Elements of Social Action: A Micro-Analytic Approach to the Study of Collaborative Behavior in Digital Games

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ABSTRACT
In this paper we articulate an empirical approach to the study of social action in digitally-mediated contexts. Our approach extends Carl Couch's theory of cooperative action, which is based on a set of "elements of sociation": acknowledged attentiveness, mutual responsiveness, congruent functional identities, shared focus, and social objective. Three additional elements of sociation, adapted from studies of jazz performance, are added to the list of elements that characterize coordinated action: a formal theory of task performance, an informal theory of task performance, and synchronicity of individual actions. Using audio-visual recordings of gameplay, the minutiae of social action were captured and subjected to repetitive, reflexive and collaborative analysis in order to identify these patterns, including their potential causes and consequences. We use data from two games—the single-player real-time strategy game Eufloria and the massively multiplayer online game World of Warcraft—to illustrate how gameplay can be dissected into such elemental units.

Keywords
audio-visual methods, collaboration, Eufloria, naturalistic inquiry, social action, symbolic interaction, World of Warcraft

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INTRODUCTION

Perhaps the single-most important goal of sociology has been to elaborate a theory of social action. Theorists and empiricists alike have sought to build a sustainable theory of how and why people behave as they do. Social action has been predicated upon a variety of sources, including material relations, cultural systems, habits, hegemony, strategies of action, expressive symbols, and conversational structures, to name but a few. Some of these theories have emerged out of philosophical exercises and "pure" theorization, while others are rooted firmly in the interpretation of empirical data. With the expansion in scope and complexity of media(ted) culture, scholars and designers have recognized the need to theorize and empirically study social action in digitally-mediated contexts as well.

In this paper we articulate an empirical approach to the study of social action in digital games. The research follows from four assumptions. First, social action is a fundamental aspect of human life and thus deserves analytic attention in its own right. Second, social action is meaningful and must be distinguished from actions that are instinctual or physiological. Clifford Geertz made famous Gilbert Ryle's example of

> two boys rapidly contracting the eyelids of their right eyes. In one, this is an involuntary twitch; in the other, a conspiratorial signal to a friend. The two movements are, as movements, identical. … Yet the difference…between a twitch and a wink is vast…. The winker is communicating, and indeed communicating in a quite precise and special way: (1) deliberately, (2) to someone in particular, (3) to impart a particular message, (4) according to a socially established code, and (5) with cognizance of the rest of the company. [Geertz 1973:6]

Third, social action takes other people's actions and/or selves into account and is thus performed with outcomes in mind. Social action is not the action of individuals divorced from social context, nor is it a natural response to stimuli. It is purposefully built upon the preceding actions of others and shapes subsequent actions. Social action, in other words, is a *process* with past, present, and future. Fourth, social action tends to be patterned and is observable through methods of naturalistic inquiry. Despite people's idiosyncrasies, those who share culture[1] often do things in relatively predictable ways, though predictability is never assured.

To help emphasize a micro-analytic approach of social action in digital milieux, we focus in this paper on two particular cases—one from the single-player real-time strategy game Eufloria (May et al. 2009) and the other from the massively multiplayer online game World of Warcraft (Blizzard Entertainment 2004-2013). Using audio-visual recordings, the minutiae of social action can be captured and subjected to repetitive, reflexive and collaborative analysis in order to identify these patterns, including their potential causes, characteristics, and consequences.

AN INTERACTIONIST THEORY OF SOCIAL ACTION

Scholars have studied social action and interaction in digital games, particularly in terms of the collaboration among players or between player and game. Many, however, have made summative statements based on fieldnotes or reflective data rather than relying on the micro-analysis of specific instances of naturally-occurring interaction. Such studies can provide important insight into social action. In one example, Simon (2007) reflected

on his experiences with *Call of Duty 2* and noted the extent to which he actively took the game's non-player characters (NPCs) into account during gameplay:

> It becomes clear after dying the umpteenth time that sussing out the mechanics of the coop AI is crucial; you must move as a group, you must wait for cover fire, you must protect your mates, etc… There is almost no dialog here, your comrades do not pretend to be able to hold a conversation in the trenches, instead there is what I call 'a conversation of actions' and the increasing recognition that you must keep 'face' with the AI in order to effectively play and make meaning of the game. [p. 168]

The concept of "a conversation of actions" succinctly highlights the processual and interactional nature of social action during gameplay. Players are not simply autocratic in their behaviors; they learn to take into account the actions of "real" or computer-controlled others and to imagine the possible lines of action that may emerge from working collaboratively. However, we disagree with the idea that players converse with NPCs or the AI out of some need to "keep face." Instead, we suggest that the "conversation of actions" is better used as a sensitizing concept that alerts us to the need to study the various social elements that make such a conversation meaningful and therefore consequential.

Person-person cooperation

To highlight social action as an interactional accomplishment, we draw on the work of Carl Couch (1984; 1986). In the 1970s, Couch and students at the University of Iowa made use of a small-groups laboratory and then-emerging audio-visual recording technologies to conduct a series of studies on the structural dimensions of human interaction (Miller 2011). Couch and his students (see Miller et al. 1975) inductively theorized five elements of sociation based upon a set of experiments in which participants were placed in problematic situations (see Table 1). In one example, dyads were given tasks to perform in the lab and then an accident was faked outside, with an "injured" person calling for help. Their theory proposed to explain the conditions under which the pairs reacted cooperatively to the call for help.

A pre-requisite element of sociation, copresence, was identified as necessary for any of the other elements to occur. In other words, if two people were not co-present, there was no chance for them to coordinate their response to the distress call. Taking copresence as given in the laboratory, participants had to (1) reciprocally acknowledge each other's attention in order to organize their own behaviors according to the information gleaned from that attention. In some instances, one study participant would not look over at her partner and would likewise not react to the call for help. Only when both participants (2) looked at each other and then interpreted a disposition toward reacting in the expressions/posture of the other did the participants move toward coordinating a collective response. Each participant then had to project a future line of action for the other to perceive, which was necessary to establish (3) congruent functional identities. In some cases, one participant would stand up while the other would begin laughing. Typically in such cases, the person who stood up (as if to help) subsequently halted their actions because the other person laughed, as if to suggest they believed the distress call to be a hoax. Only when both individuals successfully expressed congruent identities to one another—both expressed "helper" identities, for example—did they continue to coordinate their behaviors. Congruent identities facilitated (4) the establishment of a

shared focus (the "accident") that, once recognized by each other, allowed (5) concerted action toward the social objective (providing assistance, returning to their lab work).

Form of social action	**Elements of Sociation**				
	1. Attentiveness	**2. Responsiveness**	**3. Functional identities**	**4. Focus**	**5. Objective**
Cooperative	*Acknowledged-* Each party acquires information about the other. Both are aware of their relatedness, and inform the other of their awareness.	*Mutual-* Each party indicates to each other that the activity of the other is of some significance and the integrity of the other will be respected.	*Congruent-* Each party projects forthcoming lines of action that are detected and accepted by the other.	*Shared-* Each party simultaneously attends to some event or object and each is aware of the other's focus of attention.	*Social-* Each party is aware of the other's attention toward a shared focus and each informs the other that they will cooperate to achieve the social objective.

Table 1: Elements of sociation for cooperative social action

Each element may be realized in various ways, depending on the type of social activity and the people involved. For example, simple and common joint actions, such as purchasing something in a shop or avoiding bumping into other people on a crowded sidewalk, are so routine they become practically unconscious activities. Additionally, when individuals have a shared history, they may assume attention and responsiveness, develop a shared focus simultaneously with reciprocal attentiveness, or cooperate without explicitly negotiating certain elements, as is often the case with best friends or professional sports teams.

