# Authorship and Auteurship in the Collaborative Development Process of Text-Based Games

|  |  |
| --- | --- |
| **John Townsend** | **Michael James Heron** |
| University of SydneySydneyAustraliajtow5902@uni.sydney.edu.au | Canterbury Christ Church UniversityCanterburyUnited Kingdommichael.heron@canterbury.ac.uk |

The collaborative development of text-based Multi-User Dungeons (MUDs) has afforded writers an electronic medium for the discussion, production, and publication of e-literature. A MUD is designed to provide an immersive and interactive experience, and is achieved by the creation of a code-based structure that supports a literary text. However, when multiple contributors are involved there is a tension between the inherently fixed nature of literature and the more fluid versioning of software. In many software development environments, ownership over a work is considered to be counter-productive, whereas authorship of literature is assumed more freely and, as a means of contextual explication, is actively encouraged. MUDs must therefore function under colliding principles of authorship and ownership. In this paper we discuss the collaborative development of creative works within the context of software communities, and how systems such as auteur theory have difficulty in providing a theoretical framework for multi-author software projects that have creative outputs, even in those hierarchical projects where they would seem most appropriate. We outline how players in these environments encounter a rich and varied literary experience that is an amalgamation of multiple authors and styles of writing. We discuss relevant models for analysing and understanding this type of e-literature, and provide guidelines for how they can be altered to allow for a more effective application.

*Keywords*: e-literature, electronic collaboration, online authorship, multi user dungeons

## Introduction

Textual theory has advanced our recognition of certain idiosyncratic qualities of e-literature. The electronic forms of textual transmission are now of significant importance to bibliographers and textual critics (Williams & Abbott, 2009). The fluidity of an electronic text, for example, is an unusual characteristic that is unobserved in traditional printed literature: cybertexts can be as ephemeral as they are mutable (Williams & Abbott, 2009, p. 69). ‘Printed literature’ here refers to a binded compilation of leaves of paper. The authority (or authorship) of an electronically-published text often blurs the distinction between authors and readers, or between authors and other authors: ‘Internet’ texts are often collaboratively written, and provide little indication of authorship, individual or collective (Williams & Abbott, 2009, p. 69). But these ‘advances’ fail to reveal the impact that the electronic medium has on the creative processes of a collaborative enterprise of multiple authors. By assessing the type of electronic text produced by the collaborative effort of multiple authors, we intend to demonstrate the disparity between traditional textual theory (inspired by printed texts) and the practical reality of e-literature.

The scholarly editing of electronically-adapted texts of literary works of art has had a notable impact on the textual theory of electronic literature (Robinson, 2013, pp. 105-6). Gabler (2010) asserts that the theory and practises encountered in the editing of a printed text have transitioned to the digital medium. This means that the textual theory governing e-literature is currently guided by the theory inspired by the printed medium. An editor’s digitalisation of a printed text thus incurs similar practises (and provokes a similar theory) as a non-electronic, scholarly edition. The electronic, scholarly edition of a printed text, for example, is often discussed in terms of an ‘authority, agency, text and meaning’ (Robinson, 2013, p. 106). The concepts conveyed by these terms depict similar issues that are frequently encountered in the study of a printed text. The textual theory behind an electronic version of a text, and of an editor’s responsibility to the work of literature, has thus focused academic discussion of e-literature on ideas and concepts inherent to the printed medium, but which may not necessarily account all the phenomenon of the electronic. The latency of the theory is unhelped by the fact that most practical applications of the textual theory centres on the digitalisation of printed texts (Gabler, 2010, p. 49). That is, scholarly e-literature (and the textual theory it provokes) is influenced by the textual theory of print because it is primarily concerned with the digitalisation of printed texts. The current textual theory of digitised texts is thus guided by the process of converting the textual structure of the printed text into an identical (or similar) electronic representation (Robinson, 2013). This ‘process’ encounters the same type of textual problems as a printed text: authorship, intention, textual fidelity, meaning, and questions of interpretation, for example. But this also suggests that the current textual theory of e-literature is too reliant on the characteristics inherent of a printed text, and that it may not account the current breadth of possible textual structures that may be produced electronically.

The definition of text games in the modern era is somewhat loose and flexible. In common parlance the term encompasses a wide variety of forms, including the traditional formats of Interactive Fiction (Montfort, 2003), known as IF; choose your own adventure style game books (Ryan, 2001); and vignette style systems such as Echo Bazaar (Heron, Hanson & Ricketts, 2013; Heron, 2013). Within this paper we will adopt the convention discussed by Heron, Hanson and Ricketts (2013), which stresses both the ergodic and cybertextual terms developed by Aarseth (1997). And within this restricted definition, we will focus the discussion on the multi-user dungeon (MUD).

