable experience for both players when possible, even if that meant limiting a potential personal competitive gain. Even in high stakes competitive moments within the matches, players engaged in behaviour which would be deemed non-rational

from a competitive perspective, but explained these actions in terms of long-term competitive benefits, or an emphasis on maximizing the total value of the match.

The key strategies used to navigate or mitigate the coopetitive conflict included reciprocity, communicating clearly and following the principles of clean play, and adhering to a set of unwritten rules and norms around sportsmanship and fairness. Some of these norms of sportsmanship were codified in section *4.2.5 Social vs Competitive*.

Players also identified a number of systemic features that result in negative experiences for them, or increased coopetitive tensions. These included gotchas, unclear rules, and a sense of imbalance that can result in the player feeling powerless and unengaged. On the flipside, a number of systemic features that help reduce conflict were discussed. These included the existence of a tight ruleset, managing player expectations, and the establishment of a neutral, central authority to mediate disputes if any arose.

The model below proposes a theoretical overview of how decisions are made within bilateral coopetitive environments. These could include: repeated bargaining, game or negotiation situations; small and specialized industry clusters; and of course, competitive board games:

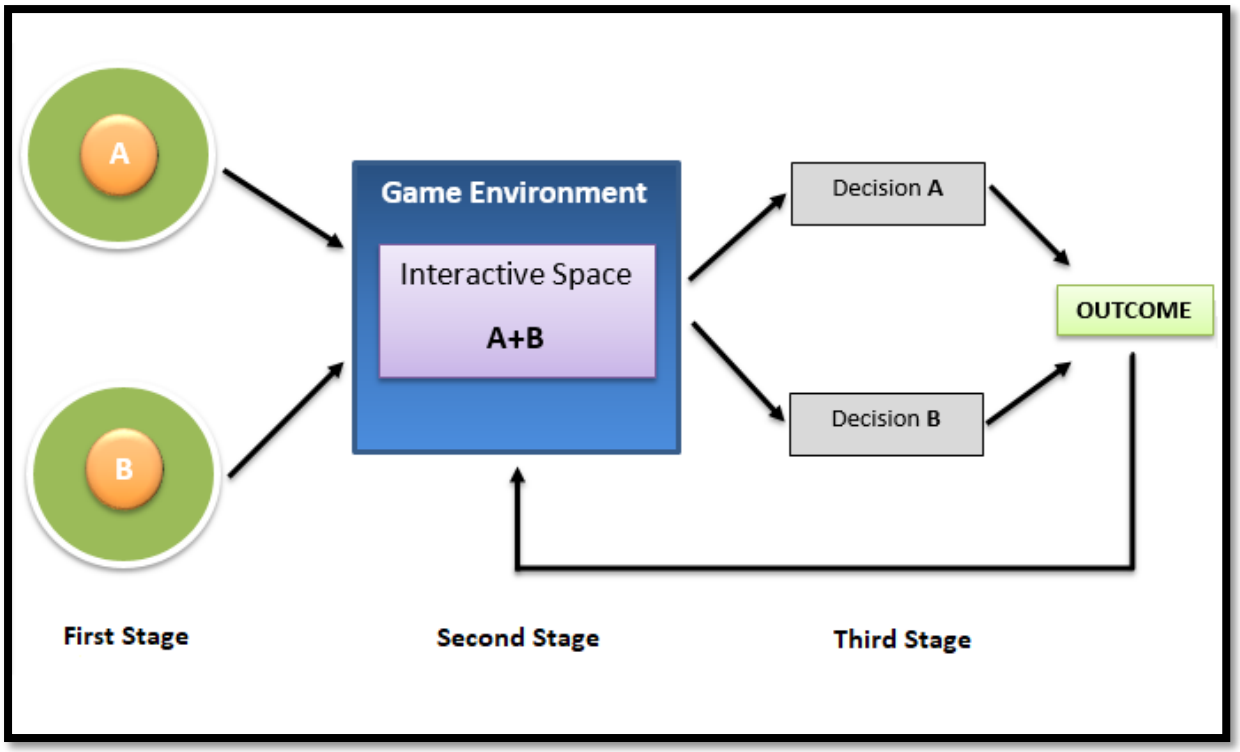


Figure 8 - A model of decision-making in bilateral coopetitive environments

The model is divided into 4 sections, flowing left to right.

The first stage features the individual players, labelled here as player A and player B. Players come with a certain amount of 'baggage', which they take with them into the game environment:

- Each player's personal beliefs, values, assumptions and predispositions (orange bubble labelled A & B)
- A number of social and cultural norms and laws regarding behaviour and interpersonal interaction (green bubble, containing the orange bubble)

The second stage is the game environment. The game environment (blue box) contains the following factors:

- Game rules (ie. tightness of ruleset, game objectives, meta strategies)

- Game system / design features (ie. opportunities for negative experiences: gotchas; systemic inequity; potential for helplessness, and degree of regulation of the environment ie. regulating authority)
- Game-specific culture(s) (ie. managed expectations, attitude towards competition / cooperation)

The game environment also contains the interactive space between the two players. This interactive space (purple box) will vary drastically depending on which two players are in it, and the nature of the game environment in which it occurs. The interactive space accounts for the following factors:

- Reciprocity
- Communication (ie. open vs restricted communication, medium of communication)
- Familiarity with opponent

Following the interaction between player A and player B, each player makes a decision (the third stage), and the two decisions combine to result in an outcome (final stage). The outcome here, if boiled down to a 2x2 game model, could be as simple as cooperate / compete. This outcome then feeds back into Stage B, where it will serve as a new input to both the game environment and the interactive space, affecting all future player decisions via mechanics, such as reciprocity.

