

# **The value of calculations: The co-production of theorycraft and player practices**

## **Abstract:**

This paper investigates the use and effect of optimising strategies in the online game World of Warcraft. Specifically, it looks at the phenomenon known as ‘theorycrafting’, wherein expert players reverse engineer the game and uses its underlying algorithms to calculate maximized play strategies. Play from a theorycrafting perspective is about the correct input and output of numbers, challenging the narrative of play as something free and frivolous. Seeking to understand how play and knowledge relate to each other, the paper discusses how theorycrafting’s seemingly abstract, objective and neutral information about the game is also embedded with values, ideas and norms. Based on a one-year ethnographic study, the paper uses Jasanoff’s idiom of co-production to discuss how abstract calculations are rendered meaningful and valuable by players, and the consequences of this in stabilising particular ways of playing World of Warcraft.

## **Keywords:**

Instrumental play, online games, co-production, player practices, theorycrafting

How do you know what to do in a game, and what information do you use to assess and improve game playing? For many *World of Warcraft* (WoW) players, the answers to these questions would include a reference to ‘theorycrafting’ – the science-like way in which dedicated players make sense of and consequently guide play. It instructs players on how to customize their avatar, what abilities to use and what strategy of play gives the best outcomes. Theorycrafting is defined as ‘the attempt to mathematically analyse game mechanics in order to gain a better understanding of the inner workings of the game’, and represents a type of meta game where a deeper understanding of the game world’s intricacies is both a goal in itself and a path to more effective player strategies (Karlsen, 2011).<sup>1</sup> The information is presented in comprehensive text posts filled with calculations, that are free of any interactive elements. According to theorycrafting, play is something goal-orientated, calculated and measurable, and this perception is spreading. The wide uptake and use of theorycrafting has shifted the player norms in WoW towards more standardized play with an emphasis on performance rather than experience (Paul, 2011). However, questions remain as to how this shift has happened, and how the relationship between knowing and playing is configured.

Based on a one-year ethnographic study of player culture in the online game *World of Warcraft*, the paper analyses the enactment of theorycrafting. To discuss this, I employ Jasanoff’s (2004a) idiom of co-production that emphasises the mutual shaping of knowledge and society. Co-production posits that knowledge is never neutral or without values, and ‘are not content simply to ask what *is*; they [co-production studies] seek to understand how particular states of knowledge are arrived at and held in place, or abandoned.’ (Jasanoff, 2004b, p. 19). With this theoretical framework the analysis will focus on the sociomaterial practices that has rendered theorycrafting into workable knowledge (information that is useful and worthwhile), and what values are embedded into it to keep it stable – if it is held in place at all. My research question is thus threefold; how is theorycrafted information given value,

through what processes does abstract calculations like theorycrafting translate into meaningful play, and with what effects?

The game chosen for this study is the Massive Multiplayer Online Roleplaying Game (MMORPG) *World of Warcraft* (Blizzard, 2004). Like other games in the genre it has a design that caters to a wide range of playstyles; from exploration in an epic world of dragons and mages, to testing one's skills in hectic arena fights against other players (for detailed accounts on WoW see eg. (Corneliussen & Rettberg, 2008; Nardi, 2010)). The gameplay in WoW still built around two main features; a) mastery of the avatar by completing quests and killing monsters, and b) cooperation between players as many tasks rely on players banding together. The form of play analysed in this paper is known as raiding, and it is a highly complex, challenging and social activity performed in large groups (10 or 25 players).. Raiding is about defeating the most formidable monsters the game has to offer in exchange for epic and powerful treasure. Combat often consists of several phases, each with its unique challenges, like the floor turning to lava or a swarm of minions appearing out of thin air. Players have to devise and execute complex collective strategies to counter the monsters' abilities and ensure success. In addition, each player has an individual responsibility to, for example, heal harmful magic or slow down an enemy, depending on their class and role in the group.<sup>2</sup>

Because successful raiding is dependent on group effort, raiding usually involves membership in a guild. A guild is a player organisation which organizes play sessions, makes rules about behaviour and policies about the quality of performance. Consequently, individual play styles and experiences are highly configured by the guild they belong to (Williams et al., 2006). Guilds are an important site for the transformation of theorycrafting into practice, and the analysis will be focused on how a guild in *World of Warcraft* appropriate and configure theorycrafted information as part of their communal play style. However, to understand the

effects of theorycrafting we first need to address its appeal. Why would anyone involve an excel spreadsheet or page-long text post when playing WoW? To answer this we need to consider the concept of instrumental play.

### **Instrumental play: The pleasure of hard work and optimization**

While theorycrafting has reached new heights in later years, both in popularity and size, theorycrafting is not a new phenomenon or something that emerged with WoW. The origin of the term is debated, but is believed to have originated with the real-time strategy game *Starcraft* (Blizzard, 1998) following a long history of players optimising their efforts through statistical or computational analysis (Choontanom & Nardi, 2012). It is, among others, a common practice in chess to do preparation and post-game analysis with the help of advanced computer calculations and tools, and the way we understand chess today is intimately linked to the growth of computational power and chess software over the last decades (Ensmenger, 2011). Common for these approaches, be it in *Starcraft*, *WoW* or *Chess*, is a belief that statistical calculation and quantitative analysis provides the best answers on how to play. In other words, it may be understood as a form of instrumental play.

