Dwarf Fortress Gathers At The Statue And Attends A Party

by
Joshua Lindsay Diaz

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ABSTRACT

In designing Dwarf Fortress as part roguelike and part simulation, Tarn and Zach Adams of Bay 12 Games drew on a tradition of game genres that used proceduralism and simulation to give players unique paths through the game. The specific choices in their design served their goal of "giv[ing] rise to some really awesome stories from the players themselves," I argue, because it took advantage of what Henry Jenkins calls "narrative architecture." Expanding on Jenkins' idea to examine narrative architectures of space, code, and player choice, the thesis shows how Bay 12 not only encouraged players to view the game as a world full of stories, but also gave players tools to craft their own kinds of tellable moments through the game. Tellable moments, as described by Marie-Laure Ryan and Lisbeth Klastrup, are events which, because they either create or break expected patterns, are well-suited to use in plots, and serve as resources for storytelling. As players became authors, they engaged in a sort of 'narrative play' through the game's affordances (and tools created in the community) in order to craft more elaborate and specific story arcs within the general confines of the game. This narrative play is a gameplay strategy in which players use the game's narrative architecture in order to goad the game's code into producing certain kinds of outcomes, outcomes which they aim to use for storytelling. Three different stories provide us with a set of tellable moments in which narrative play alternatively responds to gameplay challenge, creates an environment that embodied and staged story, and reconfigures code in order to create new types of tellable moments.
A few months on and it looks like we might actually survive. We've got a farm up, got some bedrooms which ain't much to look at, but at least they've got beds. Got a dining room with some decent thrones, and got a bunch of traps. God knows why but the lads love them. Stand around staring at them for hours. Nothing out of the river yet, and the elephants have been pretty quiet. Too quiet. I see them out there, staring at me with those beady eyes, those gleaming tusks. Looking over the river. Elephants can't swim, can they?¹

This is a piece of a larger story called *Boatmurdered*, written by a group of players of a game called *Dwarf Fortress*, and that larger story is a remarkable example of players taking a game and re-defining it (again and again, actually!) through their social practices. These stories, and others like it, say more about games than we realize at first. This passage doesn't call attention to itself as a piece of writing *about* a game. But in fact, it is very much about the game, and its players. In this thesis, I will show how the game has contributed to the writing of stories like *Boatmurdered*.

To explain what's going on, I'll need to explain what the game is, at least in a tentative manner. I say 'tentative' because I hope to make it clear how the game, as an object, isn't just a piece of a software, sitting in resident memory; it is something picked up and used, explored

¹ TouretteDog, et al. (2007)
and mapped out, and transformed by the players.

The study of games has tackled narrative before, and we'll examine some of these approaches, in particular pointing out where the value of studying player-authored stories about games has been suggested. By developing a theory of what narrative can do for games, we can then start saying what it does for gamers. Narratives aren't just stories, they are strategies, deployed by writers and thinkers, dependent on the resources of the medium they are told through, and on the resources of their audiences. These strategies are affected by the affordances of the media through which they are told, and this is a theme that will run throughout this paper.

Returning to the game armed with this knowledge, we'll examine how the design of the game creates what I call 'narrative architecture': the tools and spaces for good storytelling. By examining narrative architectures of space, code and player choice in Dwarf Fortress, we'll begin to see what the design contributes to the stories: tellable moments.

Through the lens of tellable moments, we'll understand how specific events within the game can be used to create or break expectations. The theory of tellable moments, coming from computational narrative theory by way of virtual worlds, explains how complex interactive environments give their users events ready to be turned into stories.

Finally, we'll turn to some of the stories themselves, in order to see how these tellable moments are not only discovered and used, but how the players actively participate in their construction. As players become authors, they exploit the narrative architecture through
narrative play, enabling them to not only take tellable moments from the game, but construct, build or influence them.

Starting from just this one piece of a story, we'll be developing tools and a language for looking at collaborative storytelling from the community around Dwarf Fortress. Keeping in mind the norms and practices of the players is key to understanding the role that sharing and sociality plays in game communities. Moreover, this is just one kind of writing, out of the many possible. Game walkthroughs, tutorials and fan-produced media are created for many games, including Dwarf Fortress, but stories like the ones we'll be expose a different angle on how and what these audiences might create-- name, that there are fairly unique aspects of the game (namely, its procedural and simulative qualities, but that's skipping ahead) that can be used in imaginative and powerful ways by players in the production of their own epic stories.

I had come to Dwarf Fortress like I think many of its players had: through reading stories like Boatmurdered and being floored at the world that these players talked about, and I wondered about the game that produced them. And like many players, I was dumbfounded when I looked at the game and saw floating letters and little smiley faces and no tutorial and I died before my first winter. But the thought of uncovering my own stories had already begun to take root. When I began trying to explain to friends and family how I couldn't leave the computer because I was trying to get turtle shells in order to finish decorating the creche I was building for the future children of my pregnant guardsdwarves, I realized I was hooked. I remember, when I left the game industry to come to graduate school, joking to my coworkers at the time that when I went to MIT, I was finally going to be able to understand Dwarf Fortress.
In deciding how to approach these stories, I was strongly inspired by an interview with the programmer of *Dwarf Fortress*, Tarn Adams.² In the course of the interview (which largely focused on technical details like how the fluid model for the game simulated pressure), the programmer was asked about how storytelling was considered in the game. His answer struck me as unusual, and led me to inquire what he meant.

We never really wanted to write a plot, and a lot of them seemed like they could be generated by a computer. So we thought about breaking stories down into core elements, and working with those instead. You'd be very hard-pressed to capture really beautiful symbolism or an advanced writing device like that with a random generator, but there are very few game stories where that would be an issue. . . .

Create actors with motivations, and let them go. It's about the same process you'd go through in a writing class, or with Dramatica or something. Not to say I've implemented much of this but that's the idea, and it applies to all aspects of DF design. . . .

I assume there are more impressive story generators, world generators, body part models, etc. I'm just trying to put moderate versions all in the same place. It should give rise to some really awesome stories from the players themselves.³

I wanted to understand how something so detailed, and with such a simulationist take on a fantasy world, could be thought of as having any relation to stories. The phrase “give rise to some really awesome stories” stuck in my mind over and over again, and I grew even more curious as to what this meant. What kind of a relationship between a game developer and an audience does that suggest? What kinds of stories did he mean?

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² Harris/Adams interview (2006)
³ Harris/Adams interview (2006),
Examining these stories can tell us a lot about DF in particular, but also about how games and narrative intersect in real audiences. I should be clear: the argument of this paper isn't really prescriptive, but descriptive, and it is highly likely that larger cultural forces about fandom, fantasy enthusiasts, and computer game players play a significant role in the telling of these stories. But there are features of Dwarf Fortress specifically that contribute to the presence of collaborative storytelling, and to the forms which those stories can take, and there are instructive lessons about how game developers can help bring engaging emotional and narrative experiences to their players without taking on the traditional problems of what narrative's role in a game is.
This story takes place in my second fortress. My first fortress starved to death in the very first winter, because I misunderstood the summary screen. I thought that the food I had in the "Other" category was actually edible, and so while it seemed like I had enough, in reality I began to starve days after winter began. I still remember the sinking feeling I got when it rained at the beginning of spring, destroying the road I had built for the human traders. That caravan was our only hope, and when the road became impassable, I knew that all was lost. But I digress.

On the fate of the second fortress: I had perhaps 24 dwarves in my fortress going into autumn, and I was confident that we had more than enough food. It would be a lean winter, but I was confident that we would make it through without going hungry. However, days before winter began, I was visited by a group of migrants. Now, apparently my fortress had become known as some sort of greatly sought-after dwarven vacation spot, because in one group of migrants I went from around 25 dwarves to just over twice that amount. Twice as many mouths to feed and not enough food to fill them. Horses and dogs were slaughtered wholesale to make up the lack, but partway through winter we began to starve.

Things were very desperate at this point, but I had learned from my previous mistakes and made sure my road was in good repair. Then, I began to plant crops as fast as I could. Every dwarf I had was assigned to this task. I was sure that if we could just reap a single harvest, we could survive until the humans came to help us. For a time it seemed as though my plan might work. The two plots were almost sown, and soon we would have food enough to survive. I knew that some would die, but we would make it.

I then see this on my screen: "Olav Eitherok has gone stark raving mad! Olav Eitherok has destroyed Plot! Olav Eitherok has destroyed Plot!" I gaped at the screen. One of my farmers had gone mad with hunger, and in his senseless rage destroyed the city's only
I knew now that we were doomed, but I had one last task that I would finish before the end. On the spot of those farms I constructed a stone sepulcher decorated with the finest stonework I could create, four statues at the cardinal points. When Olav finally succumbed to starvation, I had him interred within those walls. I imagined that in their final moments my dwarves carved the story of the fall of Glas Galak upon those stones, so that for all time those who visited this place would know of the infamy of Olav Eitherok, and how his reckless madness had doomed an entire people.

Only the dead inhabit Glas Galak now, but I find some small comfort in knowing that the name of the traitor Olav Eitherok will be cursed for all time, and that though he is dead, he will never be at peace.  

This story was written by Nick Youngblood and submitted to the blog of game critic Bill Harris as part of a concerted effort to collect stories about the game Dwarf Fortress. Harris' interest in these stories is a part of an effort to judge the quality of the game: “I think one measure of a game's impact (and greatness) should be the stories that people tell about the game. Great games generate great stories, and Dwarf Fortress is certainly in the forefront of that category as well.” In order to understand the object of this paper, these player-authored stories about Dwarf Fortress, it will be useful to give some background on the game and its development.

The computer game Slaves to Armok: God of Blood: Chapter II: Dwarf Fortress (often Dwarf Fortress, or DF) was released in 2006. Developed by the independent game company Bay 12 Games, the PC game takes place in a medieval fantasy world full of the dwarves, elves, dragons and goblins common to the setting. The game is ostensibly single-player, with each 'fortress' controlled by a single person at a time; but as we will see later, players have found

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4 Youngblood, N (2006)
5 "Dwarf Fortress is a single-player fantasy game." - http://bay12games.com/dwarves/features.html
ways to take the game and turn it into a multiplayer, social experience.

2.1 Development
Bay 12 Games is not a large company, and Dwarf Fortress was not designed or coded by a
team of professional game developers. The credits on the game's main menu screen list two
names: "Programmed by Tarn Adams / Designed by Tarn and Zach Adams". The small team
belies the scope and scale of DF, which has been described by game designer and theorist
Greg Costikyan as "a game from another universe". The game is downloadable free of charge;
Bay 12 take donations from their users in exchange for hosting and development costs.

The program was initially released in August of 2006 in an "alpha release"; an alpha is a 'first
draft' of a piece of software, and accordingly the game has received many updates since then,
adding new features and changing the internal scope of the game greatly. For instance, the
developers maintain a weblog of notes on their changes to the system, describing how the
'civilization arc' added new dimensions to gameplay, where elves and humans fought over
ownership of a now-abandoned goblin tower, or the introduction of a z-axis to the game in
October of 2007. In the course of this paper I will generally be describing the latest version,
and will make specific reference to versions and changes as necessary. Another unusual
features of its development cycle is the high degree of 'editability' of the game: while it isn't
"Free Software" in the sense of the Free Software Foundation (the code is protected under
copyright and user cannot contribute code back to the project, for instance), Bay 12 Games
maintain their own web forums and engage in regular discussion with players there,

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6 From the Main Menu of the current version (as of Dec 19 2008)
7 Costikyan, 2007
9 http://www.bay12games.com/dwarves/dev_2007.html version 0.27.169.32a was the first to include this z-axis
10 Free Software Foundation 2007
responding to suggestions and reports of errors in the code\(^\text{11}\). Included in their web forums is a section labeled “Community Games & Stories”, which is where the bulk of the case studies are taken from. Over the course of the updates, they have made accommodations to players wishing to modify the software: for instance, adding information about how to add or change specific features of the game through modifying certain files. While the development practices of Bay 12 aren’t explicitly the subject of this paper, their approach certainly helps sponsor the player practices that are.

