

Metagames: On the Ontology of Games Outside of Games

Michael S. Debus

Center for Computer Games Research
ITU Copenhagen, 2300 Copenhagen S, msde@itu.dk

ABSTRACT

The term metagame has developed into a conflation of many concepts. The aim of this paper is the discussion of metagames in the sense of ‘higher strategies’, which are referred to as rule metagames. Rule metagames are prescriptive rules that emerge, through discussion and application of the community, out of the original rules of the game. This paper will initially review the literature that relates to metagames and theorycraft. The described literature was selected based on diversity, rather than the conventional use of terms. This review reveals that metagame notions may generally be understood across five categories: The added, social, material, strategy, and rule metagame. These categories are described and demarcated as distinct. Based on the review and the classification, the concepts of metagame, metagaming, as well as theorycraft and theorycrafting are discussed, to finally arrive at an examination of the ontology of rule metagames through the application of the cybermedia model. This elucidated the ontological differences of rule metagames and games. Through these differences, problematic aspects of rule metagames for research were identified, which must be taken into consideration for future investigations.

CCS Concepts

• **Applied computing~Arts and humanities** • *Applied computing~Media arts*

Keywords

Metagame; Ontology; Theorycrafting; Rules; Classification

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1 INTRODUCTION

In the electronic sports (eSport) scene, metagame is understood as a higher form of strategy. These strategies are typically developed outside the game and the playing time. Over the years

these practices have already attracted scholarly attention. Carter et al. [8], for example, conducted a study of the emic use of the term. Salen and Zimmermann [19] developed a metagame model, based on Richard Garfield’s [14] rather broad categorization of metagames. Others were more drawn to the related practice of ‘theorycrafting’ [17, 24] and its effects on games and gameplay [18]. These ‘games outside the game’ are the focus of the present paper. As all of these concepts are closely related, the terminology became conflated over the years; therefore this paper has two goals.

The primary goal is the discussion of what will later be referred to as the *rule metagame’s* ontology, and its implications for the methodology of future inquiries into the topic. Briefly described, the rule metagame subsumes the strategies developed by players outside the game to play better. To arrive at a juncture where such an ontological inquiry is even possible, an initial literature review of existing terms and concepts is required. Section 2 consists of this review, which serves dual purposes. It may be employed as a basis for future studies of metagames and related concepts, to clearly demarcate what exact notion of metagame is under examination. The second purpose is the same demarcation for the present paper, and the following discussion of rule metagame ontology.

Following the literature review, five categories of metagame notions are proposed in section 3: The added, social, material, strategy, and rule metagames. These categories should be understood as what Karhulahti called “typontologies” [16, p. 6], meaning a classification that is open for adjustments and additions in the future, rather than constituting a completed system. Following this categorization, the rule metagame, its relation to metagaming, theorycraft and theorycrafting will be discussed in more detail in section 3.1. The goal of this discussion is to equip us with a clearer terminology, distinguishing between objects and practices, or theories, methods and their applications. This finally leads to an examination of rule metagame ontology in section 3.2. As a basis for this analysis, Aarseth and Calleja’s cybermedia model [4] was utilized to compare the ontology of rule metagames with ‘normal’ games. Employing this framework, the paper identifies the rule metagames’ differences from games, and further considers their implications for future studies of metagames.

2 FORMER METAGAME RESEARCH

The term metagame is used in numerous ways throughout the literature. As Carter et al. [8] pointed out, ‘metagame’ is an amalgamation of many different concepts. They show that the emic use of the word encompasses strategies for specific components of games, or opponents, achievements added to the

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game, games that are breaking the fourth wall, and added scores for campaign missions. This section contains an overview of existing uses of the term metagame and related terms, to clearly distinguish this paper's object of interest from other definitions and practices. While Carter et al. [8] conducted a similar review, their aim was to describe the "most common uses" [8, p.1] of the term metagame. In contrast to this work, the present review will aim at an extensive array of diverse, rather than the most common uses of the term in the scientific discourse, as opposed to the uses in the community. Subsequently, this will enable a more encompassing discussion of metagames and practices.

2.1 Metagame Terminologies

To develop a clearer terminology in the study of metagames and related phenomena, Carter et al. introduced the terms *metagame*, *paragame*, and *orthogame* [8]. During their research, they found that players have a concept of a 'core game' for each game. This core- (or ortho-) game represents the game as played during one match, for example, limited to the game's original program code and representation. While being a difficult demarcation, this notion is conceptually useful as an opposite to everything that is outside of this orthogame. Carter et al. define two different outside games: the metagame and paragame. The paragame refers to additional content, which is somehow related to the orthogame and structures it in certain ways, for example, achievement hunting, or single player score lists [8]. What is left are "[...] play acts that involve or consider resources that are 'beyond' the scope or control of what players consider to be the orthogame" [8, p.4], which they consider as the metagame. Following their definition, the metagame typically enables players to perform better through the application of, for example, externally developed strategies. However, they also include breaking the fourth wall into their notion of metagame, arguing that it is "[...] the influence of a player's context (as a player not a character) on the game" [8, p.4].

