

# A Classification of Muds

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## Abstract

Muds have evolved into many varied forms since their creation in 1979. The Internet has facilitated the distribution of both mud software and ideas, and accelerated the pace of mud development. Today, most muds are derived from publicly available software. Muds derived from the same software will exhibit similarities which may be used to deduce which muds are related. This paper presents a breakdown of The Mud Tree, and offers a classification system based on the type of world modelled by a mud.

## 1 Introduction

In the mid 1980s, most muds were either dial-up systems, or existed on proprietary (i.e. non-Internet) networks. Playing most muds involved connecting with a modem to an online service such as CompuServe or Micronet, and paying a telephone company, the proprietary network or the mud (and possibly all three) for access. When Bartle (1990) conducted the first systematic description of muds and mud types, his classification reflected the preponderance of the proprietary networks which existed before the spread of the Internet in the early 1990s.

Those new to mudding may notice that there are strong similarities between certain muds, and weaker relationships between others. Between some

muds there is seemingly no relationship at all. However, this paper will demonstrate that almost all muds are related to one of two original sources.

This paper examines two methods for classifying mud systems. One, the “genealogical” classification (dealt with in Section 3), is based on the fact that most muds were created from ideas and/or software borrowed from earlier muds and thus bear a family resemblance to their parents. The second, “typological”, method groups muds together according to certain characteristics — what the muds are, rather than how they came to be that way. This is investigated in Section 6.

A substantial proportion of the relational information in this paper was gathered as part of “The Mud Tree”. The Mud Tree was a diagram of the inheritance relationships between muds (inspired by a diagram showing the inheritance relationships between Indo-European languages), which I posted to Usenet newsgroups such as `rec.games.mud.misc` as a request for more information. The Mud Tree was first posted in March 1996, and reposted a number of times in 1996 and 1997 incorporating new material and revisions.<sup>1</sup>

## 2 Background

### 2.1 Historical Information

Written as part of an attempt to sell MUD2 to British Telecom, Bartle’s (1990) paper concentrated almost exclusively on commercial muds. Since then, the growth of the Internet has encouraged the expansion and evolution of muds into many different forms, by reducing the costs of both playing and running them. It has also given muds international reach and brought an influx of users from a range of backgrounds wider than the mainly academic communities who played the early muds. No reliable statistical data is available concerning the total number of users; I take fifty thousand as a ballpark figure for the number of people regularly playing muds today. At the time of writing there are approximately 800 muds listed as being publicly available on the Internet. Internet muds now constitute the vast majority of muds, the older dialup (modem) muds now largely extinct.

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<sup>1</sup>Versions of the tree are available from the author, and may also be found on the DejaNews Usenet archive.

Until the release of the software for games like AberMUD and Monster in 1988, there normally existed only a single publicly available copy of each mud. The release of the source code for AberMUD prompted the creation not merely of several other muds using the AberMUD server software, but also of many imitators, such as LPMud, TinyMUD, DikuMUD and DUM.<sup>2</sup> Instead of a “virtual community” coming into being on a mud, communities now sprang up based around *families* of muds — there was a DikuMUD community, a TinyMUD community, and so on. Muds which were similar naturally attracted similar sorts of user, and these users would often play several muds of the same type, forming communities which spanned multiple (but similar) muds.

## 2.2 Difficulties with Research

One of the problems faced by researchers in this area, despite the relatively abundant historical evidence available, is that some mud authors and users have a habit of disguising or denying the origins and influences of their muds, for political or commercial reasons. This practice may manifest itself in the renaming of the server to make it appear that it was entirely written by the administrators, or the removal of the credits and licensing information. The converse of this phenomenon, authors claiming that other muds are derived from theirs, is also prevalent.

Another difficulty is that a portion of mudding history has been lost as the memories of mud creators and users have faded. Some of these muds *did* have an influence on mud development — texts on mud history (Various, 1990) wistfully recount a “nameless mud” from which Aspnes borrowed the use of the " symbol as an abbreviation for “say”. Further complication is introduced by “apocryphal muds”, which in all likelihood never actually existed outside the imaginations of those who claim to have authored or played them.<sup>3</sup>

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<sup>2</sup>Taken together, muds based on DikuMUD, TinyMUD and LPMud software account for well over half the muds now available.