### 2.2 Visual Appearance

Visually, the game uses characters from the DOS Extended-ASCII character set (the Roman alphabet, Arabic numbers and a set of special characters) to represent the features of the world. Not technically in the category of "ANSI art", in which individual characters are used in a pointillist fashion as pieces of a larger figure\(^\text{12}\), in DF the individual characters usually represent individual objects, such as dwarves, doors, and coffers; or they represent geographical features, such as a piece of grassland, a tree, or a segment of a flowing river. The images are both iconic, with different types of dwarves represented with faces of different colors, and animated, with brighter and darker colors used to signify the currents of moving fluids. The display consists of a map grid of these icons and several menus, which can be (and frequently, are) toggled or rearranged with the "Tab" key.

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\(^{11}\) For example, as shown in their Bug Report Forums.

\(^{12}\) An animated version of this style of art is visible in the introductory cinematic for Dwarf Fortress, http://www.youtube.com/watch?v=Mn4kmlZTKr0
Illustration 1: Basic Screen with Default Menus active

Illustration 2: Basic Screen with Context-Sensitive Menu active
2.3 Genre

To describe *Dwarf Fortress*, we might ask "what genre is it?", in order to understand what it is like to play this game, comparing it to others. This won't be ultimately fulfilling; players do not play a genre, but play a particular game, which takes some conventions and not others; and they do not play the entire history of the genre, but an implementation of them that might call attention to some influences and hide others. Nevertheless, *DF* does follow the conventions of some types of game, and explaining what those conventions are will give us some idea of what happens in the game, and what the players can do in it.

*Dwarf Fortress* inherits many principles from two different threads of digital game design: *simulation games*, like *Simcity* or *Hammurabi*, and *roguelikes*, such as the eponymous *rogue* and its famous open-source followup, *Nethack*. Simulation games tend to give the player control over a wide range of complex systems that aim to represent real-world processes, while Roguelikes are themselves a special case of computer role-playing games.

2.3.1 Roguelikes

2.3.1.1 Procedural Generation

The concept of “procedural generation” is central to the complex world simulation that begins each new round of *Dwarf Fortress*. Roguelikes involve the heavy use of procedural generation, where game content is somewhat randomized by the use of code: level layouts are dynamically generated, or the effects of different colors of potions are changed. One popular modern example of this is the series of *Diablo* games, which rearrange the maps and locations of enemies for each new playthrough, and use large data tables of values (+10 fire...
damage, +5 armor) to generate treasure rather than pre-designed rewards for each encounter.

*DF* follows these conventions, more or less: *Dwarf Fortress* semi-randomly generates maps of not only dungeons, but entire continents, including geographical, historical and social information; multiple save files are allowed but only in the case of different worlds or at the change of in-game seasons, representing several hours of gameplay at a time; and choices (and mistakes) made are thus intended to be permanent. *Dwarf Fortress* inherits several principles outside of the game design from Roguelikes as well: They have tended to be placed in medieval European fantasy settings, although not exclusively so, and the iconic Extended-ASCII graphics are a descendent of those used in games like Nethack and the original rogue.

### 2.3.1.2 Permadeath

Since one consequence of procedural generation is that gameplay sequences can't be memorized, much of the gameplay challenge in these types of games comes from learning what the 'rules' are for this particular iteration of gameplay. Accordingly, one unusual feature of roguelikes (when compared to other types of role-playing fantasy games) is that, while they allow the saving of data in between game sessions, they don't usually allow for multiple save files, and save files are deleted upon character death; there aren't opportunities to reload with new knowledge not to drink the fizzing green potion, or to leave a trapped tile untouched.

Another defining feature of the roguelike genre is the imposition of **permadeath**, in which

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13 For example, the game *JauntTrooper* takes place in a science fiction setting, while *Shiren the Wanderer* uses a Japanese, rather than Western, fantasy world.
the death of a player character is permanent. This is unlike many other video games, in which offer continues or resurrections upon failure. This is usually handled by deleting or restricting access to the save file of the character who has died. Similarly, Dwarf Fortress does not allow the player to 're-try' periods of time which have elapsed in a fortress and the save file of the fortress is either deleted or saved over the old one, preventing regression. This rule is generalized, and in fact isn't as all-encompassing as it might appear; save-scumming is possible. The term 'save-scumming' refers to a longstanding practice of users creating copies of save files in roguelike game, and DF since the release of version 0.27 has had an optional 'autosave' option that creates backups at the turn of seasons.

While the use of randomization and algorithms instead of pre-defined assets is essential to roguelikes, the degree of control offered over their execution is more representative of another historical antecedent to Dwarf Fortress, the simulation game. The conjunction of the detailed procedural generation of Roguelikes combined with the expansive control of simulation games is a significant part of what makes Dwarf Fortress and its players so unusual.

2.3.2Simulation
From simulation games like Simcity or Civilization, DF takes much in terms of the controls and scope of player choices. As noted above, in Fortress Mode, players aren't given command of an avatar to control, but direct a group of characters via menus and through selection locations on a map. Player decisions include the management of resources, the activation of various jobs for dwarves (a sort of permissions system for determining which characters perform which actions), ordering and locating the creation of various structures, and creating artifacts and wealth for their colony. Control is entirely driven through the keyboard, with the
exception of a few optional mouse commands for large selections of map space.

### 2.3.2.1 Complex Simulation

As hinted at above, the systems modeled within *Dwarf Fortress* aren't limited to physical and material models. DF presents economic models of supply and demand; each dwarf is described with a unique set of psychological attributes, and has an indication of their current mood, based on factors like the availability of work, the decorum of the fortress, and their relationships with other dwarves; dwarf children, as they age, are educated into religions, cultures and professions. These systems are inter-related, with effects from one affecting another, and allow for a huge range of player experiences.

Ian Bogost defines complexity (roughly) as many configurations from a relatively small number of inputs\(^\text{14}\). This definition suits *Dwarf Fortress* well because of these interconnections among its simulative models. These inputs include player actions (the choices and commands a player executes) as well as inputs from other systems within the game, as when the completion of a building creates new options for characters.

What will be central to why this game is worth studying is that the models are complex and interwoven, and these models are not exposed or made transparent within the game (if such a thing were even possible). But many players manage not to struggle with the basics; instead,

\[\text{14 Bogost (2006), chap. 1, 7}\]
they turn them into tools and materials for all sorts of other ends, as the above story hopefully conveys. While we might try to trace through code to understand what the models are, the players of the game have already, by exploring, sharing and writing about their experiences, managed to create a large body of work that extends gameplay, creates tutorials for new players, documents unusual events, and suggests the opportunity for new features.

One interesting experience that players have documented is what I will call "dwarven socialism", for reasons that may become clear. The dwarven economy doesn’t come into effect right away: players must achieve a certain amount of wealth and infrastructure in their fortress. Once they have gotten these levels, one of migrants who arrive seasonally from the home castle will have a special job, the Bookkeeper. Once the Bookkeeper arrives inside the fortress' center, dwarves can no longer freely take objects (like furniture or rooms) that they want but have to pay for them, using the wages that the Bookkeeper also institutes. Some players found this restricting, since it requires significantly more management to keep your dwarves happy and working (dwarves will become depressed and even dangerous if they are homeless for too long). Accordingly, the players found a workaround: they built special rooms at their fortress entrances which could be closed off, sealed and flooded. With these rooms built, they would drown the incoming Bookkeepers, preventing their arrival and the imposition of rents and wages for dwarves.

### 2.3.2.2 Command and Control

The indirect methods employed in the above method are typical of Dwarf Fortress, which employs a very abstract menu-based interface for controlling the game world. A keyboard cursor is used to select plots on a central map, while the menus on the right side of the screen give context-dependent cues to activate special commands.
In an appendix at the end of this paper, I have documented an example of how an action (in this case, building a dwarf's bed) is carried out through the control system. Generally, we could typify it as abstract, indirect and contextual. Abstract, because there is no representation or reference for what the player is controlling. There is no avatar, just a yellow X; and many player actions involve setting permissions, adding items to a list, or designation locations, hardly the running-jumping-shooting physicality of many computer games. The control is indirect because often, the player's instruction is passed along to another agent or procedure before being implemented. As detailed in the appendix, dwarves receive jobs based on a system which assign jobs from a list to dwarves which are permitted to carry them out, instead of the more direct method of selecting a dwarf and assigning them a job, or being able to take control over the dwarf's movement and carrying out the player's intention.

The controls are also contextually variant, changing depending on the state of the game. As new buildings or features are discovered, new menu options appear. For instance, when the fortress is large enough to support a Broker, new data about the fortress' wealth is viewable from the Fortress Status Screen. Menus that govern similar functions do not always respond to hotkeys the same way, a confusing and counterintuitive aspect of the design, but one which the developers have promised to address before their official launch.15

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15 Gaschignard/Adams interview (2009)
2.3.3 Multiple Modes
The presence of multiple modes also affords several different kinds of experience for players.

Technically, the 'main' game is called 'Fortress Mode", in which players are tasked with
guiding a new colony of a Dwarven kingdom to grow and thrive. But once a world is
generated, players can also play a more traditional Roguelike game in "Adventurer Mode",
where they can design an individual character and guide them through quests to slay beasts
and discover ancient ruins -- including those of their own cities. A third mode offered is
"Legends", which is more of an encyclopedia of a given world than a game in its own right. In
"Legends", players can examine lists of all the historical data created during World
Generation. Players can see lists of fantastic beasts and monsters, characters who
accomplished certain deeds (like dying to the above monsters, or founding new cities or
religions), can see the gods worshiped by various civilizations, and can see the extent of trade
routes and the dates of origin --and destruction-- for the various civilizations present in that
world.
3 A Complex Taste : The Butcher's Tale

In a story told to game blogger Bill Harris\(^\text{16}\) one player relates a story of compelling, if morbid, interest. Although this story does not fit exactly into the category we focus on in the case studies, it provides an excellent sample of the kinds of stories that players tell about Dwarf Fortress, and a useful point of reference for readers unfamiliar with either the game or the practice we will focus in on later.

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*Dwarf Fortress is definitely one of the most deep, intelligent games I’ve played to date – when you can apply economic theories on specialization of labor and JIT inventory management to a game, you KNOW you’ve found something amazingly well done. I want to share with you a quick note on a bug that I found vaguely disturbing though: First, I’m sure you’ve learned by now that dwarves don’t like death. It leads to depression and post-traumatic stress disorder. Put simply, if they see enough, they flip out and kill something – themselves or those around them. However, certain dwarves are sociopaths. They lack the natural emotional empathy and sensitivity of the proper dwarf. They look just like every other dwarf – they act just like every other dwarf... yet, like Arnold Schwarzenegger in the Terminator, they are perfect little emotionless machines. They make excellent butchers and fantastic soldiers. I happened to get lucky and had one of these little soulless wonders as my butcher. I have a policy of making newborn puppies and ponies available for adoption and, if ponies are not adopted by the time they grow up, I send them off to be knackered. It just so happens that I sent out my butcher to round up the herd and thin the ranks one day. I saw ‘Stray Horse (Tame) has been struck down! Stray Horse (Tame) has been struck down! Krazen Ergoblasbit (Tame) has been struck down!’

