HEARTS, CLUBS, DIAMONDS, SPADES: PLAYERS WHO SUIT MUDS

Richard Bartle[1]
MUSE Ltd, Colchester, Essex.
United Kingdom.
richard@mud.co.uk

ABSTRACT

Four approaches to playing MUDs are identified and described. These approaches may arise from the inter-relationship of two dimensions of playing style: action versus interaction, and world-oriented versus player-oriented. An account of the dynamics of player populations is given in terms of these dimensions, with particular attention to how to promote balance or equilibrium. This analysis also offers an explanation for the labelling of MUDs as being either "social" or "gamelike".

PREFACE

Most MUDs can trace their lineage directly back to Trubshaw's 1978 game (Bartle, 1990b; Burka, 1995) and, perhaps because of this heritage, the vast majority are regarded as "games" by their "players". For the convenience of its readers, this paper continues to view MUDs in this tradition; however, it should be noted that MUDs can be of considerable value in non-game (ie. "serious") applications (Bruckman, 1994a; Kort, 1991; Bruckman & Resnick, 1993; Curtis & Nichols, 1993; Evard, 1993; Fanderclai, 1995; Riner & Clodius, 1995; Moock, 1996). Indeed, the thrust of this paper emphasises those factors which should be borne in mind when attempting to create a stable MUD in general, whatever the application; it is only the terminology which is that of "fun" MUDs, not the subject matter. In any case, even those MUDs which are built, from the ground up, to be absolutely straight are still treated by users as if they were games in some respects, eg. by choosing whimsical names rather than using their real ones (Roush, 1993).

It is worthwhile considering for a moment whether MUDs (as they are generally played) really are games, or whether they're something else. People have many recreational activities available to them, and perhaps MUDs fit some other category better? Looking up the word "game" in a dictionary of synonyms (Urdang & Manser, 1980) elicits three related nouns: "pastime", "sport" and "entertainment" (a fourth, "amusement", is the general class of which the others are all examples). So it might be useful to ask:

Are MUDs

- games? Like chess, tennis, AD&D?
- pastimes? Like reading, gardening, cooking?

- sports? Like huntin', shootin', fishin'?
- entertainments? Like nightclubs, TV, concerts?

Or are they a combination of all four? Perhaps individual players even see the *same* MUD differently from each another?

These questions will be returned to at the end of this paper, along with some proposed answers.

A SIMPLE TAXONOMY

This work grew out of a long, heated discussion which ran from November 1989 to May 1990 between the wizzes (ie. highly experienced players, of rank wizard or witch) on one particular commercial MUD in the UK (Bartle, 1985). The debate was sparked by the question "What do people want out of a MUD?", and comprised several hundred bulletin-board postings, some of considerable length, typically concerning what the players liked, what they didn't like, why they played, and changes they would like to see to "improve" the game. Some 15 individuals took a major part, with perhaps another 15 adding their comments from time to time; this comprised almost the entire set of active wizzes during that period. Although at times the debate became quite intense, never did it lapse into the flaming which typically ends most open-ended, multi-speaker, online discussions.

The fact that the people contributing to this argument were the most advanced players in a MUD which allowed player-killing might, on the face of it, be taken as evidence that they would probably prefer more "gamelike" aspects over "social" ones. However, this was not the case: the MUD in question had players of all types in it, even at wiz level. (Later in this paper, an analysis is given as to how such a MUD can come to be).

When the participants had finally run out of new things to say, it became time for me (as senior administrator) to summarise. Abstracting the various points that had been raised, a pattern emerged; people habitually found the same kinds of thing about the game "fun", but there were several (four, in fact) sub-groupings into which opinion divided. Most players leaned at least a little to all four, but each tended to have some particular overall preference. The summary was generally well received by those who had participated in the debate.

Note that although this MUD was one in which player-killing was allowed, the taxonomy which is about to be described does (as will be explained later) apply equally to "social" MUDs. The advice concerning changes which can be made to affect the player make-up of a MUD is, however, less useful to social MUDs, or to ones with a heavy role-playing component. Also, the original discussion concerned only non-administrative aspects of MUDding; people who might play MUDs to learn object-oriented programming, for example, are therefore not addressed by this paper.

The four things that people typically enjoyed personally about MUDs were:

i) Achievement within the game context.

Players give themselves game-related goals, and vigorously set out to achieve them. This usually means accumulating and disposing of large quantities of high-value treasure, or

cutting a swathe through hordes of mobiles (ie. monsters built in to the virtual world).

ii) Exploration of the game.

Players try to find out as much as they can about the virtual world. Although initially this means mapping its topology (ie. exploring the MUD's breadth), later it advances to experimentation with its physics (ie. exploring the MUD's depth).

iii) Socialising with others.

Players use the game's communicative facilities, and apply the role-playing that these engender, as a context in which to converse (and otherwise interact) with their fellow players.

iv) Imposition upon others.

Players use the tools provided by the game to cause distress to (or, in rare circumstances, to help) other players. Where permitted, this usually involves acquiring some weapon and applying it enthusiastically to the persona of another player in the game world.

So, labelling the four player types abstracted, we get: achievers, explorers, socialisers and killers. An easy way to remember these is to consider suits in a conventional pack of cards: achievers are Diamonds (they're always seeking treasure); explorers are Spades (they dig around for information); socialisers are Hearts (they empathise with other players); killers are Clubs (they hit people with them).

Naturally, these areas cross over, and players will often drift between all four, depending on their mood or current playing style. However, my experience having observed players in the light of this research suggests that many (if not most) players do have a primary style, and will only switch to other styles as a (deliberate or subconscious) means to advance their main interest.

Looking at each player type in more detail, then:

i) Achievers regard points-gathering and rising in levels as their main goal, and all is ultimately subserviant to this. Exploration is necessary only to find new sources of treasure, or improved ways of wringing points from it. Socialising is a relaxing method of discovering what other players know about the business of accumulating points, that their knowledge can be applied to the task of gaining riches. Killing is only necessary to eliminate rivals or people who get in the way, or to gain vast amounts of points (if points are awarded for killing other players).

Achievers say things like:

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"I'm busy."
"Sure, I'll help you. What do I get?"
"So how do YOU kill the dragon, then?"
"Only 4211 points to go!"
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ii) Explorers delight in having the game expose its internal machinations to them. They try progressively esoteric actions in wild, out-of-the-way places, looking for interesting features (ie. bugs) and figuring out how things work. Scoring points may be necessary to enter some

next phase of exploration, but it's tedious, and anyone with half a brain can do it. Killing is quicker, and might be a constructive exercise in its own right, but it causes too much hassle in the long run if the deceased return to seek retribution. Socialising can be informative as a source of new ideas to try out, but most of what people say is irrelevant or old hat. The real fun comes only from discovery, and making the most complete set of maps in existence.

Explorers say things like:

> "Hmm..."
> "You mean you *don't know* the shortest route from <obscure room 1> to <obscure room 2>?"
> "I haven't tried that one, what's it do?"
> "Why is it that if you carry the uranium you get radiation sickness, and if you put it in a bag you still get it, but if you put it in a bag and drop it then wait 20 seconds and pick it up again, you don't?"

iii) Socialisers are interested in people, and what they have to say. The game is merely a backdrop, a common ground where things happen to players. Inter-player relationships are important: empathising with people, sympathising, joking, entertaining, listening; even merely observing people play can be rewarding - seeing them grow as individuals, maturing over time. Some exploration may be necessary so as to understand what everyone else is talking about, and points-scoring could be required to gain access to neat communicative spells available only to higher levels (as well as to obtain a certain status in the community). Killing, however, is something only ever to be excused if it's a futile, impulsive act of revenge, perpetrated upon someone who has caused intolerable pain to a dear friend. The only ultimately fulfilling thing is not how to rise levels or kill hapless drips; it's getting to *know* people, to undertand them, and to form beautiful, lasting relationships.