<sup>3</sup>For example, muds which were said to have been run using software which was not available at the time the muds were claimed to have been played.

### 3 Genealogical classification

A simple classification of muds may be made on the basis of the server software<sup>4</sup> used to run them. In general, this software is freely available and anyone with sufficient resources (network connectivity, time, programming knowledge etc) may use it to run a mud. Muds created using the same software will have many features in common — an individual mud’s distinctive flavour will spring from what modifications the mud’s administrators choose to make to the software. Given that most mud server software was influenced by, inspired by or derived from that of previous muds, it is possible to create a “family tree” of relationships between mud server types, extending (in the case of most server software) back to Trubshaw and Bartle’s MUD1.

There are two distinct mechanisms by which a mud or mud type may inherit features from previous muds (its “parents” or “ancestors”, as it were). Using biological organisms as an analogy, I name these mechanisms “genetic inheritance” (using the *code* of previous muds) and “grafting” (using the *ideas* of other muds). Genetic inheritance can be seen as the natural evolution of a system’s DNA (or software, for our purposes); Firstly, a programmer may take the software for a mud and rewrite large sections of it, rereleasing it to the public (and generally renaming it too). The resultant software will have many similarities with the parent, and will usually be subject to a superset of the parent’s licensing restrictions. For example, all Merc muds have (or *should* have) the original DikuMUD license and credits present, and generally look and feel relatively similar to original DikuMUD.

Grafting, on the other hand, is like taking a branch of a tree and attaching it to a different tree altogether. In muds, grafting takes place when a programmer copies, for instance, a combat system from another mud, reimplementing it in his or her own code. Either the ideas and features are added to an existing system, or form the basis of a new one. The creators of Diku and DUM saw AberMUD and wanted to write their own versions, incorporating the good ideas and omitting the rest.<sup>5</sup> They had access to the AberMUD code, but decided to write their own.

The closer the genetic relationship between two muds, the more features they are likely to have in common. Many cosmetic features (the initial con-

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<sup>4</sup>The term “software” is used here to mean the programs *and* data required for running a mud, and includes the database of a mud’s world.

<sup>5</sup>Indeed, Christer Holgersson (DUM author), wrote “I liked AberMUD but not the code.” – DUMII documentation

nection sequence, the formatting of text with prompts, punctuation and spacing, the commandline parser etc) are often similar if not identical between muds of the same or closely related types, and may be used by experienced mudders to determine what type a mud is in cases where this is in doubt or contention. In the case of some types of mud software, large sections of the database may also be held in common.

### 3.1 Determining Inheritance

Knowledge of the strength of the similarities between related muds can in theory enable us to deduce the inheritance relationships between almost all of them. Such an approach to classification is necessary in disciplines such as palaeontology, where there is but limited skeletal evidence from which to extrapolate. With muds, however, the wealth and recency of information available has enabled us to use the simpler methods of contacting the authors, and gathering historical material from the Web, ftp sites, and Usenet news.

The more usual taxonomic systems take one or more characteristics of an entity and classify on those properties. Such a classification is undertaken in Section 6, and considered alongside other typological classification criteria. Genealogical classification is best represented by a “family tree” demonstrating which muds inherit portions of software from which others.

## 4 Building the Tree

Prior to the widespread release of muds in source-code form, muds were generally created from scratch (MUD1, Scepter) or by large-scale grafting of ideas. Bartle’s MUD spawned a stable of “Essex muds”, all using the Bartle and Trubshaw code, chief amongst which were MUD1 itself and MIST. Alan Cox took the ideas of MUD1 and wrote AberMUD in 1988, releasing the code to the ’Net community. Likewise, the authors of Mordor adapted ideas from Scepter of Goth for their publicly distributed (in 1993) mud server software.

The release in source-code form permitted *genetic* evolution to take place, and “families” of mud server types sprang up around the descendents of AberMUD. These families constitute the majority of muds today.<sup>6</sup>

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<sup>6</sup>It must also be observed that families whose source code was not as widely distributed (DUM, YAMud) do not contain many muds, relative to the larger families.