A sinking feeling hit me. The butcher had just grabbed the wrong horse. He’d somehow found someone’s pet and killed it. I expected a dwarf to go crazy any minute. When I*

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\(^{16}\) Riegel (2006)
looked at the corpse, I saw that Krazen was marked as being the pet of the Butcher.

I blinked. He’d never owned a pet before. I checked his thoughts. He was ecstatic. He had been comforted by a pet recently. He had adopted a pet recently. The little bastard befriended and adopted the horse while leading him to the block, improved his mood, killed him and had ZERO sense of remorse, guilt or loss. He just didn’t care. I’m starting to think about waiting until he’s asleep, removing his door and replacing it with a floodgate just to give the creepy bastard the Cask of Amontillado treatment.

While it might seem like this story is about a single event in a single aspect of the game (e.g., butchering), this is because a great deal of information about the game has been compressed into the story. The chain related in the sentence “The little bastard befriended and adopted the horse while leading him to the block, improved his mood, killed him and had ZERO sense of remorse, guilt or loss” is actually the result of multiple systems in the game interacting: butchering, pets, personality. When these systems collided in the manner described by the player, it seemed remarkable. But not remarkable like flipping a coin 100 times and seeing 100 heads in a row; remarkable in that it provided a coherent, if disturbing, story. I’d like to take this story and use it as a cipher to explain how the interactions across multiple systems arise in Dwarf Fortress.

3.1.1 Butchering
Butchering jobs require an animal to be marked, and a dwarf to fetch the animal and bring it back to the butcher shop. Animals will be adopted by dwarves without player intervention.
Most dwarves will be negatively impacted by the death of a pet. Moods can be either elevated or decreased based on recent events, and a dwarf's mood will greatly impact their behavior, with particularly miserable dwarves either becoming violent or melancholic.

Butchery jobs required an animal to be marked on the Animal Management screen as “Ready For Slaughter. Like with the bed-building in our example in the first chapter, selecting an animal creates the job, which is assigned to a dwarf who's been given permission to be a butcher. Butchery is one of several ways to create stores of food for the fortress, alongside with fishing, farming. One common reason (and the one given in the story above) for choosing butchery is to reduce the number of animals living in the fortress. Why would players do this? Because of the strain that animals put on managing fortresses.

3.1.2 Animals
Animals are characters, and though simplified, still maintain complex behaviors. Cats chase and kill vermin; dogs will bark at intruders, revealing their presence. Each of these has consequences connected to other systems: dogs are integral parts of a fortress' defense options, especially early on. Dead vermin, on the other hand, rot, causing “miasma”, a temporary purple fog that is very unpleasant for dwarves, making them very unhappy. Breeding is automatic, and animals don't require food: as long as a pair of heterogeneously sexed animals exist, they stand a chance of breeding every year, and there are no natural limits other than loss to invading attackers. Because of these factors, their populations can quickly grow very large.

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17 All without a very particular personality trait ("Doesn't care about anything anymore")
Additionally, animals wander, following masters or being attracted to meeting places. Since squares with multiple characters in them cause movement to slow down, they can cause something like a traffic jam in the halls of a fortress.

But worse, there are computational problems associated with lots of moving objects. Pathfinding calculations are used in many games to determine if there is a valid path from one object (in this case, a cat) to another (a butterfly on the other side of the map). Pathing calculations are very 'expensive, requiring lots of computer cycles in order to verify that that a destination is accessible. Using the limited number of calculations available to the CPU for pathfinding slows down the processing of other events in the fortress.

Literally, this means a great number of computer cycles are spent trying to make sure all the animals can walk from their current location to their intended destination, meaning those cycles are unavailable for handling other commands, slowing down the responsiveness of the game. These pathing calculations are what cause Dwarf Fortress to take variable lengths of time to play: while a day on a small fortress might only take a minute or two, as the fortress increases in animal and dwarf population, days take significantly longer to process, slowing gameplay down.

Because of all these minor issues, many players choose to introduce an artificial limit to the number of animals in their fortress by butchering them. This gives players both a supply of food, leather, fat and bones (dwarves are very efficient; they use every part of the cat), and ensures that the game stays at a playable speed.
But not all animals are treated as chattel: from the same menu, a player can designate an animal to be turned into a pet. Once this is enabled, dwarves can choose to adopt the animal, turning it into a pet. Pets provide increased happiness for dwarves, and follow around their masters. Some dwarves are far more inclined to particular animals, and will adopt them in large numbers. But the death of a pet is a very traumatic event for a dwarf, reducing their happiness by a very large amount.

### 3.1.3 Thoughts
This 'happiness' quality is a feature of dwarven psychology. Lightly described in the previous chapter, dwarves maintain a personalized 'memory' of events which affect their general mood. This memory is displayed as 'thoughts', and the model here is deceptively simple: some events are associated with an increase, and others with a decrease, in mood. What makes it seem complex is the wide range of other systems which can affect a dwarf's thoughts. A dwarf will be pleased by seeing or being exposed to objects they prefer, by seeing things made out of materials that they like, by performing jobs well.

Higher numbers make for a happier dwarf, and lower numbers represent an unhappy dwarf. At very low numbers, there is a chance for a dwarf to have a tantrum.

During a tantrum, a dwarf will become very violent, attacking other dwarves, animals, and

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18 At later stages of the game, when the Dwarven Economy is activated, adoptions require the dwarf to 'purchase' the pet, hence the “Not For Sale” and “Price” designations in the provided screenshot.
19 Except for cats. Because they are cats, they work differently. A player can only designate a cat to be butcherable or not. Unlike other animals, cats choose to adopt their owners, and not the other way around.
even destroying objects and buildings. This can be fatal, but even in the best of circumstances, such Thoughts will usually lead to the Sheriff putting the dwarf in prison for a length of time dependent on the degree of damage they did while upset.

### 3.1.4 Personality

But, as the writer indicated, this dwarf’s pet was killed, and the dwarf didn't have a tantrum. In fact, the dwarf didn't indicate it was upset at all. This is because the increments and decrements of the 'Thought' subsystem are modified for each individual dwarf based on their personality. Personality consists of three general categories: preferences, traits, and habits.

Preferences are materials and objects of special importance to the dwarf, either positively or negatively. If a dwarf has a preference for, say, platinum or rings, then they will tend to acquire platinum objects before those made of iron or basalt, and rings before bracelets or other trinkets. These preferences affect Thoughts by increasing the value of thoughts associated with the preferred materials or objects-- a platinum ring will bring much more happiness to a dwarf who prefers them than would a silver crown.

Traits work differently. There are around 30 'traits', each describing a particular aspect of a dwarf's personality: such aspects as Cautiousness, Gregariousness, Modesty, Depression, and Artistic Interest, are measured. These traits are measured from 0-100, and scores above or below a certain average are described on the Thoughts and Preferences screen. Traits are generated at a character's 'birth', and remain constant throughout their life. The effects of

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traits are not entirely clear, but appear to have some bearing on the extent to which a dwarf’s happiness is affected (positively or negatively) by certain events.

Habits, unlike traits, change over gameplay. One 'habit' common to all dwarves is a preference for liquors: dwarves greatly prefer liquor to the other drinkable liquids in the game, water and milk. When a dwarf is for some reason unable to drink liquor (being wounded, or in military service), their Thoughts and Preferences page will be updated to note it, and they will slow down in other activities; movement and construction are both slowed in proportion to the length of time since their last drink.

Illustration 3: A Dwarf personality screen depicting a military dwarf who is suffering from a lack of alcohol.

In the case discussed above, it appears a peculiar habit or personality trait has been activated: the peculiar callousness of this dwarf appears in the “This dwarf is getting used to tragedy”.
Dwarves which are used to tragedy do not lose nearly as much happiness from tragic events as do other dwarves. It should be noted that it isn't entirely clear if habits and traits are completely separate categories, or if the current implementation of Dwarf Fortress only allows changes in some personality traits.

This story presented at the beginning of this chapter seems to exhibit some of the properties of a good story, but it also runs fairly close to the grain of gameplay. Other stories told diverge both in degree and kind, complicating the idea that player stories might be a simple transcription of the gameplay experience. This doesn't mean, however, that the specific features of Dwarf Fortress don't come to bear. But the relationship between the game and the stories is special because of what I've come to call the narrative architecture of DF.
The story we saw in chapter 3 is an example of narrative; a representation of a sequence of events, in this case narrated with words. The author, Jim Riegel, could have recorded a film of the process, which would also represent the events, though in a different modality (visual, as opposed to verbal) and in a different medium (likely, an embedded .FLV video hosted on Youtube or an enclosed Quicktime-format video). But instead, the author narrated through a textual story which, if well told, evokes a certain feeling of going through the game. In order to tell the story, Riegel had to perform a number of creative steps: focusing on some parts of the process and eliding others, choosing a level of granularity that seemed appropriate; giving context about decision and moments, identifying important characters and actions; and assuming a number of things about the reader (that they understand the references and have some knowledge about the way the game models behavior). Stories can be effective ways of conveying information, particularly about complex phenomena that aren't easily described in their totality.

This view of narrative in games has been hinted at, but not taken up by previous game scholars, who generally approach the intersection of narrative theory and games by examining the deployment of narrative in the game itself. Frequently their object is what Katie Salen and Eric Zimmerman\textsuperscript{22} (amongst others, like Ernest Adams\textsuperscript{23} [no relation]) label the embedded narrative.
narrative: the "pre-generated narrative content that exists prior to the player's interaction with the game". These narratives frequently give players reasons to perform certain actions, frame the gameplay content in a particular way, and explain the consequences of choices. Until October of 2007\textsuperscript{24}, \textit{DF} had a significant embedded narrative that players could discover: as they dug further into their mountain, they would uncover a river, a bottom chasm, a magma flow, and finally veins of the fantastic metal adamantine. Upon mining the adamantine, demons would be released, destroying the settlement and ending the player's rule over the fortress. But as the game's model grew to encompass new structures, this regular pattern was removed, and was no longer embedded in every fortress. This shift, while not fundamentally altering the rules of the game, highlights a different use of narrative in relation to games: the \textit{emergent}.

Salen and Zimmerman discuss the \textit{emergent narrative}, "which means that it arises from the set of rules governing interaction with the game system"\textsuperscript{25}. They tie this view of narrative to the complexity of games, in which "elements of the system are linked recursively" but also "context-dependent"; the choices that a player makes exist in a wide range of options, and thus the number of potential events that the game might represent is dependent on the depth of those choices. While embedded narratives might serve to frame gameplay content, or give a context for play, emergent narrative can reflect and mirror that play. If procedural depth leads to highly emergent scenarios, then we should expect it also to lead to emergent narratives. These emergent narratives, like the emergent playstyle we saw in Dwarven Socialism, are afforded by the interactions of many complex systems, but are constructed and guided by the players.