The electronic medium has the capacity to facilitate the creation of various literary texts. These literary texts may either demonstrate a similar textual structure as printed texts or reveal a new textual structure that is specifically facilitated by the electronic medium. That is, the electronic medium has the potential to facilitate the creation of new types of textual structures (for literature). Text games, for example, may create a literary text of infinite quantity. By ‘infinite’, we mean that the literary text of a text game continually reproduces from a finite, pre-determined selection of both code and creative writing – the effect being an infinite, albeit repeated, literary text. In other words, the ‘literary text’ of a ‘text game’ does not necessarily follow the traditional chronological procedure of a printed text.

Traditional textual theory is thus an unsuited descriptor of the new types of textual structures demonstrated within e-literature. We argue that a more accountable, but not necessarily perfected, theory of certain textual structures – specifically, the potential ‘infinite’ MUD text – is presented in an interpretation of auteur theory, and that its acceptance as a viable framework for the interpretation of a MUD’s text provides a much needed update to the textual theory of certain types of e-literature.

## Textual theory of the printed text

Wellek and Warren (1963) argue that an understanding of the epistemological (or ontological) origin of a literary work of art is required prior to an analysis of its form. ‘What is the “real” poem; where should we look for it; how does it exist?’ are the type of questions that, once answered, provide an initial framework for an analysis of both the literary text and literary work (Wellek & Warren, 1963, p. 142). Unlike the visual and tactile arts, a work of literature can transcend its textual form, and that ‘the mere destruction of the copy of a book or even of all its copies may not touch the work of art at all’ (Wellek & Warren, 1963, p. 142). Printed texts are thus perceived as explicators of literary works – of gateways to a reader’s experience of a work of art. But, unlike a painting or a sculpture, the printed text is not synonymous with the existence of the literary work. This means that an understanding of the epistemological origin of a literary work of art (and hence of e-literature) is dependent on the theoretical division of literature into two separate, but related, parts: a text, and a work (Barthes, 1980). Of course, it may be argued that various new components are to be acknowledged in our understanding of the epistemological origin of e-literature, but we will confine ourselves, for the moment, to perceiving the electronic text as an extension of the printed text – hence the textual theory of the printed text may be applicable, but with various modifications.

The ‘work’ represents a reader’s individual, conscious experience of the text. It is a fluid, non-static, and often malleable interpretation. The ‘work’ of a text often supersedes the written word on paper. A work of literature, then, does not reside on the pages of a text, but within the mind and consciousness of its reader (Wellek & Warren 1963). It is an engaged activity, a process of interpretation, and is neither an ‘empirical fact’ nor an ‘ideal changeless object such as a triangle’ (Wellek & Warren 1963, p. 154). The ‘text’ represents the physical manifestation of the work, and is recognised in the etchings of a language on a piece of paper, its typography, the quality and idiosyncrasies of the medium (paper or electronic, for example), and so on. The text is a *signifier* of the *signified* ‘work’, and is perceived by its reader as a type of symbol (Barthes, 1980). Thus a text and its work are interrelated, but are not synonymous.

The physical form of the text, then, has often imposed upon its author severe structural limitations (Greetham, 1999). For example, English-language literary texts of prose of the eighteenth, nineteenth, and twentieth centuries reveal a unique chronological and linear structure. This chronological imposition is motivated by the physical structure of a literary text: a linear, forward-facing progression in which the first chapter is succeeded by the second, the second by the third, the third by the fourth, and so on. Most printed texts are thus ordered by numbering each page of the main text. The author intends his or her audience to initially progress from one page to the next, and designs the work’s internal chronology according to this spatial and temporal phenomenon. Wellek and Warren (1963) suggest that a common view (or what would have been a common view in the 1960s) is that the genuine text is to be found in the intentions of its author. Thus the chronological progression is not just a structurally-inherent component of a printed text, but a *structurally-desired intention* of the author – this means that the ‘genuine text’ (and its work) is to be found within that specific chronology. Words that appear on a page numbered greater than another are perceived to be further along in the plot’s development, and vice versa. Of course, this takes advantage of a numeric system: a printed text may attempt to distinguish itself by not following this orthodox approach – this is, however, a minority. The act of reading a printed text requires a reader to advance through the physical object. Pages that begin in ‘front’ of the reader soon accumulate ‘behind’, and result in an observable and measurable progression through the printed text. An author’s prosaic composition (assuming it is prose) accounts the finite form of the printed text, as well as the form of the work that the printed text conveys: a printed text has a (physical) beginning and a (physical) end. The work of the text must thus find its ‘beginning’ and ‘ending’ within the finite structure of the text. The structure of a printed text, the chronology and style it imposes upon its prose, and the abstract structure of the work is therefore the result of an author’s careful and deliberate consideration of the restrictions imposed by the printed medium.