Couch's experimental studies focused almost exclusively on contrived contexts in which cooperative interaction among dyads was ideal. When considering the relevance of such a theory of action for games, though, the following points seem to warrant some attention. First, games often involve "subject-object" interaction rather than or in addition to "subject-subject" interaction (Williams and Kirschner 2012). Second, conflict is a basic dimension of most games and therefore conflict may be equally as or more important than cooperation. Third, many games involve multi-player modes that are digitally-mediated. So how does one study computer-mediated social action while taking into account the overlapping forms of social action (cooperation and conflict) that occur among multiple social actors (e.g., players, NPCs)? Dealing with each in turn, we suggest how an interactionist theory of social action can deal with such complexity.

Social Action in Single-player Games

The real-time strategy game Eufloria offers an interesting example of how players (as subjects) and games (as objects) interact with one another socially. In Eufloria, players

grow resources by planting trees on asteroids and then attempt to colonize other asteroids while fending off enemies. As a single-player game, play is predicated solely upon subject-object interaction. Yet unlike early generations of single-player computer games where AIs exhibited highly patterned, predictable behaviors, Eufloria tells the player on the opening screen that the game "is largely procedurally generated. Each time you play a level, it will be different!"

Figure 1 (below) shows a snapshot of a naturally-occurring interactional moment of gameplay from Level 13: The Stand [You can view the audio-visual data file in its entirety at http://youtu.be/IRMXT0hkKDw]. In this example, the player controlled only the center pink asteroid and was in the process of exploring nearby asteroids when a swarm of enemy units emerged from the right side of the screen and attacked a vacant green asteroid rich with resources [time = 0:37].[2] After the enemy expended much of its force whittling down the green asteroid's defenses, the player commanded all of his units to attack the green asteroid [time = 1:05] and a fight ensued. A moment later, a second group of enemy units appeared [time = 1:18] and headed towards the player's only controlled asteroid [time = 1:28]. The player commanded all his units to return to the center asteroid [time = 1:31]. However (as Figure 1 shows), the swarm of enemy units bypassed the pink asteroid en route to a grey asteroid on the left side of the screen and the player subsequently ordered all of his units return to their original task of attacking/colonizing the green asteroid [time = 1:38]. What can an interactionist theory of social action tell us about this moment of play?

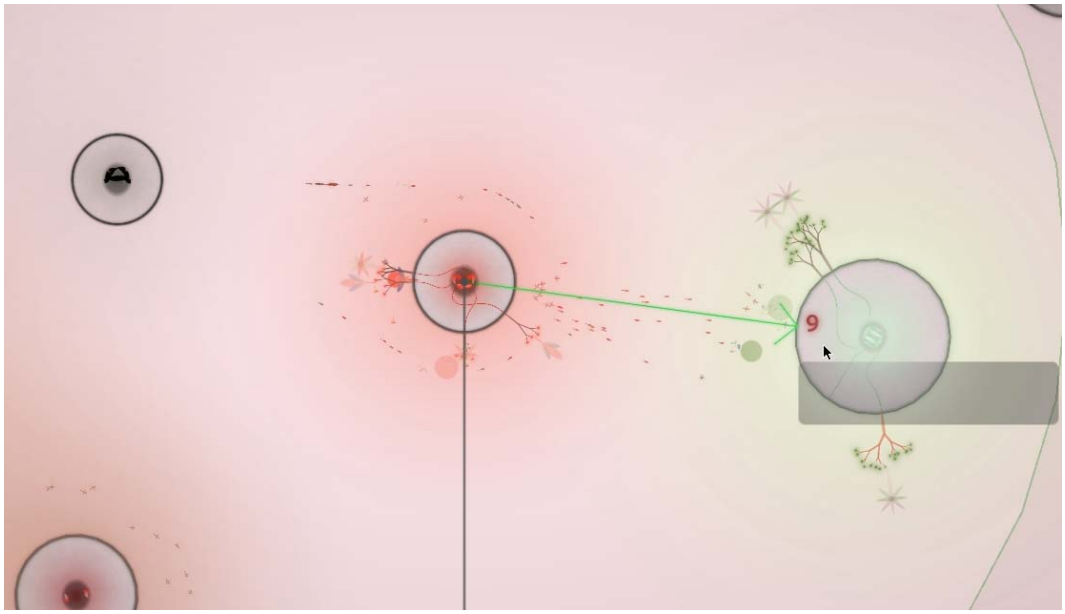

Figure 1: Subject-object conflict in Eufloria.