Instrumental play is a goal-orientated approach that values efficiency, expertise and optimising strategies as part of play. Crudely put, in instrumental play the point of the playing is not just to reach the end, but to find the *best* way of getting there (Taylor, 2006). Instrumental play may also be referred to as ‘min-maxing’, ‘power gaming’ or ‘hardcore gaming’. A central feature of this approach is a deep understanding the game system, which enables one to take advantage of inherent favourable combinations or configurations hidden in the game mechanics, as well as joy in doing so. Instrumental play has received much attention from game studies scholars (eg. Chen, 2012; Eklund & Johansson, 2013; Malone, 2009; Taylor, 2009) as it challenges romantic notions of play as something frivolous, light

and enjoyed for its own sake. This tension has also been noted by players who characterise the dedication of power gamers as ‘over the top’. Power gamers are often accused of having no social life outside the game, even for playing incorrectly, by taking the game too seriously. Empirical studies of instrumental power gamers have however shown how they tend to be integral social actors in player communities exactly because of their dedication. In a game where perseverance is a virtue, power gamers are understood as productive and skilled participants whose expertise is sought after and admired (Taylor, 2006). Furthermore, these studies show that a serious approach to play does not exclude fun. Instead enjoyment stem from achieving set goals, finding good strategies and gaining insight into the underlying structures of the game (Consalvo et al., 2010), and serves as a reminder of how games are sites for a wide range of engagements and types of enjoyment (Kallio, Mäyrä, & Kaipainen, 2011).

Instrumental play’s focus on performance partly explains the attractiveness of theorycrafting. Even for players who do not take an overly instrumental approach, the basic appeal remains: theorycrafting has proven to be highly effectiveness in instructing play, and improving the individual performance of a player (Paul, 2011). The impact of theorycrafting does however go beyond what buttons players choose to push, or what magical swords they wield -theorycrafting has changed what is considered the right way of playing. Theorycrafting have rendered quality of play into a question of measurable performance, moving away from “a dynamic role-playing world that is venture[d] through with friends” to “a series of math equations to be solved and lists of buttons to push” (Paul 2011, para. 40). By removing WoW’s multitudes of customization choices into pre-set configuration (referred to as “cookie cutter builds” by players), mathematics is positioned as the ultimate tool to understand play and consequently expand the role of meta-gaming.

The term meta-gaming refers to “a game about a game” taking place partly outside the game (Wenz, 201, p. 4), and a key feature of theorycrafting is indeed how a substantial amount is performed outside the game on dedicated forums and home-made spread sheets. Challenging the boundaries of game spaces, the application of such sources prompts new questions: How are these external sources brought into play? How may we understand the relationship between play and external sources?

### **Paratexts: Material actors informing play**

Digital games have always been surrounded by supplemental texts, tools and other artefacts, and theorycrafting is far from the only example. Consalvo (2007, p. 21) uses the term ‘paratexts’, defined as all ‘elements surrounding a text that help structure it and give it meaning’ to describe them. Some paratexts are commercial products that accompany game titles, while others are made by and for users. Digital games have, throughout history, been played in tandem with strategy guides, reviews, ‘mods’ (user-made software), ‘mod-chips’ (user-made hardware), cheat codes, game magazines and instruction books, as well as fan creations such as artwork, costumes, movies, cartoons and so forth. While paratexts comes in many shapes and forms, they do share a dominant theme: how to better understand and master the game, and how to play it ‘the right way’. This indicates that paratextual practices, like engagement with theorycrafting, are about something more than instrumental instruction on what abilities to use or what treasures to covet. Even in the early days of digital gaming, paratexts produced an image of the ‘ideal’ gamer that is concerned with optimisation and winning. The guides ‘frequently reminded [the player] that exploration, persistence and strategizing were essential to succeed in the given game’ (Consalvo, 2007, p. 28). In other words, paratexts has a history of prescribing ideals of instrumental play onto play, and their

use has consequences outside what high scores are reached – it is shaping how players understand play itself

World of Warcraft is an intriguing case for the study of paratexts because of its highly productive community with impressive levels of output. Dedicated sites host thousands of player made software modifications, a plethora of forums and blogs -including the world's second largest Wikipedia page with more than 100,000 articles.<sup>34</sup> This extensive production should be understood in relation to how the use of paratexts is framed by the WoW community. In many game communities, it is considered cheating if you go outside the game for answers to in-game challenges. WoW players, however, are encouraged to seek out guides and strategies on how to defeat monsters or solve quests, and it is those who refuse to do so who are considered unsportsmanlike. In other words, the use of theorycrafting in WoW is understood as putting in the 'proper effort', and those who do not are perceived as leeching off other people's hard work (Paul, 2011). Theorycrafting's science-like format presents itself like neutral information (Wenz, 2012), but this does not mean that 'facts' are the only thing communicated through the theorycrafted paratexts. To understand this process, the paper draws on the idiom of co-production.

## The Idiom of Co-Production

With the concept of 'co-production', Jasanoff (2004b) provided a framework for understanding how knowledge and society are mutually shaped. Jasanoff's main argument was that 'we gain explanatory power by thinking of natural and social orders as being produced together' (Jasanoff, 2004a, p. 2). The co-production idiom focuses on meaning, discourse and text in the creation and diffusion of knowledge. Instead of separating the domains of nature, fact, objectivity, reason and policy from the hierarchies and norms in which they work, the co-production approach highlights the messy and untidy process of

imbuing values and culture in knowledge. There is no such thing as information without ideology or knowledge without practice. Jasanoff's co-production approach specifies four so-called ordering devices through which these processes can be investigated: the making of identities, institutions, discourses and representations. They do not represent a linear process, but rather suggestions of dimensions where the culture, materiality and knowledge intersect. A key interest lies in the relationship between emergence and stabilization, more specifically in the ways information is ordered to make it usable (or in some cases favourable), and the effort of keeping that configuration in place (Jasanoff, 2004b).