Not all literary texts follow this chronological structure: Ursula Le Guin’s *The Dispossessed*, James Joyce’s *Finnegans Wake*, and most MUDs, for example. These texts represent a form of ergodic literature. ‘Ergodic literature’ is a type of text that is effortful (for the reader) to traverse, contrasted against the effortless progression of a linear text (Aarseth, 1997). This may present itself in a number of ways: an unorthodox approach to the textual layout (E. E. Cummings’ ‘rpophessag’), a manipulation of the chronology (*The Dispossessed* and *Finnegans Wake*), or a text that requires input from a reader (MUDs and IF), for example. The printed texts (*The Dispossessed* and *Finnegans Wake*) represent a minority; they are distinguished because they are unorthodox. But MUDs are almost always ergodic in their textual construct, and are thus observed to be, when compared to non-electronic literature, inherently difficult to navigate. This means that an understanding of the text of a MUD must account its ergodic structure, both in terms of its impact upon a reader’s interpretation of the MUD’s text and in terms of its influence on a MUD’s creative development.

## The creation of a new type of literary text

MUDs are a distinct literary genre (Heron, 2013). They have the potential to demonstrate textual qualities that are not found in either printed literary texts or other literary texts of interactive fiction. The collaborative, long-term nature of the creative process of a MUD makes it distinct from most printed literature. And a MUD’s capacity to facilitate two types of direct interaction – between a player and another player, and between a player and the MUD’s text – makes it distinct from most electronic literature. That is, MUDs (unlike printed literature or interactive fiction) are designed on the assumption that multiple, interacting players will be involved. MUDs are built primarily on the Telnet protocol (Penton, 2003). ‘Player’ is defined as an individual who interacts with the text of the MUD. It is similar to ‘reader’ (a player of a MUD is a reader of the MUD’s literary text), but with a greater emphasis on the potential interactions between a player, his or her client, and the MUD’s text. Players interact with the game through a separate game client, which sends instructions to the game server. The server interprets these instructions, models the outcome of the instructions in the game, and then sends the results back to the player. This architecture is at odds with the structure of modern IF which is most often run on the player’s system directly, with the game itself represented as a file for an interpreter such as Inform (Reed, 2010), TADS (Half, 2005), Adrift (<http://www.adrift.co/>) or Quill (<http://textadventures.co.uk/quest>). Interactive Fiction that can be played across the internet do exist (as a minority), but these do not form the main body of text games.

A printed literary text is often static and unchanging – once printed, the text becomes difficult to alter. Electronic literature is often more malleable than a printed literary text (Williams & Abbott, 2009). A MUD is a unique literary genre because a player’s input alters the configuration of the text; a player’s input produces textual ‘feedback’ (Heron, 2013, p. 58). ‘Configuration’ refers to the linguistic, syntactic, textual, and typological components of the text. This means that the object that is defined as the ‘text’ of a MUD is constantly changing – it is not a finite object. The act of criticising a literary text that is potentially infinite has not been exercised in printed literature. Several ontological approaches thus arise. Should a literary critic assess the literary work on the basis of a disclosed and fully-known text? That is, should the critic *assume* that a player will have encountered the whole text, even those parts which are initially hidden? ‘Hidden’ refers to text that may require player-input to access – this suggests that certain players may not encounter hidden text because of an absence of action. Or should the literary critic assess the literary work on the basis of *every* possible textual combination? This would require an impractical amount of time: with sufficient depth and breadth, a MUD may generate a huge amount of textual variance. Or perhaps the literary critic should assess the literary work on the basis of the most *common* textual combination encountered by the majority of players? This may neglect certain interpretations, and impose an emphasis on a particular type of experience. And if a MUD has the potential to exist over a period of decades then at what point in time should the critic focus his investigation? To focus diachronically may reveal the evolution of the work, but it would produce an impossible text – the text would have too many forms. But to focus synchronically may misrepresent the direction of the work, albeit providing a more practical text. These types of questions reveal the difficulty of applying tradition textual theory to an electronic text characterised by its fluid and dynamic structure.