To answer this question, we first need to expand Couch's theory of social action beyond cooperation.[3] We argue that conflict involves the same generic elements of sociation as cooperation, but the functions of those elements are quite different (see Table 2). Second,

we need to distinguish two different levels of relevant data. The first, which we call "Level I" data, refers to the empirical (i.e., observable) data made available through audio-visual recordings. We distinguish this from "Level II" data, which refers to actors' talk about the actions recorded as Level I data. Level II data may be collected from the player through gameplay reviews (Kirschner and Williams, forthcoming B) or other methods.

Form of social action	**Elements of Sociation**				
	1. Attentiveness	**2. Responsiveness**	**3. Functional identities**	**4. Focus**	**5. Objective**
Conflictive	*Reciprocal-* Each party acquires information about the other and both are aware of their relatedness.	*Bilateral-* Each party responds only by acting toward or with respect to the other, but not with each other.	*Incongruent-* Each party projects forthcoming lines of action that are detected and rejected by the other.	*Other-* Each party simultaneously attends to some event or object, but the focus of each group on that event or object may differ.	*Personal-* Each party is aware of the focus of the other but acts based on their own focus toward the event or object.

Table 2: Elements of sociation for conflictual social action

The observed player had played approximately 5½ hours prior to Level 13 and failed to complete the level twice before this bit of recorded gameplay. We knew from prior observations that the player and the game's AI had set the practical boundaries of all the above elements of sociation within a framework of conflict. An introductory text pane on Level 3: Greys —"*These creatures.. They are mad with violence and anger. Why do they fight us?!"*—established the reciprocal nature of attentiveness by informing the player that grey-colored seedlings would be combative, while the player's engagements with all other-colored seedlings on every prior level had been based on bilateral responsiveness, with the player having to eliminate "enemies" in order to progress in the game.[4] In fact, the ability to use a term like "enemy" is interpretive and required that players first identify other-colored seedlings as such versus as "allies" or a "neutral force to be avoided" (or whatever). Thus the labeling of greys as "enemies" was an unavoidable part of establishing incongruent functional identities, which was necessary before players could decide to "fight" them.

Thus by the time the greys appeared on Level 13 [time = 0:37], the player was able to establish elements 1-3 vis-à-vis the red seedlings (in the lower-left quadrant of the screen) and the grey seedlings by assuming the game AI had already done likewise.[2] Having experienced that grey seedlings were more aggressive than those of other colors, and having been overwhelmed by them on two previous attempts at this level, the player shifted his focus from the enemy seedlings surrounding multiple asteroids to the resource

trees on the green asteroid alone. This is empirically identifiable by the player (1) zooming in on the green asteroid [time = 0:53, 1:00] and (2) commanding his seedlings to attack after the green asteroid's bottom trees turned red (which indicated the weakness of the tree), an action he had not performed on prior attempts. When a second swarm of greys appeared and moved toward his pink asteroid [time = 1:28], the player's focus shifted to one of defense, as can be seen by him ordering all of his units to return to the pink asteroid [time = 1:31]. And when the grey swarm flew past the pink asteroid, his focus shifted yet again, as demonstrated by him ordering all of his units to resume their colonization of the green asteroid [time = 1:38]. Throughout the encounter, the player's objective remained the same as that learned through prior levels of play—colonize all asteroids and eliminate all enemies.