\textsuperscript{24} According to the release notes supplied with each version
\textsuperscript{25} Salen and Zimmerman, 2004
Jenkins, in an essay on how the presence of space in games can affect their deployment of narrative, gives a few different ways that stories can arise out of gameplay. He brings up the narratological distinction between plot and story, as explained by Kristin Thompson: plot being "all causal events as we see and hear them in the [film] itself" and story the "viewer's mental construction of [the events'] chronology." He points out that even though a plot proceeds linearly, the story has to be constructed by moving backwards and forwards in time and space, by examining gaps and absences, and by questioning the assumptions of narrators. In DF, we might explain this distinction in terms of the history created during World Generation: despite the fact that we know a large number of events have taken place, we might only be able to identify them by discovering the effects of those events on our fortresses or the dwarves who populate them.

Jenkins calls this 'gap-based' view of narrative, unfortunately for our sake, by the same name as the "pre-generated stories" of Salen and Zimmerman: the embedded narrative. But this is a different form of embedding, in which narratives are structured around gaps that are not only discovered by players, but also assembled by them. This assembling leads Jenkins to suggest a kind of narrative empiricism: If the story we have assembled suggests that the monster snuck behind that rock, either it will jump out or not, and the player will find out quickly. But games do not only have these immediate gaps, where we either Construct a Bed or do not; we might not be sure at all, for instance, what makes a dwarf decide to go to sleep in the first place. These gaps are compounded when we realize that they spread across multiple channels, in different modes, or even in different platforms. We might also realize that this means the

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26 Jenkins, 2004, “Game Design as Narrative Architecture”
27 Jenkins 2004 referencing Kristen Thompson, “Breaking the Glass Armor: Neoformalist Film Analysis”
narrative itself is composed of pieces of the game's visual, textual, audio and procedural components, and partially a product of the player.

The use of *flashback* and *flashforward* are typical of narrative in written and visual form, to create and exploit gaps in the telling of the story. But it seems clear that gaps in the telling exist not only in the chronology of events, but frequently through the systems simulated in DF. The game does not simulate *everything*, and, it certainly doesn't provide feedback to the player about everything that it does simulate. After all, when the command is given to build a bed, what happens when the dwarf 'gets' the job? We can infer a number of possible explanations, but the game itself is conspicuously silent -- or at least elliptical. These gaps point to similar *causal* relationships as traditional written narratives, but the modal toolbox of games is expanded: there is textual evidence (as in many forms of writing), there is image-based storytelling (as in the visual arts); but games, relying on mathematical algorithms underneath their use of text and image, give access to procedural evidence as well.

Narrative has been discussed in relation to games quite extensively, but frequently with an approach that looks to understand either the role of the creator/developer/author in constructing a narrative, or in performing close readings of the games as texts themselves. While valuable, we've already seen that there are aspects of narrative that depend on interactions between the reader and the text, and that games might rely even more on these interactions for their narrative content.

4.1.1 Criticism of narrative in games
The idea that we might find applications of narrative theory to games without identifying the
game as a narrative text isn't actually new to the study of games. Frequently, even the strongest critics of narratology's influence on the study of games have been careful to point out that many players may use narrative to shape their view of games and play. For one, Gonzalo Frasca says that narrative approaches to games are troubled because they ignore the simulative aspect of games; but even he notes that "for an external observer, the outcome of a simulation is a narration." \(^{28}\)

Espen Aarseth in "Quest Games as Post-Narrative Discourse" \(^{29}\) identifies a few of the problems with previous narrative approaches to game studies: they can miss important differences in how games and stories are produced and how they operate. For instance, approaches based on older definitions of genre fail because many games include multiple modes, perspectives and genre tropes (*Halo*, in his example, includes elements of science-fiction, sports, driving, strategy, simulation, and more if we expand it to include the novels, the now-abandoned MMO, the alternative reality game ILoveBees). Instead, Aarseth suggests expanding our idea of games from individual entertainment products, to generative platforms capable of support many different forms of interaction: "Today what we call games... are technical infrastructures that are better described as game *platforms*, like a deck of cards that can house so many different games: Solitaire, Poker, Bridge, Blackjack, and so on". \(^{30}\)

Aarseth then goes on to set off groups of games which he claims are poor examples of using narrative theories and concepts in games. Sports games, which rely on "pure skill", and "simulation/construction" games, which rely on manipulating a complex system. Of course, as

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28 Frasca, 2001
29 Aarseth, 204
30 Aarseth, 2004
identified above, *Dwarf Fortress* does fit the markers of a "simulation/construction" game, and certainly involves manipulating complex systems, but this doesn't cut it off from narrative theory. Aarseth goes to look at the "story" of the space exploration game *X: Beyond the Frontier*, and offers an explanation of where we might find it: "What is the story in *X*? The answer must be that you can write your own, but only if you want. Players and fans of the game have written stories set in the *X* universe, so-called fan fiction. . . "

It is something like these stories that are to be the subject of our study. Even sophisticated ludological perspectives recognize that many players find reasons to create stories from their gameplay experiences. But how and why these are created are not part of a ludological approach, and it is for this reason that we should examine some narrative-specific views of gaming.

### 4.2 Reading and Collaboration

To be clear, the acts of 'reading' and 'playing' can be separated and contrasted; the relationship is not even one-to-one. As Montfort reminds us: "The pleasure involved in interaction is not simply that of reading. Nor is it entirely alien from that of reading. . . "

If Jenkins points out that narrative in games can be embedded in different locations, Montfort points us again to ponder the use of gaps in Interactive Fiction. He goes through many different examples of interactive fiction, and carefully documents how their creation as simultaneously literary and ludic artifacts each represent a different mobilization of the techniques of narrative in a procedural medium. I will be using some of this language and analysis as a model in the thesis, particularly when comparing some of the modes of play and modes of writing, but will addresses those as they arise in the data.

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31 Aarseth, 2004  
32 Montfort, 2003
While Montfort is primarily focused on interactive fiction, which requires players to write in order to play, he also reminds us that writers and designers of IF use the player's input as a vital piece of both game design and storytelling, and that the structuring of gaps and interaction has a long history for designers and authors both. We can also back further to literary theorists like Wolfgang Iser, who points out that "reading is only a pleasure when it is active and creative" or Roland Barthes, who reminds us that insightful readings do not have to "close the writing," but might find interesting or even contradictory relationships between elements of the writing.

Part of what I'd like to take from these approaches is the idea that gameplay is both distinct from but related to the act of reading as well as the act of writing. The creative investigation and exploration, the forming of goals and strategies, and the dependence on material and technical affordances for their execution, are qualities that apply to players in both ludic and narrative frames. We tend to think of narrative as an object received, rather than something created, and even then theorists have frequently looked at the game developers as authors rather than the players. But outside of games, there's been a long history of viewing the audience as participating in constructing narratives.

4.2.1 Transcription View of Writing
Rather than shift the burden of telling entirely on to players, it seems like we have to recognize what Iser and Montfort both suggest: that even these player narratives will be a hybrid, a negotiation between the game and the player. But what kind of hybrid, and what role

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33 Iser, 1978
34 Barthes, 1978
does the agency (cognitive or aesthetic) of a player or author have in constructing these narratives? I'm wary of what I call the **Transcription view**, in which the stories of *Dwarf Fortress* players would be seen straight transcriptions or records of play episodes, either interior to the player’s consciousness or as a post-play reflection. I'm skeptical because this view would miss some of the vital transformations and transgressions which happen when players become authors.

If telling these stories were merely a process of recording play, then there would be little room for authors who do not actually provide input into the game, and yet one genre of player story, the Community Fortress, is built around just this kind of collaboration. And it is entirely plausible that some story authors have expectations and skills from external communities of practice, like the extensive world of fandom, or traditions of genre fiction beyond the fantasy that inspired *Dwarf Fortress*.

In short, I'd like to be careful about too much elision between playstyle and storytelling, while at the same time recognizing the fact that they are likely closely related. It would be one thing to say that the player's stories are traditionally written stories with a common subject matter in *Dwarf Fortress*. We also recognize that players form narratives out of their play, and that their stories might contain retrospective artifacts of play, like a recording of the emergent narratives of gameplay. But we should also keep in mind the use of narrative as an organizational strategy, active during play; in which case we might realize that the stories, rather than a by-product of the player experience or emergent narration, are actually a part of them, a component of a meta-game of *Dwarf Fortress*. 
The game-like nature of these kinds of stories is suggested by James Newman when he discusses instances of fan fiction related to the game *Tetris*. The *Tetris* example is especially pertinent, as the idea of a *Tetris* story has had legs, so to speak, in the discourse around narrative and games. As Newman examines several instances of fanfiction and the academic:

"The playfulness of these *Tetris* fanfics, along with the forum and review commentary, speaks of the ways in which gamers seek out and enjoy challenges. To fictionalise an entirely non-narrative, abstract game certainly confounds most of our expectations of fanfic both as readers and theorists. However, in the pleasures of tackling such obstacles we perhaps note echoes of the motivations and pleasures of videogame play itself in which puzzles, conundrums and apparently insurmountable challenges are the stock-in-trade." 35

It is this playful aspect of narrative that has caught my interest, and that shows what we can gain by examining the narrative constructions of players. *Dwarf Fortress* players have created reams of writing, both fiction and non-fiction, about the game. In the same way that Aarseth identifies games as platforms many different kinds of experiences, I aim to look at *DF* as a platform for many different kinds of writing. The object of inquiry here isn't the game itself, not directly. But these stories are written *using* the game, the stories themselves are far less interesting if examined outside the context of the game. It is in the relationship between them that we find examples, of narrative's utility as cognitive tool, and of the harnessing of multiple modes of communication to postulate, reinterpret, and to share theories of the game.

35 Newman, p.68
4.3 *Kinds of Writing*

The body of text for this study will be several different forms of writing that players contribute to the game. First and foremost are the fictional stories written on the forums, in which players relate the experiences of their play in a distinctly narrative format.

There are also examples of non-fictional writing about *Dwarf Fortress*. There are written and video tutorials and collaboratively-authored wikis full of information: some geared to new players, and others for expert use, detailing what is known about the game's underlying models and overarching possibilities.

4.3.1 *Games and Discourse*

Writing about entertainment media is widespread, from critical reviews to the vast realms of fan fiction (of which the *Dwarf Fortress* stories represent one particular thread), and work on these forms of writing have shown how participants can articulate complex views and relationships on the media consumed. Some work has been done in looking at game communities and how they structure knowledge, and I look to them for methodological guidance.

To be clear, communities have their separate practices and standards, and individual writers have different reasons for contributing their fiction. But as communities of practice they participate on shared assumptions and values, building and identifying. The term 'discourse' is used to identify the communicative flow around a community (even though the term also has a very different meaning in narrative theory) and the practice of discourse analysis is commonly used to investigate how communities communicate with each other. The specific terms and frames of these methods will be addressed in the following chapter; but the goal is
to examine pieces of the large corpus of writing surrounding Dwarf Fortress.

For instance, Constance Steinkuehler and Sean Duncan\(^{36}\) have examined writing on the game World of Warcraft from that game’s official forums; they found that many of the posts were a form of social knowledge construction, showing highly developed "scientific habits of mind". By paying attention to how gamers explained problems and confusions, they saw how community used complex forms of argument to construct meanings of the game and debate the underlying models. In a different study, Duncan and James Paul Gee\(^{37}\) have examined the sharing of knowledge in gamer communities from a rhetorical standpoint, pointing out that the fan debates about chronologies in the Zelda series partake in the same forms of argumentative practice as science: not only do fans look for evidence and modeling, but they make complicated value judgments about what counts as evidence.