These different approaches arise out of the nature of the text of a MUD. A MUD’s creative writing often contains three core components: a description, interactive objects, and miscellaneous features. The ‘description’ attempts to reveal to the player the immediate environment:

**Figure 1 - Example of MUD output**

The description is often static, but the linguistic and syntactic sequence of the sentence may occasionally be altered with player-input. It intends to convey the visual, aural, gustative, olfactory, and tactile elements of the room. A ‘room’ is an inhabitable space of a MUD. It rarely contains a narrative; its primary function is to describe, and not to narrate. This does not mean that MUDs are without narration, but that the general function of a room is to provide description. Nouns indicate objects with which a player may interact (Heron, 2010, p. 219). For example, a player may input the command ‘look’, and succeed it with a noun that is present in the description of the room: ‘look pool table’. The input then appears within the text (confirming its acceptance), and is succeeded by the MUD’s feedback:

**Figure 2 – Interaction with the text**

The interaction has yielded (a) new text. Prior to a player’s input, the content is restricted to a contained description of the immediate environment; this represents the text that the developer intends all players to encounter upon entering the room. After input, the text incorporates the player’s input and displays the MUD’s output. A unique ‘text’ of the MUD is thus created through the player’s interaction. But it also demonstrates the potential prevalence of ‘hidden’ text. The description of the pool table, for example, may not be encountered by all players. And if a player examines the cues prior to the table (assuming that the player has guessed the existence of cues) then the experience is of a reversed chronology. Rather than the room description leading to the pool table description leading to cue description, the experience would be: room description, and then cue description, *and then* possibly pool table description. The ramification is that certain prose is unchronological. In the above example, the ‘Oh, wait – there they are – adding to the fortification of the door’ would make less sense if it initially preceded the description of the pool table. The experience of that type of chronology would be different to the experience of the text in Figure 2.

This reveals two important components of a MUD. First, a player has the capacity to alter the sequence of the feedback. This means that each player has the potential to create a unique text. For example, a player may repeat the input ‘look pool table’. This will yield a text in which multiple descriptions of the pool table are present. Another player may input both ‘look pool table’ and ‘look pool cue’, and produce a text with only a single description of both objects (akin to Figure 2). A third player may not act, and will thus produce a text without the description of the pool table (akin to Figure 1). The three texts produced from these three scenarios are each individually unique. Second, it suggests that it may not be possible to produce a single, chronologically-correct edition of a MUD’s text. That is, if each player has the capacity to alter the text then each player also has the potential to experience a different work. One player may encounter a room with a pool table. Another player may encounter a room with both a pool table and a cue. A third player may encounter neither (perhaps the room contains hostile enemies). This therefore suggests that the text of a MUD is an unreliable indicator of a universal experience, and that the pursuit of a single, uniform interpretation is most probably impossible.

## The collaborative environment of a MUD

MUDs expect player-based interactions to be both prolific and over a long period of time (months, years, and even decades) – true agency within this structure is thus limited because the game world must be shared between multiple players and authors (Heron, 2013). Traditional literary texts do not incur this phenomenon. This means that the developers of a MUD must engineer solutions that may not necessarily be required in traditional printed literature. A ‘developer’ is an individual who contributes to either (or both) the (unseen) codal infrastructure or (and) the creative prose (rarely verse) of the text of the MUD. If one creates a MUD that offers a directed narrative experience (such as the prosaic construct of printed literature), and which is finite, then the opportunity to generate an active social community within the construct of the text is lost. That is, a MUD is defined, in part, by its establishment of an interactive text: a social text (player-player interactions), and an environmental text (player-environment interactions). A MUD as a ‘social text’ is achieved by reaching a critical mass of online players and developers. This then serves as the core around which a community can grow. An absence of this social component of the MUD’s text deprives it of defining characteristic; it ceases to function as a ‘MUD’ and instead becomes a more complicated (in terms of its codal infrastructure) and less narrative piece of Interactive Fiction – a MUD is a *multi*-user dungeon. The long term sustainability of a MUD is thus interlinked with its community. It may therefore be argued that a MUD, as a distinct literary genre, is governed by a developer’s intent to produce both a social and creative text: to cultivate an *active* and social community of multiple players within the construct of an electronic text of literature.

The continual expansion of a MUD serves to extend the longevity of the text. The ‘continual expansion of a MUD’ refers to the addition of either code or creative prose that seeks to introduce new content for the consumption of the player-base. This is achieved, in part, by stimulating the social community. A well-placed frustration, for example, allows a community to cohere in opposition, whilst a popular adjustment can result in a greater sense of satisfaction in the shared experience of the text (Glas, 2010, p. 42). But it is not practical to expect an individual developer (or even a collection of static developers) to remain with the MUD over a period of years. A successful MUD is thus expected to have a high attrition rate of developers. The need for the constant expansion to the text game means that MUDs generally incorporate a staff of multiple individuals to deal with the responsibility of maintaining the code base and implementing new textual and prosaic features.