Even though the type of knowledge studied in this paper is not scientific, theorycrafting, much like science, takes on the guise of being neutral, objective and true. However, neither neutrality, objectivity or truth are inherent qualities of information, they are the result of knowledge production and –management processes where knowledge is embedded with culture. Analysing the enactment of theorycrafting through the lens of co-production is first and foremost a way to challenge theorycrafting as a seemingly rational and objective knowledge, and to avoid a priori distinctions between information, values, ideals, matter and practice. Secondly, co-production is also concerned with how culture and society is shaped by knowledge and by knowledge practices. In other words, co-production directs the analysis towards questions of hybridity, mutual shaping and configuration.

Finally, the application of co-production in the study of theorycrafting may also be understood as a way to investigate cognitive dimensions of technology appropriation. Domestication theory dictates that successful use is reliant on a 'taming' of technology across three dimensions; practical, symbolic and cognitive (Lie & Sørensen, 1996; Sørensen, Aune, & Hatling, 2000). In other words, learning is a prerequisite for technology use, and games are no exception. In fact, research has shown that good games are designed in line with key pedagogical principles, and that by studying games and players researchers might gain new



insights into learning itself (Gee, 2007). Studies have shown how players develop or enhance new sets of skills through play; from problem solving (Squire, 2005) and scientific habits of mind (Steinkuehler & Duncan, 2008) to digital and information literacy (Martin & Steinkuehler, 2010). However, by focusing on the relationship between play and knowledge as either content (if X has been learned), skill (what has been learned) or cultural (how culture promotes learning), the work required to create, disseminate and use game-related expertise may be rendered invisible. Thus the theoretical contribution of co-production lies in an understanding of knowledge as a form of enactment, with a focus on the work involved in producing, configuring and using knowledge – moving beyond linear models of knowledge transfer and towards a processual one.

Drawing on the co-production idiom and the abovementioned ordering devices the analysis will highlight the work involved in making sense of theorycrafting and rendering it useable, but before that some quick notes on methodology and context.

### **Method: Ethnographic Play**

This paper is based on a one-year ethnographic study of a WoW guild during 2009. The guild, anonymised here as “The Gummy Wolves” consisted of 45-50 players with a questionable sense of humour and delusions of grandeur. I was one of two women players in a guild that was largely made up by white men in their 20s from Northern Europe. The guild was formed by a small group of friends during launch of WoW, and after years of inactivity was revived with the expansion Wrath of the Lich King that was released in December 2008, a few months before I joined. The guild met up for regular play sessions 4 times per week, and performed moderately well as one of the top 30 guilds on our server. The guild’s culture was highly influenced by the members’ affiliations with other online communities like 4chan (Stryker, 2011), and the guild sported the same reverence for political incorrectness and remix

humour. The “Gummy Wolves” guild promoted a balance between a competitive approach to gaming and respect for offline obligations like work, study or family. However, like many other WoW players and communities, the guild had frequent disagreements about how to balance friendship with progress as finding a lasting middle ground between “competitive” and “inclusive” was challenging (Eklund & Author, 2013).

Choosing participatory observation as method, I am joining a long tradition of virtual ethnography in game worlds (for general accounts on ethnography (Wolcott, 2008); virtual ethnography, see (Boellstorff, 2008); game ethnography, see (Nardi, 2010; Taylor, 2006)). During my ethnography, I spent anywhere between 20-60 hours per week playing, plus at least 3-4 hours per week on websites dedicated to theorycrafting and other forums and sites to advising and instructing play. In addition 26 players were interviewed about their use of paratexts and their strategies for learning to become more efficient, where six of these were conducted online with “The Gummy Wolves” members. For 10 of the 12 months I spent in “The Gummy Wolves”, I was one of the guild’s two raid leaders and part of the officer team that organised the guild and its events.<sup>5</sup> This was a highly visible and powerful position in the guild that gave me access to the inner workings of the guild- and raid operations. This perspective allowed me to see both front stage performances (such as the way in which the guild presented itself to prospective applicants) and off stage reality (more exceptions than rules). On the other hand, my role as raid leader was very demanding, both in time and complexity. This meant it was sometimes impossible to engage meaningfully with events as a researcher, as I was simply otherwise occupied. Holding a position of power in the guild may also have had consequences for answers given in interviews, as carrying favour with me could be advantageous for placing in raids. However, in interviews my fellow guild members freely spoke about how they disobeyed guild policies and -rules, and openly critiqued the

organization and leadership of the guild (which included me), so I do not consider their responses to be too coloured by this power dynamic.

Like other game ethnographers have experienced, separating my roles as player and researcher proved difficult. I had started playing WoW 4 years prior to this study and my own gamer identity and expertise had been well established before the project. On one hand, this gave me access to and credibility within the community;<sup>6</sup> on the other hand, it forced me to prioritise depth over analytical distance to my research subject (McKee & Porter, 2009). Blurring and hiding roles might be grounds for ethical challenges when doing digital ethnography (see (Sveningsson, 2003), for discussion), so I disclosed my intentions as a researcher on my public application for the guild, and asked for explicit consent to do interviews and log play sessions.<sup>7</sup> I often discussed my ongoing research with the guild, and my fellow players showed interest and excitement regarding the project. The only negative feedback I ever received was from a guild member who was disappointed that I did not use any quotes from *his* interview in a conference presentation. The names of both guild members and interviewees are anonymised here.