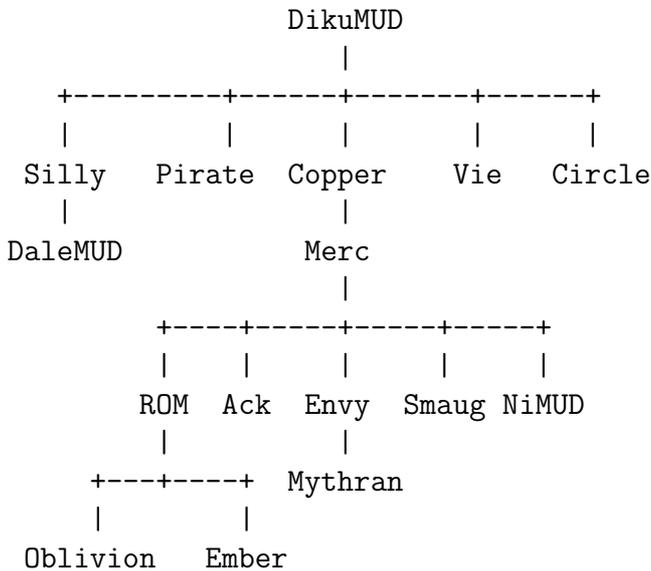
## 5 Subtrees

Let us now examine the families in more detail.

### 5.1 The Diku family

Muds of the Diku family are likely to resemble each other more strongly than members of other families resemble each other. This is largely because Diku muds, moreso than other types, are distributed as fully working games, with prewritten worlds, rather than as platforms upon which one must expend much effort to create a passable system. Whether this is a strength or a weakness is largely a political question beyond the scope of this paper.

One interesting effect of the distribution method is that Diku muds have a much stronger sense of a common culture, rooted in a combination of Norse mythology and Dungeons & Dragons. Many of the more common regions of Diku muds are well known to experienced players, and have even spawned parodies. Diku muds are therefore well suited to cater to players who prefer to be able to assume a passing acquaintance with a mud before playing it in earnest.



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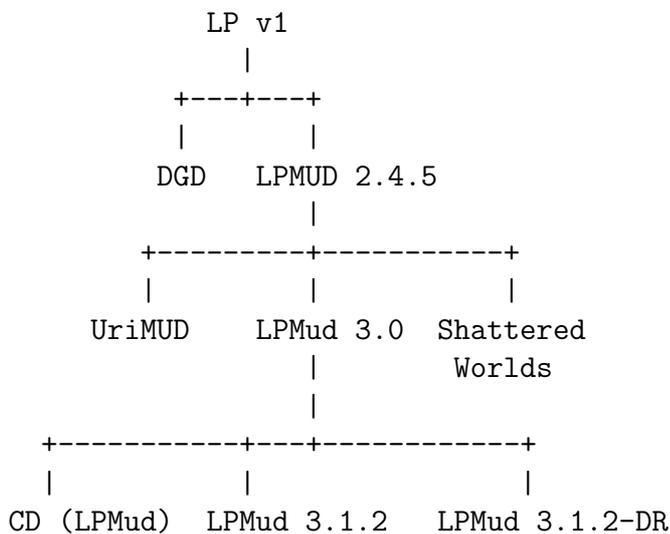
nes, Brooke Paul, George Reese, Alex Fletcher, Christer Holgersson, Elizabeth Reid, Dan Koepke, Alec Muffett

## 5.2 The LP family (drivers and mudlibs)

LP muds are more complicated to classify as they consist of two layers, a “driver” and a “mudlib”. The driver is responsible for handling the low-level management of the game – network connections and interpreting LPC (the internal language of LP muds), and so on. The mudlib, written in LPC, defines the mud’s “look and feel” — it contains the parser, the database, the command set and the cosmetic features. Some mudlibs may be used with more than one driver. The drivers are only dealt with here for historical interest.

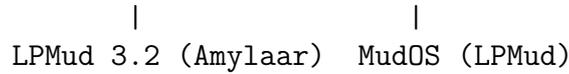
Due to the inherent flexibility of LP muds, it is possible to write almost any type of mud in it (not to mention web servers), whereas most other server software varieties heavily favour a particular type of game (Dikus favour a gradually restocking, combat-based game with limited building ability). This hinders attempts at typological classification as undertaken in Section 6.