While their definitions comprise a critical initial step and enable a certain degree of accuracy, several issues should be pointed out. The inclusion of breaking the fourth wall works in their example of role playing games; however, this becomes less apparent in the case of video games. If the game itself breaks the fourth wall, as for example in *Conker's Bad Fur Day*, this aspect should be considered as part of the orthogame. Furthermore, the concept of orthogame works intuitively, albeit it bears problems in accuracy when used in scientific analysis. To prove its value and applicability in scientific research, it requires further discussion: Where exactly does the orthogame end and the paragame begin? How might we distinguish between these two when players play the game? Are players playing a different (ortho) game if they are hunting achievements? Nevertheless, the term orthogame itself is still useful to describe 'the game that is not the metagame', despite its problems. Furthermore, their definitions are based on the emic uses [8, p.1] of the term metagame. Therefore, as mentioned previously, this paper aims instead for the analysis of metagame terminology in the scientific discourse. This scientific terminology will be discussed in the following paragraphs.

A very broad notion of 'metagame' was developed by Garfield, who distinguished between four categories of metagames [14, as cited in 19]. Following his classification, metagames are:

- What the player brings to a game
- What a player takes away from a game
- What happens between games
- What happens during a game other than the game itself

These categories are further subdivided. The players can bring physical objects (game equipment, stakes), preparation (studying your opponent and the game itself), peripheral elements (game guides, knowledge of play patterns) and player reputation to the game [14, as cited in 19]. Similarly, players can take away stakes (physical or social), or experience (as in becoming more skillful, or being able to tell a new story) from the game. Between games, players can change their equipment, or strategy, and finally everything happening around the game while it is played (real world events, actions from the audience, 'trash talk', etc.) is subsumed under the fourth category of metagame. Without going into the evaluation of the classification itself, it is interesting to observe that it represents the general understandings of metagame. It encompasses the physical, mental and social aspects of metagames, including the players' equipment, knowledge about the game and opponents, as well as social interactions beyond the act of playing the game. While we will come back to the relationship of skills and metagames later, for the moment there is more to say in regard to the 'social metagame'.

2.2 Social Metagames

This latter notion of 'the social game outside the game' was also illustrated by Sotamaa and Stenros in their pioneering paper on the topic of drinking games [20]. They state that the consumption of alcohol is "formally external to the game" [20, p. 6] and therefore "[...] is certainly part of the *metagame* (the 'game outside the game') as it organizes the socializing, and the intensified drunkenness as a result of togetherness [...]" [20, p. 6]; emphasis theirs). Drinking as a part of the metagame, here, relies on the observation that drinking games may be played without drinking (alcohol) at all. It is merely a "common narrative, theme, or conceit of these games" [20, p. 6]. Therefore the 'metagame drinking' serves as a social meta-activity to frame the game. While Garfield's social aspect pointed toward specific social interactions and events occurring besides the game, Sotamaa and Stenros point to the possibility of metagames being a frame for the game activity itself.

A different function of metagames, the discussion of more effective ways to play, may evolve out of the game into a "meta-community" [23, p. 81]. In her thorough discussion of the community surrounding *EverQuest* [Verant Interactive 1999], Taylor touches on the topic of metagame as something that is produced by the community. She herself does not use the term metagame, but rather, is interested in the practice of 'power gaming'. However, Bergstrom et al. rightfully point toward some

of the practices Taylor describes as “meta-game components” [7, p. 5]. There are two classes of power gamers: Those who spend an unusually long time in the game, and the ones who attempt to optimize the time that they spend in the game [23, p. 73], which of course are not mutually exclusive. For our purposes, the first type is neglectable, as spending a lot of time in a game is commonly not directly connected to the notion of metagame. The optimization of play, however, is the reason that Bergstrom et al. identified Taylor’s descriptions as ‘meta-game components’.

She described two general types of practices to optimize play: The “technical and skill proficiency” [23, p. 79] and the aforementioned “meta-community” [23, p. 81]. The meta-communities are formations of “extended social networks” [23, p.81], through which players can exchange, discuss, and develop better strategies to play the game. Thus, the “technical and skill related practices” are one facet of the discussions that occur within these meta-communities. These “technical and skill related practices” include, but are not limited to: *Multiboxing*, in which players run the same game several times (on different machines), to be able to play more than one character simultaneously; *Scripting*, where players code scripts to be able to execute in-game actions either faster, or in a more ordered fashion; and any kind of third party software, such as addons or plugins, which assist players in, for example, the optimization of paths they follow during specific quests in role playing games [23]. The use of practices, such as multiboxing, and third-party software is metagaming as a practical implementation. It is the act of applying certain strategies to one own’s playstyle or equipment (in a broader sense, including the game software), contrary to, and following, discussions in the meta-community. Further, these discussions are closely related to the concept of “theorycrafting” [17, 18, 24] which will be described in the next section.