My analysis has a bottom-up approach, wherein the life world of informants, combined with my own, dictated themes and perspectives. However, for analytical clarity, the presentation and discussion of data is structured by Jasanoff's four ordering devices: making representations, institutions, identities and discourses. Through this backdrop, I try to show how theorycrafting was enacted within "The Gummy Wolves" guild, and how it was dependent on local practices. In the first section, I analyse the representations made in and out of the game to show how theorycrafting was made visible. The second section deals with the making of institutions and how theorycrafting shaped the organization of players. The third section analyses identity and how the power gamer approach facilitated performance-

orientated gaming. In the fourth and final section, I discuss new discourses and how the talk about numbers supported an expert-orientated culture.

## The enactment of theorycrafting

Theorycrafting is made by testing hypotheses, gathering in-game data, analysing logs, discussing findings and disseminating new information based on algorithms ('episteme'); obtaining knowledge through practice by reverse-engineering the game design ('techne') and communicating this new knowledge through various guides ('phronesis') (Wenz, 2012). During my data gathering, there was one site that stood above the rest when it came to theorycrafting: the Elitist Jerks (EJ) forums (2005–2016).<sup>8</sup> The forums were run by the Elitist Jerks guild and counted 475,000 members and 2.2 million posts in its hay day.<sup>9</sup> Its prominent position the hub of all WoW related theorycrafting made the two interchangeable, and the interchangeability of theorycrafting and Elitist Jerks made the forum an obligatory passage point (cf. Callon, 1986) in the theorycrafting network. Even though the site was discontinued in 2016, its key role in unravelling the underlying mechanics of WoW is not forgotten. A thread on the WoW subreddit ([www.reddit.com/r/wow](http://www.reddit.com/r/wow)) discussed the EJ forums' demise as the result of theorycrafters moving on to other things (including jobs in Blizzard), too strict moderation on the forums -as well as the rise of new and alternative forums for this meta game. Though there were crass comments about the elitist culture of the EJ forums, others pointed out how much they informed play in general; that without EJ '*everyone of you wouldn't be able to play your class correctly in Vanilla, TBC and WotLK [the first three WoW expansions]. The same goes to farming gold, crafting and a lot of other stuff.*'<sup>10</sup> Indicating that theorycrafting has had an impact on many types of player practices, not only the most competitive aspects of the game, that is hard to ignore.

The majority of theorycrafting took place in the Theorycrafting Think Tank project hosted on EJ, which was ‘*aimed at condensing the large amount of information available on these [EJ’s] forums into an easy-to-reference, organized repository for the World of Warcraft raiding community*’ (Boethius, 2008, in Paul, 2011, para. 19). In other words, the forum held discussions on theorycrafting before condensing them into written guides that communicated their findings. Though the guides represented summarised versions of ongoing discussions, they were usually quite comprehensive documents. One example is the ‘Resto PvE compendium and discussion’, which was listed as a ‘*brief introduction*’ to ‘*widely accepted knowledge about the druid [a character class in WoW]*’.<sup>11</sup> The compendium was approximately 6,800 words long followed by a 17-page discussion on the validity and application of those numbers, indicating not only the amount of information compiled, but also the expectation that this was something all players should know. Both discussions and guides were rather dry reading with a strong reliance on proof through calculations. For example, the above mentioned compendium had no jokes, memes or personal digressions, which was unusual for an online forum discussion about WoW, something that also can be attributed to how the forum was moderated.

The EJ forums were well known for their no-nonsense attitude: “*The name of these forums [Elitist Jerks] is not intended ironically; we have high standards for the discussion that occurs herein, and we’re quite unapologetic about it*”.<sup>12</sup> On the EJ forums, there was no such thing as taking the game ‘too seriously’, and any kind of personal conversation was antithetical to the pursuit of better and more accurate information. Uninformed or unwanted requests were put on public display in ‘The Dung Heap’ or ‘Banhammer’ sections of the forum for others to ridicule. In this sense EJ configured elitism as a necessary evil of excellence, and bluntness and objectiveness as attributes of skilled players. Though much criticized, the success of EJ could, in part, be attributed to strict moderation, as it *did* keep

threads free of the flame wars and anecdotal digressions found on other forums, something also members of Gummy Wolves appreciated:

*Well it's [EJ] the only forum I found, where most of the ppl know what they are talking about. Sure you can look at other places but there you have to screen out 90% of the posts" - Tom*

The EJ forum was frequently mentioned in interviews when asked about where and how they looked for game related information, and it was frequently referenced on the Gummy Wolves guild forum. However, the sense making process where theorycrafting, a distinctly un-playful approach to WoW, was given meaning and value relied on more than usefulness – it also required technologies, organizations, identities and language.

### **Making Representations: Paratexts for Counting Play**

The first ordering device to be analysed is representations, meaning attention to paratexts and their role in producing play. Representations are used to effectively communicate information and to engage an audience in a given perspective. The investigation of representations may provide insight into the politics of knowledge, since representations are not neutral stand-in's for the world, but rather framing and sense-making devices that tells part of a story. Theorycrafting paratexts can be put in three categories: (1) guides, (2) simulators and (3) measuring tools. In the following, I show how these representations helped to both spread and stabilise theorycrafted expertise, and how this co-produced a more performance oriented play style.