These studies suggest that the fan discourses around games can be taken seriously not just as social and cultural phenomena, but as places where games are made more meaningful. While this thesis doesn't use discourse analysis as its method, the objects it examines are certainly located within such a fan discourse.

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\(^{36}\) Steinkuehler & Duncan (2009)  
\(^{37}\) Duncan & Gee (2008)
4.3.2 Fan Writing
The concept of player-authored narratives about games has been explored somewhat, typically under the lenses of fan-fiction or machinima. James Newman\textsuperscript{38} provides some excellent examples and meta-analysis of academic work, showing how fans use a variety of communicative modes to explore and comment on games that they play. But frequently these works use the game as background, topic or source material for stories, rather than as a material constraint on the writing itself.

This is fan-fiction about *Dwarf Fortress*, but the kind of collaborative fictions that we are looking at are not fan-fiction in the traditional sense. It is not strictly machinima either, although I have no doubt there is overlap for some artists and community members. But the game here isn’t background material, a reference world or a visual palette and editor; rather, this form of storytelling is provocative because it involves a mix of written narrative \textbf{and} play; it is vitally important that the actions and intentions of the authors make their way back into the game world. This is the sense of ‘narrative play’ that we will explore in the case studies.

4.4 Summary
At the end of *Game Design as Narrative Architecture*, Jenkins suggests that theorists can better reconcile an approach that recognizes the unique procedural and simulationist affordances of games with the benefits of narrative theory, if we start "examining games less as stories than as spaces ripe with narrative possibility."\textsuperscript{39} One of these possibilities is the stories that form around them. If we do not recognize how games, as a medium of

\begin{footnotesize}
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\textsuperscript{38} Newman (2008), ch. 3 & 4
\textsuperscript{39} Jenkins (2004)
\end{footnotesize}
communication, reside in a culture that values narrative practices, we might be trading one form of insight for another form of blindness. The dialogue surrounding games has shifted as the community of gamers, and the presence of their productions, grows larger. Likewise, the growing recognizance of how participatory stances to media affect their perceived cultural and aesthetic value is changing the theoretical landscape. But the value of this possibility appears to be long-standing in the field of game studies, that these practices illuminate the game itself, and our view of how gamers learn them. By pulling our view of 'what the game is' back from looking at the moment-to-moment play or from a single reading produced in an academic context, we can see that games do not produce meaning on their own, but present opportunities for players to build meaning and understanding around the game. They have been doing this since before games were studied in schools, and their practices and attitudes should inform our arguments, even if we leverage other stories to explain them to ourselves. Let us not delay further, but strike the earth instead.

Illustration 4: A New Fortress is Begun
5 Delving Deep: Narrative Architecture and its forms

To see this, I must explain what is meant by narrative architecture. I apply the concept to three broad fields: Narrative Architecture of Space, Narrative Architecture of Code, and Narrative Architecture of Choice. Architecture of Space examines how the representation and implementation of physical space in Dwarf Fortress shape the player narratives. Architecture of Code is how decisions on programmatic level, including editability and the presence of simulations, provide for complex generative structures which help foster creative storytelling. Lastly, Architecture of Choices examine how interface and interaction are used in Dwarf Fortress, especially in what kind of control and information the player possesses, and how player choices are reflected in gameplay over time.

These categories overlap in practice: players use the editable features of the code to create new kinds of spaces, and the procedural models occasionally amplify player's small decisions into a permanent new direction. They are separated here largely for the ease of discussion.

In order to understand how DF might give rise to stories, it behooves us to look at how the game operates, how it presents itself to its players, and what makes a moment worth sharing. In particular, I hold that the stories arise at least in part from three forms of narrative architecture implemented in Dwarf Fortress.
5.1 Architecture of Space
Jenkins says in his paper on Narrative Architecture, “spatial stories are not badly constructed stories; rather, they are stories which respond to alternative aesthetic principles, privileging spatial exploration over plot development.” Dwarf Fortress's gameplay involves a good deal of spatial exploration. From world, to region, to map, players not only find embedded and local moments of narrative potential, but also have the ability and opportunity to shape the spaces in order to craft new stories. Here we will look at some of the most literal narrative architecture in the game and its community.

One caveat about the use of the word 'world' here: If we define world as the fictional, generated, location where a game takes place, then DF creates a new world for each player (and offers multiple chances for players to create colonies in different worlds). If, on the other hand, we define world in a philosophical sense as 'a set of rules about how things are' (like in the phrase "that's not how the world works", or in Marie-Laure Ryan's use of Possible Worlds), then this world is the algorithms that gird the generation of content, and is relatively stable across any given version of Dwarf Fortress. The distinction between these views of worlds is an important one, but not necessarily one taken into account by players and critics when referring to 'the world of Dwarf Fortress'. For the sake of clarity, I will use world in the former sense, to refer to the generated product of the world-generation system. For the sake of argument, I do not require the assumption of philosophical Worlds, possible, referential or actual, for the analysis. The events that occur inside a game of Dwarf Fortress are ontologically slippery (we could say they are fictive because no mass is measured when a rock is mined, and yet it moves) and seem to me equally muddled if represented or expanded upon for the sake of a story.
5.1.1 World Generation

The first level at which the spaces of Dwarf Fortress affect stories is the process of World Generation. This process is an important one for understanding how players relate to Dwarf Fortress: after all, players must create a world before any of the other game modes can take place,

![Illustration 5: World Generation in Progress](image)

The process of world generation occurs through an extensive world-generation algorithm, which takes into account temperature, elevation, rainfall and drainage. Using a computational technique known as “midpoint displacement”, a ‘world map’ is generated, which outlines the environmental features of play space, defined as biomes. Biomes are areas with similar characteristics like the aforementioned temperature/elevation/rainfall/drainage, but additional conditions, such as density of vegetation, salinity, the strength and

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40 Harris/Adams Interview (2006)
aggressiveness of wilderness creatures (“savagery” and “good/evil”) which in combination can vary from deserts conditions, to temperate woodlands, to volcanic islands. Rather than beginning the world generation process by picking a set of places to describe and connecting them, their features are determined by this process of iterating through the model, and then additional information is generated or acquired as needed: for instance, while mountains are all locations above 300 units, oceans are all locations with an elevation of less than 100 units. Once an area has been determined to be an ocean, it doesn't need a vegetation score (there is currently no modeling of aquatic vegetation), and its salinity is set to 100.

Also built into the world generation process of DF is an idea of how the spaces can be shaped by time and activity, as not all features are determined randomly and inscribed onto the map immediately. Some of the processes that shape the map involve iterations over simulated time, like how rainfall and elevation are incorporated into erosion or the courses of rivers and streams. The model is strong and complex enough to produce 'rain shadows', in which coastal mountain ranges absorb all the rainfall on their coastal edge, tending to produce deserts on the other side. Thus, even from the beginning, worlds in Dwarf Fortress evolve in response to activity within them.

5.1.2 Non-physical World Generation Elements
The effect of time is magnified during the 'Importing Wildlife' and 'Recounting Legends' portions of world generation, in which non-physical features are mapped on to the terrain. These processes may not be based in geological simulation, but are similarly deeply bound in the creation and demarcation of Space.
If you’ll recall, two of the fields which defined a biome were Savagery and Good/Evil: these are used to determine the characteristics of the wildlife in the area. The modeling of Civilization-level behaviors in the World Generation process is determined partially by these characteristics: Good areas are more likely to attract elves and non-aggressive creatures, while areas with high Evil ratings will be populated with violent and aggressive groups of goblins, or undead versions of natural wildlife. Once general areas are defined, groups are organized into “Civilizations”: humans, elves and dwarves occupy “good” or “neutral” areas, while kobolds and goblins take residence in “evil” areas. They are given capital cities, and engage in a (relatively) simple historical simulation in which they engage in trade and war, exchanging wealth and sacking each others sites. Roads and cities are built, and famous heroes emerge, becoming legendary figures the civilizations that encounter them. There is even modeling of cultural exchange in the form of religions, which can spread as civilizations are conquered or become allies over time, learning of the (also generated) figures in each others pantheons.

Eventually a world map is created, from which players in Fortress Mode are invited to select a site to begin their fortress. The detail of the generation process is stripped back when selecting a fort, and a very different set of information is provided to players in a special interface for selecting a site. Certain special features which occur in the course of generation, like the presence of ruins, aquifers or volcanoes, are identified on the Site Selection screen.
Here, players are invited to make a decision about the kind of fortress they would like to run, and given suggestions of pertinent information. Biomes overlap in regular, grid-like units called “regions”, which are named with more or less interesting results. These descriptive titles might be suggestive, evoking atmospheres from other fantasy or game worlds, although they can also have humorous results. Regional information includes the presence of other civilizations, and buildings they have created.

Not all worlds that are generated are usable: sometimes, the algorithms generated worlds with too much unplayable space or with don't "seem natural" are rejected, and the algorithms begin again, trying to find a world which fits the criteria of the designers.
So when players are invited to pick a region in which to begin their Fortress, there's already a vast amount of information about the context of play. It can affect the minerals you can mine, the presence of wildlife, the civilizations who will contact you, etc. These are built into the space from the systems which generate them, but are also activated by the player's sense of what space they would like to occupy, and what they would like to accomplish with it. While the player's goals may not be narrative (or even broadly concerned with 'story' in any shape), the opportunity for stories to arise is wholly conditioned on the initial generation of the world – and, as we shall see, what the player chooses to do with it.

5.1.3 Player-tweakable map settings
One of qualities that Jenkins' approach on spatial stories brings into focus is how much active engagement is a part of the experience of spatial storytelling, and now narrative architecture can shape it. Accordingly, if we look at how players can affect world generation, we can see a specific change introduced in Dwarf Fortress which provided players with significant tools for affecting the process of world generation.

Initially, players had very limited control over the World Generation process: click to generate, watch, and receive a universe. But eventually, Bay 12 Games implemented an optional interface which allowed players to shape how the worlds were generated.

By selecting "Design New World with Parameters" from the main menu, players can either

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adjust the parameters used in the algorithms, use specific 'seeds' for the random generator, or manually define parameters for individual locations with a kind of 'paint' tool. These features can be used to create specific scenarios, or to experiment with the capabilities and range of the simulation. The first option, parameter adjustment, exposes many of the variables used in world generation, while giving users control over those variables, allowing them to adjust values like volcanism, drainage, evil, temperature, the length of the historical simulation, or the frequency of the enormously powerful and destructive 'megabeasts' like dragons and Titans. The second option, the 'seed' interface, allows players to input the codes used for generating random numbers. Players can then exchange seed numbers, essentially turning the process into a non-random one\(^\text{42}\). The third case, the 'painting interface' is the most intricate (and the least documented), allowing players to mark individual locations with desired values. This provides players a great degree of finesse in creating precisely the kind of space which they are interested in. These adjustments give players more control over their playspace which increases their ability to prepare spaces for particular types of play – including the telling of particular stories.