2.3 Theorycrafting

Theorycrafting is strongly intertwined with the notion of metagame and metagaming. Broadly speaking, it is the study of the game using various methods, to improve one’s play style. This is very similar to the practices of power gamers, who attempt to optimize the time they spend in the game. Karlsen [17] was particularly concerned with the reasons behind theorycrafting. He refers to the website wowwiki.com, defining theorycrafting as “the attempt to mathematically analyze game mechanics in order to gain a better understanding of the inner workings of the game” [17, p.1]. His core finding in regard to motivations for theorycraft is the distinction in two overall categories: the wish to perform better in raids, and to understand the game better. Raid performance is subsequently further distinguished into the motivations of cooperation, competition, and social status, while the motivation for understanding the game better ranges from the social status, overt intellectual satisfaction, to the purely intrinsic value of the activity. Following Karlsen, this reveals a scale from community oriented motivation in the former, to a very intrinsic motivation in the latter. Rather peripherally, Karlsen also mentions a few of the

theorycrafters methods, such as hitting training dummies, or fighting with ‘real’ opponents or monsters [17, p. 9]. One observation that will be important for us later is the comparison of the theorycraft community to academia [17, p. 6], pointing out similarities such as referencing earlier works to place their own results in context, as well as relating to respected theorycrafters, and to continue their work.

The motivations for theorycrafting are also discussed in Paul’s [18] work on how theorycrafting may alter gameplay and even the design of the game itself. Similar to Karlsen, Paul understands theorycrafting as “a strategy designed around the mathematical analysis of WoW [World of Warcraft, Blizzard Entertainment, 2004], [theorycraft] is a discursive construct predicated on advising players how to optimally ‘play’ WoW, suggesting what equipment to wear, what talents to choose, and an order in which to cast spells” [18, emphasis theirs]. Different from Karlsen, Paul sees theorycraft not only as the *process* of mathematically analyzing the game, but states that “[t]heorycrafting is as much a practice as it is a discrete thing” [18]. This is an important observation, which may be equally applied to many notions of metagame, particularly as ‘metagame’ and ‘metagaming’ tend to be conflated in a similar way as ‘theorycraft’ and ‘theorycrafting’. This should not be reduced to a merely linguistic problem of nouns and verbs, but points toward an underlying, conceptual problem, which will further be explored in section 3.1.

Equally transferable to the notion of metagame is the observation that “[t]he dynamism of WoW also means that neither the game nor theorycraft are ever fixed, final products” [18]. The argument here is that due to the contextual dependency of theorycraft (see [24]) and the ever-changing nature of WoW, meaning its frequent patches and addons, theorycraft, as well, will never arrive at a point where the crafters find the perfect solution. Even without changes to the game, theorycraft can and will change over time, driven by the constant struggle for new strategies that have the capacity to outplay the old ones. Whether seen as a practice or theory, the same dynamism exists in most metagame evolving games, especially in eSports.

The game *Starcraft: Brood War* [Blizzard Entertainment 1998], for example, was a popular eSport title for over ten years. Even after such a long time, strategies were still shifting, as counterstrategies were developed and countered¹. One could even hypothesize that it is this dynamism that makes such games so popular. If, for the moment, we accept the connectedness of theorycraft and metagames, another factor for the shifts in theorycrafting are local metagames [13, p. 3] (and therefore theorycrafts). These are metagames that evolve within specific geographical or social domains. Commonly known are, for example, the differences between the Asian metagames and their North American or European counterparts. Similarly, we might distinguish between high level metagames and casual

¹ This was partly due to the still ongoing, even though rare, releases of patches from the developers throughout the years. However, to this date, this is likely the most long-lasting example of a game’s constantly shifting metagame.

metagames. These local metagames potentially influence each other, as players seek advantages in their strategies that are beyond their own domain.

To return to theorycrafting, interestingly, Paul also describes it as at the core of “[...] *WoW* metagaming, the game outside the game” [18]. Paul considers theorycrafting neither equivalent to, nor completely distinct from metagaming, but as residing within its core, or in other words, as a component of it. This is a statement about the ontology of metagames and theorycraft, which we will examine further in section 3.

Following the descriptions presented here, as well as Karlsen’s direct comparison of the theorycrafter’s community with academia, it becomes clear why Wenz describes theorycrafting as “the scientification of gameplay” [24].

Wenz takes the comparison of scientification and theorycraft one step further by distinguishing between certain phases and phenomena within theorycraft. More specifically, she links these to Aristotle’s *episteme*, *techné*, and *phronesis*. Following her, the ‘episteme theorycraft’ is the developed theory. The abstract object or set of rules, which has been developed through rigorous, scientific-like procedures. The episteme aims for the description of the games’s rules in mathematical equations [24, p. 183]. She links this process, the reverse engineering of the game, to the *techné*. The hitting of training dummies and gathering of data is part of this process of reverse engineering. Thinking of theorycraft as a three-step process, and having covered the gathering of data and the formulation of theories, what remains is the implementation of these theories into praxis. Wenz describes the *phronesis* as enabling us to discuss “[...] the effect that theorycraft has on the community” [24]. Wenz’s observations and the distinction of the three phases of theorycraft will be important in the discussion of the terms metagame, metagamind, theorycraft, and theorycrafting in section 3.1.

What all these authors describe as well, is the effect that theorycraft has on play. Theorycraft tells players the best (current) way to play the game. Transgressing these ‘suggestions’ can have consequences on a players’ chances of playing in high level guilds or may result in official complaints by other players [13, p.12], as well as verbal harassment.