### 5.2.1 LP drivers



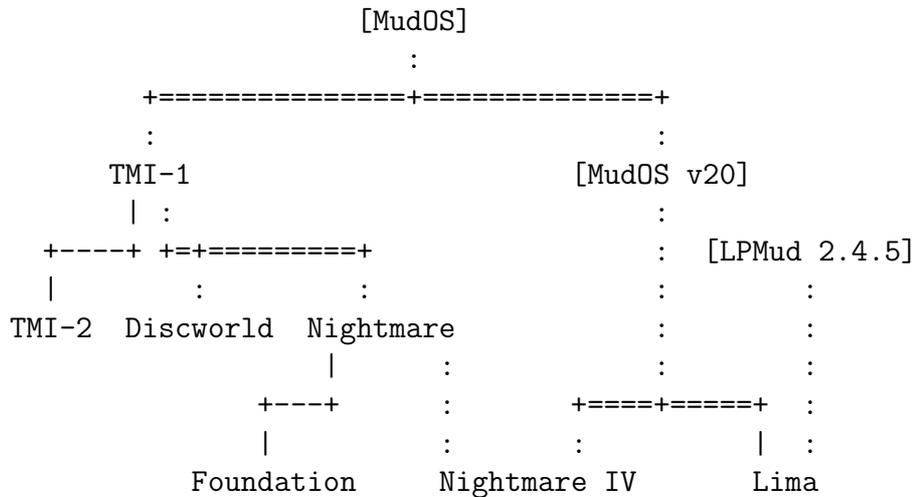

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<sup>9</sup>Sources: DikuMUD FAQ, the source code for Merc, Circle, NiMUD, Pirate, Copper and Silly, personal communication (1996 & 1997) from Dan Koepke, Alex Fletcher, Kane Dudgeon and Erwin Andreasen



### 5.2.2 LP mudlibs

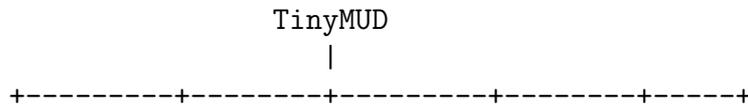
Developments in the drivers for LP muds (indicated in square brackets) influenced the evolution of the individual mudlibs.<sup>10</sup>



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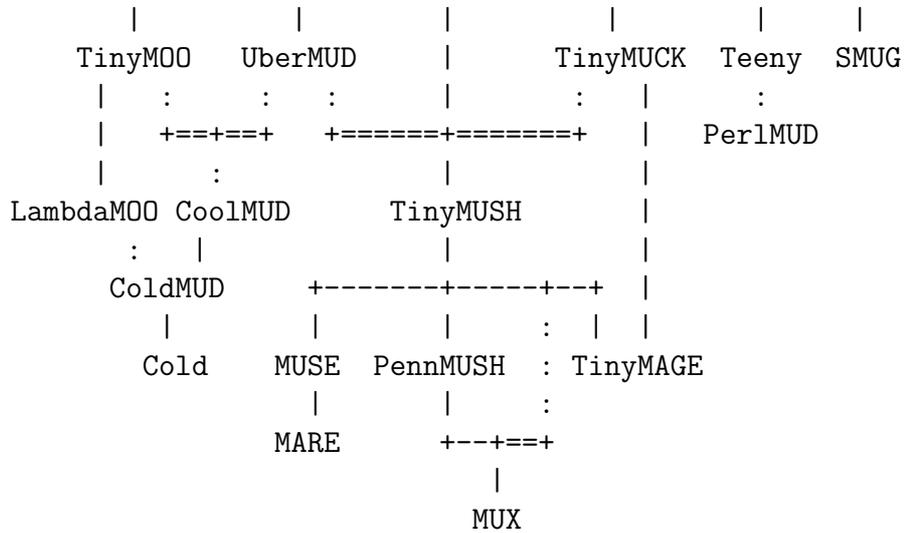
### 5.3 The Tiny family

TinyMUD was heavily influenced by *Monster*, a VMS game written by Rich Skrenta, by the IRC version of *Wumpus* and by AberMUD.



<sup>10</sup>LP also inspired Ogham, a seldom-used mud server by Neil Robertson, author of the NUTS talker system.