Socialisers say things like:

> "Hi!"
> "Yeah, well, I'm having trouble with my boyfriend."
> "What happened? I missed it, I was talking."
> "Really? Oh no! Gee, that's terrible! Are you sure? Awful, just awful!"

iv) Killers get their kicks from imposing themselves on others. This may be "nice", ie. busybody do-gooding, but few people practice such an approach because the rewards (a warm, cosy inner glow, apparently) aren't very substantial. Much more commonly, people attack other players with a view to killing off their personae (hence the name for this style of play). The more massive the distress caused, the greater the killer's joy at having caused it. Normal points-scoring is usually required so as to become powerful enough to begin causing havoc in earnest, and exploration of a kind is necessary to discover new and ingenious ways to kill people. Even socialising is sometimes worthwhile beyond taunting a recent victim, for example in finding out someone's playing habits, or discussing tactics with fellow killers. They're all just means to an end, though; only in the knowledge that a real person, somewhere, is very upset by what you've just done, yet can themselves do nothing about it, is there any true adrenalin-shooting, juicy fun.

Killers says things like:

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"Ha!"
"Coward!"
"Die!"
"Die! Die! Die!"
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(Killers are people of few words).

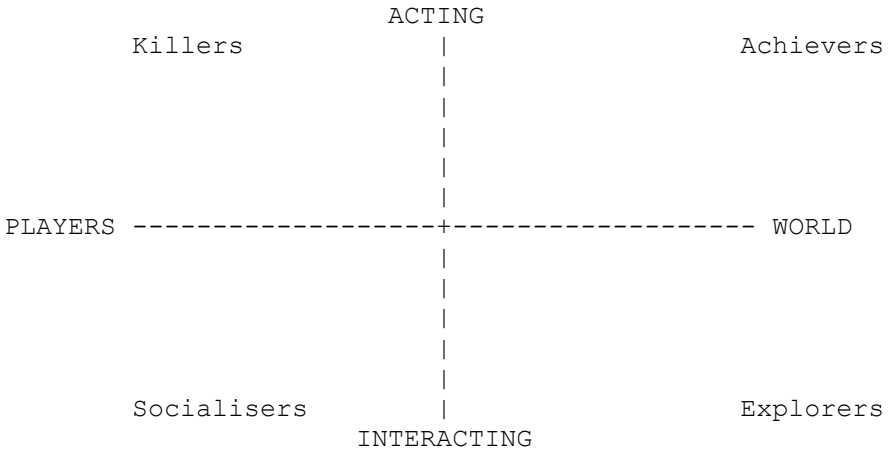
How many players typically fall within each area depends on the MUD. If, however, too many gravitate to one particular style, the effect can be to cause players of other persuasions to leave, which in turn may feed back and reduce the numbers in the first category. For example, too many killers will drive away the achievers who form their main prey; this in turn will mean that killers will stop playing, as they'll have no worthwhile victims (players considered by killers to be explorers generally don't care about death, and players considered to be socialisers are too easy to pose much of a challenge). These direct relationships are discussed in more detail towards the end of this paper.

For the most part, though, the inter-relationships between the various playing styles are more subtle: a sharp reduction in the number of explorers for whatever reason could mean a gradual reduction in achievers, who get bored if they're not occasionally told of different hoops they can jump through for points; this could affect the number of socialisers (the fewer players there are, the less there is to talk about), and it would certainly lower the killer population (due to a general lack of suitable victims).

Making sure that a game doesn't veer off in the wrong direction and lose players can be difficult; administrators need to maintain a balanced relationship between the different types of player, so as to guarantee their MUD's "feel". Note that I am not advocating any particular form of equalibrium: it is up to the game administrators themseles to decide what atmosphere they want their MUD to have, and thus define the point at which it is "balanced" (although the effort required to maintain this desired state could be substantial). Later, this paper considers means by which a MUD can be pushed in different directions, either to restore an earlier balance between the player types, to define a new target set of relationships between the player types, or to cause the interplay between the player types to break down entirely. However, first a means is required of formally linking the four principal playing styles into aspects of a unified whole; this helps account for different degrees of adherence to particular styles, and aids visualisation of what "altering the balance" of a MUD might actually *mean*.

INTEREST GRAPH

Consider the following abstract graph:



The axes of the graph represent the source of players' interest in a MUD. The x-axis goes from an emphasis on players (left) to an emphasis on the environment (right); the y-axis goes from acting with (bottom) to acting on (top). The four extreme corners of the graph show the four typical playing preferences associated with each quadrant. To see how the graph works, it is appropriate to consider each of the four styles in detail:

i) Achievers are interested in doing things to the game, ie. in ACTING on the WORLD. It's the fact that the game environment is a fully-fledged world in which they can immerse themselves that they find compelling; its being shared with other people merely adds a little authenticity, and perhaps a competitive element. The point of playing is to master the game, and make it do what you want it to do; there's nothing intrinsically worthwhile in rooting out irrelevant details that will never be of use, or in idling away your life with gossip.

Achievers are proud of their formal status in the game's built-in level hierarchy, and of how short a time they took to reach it.

ii) Explorers are interested in having the game surprise them, ie. in INTERACTING with the WORLD. It's the sense of wonder which the virtual world imbues that they crave for; other players add depth to the game, but they aren't essential components of it, except perhaps as sources of new areas to visit. Scoring points all the time is a worthless occupation, because it defies the very open-endedness that makes a world live and breathe. Most accomplished explorers could easily rack up sufficient points to reach the top, but such one-dimensional behaviour is the sign of a limited intellect.

Explorers are proud of their knowledge of the game's finer points, especially if new players treat them as founts of all knowledge.

iii) Socialisers are interested in INTERACTING with other PLAYERS. This usually means talking, but it can extend to more exotic behaviour. Finding out about people and getting to know them is far more worthy than treating them as fodder to be bossed around. The game world is just a setting; it's the characters that make it so compelling.

Socialisers are proud of their friendships, their contacts and their influence.

iv) Killers are interested in doing things to people, ie. in ACTING on other PLAYERS. Normally, this is not with the consent of these "other players" (even if, objectively, the interference in their play might appear "helpful"), but killers don't care; they wish only to demonstrate their superiority over fellow humans, preferably in a world which serves to legitimise actions that could mean imprisonment in real life. Accumulated knowledge is useless unless it can be applied; even when it is applied, there's no fun unless it can affect a real person instead of an emotionless, computerised entity.

Killers are proud of their reputation and of their oft-practiced fighting skills.

The "interest graph" is a representational structure which can chart what players find of interest in a MUD. The axes can be assigned a relative scale reflecting the ratio of an individual's interest between the two extremes that it admits. Thus, for example, someone who thinks that the people who are in the world are maybe twice as important as the the world itself would lie on a vertical line intersecting the x-axis at a point 1/6 of the distance from the origin to the left edge; if they had little interest in bending the game to their will, preferring their actions to have some give and take, then they would also lie on a horizontal line at the bottom of the y-axis. The interesection of the two lines would put them in the socialiser quadrant, with leanings to explorer.

It is, of course, possible to analyse the behaviour of individual players quantitatively by processing transcripts of their games. Unfortunately, this is very difficult to do except for very limited domains (eg. forms of communication (Cherny, 1995a; Cherny, 1995b)). An alternative approach might simply be to ask the players what they themselves like about a particular MUD: even a short questionnaire, completed anonymously, can give a fair indication of what players find enjoyable (Emert, 1993). Such information can then be used to determine the make-up of the MUD's player base, so that in times of falling player numbers the current composition could be compared against some earlier ideal, and remedial action taken to redress the imbalance. This "ideal" configuration would, however, be specific to that particular MUD, and its precise form is therefore not addressed here. Instead, the more general issue of how to alter the balance between player types is considered, along with the gross effects that can be expected to follow from having done so.

CHANGING THE PLAYER TYPE BALANCE

A stable MUD is one in which the four principal styles of player are in equilibrium. This doesn't imply that there are the same number of players exhibiting each style; rather, it means that over time the proportion of players for each style remains roughly constant, so that the balance between the the various types remains the same. Other factors *are* important, to do with the rate at which new players arrive and overall player numbers, but their consideration is not within the brief of this paper; the interaction between players of different types *is* within its brief, however, and is discussed in some detail later.