2.4 Strategies as Metagames

One of the most commonly employed notions of metagames points toward the development of specific, “higher strategies” [8]. According to the authors, these strategies rely on knowledge from outside the game. They describe three versions of this metagame, following an entry on Liquipedia²: (1) preparation prior to a game, concerning current trends in the game, (2) preparation for a specific map or opponent and (3) exploiting another player’s specific mental state, such as playing ‘mind games’. These notions should sound familiar, as (1) and (2) are directly comparable to Garfield’s “What a player brings to the game”, and the third notion is also subsumed by his “What happens during a game other than the game itself” [14].

Generally, we may consider two different types of strategies that are considered metagames through the description of Carter et al.. The first is concerned with the preparation for a specific opponent. This practice was also described by Taylor in regard to professional players who attempt to gain advantages by studying their opponents very well [23, p. 96], ending up in a game of ‘I think, she thinks that I think... and therefore I do exactly that’. The second kind of strategy is connected to the game itself; aiming at the preparation of how the community currently plays the game.

This latter metagame, as indicative of ‘how one plays the game’, is also present in Donaldson’s [13] study of the relationship of metagame- and mechanics-expertise in *League of Legends* [Riot Games 2009]. He observes a binary between the physical motor skill required to execute commands quickly, and the cognitive skill and knowledge of strategies (the metagame), to be able to compete at a high level. He describes the Reddit board *League of Legends Meta*³ as a platform on which players discuss what items to buy and which skills to take for the champions available in the game [13, p.12]. This discussion about how to play best is, again, closely connected to the already discussed practice of theorycrafting.

In a different study on the use of propaganda in *EVE Online*, Carter describes that control over propaganda as paratext “[...] had become a dimension in EVE’s strategic metagame” [10, p.320]. Here metagame does not refer to the preparation of how to play the game, or even your opponent, but rather on the very real strategy of demoralizing your opponent. The reason for the consideration of this as metagame should by now be obvious: The propaganda occurs outside the game, but is directly related to the events within the game. It is simultaneously the game outside the game and a strategy inside the game. However, ontologically speaking, this type of ‘strategic metagame’ is clearly distinct from the strategies that are evolved by the community and ‘suggest’ how to play the game. This difference will become clearer in section 3.

In this chapter, a multitude of research objects and phenomena have been described, which are all referred to as ‘metagame’, or related terms. Consequently, we can see that both terms, metagame and theorycrafting, are highly conflated. Both describe a practice, as well as an abstract entity. Both refer to acts within the game, as well as outside the game. Therefore, the ontology of metagames will be discussed in more detail in the next chapter. What is a metagame? What different types are there? How does ‘metagame’ relate to ‘metagaming’ and ‘theorycraft’? These questions will be answered to arrive at a clearer terminology for future research endeavors.

3 METAGAME ONTOLOGY

Through the literature review, five different classes of metagames (aside from the excluded self-reflexive games) have been identified: The material metagame, added metagame, social metagame, strategy metagame, and rule metagame.

² http://wiki.teamliquid.net/starcraft2/Main_Page

³ <https://www.reddit.com/r/LeagueofLegendsMeta/>

The *material metagame* was derived from Richard Garfield's observation that his four types of metagames can relate to material things, such as rackets, and immaterial knowledge or social actions. The material metagame refers to the choice of equipment, and also in the broader sense. Carter et al. [9], for example, described the practice of drafting an army before a match of *Warhammer 40,000* [Games Workshop & Citadel 1987], which is part of the material metagame. It also includes choice of mouse and keyboard for pro-gamers, as well as the choice of specific software. Therefore, this also includes the selection of a specific addon in favor of another one, for example in a raid in *World of Warcraft*. Of course, the addition of software to a game as a material change may be argued. However, such an addition has a potentially larger impact on the act of playing than material equipment in a 'real life sport'. In fact, adding these third party softwares to the game might modify it from a three-dimensional environment to a rather two-dimensional point and click game, as the example of WoW raids, and the role of a healer shows. Rather than identifying the raid members that require healing, this tedious task was replaced by a convenient interface, which shows all members as colored bars (see [22]). The healer's role has been reduced to clicking on the bars that are not completely filled. Further, it is possible to bind specific healing spells to mouse buttons. By this time the played game has completely changed through the addition of software.

The *added metagame* refers to additional content that was added to the original (or ortho-) game. This subsumes the addition of league structures, as is popular in eSports, as well as additional content, such as highscores and achievements, added to single player games (e.g., [8]). While some of these might also be considered frames in *social metagames* (see below), they are different, as the added content sets specific, competitive structures and goals, while the social frames are merely themes within which a game is played 'as usual'.