 The desired longevity of a MUD reveals the need to establish a collaborative writing (and coding) environment. If a MUD is to exist over a period of several years (or decades) then it will require a high attrition rate. This has a significant impact on the theoretical questions of authorship, intention, and textual meaning: developers who are involved in the later stages of a text game’s life are often unrelated to those who were involved at the start. This indicates that the artistic vision of a MUD may not necessarily maintain a permanent presence throughout all stages of a MUD’s life. It also suggests that the existence of multiple developers (many of whom are often unaware of their ‘colleagues’) complicates the application of tradition textual theory. If either scholarly editors or literary critics attempt to ascribe textual meaning on the basis of authorial intention then MUDs represent are an exceptionally difficult, if not impossible, text to decipher under this paradigm. Where, for example, does the influence of one developer cease and another begin? Alternatively, if they perceive themselves as a valid authority of the text (akin to a developer) – which, incidentally, is the preferred approach of Gabler (2010) – then they are arguably diluting their authority to an extent unseen in the scholarly editing of printed literature. That is, the large quantity of authors (with varying degrees of quality) is likely to disrupt or distort an editor’s interpretation of the text – the ramification of this type of literary-critical interaction remains unseen. These issues serve to frustrate any attempt to identify authorship in a text game, and can complicate the creative desires and intentions of those developing a MUD. Auteurship offers a more insightful approach to the understanding of the authorship of a MUD, but can be problematic when taken in its purest form.

## Volunteer developers, authorship, hierarchal structures, and player reactions

The requirement of a high attrition rate means that new developers are almost always volunteers. A ‘volunteer’ developer is defined as an individual who is associated with the development process through a personal investment in the MUD. This ‘personal investment’ may be a passion for the gameplay, community, or coding experience, but is rarely economical. They may have little to no formal training in either creative writing or coding, and are often members of the player-base community. This lack of formal experience translates to a reduced authority regarding certain aspects of the development of the text game. This means that not all developers are equal in authority. As a natural administrative requirement, hierarchies tend to be formed in the following order: a MUD owner (or founder; the initial force behind the MUD’s creation), senior developers with a large amount of experience with both the MUD and the MUD’s code, lesser developers who have some experience, and new developers who are unfamiliar with the code of the MUD. New developers, unless already proven and trusted, are given relatively limited responsibilities. The ability to make fundamental, mechanical changes to the gameplay is thus reserved for senior developers, while new developers are afforded the opportunity to distinguish themselves as creative and authoritative creative writers (<http://epitaph.imaginary-realities.com/wp/?p=452>). The ‘mechanics’ of a text game refer to the laws that govern the game-world – for example: the type of player-based input allowed, or the degree of interaction between a player and his or her environment. A developer’s authorial advancement is often determined by meritocracy (Parameswaran, 2007), and authorial credibility (Reagle, 2007) must be established before any significant agency is permitted.

This hierarchical structure of authority is more than an exercise in trust building. It is based on the pragmatic understanding that it takes time for a new developer to learn the functions of a codebase (Begel, 2008). That is, the language of a MUD’s codebase is almost always unique to that MUD, and a new developer must thus acquaint himself or herself with it. Many MUDs are constructed from the foundation of a generic engine. The requirement for novelty ensures that before too long it is mixture of legacy code inherited from the common base and new additions and modifications aimed at satisfying a particular player-base. A developer may have experience with a particular codebase from previous experience it will take time for them to understand the context of the code they are writing. They must become conversant with the theme, the style of writing, the issues of game balance, and so on. None of this understanding can come instantly – it takes immersion in the development culture before the correct values can be inculcated.

Most MUDs thus have no formal requirements in terms of qualifications. A new developer is not expected to have either the software development skills or writing experience that would be required for similarly sized and complicated code projects in the professional world. Software engineering is a complex skill that takes years to master, and the relatively abstract nature of many of the issues that emerge from ‘bad code’ may take years to appreciate. There is an expectation that those who do not have the skills will make the effort to learn them. Restricting initial access ensures that developers are dissuaded from working with code that they are not yet experienced enough to fully understand – it therefore reduces the overall frequency of ‘bad code’.

The constant progression of a MUD means that developers are often working within an existing framework of code. This framework commonly consists of two forms of code: communal code, and restricted code. ‘Communal code’ is code that may be considered common property (Terceiro, 2010; Crocker, 2001). That is, anyone can modify the code providing they are respectful of the impact that the changes may have on the nature of the MUD. This represents a collaborative, shared approach to the development of the certain codal infrastructures of the text game. ‘Restricted code’ is code that is considered to be either exceptionally complex or significantly important to the function of the MUD. Access to this type is restricted to a select subset of senior developers. These two types of code offer a unique dichotomy in the concept of authorship. The concept of ownership extends to, and encapsulates, the idea of authorial agency; that certain parts of a text have an intended meaning (given by the author). On the one hand, communal code allows new developers the opportunity to experience certain mechanics of a MUD. It provides a freedom of expression, and allows a developer to learn the intricacies of the text game. On the other, restricted code establishes a set of principal themes that persist in both the mechanics of the text game and in the creative prose of the text. The nature of restricted code – that it is guarded by a select subset of senior developers – means that it is relatively static and consistent. The ramification of this is that lesser developers are guided by these principal themes in their artistic creation.

