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Leet Noobs

MARK CHEN

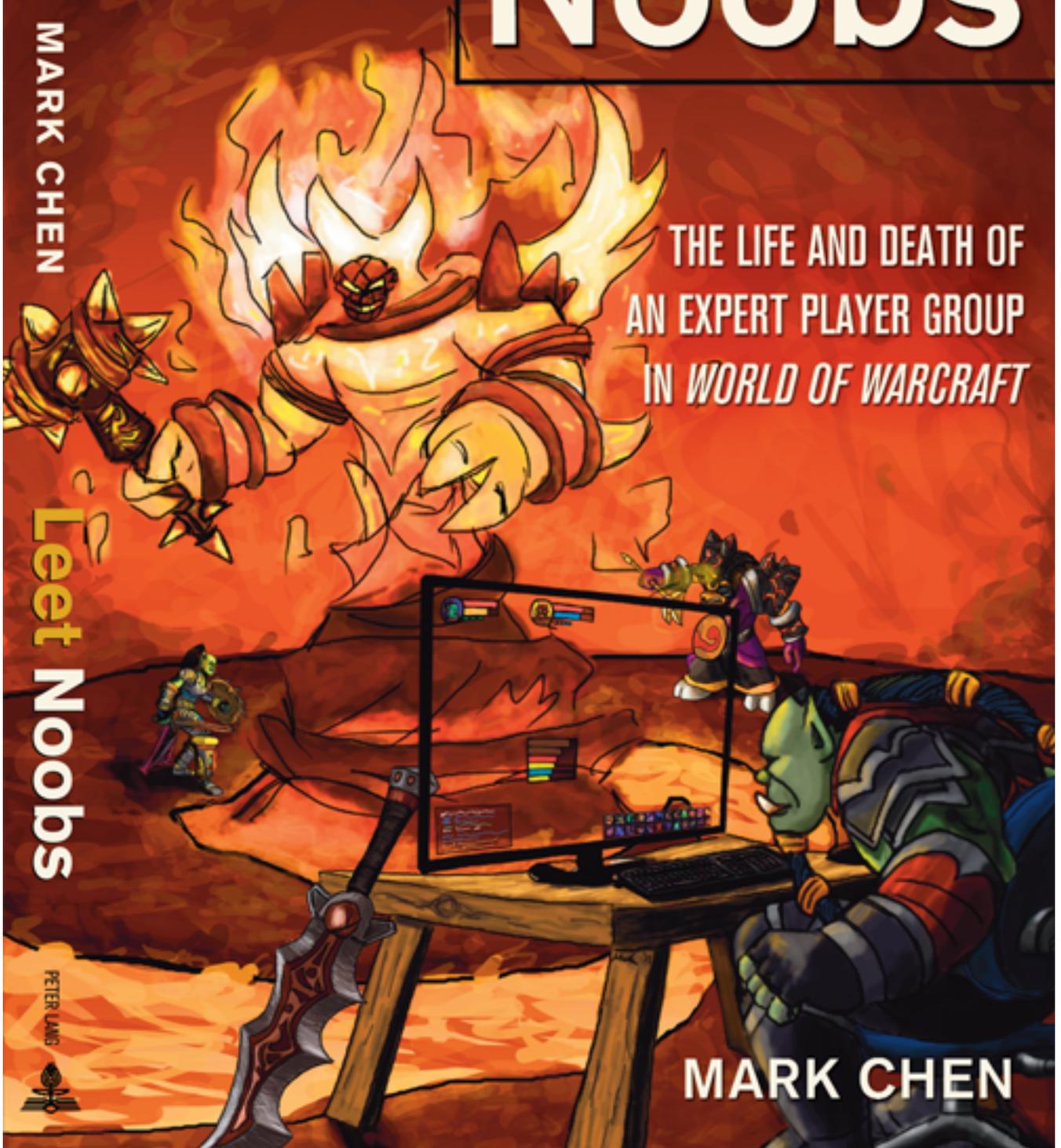
THE LIFE AND DEATH OF
AN EXPERT PLAYER GROUP
IN *WORLD OF WARCRAFT*

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Assembling to Kill Ragnaros

In *World of Warcraft*, each individual actor in a raid group is in charge of certain tasks and responsibilities. At one point in the life of my raid group, a new actor was allowed into the group. The newbie served the players by rating the actions of the others in the group—that is, assigning a specified number value to their actions—and then remembering who did what to add up the ratings from each particular player. This newbie, though, did not actually care if these services were used by the others, and if a player decided to use them, thus having his or her rating displayed, that player had to abide by new rules associated with these new services. The newbie would not verbally announce others' ratings. Instead, a sign was held up and players had to make a point of looking over to read what their ratings were. In that way, the newbie did not only serve; it also demanded. It did not only take on the burdens assigned with this new role; it also prescribed new responsibilities on the others. Yet others in the raid group, first slowly then readily, came to adopt the use of these new services into their practice as the services' benefits became increasingly clear. The group came to consider the new tasks as essential parts of its raiding activity, and players could barely remember raiding without the rating-remembering services. The newbie became one of them—not a newbie but a veteran—and the group merrily went on its way. But this veteran was not one of them. In fact, it was not even human. It was a technological device, a program, a construct, an add-on modification to the game.

This chapter documents the enrollment of this nonhuman actor and its history within the raid group that I studied. The add-on was instrumental in helping the raid group become efficient and successful with many in-game battles. Interestingly, the add-on played only a temporary role in the raid group's assessment of the fight with Ragnaros, the last boss monster in the fiery cave system known as Molten Core. It helped the group by testing and ruling out a possible diagnosis of the problems with the group's strategy. After eliminating that possible diagnosis, its use was no longer necessary, since its original intended role never needed to be filled in the fight against Ragnaros.

The analysis in this chapter helps us see that, within a learning space or network, people and their material resources collectively share responsibilities, and that the distribution of these roles and responsibilities changes over time as the network encounters new challenges and as new actors enter the network. This is a story, in other words, of how unexpected events disrupted a network and of the reassembly and redistribution work done by the network's dynamic, adaptable actors to overcome those events.

Mangles, Networks, and Assemblages

In a nod to Pickering, Steinkuehler (2006) wrote a paper in the fledgling *Games and Culture*, titled "The Mangle of Play." In it she described the push-pull relationship game developers have with game players. The practice of gaming is an emergent one with multiple contentious parties attempting to steer what it means to play in certain directions, such that gaming is a complex arena of activity partially defined by its tensions—a mangle (Chen, DeVane, Grimes, Walter, & Wolfenstein, 2010). Pickering's mangle (1993) described the dialectic of resistance and accommodation that scientists engage in with the natural world, constantly tweaking their instruments and mental models of how the world works when existing measurements produce puzzling results. In other words, like the tension between gamers and game developers (and other parties in the mangle of play), scientists and nature push and pull at each other to form what scientific practice actually looks like. Both of these concepts about how gaming or scientific practice works come from a view of these practices as existing in specific settings and circumstances. They recognize that authentic practice "in the wilds" of science and gaming includes a multiplicity of parts or parties, acting separately yet collectively, so that collective roles and responsibilities that make the practice what it is are distributed across all of them.

I've lumped *parts* and *parties* together because these words mean the same thing within this way of looking at an activity system. The activity is composed of multiple objects or actors that act upon other actors, and the relationships between actors determine what the network of activity (i.e., practice) looks like. Applying this view to The 7/10 Split-led raid group, we can easily see how the group's members form a network, but less clear is that all of their resources, whether other people who aren't in the raid group but still contribute somehow or material things such as websites and add-ons, are also part of the network, and all of these parts within the network act and are acted upon.

Note that this possibly takes Hutchins's view of distributed cognition (1995a, 1995b) one step further, or at least makes more explicit the non-distinction between people and their material practice. In his descriptions of how a naval vessel navigates (1995a) and how an airplane cockpit remembers its speeds (1995b), the people in those activities offload many of their cognitive tasks onto their material resources, such as using pencil and paper to jot down numbers. Furthermore, these numbers are often put on display such that these external material resources are not only being used to help people remember certain things in the activity; they are also performing certain roles. The material resources are not only helping; they are also doing. This clarification flattens or equalizes the view of the various actors in the activity, making the distinction between whether an actor is human or nonhuman have little bearing on how specific tasks within an activity are accomplished. Think back to the example in Chapter 2 where Willy announced to the rest of the raid group that Molten Giants were incoming. All Willy did was hit a button; it was actually the CT Raid add-on that did most of the acting. Did the rest of the raiders respond to Willy? Or did they respond to the actions of the add-on?

Ian Bogost (2009) calls this line of thinking *object-oriented ontology*, where:

Ontology is the philosophical study of existence. Object-oriented ontology (“OOO” for short) puts *things* at the center of this study. Its proponents contend that nothing has special status, but that everything exists equally—plumbers, cotton, bonobos, DVD players, and sandstone, for example. In contemporary thought, things are usually taken either as the aggregation of ever smaller bits (scientific naturalism) or as constructions of human behavior and society (social relativism). OOO steers a path between the two, drawing attention to things at all scales (from atoms to alpacas, bits to blinis), and pondering their nature and relations with one another as much with ourselves.

This is one of the main tenets of actor-network theory (ANT) (Latour, 1987, 2005; Callon, 1986; Law & Hassard, 1999). The roles and responsibilities within a network of activity are assumed by both human and nonhuman actors, or, in more precise language that forgoes the human / nonhuman distinction, the roles and responsibilities within a network are distributed across multiple actors. It should be noted that the various parts that can act and be acted upon are not necessarily objects or characters in the strict sense. Instead, known as *actants*, individual objects, a collection of objects, or parts of objects can be assembled to have one function that is related to or associated with other actants. Furthermore, these actants can be both material *and* semiotic; they can be the physical stuff in the mangle *and* the ideas, values, and structures involved in the mangle, such as those found to be

embodied or encapsulated in an organization or institution. For the purposes of this chapter, I will be referring to “actors” in the actor-network of raiding activity. In describing some of the “nodes” in the network, though, such as Blizzard Entertainment as an official group with certain values that force it to act, it may be more appropriate to use “actants.”