As should be clear at this point, the elements of sociation originally identified by Miller et al. (1975) are not merely opening steps toward coordinating action. More broadly, they are processes in which actors constantly engage in order to maintain coordinated activity. In everyday life, individuals may quit acknowledging or responding to each other, may abandon or suspend expressing relevant identities, may shift or lose a shared focus, or may work toward new or ulterior objectives. Thus coordinated action is a continuously emergent and negotiated process. Within the narrative structure of Eufloria, such opportunities are not normally available. A player could refuse to acknowledge or respond to the copresence of asteroids and seedlings, but this would effectively prevent gameplay. Similarly, attempting to establish congruent functional identities with other-colored seedlings is impossible. No matter how much the player may want to be friends with other-colored seedlings, the AI will not allow it. Establishing new or ulterior objectives for play is possible, but those objectives are typically set out by the game designers rather than by the players. One example would be achievements like Stalemate: "a pitched battle that lasts over 15 minutes and incurs 500 losses between all sides".[5] Trying for Stalemate provides a new objective for play, but it prevents the player from achieving, at least temporarily, the larger goal of winning.

Social Action in Massively-Multiplayer Online Games

As in other digital game genres, social action in MMOs involves a process of acting meaningfully toward social objects that populate the virtual world. But when multiple players are virtually copresent, each with their own potential interests and goals, studying social action becomes more complex. Taking an example of group-play in World of Warcraft (WoW), we want to show how the theory we've proposed thus far offers some clear analytic in-roads for mapping out collaborative activities.

Like Eufloria, WoW has a strong narrative structure that shapes the meaning of things in the world and thus shapes many of players' behaviors and experiences. WoW's design structure forces players to engage from the very beginning in distinctly social activities. Much of a player's early contact is with NPCs, who help establish the taken-for-grantedness of working with others in the collective defense of home/race/nation/alliance against the "enemy." Neither conflict nor cooperation is unique to MMOs (see Smith 2005). Yet perhaps more so than in other genres, player progression in MMOs is predicated on the development of long-term cooperation with groups of NPCs and player-characters alike. That cooperation usually entails an accompanying conflictual relationship with other groups.

Although collaboration is equally prevalent in player-versus-environment (PvE) and player-versus-player (PvP) activity, in this paper we focus only on PvE play and

particularly on raiding since it comprises dense sets of simultaneously cooperative and conflictive interactions among players and designed elements of the game world. Raid areas are structured so that players must progress in groups through a series of combative encounters, each with a unique set of conditions that are designed to frustrate players' efforts. Raiding requires that players constantly negotiate situations by considering their own knowledge, goals and actions and by learning to anticipate, interpret and efficiently respond to actions initiated by the game itself, while also taking into account the assumed knowledge, goals and lines of action of other players. This in a nutshell is the most difficult aspect of collaborative play: coordinating many players' individual lines of action simultaneously. As with other complex forms of coordinated action such as PvP gameplay (see Jørgensen 2008), raiding requires a flexible combination of roles and only when players are able to synchronize their characters' respective role performances can they defeat enemies. Players usually encounter the same enemies many times as they strategize methods for collaborative play (Chen 2012). Over time, raiding can result in the appearance or feeling of routinization where "respective identities and roles [become] essentially given and unproblematic, so that negotiation is mainly a matter of all recognizing the governing occasion or situation" (McCall 2003:331). Yet this should not imply that success is ever guaranteed. In order for a raid to succeed, a sufficient number of players must coordinate their individual lines of action on a moment-by-moment basis.

Let us look at an excerpt from a 25-person raid in Icecrown Citadel (ICC), recorded in early 2010 when ICC was a new raid instance and the most difficult in the game. Figure 2 (below) illustrates a typical moment in the early days of raiding ICC—a collective struggle against a powerful opponent that ended in defeat [You can view the audio-visual data file in its entirety at http://youtu.be/yJLbkkpJSLI]. Figure 2 also indicates one of the most obvious differences between WoW and Eufloria: the amount of information that is communicated back and forth between the player and the game through the user interface. The information is simultaneously visual, textual, aural, and verbal[6] and individual bits of it are more or less crucial to individual player engagement and the collective success of teams.

Having introduced the various elements of sociation for cooperative and conflictive activities already, we now begin a micro-analysis of the first 45 seconds of the video. To be clear, the data we present here represents only a portion of the analytically distinct, empirical instantiations of coordinated action that are available in the audio-visual record (i.e., Level I data). Moreover, our analysis does not take into account any form of Level II data, which would shed even more light on players' actions during this encounter.