In WoW, the most basic representations of theorycrafting were the reverse-engineered algorithms, but engaging directly with them required advanced mathematical knowledge. In order to make information accessible to the general community, as well as to better utilize it, paratexts were made to translate the principles of theorycrafting into more practical and accessible instructions and tools in the form of guides. A wide variety of strategy and

customisation guides were available on EJ where analysis had been formatted into practical advice on which gear and abilities should be used for optimised performance. Simulators on the other hand were either spreadsheets or stand-alone software (such as Rawr) that would let users know the correlation between equipment and output on an item-to-item basis, allowing them a virtual space to test the outcomes of gear and optimization choices. Both guides and simulators functioned as public repositories of knowledge that allowed for players from a wide range of communities to access expertise knowledge, even when lacking the skills to do calculations or engage with the theorycrafting discourse.

The materialization of player strategies and simulators is in itself a push towards standardization, and following that; stabilization. As ideas or arguments are made into representations, they are made less flexible. Material actors tend to provide a certain slowness or resistance in any given network, as they are less fleeting and flexible than humans –though highly moral (Latour, 1992). In addition, the materialization is relevant for the spread of theorycrafting as it rendered the information sharable in a more effective way. Instead of reliance on direct interaction between players, the information was made accessible to all players. Of the three types of representations the guides were used frequently, simulators rarely and only by the most dedicated players. Measurement tools, on the other hand, were a stable feature of The Gummy Wolves’ organization, and held a somewhat different position than the other two as it was a type of representation that was hotly and continually debated. Measurement tools, unlike simulators, recorded rather than projected play, and a recurring question from “The Gummy Wolves” members was if the numbers they produced could be trusted.

Without measurement tools, the basic game design offered little information on what happened during combat outside of obvious success (when a monster died) or total failure

(when all of the avatars died). With measurement tools, it was possible to get second by second accounts of the status of all members, including individual breakdowns of each fight, nicely presented as bar or pie charts. Add-ons such as Recount and Damage Meters gave 'live' versions of current information and events, and logs from play sessions could be uploaded to websites like World of Logs and World Wide Stats for more detailed analysis.<sup>13</sup> In addition, these log sites would keep records online and would also host logs from other guilds, allowing for performance comparisons across time and guilds. The logs could be used to optimise the group's strategies or for individual players to make calculations. However, in "The Gummy Wolves", the primary role of measurement tools was to evaluate performance: Who were topping the meters? Who were falling behind?

While measurement tools remained one of the primary strategies for evaluating players and were often used as 'proof' when attempting to demote or remove players from the guild, there was also a set of practices intended to limit the skewed picture measurement tools provided. For example, officers would compare results from different sources to get a more accurate picture, or over a period of time to make sure poor performance was not a 'one time thing'. Furthermore, while the numbers produced by these tools were sometimes used as evidence of a player's success or failure, this proof would usually go through an internal vetting process amongst the officers, wherein the other qualities of the player would be added. Skills such as awareness, mobility, responsiveness, ability to follow instructions and adherence to social norms were all considered necessary for holding a position in a successful raiding guild, and we were well aware that they did not appear on the measurement tools. The uneasiness with which the Gummy Wolves approached the use of logs was made apparent during a discussion on how to improve the guild's overall performance.

In an attempt to encourage the high achieving players in the guild, I suggested on the guild forum that we could set up a 'Hall of Fame' for those who repeatedly performed well on



these meters. My suggestion was quickly dismissed as unfair, because (1) it would further encourage a selfish play style (by pitting players against players) and (2) the meters were not to be trusted. In the comments following my suggestion, guild members highlighted how there would always be modifying circumstances such as certain fights favouring certain classes, or some players having additional tasks that prevented them from doing damage. Several members were already worried that some players were more concerned with looking good at the meters than supporting the group, while others outright refused meters as proof of good performance. As Doug commented: *“It may be an interesting idea, but you can’t just look at Recount [an in-game measuring tool] and know who performed the best.”*

In summary, the representations of theorycrafting were enacted by users as tools for evaluation more often than for analysis, and accepted them as flawed but useful representations of play. At the same time, the representations was opposed and interpreted through local practices where the accuracy of depicting play as numbers is questioned. Peer-to-peer learning and informal apprenticeships were still a primary source of game literacy, but theorycrafted guides played an increasingly important role in defining expertise in the game setting. They also co-produced a need for experts and stabilised the hierarchy in which provable statements were superior to personal experience. I return to the way in which this was institutionalised in the next section.

## **Making Institutions**

Institutions are stable repositories of knowledge and power, where knowledge is created as well as validated and accredited. The dominant position of theorycrafting in the WoW culture at the time of my study depended on several institutions to translate and legitimize information, like player guilds, elite guilds and the Elitist Jerks forum. At the same time these institutions were shaped by the ideals and practices of theorycraft. In “The Gummy

Wolves” the strong links between organization and knowledge were highlighted in the application and evaluation processes.

To join “The Gummy Wolves” you had to fill out an application template and post it in the public section of the guild forum. The template focused on experience with raiding, general game expertise and how powerful the avatar was. The applicants were required to log and upload data from a play session, and the officer team would scour through the avatar’s online profile to see how the player had attempted to optimise performance. In order to evaluate the accuracy of the applicant’s statements the officers would combine information from several paratexts, as we trusted databases and logs far more than strangers looking to join our guild. If the applicant submitted logs that indicated sub-par performance (compared to the guild average), or had not allocated customization points (“talent points”) in line with what Elitist Jerks recommended, she/he would be rejected. The very same logs members decried as unfair and untrustworthy when I suggested a Hall of Fame, was in the context of applications seen as objective and valid proof. Theorycrafting was in effect used as a gate keeping tool to weed out poor performing players, and usher in those who displayed the ‘right’ kind of game capital and dedication to the game. At the same time this was a process of standardization, as the exchanges between applicants and officers was a running indication of what was expected of all members.