A network stabilizes when all the actors within it are in agreement on how the responsibilities are distributed (Sismondo, 2004, p. 66). New actors—such as the new add-on my raid group adopted into its sociomaterial practice that I will describe shortly—are added to the network through a process of *translation* (i.e., getting the different parts of a network to agree on goals, values, and meanings). New actors are *enrolled* into assuming certain roles and responsibilities (and agree to let others take on the other roles and responsibilities that are needed for the activity to work). Think of the alignment work the MC raid group did after its unsuccessful night in Chapter 2. The players renegotiated and realigned group values the following day. This repair work could be thought of as “translation” work. When a person or book or whatever makes a convincing argument, he or she or it is translating the listeners / readers to a particular way of thinking. When they start to spread the word, when they even start to believe the argument, they have become enrolled into the argument’s network. “At the end of the process, if it is successful, only voices speaking in unison will be heard” (Callon, 1986, p. 223).

So, my raid members agreed on their values and they agreed on their roles and responsibilities, but how can *nonhuman* actors *agree* to anything? One way of thinking about the kind of agency nonhuman actors have is by thinking of them as *delegates* for intentional work. Ultimately, a human designed and created the nonhuman to do something. In a way, as demonstrated in Latour’s (1988) discussion of a door closer, both human and nonhuman actors take on the roles and responsibilities imbued onto them—transported to them so that they are transformed—by other actors.

Confused? Perhaps a better way of explaining the enrollment / translation process in ANT can be taken from positioning theory (Harré et al., 2009; Holland & Leander, 2004), which posits that people are both positioning themselves and being positioned by others into certain roles across their lifetimes of activity. If we expand the word “people” to the generic “actors,” we can think of actors within a network as objects that are acted upon by other actors / objects; they are positioned into assuming certain roles and responsibilities. This is because as Sismondo (2004) says, “both humans and nonhumans have *interests* that need to be accommodated, and that can be

managed and used” (p. 65). Actors are, therefore, sometimes compelled into acting or agreeing yet are sometimes forced or positioned into agreement.

A network can become destabilized or disrupted when an actor rebels or when a new situation within the setting arises. This makes the previously stable system not sufficient to continue accomplishing its joint task. This necessitates a change in how roles and responsibilities are distributed if the network is to continue. Sometimes this is a matter of reassigning them. One example of this is when a timer add-on for my raid group became out of sync with our activity one night in early March. One of our human actors, Mandy, then took on the role of timekeeper and announced to the rest of us the time remaining until crucial moments of the fight with Ragnaros would occur (e.g., “1m30s,” “1m,” “30s”). Sometimes disruptions require a new actor to become enrolled into the network.

Again, how can a nonhuman rebel? Does that not imply agency? Is it not more appropriate to just say that the object broke or stopped working? To these questions, actor-network theory questions why intent matters. All that matters is what can be observed and the functional patterns of *relationships* between *things*, so ANT makes a point of this by using agentive language for both human and nonhumans. ANT and its ilk shine as ways of analyzing an activity system without assuming intent. Nicholas Taylor (2009) explained ANT very succinctly (pp. 99–100):

Latour’s project in elucidating actor-network theory is to propose an alternative social theory that preserves what he calls the “basic intuition” of conventional sociology: that humans are acted on by forces outside of their “local contexts” in which they go about their day to day lives. At the same time, actor-network theory resists explanations that reduce these forces to abstract theoretical constructs (Latour, 2005, p. 47). The task, instead, is to “trace associations” between and among assemblages of individuals, tools, and the material world, and to document the technologically- and institutionally-mediated relations that suture local contexts together across time and space (p. 65). In order to accomplish this task, Latour asserts, it is necessary to expand sociology’s traditional notions around what kinds of entities can be considered as having agency. Instead of placing humans exclusively in the foreground of sociological accounts and relegating entire realms of material and technological objects to the context ‘in which’ humans act, Latour urges us to recognize the ways non-human objects act *upon* us, enabling, compelling, eliciting or demanding certain activities and practices while disabling, preventing or making difficult others (Latour, 2005, pp. 63–86).

What matters most is that certain objects / actors act and are acted upon. It’s these relationships actors have with each other—process-based, time-dependent (due to the fact that something needs to be happening for the network to exist), dynamic relationships—that matter. Actor-network theory, as

a methodology, then, is about tracing these relationships (or associations) to make the network visible. By flattening the activity and treating all objects within it equally, OOO (and ANT) begins with evidence-based observations about the details of what's going on in a setting.

Flattening the setting allows T. L. Taylor (2009) to say, “we do not simply play but are played. We do not simply configure but are configured (Akrich 1995; Woolgar 1991)” (p. 6), emphasizing the fact that objects in a network exist in such a way as to be compelled to act or be acted upon. She calls these configurations assemblages, partially invoking Deleuze and Guattari (1987) who considered their *A Thousand Plateaus* to be rhizomatic, with the ability for the chapters to be read in any order, taking on multiple configurations or assemblages.

Open-ended and partially open-ended games, like WoW, are emblematic of the idea that any given player's history of activity is made up of a collection of unit operations—“modes of meaning-making that privilege discrete, disconnected actions” (Bogost, 2006, p. 3)—that form patterns of relations, arranged together into particular larger patterns, constrained by the game's underlying rule systems and the player's deepening understanding of those systems. A good gamer is someone who can recognize these patterns and understand the rules governing them well enough to exploit them to succeed in his or her in-game goals (Koster, 2004, pp. 14–34).

With a multiplayer game, many of these rules are tacit conditions of participating in a community of other players. As Malaby (2009) notes, the existence of rules about how to be or act is what makes online gaming spaces nontrivial (p. 87). They are contingent spaces where players build up cultural capital by performing or acting successfully. The more contingent an act—that is, the more risk involved—the more the act is meaningful and a marker of expertise. What Malaby says aligns very well with Lave and Wenger's (1991) ideas about how novices to a setting can go through a process of *legitimate peripheral participation* within a community of practice.

This process of learning the game, or, more precisely, learning legitimate gaming practice, occurs on multiple timescales. Much like Lemke's (2000) example of change in classroom practice, changes in gaming practice can be seen on multiple levels, ranging from scales that measure from month-to-month, showing relatively slow changes, to scales that measure from minute-to-minute, showing split-second decision making based on in-the-moment changes to a given gaming session's configuration. These split-second decisions and the experiences that result from these decisions have a way of narrowing-down and tightening-up future performance where players have learned what works and what doesn't work for particular patterns of arrangements. This

process is social in that players share their experiences with each other and make arguments about what they think is happening. It is also interdiscursive (Silverstein, 2005) in that players refer to previously shared experiences, sometimes from months ago, in an indexical fashion (e.g., “this part of this new boss fight is like this part from this other boss fight”), to help them manage and negotiate their dynamic roles.

Roles, Responsibilities, and Aggro

Each character in WoW fit into an archetypal role based off of historical precedent in the fantasy role-playing game and MMOG genres. In representation, characters were warriors, priests, rogues, etc., but for the purposes of the underlying game mechanics, these various hero classes could be roughly categorized into a function-based tripartite consisting of tank, healer, and DPS (shorthand for damage per second, a way of valuing damage dealers) (see Table 1). Each of these categories had specific duties and responsibilities to carry in a raid battle. Tanks, with their plentiful Health points and massive armor, had to keep the monsters occupied and focused on them while healers continually spent Mana points, casting spells to make sure the tanks stayed alive. DPS could then go about actually killing the monsters.

Each category of roles in the tripartite was therefore necessary to be filled for a raid group to be successful. Without tanks, the healers could not possibly cast spells fast enough to keep whoever was being attacked alive, and the monsters would kill everyone rather quickly. Without healers, the tanks would die, and the monsters would, again, chain-kill everyone. Without DPS, the healers would eventually run out of Mana, the tanks would die, and the monsters would ultimately kill everyone.

Table 1. Roles in *World of Warcraft* by Character Class (Horde-side, Spring 2006)

Role	Classes
<i>Tank</i>	<i>Warrior (defensive stance), Druid (bear form)</i>
<i>Healer</i>	<i>Priest, Shaman, Druid</i>
<i>DPS</i>	<i>Rogue, Warrior (non-defensive stance), Druid, Hunter, Mage, Warlock, Priest (shadow form), Shaman (elemental spec)</i>

The problem was that a monster generally attacked whomever it deemed the most threatening to its survival. If a DPS player hit a monster particularly hard or a healer healed too effectively, the monster could have taken notice and decide to hit back. As described in Chapter 2, whoever had the monster's attention was said to have aggro. Additionally, the monster switched targets when players "stole aggro" from others. Tanks could try to prevent this by activating various abilities meant to maintain aggro, while the DPS and healers tried to keep their performance at an even, consistent, predictable level without spikes that would make the monster take notice. In other words, many of the encounters in *WoW*, and indeed most MMOGs, were a balancing game where the three roles of the tripartite worked to maximize their efficiency while keeping the tanks the focus of the monsters' attention. The fights, therefore, were engineered by the game developers to test and destabilize the tripartite. This was a core dynamic that drove the mangle of play where players tested and retested the limits of their abilities based on models of how they thought fights worked—fights that were designed and redesigned by the developers to meet the changing practice of the players.

Each role in the tripartite (tank, healer, DPS) had specific responsibilities in a fight, yet healers and DPS could not "go nuts" with their abilities, spamming their most powerful ability over and over again. Rather, they were constrained by the need to make sure the tanks maintained aggro.