Overall we found it necessary to focus analytic attention on: (1) players' actions, which could be observed through character movement, animations, text, and heard through game audio and voice chat; (2) the standard user interface, including text panes, icons, player portraits and health bars; and (3) mods/addons, which also took textual, iconic, and acoustic forms. By carefully analyzing bits of visible, readable, or audible data in terms of the elements of sociation, we were able to uncover a plethora of details regarding player actions.

Figure 2: Cooperation and conflict constantly co-occur in World of Warcraft raiding. Social action may be observed through visual, textual, aural, and verbal data.

The video begins with a group of 25 players engaged in cooperative action as they prepared to begin fighting Lady Deathwhisper, the second “boss” in ICC. Conflictive activity had not yet begun. The healer (whose perspective the video follows throughout the encounter) moved this character toward each side of the room [time = 0:02] to check the position of the "tanks" (heavily armored characters who hold enemies' aggressive attention), who were marked with floating icons above their heads. The healers’ movements signal the healer's attentiveness to the situation and specifically to his functional role identity vis-a-vis the tanks as someone who would heal them. Note also that the position of the tanks on three sides of the group (where enemies would appear soon after the encounter commenced) and the icons visible above their heads indicated not only their attentiveness and responsiveness to an earlier call to get ready [before the video began], but their functional identities as well. At the same time, several characters could be seen jumping up and down, which was a typical method of communicating to others that the player was attentive to the situation and prepared to respond to forthcoming actions from allies and enemies alike. When neither of the group leaders ordered the group to begin, one member said "let's pull it" in voice chat [time = 0:14]. This could be interpreted as signaling both attentiveness to the imminent conflict and responsiveness to the position of the tanks, the jumping of the nearby characters, or other meaningful symbols that the player may have picked up on.

A second later [time = 0:16], another player responded to his utterance, thus signaling responsiveness to the request to begin the encounter. The response, "Let's have Elesh pull," further signaled the player's functional identity as someone in charge by naming the character who would be responsible for attacking the enemy boss first. Her response to

the first speaker simultaneously functioned as a call for a third person (who is playing as Elesh) to attack the boss. When Elesh was not immediately responsive, she issued a subsequent command, "Hit it!" [time = 0:18] to Elesh that also functioned as a announcement to all members of the group that the conflictive dimension of the encounter was about to begin. The subsequent movement of characters and the animations surrounding them demonstrate that her command resulted in multiple lines of action being initiated.

The actual beginning of the conflict occurred a few seconds later [time = 0:22] and was communicated to group members through multiple semiotic channels. Visually, a flash of color suddenly surrounded Lady Deathwhisper as her defenses fell into place. Simultaneously, a countdown timer and enemy health bar both appeared on the right half of the screen from mods/add-ons just as text appeared in the chat window in red in the lower-left corner of the screen dictating Lady Deathwhisper's yell, which was also audible: "*What is this disturbance? You dare trespass upon this hallowed ground? This shall be your final resting place!*" Players thus received numerous, redundant signals to begin combat (visual, textual, and aural). Perhaps to ensure that nobody missed these cues, a player said "Boom boom!" in voice chat, which similarly functioned to alert fellow players.