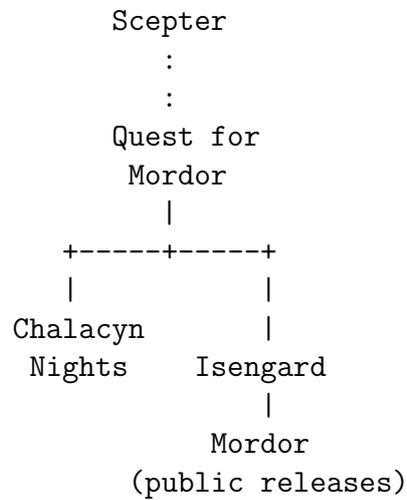
<sup>11</sup>Sources: The LPMud Timeline (George Reese, 1995-1996), The LPMud FAQ, personal communication (1996 & 1997) and Usenet articles (1996) from Tim Hollebeek and George Reese



N.B.: TinyMOO and TinyMUSH are often known as MOO and MUSH respectively.

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## 5.4 The Mordor family



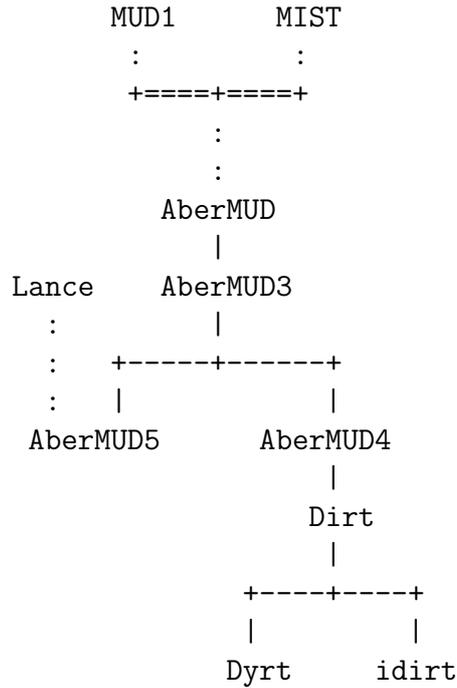

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<sup>12</sup>Sources: personal communication (1996 & 1997) with Jim Aspnes, Jennifer Smith, Alan Schwartz, Chris Lawrence, and Elizabeth Reid

Notes: Chalacyn Nights and Isengard are single muds, rather than families.

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## 5.5 The AberMUD Family



Notes: AberMUD4 was written by Richard Salz during a year when Alan Cox was away from the Internet. AberMUD5 is by Cox, and incorporates ideas from Lance, written by Leon Thrane, another AberMUD coder.

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## 5.6 Miscellaneous muds

There exists a handful of miscellaneous muds not classified genetically. The lineages of commercial systems such as Avalon, Shades and Terris are notoriously controversial, as commercial muds' owners and their detractors can

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<sup>13</sup>Sources: Usenet posts by Brooke Paul (1997) and personal communication from the same (1996)

<sup>14</sup>Sources: YAMA documentation, personal communication (1996 & 1997) with Alan Cox and Anna Eklund

have public relations or financial interests in the systems' perceived origins. Other notable muds which are not members of the aforementioned families include Gemstone III, and Island.

This paper concerns itself almost exclusively with text-based muds, as opposed to text-based talkers or graphical muds. The number of graphical muds is now increasing steadily, yet no source code for them is publicly available, so large families are yet to form.

For further information on miscellaneous muds, see The Mud Tree or contact the author by email.

## 5.7 Other influences on the Tree

Some of the personal email I received in relation to the Tree cited actual programming languages (like C and LPC) as parents of muds, in addition to other muds (personal communication from Brandon Gillespie, 1996). Certainly, in cases such as LPs, TinyMOO, UberMUD, and Cold, the mud's internal language is the dominant and defining feature. In contrast, the bulletin-board systems in the early days of JANET<sup>15</sup> were also mentioned (personal communication from Alec Muffett, 1996), as were "talkers" and single-user adventures like *Zork* and *Colossal Cave*. Coincidentally, since beginning work on The Mud Tree, I discovered not only Bartle's 1990 tree but also a tree charting the evolution of versions of the *Colossal Cave* program.