The *social metagame* refers to any act, process or (abstract) object that is closely related to the game, but is of a general social nature. In this way, networking may be understood as a social metagame. While being an important aspect of academia, networking is also part of many Massively Multiplayer Online Games (such as *Eve Online* or *WoW*). Particularly at the higher levels of these MMOGs, players are highly dependent on a social network, if they wish to experience the end content of the game. In *WoW* it is only possible to fight the strongest bosses in raids that are well organized. A good social network assists with the identification of guilds that are capable of this, or to switch guilds. In *EVE Online* players are similarly dependent on contacts to join alliances that pursue similar goals. Also, part of the social metagame is the formation of collaborations between alliances. Thus, the wars in *EVE Online* can be reduced to tensions in the social metagame of *EVE*. A different social metagame is the drinking aspect of drinking games, as described by Sotamaa and Stenros [20]. If we accept that drinking games are framed by social gatherings that include drinking, and are not constituted by the drinking itself, these types of frames may be considered social metagames as well. Similarly, an adult version of *Spin the Bottle*, could be framed by a sexual social metagame. If the meta-

communities that Taylor describes [23] fall within one of the above purposes, we might consider them as metagames as well. However, if they are (as she primarily describes) communities that form to discuss and develop strategies for the game, they are not metagames themselves, but merely communities, which develop the *rule* or *strategy metagame*.

The term *strategy metagame* was derived from Carter's description of propaganda as part of *EVE*'s "strategic metagame" [10, p.320]. The propaganda used in the wars of *EVE* is a practice outside of the game that attempts to affect real life conditions, such as the morale of opposing players. Therefore, the strategy metagame exploits or affects real life states or conditions to influence in-game events. This also refers to practices, such as trash talking, which Salen and Zimmermann described as "What happens during the game other than the game itself" [14, as cited in 19, p. 482]. Another example, which is not aimed at the demoralization of opponents, is the timing of attacks when the victim is potentially offline, due to different time zones or real-life habits (such as working during the day or sleeping at night). *Ogame* [Gameforge AG 1999] is a science fiction browser game. Players settle on planets and build fleets of space ships to attack other players and plunder their resources. The game servers are always running (except during maintenance). The time it takes for a fleet to arrive at a hostile planet is contingent on the distance of the start and end systems, as well as the speed of the ships. As it typically requires several hours to attain a profitable target, it became common practice to attack during the night, as the victim is likely to be offline. If the player has knowledge about the opponent's geographical location, this timing can also be adjusted to different time zones.

Suits [21] already touched upon what will here be called the *rule metagame*. He describes three different layers of rules that are identified by the consequences of breaking them. Breaking the constitutive rules means that the player failed at playing the game, or was simply playing a different game. Breaking other rules will lead to a penalty. The third kind; the rules of skill, are closely related to the *rule metagame*. Breaking these rules only mean that the player is poor at playing the game. In a similar, yet different, examination of game rules, Autenrieth et al. [6] arrived at a threefold distinction of rules: deontic, prescriptive, and constitutional rules. For the understanding of the rule metagame the prescriptive rules are of interest. These are rules that tell the players what is considered to be 'a good move' and can be further subdivided into prescriptive rules with absolute applicability, or relative applicability [6], meaning that the latter are only applicable in certain contexts. Thus, rule metagames consist of rules that tell players what to do in a given situation, and how to play better (see [13, 18, 23, 24]). The preparation of specific maps, as described by Salen and Zimmermann [19] and Carter et al. [8], also fall within this category, as they are concerned with aspects of the (ortho-) game itself. This is the difference from strategy metagames, such as preparing for a specific player, which aims at the real-life state and playstyle of the player. Hence, the rule metagame evolves out of the game's original ruleset, while the strategy metagame emerges from real life circumstances.

After demarcating the different usages of ‘metagame’ in the scientific discourse, the next chapter will discuss the specific relationship of the rule metagame to metagaming, theorycraft, and theorycrafting. This exemplary discussion was selected due to its indicated close relationship between developed theories (here rule metagames) and the development process (here theorycrafting) as described by Wenz [24], Paul [18] and Karlsen [17]. It might be possible to transfer the following discussion to other metagames as well. However, as this paper’s focus is the rule metagame, the discussion will be limited to its ontology; hence, the consideration of possible applications to other metagames will be left for future investigations.

3.1 Rule Metagames and Theorycraft

The distinction between *endurants* and *perdurants* [15] is a crucial first step in the discussion of a phenomenon’s ontological status. Briefly described, endurants “are necessarily wholly present in each time interval at which they exist” [15] and perdurants are “necessarily *not* wholly present in each time interval at which they exist” [15, their emphasis]. In other words, one can examine endurants completely at one point in time, whereas perdurants may only be observed over a temporal span. In game studies this distinction is present in the discussion, whether games are artifacts, or processes [1 - 3].

According to the review of metagame and theorycraft literature we can, and should, make the same distinction for the present terms. It is suggested here that theorycraft and metagame should not be understood in the same way. Wenz’s [24] approach of distinguishing between three distinct aspects of theorycrafting is a critical first step. However, an analytical distinction between ‘theorycraft’ and ‘metagame’ is proposed in a way that metagame is the theory, or body of knowledge that is being developed through theorycrafting: Aristotles *episteme* [5, as cited in 24]. Further, we need to establish the term theorycraft as an endurant, not a perdurant (for which we have the term theorycrafting). Theorycraft is a method. To date, the commonly accepted method in theorycraft literature may be described as ‘reverse engineering the game and representing it through mathematical models’ [24]. However, future analyses and the development of the theorycrafting community will reveal other methods – or theorycrafts – just as one can already argue that the theoretical discussion of strategies in the meta-communities, reported by Taylor [23], is a separate method.