It appears that the world generation process is also intended to be a spectacle, presented to the players in order to show them what the engine is capable of, and a hint of the depth of play. A visual overview of the process of world generation is visible to players when starting a new game, as the developers see view this generation as an integral part of gameplay experience, and designed the world generation viewer so that players would see interesting phenomena: during the sequence in which water erodes mountains squares to create rivers,

\(^{42}\) Since these seeds are strings of characters, they can be shared, allowing multiple players to generate worlds with the same features.
the developers "... have it intentionally center on a mountain at that point so you can watch."\(^{43}\)

Players have taken advantage of these tools to recreate locations from famous stories: for instance, one commenter on the Bay 12 boards uploaded an image of a version of the western coastline of Middle-Earth implemented in \textit{Dwarf Fortress}\(^{44}\) created using the 'paint' interface. Other players have discovered how to use careful management of values to create fortresses in times of violent conflict throughout the land\(^{45}\), ensuring plenty of siege opportunities.

\section*{5.1.4 Construction}

One of the ubiquitous features of \textit{Dwarf Fortress} is the role that construction and mining play in the Fortress itself. On a micro-level, away from the massive scale of world generation, space is the canvas which players work in order to build their gameplay. Since most of the gameplay occurs based on the material resources players can marshal from their fortress, the extent to which players can manipulate their environments becomes, to a large extent, the core dynamic of play. Gaining access to trade is dependent on construction a Trade Depot, and caravans can bring wagons if they have access to roads, which can be constructed but must be maintained.

These spaces are presented for players to build in, and they take advantage of this in more

\(^{43}\) Harris/Adams (2006)  
\(^{44}\) \url{http://www.bay12games.com/forum/index.php?topic=20512.msg220899#msg220899}  
\(^{45}\) \url{http://www.bay12games.com/forum/index.php?topic=20512.msg222595#msg222595}
elaborate, planned forms of play. The fortress “Mountainbanners” exhibits some of the creativity involved in these constructions\(^\text{46}\) many stories feature specialized constructions, often made as gifts to specific participants or as commemorative markers for key events in the story\(^\text{47}\). Since these constructions are functional implementations, they can also trigger new events in the course of play.

### 5.1.5 Glaciers & Challenges: A Spatial Story

When setting out to play \textit{Dwarf Fortress}, the player is offered the choice of where to start their fortress. This selection doesn't just affect the visual style of the gameplay, but affects a significant number of other elements. Starting atop a glacier leads to different challenges (lack of water, isolation from trade partners, lack of workable stone and metal) than starting in a temperate jungle. Moreover, it is not just the geographical features of the space that matter. Geography affects geology: the distribution of mineral types is affected by the type of terrain.

Players take advantage of their ability to shape the potential events that occur by picking (and fine-tuning) the space in which their fortress takes place. For instance, one of the longest-running collaborative stories on the Bay12 Forums is “Nist Akath, Brethren of the Tundra”\(^\text{48}\), takes place on a glacier. The framing story posits that a group of dwarves were stranded when their wagon broke down:

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Captain's Log. First entry.

I lost my last logbook, somewhere in the exploratory shafts. It appears I must start anew.
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\(^{46}\) http://mkv25.net/dfma/map-2449-mountainbanners
\(^{47}\) Some additional examples are given in the chapter on Tellable Moments
My prospecting company, The Great Picks, finally set off today. Our prospecting went middling well this winter. I doubt the penpushers will be pleased, but stuff them. Undoubtedly I'll be punished in some way for failing to find riches where there were none.

We still retain much in the way of our supplies. Undoubtedly we'll use them when we set out again, for some other godsforsaken part of the world.

Captain's Log. First of Spring
We crossed the glacier, the Wretched Winter of Jackals, heading east towards home. We figured it a shortcut. We never expected our wagon to break down in the middle, stranding us.

There's no possibility of walking out, its too far, and too cold. We have only our mining equipment. Hopefully we can put something together to survive.

With luck, we won't be stuck here until winter. It's spring now, and still deathly cold. Come winter... I don't even want to think about that.

In this way, I name this place Nist Akath, Fear the Winter!

The map is not encouraging for our survival either. 49

By consciously selecting the glacial environment, Captain Mayday is working with the game's engine to prepare a number of potential story moments in the Fortress of Nist Akath.

Many of the stories found on the Community Games and Fortress site follow a similar model:

49 Mayday, http://www.bay12games.com/forum/index.php?topic=19279.msg194517#msg194517; this is from the posting which initiates the story thread, and forms a sort of narrative framing for the authors of the story. More on these initiating posts in the case studies
Pick a challenging starting position and attempt to overcome it. While not exclusively the province of players interested in narratives, increasing the challenge of running a fortress by picking a precariously located starting site is a particularly fruitful and common strategy for players who share stories of play. When we look at some of the case studies in detail, we'll see further examples of how players used the world generation tools to begin their stories.

### 5.1.6 2D Fort Layouts
While the addition of the “Design New Worlds” opened up new opportunities for players to take an active role in shaping the space of DF, earlier versions of *Dwarf Fortress* put an emphasis on a different relationship of space and story.

Between versions 0.23.130.23a (released January 18, 2007) and version 0.27.169.32a (released October 29, 2007), a major overhaul of the game was performed. Among many other changes (documented on the archives of the Bay 12 development log), the world generation process was significantly re-written. The game moved from a two-dimensional playspace to its present three-dimensional playspace. In this process, the traditional fortress map changed significantly. Although the graphical layers have always displayed a two-dimensional plane, in the newer versions players can cycle through multiple 'floors' of height, as z-axis was implemented, necessitating overhauls on the physics and water modeling, pathfinding and interface.

Illustration 7: 3D Version: The smaller screen on the right is a map of the terrain at the current height.

Illustration 8: 2D Version: There is no height indicator along the right edge, and all 2D fortresses start at a cliff face.
In versions 0.23 and earlier, players at the Site Selection Screen had many fewer locations to pick from when selecting sites for their fortress. This was because sites were restricted to locations that had a specific arrangement of features. All fortress started with the initial group of dwarves on the left side of the map. As the player dug further to the right, they would discover in turn an underground river, a bottomless chasm, a magma flow, and eventually a series of mysterious pits.

As the player explores the space under the mountain, each of these features is “revealed”.51

Illustration 9: Message for discovering the underground river in the 2D version

51 As of the time of writing, these features can still be found distributed throughout worlds generated in DF, but they lack many of the special events associated with them, and are no longer standard features of every map.
Their discoveries meant a change in the capabilities of the fortress: once the player had discovered the underground river, irrigation, and thus the development of a vital self-sustaining underground food supply, was possible. The appearance of the chasm led to periodic attacks by the disturbed inhabitants thereof, while discovering the magma allowed the player to build enormously efficient magma forges, allowing expanded productivity. New commands are added to the player's interface, giving players an expanded set of verbs at the same time that new obstacles are created.

### 5.1.6.1 Spoiler Alert

The mysterious pits provided an interesting twist to these evocative moments—what is known in the community as “Hidden Fun Stuff”\(^\text{52}\). Within minutes of discovering the pits, a number of very powerful demons began appearing deep inside the fortress. Flame-breathing “spirits of fire” and vicious tentacle-demons set upon dwarves, smashing through doors and buildings. They outclass most other creatures in the game and frequently, their appearance meant the deaths of many dwarves.

Since crossing the magma required the use of steel bridges, and the processing of steel is a fairly complicated, multi-part task, it can be reasonably expected that players who discover the pits will have advanced production facilities in their fortress, and probably some degree of familiarity with the game as well. Accordingly, they might survive the initial attacks, in which case a special reward awaits them.

For players who continued to dig past the pits, deposits of the fantastic metal adamantine\(^\text{53}\)

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\(^{52}\) As, for example, described on the DF Wiki

\(^{53}\) Adamantine is something of a universal fantasy MacGuffin: an invincibly strong metal (as its name suggests).
were visible. Containing special bonuses to the value and strength of items created out of the material, adamantine is a valuable and enticing resource for players who explored deeply. Discovering it triggers the arrival of the highest ranking noble for Dwarven civilizations, the King or Queen. But mining it too came at a risk. As players mine the valuable resource, a tally begins counting off: the more they mine, the greater the risk they run of triggering the only special end state in the game. This special screen, a text narration of the mysterious loss of a distant one of the few ways a fortress will actually be declared inviable by fiat, rather than by the normal end sequence.

Illustration 10: The typical message at the end of a fortress (taken from 3D version)
To those familiar with the genre of fantasy, this story might seem familiar: the threat of dwarves digging too deep evokes a very famous story about dwarves, that of the Dwarves of Middle-Earth’s Moria, from J.R.R. Tolkien’s Lord of the Rings. In Tolkien’s story, a group of dwarves in the fabled empire of Khazad-dûm become rich and powerful from their industrial capabilities. But rather than accept limits on their growth, they continue to mine far beneath their city. Eventually they come across the tomb of an ancient demon imprisoned long before the rise of their city, and this demon destroys their civilization and chases them away before returning to rest.

While the mining of adamantine was eventually fatal for the fortress that began it, it shouldn’t be regarded as a necessary or natural end: it was a special state, more along the lines of a
easter egg than the climax of the story. There is little indication from the beginning that it is a possible outcome (in fact, it is currently one of the few instances of 'magical' behavior present in the game, despite many of the fantasy trappings); only a fortress successful enough to merit the attention of a King will receive direct instructions to keep mining deeper. Still, the messages that come on screen aren't substantially different in tone or writing style from those announcing relatively commonplace events like the discovery of the river or the seasonal arrival of migrants. Rather than present the players with a cut-scene and dialogue hinting (or even stating outright) that this is an homage, players are brought to the location by the same approaches that inform successful play. Instead, the developers rely for dramatic resonance on both the mechanical impact of extraordinarily powerful fire-breathing monsters and a shared (sub)cultural knowledge of what happens to dwarves who get greedy.

Illustration 12: Tentacle demons emerge from the pits
5.2 **Architecture of Code**

So we have seen how the use of space in *Dwarf Fortress* provides several opportunities for narrative pleasure, excitement and creativity. Many of these relied on the specific way that computer code was used to make spaces plentiful, varied and unique.

The code itself, and the ways in which it was implemented, are part of the narrative architecture of *Dwarf Fortress*. I say narrative architecture for three reasons. First, the use of procedural generation creates a sort of 'living canvas' which gives a set of common rules and structure for play, but allows for a significant degree of variation. The complex form of variability introduced by procedural generation brings numerous ‘gaps’ which invite players to fill in the blanks, while concurrently providing the overarching structure conducive to shared communication. Secondly, the developers choices in *what* to model also contributed heavily to making *Dwarf Fortress* inviting to storytellers: namely, the inclusion of anthropomorphic characters with individual personalities, engaged in both local relationships and a larger cultural model. Thirdly, the organization and structure of certain data files in *Dwarf Fortress* created opportunities for players to play in and with some of the more complicated features of DF, and players have found ways to use them to both alter their gameplay and to stage particular stories.

### 5.2.1.1 Note about the term ‘procedural’

There are several different usages of the term 'procedural' or 'procedure' that tend to occur in the discourse around games, and I intend to refer to two of them. One is the colloquial “procedural generation”; referring to the manner in which mathematical processes are used
to create content for the game. Second is the sense of 'procedural rhetoric' from Ian Bogost's coinage, which refers to systematic and computational representation of complexity as a form of rhetorical or aesthetic expression. Both of these are related to a third sense, that of 'procedural programming': the use of iterative computer processes in code. This third sense is opposed to other ways of organizing computer code like “object-oriented programming”. It is highly likely that Dwarf Fortress in fact employs the object-oriented approach, using classes of objects with inherited properties, rather than strict procedures, for it's programming. I take this as a phenomenon of cosmic irony from the ambiguity of language, rather than a failure in the term “procedural”, and so only wish to be clear that the presence or absence of true “procedural programming” throughout DF shouldn't cut us off from these other useful terms.