To become full members of “The Gummy Wolves” applicants had to successfully complete a two to four-week trial period where they raided with the guild. During this time, they were instructed on how to become ‘one of us’, which included familiarity with theorycrafting and related paratexts. However, all members were subject to constant evaluation of their performance, and those who (according to logs) were not performing ideally would have an officer assigned to them to help them improve. As the guild leader stated on the forum:

*“We’re not here to be [the servers’] next “raider prep school”, but if you see someone struggling to keep up, talk to them. Have a look at the WWS’s [measuring tool] to see what they’re doing [wrong] and suggest what they could do different.”*

The quote indicates that both addressing performance issues, and solving them, was something to be done in tandem with theorycrafting representations like logs. I tutored some people myself, and the tutelage was largely about teaching the player to conform to theorycrafting ideals. The first step in the process was identifying possible problems in avatar customisation and performance-based issues that were detectable in logs. The second step was talking to the player and referring her to the appropriate EJ guide, with personal tips and encouragement as to exactly what and where focused effort was needed. In the process the struggling member or new trialist were introduced to set of player ideals in line with instrumental play, and through these processes theorycrafting was institutionalized in a way that made engagement with optimising strategies and performance orientation inseparable from being a member in the guild.

Another set of institutions that were important for translation and actualisation of theorycrafted information was high-profile guilds. Here, I use the label ‘high-profile guilds’ to designate guilds who were competing to be the best in the world, while also dedicating themselves to providing guides and information to other raiders. Examples of such guilds were Ensidia, Tankspot and Vision. These guilds provided a more personal touch to the sometimes fractured and complicated discussion on EJ. Instead of “wasting time” in the many threads and controversies on the EJ forums, “The Gummy Wolves”-member Aaron preferred to use a guide created by a well-known player from the high-profile guild Ensidia:

*“Well the problem with EJ is that the amount of information is massive, and there is a lot of people arguing ‘no, this is the best way’, so sometimes I have noticed that finding the proper information from there can be a pain in the ass [...]. With Ensidia’s guides, the good thing is that they are rather short, but still tell you all that you need to know.”*

The guide Aaron referred to provided a summary with information likely to have originated from EJ, but Ensidia's version was coloured with personal arguments and a more practical application of this knowledge. The importance of translating advanced calculations into something concrete and actionable was also highlighted by Adam when describing how the solution to improving his performance was the sharing of strategies from elite guilds onto the guild forum:

*“Boomkins [nickname of caster druids] are fairly simple to play. But when my dps [damage] turned out not to be exactly great I looked onto most forums for tips. With a weird coincidence someone had copy-pasted a post by that uber boomkin from GG [the best guild on our server] into our druid forum I learned a lot from there and tweaked my rotation/priorities from there”*

The high-profile guilds' and players' versions of the knowledge derived from EJ had a twofold effect: (1) it translated complex analysis into tangible guides and (2) it legitimised theorycrafted knowledge as the world's best players used it. The role of institutions was thus threefold; first as keepers of knowledge, secondly as organizations that could translate theorycrafting into workable knowledge and thirdly as standardizers of knowledge.

Both “The Gummy Wolves”-guild, high profile guilds and the Elitist Jerks forum were organizations that built up communities of practice where knowledge was made, stored and shared. Either by hosting discussions and guides (like on EJ), or by making these guides part of guild's official policy (in Gummy Wolves). All three types of institutions did important work in translating information into workable instructions to be applied in different contexts; translating algorithms into extensive guides (EJ), translating extensive guides to simple guides (high profile guilds) and finally into personal instruction from an officer on how to best optimise avatar and performance (The Gummy Wolves). While there is no doubt that EJ has generated a substantial amount of information about WoW, this knowledge would be largely irrelevant had it not been institutionalised through guilds such as The Gummy Wolves. Theorycrafting was one of many knowledges my guild appropriated and kept active, and in

the final instance, theorycrafting was as much produced through our enactment as by those making the calculations. The effect of these processes was standardization of play imposed on the Gummy Wolves members through discipline (threat of being kicked out), and through learning as players were taught how to play according to theorycrafting ideals. Taken together, the translations, organizing and standardization stabilized theorycrafting as something useful and necessary – even though the Gummy Wolves identity was formed as much in opposition as in accordance with the identity of Elitist Jerks.

### **Making Identity: Perceived Objectivity and Elitism**

Identities are used to make order out of disarray, and our identities shape how we relate to knowledge. Whether we identify as an expert or as a beginner has consequences for how we approach a difficult subject matter. For example, a study of policy-makers demonstrated how their engagement with climate change relies in part on their ability to identify as climate politicians (Ryghaug, 2011). At the same time, our identities are shaped by knowledge. What it means to identify as ‘white’ or ‘queer’ has changed over the last century, in part because of what we know about these groups and identities has changed (Jasanoff, 2004). Knowledge, regardless of its level of abstraction, is connected to specific values and contexts. To investigate identities in the co-production of theorycraft is to look at how individual and collective identities are being shaped, and are shaping, knowledge.