This ‘framework’ extends beyond mere codal infrastructure. Most MUDs incorporate a particular narrative: a certain setting, for example, and a canon. The thematic foundation established by the narrative has the potential to influence both the code and creative prose. It is an important part of value added for players who are deeply interested in a specific type of narrative (Tushnet, 1996; Thomas, 2006). The code may be moulded to produce features that are inherent to the theme. And the creative prose, which, incidentally, is perhaps the best demonstrator of the impact of a MUD’s narrative, is often descriptive of a unique, thematically-appropriate environment. For example, a MUD that is set in a post-apocalyptic world and which is inhabited by zombies (see Figure 1) requires a type of descriptive prose that reflects this context. Developers are thus further restricted in their freedom to explore their vision due to the requirements of keeping their new additions thematically consistent with the work of prior developers. A developer must balance the past with the present and attempt to find a way to express their intentions within the limitations of the established framework. When we speak then of creation within an interactive, collaborative world we are referring to a rather more specific task where limits are enforced through the need for consistency and coherence in the gameplay experience. It is creation against constraints, which is not to say it is a lesser kind of creativity but one that does have implications for how we think and talk about it.

Ownership is a topic of considerable significance in software development. A certain amount of operational ownership is important because it allows the argument to be made that text games represent the vision of certain hierarchal authorities (Bird, Nagappan, Murphy, Gall, & Devanbu, 2011). But exerting too strict an ownership is considered to be detrimental to the overall development environment (Nordberg, 2003) – a truism that is encapsulated in the concept of the Bus, or Truck Factor (Ricca, Marchetto, & Torchiano, 2011). Weinberg (1971) offers several ‘commandments of egoless programming’ to resolve the dangers that come with territorialism in code. These guidelines, however, jeopardise the tight connection between vision, implementation, and curation. If no-one truly owns a piece of code then one cannot be an auteur in any meaningful sense. And MUDs are fundamentally different to the texts of works of other mediums. A printed edition of a book is generally considered to represent a final version; of course, future editions may be released, but these are treated as separate texts. The reel of a film is equally considered to be a contained text of a particular cinematic work; it too is treated as a unique text, separate from future texts that display alterations. But the dynamic evolution of a MUD suggests that the separation of different editions of text is an impossible act. The text of a MUD cannot be physically divided in the same way as the editions of either a book or a film. This means that an assessment of a MUD’s text is often confined to its current state – its earlier forms have evolved into the current state, and do not exist as a separate text.

A traditional, non-collaborative perception of authorship can create turf wars (Guo, Zimmermann, Nagappan, & Murphy, 2011). This has the potential to stagnate the creative design of the text. For example, the collaborative, volunteer curation of Wikipedia often incites ‘edit wars’ between multiple authors (Kitter, Suh, Pendleton, & Chi, 2007). And if authorship is considered to be a type of legal ownership then a MUD may lose its ability to both evolve and develop. An alteration to either the code or creative prose of a MUD that requires the author’s permission reduces the efficiency of its development. Authorship is a fundamental principle of auteur theory (Cook, 1998), and the tensions of collaborative code serve to frustrate an auteur’s ability to enact their wishes. The creative development of a MUD may thus be characterised as a delicate balance between the recognition of thematic components imposed by a hierarchal authority and the disparagement of an individual ownership of either code or prose. This type of environment provokes certain difficulties in both the identification of authorship and ensuring that an auteur produces a coherent vision.

A team of volunteer developers are often not subject to the traditional tools of encouragement and motivation. The niche nature of MUDs (and text games in general) means that MUD owners need proficient developers more than developers needs them. Proficient developers are in demand, and their recruitment to a particular MUD may expedite its development. But financial incentives are rarely available: monetary rewards are difficult because the owner’s of MUDs rarely profit from their text games. Incentives must thus be in the form of skill mastery, authority, autonomy, and the fostering of relationships; volunteers are generally passionate about the community, the game, and the desire to become a part of a long-term project (Heron, Hanson & Ricketts, 2013). Autonomy and the opportunity to work on what may be perceived as an enjoyable project are large motivators for most developers. But the motivator of autonomy mitigates the ability of a MUD’s hierarchical authority to enforce a specific vision. Few volunteer developers appreciate being given a design brief and being ordered to implement it. Most players who transition to being developers will have very specific ideas about what they want to introduce to the game.