While an analysis of the computer code used to construct Dwarf Fortress would be quite informative and would give insight into how the developers have implemented many of their ideas, it is beyond the scope of this research. I feel additionally justified in excusing the absence of code analysis because the developers have expressed their desire not to open the code to the public, and so players do not generally have access to this material. But there are substantial pieces of the software which are less closed, and which the players do make themselves available to. By focusing on these tools and how they are used, we can at least begin to trace how the explicit and implicit use of computer code helps contribute to storytelling practices.

5.2.2 Editability
One of the most interesting features of Dwarf Fortress' code is the use of text data files and tokens. The data files, called raws, are files kept separate from the main program, used to define attributes for objects and entities within the game. The raws are plaintext, which means
they can be read by a human using a text editor (like TextEdit or Notepad), and they can be edited using these tools as well. This editability provides opportunity to extend, adapt or mod Dwarf Fortress by changing some of values used in the game engine.

One way these attributes are given is through the use of tokens. Tokens are read by the program and used to provide parameters for computational processes. For instance, Dwarven ethics are parameterized by the following set of tokens:

```
[ETHIC:KILLENTITY_MEMBER:PUNISH_CAPITAL]
[ETHIC:KILL_NEUTRAL:ONLY_IF_SANCTIONED]
[ETHIC:KILL_ENEMY:ACCEPTABLE]
[ETHIC:KILL_ANIMAL:ACCEPTABLE]
[ETHIC:KILL_PLANT:ACCEPTABLE]
[ETHIC:TORTURE_AS_EXAMPLE:UNTHINKABLE]
[ETHIC:TORTURE_FOR_INFORMATION:UNTHINKABLE]
[ETHIC:TORTURE_FOR_FUN:UNTHINKABLE]
[ETHIC:TORTURE_ANIMALS:UNTHINKABLE]
[ETHIC:TREASON:PUNISH_CAPITAL]
[ETHIC:OATH_BREAKING:PUNISH_CAPITAL]

[ETHIC:LYING:PERSONAL_MATTER]
[ETHIC:VANDALISM:PUNISH_SERIOUS]
[ETHIC:TRESPASSING:PUNISH_SERIOUS]
[ETHIC:THEFT:PUNISH_SERIOUS]
[ETHIC:ASSAULT:PUNISH_SERIOUS]
[ETHIC:SLAVERY:PUNISH_CAPITAL]
[ETHIC:EAT_SAPIENT_OTHER:UNTHINKABLE]
[ETHIC:EAT_SAPIENT_KILL:UNTHINKABLE]
[ETHIC:MAKE_TROPHY_SAME_RACE:APPALLING]
[ETHIC:MAKE_TROPHY_SAPIENT:SHUN]
[ETHIC:MAKE_TROPHY_ANIMAL:ACCEPTABLE]
```

These tokens act as flags, and are read by a function in the software to determine which values to plug in for certain variables. [ETHIC:VANDALISM:PUNISH_SERIOUS], for instance, how dwarven society reacts to the destruction of valuable artworks: the behavior is punished, a

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54 Taken from the entity_default.txt file
'serious' severity level. This is the same reaction given to acts of Theft or Assault, but significantly less stern than the reaction for Oath Breaking, which is capital punishment. We see in these another instance of where the development's decision to include models of non-physical attributes can provide provocative material for narratives, and we'll explore more of these in the case studies.

But more relevant is how the specific implementation of these files and tokens contributes to the stories. While these files are how the proceduralism functions, it wasn’t necessary to make these files plaintext and openly editable. That decision has interesting consequences for players and authors who become curious about the inner workings of the game or want to experiment with the possibilities of play. What makes the use of tokens and raws as implemented useful for play is how they can be used to reconfigure the usual conditions, even explicitly for storytelling purposes. For instance, one author, AlanL, has written several stories from the perspective of kobold adventurer.

_A Kobold Quest_55 and its sequels are stories featuring a main character who is a kobold, a species not normally playable, and usually regarded as a pesky annoyance. By duplicating and adjusting the tokens which indicate what kinds of characters are playable, AlanL was able to create a game in which a normally despised non-player character became a protagonist. The stories in this series are based off of the use of _Adventure Mode_, the separate game mode in which players control a single character through a more traditional roguelike or RPG experience of receiving quests, exploring gave.

As AlanL describes the adventures of Fale the kobold adventurer, the adjustments brought on the modified tokens create a new set of challenges for both character and author. These data tables allow for a significant amount of editing, but only for those traits which are exposed in the data files. Players and storytellers can hack the tables, but not all of the algorithms which incorporate the values and govern their execution. So while the program takes the new data and incorporates it successfully, the essential rules of the game don't change. These rules are balanced and tuned to provide a tough but survivable environment for a dwarf, elf or human character: the smaller, outcast, kobold's path is more difficult than it would be for one of the officially supported character types.

In the case of this story, the author doesn't spend an extraordinary amount of time fictionalizing the modified tokens:

She was born into a warrior class, hence her last name\textsuperscript{56}. She would have likely been given a crossbow, and set at post for some adventurer to slaughter, had it not been for her ambitions. For millennia, the kobolds have been looked down upon as skulking filth, nothing but a nuisance, training fodder for new adventurers. Fale sought to change this, to prove once and for all that kobolds are a formidable race and deserve respect. She sought to do this diplomatically, to prove that kobolds were not stupid and malicious, and in preparing for this pursuit, she had spent time putting her mind to use, learning the language of the main civilizations as best as she could.

These ambitions were not strong enough at first, they would have been lost. But, on the 3rd of Granite, 1050, before she had begun any training at all, a dwarven adventurer came in and slaughtered everyone in the entire cave, including all of Fale's family. She fled the

\textsuperscript{56} Thimaiyilo, which is Kobold for “Siegedriven”.

66
cave, escaping with her life, but that was the only thing she had escaped with.

However, because the modifications to the raw file meant that AlanL began the game with a character unusually weak in combat, AlanL employs some clever gameplay strategies in order to maximize Fale's skills, and *these* are written about, both fictionally and non-fictionally. Thus, when a pair of jaguars attack the character early on, AlanL writes:

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The beast growled at Fale and accelerated to a run, Fale, not intent on fighting this thing at all, had already started running full speed away from it. Another beast of the same type appeared out of the darkness, making 2 pursuants.

*I think the administrator of this test is watching me cheat.* . .

She darted away diagonally then cut forward again, somehow managing the same pace as her unwanted followers. After a few endless minutes of frantic running, the beasts growled at her one last time, and ceased pursuit, apparently more interested in sleep than in making a meal out of a kobold.

and further;

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Fale took refuge next to a willow, and on a patch of chalk rocks, and begun practicing. She knew that she would be torn to ribbons if she tried to fist fight a swordsman, so she needed something with a little more range, even if it was a simple thrown rock. She aimed and threw at a distant tree. The rock grazed through the tree, and hit the tree behind it, sending a bird against its will into the air, which flew away, squaking at Fale. She aimed at a bush and threw, it arced beside the bush and past, landing in the dirt and driving a big cloud of dust in the face of a curious rat, who squeaked annoyedly and retreated back into its burrow.

*This is going to take a while.* . . *good thing I have all the time in the world.*
She threw, threw, and threw some more rocks, keeping going even as she tired herself. The sky cleared, the sun burned down, she kept on going. She kept on throwing until she was completely out of breath, unable to stand. At that point, she rested, confident in her improvements. When she no longer felt tired, she stood up and continued further, pelting random inanimate objects at will, and spreading into other training exercises.\footnote{http://www.bay12games.com/forum/index.php?topic=18145.msg179109#msg179109}

The process in the last paragraph draws upon the way that skill is increased in $DF$; like in many role-playing games, characters improve skills by repeating actions over and over. By throwing rocks repeatedly, Fale develops a stronger throwing skill, enabling her to overcome the jaguars at a distance, and so AlanL can proceed to tell a story that will not always end with the kobold being eaten in the very first encounter.

This kind of experience isn't unusual, nor does it seem very discouraging: players enjoy using these tokens to set up special challenges, but frequently make adaptations to both gameplay and story from the patterns these challenges set up. Just like with the world generation tools, players take advantage of the affordances of the software to present themselves (and others, since these are all from the user-submitted stories on the site) with new kinds of obstacles and situations, and take pleasure in incorporating these new situations into their stories. There is a kind of flow between editing the game to create new challenges and editing the game to solve challenges, and both of these can be used by authors.

Adjusting values in the raw files is one form of modding the game; there are other forms, particularly the use of third-party tools which allow for the editing of data in memory. These a
extended the reach of the tools, but not the essential relationship between the author and the software, and a deeper discussion will figure strongly in several of the case studies; I merely point it out here to suggest that the value of editability isn't just in the particular instance of the raw files, but is the way in which the structure of the code allows for a great deal of variation without breaking down or otherwise preventing clever interventions.

5.2.3 Proceduralism and Complexity

Part of the way the code accommodates such variation is because of the reliance on procedural content and complex system modeling. We've talked a bit about the ways in which the world generation system works to create a wide variety of outcomes from a few key pieces of information, and how those outcomes, in the form of spaces, lead to different kinds of stories. But now I'd like to focus on the fact that the rules governing the relationship between input and output are not random; they are algorithms and formulas located in the software. As stated earlier, this is working off of the idiomatic understanding of “procedural content”, rather than the more specific idea of 'procedural programming', but illuminating the idiomatic expression will also show why the procedurality of Dwarf Fortress is such an important element of its complexity.

Procedurality here is in contrast to “randomness”, but also to “scripted” content. Content, in the gaming discourse, refers to art, text and other assets, as opposed to the 'rules' of the game, which are not assembled and displayed anew each time the game is played. The generative
processes in *Dwarf Fortress* use randomness, but only according to tightly constrained rules. Randomness is used in DF most often in determining the probability of an event, or in selecting one result from a list of possible outcomes. “Scripted” events are the kind of prepared, authored result common to most forms of storytelling media. There are gradations between the two, and computation isn’t the only way to move past linear as scholars like Espen Aarseth and Nick Montfort have shown (in *Cybertexts* and sections of *Twisty Little Passages*, respectively). But the particular method of integrating procedural generation in DF creates simultaneously a very responsive world and one with depth that matches the player's ability to manipulate and explore it.

For instance, the personality traits of a given character are not determined in advance: every time a player begins a new fortress, seven dwarves are generated, with their personality traits arranged and selected from the list.

*Illustration 13: Personality Screen of a dwarven mayor*
The World Generation processes uses plenty of static data: for instance, a table of phrases is used in order to find components of names for various regions. But any given name is a randomized instance of that table, with pieces selected according to grammatical, if not semantic, rules. The types of civilizations available isn't random, but is affected by the presence of certain 'tags' in an entity file.

An excellent example of how procedural rules work in DF is the creation of legendary artifacts. Sometimes, players receive messages announcing that a dwarf has entered a Strange Mood.

![Illustration 14](image-url): At the end of a Strange Mood, this dwarf has successfully begun to construct an artifact.