The actual point of balance (ie. whereabouts in the interest graph the centre of gravity of the individual players' points lies) can vary quite enormously; it is up to individual administrators

to determine where they want it to lie, and to make any programming or design changes necessary to ensure that this is where it actually does. What kind of strategies, though, can be employed to achieve this task?

In order to answer this question, consider the interest graph. If it is regarded as a plane in equilibrium, it can be tilted in a number of ways to favour different areas. Usually, this will be at the expense of some other (opposite) area, but not necessarily. Although tilting can in theory occur along any line in the plane, it makes sense (at least initially) to look at what happens when the tilt lines coincide with the x and y axes if the graph.

What follows, then, is a brief examination of means by which a MUD can be adjusted so as to favour the various extremes of the interest graph, and what would happen if each approach were taken to the limit:

PLAYERS

Putting the emphasis on players rather than the game is easy - you just provide the system with lots of communication commands and precious little else. The more the scales are tipped towards players, though, the less of a MUD you have and the more of a CB-style chatline. Beyond a certain point, the game can't provide a context for communication, and it ceases to be a viable virtual world: it's just a comms channel for the real world. At this stage, when all sense of elsewhere-presence is lost, you no longer have a MUD.

WORLD

Tilting the game towards the world rather than its inhabitants is also easy: you simply make it so big and awkward to traverse that no-one ever meets anyone in it; alternatively, you can ensure that if they do meet up, then there are very few ways in which they an interact. Although this can result in some nice simulations, there's a loss of motivation implicit within it: anyone can rack up points given time, but there's not the same sense of achievement as when it's done under pressure from competing players. And what use is creating beautifully-crafted areas anyway, if you can't show them to people? Perhaps if computer-run personae had more AI a MUD could go further in this direction (Mauldin, 1994), but it couldn't (yet) go all the way (as authors of single-player games have found (Caspian-Kaufman, 1995)). Sometimes, you just *do* want to tell people real-world things - you have a new baby, or a new job, or your cat has died. If there's no-one to tell, or no way to tell them, you don't have a MUD.

INTERACTING

Putting the emphasis on interaction rather than action can also go a long way. Restricting the freedom of players to choose different courses of action is the mechanism for implementing it, so they can only follow a narrow or predetermined development path. Essentially, it's MUD-as-theatre: you sit there being entertained, but not actually participating much. You may *feel* like you're in a world, but it's one in which you're paralysed. If the bias is only slight, it can make a MUD more "nannyish", which newcomers seem to enjoy, but pushing it all the way turns it into a radio set. Knowledge may be intrinsically interesting (ie. trivia), but

it's meaningless unless it can be applied. If players can't play, it's not a MUD.

ACTING

If the graph is redrawn to favour doing-to over doing-with, the game quickly becomes boring. Tasks are executed repeatedly, by rote. There's always monotony, never anything new, or, if these *is* something new, it's of the "man versus random number generator" variety. People do need to be able to put into practice what they've learned, but they also need to be able to learn it in the first place! Unless the one leads to the other, it's only a matter of time before patience is exhausted and the players give up. Without depth, you have no MUD.

From the above list of ways to tilt the interest graph, a set of strategems can be composed to help MUD administrators shift the focus of their games in whatever particular direction they choose. Some of these strategems are simply a question of management: if you don't tell people what communication commands there are, for example, people will be less likely to use them all. Although such approaches are good for small shifts in the way a MUD is played, the more powerful and absolute method is to consider *programming* changes (programming being the "nature" of a MUD, and administration being the "nurture").

Here, then, are the programming changes which administrators might wish to consider in order to shape their MUD:

Ways to emphasise PLAYERS over WORLD:

- add more communication facilities
- add more player-on-player commands (eg. transitive ones like TICKLE or CONGRATULATE, or commands to form and maintain closed groups of personae)
- make communication facilities easy and intuitive
- decrease the size of the world
- increase the connectivity between rooms
- maximise the number of simultaneous players
- restrict building privileges to a select few
- cut down on the number of mobiles

Ways to emphasise WORLD over PLAYERS:

- have only basic communication facilities
- have few ways that players can do things to other players
- make building facilities easy and intuitive
- maximise the size of the world (ie. add *breadth*)
- use only "rational" room connections in most cases
- grant building privileges to many
- have lots of mobiles

Ways to emphasise INTERACTING over ACTING:

- make help facilities produce vague information
- produce cryptic hints when players appear stuck
- maximise the effects of commands (ie. add *depth*)

- lower the rewards for achievement
- have only a shallow level/class system
- produce amusing responses for amusing commands
- edit all room descriptions for consistent atmosphere
- limit the number of commands available in any one area
- have lots of small puzzles that can be solved easily
- allow builders to add completely new commands

Ways to emphasise ACTING over INTERACTING:

- provide a game manual
- include auto-map facilities
- include auto-log facilities
- raise the rewards for achievement
- have an extensive level/class system
- make commands be applicable wherever they might reasonably have meaning
- have large puzzles, that take over an hour to complete
- have many commands relating to fights
- only allow building by top-quality builders

These strategies can be combined to encourage or discourage different styles of play. To appeal to achievers, for example, one approach might be to introduce an extensive level/class system (so as to provide plenty of opportunity to reward investment of time) and to maximise the size of the world (so there is more for them to achieve). Note that the "feel" of a MUD is derived from the position on the interest graph of the MUD's players, from which a "centre of gravity" can be approximated. It is therefore sometimes possible to make two changes simultaneously which have "opposite" effects, altering how some individuals experience the MUD but not changing how the MUD feels overall. For example, adding large puzzles (to emphasise ACTING) and adding small puzzles (to emphasise INTERACTING) would encourage both pro-ACTING and pro-INTERACTING players, thereby keeping the MUD's centre of gravity in the same place while tending to increase total player numbers. In general, though, these strategems should not be used as a means to attract new players; strategems should only be selected from one set per axis.

The effects of the presence (or lack of it) of other types of player are also very important, and can be used as a different way to control relative population sizes. The easiest (but, sadly, most tedious) way to discuss the interactions which pertain between the various player types is to enumerate the possible combinations and consider them independently; this is the approach adopted by this paper.

First, however, it is pertinent to discuss the ways that players generally categorise MUDs today.

THE SOCIAL VERSUS GAMELIKE DEBATE

Following the introduction of TinyMUD (Aspnes, 1989), in which combat wasn't even implemented, players now tend to categorise individual MUDs as either "social" or

"gamelike" (Carton, 1995). In terms of the preceding discussion, "social" means that the games are heavily weighted to the area below the x-axis, but whether "gamelike" means the games are weighted heavily above the x-axis, or merely balanced on it, is a moot point. Players of social MUDs might suggest that "gamelike" means a definite bias on and above the x-axis, because from their perspective any explicit element of competitiveness is "too much". Some (but not most) players of gamelike MUDs could disagree, pointing out that their MUDs enjoy rich social interactions between the players despite the fact that combat is allowed.

So strongly is this distinction felt, particularly among social MUDders, that many of their newer participants don't regard themselves as playing "MUDs" at all, insisting that this term refers only to combat-oriented games, with which they don't wish to be associated. The rule-of-thumb applied is server type, so, for example, LPMUD => gamelike, MOO => social; this is despite the fact that each of these systems is of sufficient power and flexibility that it could probably be used to implement an interpreter for the other one!

Consequently, there are general Internet-related books with chapter titles like "Interactive Multiuser Realities: MUDs, MOOs, MUCKs and MUSHes" (Poirier, 1994) and "MUDs, MUSHes, and Other Role-Playing Games" (Eddy, 1994). This fertile ground is where the term "MU*" (Norrish, 1995) originates - as an attempt to fill the void left by assigning the word "MUD" to gamelike (or "player-killing") MUDs; its deliberate use can therefore reasonably be described as a political act (Bruckman, 1992).