Threat Management

These games must obey some sort of algorithm, and, in this case, the way in which a monster decided who to attack was completely reactionary to the actions of the raid members. One way to think about how the underlying "brain" of the game calculated monster behavior is to imagine that it created a table that included a row for each raid member, and in each row was a number that started off at zero and increased a certain amount every time that particular raider activated an ability (see Table 2). The amount increased depended on the ability. This number was called the "threat level." One of the jobs of the raiders, then, was to make sure that the tank(s)'s threat level was higher than everyone else's.

When the raid group I was part of first started, we each had to internalize our threat level and "play it by ear," so to speak. There was no common resource or explicit knowledge of specific numbers associated with specific abilities. In fact, many of us did not really know that threat was based on a constant cumulative number. This is important to note: Many of us surmised

that threat was loosely based off of damage dealt, but we did not know that it was a cumulative count of all damage over the course of a fight, no matter how long that fight lasted. All we knew was that sometimes we would do too much damage and gain aggro. We knew from experience that some abilities generated more threat than others, and we had to weigh their costs against the benefits of the abilities. Very often, when a player died, it was because he or she stole aggro from the tank(s). That is, he or she misjudged how much threat was being generated and accidentally raised his or her threat to a higher level than the tank(s)'s threat level. If this happened enough times during an encounter, it usually ended up as a raid wipe.

Table 2. Hypothetical Threat Table

Time 1				
Player	Ability Activated	Threat Generated (hypothetical)	Existing Threat	Total Threat (hypothetical)
<i>Wendy (tank)</i>	<i>Sunder</i>	260	780	1040
<i>Rand (DPS)</i>	<i>Sinister Strike</i>	140	560	700
<i>Shaun (healer)</i>	<i>L. Healing Wave</i>	400	400	800
<i>Mandy (DPS)</i>	<i>Frostbolt</i>	500	0	500
Time 2				
Player	Ability Activated	Threat Generated (hypothetical)	Existing Threat	Total Threat (hypothetical)
<i>Wendy (tank)</i>	<i>Sunder</i>	260	1040	1300
<i>Rand (DPS)</i>	<i>Sinister Strike</i>	140	700	840
<i>Shaun (healer)</i>	<i>L. Healing Wave</i>	400	800	1200
<i>Mandy (DPS)</i>	<i>Frostbolt</i>	500	500	1000

Note: Hypothetical table at two different points in time (Time 1 and Time 2) that the underlying algorithm of the game created during a battle, keeping track of how threatening characters were to the monster being fought. Monsters attacked whoever had the highest threat, which was generated whenever players activated character abilities.

Looking at rogues in particular, since I know the game best from their point of view, I can say that, although we did not know exactly how much threat each of our abilities generated, a good rogue did know that certain abilities generated much more threat than others. We believed that these were roughly correlated to the damage output of the various abilities. For example, we knew that our main attack, Sinister Strike (SS), generated a consistent,

predictable amount of threat that was safe to use, whereas, Eviscerate generated much more threat since generally its damage output was much higher. Even though it did much more damage, the use of Eviscerate was limited by the fact that we could not use it as often as Sinister Strike.

Rogues operated on a mechanic of building up or chaining “main” attacks that enabled the activation of what are known as “finishing” moves. Sinister Strike was one of these main attacks that could be activated in a sort of rhythmic fashion every three seconds or so, building up a “combo point” with each successful hit. Rogues could build up to five combo points with these main attacks. Eviscerate was a finishing move that spent or used up the built-up combo points, and it did more damage with more combo points, giving rogues incentive to build up five combo points before using Eviscerate. Thus, Eviscerate was generally used less often than SS, in a more syncopated rhythm, but when it did get activated, it did more damage.

Going along with how many rogues, such as Roger, conceived of threat, if we were to graph the damage output of a rogue using SS and Eviscerate over time, we would see a baseline level of damage from SS and spikes in the graph every twenty seconds or so from Eviscerate (see Figure 4). As illustrated by the left-hand graph in Figure 4, this way of thinking about damage meant that threat was also a baseline that fluctuated over time. This threat model was closely related to DPS (damage per second), as a raider’s DPS tended to be flat with fluctuations. If instead, threat was to be graphed as a by-product of total damage over the course of a fight, the graph we would see more closely matches the second one in Figure 4. Since we were conditioned to thinking about damage as a consistent value over time and not thinking about accumulated damage, many of us had the misconception that threat looked like the left-hand graph with periodic spikes whenever a hard-hitting ability was activated.

These spikes in threat generation were known as danger zones where we needed to be cautious and alert in case the mob aggroed on us. Roger was especially vocal about how the other rogues should manage their own aggro (e.g., “no bursting, bursting will get you aggro”). It was general consensus that for certain fights, especially with boss mobs, we shouldn’t use Eviscerate at all. Instead we used Slice and Dice (SnD), a different finishing move that did not output damage in spike form. Rather, SnD made our non-activated attacks faster.

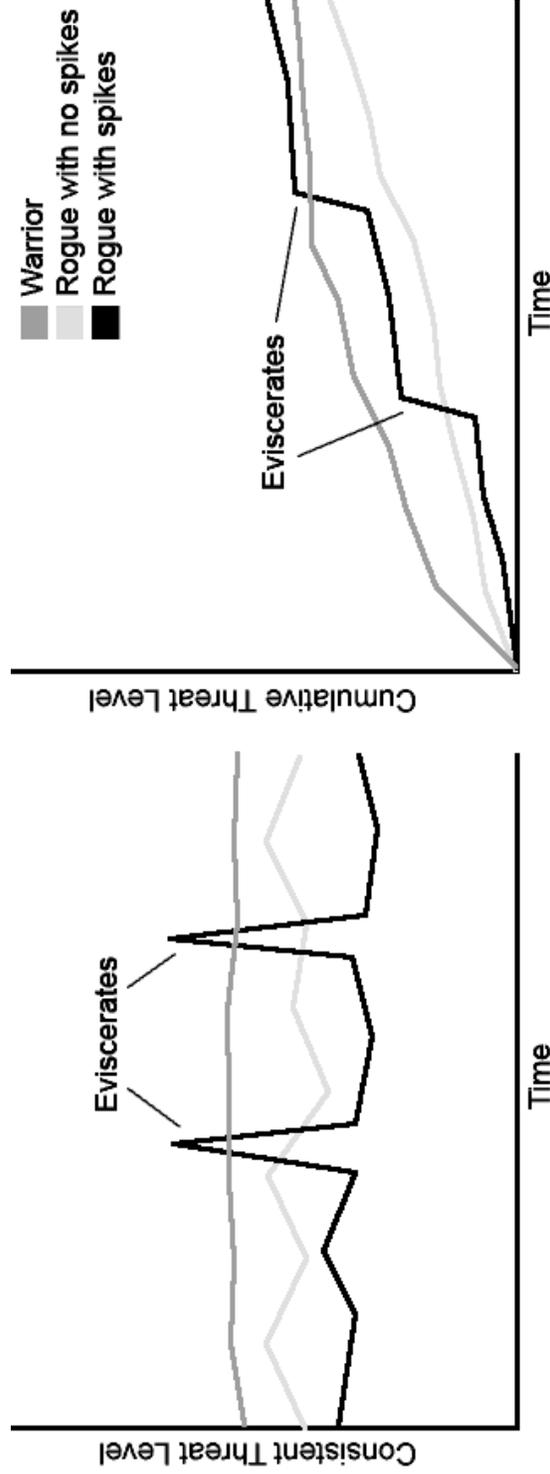


Figure 4: Two hypothetical charts showing different concepts about how threat worked in *World of Warcraft* created to illustrate this chapter's analysis. The chart on the left displays threat as a consistent level. Performing certain high-damaging abilities like a rogue's *Eviscerate* would cause a spike in the graph that would cause monsters to aggro since those spikes surpassed a warrior tank's threat level. The chart on the right displays threat as a cumulative value over the duration of a battle. Note that in this second view, the first spike is not enough to gain aggro.

Every character had a default attack that didn't require any input from the player. The level of damage from this default or "white damage" (so called because it was displayed in white in the in-game combat logs) attack from rogues was determined by the speed of how often a rogue swung his or her weapons, which was determined by the speed factor or attribute of each weapon, multiplied by how much damage the particular weapons could do with each hit. The resulting number was known as the weapons' damage per second or DPS, a term that, as mentioned earlier, had been co-opted as the name of the role rogues and other damage dealing classes assumed. So, the baseline in the graph in Figure 4 was actually a combination of the white damage plus the consistent damage from SS (a form of "yellow damage," the color of damage coming from activated abilities in the combat logs).

Slice and Dice temporarily sped up a rogue's default attack frequency, thereby raising the baseline damage by increasing white damage without adding spike yellow damage to the graph. Therefore, for many boss fights, the rogues would generally avoid using Eviscerate and instead use SnD because we did not want to have spiky damage graphs for fear of having spiky threat graphs.

The concept of threat was present, yet it was not fully understood, so using SnD was not strictly adhered to by all rogue players. This was especially true while we were learning new boss fights. To succeed, we frequently had to push the limits and continuously ride on the edge of too much damage / threat. If we were not on the edge of our ability, like an Olympic skier, then we were under performing, which could lead to a raid wipe if the raid healers were going to run out of Mana trying to maintain our current (s)low DPS. Yet, like all the Olympic skiers who wipe out, which happens quite frequently, we were always in danger of going over the edge or pushing too hard.

The first few times we encountered a new fight, raid wipes were expected. This allowed us to learn what mechanics were involved with the new monsters and gave us time to reflect on our performance (similar to the reflection Meep did in the "Pugging" interlude and the reflection the raid group did described in Chapter 2). Just like the aforementioned skier, who when learning a course for the first time would need to adjust speed when first attempts were too fast or too slow, our first attempts at a fight allowed us to test the limits of how much damage or threat we could generate. This is not to say that failure was always welcome, though. Even though early wipes were seen as learning opportunities, it was frustrating to wipe over and over again in the same game session.