The Gummy Wolves perceived power gamers to have ‘no life’ and to be ‘too focused’. Consequently, we attempted to balance progress with RL commitments, silliness and friendship – for example by demanding ‘only’ 50 per cent attendance on raids (two out of four nights per week). The guild found it unthinkable to implement the same kind of moderation and attitude that existed on EJ, since we wanted our conversations to be sporadic, transgressing and humorous. Yet, at the same time we also wanted to be successful and had a

hard time rejecting the apparent effectiveness of taking a professional, and possibly elitist, approach to play. Many members adopted the stance found of EJ that some people were simply not cut out for competitive raiding, and that the solution to improving performance would be to take a hard line stance where poorly performing members were kicked out:

*“There are mostly not that much wrong with the strategies themselves, but to be totally frank, some ppl ain't cut out to be raiding if you know what I'm saying”*

*Tom*

Several of my interviewees voiced a similar sentiment. Aaron pointed out that you did not really have to choose between being friendly or being competitive, but there was a recognition that if the guild wanted to be more successful at raiding, it meant taking the game more seriously and that competitiveness excludes forms of play that are more relaxed and oriented toward sociability:

*Interviewer: Do you think that the friendly atmosphere is a necessary tradeoff for skill? As in: if you want friendly it needs to be less skilled players?*

*Aaron: Well not necessarily, but I think if a guild want's to be pro, they have to behave more like how company's do work. Because the big problem with social guilds is that you have a lot of change with players in raids, so they don't really learn their own task, because next day or next week somebody else is doing it*

The reasoning of Aaron and Tom mirrored the rationale of EJ where elitism, professionalism and success were made interchangeable. However, they both also expressed little desire to join a more “hardcore” guild, as previous experience with highly competitive play had left them wanting a more relaxed approach. Thus the making of identities in “The Gummy Wolves” involved boundary work (Gieryn, 1983) on two fronts: towards non-ambitious as well as hyper-ambitious players. The guild wanted to attract skilled and dedicated players so it projected itself in line with EJ ideals to outsiders, while at the same time opposing and ridiculing ‘no lifers’ for their overstated dedication on the inside

The analysis of identity showed that theorycrafting, which describes itself as objective and neutral, is embedded with values of elitism and professionalism, and prescribes an ideal player who takes the game very seriously. The appeal and effectiveness of this identity, while also being in opposition with core values in *The Gummy Wolves*, produced a hybrid identity that at times was difficult to maintain, and thus at times were a force for destabilization of theorycrafting knowledge. This was also the case for how we talked about play.

### **Making Discourses: Talking Numbers to Prove One's Skills**

New knowledge demands new language and looking at discourses is a way of seeing how knowledge relates to new practices, to investigate what kind of knowing is enabled and how is it articulated. The theorycrafting discourse did not only supply concepts and vernacular, it also shaped the way in which we talked about play more generally. However, similar to what we saw in the above discussion about institutions, the theorycrafting discourse had effects beyond calculating optimized outcomes, it was often used as a way to distinguish between insiders and outsiders, and between skilled and unskilled players.

In addition to representing play in terms of numbers, the theorycrafting discourse presented itself in ways that were reminiscent of scientific reporting. Both the guides and the discussions on EJ were flush with theoretical concepts, expert jargon and – perhaps most importantly – a requirement to back up statements with evidence. This meant a side-lining of personal accounts and humorous retelling of the game world as a source of insight. In “*The Gummy Wolves*”, we never dissuaded jokes or otherwise pointless comments, but we did pick up the evidence-based discourse we had seen on EJ. A statement about this or that being a superior choice was expected to be backed up with something more than ‘because it works for me’. Although the guild was never intended to be a place for ‘serious discussion about the game’, personal experience was subordinate to expert-like explanations of how and why an

event happened. Using the terminology of theorycrafting and positioning it as necessary and desirable knowledge in recruitment processes as well as internal debates, “The Gummy Wolves” produced a theorycrafting-like discourse as a voice of authority and validity. However, this does not mean that any members did any actual calculations themselves.

All that was required in “The Gummy Wolves” was an understanding of the concepts that were meant to guide game playing, and the ability to find and follow prescribed guides. Instead of providing algorithms or calculations as “proof” to back up our statements, we would link to sites like EJ to give legitimacy to our statements. “The Gummy Wolves” would, in other words, let others do the calculations and focus on how the numbers might be used. Considering theorycrafting’s emphasis on science-like reasoning and evidence, it is ironic that appearing as an insider did not require any actual calculations or algorithms. As Richard pointed out: *“I can’t do proper math and scaling of [coefficients; the relation between attributes and outcomes], etc. I just check logs, compare the structure of a spell and link it to the given fight. Some things are obvious.”* That we, as a guild, found the rhetoric of theorycraft persuasive and EJs accounts of play trustworthy had little to do with our ability to test theorycrafted statements and a lot with how those statements were made; with numbers.

We tend to perceive numbers as more neutral than language, imbuing them with values of accuracy and truth (Porter, 1995). There is a widespread idea that quantifying and analysing situations through advanced algorithms provides not only new, but better, insight into the state of affairs. Paul (2011) linked the rise of theorycrafting to sports, wherein similar approaches are used. In sports, statistics play an important role – for instance through sabermetrics, the analysis of baseball through ‘objective and empirical means’. Much like theorycrafting, sabermetrics is built on the belief that a subjective and personalised experience of the game prevents the ‘truth’ of play from being ‘revealed’ through statistical analysis. Even if “The Gummy Wolves” did not perform any of these calculations themselves, the



discourse of theorycraft relies on an understanding that algorithms are a suited way to gain insight into play. This belief was supported by players enacting this discourse, and, in turn shaped what kind of expressions of play was given value. In the final section of this paper, I return to my original question of the relationship between what we know and how we play.

## Co-producing theorycrafting

My initial fascination with theorycrafting was its science-like qualities, which seemed out of place in a game that was publicly decried as a waste of time. With closer investigation, it appears my surprise of finding advanced calculations in WoW has more to do with my expectation of play as being fun and frivolous than lack of precedence, as play has a history of being co-produced with analysis that started before computers were invented and accelerated after.