Further Research

This study paves the way for further research using CMGs, or other similar complex board games, as a way to observe behaviour within coopetitive game environments.

One possible avenue of research would be to expand on the results from Stage 1 of this study. It would be interesting for to see whether similar kinds of speech patterns are reflected into other types of board game environments, and whether there is a noticeable difference between these types of patterns depending on whether the game is primarily cooperative, coopetitive or competitive. This

could have implication in the field of games design, particularly board games which rely on verbal interaction.

Another avenue for further research would be to refine and test the above model of behaviour within other bilateral coopetitive environments. This would involve the development of specific constructs to test via a quantitative study (for generalisation) conducted across a wider population and different contexts, especially coopetitive business situations. The focus would be on the individual responses to coopetitive challenges, and to what extent these are influenced by the different individual, systemic, cultural and social factors identified in the present study.

Appendix 1 – Code Book: Stage 2 (offline protocols)

The following section includes the codebook that was developed during thematic analysis of the second stage of the study, outsourced from Nvivo.

Name	Description	Number of Interviews	Occurrences
40k	Mentions of the Games Workshop game Warhammer 40000	8	16
Adjusting Behaviour to Opponent	Changing behaviour within a match depending on the opponent	10	23
Benefit of the doubt	Giving your opponent the benefit of the doubt in situations where the rules are hazy, unclear, or difficult to apply	4	6
Reciprocity	Specific mentions of reciprocal "if this then that" behaviour	5	11
Clarity	Mentions of clarity - in communication, rules, etc	8	28
Clean Play	Mentions of the importance and impact of 'clean play' - unambiguous declarations and communicated intent	4	10
Consistency	Mentions of consistency, usually in regards to repeated events and their resolutions	5	9
Complexity	Mentions of complexity, and/or its impacts on player decisions and behaviour	5	8
Coop-Comp conflict	Discussion of/ perspectives on the conflict between cooperation and competition	11	60
Conflict Situations	Situations that cause conflict between players	6	17
Mutual Gain	Mentions of mutual gains/created value	7	12
Zero Sum	Mentions of zero sum, or trade off, between competitive elements and cooperative elements	4	4
Deception	Purposefully using information to obfuscate or confuse opponents	4	9

Name	Description	Number of Interviews	Occurrences
Suspected Deception	Suspecting opponents of not being entirely open	2	2
Definition - competitive game	Perception on what makes a 'competitive game', or elements thereof	10	31
Balance	Mentions of game balance, or balance factors	6	10
Chess	Mentions of or comparisons to the classic board game 'chess'	4	4
Diverse ways to win	Mentions of multiple paths to victory as a competitive feature	3	4
Resource Management	Mentions of resource use being a competitive dynamic	3	3
Skill Matters	Mentions of skill being the deciding factor in a competitive game	5	5
Smaller Scale	Mentions of (smaller) scale as a competitive element	4	4
Tournament Culture	How tournament play differs from casual play	5	10
Expectations	Mentions of player expectations before and during a match, whether of themselves, opponent or the game	7	19
Gotchas	Mentions of 'gotchas' - surprise trigger events in games that were not expected	8	21
Growing and Learning as a Player	Long term perspective on the game, beyond the match	5	8
Interactivity	Mentions of interactivity between players	6	13
Meta	Discussions of how the 'meta' affects interactions and player decisions.	5	12
Negative Experience	Examples of negative experiences in miniatures games	11	30
Helplessness, non participation	Negative experience where the player lacked meaningful agency	5	5
Offering help	Helping opponent	4	6