Visual representations of players' and NPCs' actions provided meaningful cues for subsequent player action. The user interface, along with mods/add-ons, provided specific visual, auditory and textual signaling of in-game objects or events. For example, the add-on Deadly Boss Mods signaled NPC responsiveness to Elesh's attack by displaying a countdown timer, enemy status bar, and notifications such as ''*<Deadly Boss Mods> Lady Deathwhisper engaged. Good luck and have fun! :)*'' [time = 0:21]. These computer-generated actions provided players with information needed to perform specific duties within the group by helping them keep track of multiple foci for each object or event, often with advanced notice. Alongside the verbal utterance, "Boom, boom!," came a set of countdown timers. One near the bottom-middle of the screen informed the player that additional enemies, or "adds" would appear soon. Three second before the "adds" appreared, Deadly Boss Mods produced a loud gong sound, while text appeared near the middle-top of the screen stating ''*new adds soon*'' and in the chat window [time = 0:23]. The significance of these cues can be observed through multiple pieces of empirical evidence. First, the tank on the right side moved toward the area where the "adds" would appear. Second, the healer (making the video) targeted the tank, as is visible both by following his mouse icon on the screen and seeing the tank's character pane appear in the upper-left corner of the screen. Third, the healer then began hovering his mouse over the small horizontal green bars (which represented the health of friendly players) that filled the left side of his screen. By targeting the tank but keeping his mouse icon near the health bars, the healer simultaneously enacted a congruent functional identity as a healer assigned to keep that tank alive, while also being attentive (and therefore ready to be responsive) to the needs of other group members.

Thirty seconds into the video recording [time = 0:31], the previous speaker again signaled other players by saying, "Adds. Get on 'em." This utterance functioned conflictively as a demonstration of reciprocal attentiveness and bilateral responsiveness: the player acknowledged the appearance of "adds" and responded to them by calling for attacks. At the same time, it functioned cooperatively by calling on appropriate characters (each player is supposed to understand their role identity) to attack the enemies. At this point there were literally nearly three dozen ongoing individual lines of action as 25 players

battled eight enemy NPCs. One the one hand, NPC actions were relatively predictable as they attacked whoever generated the highest threat at any given moment. Yet despite this predictability, a healing character was killed [time = 0:47] after generating more threat than the nearby tank. The tank was aware of the threat issue at least five seconds before the healer died, as his question, "Why didn't you let me get aggro on the add?" [time = 0:42] made clear. His question functioned rhetorically to criticize the failure to maintain the proper functional identity and focus of whichever player(s) allowed their threat values to outmatch his own.

At almost the same moment [time = 0:44], another player similarly began urging specific teammates to pay better to their functional identities and focus when she said, "Decurse. Come on guys, decurse." In the Lady Deathwhisper encounter, one of the “adds” would randomly curse magic-wielding player-characters. As with prior examples, her statement was not intended for everyone. Mages and druids were the only two types of characters that could remove curses. Thus mages and druids had to maintain constant foci on the enemy boss, on threats to themselves, and on the icons of other players. If another player became cursed, a mage or druid had to shift her focus to deal with it. Different classes had to pay attention to different objects and events that varied across the temporal and spatial dimensions of the encounter. Most complex (we imagine) was the raid leaders’ jobs, who tried to remain attentive to as many of the cooperative and conflictive-based actions that were happening among the 30+ social actors and to be responsive to them when necessary, typically by shifting their own functional situational identities from “healer” or “tank” (or whatever) to “raid leader” or “instructor” to communicate which of the various actions and events required other group members to shift their own functional identities or foci.

The video continues for another 4½ minutes and almost every second of it is filled with communicative content that represents players' attempts to coordinate their individual lines of action. There are many other things going on during these 45 seconds that deserve attention, including various audio bytes, animations, and mod/addon tools, but space limits our ability to deal with all of them here.

CONCLUSION

The process of aligning actions among group members in WoW was neither easy nor stable to be sure, especially given that copresence among players was computer-mediated. And yet watching guides on Youtube, Tankspot, or other similar websites where groups of players appear to perform such complex collective actions almost flawlessly, it leads one to ask whether the players in this video were just bad. We suggest not, and offer instead three more elements of sociation adapted from studies of jazz performance that shed additional light on what might make coordinated action in digital games possible (see Table 3). In doing so, we (1) suggest that successful social action rests upon players’ mastery of these eight element of sociation, and (2) hint at the significance of Level II data for further improving analytic insight into coordinated action.

Bastien and Hostager (1992; 1993) studied cooperative action through a commercial video recording of a critically acclaimed improvisational jazz concert in which the participating musicians had never met or rehearsed before. Watching the concert and later the video, Bastien attempted but was initially unable to explain “how the musicians had accomplished an exceptionally complex cooperative work task…without knowing each other, having any plans, rehearsals, or sheet music” (Bastien & Hostager 1993, p.