These distinctions become clearer if we compare them to the process of research, as was done by Karlsen [17], and more explicitly, Wenz [24]. Theorycrafters use a certain method (theorycraft) to produce results. Deriving from Wenz’s comparison with Aristotles categories, theorycraft may be considered the *techne* [5, as cited in 24]. This method, at the current state of research, can be the reverse engineering of the game by either mathematical analysis, or theoretical discussion. Theorycrafting, then, is the practical application of these methods: Is the player gathering the data by hitting a dummy or another player? How do the theoretical discussions take place? Is there any kind of censorship? Is the discourse of the community and, for example, casters different? These are questions that

refer to the actual application of a method, rather than the method itself. A question regarding the theoretical discussion of strategies in fora could be: Can we actually arrive at an accurate representation of the game without interacting with the game itself?

Through these methods, the community develops a body of knowledge, which suggest the best way to behave generally, or in specific situations within the game: the rule metagame. Using Wenz’s comparison once again, this body of knowledge is the episteme, which is an endurant. Theoretically these rule metagames exist as complete (even though abstract) entities at a given point in time and space. Practically, though, the research of these entities bears complications, which will be discussed in the following section.

The term metagaming is close, but not equal, to what Wenz described as the *phronesis* [5, as cited in 24]. Metagaming is the practical implication of the metagame into play. There are generally two different types of metagaming. One is the application of strategies to one’s own playstyle, such as different tactics for specific maps. The other is manifested in the development of tools, such as addons and other software, to improve play, as discussed in the frame of power gaming by Taylor [23]. In other words, the former is an alteration of playstyle, while the latter concerns tools and equipment for play. Depending on the game and situation, the latter might be prohibited due to unfair advantages. However, particularly in *WoW*, the development of such in-game guides and addons is actually encouraged and sometimes even adopted by the game designers themselves (see [18]).

Subsequent to suggesting a clearer terminology in metagame (and theorycraft) research, we finally arrived at the discussion of rule metagame ontology and its implications for researchers.

3.2 Rule Metagame Ontology and its Implications for Methodology

In this section, the ontology of rule metagames’ will be discussed. At first, their similarities and differences to games will be examined through the application of Aarseth and Calleja’s cybermedia model [4] to the process of drafting in *Heroes of the Storm* [Blizzard Entertainment 2015]. Following this, a brief overview of various types of rule metagames will be presented. These discussions will be accompanied by a reflection on their implications for future research endeavors into the field of rule metagames.

To date, the comparison of rule metagames and games has been missing in metagame research. Their possible similarity is not only indicated by the word ‘game’, but also by the fact that players refer to certain practices as ‘playing the metagame’. Aside from the meaning of ‘playing around with, or against the current rule metagame’, the practice of picking heroes in *Heroes of the Storm* could be considered playing a game. Picking occurs in a specific order, with one team starting to ban a certain hero (excluding it from being picked). Following this there are turns of picks and bans. This system, combined with the suggestions of the metagame, result in a game-like situation of picks and

counterpicks, as both teams are pursuing the goal of picking a (according to the current rule metagame) superior team.

In 2015 Aarseth and Calleja developed a model able to describe what a game is: the cybermedia model. Pointing toward the indefinability of games, this model merely aims to describe game artifacts and their different dimensions (also including other objects). The authors state that games are the player's perspective on a cybermedia object, which consist of a materiality, a sign system, and a mechanical system [4]. Using this descriptive model to examine the ontology of rule metagames, a number of observations can be made.

The dimension of a rule metagame's sign system is primarily covered by text, as rule metagames are visible through online discussions. A more precarious question is how the rule metagame's sign system relates to the game's own sign system, for example, the graphics of a videogame. If we observe players playing *League of Legends*, can the game's graphics be the sign system for *LoL* and its metagame at the same time? Must we interpret the players' in-game behavior as the metagame's sign system? However, the existence of textual representations in the form of discussions is enough to fulfill this dimension of the cybermedia model.

Opposed to a sign system for rule metagames, the existence of a materiality must be negated. As hinted at by, for example, Paul's observation concerning theorycraft [18] and Wenz's comparison of theorycraft with the *episteme*, rule metagames are abstract entities. They are generated by the community through testing and discussions, and are rather a set of unspoken rules than manifest objects. The closest approximation to 'the actual rule metagame' a researcher can achieve comprise the written discussions in online fora, as well as recordings of streams within which the metagame is being discussed. As was discussed earlier, these are the rule metagame's sign system, not its materiality. Rule metagame's are endurants without materiality. Therefore, we can only make claims about rule metagames through their sign system, as a direct examination is impossible. This approach comes with two methodological problems.

As stated several times in the literature, metagames are constantly changing [13, 18, 24]. This is true for metagames as conflated terms and concepts, as well as for rule metagames specifically. Therefore, it is mandatory for rule metagame case studies to always explicitly state what timeframe and geographical location the research covers. Even with this limiting statement, it is questionable whether the gathered data covers the 'actual current rule metagame', or only a limited fraction of it. As metagames are abstract sets of rules without materiality, it is impossible for researchers to make claims about *the* rule metagame of a given game. Gathering data from professional players, casters, and fora is only a representation of the metagame as developed by the elite. This would neglect the existence of different rule metagames for less skillful players.