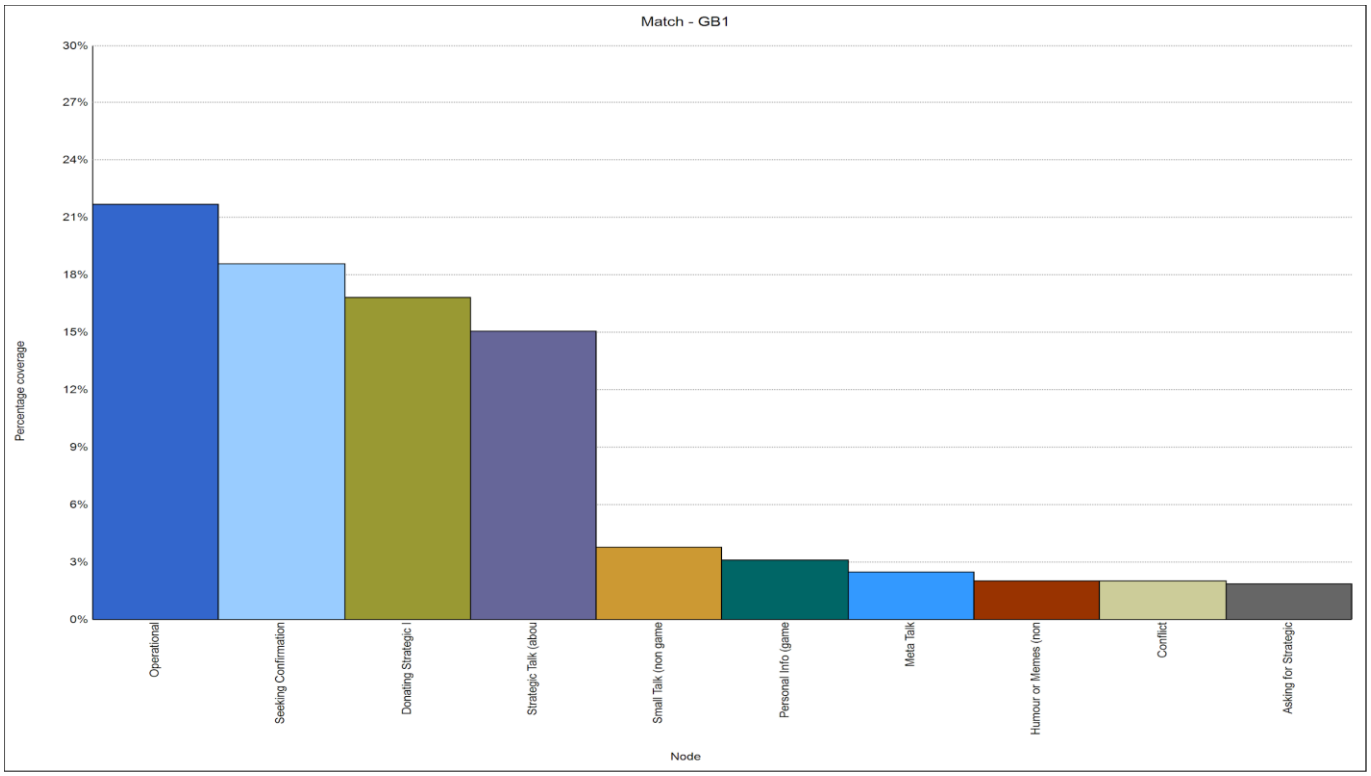
Name	Description	Number of Interviews	Occurrences
Player Responsibility	Player responsibility in regards to in-game behaviour, including who is responsible for acquiring and offering information and following social conventions (and when).	5	14
Practical Considerations	Practical gameplay considerations that may impact behaviour or information sharing	6	12
Randomness	Mentions of dice and random elements and their effects/consequences	6	16
RAW vs RAI	Rules as Written vs Rules as Intended. Often tied with discussions of player experience, game culture and practicality.	4	11
Reducing Conflict	Ways to reduce conflict during games	10	75
Central Authority	Appeal to a central 3rd party or entity to resolve disputes.	6	14
Resolving through Agreement	Circumstances were mutual agreement override reference to rules, or the importance of consensus to avoid / resolve disagreement	5	11
Tight Ruleset	Mentions of the importance of a unambiguously written ruleset	7	14
Response to adversity	How players respond to adversity	4	7
Sharing Information	Mentions of information sharing or management	11	36
Withholding Information	Holding back information from opponent	5	8
Social Contract	Mentions of the 'social contract' in gaming, and perspectives thereof	3	5
Social vs Competition	The Casual vs Competitive divide, the focus on the social aspects of game and how they differ, contrast or conflict with the competitive aspects	11	54
Game-specific Culture	Mentions of (common) practices within a game/gamer setting	4	12
Sportsmanship, fairness	Mentions of fair play, sportsmanship, good competitive behaviour	10	23

Name	Description	Number of Interviews	Occurrences
Takebacks	Discussion of takeback - when a player declares something and then changes his mind and reverses the action/decision	9	13
What People Like About Miniatures	Things people like about miniatures games (motivations)	11	23
Hobby aspect	Mentions of the hobby aspect of the games	5	7