## 6 Typological Classification

Comparing muds with other systems capable of evolution, we find that the mechanisms by which muds evolve make their evolution more like that of languages than species of animals or families of humans. Some mud types are formed from the combination of other mud types: such convergence can occur with languages<sup>16</sup>. Similarly, intermarriage is possible between members of the same human family. However, by definition, different species cannot in general produce offspring, or in the few instances where they can, the offspring are infertile<sup>17</sup>. Muds, languages and human families are capable

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<sup>15</sup>The UK's academic computer network

<sup>16</sup>For example, English has been heavily influenced by Norman French

<sup>17</sup>mules and tignons, for example. Were the offspring fertile, the parents could not have been separate species in the first place.

of recombinative generation; species are not. In addition, new muds and languages can be created without any direct influence from others<sup>18</sup>; families and species cannot spontaneously spring into existence without forebears.

To build a workable taxonomy for classifying a group of entities, it is necessary to have a means of measuring their differences and similarities. Aristotle's system of taxonomy chose one characteristic of an organism for classifying species into families, and the Swedish taxonomist Linnaeus adopted a similar approach in the eighteenth century. The result of such approaches was that species with little in common other than the characteristic selected for examination would be grouped together, and similar species which differed in this respect were kept apart. At the beginning of the nineteenth century, Cuvier and de Candolle devised systems which examined many characteristics and weighted them appropriately. This methodology forms the basis of the taxonomy system used by botanists and zoologists today.

Until now, typological classification of muds has primarily been carried out using a single discriminating criterion, which separated muds into two groups, "social-oriented" and "combat-oriented". Whereas an obvious distinction does exist between such muds, this distinction served only to separate TinyMUD and its derivatives from all other muds. The subconscious tendency to take as one's characteristics for classification those features of one's favourite mud type which most distinguish it from all others is quite strong, and may well be responsible for the stressing of a "disk-based" versus "memory-based" division in documents such as The MUD FAQ and The MUD Timeline (both written by users of the first memory-based muds) or the frequent mention of "gender pronoun substitution" in Bartle (1990). Pavel Curtis, who was involved in the creation of TinyMOO, enumerated criteria which a system must meet to be called a mud. He asserted that muds must be capable of self-modification and not be "goal oriented":

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 user of MUDs are commonly called players, a MUD isn't a really a game at all.

A MUD is extensible from within; a user can add new objects to the database

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<sup>18</sup>There are many synthetic languages in existence today; not all of them follow Esperanto in clearly drawing on other languages for vocabulary and structure

This definition of muds is not used in this paper as it disqualifies most non-TinyMUDs! By using a single discriminating criterion, the shortcomings of Aristotle’s and Linnaeus’ taxonomies were repeated.

The characteristics I have chosen for classifying muds involve an examination of aspects of a mud’s world. They are:

1. The degree to which the mud permits modification of its world by users and administrators, and
2. How the mud’s world replenishes itself.

These features I regard as more fundamental than what sort of users a mud attracts or any consideration of its low-level mechanics or cosmetic grammatical features. Similarly, the “skills-based” versus “experience” distinction sometimes made (concerning how personal advancement occurs in the mud) is not particularly useful, as a substantial proportion of muds don’t involve personal advancement.

## 6.1 Self Modification

Some muds (such as TinyMUD and its derivatives) permit users to build new rooms and objects on a grand scale; indeed one might even call this their *raison d’être*. Others restrict this significantly, or do not possess such a feature. In the first TinyMUD, all users could build new locations and objects (though the means of easily removing them had not been created!). LP muds permit high-ranking characters (usually called wizards) to create and destroy parts of the mud world.

On the more traditional Dikus and Abermuds, no such facility existed.<sup>19</sup> Acquiring the permission to create new parts of the mud did not require months of dedication on the early TinyMUDs. On other systems, the ability to modify the mud world may be restricted to the highest levels of the mud administration — or it may not even be possible from within the mud.

What is critical for the purpose of classification is whether the permission to “build” is available to anyone, may be earned through playing, or must be conferred by the actions of an administrator.

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<sup>19</sup>“OLC” (online creation) is however now gaining in popularity on Dikus.