Seemingly, one way to examine the rule metagame is to use community databases, which gather data on players' in-game activities. These databases, such as *hotslogs.com* or *gg.op*, are especially popular in Multiplayer Online Battle Arenas (MOBAs), such as *Heroes of the Storm* or *League of Legends*. The players

connect their game account with the account on the website, which then begins to gather the data from played matches. The data includes choices of heroes and weapons, as well as skills selected during the matches, win-loss ratios, how often a hero was picked, and much more. This enables us to not only see a specific player's statistics, but also an overall picture of what heroes are played in what combinations, and their respective win percentage. Indeed, we can understand this data as a snapshot of the metagame, displaying how heroes are played and with which combination a given team has a good chance of winning. However, as tempting as this possibly available data is, these websites are in fact *perpetuating rule metagames*. The players who use the website are creating the data concurrently with their being influenced by it. If a hero has a good win percentage in one iteration of the data, it is likely to be played more in the next iteration. Due to an already above-average win percentage, it will rise even further. The high popularity and win percentage in this theoretical case might not be related to the actual strength of the hero, but the community's hype of it. This spiral could potentially perpetuate until it is noticed and stopped by the developers through a patch. This thought experiment reveals that a shift in the data might not be due to the discussions and tests of theorycrafters, but potentially self-inflicted and contingent. Still, one can argue even if this situation was a perpetuated rule metagame, the data is still a correct representation of it. The problem here is that professional players will not follow such hype, but will rely on the results of (their own) theorycrafting results. At this point we return to the question of differences between professional and lower level rule metagames.

To return to an examination of rule metagames through Aarseth and Calleja's model, the last dimension – a mechanical system – is not present in rule metagames. There are rules in rule metagames, but these rules are not equivalent to rules of games and do not generate a mechanical system. Transgressing a metagame rule does not elicit a penalty or any other automatic, reaction, or state of change. Similarly, acting according to the rule metagame never triggers an automatic reaction. Thus, the only 'mechanic' in this example would be picking a hero. This, however, has no "processual consequences" [4], other than a hero being picked. The rule metagame merely consists of guidelines, which can only be enforced by the community through social restrictions (and verbal harassment), as discussed earlier. The rules of *Chess*, for example, clearly state what movement options the figures have, when a figure has to be removed from the field, and when the game ends. These rules are enforced by the system in the case of videogames (see [13]). Any such system is missing in the case of rule metagames.

Due to the absence of a mechanical system, and the question of materiality, rule metagames should not be considered games. The reason that the initial example of picking heroes in *Heroes of the Storm* resembled playing a game relies on the fact that the game substitutes the missing dimensions with its own materiality and the mechanical system during the picking phase.

It must be stated that it is not impossible to investigate rule metagames as abstract rules, theories, and bodies of knowledge –

this is what epistemology has been concerned with for thousands of years after all – but the present discussion illustrates the complications that will arise during the examination of rule metagames. Due to their ontology, researchers need to proceed with careful scientific rigor when approaching rule metagames.

After clarifying rule metagames status as ‘not games’, we arrived at a different ontological question: Are there distinct kinds of rule metagames? The quick and easy answer to this question is yes. However, a detailed analysis of distinct rule metagame categories exceeds the scope of this paper and should, in fact, be a topic of future study. Hence only a brief outlook over four rule metagame categories will be presented in the next paragraphs: Build Orders, Positioning, Picking, and Moves.

The first category of rule metagame is *Build Orders*. In *Starcraft*, as well as many other strategy games, an important component of the rule metagame consists of these build orders. They describe what buildings and units to build, in which order, in the early game. Build orders also narrow down the possible late game strategies that players are pursuing, and are therefore an important target of scouting. If a player discovers a specific build order in their opponent’s base, they can react in a ‘rock, scissor, paper’ manner by adjusting their own build order. The category *Build Orders* also includes the order of items bought for a character in MOBAs, such as *League of Legends* or *Dota 2* [Valve Corporation 2013]. In these games the player chooses a character (or hero, or champion) and specializes them during the game by buying different items, such as trinkets, armor, and weapons. Different team setups, as well as opponents, require different build orders. Ultimately, we can describe *Build Orders* as suggested temporal orders of in-game acquisitions.

The rule metagame *Positioning* refers to the position of groups or individuals in the game world. In *Counter Strike* [Valve 2000], for example, the defending counter-terrorist team has to decide how many players they want to distribute to one of the two bomb spots on the map. The differences in races of *Starcraft* affords *Protoss* players to look for narrow battlegrounds, in which only a few units may attack their typically stacked up, army at once. In contrast, a *Zerg* army would look for a very open battleground, as the race is built around swarm tactics and quantity of units. Similarly, the choice of expansions – additional bases for mining purposes – in *Starcraft* are also subject of the positioning metagame. While these examples refer to macro positioning of groups and distribution of armies and bases, individual positioning can also be understood as a portion of the rule metagame. This includes, for example, specific locations for *where* to stand, sit, or hide on bomb spots in *Counter Strike* at a micro level.