All this led up to our fight with the last boss in Molten Core, Ragnaros. When we first encountered him, it was generally agreed upon by the rogues in

the raid that we should stick with using SnD to maintain a consistent, predictable level of threat. While we were learning the fight, however, something completely new changed raiding in *World of Warcraft* forever.

KLH Threat Meter (KTM)

About four months into our raid's life, in March of 2006, we started using a new add-on called "KLH Threat Meter" or "KTM." Created by a player named Kenco, KTM did the work of keeping track of which abilities a particular player used while fighting a monster, how much threat those abilities generated, and then visually displayed that information to that player. What's more, any instance of KTM could talk to other instances of KTM installed on other people's machines and thereby aggregate all of the threat data for all players who had the add-on installed, displaying relational charts of everyone's threat level to each player (see Figure 5). This allowed the offloading of human cognition to a nonhuman resource, effectively eliminating much of the guesswork that went into *World of Warcraft* threat mechanics.

Before the add-on, my raid group had progressed to the last boss in Molten Core. The write-up about our practice found in Chapter 2 describes how our chat was multi-threaded and interleaved, hierarchical and specialized, roughly divided by class role. Among many other things, one thing this configuration allowed us to do was to be highly coordinated in our tactical takedown of a raid boss. By the time KTM was introduced, we had become quite proficient in dividing up our attentional resources and communicating along certain channels, escalating which channels were in use when necessary. After KTM became the standard, the necessity of using those chat channels was not as acute as before. Suddenly, any player of any class could keep track of the threat generated of all the other players.

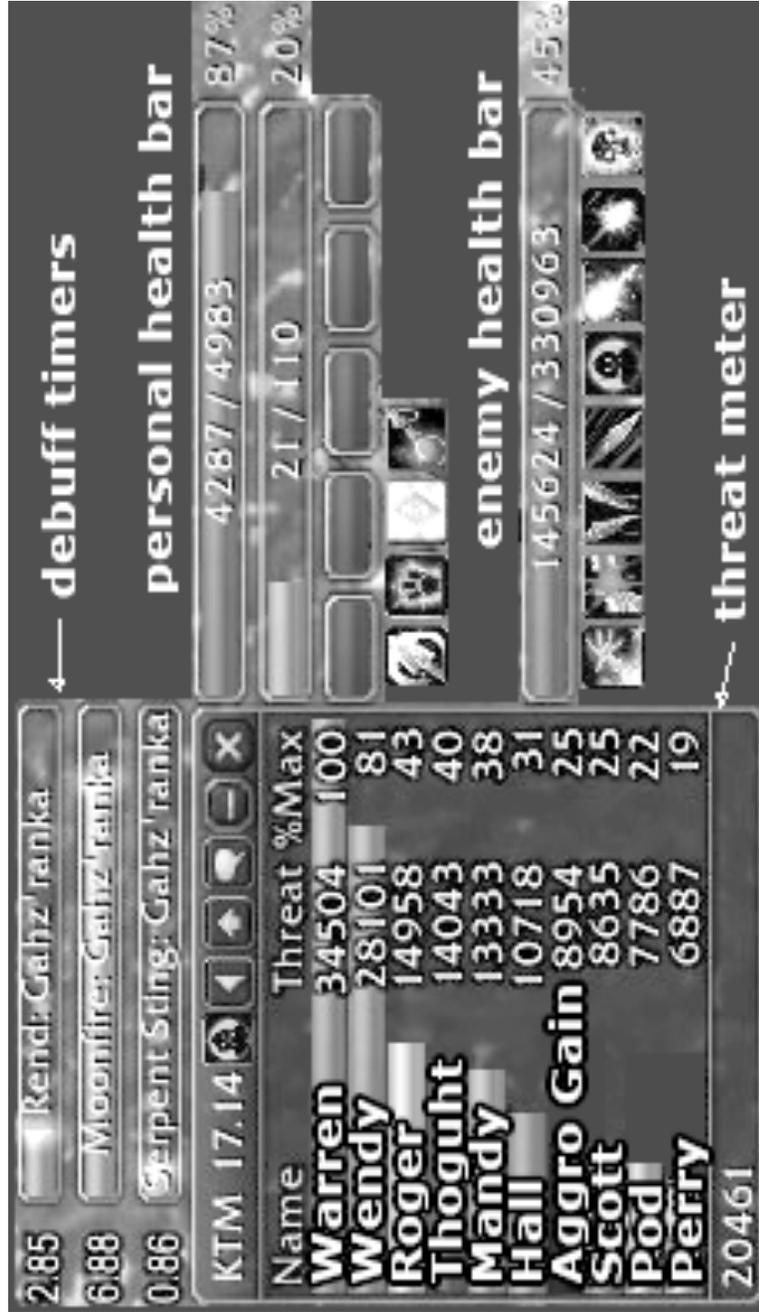


Figure 5: A section of my user interface during a raid battle, showing various add-ons in use. KLM Threat Meter (KTM) can be seen on the left side, displaying the top ten current threat levels of various members of the raid group. Warren and Wendy, at the top, are the main tanks for the group. Roger, Thoguht, Mandy, and Hall are all damage dealers (DPSers). Their threat level is nowhere near the tanks', thus they can up their damage output without fear of drawing aggro.

Not only did the add-on help us with our cognition, its use also changed who communicated with whom and about what, most notably allowing raid leaders to caution specific raiders about their threat generation. For example, before the MC raid group started using KTM, it was common for Maxwell to include warnings about aggro in his fight briefings (e.g., “melee, watch your aggro” on March 10). After mid-April, he no longer warned the raid or parts of the raid as a group to watch for aggro, instead calling out specific players *during* a fight when they got too much threat (e.g., “Roger!”). This effectively substituted knowledge-based trust in others with a technological advancement where trust or faith in other players’ ability to manage their threat didn’t matter. Yet, at the same time, KTM let us be much more efficient in our monster killing. We could ride the moguls much more effectively, thereby taking down monsters faster than we had been before, which also lowered the learning curve associated with new encounters.

Kenco was one of the early theorycrafters for *World of Warcraft*. In January 2006, he posted to the WoW European web forums that he thought it was possible to run a number of in-game tests, systematically accounting for different variables, to uncover how WoW calculated threat. (Kenco’s archived post can be found on WoWWiki at http://www.wowwiki.com/Kenco's_research_on_threat) At the time of his posting, in fact, he had run several of these simulations, and he proceeded to discuss his findings, dispelling quite a few myths about threat generation. This was counter to the general thought that exact threat mechanics were forever going to be hidden from the player community. An excerpt:

It’s often said that we will never be able to work out the way threat and hate lists and mobs’ AI works, because it’s too complicated and unknowable, that we’ll only ever have crude approximations and guesses. I’ve conducted some decent, rigorous tests, and i have what i believe is a good list of hate values and explanations of gaining and losing aggro and the behaviour of taunt. I am also able to debunk a few myths about how threat works.

After carefully describing his major findings, he gave a list of suggestions for strategies to use in future fights and then ended his post with this:

There’s no amazing super secret randomised blizzard aggro algorithm. The concepts are simple and the values can be fitted with nice numbers. Even formulas for threat-reducing knockbacks can conceivably be worked out, if threat values are carefully monitored.

In February, players started testing out Kenco’s first stabs at a threat meter add-on, and on March 1, 2006 (according to Curse’s records), he released the

first public version of KTM to Curse.com, a website devoted to hosting a *World of Warcraft* add-on repository.

In the years since then, theorycrafting became common practice, probably most popularized by the site Elitist Jerks (<http://elitistjerks.com/>), where class-based discussion boards devoted to damage and threat calculations feature players using sophisticated spreadsheets and custom tools to model and number-crunch every known in-game variable. Figuring out threat and then exposing the underlying model to all players via the add-on became so successful and so widely adopted into common raiding practice that for a few years Blizzard Entertainment designed new raid encounters to depend even more on players' ability to manage their threat and aggro levels. Blizzard Entertainment also made changes to the default user interface to include many of the tools the add-on community had created such as showing whom monsters were targeting at any given moment and making threat gains transparent. The game designers, in other words (as a coherent actant), became enrolled into the network, compelled to change the basic game and forced to agree with the player community.

Soon after my raid group started using KTM, a new in-game practice came about. The raid began using the threat meter as a metric for performance and efficiency monitoring. If DPSers were nowhere close to generating as much threat as the tanks, for example, they knew they could “lay down the smack” without fear of gaining aggro and therefore be more efficient with their fights. The damage meter, a precursor to the threat meter add-on, already existed for at least half a year, but it was not widely adopted into raiding practice. The damage meter kept track of the damage output of various players, which was easily calculable since *WoW* explicitly let players know how much damage each of their successful hits did. All Kenco did was figure out the hidden (but, again, very correlated) threat values of those abilities and include threat generation from non-damaging abilities. Saying “all” implies it was an easy task. It was not necessarily difficult but running the simulations involved in figuring out the correct numbers must have been time consuming.

Using KTM for its designed role—letting it assume its delegated responsibilities—to keep track of threat, I was able to monitor my threat gain against the diminishing Health bar of the monster we were fighting and determine whether it was safe to go “b2twdps” (balls to the walls DPS) or if I should hold back a little. The actual decision depended in part on how much DPS the monster could do to me if I gained aggro. Gaining aggro was fine so long as the raid could kill the monster before it killed me, which is why I needed to estimate how long the monster could survive given our current performance.

If I was generating threat too fast, where I would gain aggro long before we could kill the monster, I needed to hold back. The most common way for most players to reduce threat generation is to simply stop attacking. Everyone else would continue to generate threat so an individual player would become less threatening in the meter. Some character classes, like rogues, have abilities that reduce threat (Feint) or erase threat level completely (Vanish).