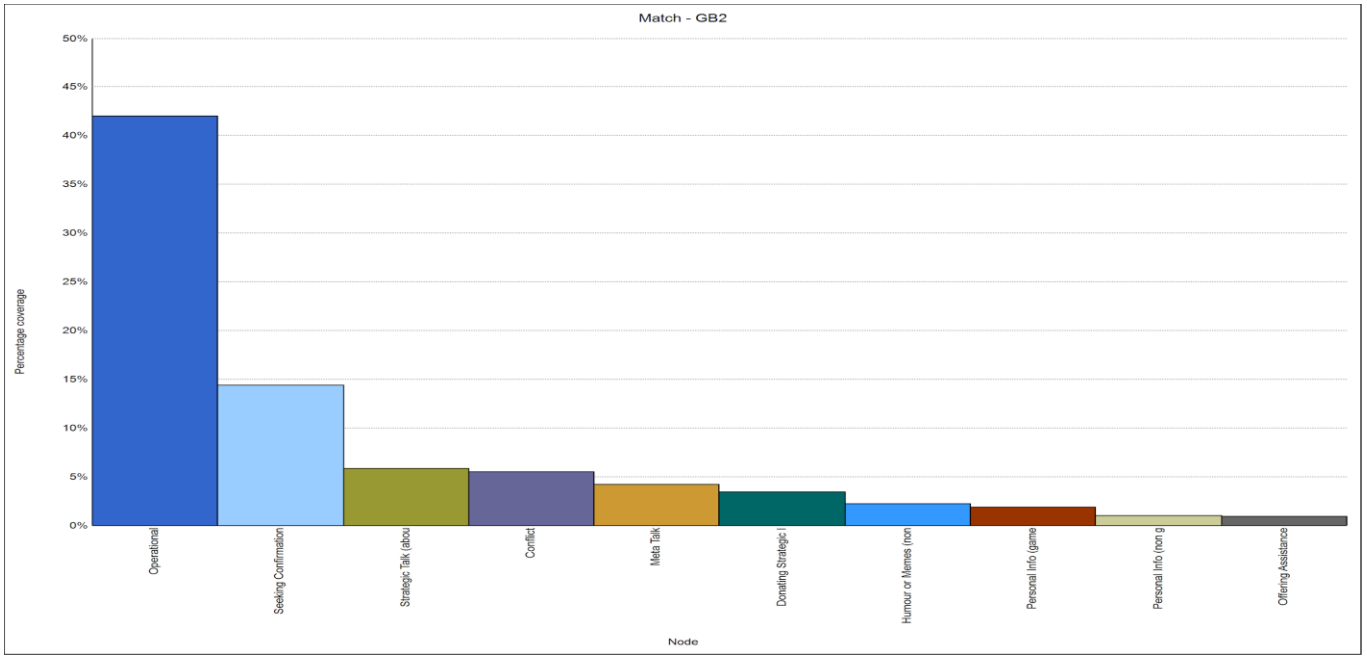
Appendix 2 – Game Specific Charts

The following section contains a number of charts displaying the quantitative data from Stage 1 of the analysis (specifically the top 10 categories for each match) using the codes from Appendix 1:

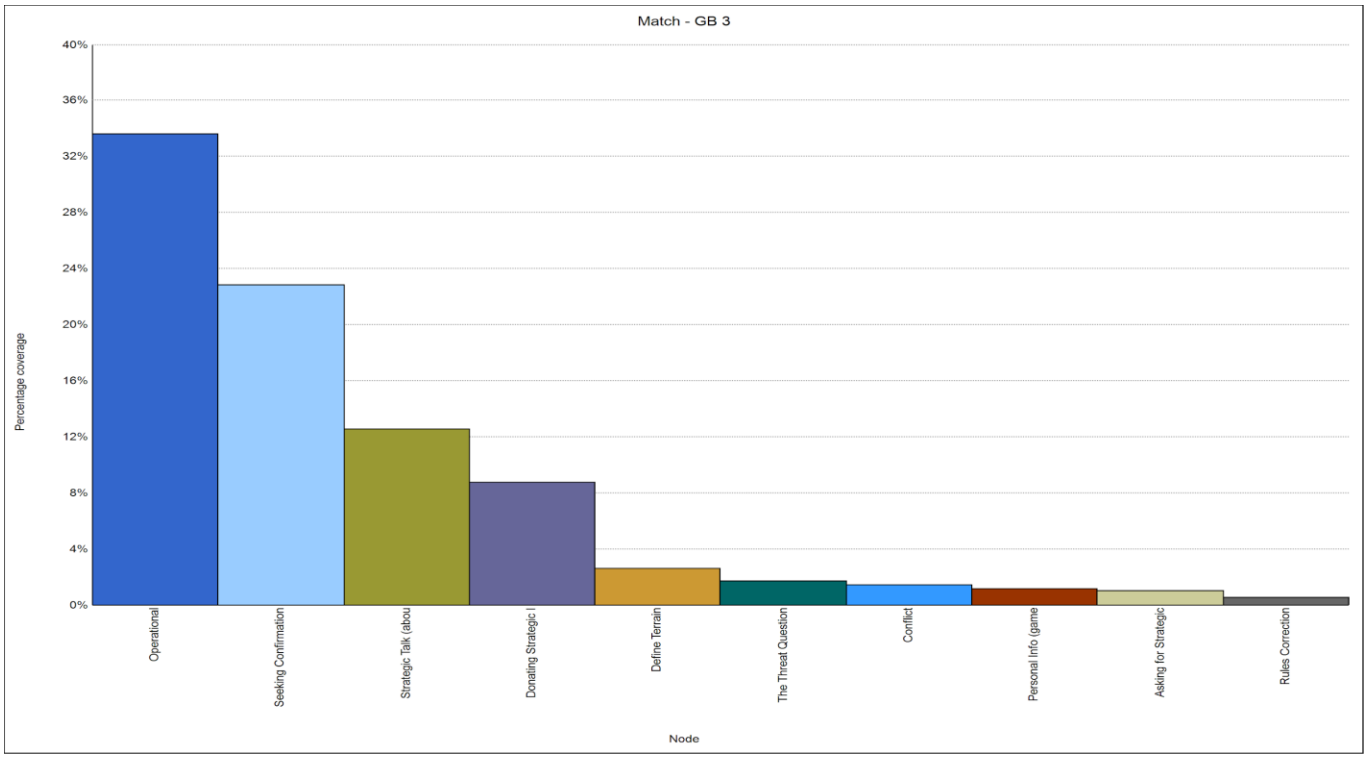
Match - GB1



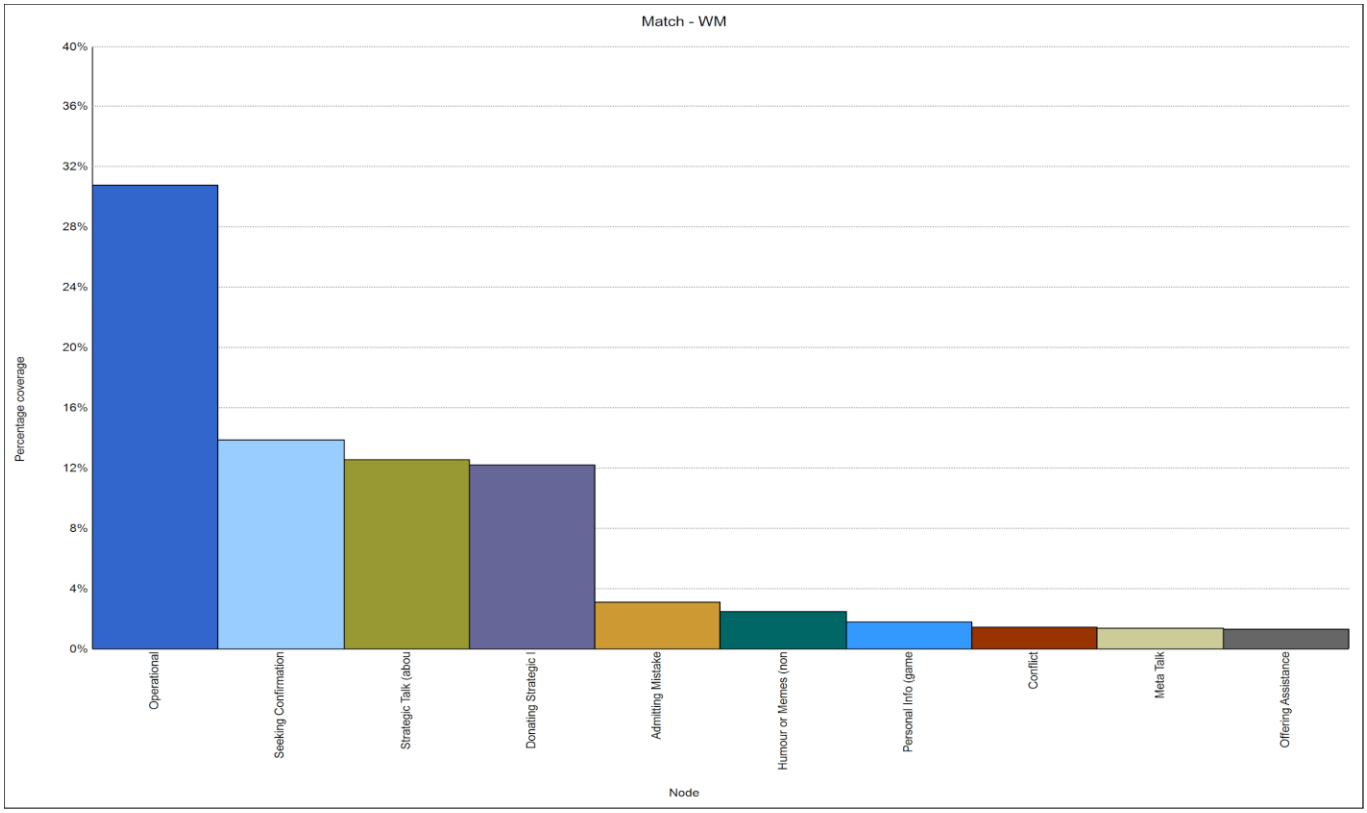
Match – GB2



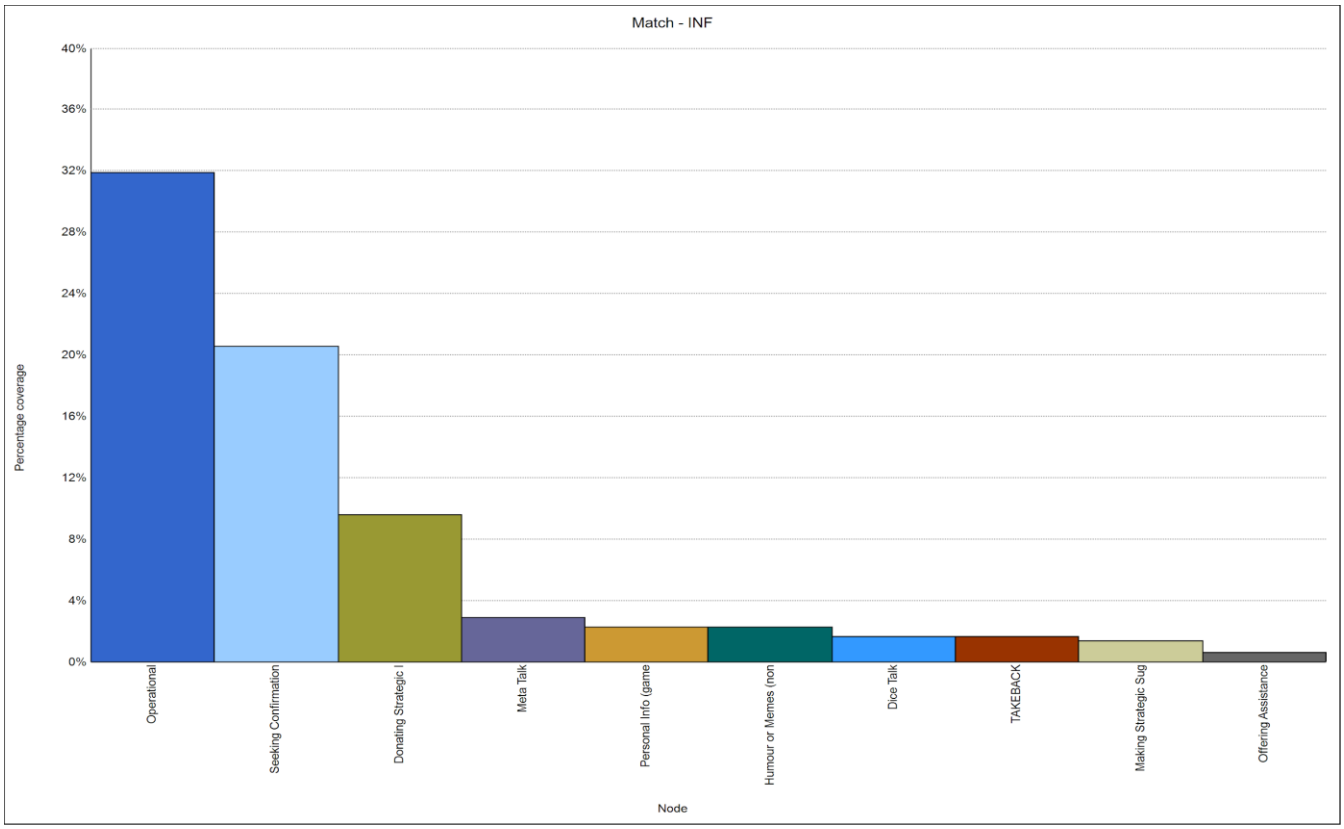
Match GB3



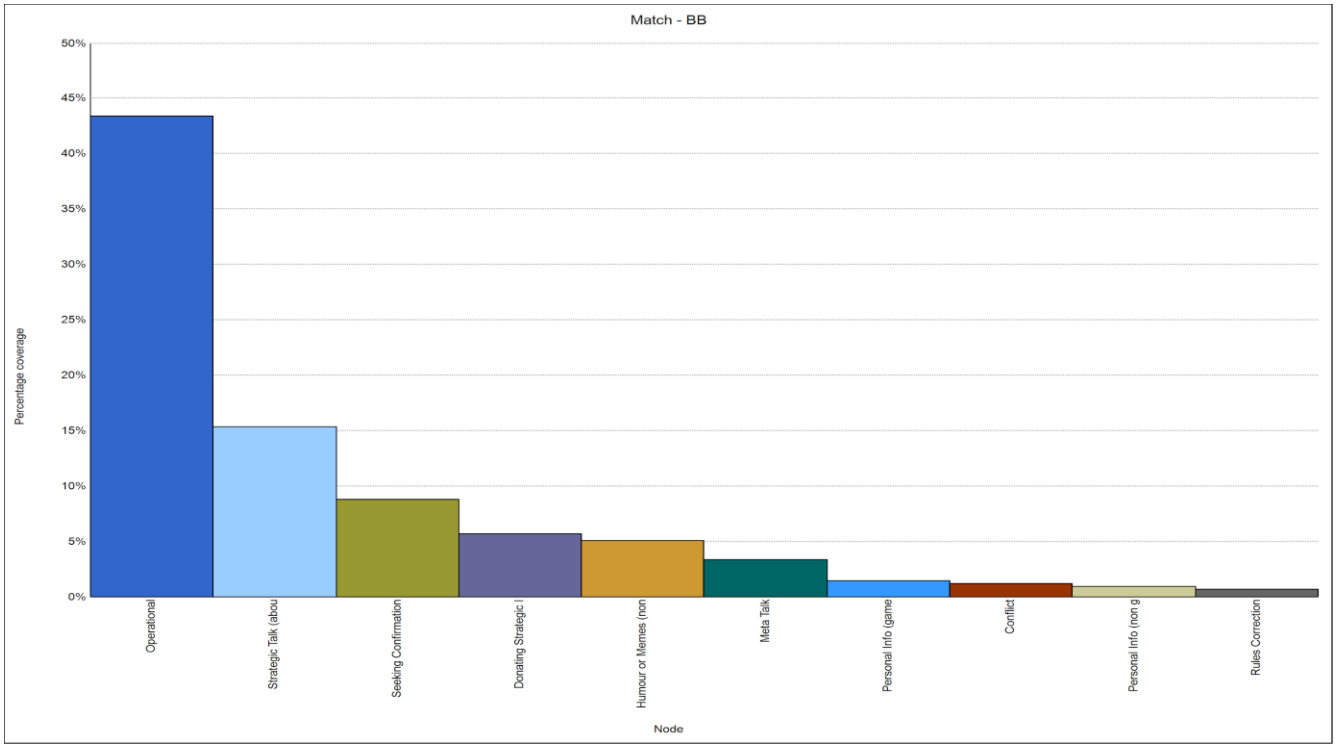
Match: WM



Match: INF



Match: BB



Appendix 3 – Glossary

The purpose of this section is to provide a brief explanation of game-specific terms mentioned during the games or interviews, for the reader that wishes to have a deeper understanding of the data provided.

General Terms

- ***Casual/Competitive*** **-** a common dichotomy in all types of games. To the best of my knowledge, no universal distinction exists between the two. Attitude and time investment are two points of difference. In miniatures games, 'casual' players emphasize the story, modelling and social experience over strategy, execution and competition. The reverse would be true for 'competitive' players.
- ***CP / VP*** - Control points, Victory points. These points are used to determine who wins/ is winning a match.
- ***Critical hits/misses*** – Often abbreviated to 'crit'. Critical results are a popular design feature which involves endowing low probability results with stronger effects, such as doubled damage. In Dungeons and Dragons, any roll of '20' on a D20 is a critical. In Warmachine, any double result is a critical hit. In Infinity, rolling the same number as the target statistic is a critical hit (see Infinity below for explanation of attack mechanics).