The earlier described practice of drafting in *Heroes of the Storm* will be subsumed under the category *Picking*. As discussed, the picking rule metagame consists of picks and counter picks and commonly occurs in preparation, prior to onset of the game. Picking may also be important for fighting games, such as *Super Smash Bros. Melee* [HAL Laboratory 2001] or strategy games, such as *Warcraft 3* [Blizzard Entertainment 2003]. If a player can play two races in *Warcraft* at an equally

high level, it is possible for them to select a slightly favorable race contingent on their opponent’s choice, due to an imperfectly balanced game design. This, however, was the exception, as it was more beneficial for players to be very proficient in one race, and to learn how to play with and against the disadvantage of their race. Picking is closely related to what was earlier called material metagame, as material metagaming refers to the choice of equipment (as well as software) to play the game better. To understand their difference, the problematic term of orthogame [8] is useful: The material metagame concerns aspects that are not part of the orthogame, while the picking rule metagame evolves out of the orthogames rules, and is executed within it.

Moves refer to prescriptive rules that tell players what kind of action to take in a specific situation. A move can, for example, be the switch to a different build order after learning about your opponent’s build order. In a hypothetical *Heroes of the Storm* draft, one team has drafted *Illidan*, and is yet missing a healer. As *Illidan* deals high damage over time, but has relatively low health and defense abilities, a good move for the opposing team would now be to ban a strong single-target healer, such as *Lt. Morales*⁴. This example already shows that Moves refer to actions, whereas build orders, positioning, and picking are prescriptive rules at a more general level. Hence, Moves are subordinate to the other rule metagames, and refer only to specific constellations within them.

Even through this preliminary categorization, we may observe that types of rule metagames are highly dependent on the specific game. Due to the rule metagame’s nature as prescriptive rules, which evolve out of the orthogame rules, it appears trivial to notice that different orthogames evolve variable rule metagames. However, while it is possible to imagine a shooter in which a build order (of, for example, skills or talents) is important, build orders are typically to be found in strategy games. Similarly, positioning plays an arguably higher role in shooters than in strategy games. This does not mean that one type of rule metagame is generally excluded from a certain type of game, but the discussion has shown that certain connections can be made more strongly than others. It must also be stated that one game’s rule metagame is not transferable to another game. It would, however, be interesting to examine to what extent rule metagames might be applicable across similar games (for example MOBAs).

The preliminary distinction between types of rule metagames may be useful for future research on rule metagames. It enables researchers to clearly describe and locate their subject of interest, as well as to demarcate it from others. Similarly, to the necessity of specifying time frame and location of the analyzed metagames, it is equally important to be aware of the type of rule metagame that is analyzed. Considering the loose connections of types of rule metagames to game genres, an investigation of picking should, for example, focus on multiplayer online battle arenas, while disregarding shooters.

⁴ This example is based on mid-level rule metagame knowledge in early 2016.

Here, the preliminary classification serves as a tool for selection during the research design process.

4 CONCLUSIONS

This paper has delivered a review of scholarly notions for metagames, complementing an extensive review of emic uses by Carter et al. [8]. The identified notions are as conflated as they are related. However, through this review it was possible to infuse some clarity into this confusion. Five categories of the term ‘metagame’ were proposed, which serve as a basis for future investigations and additions. The category of social metagames, for example, has already revealed that a further subcategorization into frames and practices, such as networking, might be beneficial. Further, this paper has discussed the differences between metagames, metagaming, theorycraft, and theorycrafting, by drawing from philosophical ontology and former research in the field. This resulted in the division of objects and processes, or rather theories (metagame), methods (theorycraft) and their practical applications (metagaming and theorycrafting) to equip scholars with a more distinct and clear terminology when examining these phenomena in the future. This terminology enabled the discussion of one specific metagame, the rule metagame, its ontology and implications for the methodology of future studies. The analysis of rule metagames’ ontology with the cybermedia model [4] has shown that rule metagames are not, in fact, games. While this observation is trivial at first glance, the analysis has shed light on interesting and critical questions that researchers must consider when dealing with these phenomena.

The developed rule metagame ontology is useful in academia and industry alike. Considering the complications that arise from it, researchers can employ it during the research design process. Here, it clarifies what the intended object of study is and in the future, might possibly be able to identify games that are suitable for specific analyses as possible rule metagames – game relationships have been identified. For game designers, this paper delivers an overview, as well as a clarification of concepts. Such clarity is equally necessary in the aforementioned research design process and for the development of games.

However, this study comprises only an initial step toward a thorough theory of rule metagames. Future studies might focus on the developed classification. It has already been shown that certain categories can be further subdivided, and the possibility of additional categories of metagames in general, is likely, particularly due to the rapid development of metagame communities. However, of greater importance is the more thorough theorization of rule metagames. The present application of the cybermedia model has shown that rule metagames differ from games. Due to the indicated close relation to epistemology, it appears very fruitful to investigate rule metagames from an epistemological perspective. Further, the present discussion of methodological problems raised more questions than it contributed to the resolution of problems. To ensure the rigor of scientific procedures that were mentioned earlier in the paper, a more thorough examination of

methodological problems due to metagame ontology will be required.

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