To add to this, rogues have an ability called Evasion that makes it harder for opponents to hit them. If I gained aggro purposefully or unavoidably—for example, when the tanks died—sometimes instead of hitting Vanish to clear my threat, causing the monster to go after someone else, I would hit Evasion since I knew the next person in line on the threat meter was not a tank either. When it caused us to avoid a wipe, this move was generally appreciated by the rest of the raid with words of cheer: “evasion tanking, ftw!”

Managing threat, relying on the tripartite class roles, was the paradigm for how fights worked in most fantasy MMOGs. There were variations to the fights, however, such as presenting players with multiple monsters to fight at once, necessitating the use of multiple tanks or the use of crowd control (CC) abilities like the mage’s Sheep spell, which temporarily takes a monster out of the fight by turning it into a small, white sheep. Blizzard Entertainment, to their credit, has been relatively creative in trying to alter or escape from this paradigm. It seemed like with each new encounter, especially with the raid locations from the second expansion, *Wrath of the Lich King*, the game developers asked themselves, “how can we nuance the paradigm and change things up a bit so that players have to adapt quickly, adjusting to different dynamics that they aren’t expecting?”

Even before the threat meter existed, though, Blizzard Entertainment was already designing encounters that tested out different ways to alter threat mechanics—the developers were attempting to steer the mangle of play towards tightly scripted encounters that depended on player positions as well as threat. One example is the Ragnaros fight (which I’ll cover in more detail soon) that my raid was learning when KTM came out, in which Ragnaros would Knockback all melee characters and then throw fireballs at random ranged players. This specific mechanic was unexpected, and what I find most interesting is not how KTM became incorporated into our practice but how it played a temporary role in helping us diagnose problems we were having with the fight. In other words, for the encounter with Ragnaros, KTM’s instrumental role was not, in fact, its designed role. (Users adopting new technologies in ways that were not originally intended by the designers is a story that is played over and over again (cf. Oudshoorn & Pinch, 2003).) Instead, once the problems of our tactics were fixed, we practically didn’t need

to use KTM during the fight at all, since we discovered that keeping track of threat in that fight was unnecessary.

Using KTM as a Temporary Actor to Kill Ragnaros:

April 28, 2006

Figuring out how KTM was enrolled into our system is an exercise of inferences due to the nature of my data collection and how multi-layered the game-playing experience was. For one thing, there's the normal problem of human existence as being isolated yet communal. On that layer, I existed as an individual within a physical setting, interpreting things through my eyes, attempting to understand the meaning-making of other participants through shared experience. The fact that everyone sees things differently is something ethnographers in general always have to grapple with.

Yet participating in an online space forced me to see things with an additional mediated lens or layer. My screen was both a window to the world but also a surface with a head's up display (HUD). These 2D unit frames that gave me an augmented view of the 3D space were only available to me, just as another player's HUD was only available to that other player. The shared experience occurred in the 3D physicality of the virtual space while the Health bars, minimap, action bars, etc. were all extra-diagetic elements to my experience—that is, elements that were not part of the fantasy world within the frame of the game but instead came from outside of the frame to add to the experience of engaging with the media.

As a shared tool, each player used an instantiated version of KTM. We trusted that we were all seeing the same chart values, but each player had control over the add-on's size, location, and KTM specific settings such as the number of raiders to display in the chart, the colors to use for each character type, whether to show cumulative values on the meters or difference values between raiders' current threat level, etc.

KTM's adoption into our network of raiding practice was a slow process and spanned several weeks across multiple raid zones and groups. It was difficult to understand KTM's usefulness without seeing it in action, and, even then, the demonstration would only be convincing if a critical mass of people were using it. At first, Warren, our main tank, learned about it through the *World of Warcraft* forums and add-on communities, but it was still in beta, so many of the raiders did not feel comfortable installing it. In other words, the

micro-network made up of this nonhuman actor and its enrolled human players could not yet translate the larger network into adopting it.

The first time KTM appears in chat logs is not when the MC group first started using it in earnest but when Warren and I were just testing it out. At the time, Warren was still a member of the Booty Bay Anglers. He would later join The 7/10 Split to gain access to more raid activities. Our testing occurred on February 23, 2006, while we were just killing random monsters outside:

2/23 19:24:03.218 [Party] Thoguht: works great!

2/23 19:24:05.046 [Party] Warren: hehe it works

2/23 19:24:12.046 [Guild] Warren: Threat Meter WORKS! *[Warren was so impressed, that he announced it to the other Booty Bay Anglers who were online at the time.]*

2/23 19:24:14.125 [Party] Thoguht: feint works and all

2/23 19:24:25.843 [Guild] Hizouse: Good to hear.

2/23 19:24:34.406 [Party] Thoguht: super easy for me to tell if I will get more aggro than you now sweet

2/23 19:24:41.046 [Party] Warren: yah this rocks

2/23 19:24:48.578 [Guild] Warren: but everyone needs it

2/23 19:24:59.937 [Guild] Thoguht: well, everyone who cares... :) I do!

2/23 19:25:35.781 [Party] Thoguht: useful to non MTs like me for personal reasons... not as useful to you unless everyone gets it

2/23 19:25:46.234 [Party] Warren: yah I dig this

The next day, however, we did not introduce KTM to the MC raid group. Perhaps we thought there was too much inertia and not enough time to introduce a new add-on to 40 people from different guilds. On February 25, the two of us were in the Ruins of Ahn'Qiraj (AQ20), a 20-person zone located in the arid deserts of Silithus, with a sub-group from the main MC raid. While we were encountering a boss named Kurinnaxx and hearing the description on how to kill it, I mentioned that "threat meter would come in handy here." Wallace, another warrior from The 7/10 Split, agreed, indicating that at least one other raider was starting to hear about this new add-on and what it could do.

In other words, KTM was first mentioned to a subset of larger raid group in a different raid zone than Molten Core. The next day, February 26, 2006, two rogues had decided to test out KTM's usefulness with our fight in yet

another raid zone. It was during our encounter with Onyxia, a massive black dragon, protective broodmother to many whelps, sister to the Black Dragonflight faction leader Nefarian, and serious business (that required many dots). Though the rogues had KTM installed, without any tanks or healers having also installed it—for some reason, Warren had it turned off—the threat meter was not of much use, since it was only able to show threat generation from the two rogues. The lack of uptake at this point may have been because the raid group had already successfully killed Onyxia in the two prior weeks. Onyxia was effectively on farm status. Since it was pointless to be the only players with KTM, we uninstalled the add-on.

After the add-on was officially released on Curse.com on March 1, 2006, another attempt at getting people to try it happened on March 8, when four of us had it installed for our MC run. Still, there were not enough instances of KTM to be useful, but we could see how including the add-on to our network of activity would be useful for fights we were still struggling with. During the following month, most of the MC raid group would install KTM (see Table 3). By April 2, 2006, starting with our fight with Onyxia—because in the previous week we actually suffered from some aggro problems with her—most of us were using KTM, and it was generally assumed that everyone was using it. This is implicit in a statement made by Marcie during that evening’s session:

4/2 18:15:37.000 : [Raid] Maureen: ((For the KLH threat, do I just need to have it loaded or do I need to set anything up?))

4/2 18:15:51.781 : [Raid] Warren: just type /ktm raid show

4/2 18:15:58.687 : [Raid] Wendy: ((just loaded to send us info, but if you want to see it, then you should show it))

4/2 18:16:30.812 : [Raid] Maxwell: test

4/2 18:16:41.984 : [Raid] Marcie: ((apparently a new one came out yesterday, so we all need to get it for later))

By late April, most of the raid group had incorporated KTM into its network of raiding, and it proved instrumental in helping us diagnose problems the group was having with the fight with Ragnaros.

Table 3. History of Raiding Activity with Regular Raid Group and Separate Guild Group

Wk	Date	Zone	Boss Wall	Notes
1	10/19/2005	MC		First time regular raid group in Molten Core (MC)
	10/21/2005	MC	Gehennas, 29%	First time Thoguht got in MC with regular raid group
2	10/26/2005	MC		Second time Thoguht in MC, maybe a regular now
	10/28/2005	MC	Baron Geddon	
3	11/2/2005	MC		
	11/4/2005	MC	Baron Geddon	
4	11/9/2005	MC		
	11/11/2005	MC	Baron Geddon	
5	11/16/2005	MC		
	11/18/2005	MC	Golemagg	Baron Geddon down! Shazzrah down!
6	11/23/2005	MC		
	11/25/2005	MC	Golemagg	Thanksgiving weekend
7	11/30/2005	MC		
	12/2/2005	MC	Baron Geddon	Raid ended after Garr
8	12/7/2005	MC		
	12/9/2005	MC	Garr	Only had one warlock = death with Garr
9	12/14/2005	MC		First madrogues usage
	12/16/2005	MC	Baron Geddon	Raid ended after Garr
10	12/21/2005	MC	Golemagg	
11	1/4/2006	MC		
	1/6/2006	MC	Golemagg	
	1/8/2006	Ony	Onyxia	First time in Onyxia's Lair (Ony) with raid group
12	1/11/2006	MC		
	1/13/2006	MC	Domo	First Majordomo Executus (Domo) encounter
	1/15/2006	Ony	Onyxia	
13	1/18/2006	MC		
	1/20/2006	MC	Domo	
	1/22/2006	Ony	Onyxia	
14	1/25/2006	MC		
	1/27/2006	MC	Domo	
	1/29/2006	Ony	Onyxia	

Continued on next page

Table 3 (Continued)