This attitude misses the point, however. Although social MUDs may be a major branch on the MUD family tree, they are, nevertheless, still on it, and are therefore still MUDs. If another overarching term is used, then it will only be a matter of time before someone writes a combat-oriented surver called "KillerMU*" or whatever, and cause the wound to reopen. Denial of history is not, in general, a wise thing to do.

Besides, social MUDs do have their killers (ie. people who fall into that area of the interest graph). Simply because explicit combat is prohibited, there is nevertheless plenty of opportunity to cause distress in other ways. To list a few: virtual rape (Dibbell, 1993; Reid, 1994); general sexual harrassment (Rosenberg, 1992); deliberate fracturing of the community (Whitlock, 1994a); vexatious litigancy (Whitlock, 1994b). Indeed, proper management of a MUD insists that contingency plans and procedures are already in place such that antisocial behaviour can be dealt with promptly when it occurs (Bruckman, 1994b).

Social MUDs do have their achievers, too: people who regard building as a competitive act, and can vie to have the "best" rooms in the MUD (Clodius, 1994), or who seek to acquire a large quota for creating ever-more objects (Farmer, Morningstar & Crockford, 1994). The fact that a MUD might not itself reward such behaviour should, of course, naturally foster a community of players who are primarily interested in talking and listening, but there nevertheless *will* still be killers and achievers around - in the same way that there will be socialisers and explorers in even the most bloodthirsty of MUDs.

Researchers have tended to use a more precise distinction than the players, in terms of a MUD's similarity to (single-user) adventure games. Amy Bruckman's observation that:

> "there are two basic types [of MUD]: those which are like adventure games, and those which are not"
>
> (Bruckman, 1992)

is the most succinct and unarguable expression of this dichotomy. However, in his influential paper on MUDs, Pavel Curtis states:

> "Three major factors distinguish a MUD from an Adventure-style computer game, though:
> - A MUD is not goal-oriented; it has no beginning or end, no 'score', and no notion of 'winning' or 'success'. In short, even though users of MUDs are commonly called players, a MUD isn't really a game at all.
> - A MUD is extensible from within; a user can add new objects to the database such as rooms, exits, 'things', and notes. [...]
> - A MUD generally has more than one user connected at a time. All of the connected users are browsing and manipulating the same database and can encounter the new objects created by others. The multiple users on a MUD can communicate with each other in real time."
>
> (Curtis, 1992)

This definition explicitly rules out MUDs as adventure games - indeed, it claims that they are not games at all. This is perhaps too tight a definition, since the very first MUD was most definitely programmed to be a game (I know, because I programmed it to be one!). The second point, which states that MUDs must involve building, is also untrue of many MUDs; in particular, commercial MUDs often aim for a high level of narrative consistency (which isn't conducive to letting players add things unchecked), and, if they have a graphical front-end, it is also inconvenient if new objects appear that generate no images. However, the fact that Curtis comes down on the side of "social" MUDs to bear the name "MUD" at least recognises that these programs *are* MUDs, which is more than many "MU*" advocates are prepared to admit.

This issue of "social or gamelike" will be returned to presently, with an explanation of exactly *why* players of certain MUDs which are dubbed "gamelike" might find a binary distinction counter-intuitive.

PLAYER INTERACTIONS

What follows is a brief explanation of how players predominantly of one type view those other players whom they perceive to be predominantly of one type. Warning: these notes concern *stereotypical* players, and are not to be assumed to be true of any individual player who might otherwise exhibit the common traits of one or more of the player classes.

The effects of increasing and decreasing the various populations is also discussed, but this does *not* take into account physical limitations on the amount of players involved. Thus, for example, if the number of socialisers is stated to have "no effect" on the number of achievers, that disregards the fact that there may be an absolute maximum number of players that the MUD can comfortably hold, and the socialisers may be taking up slots which achievers could otherwise have filled. Also, the knock-on effects of other interactions are not discussed at this stage: a game with fewer socialisers means the killers will seek out more achievers, for example, so there is a secondary effect of having fewer achievers even though there is no primary effect. This propogation of influences is, however, examined in detail afterwards,

when the first-level dynamics have been laid bare.

ACHIEVERS V. ACHIEVERS

Achievers regard other achievers as competition to be beaten (although this is typically friendly in nature, rather than cut-throat). Respect is given to those other achievers who obviously are extraordinarily good, but typically achievers will cite bad luck or lack of time as reasons for not being as far advanced in the game as their contemporaries.

That said, achievers do often co-operate with one another, usually to perform some difficult collective goal, and from these shared experiences can grow deep, enduring friendships which may surpass in intensity those commonly found among individuals other groups. This is perhaps analagous to the difference between the bond that soldiers under fire share and the bond that friends in a bar share.

Achievers do not need the presence of any other type of player in order to be encouraged to join a MUD: they would be quite happy if the game were empty but for them, assuming it remained a challenge (although some do feel a need to describe their exploits to anyone who will listen). Because of this, a MUD can't have too many achievers, physical limitations excepted.

ACHIEVERS V. EXPLORERS

Achievers tend to regard explorers as losers: people who have had to resort to tinkering with the game mechanics because they can't cut it as a player. Exceptionally good explorers may be elevated to the level of eccentric, in much the same way that certain individuals come to be regarded as gurus by users of large computer installations: what they do is pointless, but they're useful to have around when you need to know something obscure, fast. They can be irritating, and they rarely tell the whole truth (perhaps because they don't know it?), but they do have a place in the world.

The overall number of explorers has only a marginal effect on the population of achievers. In essence, more explorers will mean that fewer of the really powerful objects will be around around for the achievers to use, the explorers having used their arcane skills to obtain them first so as to use them in their diabolical experiments... This can cause achievers to become frustrated, and leave. More importantly, perhaps, the number of explorers affects the *rate of advancement* of achievers, because it determines whether or not they have to work out all those tiresome puzzles themselves. Thus, more explorers will lead to a quicker rise through the ranks for achievers, which will tend to encourage them (if not overdone).

ACHIEVERS V. SOCIALISERS

Achievers merely tolerate socialisers. Although they are good sources of general hearsay on the comings and goings of competitors, they're nevertheless pretty much a waste of space as far as achievers are concerned. Typically, achievers will regard socialisers with a mixture of contempt, disdain, irritation and pity, and will speak to them in either a sharp or patronising manner. Occasionally, flame wars between different cliques of socialisers and achievers may break out, and these can be among the worst to stop: the achievers don't want to lose the

argument, and the socialisers don't want to stop talking!

Changing the number of socialisers in a MUD has no effect on the number of achievers.

ACHIEVERS V. KILLERS

Achievers don't particularly like killers. They realise that killers as a concept are necessary in order to make achievement meaningful and worthwhile (there being no way to "lose" the game if any fool can "win" just by plodding slowly unchallenged), however they don't pesonally like being attacked unless it's obvious from the outset that they'll win. They also object to being interrupted in the middle of some grand scheme to accumulate points, and they don't like having to arm themselves against surprise attacks every time they start to play. Achievers will, occasionally, resort to killing tactics themselves, in order to cause trouble for a rival or to reap whatever rewards the game itself offers for success, however the risks are usually too high for them to pursue such options very often.

Increasing the number of killers will reduce the number of achievers; reducing the killer population will increase the achiever population. Note, however, that those general MUDs which nevertheless allow player-killing tend to do so in the belief that in small measure it is good for the game: it promotes cameraderie, excitement and intensity of experience (and it's the only method that players will accept to ensure that complete idiots don't plod inexorably through the ranks to acquire a degree of power which they aren't really qualified to wield). As a consequence, reducing the number of killers *too* much will be perceived as cheapening the game, making high achievement commonplace, and it will put off those achievers who are alarmed at the way any fool can "do well" just by playing poorly for long enough.

EXPLORERS V. ACHIEVERS

Explorers look on achievers as nascent explorers, who haven't yet figured out that there's more to life than pursuing meaningless goals. They are therefore willing to furnish them with information, although, like all experts, they will rarely tell the full story when they can legitimately give cryptic clues instead. Apart from the fact that they sometimes get in the way, and won't usually hand over objects that are needed for experiments, achievers can live alongside explorers without much friction.