Without the ability to insist that developers follow a specific design brief, and without the capability to rigidly control code architecture, a MUD owner cannot enforce a single coherent vision for the game. The larger the pool of developers, the more authority must be ceded in order to co-ordinate everyone involved. Games with very large developer bases often adopt a kind of ‘departmental’ structure whereby individuals are invested with authority within a subset of the game. It then becomes difficult to balance an individual’s departmental authority against the authority of other trusted individuals - each department may have wildly different operating practises, coding styles and assumptions about game balance. No matter how heavily the MUD owner may insist upon a particular guideline or policy, the ability to ensure compliance is limited to the willingness of department leaders to conform.

But the collaborative vision of a MUD extends beyond the authority of a hierarchal structure. It also includes the participative form of appreciation in which those who play (but do not develop) take an active part in a communal interpretation of the text. Unlike most printed texts of literary works of art (a novel or poem, for example), the implementation and success of a game’s vision requires support from its player-base. Players who invest a large amount of time in either the game’s community or its gameplay become significant stakeholders – they may not directly contribute to the codal development of the game, but they can represent the community’s acceptance (or rejection) of the MUD’s evolution. Established players thus act as a type of tribal ‘elder’ (Franchi, 2010; Bartle, 2003). That is, an ‘elder’ may be defined as a player who has become integrated within the social community of the MUD, and exhibits both a breadth and depth of knowledge on various subject pertaining to the nature of the game. This means that ‘elder’ players are afforded the opportunity to express their opinions regarding the developmental direction of the MUD; this, in turn, has the potential to impact on the type of content created by a developer. Of course, the inclusion of a player-base in the direction (or, at the very least, in the affirmation) of a MUD has the potential to further limit an auteur’s vision.

If a MUD is approached as the product multiple, individual authors then the ability to assess its quality, its vision, and its evolution is greatly hindered. Authorship exists at a microscopic level: a developer wrote the description of a particular room, and a developer coded certain features. But the sheer scale of content (often totalling thousands, if not hundreds of thousands of descriptions) is problematic in asserting either authorship or intention. A developer may retire, for example, and his or her identity may become lost. And the autonomy expressed by developers is subtly guided by others – a developer can only be autonomous within the construct that is established by the hierarchal order. It is therefore more appropriate to perceive a MUD as a vehicle for the vision of an individual – or perhaps even a select subset of individuals – rather than a multitude of individual, equal authorities.

## Conclusion

An author’s name often has a significant impact on a reader’s interpretation of a text (Foucault, 1969). It can influence the expectations of an audience, and act as a pre-emptive technique of persuasion – this latter aspect is true of most scholarly essays, for example. The author represents a single, unobstructed vision. But the frequent absence of a clearly-defined authorial agent of a MUD’s text suggests that a new approach is required. It may be argued that the meaning of the text could be inferred by the reader, and that the role of an authorial agent is minimal. That is, a critical assessment of a MUD would be akin to the approach that Gabler (2010) advocates for scholarly editing: the editor is an authority. But the nature of a MUD’s text makes this difficult to implement. Multiple players may experience multiple texts. If there are multiple texts then which text should the editor authorise as representative of the MUD? This may be an acceptable approach in the scholarly editing and digitalisation of printed texts, but that is because the text is often confined to a single form. A criticism of the text of a MUD must therefore invite an approach that acknowledges the ephemeral nature of the literary text: it is constantly evolving, its author may be unknown, and that its existence is influenced by hierarchal structures and player-bases. Auteur theory provides a strong foundation with which an analysis can be conducted that accounts these factors.

But auteur theory is itself problematic. It may be an acceptable approach to the assessment of a MUD’s text, but that does not mean it is universal. That is, we do not intend to argue that all MUDs are receptive of this type of theory (a MUD, for example, which is created by a single developer would probably best benefit from a non-auteur theory), or that all e-literature is collaborative and thus the product of an ‘auteur’. But it does suggest that the electronic medium has the potential to create new types of literary texts that are impossible to reproduce in the printed medium, and that the arrival of these texts will require a continual evolution of textual theory.

## References

Aarseth, E. J. (1997). *Cybertext: Perspectives on Ergodic Literature*. The Johns Hopkins University Press.

Barthes, R. (1979). From work to text. In Josué Harari (Ed.), *Textual Strategies* (pp. 73-81). London: Methuen.

Bartle, R. A. (2003). *Designing Virtual Worlds*. New Riders, 1st edition.

Begel, A., & Simon, B. (2008, September). Novice software developers, all over again. In *Proceedings of the Fourth international Workshop on Computing Education Research* (pp. 3-14). ACM.

Bird, C., Nagappan, N., Murphy, B., Gall, H., & Devanbu, P. (2011, September). Don't touch my code!: examining the effects of ownership on software quality. In *Proceedings of the 19th ACM SIGSOFT symposium and the 13th European conference on Foundations of software engineering* (pp. 4-14). ACM.

Christiaans, H. H. (2002). “Creativity as a design criterion.” In *Communication Research Journal*, 14(1), 41-54.