15	2/1/2006	MC		
	2/3/2006	MC	Domo	Raid ended after Golemagg
	2/5/2006	Ony	Onyxia	
16	2/8/2006	MC		
	2/10/2006	MC	Rags	First Domo kill, first Ragnaros (Rags) encounter; not serious
	2/12/2006	Ony		First Onyxia kill
17	2/15/2006	MC		
	2/17/2006	MC	Rags	Not a serious attempt at Rags
	2/19/2006	Ony		Onyxia on farm status
18	2/22/2006	MC		
	2/24/2006	MC	Rags	First serious attempt at killing Rags
	2/23/2006	na		KTM testing with Warren
	2/25/2006	AQ20		First time in Ruins of Ahn'Qiraj with raid group, KTM mentioned to raid
	2/26/2006	Ony		First use of KTM in Onyxia by Rand and Thoguht
19	3/1/2006	MC		
	3/3/2006	MC		First use of KTM in MC, only Thoguht
	3/5/2006	Ony		Stopped using KTM
20	3/6/2006	ZG		First time in Zul'Gurub with the Booty Bay Anglers; didn't use KTM
	3/8/2006	MC		First use of KTM in MC by Rebecca, Rand, Thoguht, and Pliance
	3/10/2006	MC		
	3/12/2006	Ony		
21	3/15/2006	MC		
	3/17/2006	MC		
	3/19/2006	Ony		
22	3/20/2006	ZG		Anglers ZG with no KTM
	3/22/2006	MC		
	3/24/2006	MC		
	3/26/2006	Ony		
23	3/27/2006	ZG		Anglers ZG with no KTM
	3/29/2006	MC		
	3/31/2006	MC	Rags	Ragnaros fight wouldn't reset properly.
	4/2/2006	Ony		Tanks, raid leaders, and some others using KTM regularly.

Continued on next page.

Table 3 (Continued)

24	4/3/2006	ZG		Anglers ZG with no KTM
	4/5/2006	MC		
	4/7/2006	MC	Rags	KTM part of standard practice now
	4/9/2006	Ony		
25	4/10/2006	ZG		Anglers ZG with no KTM
	4/12/2006	MC		
	4/14/2006	MC	Rags	Ragnaros fight buggy
	4/16/2006	Ony		
26	4/17/2006	ZG	Panther	First use of KTM in ZG with Anglers
	4/19/2006	MC		
	4/21/2006	MC		
	4/23/2006	Ony		
27	4/24/2006	ZG	Raptor	
	4/26/2006	MC		
	4/28/2006	MC	Rags	Diagnose rogues' aggro problem with KTM
	4/30/2006	Ony		
28	5/1/2006	ZG		Panther down!
	5/3/2006	MC		
	5/5/2006	MC		Wendy leaves raid
	5/7/2006	Ony		
29	5/8/2006	ZG		
	5/10/2006	MC		
	5/12/2006	MC		No data, but first Ragnaros kill
	5/14/2006	Ony		
30	5/15/2006	ZG		
	5/17/2006	MC		
	5/19/2006	MC		Ragnaros killed on 3rd attempt
	5/21/2006	Ony		

Note: The “Boss Wall” column details which boss we were attempting to kill that night. If none is listed, the raid was not attempting a new boss and ended after routine fights. The “Notes” column displays significant moments when a boss was killed for the first time and/or when the groups started using KTM. Raiding activity ramped up over thirty weeks, starting from two nights a week and ending at four nights a week by the time the regular group completed Molten Core.

Presented next is a description of the Ragnaros encounter and how the raid group used KTM to diagnose a problem the raid was having with the fight on April 28, 2006.

The fight with Ragnaros had two phases to it. In the first phase, he emerged from a pool of lava in the center of the cavern chamber and engaged in melee combat against those close to him while throwing fireballs at raiders who were at range. In phase two, he hid under the lava surface and sent eight of his Sons of Flame to battle us instead. This process was repeated until either he died or killed all of the raiders. Here's a more detailed summary of how the fight worked and the strategic moves of my particular raid group (see Figure 6):

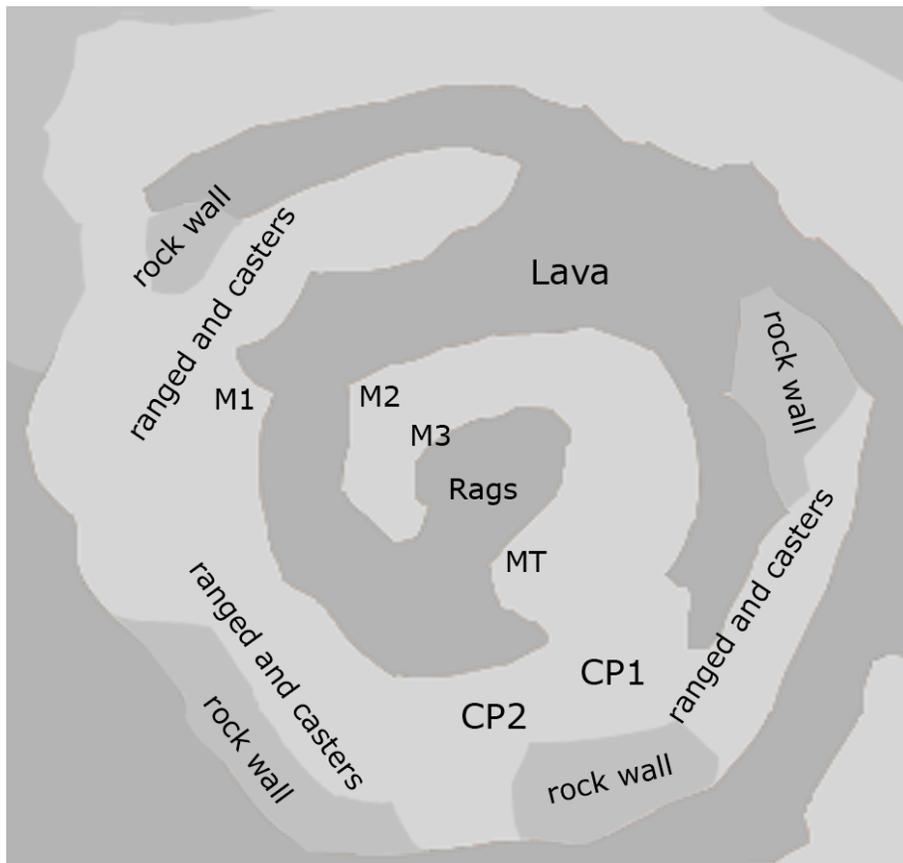


Figure 6. Overhead map of Ragnaros's chamber in Molten Core, a fiery cave system in *World of Warcraft*, detailing the positions of players during the fight with Ragnaros. M1, M2, and M3 are melee positions. MT is where the main tanks stand. CP1 and CP2 are the collapse points for the players during Phase 2 of the Ragnaros fight.

1. This happens for about two and half minutes when the raid leader calls for ranged and casters to collapse to a common point (CP1), followed by the melee collapsing at the same point.
2. At the 3-minute mark, Ragnaros submerges himself back into the lava and summons eight Sons of Flame who rush the raid group and start attacking.
3. The melee grab aggro from the Sons and then the ranged and casters run to a different point (known in the raid as the Caster Pit [CP2]). This is because the Sons do AoE damage and Mana burn.
4. Some of the Sons get banished by our warlocks, just to help limit the number we have to handle initially to a manageable level.
5. We focus fire and kill all the Sons in methodical order.
6. Rags reemerges and we go back to our phase 1 positions.
7. Rinse and repeat until Rags is dead.

Some of us knew how the fight was supposed to work from reading online strategy guides about it. Actually, unlike the practice for many mature “hardcore” raids, only a few of us had read the guides; the rest of us depended on the raid leader to summarize the fight for us (Walter & Chen, 2009). Partially this was because some players didn’t want “spoilers” while solving the fight’s puzzle. Reading and hearing about the fight did not directly translate into successfully enacting the fight, though. It took embodied knowledge—visceral, physical, rhythmic knowledge—coordinated knowledge developed through gaming. In fact, the word “knowledge” seems an odd way of describing it. Saying, “I know how the fight works” doesn’t seem like enough. I know how the fight feels. I’ve felt how the fight works. To gain this type of knowledge required practice. It took time to get a sense of the groove—the rhythm of well-coordinated action—we needed to be in. To illustrate this, here’s an excerpt from one of my fight synopses using Rogoff et al.’s (2002) first step in functional pattern analysis as a model for descriptive summaries of events:

A lot of information floods my senses once the fight starts. Both visual and audio indicators come at me. Furthermore, these are both diagetetic (such as the animation of all of us swinging our weapons or the grunt of my character as he attacks) and non-diagetetic (such as various panels and buttons on my screen representing the game’s UI or the various alert sounds coming from our installed add-ons).

Some of this info: The “Bong” sound from our CT Raid add-on that happens in sync with the words “AE Knockback” appearing in the center of my screen. The raid leader’s “Melee attack!” command issued in several text channels, also facilitated by CT Raid. SCT (another add-on) sending a constant stream of text up as I gain energy,

take damage, activate abilities, etc. My custom timer bars popping up (from yet another add-on) letting me know how long dots and other effects last. KTM, the threat meter add-on, keeping track of all our threat levels. Custom UI enhancements (yep; add-on) showing me the Health and Mana of the whole raid, showing me my Health and energy gain and CP build-up, Ragnaros's Health and all of our buffs / debuffs. Specific windows showing MTs (CT Raid) and their targets. The screen flashes with lava bursts and waves every once in a while. The "snick snick whoosh" of Sinister Strike and a miss. The sound effects of other abilities including those of the raiders around me. When I mistimed something, my character, Thoguht, saying "not enough energy." The sharper "ding" sound of incoming Knockback and the melee DPS backing up as a group to our corner of the spiral peninsula. After the next "Bong," rushing back in with the group.