- ***D4/D6/D20*** **–** a 4/6/20 sided die.
- ***FAQ*** **–** Frequently Asked Questions. Usually takes the form of a living document considered to be part of the 'core rules' of the game.
- ***Gotcha*** **–** In CMGs, a rule or ability that gets an additional level of power from an opponent forgetting it is in play, and usually triggers at an unusual time.
- ***Line of Sight / LoS*** – models can draw LoS to each other if an unobstructed line can be drawn from one model to the other. In Warmachine and Guild Ball, this is measured from base to

base. In Infinity, a model template is used to represent an abstract 3 dimentional stand in for each model.

- ***Power Creep –*** a perception that new models are more powerful than older models, thereby increasing the average power level in the game over time.
- ***Proxy Base –*** a proxy base is a flat marker with an identical size to a model base. In most games that use proxy bases, this will be 30mm, 40mm, 50mm or 120 mm.
- ***Rules Lawyer –*** this is a derogatory term assigned to someone who is overly pedantic in interpreting and applying the rules. See the 'RAW vs RAI' debate under *4.2.4 Conflict Situations and Negative Experiences.*
- ***Scatters –*** Many miniatures games resolve random scatters for projectiles or other mobile objects (ie. footballs) using two consecutive dice rolls. Usually, one roll determines direction (as determined by a 6 pointed 'star' template), and the other roll determines distances in inches or units. Thus "scatters 4 to the 5" means "the object travels 4 inches in the direction 5 on this template".
- ***Threat range –*** a term used to describe the total distance over which a model can make an attack. This is usually the model's base speed, plus the range of its weapons, plus any innate movement abilities. Sometimes includes external movement abilities, sometimes not, thereby introducing a sense of ambiguity.

Guild Ball

Guild Ball is a fictional sports game that is somewhere between gladiator combat and football/soccer. It is an alternating activation game, where each player takes turns moving one model at a time (like chess). The aim of the game is to earn 12 Victory Points. You earn 4 VP for scoring a goal, and 2 VP for taking out (killing) an enemy model.

Each model has a different playbook (a list of attack results) from which players choose after making an attack. When a player makes an attack, it rolls a number of dice and aims for a number X or above.

These numbers are considered hits, and the more hits generated, the more options are available from the playbook.