Theorycrafting has had several effects on play, some more obvious than others. First, we saw a standardisation of play along theorycrafting ideals. Through mathematical calculations the many viable options of play styles and preferences were reduced into a ready-made subset of choices, making customization of avatars more about keeping in line with standards, and less about personal expression and preference. This standardization, and consequent stabilization, was enforced by institutions like Gummy Wolves that demanded players adhere to theorycrafting standards by rejecting those who did not show any affinity for it, and training those who did not incorporate it. A second effect of theorycrafting was the centralization of numbers. Through representations like guides and logs, new forms of strategizing and evaluation of play was made possible. Through these tools play was rendered measurable, quantifiable and representable through graphs, simulators or spreadsheets, making numbers and empirically based reasoning the language of play. Even for those who

did not care that much about the numbers as a feature of play, but appreciated how it improved their performance and consequently status in the guild.

What may have been less obvious were the many actors (human and non-human) and day-to-day activities that were required for the enactment of theorycrafting in which an abstract and theoretical discourse was made workable. Blended by the complexity of calculations, and the surprise of finding them in a player community, it is easy to overlook the efforts that are involved in making algorithms usable. Thus, a recurring theme in my analysis has been the many forms of work needed to achieve the co-production of theorycrafting and player practice; translation work, standardization work, organizational work, discipline work and identity work. Above all, the numbers produced by theorycraft were made useable through people, organisations, ideas and artefacts. Because theorycrafting is understood as cold, rational and objective, it is easy to forget that even the clearest and most elegant of algorithms is performed and enacted in socio-material contexts rife with values, contradictions and complexities.

Theorycrafting is a process of both deconstruction and reconstruction. Where some players uncover the game's building blocks and subject them to analysis, other players are enacting them and changing what it means to play in the process. The resulting co-production of play is one where measurable performance is given high status, but it is also one of resistance to such reductionist approaches to play. In this paper, I have analysed how the enactment of theorycrafting is interwoven with the making of identities, discourses, representations and institutions of *World of Warcraft*. As we have seen, application of Jasanoff's co-production idiom has shown how the enactment of theorycrafting is made possible through these ordering devices. Each ordering device contributes to the stabilization, and thus usefulness, of theorycrafting. However, there are two reservations that allow for controversy, and thus possibly destabilization of theorycrafting and its usefulness. First, the

making of identity is somewhat ambiguous between being elitist and allowing for a normal life outside the game. Second, the numeric representations can be challenged by more qualitative and broader evaluation criteria.

In closing I will address implications and limitations of this study. Theorycrafting may be understood as a marginal phenomenon pertaining to games, but it can also be framed as an example of the effects statistical analysis and goal orientation have on practice. The challenges of inaccurate, but easily applicable information, is something players share with, among others, academics whom increasingly are being evaluated according to publication and citation metrics. The analysis does also have some limitations; the method precludes generalization, and it is very likely that vastly different co-productions of theorycrafting and player practices can be found in other player communities or in other games. Secondly, since time of data gathering, much have happened in WoW with regards to design, community and gameplay. The above analysis should thus be seen as an investigation of a specific period of time in WoW where theorycrafting was at its most prominent, not as a description of how this community continues to engage with theorycrafted knowledge.

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## Footnotes

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<sup>1</sup> ‘Theorycraft’, <http://www.wowwiki.com/Theorycraft>. Retrieved 04.05.2015.

<sup>2</sup> In WoW you choose between 11 classes (10 at the time of data gathering) from the three archetypes healer, damage dealer and tank. The classes are Death Knight, Druid, Hunter, Mage, Monk, Paladin, Priest, Rogue, Shaman, Warlock and Warrior.

<sup>3</sup> At the time of writing, 09.11.2016, the WoW Wiki had 104,593 articles and 292,475 pages:  
<http://www.wowwiki.com/Portal:Main>

<sup>4</sup> At the time of writing, 09.11.2016, the addon site Curse has 4870 player made software modifications made for WoW: <https://mods.curse.com/addons/wow>

<sup>5</sup> As the raid leader, I was in charge of the organizational aspects of raiding, such deciding which players should join the raid, which monsters we would go after and which strategies to use. During raids, I was in charge of leading the event, explaining what to do, delegating tasks and deciding on new tactics.

<sup>6</sup> The Gummy Wolves guild competed at such a high level, that without years of previous experience and directed effort to accrue game capital and expertise, I would not have been accepted into the community.

<sup>7</sup> Because of my data was of a qualitative nature without personal identifiers, Norwegian guidelines for notification to NSD Data protection official for research does not apply.

<sup>8</sup> Elitist Jerks Forum: <http://www.elitistjerks.com/forum>.

<sup>9</sup> User statistics from <http://elitistjerks.com/>. Retrieved 21.01.2013.

<sup>10</sup> “Why did Elitist Jerks die out?”  
[https://www.reddit.com/r/wow/comments/3n4fjv/why\\_did\\_elitist\\_jerks\\_die\\_out/](https://www.reddit.com/r/wow/comments/3n4fjv/why_did_elitist_jerks_die_out/) Retrieved 09.11.16

<sup>11</sup> “Resto PvE compendium and discussion” [http://elitistjerks.com/f73/t88239-resto\\_pve\\_compendium\\_general\\_discussion](http://elitistjerks.com/f73/t88239-resto_pve_compendium_general_discussion). Retrieved 16.08.11.

<sup>12</sup> “Forum Rules” <http://elitistjerks.com/misc.php?do=cfrules>. Retrieved 09.11.10.

<sup>13</sup> Found at <http://www.worldoflogs.com/>.