A semi-regular sequence of indicators and my reactions to them emerges from the chaos bracketed by the Bongs of Knockback. The first time we fought Ragnaros, this pattern was noisy, but this night it is getting refined and less noisy. A month from this night, the pattern starts to stabilize, and I start to feel a rhythm to the fight. SS, SnD, SS, SS, SS, Feint, SS, SnD, ad infinitum. Sometimes an Eviscerate thrown in there if SnD hasn't expired. This goes on until the "ding." Move back. "Bong." Move forward. SS, SnD, SS, SS, SS, Feint... Rinse and repeat. In forums, other players have used another way of visualizing the actions rogues take, referencing the keyboard buttons needed for the actions: 2422262242262223 repeated.

But in this particular iteration of the fight, we don't yet know the pattern, haven't yet found our groove or gotten into the flow.

There's an addictive quality to this embodied knowledge once the groove is found and enacted / experienced time and time again, though I would hesitate to call it "addiction" from the media effects standpoint: It is not a sinister, time-sinking, life-destroying activity. Instead, the knowledge is so much a part of me now that I can slip into reenacting the activity very easily, using what Norman (1993) calls *experiential cognition*—a form of automated or routine thinking and acting made possible through expert knowledge—something that may be more important with self-taught expertise. The physicality of my thinking-acting gives support to the idea that cognition is situated and cannot be separated from the body (Wilson, 2002). Moreover, I long for it; it sustains me. It has become part of who I am. My identity depends on this cultural knowing of what it feels like to be raiding in Molten Core. But rather than taking away from my life, it enriches my life. My identity is built up in layers that are semi-transparent such that underlying layers are still visible and a part of the whole—what Holland and Leander (2004) call laminated—by all my gaming experiences through a lifetime of *being*. Through gaming, I know nostalgia and melancholy, joy and triumph, success and failure, sadness and anger, and the physical, inexplicable-through-words, embodied, muscular-impulse knowledge of specific game-playing activities.

Gravitating towards these activities is only addiction in the sense that people are compelled to engage in the activities that define who they are—activities that build up cultural capital by taking place in contingent spaces and that are born out of bone-deep understandings of being in the world.

Gamers bring our cultural-practice-informed identities, both laminated through other gaming experiences and non-gaming experiences, to new play spaces, as Andrew at Little Bo Beep (2010) says

When we play a game, no matter how ornate or simple, we are automatically imbricating it with layers of personal meaning and inherited signification. The game occurs therefore in a non-linear sequence of events that extends back to the beginning of our lives, and even beyond that to the earliest inception of consciousness.

....

We are who we are in the becoming of ourselves. By engaging with the world and its manifold variations we are simultaneously defining who we are. Games contribute to this definition in more ways than I can describe.

This is true of everyone. Everyone engages in activities in everyday life that is locally meaningful. People care about their pursuits that are consequential to their cultural identities and positions in the world. People's identities—people's activities—can be beautifully, sometimes exquisitely, complex, such that to call any of it addiction without deeply examining the meaning behind the actual practices, actions, and relationships in people's lives shortchanges them as humans. Obviously some people spend a lot of time with games and gaming, but that does not necessarily pose a danger to their offscreen / nongaming lives nor are their gaming activities meaningless. For my participants, these activities gave them the feeling of achievement, strong camaraderie and friendships, success in a contingent space, and deep bliss in finding the groove of raiding.

Unfortunately, for this particular night of raiding, the rogues had not yet experienced the embodied groove of making the fight routine. We knew what was supposed to happen in the Ragnaros fight. Yet, for some reason, we kept dying. Ragnaros would, once in a while, focus his attention on one of us and hit us. This resulted in almost instantaneous death (“insta-death”) for a rogue.

Naturally, we thought that our dying meant we had an aggro problem, leading Roger to tell the other rogues how to play:

this is a steady high dps fight, no bursting, bursting will get you aggro, in my experiance, anything over 1000 gets rags to say hi to ya unless you are feint everytime its up, and a split second after your burst.

It seems like Roger believed, however, that threat was not an additive measure and that gaining aggro was simply a matter of moment-to-moment damage output (see Figure 4). If damage output was ever too high in a particular instant in time (e.g., over 1000), aggro would be gained. This goes against the tests done by Kenco that resulted in his relatively accurate threat meter—accurate because it treated threat as a persistent, cumulative number representing the sum of all threat generated with all abilities used during a particular fight.

Since I had the threat meter add-on installed, I had an idea that it wasn't our threat generation that was the problem. Yet my personal understanding of how threat and aggro were calculated was still forming, so I could not recognize Roger's misconception. Also, all I knew was that *some* of our threat levels were nowhere near the tanks' levels, but since not all of the rogues had installed the add-on at that point, I could not say for sure if it was true for all rogues. So when the shaman in our party mentioned that he could buff us with a totem that reduced our threat generation, I suggested to the rogues that I thought we could do more sustained damage if we didn't have to use Feint, which used up our valuable Energy that our main attacks also used. Roger, unfortunately, misunderstood me. Unfortunate because he had a tendency to be curt and had little patience for others who disagreed with him. Thinking that I was complaining about not being able to skillfully and efficiently activate my abilities, his reply was, "well, lern2manage?"

After our second attempt at killing Ragnaros for the evening, Rand said, "I got aggro on that one. Not sure how, was using the same technique as last time." To this, I replied

so, I have threatmeter on... noticed I wasnt very high up and did a cold blood evis just fine. I strongly suggest you get the mod... so you can judge how good you are on aggro

This response was further indication that I could not say for sure that Rand did not have a threat level problem, but I did confirm that aggro was not gained simply by doing burst damage. It is interesting to note that, at this point, I had already enrolled KTM into my personal actor-network, placing my whole trust into this nonhuman actor for certain responsibilities. I knew that my previous practice of keeping the *feeling* of threat in my head was inexact, and I assumed that this blackbox of a tool could do it better than me. KTM, in turn, gave me permission to push the limits of DPS, and it also let me enroll it as evidence for why threat wasn't the rogues' problem.

During our third attempt for the evening, Roger himself gained aggro and died after the first Knockback event, responding to the other rogues with, "lol.

he must dump most aggro at Knockback. i think i got to him quicker then the tanks.” He assumed that Ragnaros reset his threat table when Knockback occurred, thus getting to Ragnaros before a tank meant it would have been easy for a rogue to generate more threat than a tank since he or she had more time to generate threat.

Eventually, on our fourth attempt, it became clear that the rogues were pulling aggro even though they were nowhere near the threat level as the tanks. This was demonstrated when Roger again died after the first Knockback. When Roger used the general [Raid] channel (instead of just commenting to the private rogue channel) to say, “i hit him once. that made no sense,” the raid leader, Maxwell, replied with

Roger, they [the tanks] may have been out of position for just a second which is enough for anyone else to get aggro who is in melee range.

Elevating his talk to the larger chat channel elicited new information from Maxwell that further helped the rogues to diagnose our aggro problems. Maxwell was correct. Ragnaros attacked whoever had the highest threat within melee range, and the reason why rogues were being killed was because they were running into position and getting within Ragnaros’s melee range before any tanks had gotten in range. Roger’s (and the other rogues’) misconception was not quite dispelled, yet, though, as Roger replied with

wtf. i didnt even hit him, it was a miss. lol. “Your sinister strike misses Ragnaros”

This indicates that Roger was still working under the assumption that threat by way of damage level had something to do with why he was hit by Ragnaros when all that mattered was that he was in range when no one else was.

By the end of this gaming session, the rogues *almost* realized that Ragnaros hit whoever had the most threat *within range*. This new information from Maxwell added to the information that I presented to the other rogues in the previous fight from the threat meter add-on. By the time we fought Ragnaros again the following month, we had put it all together and delayed our approach to Ragnaros after a Knockback so that a tank got within melee range first.

By using KTM to see that our threat level wasn’t high enough to theoretically pull aggro, we had to think of other possible reasons why we were being targeted for attack by Ragnaros. Thus, KTM played a role as a temporary actor within this raid encounter. We only used KTM to diagnose problems, not to actually alert us of threat level dangers throughout the fight. Once we figured out that threat wasn’t the problem, we essentially no longer needed

KTM for the Ragnaros fight. A month later when we were starting to kill Ragnaros routinely, our raid leader gave this as part of his pre-battle speech:

get in poisiotn on the pull, but DO NOT ATTACK until AFTER tank is back on Rags after a knockback

While this does not specifically say “do not get in range” it may be implied, given how the players had come to understand the mechanics of the fight from the previous attempts.

In summary, the raid group I played with had reached Ragnaros by the time the new threat meter add-on KTM arrived on the WoW gaming scene. It took us several weeks, however, to incorporate it into our assemblage of play. It completely changed how the task of keeping track of threat was distributed in our system. Yet the Knockback events in the Ragnaros fight forced us to reconfigure or renegotiate dynamically how KTM was enrolled into our network. It added to our body of evidence that threat was not actually the reason rogues were gaining aggro, and, weeks later, we were able to incorporate this new knowledge into our successful strategy.

The idea that we assigned a new role to KTM in-the-moment may seem to complicate actor-network theory’s concept of delegation where nonhuman actors are meant to take on specific responsibilities by their creators. Instead, we see that this actor-network was dynamic and the translation process—the negotiation and agreement process—necessitated constant reworking and retranslating. Latour (2005) understood actor-networks as ever-changing, though, which is why the work of the actors within the network leave traces of their associations to be followed and examined and why, once described, the network *as described* may no longer exist.

KTM and Networks

Actor-network theory is an attempt to describe how an arrangement of objects in a network are acting on others and are acted upon by others so that the activity does what it does. It tells a story about practice within situated contexts, involving historically-based interrelated actors. At the basic level, this network ANT describes is an assemblage of parts, but it is also dynamic. This dynamism is what makes it a mangle with vying interests and constantly renegotiated relationships and distributions of responsibilities. The reassembling occurs across multiple layers of complexity and multiple timescales.