Cook, D. (1998). Auteur Cinema and the “Film Generation” in 1970s Hollywood. *The new American cinema*. Durham, NC: Duke University Press.

Crocker, R. (2001). The 5 reasons XP can’t scale and what to do about them. *Marchesi and Succi* [35], 62-65.

Foucault, M. (1969). What is an author? In V. B. Leitch (Ed.), *The Norton Anthology of Theory and Criticism* (pp. 1622-1636). New York: W.W. Norton & Company.

Franchi, G. E. (2010, Fall) A list of goals in MMORPGs after the level cap: how players keep developing the character in the elder game. *Foundations of Play and Games*. Copenhagen, IT University of Copenhagen.

Gabler, H. (2010). Theorizing the digital scholarly edition. In *Literature Compass*, 7(2), 43-56.

Glas, M. A. J. (2010). *Games of stake: control, agency and ownership in World of Warcraft*. Universiteit van Amsterdam.

Greetham, D. (1999). Ontology: Being in the Text. In *Theories of the Text*. Oxford: Oxford University Press.

Guo, P. J., Zimmermann, T., Nagappan, N., & Murphy, B. (2011, March). Not my bug! and other reasons for software bug report reassignments. In *Proceedings of the ACM 2011 conference on Computer supported cooperative work* (pp. 395-404). ACM.

Halff, H. M. (2005). Adventure games for science education: Generative methods in exploratory environments. *Proc. of AIED05 WORKSHOP5: Educational Games as Intelligent Learning Environments*, 12-20.

Heron, M. J. (2010). *The Epitaph Survival Guide*. Retrieved June 10, 2013, from <http://www.imaginary-realities.com/epitaph.pdf>

Heron, M. J. (2013). Likely to be eaten by a grue. *Computer Games Journal*, 2(1), 55-67.

Heron, M. J., Hanson, V. L., & Ricketts, I. (2013). Open source and accessibility: advantages and limitations. *Journal of Interaction Science*, 1(1), 1-10.

Kazakoff, E., & Bers, M. (2012). Programming in a robotics context in the kindergarten classroom: The impact on sequencing skills. *Journal of Educational Multimedia and Hypermedia*, 21(4), 371-391.

Kittur, A., Suh, B., Pendleton, B. A., & Chi, E. H. (2007, April). He says, she says: conflict and coordination in Wikipedia. In *Proceedings of the SIGCHI conference on Human factors in computing systems* (pp. 453-462). ACM.

Knuth, D. E. (2007, January). Computer programming as an art. In *ACM Turing award lectures*. ACM.

Montfort, N. (2003). *Twisty Little Passages: An Approach to Interactive Fiction*. The MIT Press.

Nordberg III, M. E. (2003). Managing code ownership. *Software, IEEE*, 20(2), 26-33.

Parameswaran, M., & Whinston, A. B. (2007). Research issues in social computing. *Journal of the Association for Information Systems*, 8(6), 336-350.

Penton, R. (2003). *Mud Game Programming*. Premier Press.

Reed, A. (2010). *Creating Interactive Fiction with Inform 7*. Cengage Learning PTR, 1st edition.

Reagle Jr, J. M. (2007, October). Do as I do:: authorial leadership in wikipedia. In *Proceedings of the 2007 international symposium on Wikis* (pp. 143-156). ACM.

Ricca, F., Marchetto, A., & Torchiano, M. (2011). On the difficulty of computing the truck factor. In *Product-Focused Software Process Improvement* (pp. 337-351). Springer Berlin Heidelberg.

Robinson, P. (2013). Towards a theory of digital editions. In *Variants*, 10, 105-131.

Ryan, M.-L. (2001). Beyond myth and metaphor: The case of narrative in digital media. *Gamestudies.org*, 1(1).

Terceiro, A., Rios, L. R., & Chavez, C. (2010, September). An empirical study on the structural complexity introduced by core and peripheral developers in free software projects. In *Software Engineering (SBES), 2010 Brazilian Symposium* on (pp. 21-29). IEEE.

Thomas, A. A. (2006). Fan fiction online: Engagement, critical response and affective play through writing. *Australian Journal of Language and Literacy*, 29(3), 226-239.

Tushnet, R. (1996). Legal fictions: Copyright, fan fiction, and a new common law. *Loy. LA Ent*. *LJ, 17*, 651.

Wellek, R., & Warren, A. (1963). The mode of existence of a literary work of art. In *Theory of Literature* (3rd ed.). Harmondsworth: Penguin.

Williams, W., & Abbott, C. (2009). *An Introduction to Bibliographical and Textual Studies* (4th ed.). New York: The Modern Language Association of America.

Young, J. G. (1985). “What is creativity?” In *The journal of creative behavior*, 19(2), 77-87.