206). In particular, the researchers were interested in how the musicians (1) were able to interpret non-explicit cues signaled by the nominal leader of the group and (2) relied less and less on visual and verbal cues that signaled proposed changes in the music as the concert progressed. Close audio-visual analysis, combined with emic explanations of social actions visible on the videotape suggested that knowledge of formal jazz theory and orientation toward a set of professional conventions provided the musicians with a "common history" (Katovich 1986) necessary to cooperate. In addition, each member of the quartet had internalized the significance of maintaining synchronicity for aligning their own actions with those of fellow musicians.

Forms of social action	**Elements of Sociation**		
	6. Formal theory of task performance	**7. Informal theory of task performance**	**8. Synchronicity of individual actions**
Collaborative (cooperation and conflict)	Each person relies on knowledge learned through formal means, including instructional texts, tutorials, and/or codified sets of rules.	Each person orients toward conventional norms gleaned through active participation in the social world, which structures behaviors and integrates the person within the relevant social context.	Each person recognizes the temporal dimensions of the situation and organizes her actions so that they are timed properly vis-à-vis others' lines of action.

Table 3: Additional elements of sociation for collaborative social action

In our study of data from Eufloria and WoW, we found that the elements of sociation first identified by Couch need not be kept in a tight, sequential order. Like jazz musicians, the more they played, the more players took for granted certain elements. For example, Eufloria players quickly learned that other-colored seedlings would always beenemies and never allies, just as WoW players learned that playing certain character types brought with it certain identities and foci during raiding. Such knowledge was formally learned through tutorials and guides as well as informally through play, talk/chat with other players, and so on. Over time, repeated elements of social action, which Couch articulated in so much detail, become part of players' formal and informal theories of task performance. These theories emerge through play and thus are limited in some ways by the genre of game involved. In other words, being good at a single-player, real-time strategy game does not make one necessarily good at raiding in an MMO, and vice versa. Rather, repeated interactions with and within games results in players gaining expertise in certain forms of play, which (for many players) comes to feel so natural that their methods of play become largely unconscious.

In *The Sociological Imagination*, C. Wright Mills (1959) argued that the goal of sociology was to make the familiar strange. Doing this, he argued, would enable people to see beyond the taken-for-granted aspects of everyday life. In this paper we have attempted to make the familiar aspects of player's behaviors in games strange by

breaking them down along the lines of Couch's elements of sociation as well as in terms of distinguishing between subject-subject and subject-object interaction. We feel that this is important for two reasons. First, gameplay is major object of scholarship within game studies, yet many reports on gameplay seem to be limited to rather summative statements. The theory of social action we have put forward here can provide game scholars with a sharper set of analytic tools for understanding the moment-by-moment accomplishment of collaborative behavior. Second, because games are designed with preferred outcomes for players in mind, designers themselves could benefit from understanding the generic processes that underlie players' behaviors as they attempt to improve upon current interactive media projects.

Endnotes

1. For purposes of our argument we conceptualize culture here along the same lines as Harvey Sacks, who described it as "an apparatus for generating recognizable actions" (1992, 1:226

2. We use time stamps to refer to specific instances in the video recordings so that readers can review our empirical descriptions in detail.

3. Couch wrote little about conflict as a form of social action and published no studies that empirically tested his ideas.

4. Of course, the preceding text pane [time = 0:27] helped ensure that prior definitions of the situation were upheld. "*They* are on their way" (emphasis added) suggests that the seedlings about to appear are different than those identified on the two red asteroids. The text pane itself is a significant part of facilitating social action because it provides the larger narrative structure of the game. Unfortunately space precludes an analysis of narrative structures in this paper.

5. http://steamcommunity.com/stats/Eufloria/achievements/

6. For a discussion of the visual, textual, and aural dimensions of communicative strategies in WoW raiding, see Kirschner and Williams (forthcoming A).

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