On the surface level, the whole landscape of *World of Warcraft* play was determined by designed constraints from the game developers, who were, in turn, affected by the historical evolution of MMOG play. Digging deeper, individual players assemble and arrange the objects and resources in their specific in-room, on-screen settings. KTM is just one of these objects.

Between the work that occurred on the surface level and the deeper individual player level lays the mangle that Steinkuehler (2006) wrote about: a messy set of practices emerging from the constant clash and negotiation between the designed experience, players' exploration and meaning-making in that experience, and all the ways in which various parties exploit, modify, and change the system. In the larger WoW community, KTM and other player-created add-ons that helped raids manage raiding was becoming so normative that Blizzard Entertainment was forced to incorporate many of their user interface tweaks into future iterations of the base game.

My raid group and its activity across the locations in which it assembled represented one tiny sub-mess—a microcosm of the mangle—and yet this small mess could be broken down further. Each character class was grouped together and those groups independently assigned internal roles and responsibilities, engaged in scientific argumentation about strategies and tactics, and theorycrafted with a larger class-based WoW community. Furthermore, as stated earlier, each player had his or her own local configuration to manage. Just as Stevens, Satwicz, and McCarthy found with their young gamers (2008), these arrangements would sometimes extend beyond the computer screen and into the room. I personally distributed bits of info onto sticky notes on my desk to help me remember, for example, how much fire resistance I should have.

The existence of networks within networks is something Latour spoke of when he described the anatomy of a door-closer (1988), but as Lemke (2000) notes, different measurement scales can be used to look at time in addition to size.

KTM was designed by a player in Europe within an emerging theorycrafting community of WoW players. He then released it to the larger WoW community. Specific to my raiding experience, the use of KTM started off in one raid zone with one group of players who were a subgroup of the larger Molten Core raid group. Its use then migrated over to MC. It took about two months for the diffusion of KTM to reach some sort of critical point of usage so that it was accurate enough to help raiders keep track of threat and predict aggro gains. This was slow, at first, because its effectiveness was difficult to demonstrate without enough people using it to begin with. Partly, it was the situated knowledge problem of trying to describe a bicycle to

a fish (Bransford, Brown, & Cocking, 2000). The very idea of a bar chart showing threat level was completely new to some players. Roger and most of the rest of the rogues had the misconception that threat level wasn't additive, for example (see Figure 4).

The two months can be broken down into weeks, each week representing a fresh start in Zul'Gurub (ZG) (with the Booty Bay Anglers), the Ruins of Ahn'Qiraj, Onyxia's Lair, and Molten Core (see Table 3). From week to week, a subgroup of players was using KTM and, at least, managing threat effectively within the subgroup. When aggro was stolen by another player during a threat-dependent fight, it was done so by a player without the add-on, reinforcing the importance of having more and more players use it.

In a given week, such as the week of April 28, 2006, we can see how the rogue class group used KTM to diagnose problems with Ragnaros. Not all the rogues had KTM installed, but enough had installed it to start to understand that threat wasn't the problem with gaining aggro in that particular fight. This diagnosis was actually done on a single night across multiple attempts at confronting Ragnaros. Each attempt lasted about 6 minutes plus about 20 minutes of pre-planning and post-debriefing—time reserved for reflective thought (as opposed to experiential thought) that helped us learn (Bransford, Brown, & Cocking, 2000; Norman, 1993).

Each attempt can be looked at using a scale of seconds identifying specific chat utterances that show changes in conceptual thought about how to successfully fight Ragnaros. These individual utterances, sporadically spread out over a single attempt and even more sporadically spread across multiple attempts, occurred on multiple communication levels, interwoven between the rogue chat channel and the larger general raid group chat channel.

The actual practice we were engaged in was informed by a raiding tradition in the MMOG genre that spanned at least a decade (e.g., raiding in *EverQuest*). The instantiated version in *WoW* was affected by players' understanding of the particular mechanics of *WoW* raiding, but this second stage of *WoW* was affected by what players knew about general *WoW* encounters, which they learned after months of leveling up and participating in smaller player groups during the first stage of *WoW*. I think it also matters that we were on a role-play server, in that players tended to type in full proper English, to not stand on top of each other, to wave and greet each other, to make comments about the game world, etc. One of our raid members, Wallace, for example, in thinking that someone in the game world would not needlessly exert energy, would sometimes walk from fight to fight while the rest of us ran, making us wait for him to catch up before we pulled. It also mattered that the raid group's membership was not from a single guild because

this added another layer of negotiation and management that needed to occur to align players from multiple guilds and affiliations who brought with them their particular practices and norms into those of the raid group. All these different levels and timescales of experience serve to position and frame future work of individual actors and groups.

Narrowing Play and Exposing Disruptions

In summary, the enrollment of KTM can be broken down into several stages:

- We raided without KTM for 4 months, keeping track of threat on our own.
- When we first tried KTM, it proved ineffective and its affordances were unseen when only two of us had it installed.
- A couple of months later, KTM reached a critical mass of use and was starting to be used in MC, mostly because we had installed it for non-MC fights.
- KTM became temporarily in-the-moment enrolled to diagnose Ragnaros fight problems that the rogues were having.
- Once we diagnosed the problems, KTM no longer was needed for the Ragnaros fight, though KTM was still useful for other fights that required careful threat monitoring.
- KTM became a surveillance tool for raiding in general.

The enrollment of KTM into my raid's standard practice brings up a number of issues. First, though it was nominally being incorporated to an existing network, it took on a sort of agency itself by imposing new responsibilities to the other actors in the network (e.g., it shifted communication patterns, it drove changes in strategy). Giddings (2007) uses Dennett's (1971) concept of *intentional systems* to describe the key difference between agency ascribed to humans versus nonhumans:

So this intentionality does not assume that complex systems have beliefs and desires in the way humans do, but that their behaviour can, indeed often must, be understood *as if* they did. Or perhaps, and Dennett hints at this, their "beliefs" and "desires" are not so much metaphorical as analogical.

This "unmetaphysical" notion of the intentional system both resonates with Latour's nonhuman delegations and suggests ways in which we might theorise our material *and conceptual* engagement with complex computer-based media, sidestepping a whole range of largely unhelpful speculations on imminent realisation of actual machine consciousness. It suggests that the experience of playing (with) these

game/machines be theorised as one of engagement with artificial intelligence without slipping into naive anthropomorphism or frenzied futurology. (p. 122)

KTM, on a micro level, required us to give it attention and then adjust our behavior based on what it displayed. It did not care, of course, whether we actually changed our behavior, and neither did it enforce its use. Yet, by being a transparent tool, showing everyone's threat level to all players, it did not need to enforce its use. We did that on our own. This is both good and bad. Its benefit was clear: some of the players appreciated being reminded by others to be cautious about their threat level. Yet this came with a price. While KTM served as a threat meter add-on to warn us of impending aggro change, it also served as a surveillance tool that we could use to make sure each of us was playing efficiently to help the common task. As Taylor (2006b) noted (p. 329):

One predominant trend that has arisen in WoW through mod development... is an extensive network of tools and functions that consistently monitor, surveil, and report at a micro level a variety of aspects of player behavior. Worth critically noting here is that these developments are instigated, promoted, and adopted by participants themselves.

Some players from my guild, the Booty Bay Anglers, for example, used a backchannel once to discuss the low performance of a "problem" player in our weekly Zul'Gurub runs, citing threat and damage meters as evidence for her free riding. What used to be monitored individually had become distributed to the collective, making it open and transparent, essentially transforming the trust needed for group work (and social dilemmas) that was based on friendships and camaraderie into trust based on surveillance and technology. Furthermore, on a more macro-historical level, KTM helped narrow the legitimate experience of playing *World of Warcraft* by reinforcing the threat paradigm and the tank-healer-DPS tripartite found in MMOG encounters. Playing WoW has consistently become more and more a game of numbers, efficiency, and theorycrafting, buying into the notion that the end goal of playing is to win loot and progress.

The second issue brought to light in analyzing KTM's adoption is the issue of communication levels. The rogues were internally attempting to make sense of Ragnaros's aggro changes, but it was only after Roger voiced his dissonance in the general [Raid] chat channel that the rogues began to understand what was happening. This occurred when Maxwell replied to Roger, letting him know that the melee DPS needed to wait for tanks to be in position before getting in range. Indeed, it seemed like Maxwell, a non-rogue, already knew about Ragnaros's melee targeting preferences. If it is necessary for group members to make available to others their misconceptions before the group

can become aligned or translated to a common understanding, how can we compel individual players to speak up? The raid assumed character-class-specific expertise in all its members. Displaying evidence of a lack of understanding could have been seen as a risky move. What's more, this assumes the rogues could identify and be metacognitive about their lack of understanding and need to elevate their talk from their private rogue channel to the larger [Raid] channel. Yet the onus of opening up appropriate communication channels so the raid could repair itself seemed to be taken up by happenstance through flabbergast and flailing. What do we make of this? In future endeavors or other group work, some way to insure that dissonances that occur on the micro level are elevated to the whole group would be necessary.

Still, the raid's eventual adoption of a new actor into the network is an example of how local practice is emergent and dynamic and heavily dependent on available technomaterial resources, which are assembled and configured in and around the activity. This example pushes on this idea, leading us to redefine expertise development not as changes in activity, but rather, as changes in how the assemblage is configured—to consider practice as more than a way of doing things, but also, as ways in arranging the space in which things are done. Local practice is also dependent on communication among actors in the network that is open enough to expose possible areas of disruption. Only after the network is in alignment on negotiated roles and responsibilities (i.e., translated and configured successfully) is it stable or durable enough to do its work—that is, until a new disruption occurs.

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