Explorers' numbers aren't affected by the presence of achievers.

EXPLORERS V. EXPLORERS

Explorers hold good explorers in great respect, but are merciless to bad ones. One of the worst things a fellow explorer can do is to give out incorrect information, believing it to be true. Other than that, explorers thrive on telling one another their latest discoveries, and generally get along very well. Outwardly, they will usually claim to have the skill necessary to follow the achievement path to glory, but have other reasons for not doing so (eg. time, tedium, or having proven themselves already with a different persona). There are often suspicions, though, that explorers are too theoretical in most cases, and wouldn't be able to put their ideas into practice on a day-to-day basis if they were to recast themselves in the

achiever or killer mould.

Explorers enjoy the company of other explorers, and they will play more often if they have people around them to whom they can relate. Unfortunately, not many people have the type of personality which finds single-minded exploring a riveting subject, so numbers are notoriously difficult to increase. If you have explorers in a game, hold on to them!

EXPLORERS V. SOCIALISERS

Explorers consider socialisers to be people whom they can impress, but who are otherwise pretty well unimportant. Unless they can appreciate the explorer's talents, they're not really worth spending time with. There *are* some explorers who treat conversation as their specialist explorer subject, but these are very rare indeed; most will be polite and attentive, but they'll find some diversion if the conversation isn't MUD-related or if their fellow interlocutor is clearly way below them in the game-understanding stakes.

The explorer population is not directly affected by the size of the socialiser population.

EXPLORERS V. KILLERS

Explorers often have a grudging respect for killers, but they do find their behaviour wearisome. It's just *so* annoying to be close to finishing setting up something when a killer comes along and attacks you. On the other hand, many killers do know their trade well, and are quite prepared to discuss the finer details of it with explorers. Sometimes, an explorer may try attacking other players as an exercise, and they can be extremely effective at it. Explorers who are particularly riled by a killer may even decide to "do something about it" themselves. If they make such a decision, then it can be seriously bad news for the killer concerned: being jumped and trashed by a low-level (in terms of game rank) explorer can have a devastating effect on a killer's reputation, and turn them into a laughing stock overnight. Explorers do not, however, tend to have the venom or malice that true killers possess, nor will they continue the practice to the extent that they acquire a reputation of their own for killing.

The affect of killers on the explorer population is fairly muted, because most explorers don't particularly care if they get killed (or at least they profess not not). However, if it happens too often then they will become disgruntled, and play less frequently.

SOCIALISERS V. ACHIEVERS

Socialisers like achievers, because they provide the running soap opera about which the socialisers can converse. Without such a framework, there is no uniting cause to bring socialisers together (at least not initially). Note that socialisers don't particularly enjoy talking *to* achievers (not unless they can get them to open up, which is very difficult); they do, however, enjoy talking *about* them. A cynic might suggest that the relationship between socialisers and achievers is similar to that between women and men...

Increasing the achiever/socialiser ratio has only a subtle effect: socialisers may come to feel that the MUD is "all about" scoring points and killing mobiles, and some of them may

therefore leave before matters "get worse". Decreasing it has little effect unless the number of active achievers drops to near zero, in which case new socialisers might find it difficult to break into established conversational groups, and thus decide to take their play elsewhere.

Note: although earlier it was stated that this paper does not address people who play MUDs for meta-reasons, eg. to learn how to program, I believe that their empirical behaviour with regard to the actions of other players is sufficiently similar to that of socialisers for the two groups to be safely bundled together when considering population dynamics.

SOCIALISERS V. EXPLORERS

Socialisers generally consider explorers to be sad characters who are desperately in need of a life. Both groups like to talk, but rarely about the same things, and if they do get together it's usually because the explorer wants to sound erudite and the socialiser has nothing better to do at the time.

The number of explorers in a MUD has no effect on the number of socialisers.

SOCIALISERS V. SOCIALISERS

A case of positive feedback: socialisers can talk to one another on any subject for hours on end, and come back later for more. The key factor is whether there is an open topic of conversation: in a game-like environment, the MUD itself provides the context for discussion, whether it be the goings-on of other players or the feeble attempts of a socialiser to try playing it; in a non-game environment, some other subject is usually required to structure conversations, either within the software of the MUD itself (eg. building) or without it (eg. "This is a support MUD for the victims of cancer"). Note that this kind of subject-setting is only required as a form of ice-breaker: once socialisers have acquired friends, they'll invariably find other things that they can talk about.

The more socialisers there are in a game, the more new ones will be attracted to it.

SOCIALISERS V. KILLERS

This is perhaps the most fractious relationship between player group types. The hatred that some socialisers bear for killers admits no bounds. Partly, this is the killers' own fault: they go out of their way to rid MUDs of namby-pamby socialisers who wouldn't know a weapon if one came up and hit them (an activity that killers are only too happy to demonstrate), and they will generally hassle socialisers at every opportunity simply because it's so easy to get them annoyed. However, the main reason that socialisers tend to despise killers is that they have completely antisocial motives, whereas socialisers have (or like to think they have) a much more friendly and helpful attitude to life. The fact that many socialisers take attacks on their personae personally only compounds their distaste for killers.

It could be argued that killers do have a positive role to play from the point of view of socialisers. There are generally two defences made for their existence: 1) without killers, socialisers would have little to talk about; 2) without evil as a contrast, there is no good. The former is patently untrue, as socialisers will happily talk about anything and everything; it

may be that it helps provide a catalyst for long conversations, but only if it isn't an everyday occurrence. The second argument is more difficult to defend against (being roughly equivalent to the reason why God allows the devil to exist), however it presupposes that those who attack other players are the only example of nasty people in a MUD. In fact, there is plenty of opportunity for players of all persuasions to behave obnoxiously to one another; killers merely do it more openly, and (if allowed) in the context of the game world.

Increasing the number of killers will decrease the number of socialisers by a much greater degree. Decreasing the number of killers will likewise greatly encourage (or, rather, fail to discourage) socialisers to play the MUD.

KILLERS V. ACHIEVERS

Killers regard achievers as their natural prey. Achievers are good fighters (because they've learned the necessary skills against mobiles), but they're not quite as good as killers, who are more specialised. This gives the "thrill of the chase" which many killers enjoy - an achiever may actually be able to escape, but will usually succumb at some stage, assuming they don't see sense and quit first. Achievers also dislike being attacked, which makes the experience of attacking them all the more fun; furthermore, it is unlikely that they will stop playing after being set back by a killer, and thus they can be "fed upon" again, later. The main disadvantage of pursuing achievers, however, is that an achiever can get so incensed at being attacked that they decide to take revenge. A killer may thus innocently enter a game only to find a heavily-armed achiever lying in wait, which rather puts the boot on the other foot...

Note that there is a certain sub-class of killers, generally run by wiz-level players, who have a more ethical point to their actions. In particular, their aim is to "test" players for their "suitability" to advance to the higher levels themselves. In general, such personae should not be regarded as falling into the killer category, although in some instances the ethical aspect is merely an excuse to indulge in killing sprees without fear of sanction. Rather, these killers tend to be run by people in either the achievement category (protecting their own investment) or the explorer category (trying to teach their victims how to defend themselves against *real* killers).

Increasing the number of achievers will, over time, increase the number of killers in a typically Malthusian fashion.

KILLERS V. EXPLORERS

Killers tend to leave explorers alone. Not only can explorers be formidable fighters (with many obscure, unexpected tactics at their disposal), but they often don't fret about being attacked - a fact which is very frustrating for killers. Sometimes, particularly annoying explorers will simply ignore a killer's attack, and make no attempt whatsoever to defend against it; this is the ultimate in cruelty to killers. For more long-term effects, though, a killer's being beaten by an explorer has more impact on the game: the killer will feel shame, their reputation will suffer, and the explorer will pass on survival tactics to everyone else. In general, then, killers will steer well clear of even half-decent explorers, except when they have emptied a game of everyone else and are so desperate for a fix that even an explorer looks tempting...

Increasing the number of explorers will slightly decrease the number of killers.