- ***Pin Vice, Boar, Gutter, Decimate –*** named models in the game.
- ***Bonus Time –*** a player can convert a momentum point into an extra die on any given roll.
- ***Counter or Counter Attack*** – an action that is declared out of turn, in response to having a model attacked. This action has a specific timing window in the game.
- ***Dodge*** – a result where the attacker can move their own model.
- ***Knocked Down/Snared*** – game conditions that results in movement and defence reductions.
- ***Influence*** – the primary resource in the game.
- ***Momentum*** – the secondary resource in the game.
- ***Momentous X*** – Damage results in Guild Ball are either 'momentous' or 'non-momentous', often abbreviated to 'mom X'. Choosing a momentous result grants momentum points.
- ***Plays*** – Special Abilities in Guild Ball are called Plays:

  - **Character Play:** equivalent to character spells. Special abilities which can be used by spending influence or chosen as the result of an attack. Examples include *Second Wind* (making a friendly model move again) and *Dirty Knives* (throwing a poisoned knife).

  - **Heroic Play:** Like a character play, but paid for using momentum rather than influence.

  - **Legendary Play:** A very powerful character play which can only be used once per match.
- ***Push*** – a result where the attacker moves the enemy model.
- **Tackle** – a playbook result, where the attacking model can steal control of the ball from the enemy model (like in football).
- ***Unpredictable Movement*** – a model ability that allows an inactive model to dodge away from an enemy model which enters its melee zone. Considered a 'gotcha' ability as it can completely undermine the active player's plan if forgotten.

- ***Wrap*** – when a player generates more successes from an attack than the length of their playbook, they 'wrap' back to the start and choose two results instead of 1.

Warmachine

Warmachine is a turn-based, "I Go You Go" (one player makes all their actions before the other player takes a turn) large scale skirmish game. It has a compatible companion game called Hordes, which is structurally identical but features a number of different core mechanics. The aim of the game is to either earn a fixed number of victory points via zone control, or "assassinate" the opponent's warcaster/warlock. In this way it is similar to chess, except that your king (the most vulnerable piece) is also your queen (the most powerful model). The primary resource in Warmachine is called Focus, and the main resource in Hordes is called Fury. Beast units in Hordes generate Fury when they make actions and attacks, and this fury is then absorbed by the warlock.

Attacks involve rolling 2 (or more) dice, adding the sum of the roll to one of the attackers' statistics, and comparing that to the target's defensive or armour stat. Anything over this value is a hit or does X damage.

- ***Knocked Down*** – a game condition which hampers a models activation.
- ***MAT*** – short for MELEE ATTACK, determines skill with weapon (added to the attack roll).
- ***POW*** – short for POWER, indicates the strength of a weapon (added to the damage roll).
- ***Rask, Brine; Snapjaw*** – named models in the game.
- ***Run/Charge*** – an order given, which means the model either runs or charges. Running goes further, but charging includes an attack.
- ***Zoo list*** – a term used to describe a list with many different types of beasts (like a zoo!)

Infinity

Infinity is a sci-fi squad-level combat game. Unlike the other three games in this study, it involves a lot of three dimensional terrain and a high level of micro-detail. It is a turn-based "I Go You Go" game, but features a mechanic called AROs (Automatic Reaction Order): whenever the active player moves a model, all enemy models that can see this model on the table may immediately take an action targeting the active model. This offers a lot of potential for interactivity and counterplay, despite the rigid I GO U GO structure.

In Infinity, models make attacks by rolling at least one 20 sided die and comparing it to a statistic. The defending model does the same. You must roll equal to or under the statistic for the attack or defense to be a success. The higher roll cancels out the opponent's lower rolls.

- ***N2/N3*** – the second and third editions of Infinity, respectively.
- ***Slicing the Pie*** - a term of positioning a model around a corner such that you can only draw Line of Sight from a sliver of a model to another model, but not to another model immediately next to the target model. This is almost impossible to precisely measure on the board, as even a 1mm shift in either direction can result in a great reducing in the Line of Sight arc. As a result, this requires formal expressions of intent and agreement between both players.
- ***Zone of Control*** – models have a defined radius around them which determines the range of certain skills.

Blood Bowl

Blood Bowl, like Guild Ball, is a fictional sport based on American Football/Gridiron. The aim of the game is to get more Touchdowns than your opponent before a set number of turns have passed. It is an "I Go You Go" type of game. A player's turn ends when a model on his team fails an action (ie. one of their models goes prone, or the ball hits the ground from a failed pass). Most actions require an *X+*

success roll, where the player has to roll above a target number on a D6. Tackles require rolling a number of custom dice and choosing a result from this roll (rolling more dice is more likely to result in a favourable outcome).

- ***Blitz –*** a once per turn action that combines a run with a tackle (attack).
- ***Bonehead –*** a rule on Ogres. Each time an Ogre makes an action, it has a 1/6 chance of doing nothing instead. Ogres are not very bright.
- ***Gutter Runner –*** a model in the game. Think of it like a ninja ratman.
- ***Strong Arm, Tackle –*** player abilities that improve the odds of completing specific actions.
- ***Throw Teammate*** – a rule where you can pick up a teammate and throw him like a ball.

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