## 6.2 Resetting

In real life, once something is dead, it stays dead. If the population of a village is wiped out, the same villagers do not magically reappear hours later. In muds stressing competition between users, where resources are depleted through killing and plunder, the dead non-playing characters (NPCs), the food which has been eaten, the ale drunk, and the shattered shields and broken spears must all be replenished, otherwise the mud will quickly become stagnant when all the resources are used up. Finding a realistic method of replenishing the resources in a mud world is a great challenge, since by its very nature the process cannot hope to be realistic. Muds in the 1980s tended to favour what I call the “Groundhog Day”<sup>20</sup> system: periodically, the game undergoes a “reset” (either initiated by the users or the system itself), where all the elements of the mud’s world (excluding the users) are reset to some predefined state. Users retained only their scores, knowledge and experience when entering the newly recreated world.<sup>21</sup> The main alternative to this system, favoured by Dikus and LPs, is one of continuous restocking of the world. Once an entity is destroyed, a replacement will shortly be created in its place. In muds oriented towards building and socialising rather than competition and combat, the world may not need to be reset at all. (If it did, this would be counter-productive were it to destroy the users’ creations.)

## 6.3 Using these characteristics to classify

It is possible to grade each of these characteristics (modification and replenishment) on a scale. For the reset characteristic, the range is from no resetting at all, through gradual restocking, to Groundhog Day muds. The degree to which building is allowed is easier to scale: Does the mud allow absolutely anyone to build (“Full building”)? Most users (“Unrestricted building”)? A few users? Only users appointed by the administrators? Just the wizards (“restricted building”)? No-one (“no building”)?

Muds derived from the same software will tend to have nearly identical reset and building characteristics, so plotting the set of, say, all AberMUDs on a diagram whose axes represent these characteristics will produce a cloud concentrated in the “Groundhog Day, no building” corner. In fact, this corner

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<sup>20</sup>After the film of the same name, in which the protagonist is condemned to repeat one day of his life forever.

<sup>21</sup>This system was favoured by AberMUD, DUM, Mundi, Island and YAMud

is quite crowded, as it must also accommodate MUD1, DUMII, Island, and YAMud. This area has been marked as containing “AberMUD” and “DUM” on the figure.

figure1.gif goes here

The figure above attempts to give a rough outline of the relative positions of some of the major mud types, and should be taken as nothing more than an approximation. In particular, LPMuds and UberMUDs are probably capable of emulating the behaviour of most of the others on the figure. However, *in general*, they occupy the positions indicated.

Muds types which are more closely related in these two characteristics will appear closer together on the figure. Though one might assume there to be an inverse relationship between the amount of building and resetting in a mud (or “creation” and “destruction”) the characteristics are not completely interdependent. Obviously, muds where *anyone* may add objects to the database are not likely to involve the competitive point-scoring typical of “destruction” muds, lest users create themselves immensely powerful weapons and valuable treasure, and muds where there is no building *or* resetting are quite rare — Federation II was one such. Instead of creating and/or consuming resources, users redistributed their resources through trade.

The origin of the “social versus combat” distinction may be seen in the figure — muds where resources are consumed through battle and plunder (and which hence require resetting) attract a different sort of person from that attracted by muds which revolve around creation of complex scenarios, either through programming and building, or role-playing. The Socialisers and Explorers in Bartle (1996) are attracted to muds in the TinyMUD mould, and that the Achievers and Killers are drawn to Dikus and AberMUDs.

## 7 Mud Survival and Further Evolution of the Tree

Learning to play a new mud requires an expenditure of effort — first-time users of a mud must familiarise themselves with a set of commands, much of the mud world, wrestle with the mud’s parser and so on. The amount of effort necessary (and hence, presumably, the *time* necessary) decreases if users are already familiar with similar muds. Over time this often generates a preference for one particular type of mud, if not a blanket refusal to play

or try any other sort. <sup>22</sup>

Partially as a result of this, users tend to form communities which congregate on muds of the same type. They may be able to bring pressure to bear on mud coders to make their muds resemble other muds their users frequent. Assuming coders are interested in the size of their userbase, it is in their muds' interests to conform.