KILLERS V. SOCIALISERS

Killers regard socialisers with undisguised glee. It's not that socialisers are in any way a challenge, as usually they will be pushovers in combat; rather, socialisers feel a dreadful hurt when attacked (especially if it results in the loss of their persona), and it is this which killers enjoy about it. Besides, killers tend to like to have a bad reputation, and if there's one way to get people to talk about you, it's to attack a prominent socialiser...

Increasing the number of socialisers will increase the number of killers, although of course the number of socialisers wouldn't remain increased for very long if that happened.

KILLERS V. KILLERS

Killers try not to cross the paths of other killers, except in pre-organised challenge matches. Part of the psychology of killers seems to be that they wish to be viewed as somehow superior to other players; being killed by a killer in open play would undermine their reputation, and therefore they avoid risking it (compare Killers v Explorers). This means that nascent or wannabe killers are often put off their chosen particular career path because they themselves are attacked by more experienced killers and soundly thrashed. For this reason, it can take a very long time to increase the killer population in a MUD, even if all the conditions are right for them to thrive; killer numbers rise grindingly slowly, unless competent killers are imported from another MUD to swell the numbers artificially.

Killers will occasionally work in teams, but only as a short-term exercise; they will usually revert to stalking their victims solo in the next session they play.

There are two cases where killers might be attacked by players who, superficially, look like other killers. One of these is the "killer killer", usually run by wiz-level players, which has been discussed earlier. The other is in the true hack-and-slash type of MUD, where the whole aim of the game is to kill other personae, and no-one particularly minds being killed because they weren't expecting to last very long anyway. This type of play does not appeal to "real" killers, because it doesn't cause people emotional distress when their personae are deleted (indeed, socialisers prefer it more than killers do). However, it's better than nothing.

The only effect that killers have on other killers is in reducing the number of potential victims available. This, in theory, should keep the number of killers down, however in practice killers will simply attack less attractive victims instead. It takes a very drastic reduction in the number of players before established killers will decide to stop playing a MUD and move elsewhere, by which time it is usually too late to save the MUD concerned.

DYNAMICS

From the discussion in the previous section, it is possible to summarise the interactions between player types as follows:

To increase the number of achievers:

- reduce the number of killers, but not by too much.
- if killer numbers are high, increase the number of explorers.

To decrease the number of achievers:

- increase the number of killers.
- if killer numbers are low, reduce the number of explorers.

To increase the number of explorers:

- increase the number of explorers.

To decrease the number of explorers:

- massively increase the number of killers.

To increase the number of socialisers:

- slightly decrease the number of killers.
- increase the number of socialisers.

To decrease the number of socialisers:

- slightly increase the number of killers.
- massively increase the number of achievers.
- massively decrease the number of achievers.
- decrease the number of socialisers.

To increase the number of killers:

- increase the number of achievers.
- massively decrease the number of explorers.
- increase the number of socialisers.

To decrease the number of killers

- decrease the number of achievers.
- massively increase the number of explorers.
- decrease the number of socialisers.

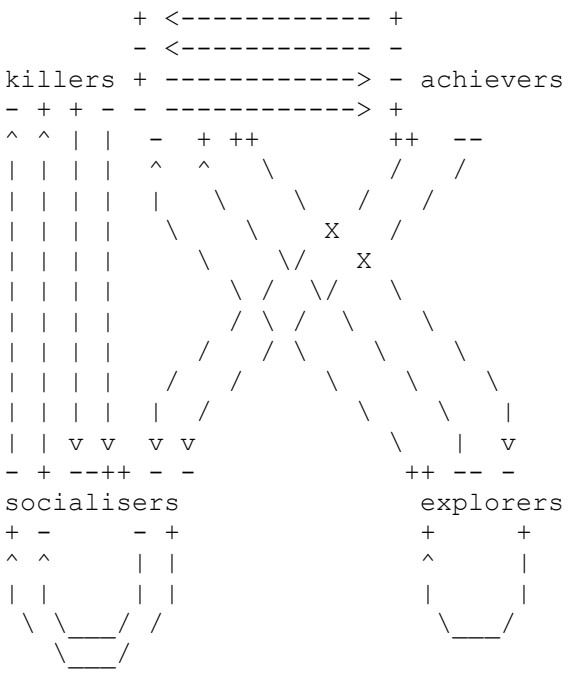
What are the dynamics of this model? In other words, if players of each type were to trickle into a system, how would it affect the overall make-up of the player population?

The following diagram illustrates the flow of influence. Each arrow shows a relationship, from the blunt end to the pointed end. Ends are marked with a plus or minus to show an increase or decrease respectively; the symbols are doubled up to indicate a massive increase

or decrease. Example: the line

killers + ----------> - achievers

means that increasing the number of killers will decrease the number of achievers.



A graphical version of the figure appears at the end of the paper. [2]

From this, it can be seen that the numbers of killers and achievers is basically an equilibrium: increasing the number of achievers will increase the number of killers, which will in turn dampen down the increase in the number of achievers and thereby reduce the number of excess killers.

The explorer population is almost inert: only huge numbers of killers will reduce it. It should be noted, however, that massively increasing the number of explorers is the *only* way to reduce the number of killers without also reducing the player numbers in other groups. Because increasing the number of explorers in a MUD generally encourages others to join (and non-explorers to experiment with exploration), this gives a positive feedback which will eventually reduce the killer population (although recall the earlier point concerning how few people are, by nature, explorers).

The most volatile group of people is that of the socialisers. Not only is it highly sensitive to the number of killers, but it has both positive and negative feedback on itself, which amplifies any changes. An increase in the number of socialisers will lead to yet more socialisers, but it will also increase the number of killers; this, in turn, will reduce the number of socialisers drastically, which will feed back into a yet greater reduction. It is possible for new socialisers to arrive in large enough quantities for a downward spiral in numbers not to be inevitable, but it is unlikely that such a system could remain viable in over a long period of time.

This analysis of the dynamics of the relationships between players leads naturally to a consideration of what configurations could be considered stable. There are four:

1) Killers and achievers in equilibrium. If the number of killers gets too high, then the achievers will be driven off, which will cause the number of killers to fall also (through lack of victims). If there aren't enough killers, then achievers feel the MUD isn't a sufficient challenge (there being no way to "lose" in it), and they will gradually leave; new killers could appear, attracted by the glut of potential prey, however this happens so slowly that its impact is less than that of the disaffection among achievers. Socialisers who venture out of whatever safe rooms are available eventually fall prey to killers, and leave the game. Those who stay find that there aren't many interesting (to them) people around with whom to talk, and they too drift off. Explorers potter around, but are not a sufficient presence to affect the number of killers.

2) A MUD dominated by socialisers. Software changes to the MUD are made which prevent (or at least seriously discourage) killers from practising their craft on socialisers; incoming socialisers are encouraged by those already there, and a chain reaction starts. There are still achievers and explorers, but they are swamped by the sheer volume of socialisers. The number of socialisers is limited only by external factors, or the presence of killers masquerading as socialisers. If the population of socialisers drops below a certain critical level, then the chain reaction reverses and almost all the players will leave, however only events outside the MUD would cause that to happen once the critical mass had been reached.

3) A MUD where all groups have a similar influence (although not necessarily similar numbers). By nurturing explorers using software means (ie. giving the game great depth or "mystique", or encouraging non-explorers to dabble for a while by regularly adding new areas and features), the overall population of explorers will gradually rise, and the killer population will be held in check by them. The killers who remain do exert an influence on the number of socialisers, sufficient to stop them from going into fast-breeder mode, but insufficient to initiate an exodus. Achievers are set upon by killers often enough to feel that their achievements in the game have meaning. This is perhaps the most balanced form of MUD, since players can change their position on the interest graph far more freely: achievers can become explorers, explorers can become socialisers, socialisers can become achievers - all without sacrificing stability. However, actually attaining that stability in the first place is very difficult indeed; it requires not only a level of game design beyond what most MUDs can draw on, but time and player management skills that aren't usually available to MUD administrators. Furthermore, the administrators need to recognise that they are aiming for a player mix of this kind in advance, because the chances of its occurring accidentally are slim.

4) A MUD with no players. The killers have killed/frightened off everyone else, and left to find some other MUD in which to ply their trade. Alternatively, a MUD structured expressly for socialisers never managed to acquire a critical mass of them.

Other types could conceivably exist, but they are very rare if they do. The dynamics model is, however, imprecise: it takes no account of outside factors which may influence player types or the relationships between then. It is thus possible that some of the more regimented MUDs (eg. role-playing MUDs, educational MUDs, group therapy MUDs) have an external dynamic (eg. fandom interest in a subject, instructions from a teacher/trainer, tolerance of others as a means to advance the self) which adds to their cohesion, and that this could make an otherwise flaky configuration hold together. So other stable MUD forms may, therefore, still be out there.

It might be argued that "role-playing" MUDs form a separate category, on a par with

"gamelike" and "social" MUDs. However, I personally favour the view that role-playing is merely a strong framework within which the four types of player still operate: some people will role-play to increase their power over the game (achievers); others will do so to explore the wonder of the game world (explorers); others will do so because they enjoy interacting and co-operating within the context that the role-playing environment offers (socialisers); others will do it because it gives them a legitimate excuse to hurt other players (killers). I have not, however, undertaken a study of role-playing MUDs, and it could well be that there is a configuration of player types peculiar to many of them which would be unstable were it not for the order imposed by enforcing role-play. It certainly seems likely that robust role-playing rules could make it easier for a MUD to achieve type 3) stability, whatever.

At this point, we return to the social/gamelike MUD debate.

Ignoring the fourth (null) case from the above, it is now much easier to see why there is a schism. Left to market forces, a MUD will either gravitate towards type 1) ("gamelike") or type 2) ("social"), depending on its administrators' line on player-killing (more precisely: how much being "killed" annoys socialisers). However, the existence of type 3) MUDs, albeit in smaller numbers because of the difficulty of reaching the steady state, does show that it is possible to have both socialisers and achievers co-existing in significant numbers in the same MUD.

It's very easy to label a MUD as either "hack-and-slash" or "slack-and-hash", depending on whether or not player-killing is allowed. However, using player-killing as the only defining factor in any distinction is an over-generalisation, as it groups together type 1) and type 3) MUDs. These two types of MUD should *not* be considered as identical forms: the socialising which occurs in a type 3) MUD simply isn't possible in a type 1), and as a result the sense of community in type 3)s is very strong. It is no accident that type 3) MUDs are the ones preferred commercially, because they can hold onto their players for far longer than the other two forms. A type 1) MUD is only viable commercially if there is a sufficiently large well of potential players to draw upon, because of the much greater churn rate these games have. Type 2)s have a similarly high turnover; indeed, when TinyMUD first arrived on the scene it was almost slash-and-burn, with games lasting around six months on university computers before a combination of management breakdown (brought on by player boredom) and resource hogging would force them to close down - with no other MUDs permitted on the site for perhaps years afterwards.

This explains why some MUDs perceived by socialisers to be "gamelike" can actually be warm, friendly places, while others are nasty and vicious: the former are type 3), and the latter are type 1). Players who enter the type 3)s, expecting them to be type 1)s, may be pleasantly surprised (Bruckman, 1993). However, it should be noted that this initial warm behaviour is sometimes the approach used by administrators to ensure a new player's further participation in their particular MUD, and that, once hooked, a player may find that attitudes undergo a subtle change (Epperson, 1995).

As mentioned earlier, this paper is not intended to promote any one particular style of MUD. Whether administrators aim for type 1), 2) or 3) is up to them - they're all MUDs, and they address different needs. However, the fact that they *are* all MUDs, and not "MU*s" (or any other abbreviation-of-the-day), really should be emphasised.

To summarise: "gamelike" MUDs are the ones in which the killer-achiever equilibrium has

been reached, ie. type 1); "social" MUDs are the ones in which the pure-social stability point has been reached, ie. type 2), and this is the basis upon which they differ. There is a type 3) "all round" (my term) MUD, which exhibits both social and gamelike traits, however such MUDs are scarce because the conditions necessary to reach the stable point are difficult or time-consuming to arrange.

OVERBALANCING A MUD

Earlier, the effect of taking each axis on the interest graph to its extremes was used to give an indication of what would happen if a MUD was pushed so far that it lost its MUDness. It was noted, though, that along the axes was not the only way a MUD could be tilted.

What would happen if, in an effort to appeal to certain types of player, a MUD was overcompensated in their favour?

Tilting a MUD towards achievers would make it obsessed with gameplay. Players would spend their time looking for tactics to improve their position, and the presence of other players would become unnecessary. The result would be effectively a single-player adventure game (SUD?).

Tilting towards explorers would add depth and interest, but remove much of the activity. Spectacle would dominate over action, and again there would be no need for other players. The result of this is basically an online book.

Tilting towards socialisers removes all gameplay, and centres on communication. Eventually, all sense of the virtual world is lost, and a chatline or IRC-style CB program results.

Tilting towards killers is more difficult, because this type of player is parasitic on the other three types. The emphasis on causing grief has to be sacrificed in favour of the thrill of the chase, and bolstered by the use of quick-thinking and skill to overcome adversity in clever (but violent) ways. In other words, this becomes an arcade ("shoot 'em up") type of game.

It's a question of balance: if something is added to a MUD to tilt the graph one way, other mechanisms will need to be in place to counterbalance it (preferably automatically). Otherwise, what results is a SUD, book, chatline or arcade game. It's the *combination* that makes MUDs unique - and special. It *is* legitimate to say that anything which goes too far in any direction is not a MUD; it is *not* legitimate to say that something which doesn't go far enough in any direction is not a MUD. So long as a system is a (text-based) multi-user virtual world, that's enough.

SUMMARY

To answer the questions posed in the preface:

Are MUDs

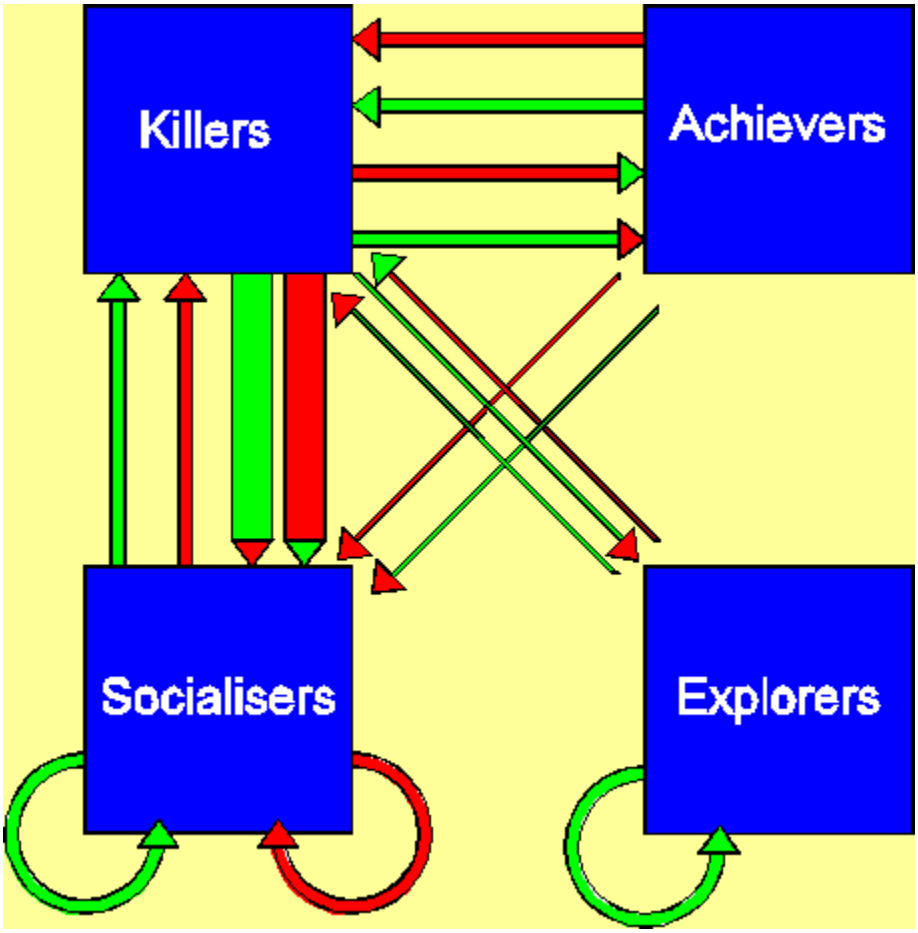
- games? Like chess, tennis, D&D?
  Yes - to achievers.