The much greater number of muds in existence (compared with previous populations) requires muds to compete for users. This gives the users more influence — they are now “consumers” or “customers” of the mud. A deleterious effect of this new-found muscle is that users may use it to pressure admins to reduce the amount of effort required for playing (making the mud “easier”). Groundhog Day resets are unpopular<sup>23</sup>, and the ability to build is popular. This trend ought to propel muds towards the TinyMUD corner of the Figure, and some evidence for it may be found. In addition to the above example of reset abolition, we may observe the rise of Online Creation (OLC), which is gaining popularity in DikuMUDs.

Muds from larger families (by which I mean muds using the same server software as many others) will be able to attract more users than muds from smaller families. Users leaving a mud to start their own will prefer to use the same software as their previous mud, or a similar variety.

The effect of this tendency of families of muds to develop along the same lines is that innovation is discouraged, and conformity promoted, decreasing the overall diversity of mudding. Instead of continuous diversification (a tree with many branches and subtrees) within the families of muds this tendency affects, we can expect reconvergence (mud types “merging” through grafting) and for few of the branches of each family's tree to bear descendents (of the fifteen DikuMUD descendents listed in this paper, only five have descendents of their own).

Should this enforced conformity lead to stagnation, mud authors may turn their backs on genetic evolution and revert to grafting or implementing their ideas from scratch. Of course, in order to ensure that their muds can gain sufficient users to be viable, the authors would have to publish their source code to enable the creation of more copies of their muds. The diversity of the overall system will be restored, and genetic evolution may begin again.

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<sup>22</sup>Many Usenet posts requesting addresses of muds contain a (sometimes strongly worded) preference for server type

<sup>23</sup>An AberMUD called Asylum even advertises that it has abolished them

Bartle's tree (1990) listed approximately fifty systems. Ten of these were actually genetic families of muds (AberMUD, TinyMUSH, TinyMOO, UberMUD, DUMII, SMUG, YAMA), around thirty were individual muds (most of them related to MUD1 by grafting, and most constituted single-member "families"), and a further ten were other miscellaneous mud-like systems. Were his list rewritten today, it would contain a mere handful of individual systems (MUD2, Avalon, Gemstone III, Terris) and large sections on the six families: TinyMUD, LPMud, Diku, AberMUD, Mordor, and DUMII. This represents a significant decrease in the overall diversity of mudding, though the new muds (especially the LPs and some forms of TinyMUD) are considerably more flexible than those they have replaced.

## 8 Conclusions

The motivation for this paper was to provide an explanation of the manner in which muds are related and how they have evolved.

The Tree has grown over time, with new layers of muds being added at the bottom. This will doubtless continue, and this paper has suggested how this might happen.

It was argued that muds whose source code is readily accessible have a better survival chance than those which don't. It is no coincidence that the almost all muds today are descended from the first publicly available muds written for Unix in C.

Using two characteristics for typological classification is an improvement – there are other valid discriminating criteria, though many give misleading results.

Further research areas suggested by this paper include the creation of an experimental mud system with Groundhog Day resets and unrestricted building, and assess its stability. The author would also be interested in the results of an investigation into the geographic distribution of muds — whether the more libertarian TinyMUD is more popular in America, whereas some mud server types seem to be confined to Europe.

The Mud Tree is a demonstration of the evolution of non-biological systems. Muds can be thought of as composite entities, comprising both a virtual world and the people who inhabit it. The communities the people form, which span multiple mud systems, affect the evolution of muds. Mud evolution is different from the evolution other sorts of entity, as extra mech-

anisms are involved.

## Acknowledgement

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Much of the information in this paper was drawn from personal communication with the following: Richard Bartle, Alan Cox, George Reese, Dan Koepke, Chris Lawrence, Tim Hollebeek, Jennifer Smith, Andrew Cowan, Michael Lawrie, Alec Muffett, Christer Holgersson, Jim Aspnes, Alan Schwartz, Alex Fletcher, Neil Robertson, Anna Eklund, Brandon Gillespie, Dave Austin, Orjan Stromberg, Brooke Paul, Ed Carroll, Erwin Andreasen and Kane Dudgeon. Copies of these communications may be obtained from the author subject to the consent of the correspondent.

The Mud Tree is available at  
[http://camelot.cyberbia.net.au/~martin/cgi-bin/mud\\_tree.cgi](http://camelot.cyberbia.net.au/~martin/cgi-bin/mud_tree.cgi)