- pastimes? Like reading, gardening, cooking?
  Yes - to explorers.
- sports? Like huntin', shooting', fishin'?
  Yes - to killers.
- entertainments? Like nightclubs, TV, concerts?
  Yes - to socialisers.

ENDNOTES

[1] This paper is an April 1996 extension of an earlier article, "Who Plays MUAs" (Bartle, 1990a). As a result of this, and of the fact that I am not a trained psychologist, do not expect a conventionally rigorous approach to the subject matter.

Permission to redistribute freely for academic purposes is granted provided that no material changes are made to the text. [2] In the figure below, green indicates increasing numbers and red indicates decreasing numbers. A red line with a green arrowhead means that decreasing numbers of the box pointed from lead to increasing numbers of the box pointed to; a red line with a red arrowhead would mean that a decrease in one leads to a decrease in the other, and so on. The thickness of the line shows the strength of the effect: thin lines mean there's only a small effect; medium lines mean there's an effect involving roughly equal numbers of players from both boxes; thick lines means there's a great effect, magnifying the influence of the origin box.



REFERENCES

Aspnes, J. (1989). TinyMUD [C] http://ftp.tcp.com/ftp/pub/mud/TinyMUD/tinymud-pc.1.0.tar.gz

Bartle, R. A. (1985). MUD2 [MUDDLE] MUSE Ltd, Colchester, Essex, UK.

Bartle, R. A. (1990a). Who Plays MUAs? Comms Plus!, October/November 1990 18-19.

Bartle, R. A. (1990b). Interactive Multi-Player Computer Games. MUSE Ltd, Colchester, Essex, UK ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/mudreport.txt

Bruckman, A. S. (1992). Identity Workshop: Emergent Social and Psychological Phenomena in Text-Based Virtual Reality. MIT Media Laboratory, Cambridge, Massachusetts. ftp://media.mit.edu/pub/asb/papers/identity-workshop.ps

Bruckman, A. S. (1993). Gender Swapping on the Internet Proc. INET-93 ftp://media.mit.edu/pub/asb/papers/gender-swapping.txt

Bruckman, A. S. & Resnick, M. (1993). Virtual Professional Community: Results from the MediaMOO Project. MIT Media Laboratory, Cambridge, Massachusetts. ftp://media.mit.edu/pub/asb/papers/convergence.txt

Bruckman, A. S. (1994a). Workshop: "Serious" Uses of MUDs? Proc. DIAC-94 ftp://media.mit.edu/pub/asb/papers/serious-diac94.txt

Bruckman, A. S. (1994b). Approaches to Managing Deviant Behaviour in Virtual Communities. MIT Media Laboratory, Cambridge, Massachusetts. ftp://media.mit.edu/pub/asb/deviance-chi94.txt

Burka, L. P. (1995). The MUDline. http://www.ccs.neu.edu/home/lpb/mudline.html

Carton, S. (1995). Internet Virtual Worlds Quick Tour: MUDs, MOOs and MUSHes: Interactive games, Conferences and Forums Ventana Press, Chapel Hill, North Carolina.

Caspian-Kaufman, J. (1995). Sid Meier's CivNET: Instruction Manual Microprose, Hunt Valley, Maryland.

Cherny, L. (1995a). The Modal Complexity of Speech Events in a Social MUD. Electronic Journal of Communication, Summer 1995. ftp://bhasha.stanford.edu/pub/cherny/ejc.txt

Cherny, L. (1995b). The Situated Behaviour of MUD Back Channels. Dept. Linguistics, Stanford University, California. ftp://bhasha.stanford.edu/pub/cherny/aaai.ps

Clodius, J. A. (1994). Concepts of Space in a Virtual Community. http://tinylondon.ucsd.edu/~jen/space.html

Curtis, P. (1992). Mudding: Social Phenomena in Text-Based Virtual Realities. Proc. DIAC-

92 ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/DIAC92.txt

Curtis, P. & Nichols, D. A. (1993). MUDs Grow Up: Social Virtual Reality in the Real World. Xerox PARC, Palo Alto, California. ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/MUDsGrowUp.txt

Dibbell, J. (1993). A Rape in Cyberspace. The Village Voice, December 21, 1993. ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/VillageVoice.txt

Emert, H. G. (1993). "X" Marks the Spot. East Stroudsburg University, Pennsylvania. http://www-f.rrz.uni-koeln.de/themen/cmc/text/emert.n01.txt

Eddy, A. (1994). Internet After Hours Prima, Rocklin, California.

Epperson, H. L. (1995). Patterns of Social Behaviour in Computer-Mediated Communications. Dept. Sociology, Rice University. http://www.eff.org/pub/Net_culture/Misc_net_culture/ web_social_behaviour.paper

Evard, R. (1993). Collaborative Networked Communication: MUDs as System Tools. Proc. LISA-93 http://www.ccs.neu.edu/home/remy/documents/cncmast.html

Fanderclai, T. F. (1995). MUDs in Education: New Environments, New Pedagogies. Computer-Mediated Communication Magazine, 2(1), 8.

Farmer, F. R., Morningstar, C. & Crockford, D. (1994). From Habitat to Global Cyberspace. Proc. CompCon-94, IEEE http://www.communities.com/paper/hab2cybr.html

Kort, B. (1991). The MUSE as an Educational Medium BBN Labs, Cambridge, Massachusetts. ftp://musenet.bbn.com/pub/micromuse

Mauldin, M. L. (1994). Chatterbots, TinyMUDs and the Turing Test: Entering the Loebner Prize Competition. Proc. AAAI-94 http://fuzine.mt.cs.cmu.edu/mlm/aaai94.html

Moock, C. (1996). Virtual Campus at the University of Waterloo. http://arts.uwaterloo.ca:80/~camoock/virtual_classroom.htm

Norrish, J. (1995). MU*s. http://www.vuw.ac.nz/~jamie/mud/mud.html

Poirier, J. R. (1994). Interactive Multiuser Realities: MUDs, MOOs, MUCKs, and MUSHes. The Internet Unleashed, 1192-1127. SAMS Publishing, Indianapolis, Indiana.

Reid, E. (1994). Cultural Formations in Text-Based Virtual Realities. Dept. English, University of Melbourne, Australia. ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/CulturalFormations.txt

Riner, R. D. & Clodius, J. A. (1995). Simulating Future Histories: The NAU Solar System Simulation and Mars Settlement. Anthropology & Education Quarterly 26(1):95-104. http://tinylondon.ucsd.edu/~jen/solsys.html

Rosenberg, M. S. (1992). Virtual Reality: Reflections of Life, Dreams and Technology. An

Ethnography of a Computer Society.
ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/ethnography.txt

Roush, W. (1993). The Virtual STS Centre on MediaMOO: Issues and Challenges as Non-Technical Users Enter Social Virtual Spaces. MIT Media Laboratory, Cambridge, Massachusetts. ftp://media.mit.edu/pub/MediaMOO/Papers/STS-Centre

Urdang, L. & Manser, M. (1980). The Pan Dictionary of Synonyms and Antonyms Pan Reference, London, UK.

Whitlock, T. D. (1994). Fuck Art, Let's Kill!: Towards a Post Modern Community. gopher://actlab.rtf.utexas.edu/00/art_and_tech/rtf_papers/pmc.terrorism

Whitlock, T. D. (1994b). Technological Hierarchy in MOO: Reflections on Power in Cyberspace http://www.actlab.utexas.edu/~smack/papers/TechHier.txt