There are a set of conditions that must be met in order for a dwarf to enter a Strange Mood.
For starters, there's a maximum number of artifacts created in the fortress, which grows as the fortress increases in physical size, population and wealth. If these conditions are met, then a timer begins to count down. When the timer reaches zero, there is a check at a probability of $1/500$. On that .002 chance, an eligible dwarf will be afflicted with one of five different Strange Moods. Each of the Strange Moods has a slightly different effect: Possessed dwarves will attempt to create an artifact but will be unable to gain 'skill' in their craft by doing so, while the aptly named Macabre moods require the use of dwarf bones or leather for the artifact.

Once a dwarf has entered a Strange Mood, they will quit whatever their current task is, and move to a workshop. Once they have arrived at the workshop, the dwarf will begin to go across the entire map, collecting materials for a legendary artifact. Dwarf Fortress generates a list of materials, taking into account the preferences of the dwarf and the extent to which the map has been explored\(^58\). This list of materials is partially dependent on the materials available in the fortress, partially dependent on the Preferences of the character, and partially dependent on the skills the in which the Moody dwarf is trained. If the dwarf is unable to find or reach one of the required materials, he or she will sit in the workshop and wait for it to become available. After a certain, indeterminate length of time (around 2 months of in-game time), the dwarf will enter one of three Very Bad States: suicidal melancholy, a babbling madness, or a berserk frenzy. All of these are are eventually fatal. If, however, all of the materials can be found, they are

individually hauled back to the workshop, where the dwarf “begins a mysterious construction.” After a few days (in-game) of work, the dwarf emerges with a legendary artifact.

Artifacts are highly valuable, carrying a special modifier that puts their worth well above other crafted items. In most cases, the dwarf becomes a legendary craftsman in his or her own right, as the 'experience points' granted by crafting legendary artifacts are much higher than for other items as well. These objects have unique names, derived from string tables in much the same way as civilizations and nations during world generation. Each of the materials used in their construction is turned into a decorative feature, resulting in ruby-encrusted obsidian millstones or gilded cabinets with spikes of cat bone. They can also contain representations, which we will discuss shortly.

Note that the requirements to craft, for example, a legendary sword, are of a very different nature than crafting a legendary sword in World of Warcraft\textsuperscript{59}. In WoW, the process is complicated, involving a long string of quests that are the same for all players, many different kinds of fights to win, and journeys to several different areas. Nevertheless, in World of Warcraft, the process of creating this item has a predictable outcome, requires a uniform set of materials every time, and almost every step is initiated and directed by the player.

The difference between these two models is continuous, not abrupt; there is a continuum between pre-generated data, and the use of computational procedures to extend that data.

\textsuperscript{59} E.g., as described in the Wowwiki entry for the item “Thunderfury”: http://www.wowwiki.com/Thunderfury,_Blessed_Blade_of_the_Windseeker
This continuum is explained further by game designer Chris Crawford as a ratio between “process” and “data”. The state of leaning more to one way or the other is said to be, respectively, “process intensive” or “data intensive”. Data-intensive software relies more heavily on static information for content, using the mathematical capabilities of computers to present that data (i.e., to draw images quickly, or to play back pre-recorded sound files) while process-intensive software instead uses computation to affect a smaller amount of data. It is important that it is a ratio because no computational software is purely algorithmic or purely data-based: Dwarf Fortress is full of tables and static data. But it is what is done with those tables that could quantify the process intensity of the game. Crawford suggests that process-intensive software is valuable in games because it shifts the focus of the game away from static content created by artists and writers. In the place of this static data is behavior, and as Crawford points out, because the behavior of a process-intensive game is “indirect, you're never certain how it will behave”.

The interconnected nature of these systems means that the output of any one system feeds into other systems as input. Because these systems affect each other, attention or efforts in one area can have effects in disparate sections of the game. Because the artifact creation process takes so many of its inputs from other sources in the game, it is an excellent example of what procedurally-based game mechanics create. As Crawford points out, the products are unpredictable in the specifics, even for players who are familiar with general dynamics of the systems in question. But because of the structured use of procedure, we can recognize that unpredictable is not the same as 'random'. Players can shape the outcomes indirectly, and

60 http://www.erasmatazz.com/library/JCGD_Volume_1/Process_Intensity.html
61 http://www.erasmatazz.com/library/JCGD_Volume_1/Process_Intensity.html
scrambling to understand and find the specific material that a Strange Mood is calling for is a fairly common (and fun) element of the gameplay, especially as the rewards for successfully completing an artifact are so high.

Illustration 15: The description page of an legendary artifact millstone, decorated with gems and bones.

5.2.4 Anthropomorphism, History and Civilization
The decision to model systems like the creation of art end up having a large impact on the narrative potential as well. Many roguelike and simulation games make no or only cursory attempts at modeling the interior life of characters, while many games that are marketed based on narrative or dramaturgical potential do so through the use of pre-written plotlines and traditionally authored characters.

Instead, Bay 12 games built systems for modeling a number of non-physical elements. We've
already discussed some of the ways in which civilization-level behavior is modeled in our discussion of spaces. But there are also models for fortress-level systems like trade relations, elections, and shared lore, as well as individual psychological states of characters, including interesting behaviors like forming romantic and social relationships, or the creation of art. While sticking largely to the plot cliches of the fantasy genre, the game was purposely built such that these cliches could arise from the models ("Dwarf Fortress is aspiring to be a fantasy world simulator in which you can basically run any kind of tacky fantasy trope that you want")\(^{62}\). The choice of what to model proves just as fruitful as how to model it.

The 'representation' which we sidebarred in the previous section is an example of the creative power of these procedures, and demonstrates yet another high-level quality of Dwarf Fortress' design, the use of persistence.

Dwarves create 'art' in several different contexts: as decorations added to crafted items, as engraving carved into walls and floors, and as part of the artifact creation process. Engravings are done frequently in order to increase the value or quality of rooms, as when nobles demand a Grand Bedroom for their accommodations. Decorations might be added to increase the value of trade goods, in the form of leather patches or platinum studded furnishings. For artifacts, the additional materials beyond the first each serve as form of decoration.

Listed on the Description page of an artifact are all of the decorations applied. Of these

\(^{62}\) Gaschignard/Adams interview (2009)
decorations, some are generic (“spikes of goblin bone, Bloodstone and Pig tail63), but other decorations are specific representations or images “tall crosses” and “an image of a dwarf”. Representation here is taken in the naïve sense; a picture of something, as opposed to either an abstract design or the thing itself. In the example from the (fictional) world of DF, there's a statue (the presentation) and on the statue is a picture of a statue (re-presentation).

These representations are culled from a variety of sources, like Preferences and Thoughts, but include an additional layer as well: the history of the fortress, the civilization, and the individual Dwarf constructing the representation. Each civilization has a special icon, for instance, and individual cities and fortress are represented with icons as well in a kind of heraldry. The game includes systems which document 'noteworthy' events, like the death of a dwarf or the kidnapping of a child. The creation of artifacts themselves counts as a noteworthy event, leading to creations like a stone statue which contains an image of itself on it, leading to a recursive pattern, like a mise-en-abime, or the Droste-effect64

63 “Pig tail” here referring to a particular kind of cloth, and not a hairstyle or the porcine appendage.
64 The Droste effect is named for a brand of Dutch cocoa powder
Illustration 16: This stone statue is described as bearing an image of itself in the same material it is made out of.

Illustration 17: Droste Cocoa Label, Courtesy of Wikipedia
But if dwarves create images and artifacts with representations of important historical events on them, who do they create them for: other dwarves, or for the players?

### 5.3 Architecture of Choice

The creation of art and artifacts also stands as an example of the third form of narrative architecture, **architecture of choice**. By embedding notable events in the physical spaces and artistic objects of the fortress, the game’s design allows players to see what the dwarves think of the world that they live in. But it also gives players a chance to see the effects of their decisions over time.

The strongest aspects of the architecture of choice are the open-ended nature of gameplay, which allows players to come up with their own goals, the persistent aspect of the game’s design, which amplifies player choices and decisions over a long period of time, and the indirect and abstracted interface, which require players to make decisions without perfect information.

These capacities are also embodied in a number of features in the game that exist in order to encourage players to revisit old fortresses, recount their events, and to think carefully about the options available to them. The narrative architecture that creates this is a purposeful and powerful element of the storytelling model that Bay 12 has employed in *DF*.
5.3.1 Open-ended Gameplay
The structure of gameplay in Dwarf Fortress gives players significant freedom in what they do within the fortress. Variously described as open-ended or sandbox, it isn’t divided into themed 'levels', there is no end boss, and no win condition at which point a player has completed the game. As Kurt Squire points out, open-ended games “are known for their status as context for creative player expression, with multiple solution paths “ and “are less about inhabiting a particular type of identity. . .and more about inhabiting a world from a general perspective”. In this way, open-ended games, particularly those with complex simulations that allow for different kinds of strategy, work as “possibility spaces”, in which individual players can trace a variety of paths. 65

Very little in the way of specific actions are required in order to maintain a fortress, allowing players to experiment with alternative strategies, and the game's simulationist model permits a variety of approaches to deal with challenges. The game still provides those challenges (like the appearances of sieges or Strange Moods) and there are ways to lose, as when a fortress collapses. But as long as at least one dwarf has food supply and a good mood, there’s room to continue playing and to adapt that play to suit a particular style.

Since the game doesn’t push players to specific objectives or artificially gate options, players have substantial freedom in shaping their own goals. The possibility space of Dwarf Fortress provides a powerful toolset for player creativity and experimentation with the system, as when players discovered how to use the hydrological and mechanical simulations to create

65 Squire, 2008
computing devices within the game\textsuperscript{66}.

If the open-ended gameplay of Dwarf Fortress can lead to creative experiments and technical creations, there's no reason it couldn't be similarly harnessed for storytelling pursuits, as well. For instance, the creation of the pirate ship in valcon's Pirates of Fondled Waters is based around taking a very unusual approach to fortress building, adding additional constraints and limitations to gameplay than normally found during play. Since DF doesn't have time limits or artificial barriers to portions of gameplay, valcon was able to spend a significant portion of game time on the construction, and work around many of the usual requirements of a fortress.

\textbf{5.3.2 Persistence of consequence}
The representational artworks of important historical events are one example of how Dwarf Fortress implements \textit{persistence}. Persistence is usually used in computer games to describe online multiplayer games, and refers in computing to data which 'persists' between executions of a program. While technically any game with a save file 'persists' in this way, the developers trace the specific form of persistence in Dwarf Fortress to a different historical form of record keeping:

\begin{quote}
Perhaps even a stronger push than Hack's "bones" files in the direction of persistence is that we've always been fascinated with high score lists . . . in that they are the only record of all that time you just spent (and we spent a lot of time playing!). We were always careful to give our roguelike characters different
\end{quote}

\textsuperscript{66} http://www.dwarffortresswiki.net/index.php/Computing
interesting names for the list (and, in the ones that allow you to name other creatures, to name the creature that killed us), so that the high score list would have as much information as possible until the high score list was a kind of hall of legends. I think that kind of record keeping (which we also did drawing notebooks full of Starflight lifeforms) is a window on both the persistence and legends/story-telling aspects that figure so prominently in what we're trying to do now. \textsuperscript{67}

The “bones files” to which Tarn Adams refers are a feature of the Roguelike game \textit{hack}\textsuperscript{68}, and its descendant Nethack which were updated upon the death of a player character. These files would contain a record of each PC’s achievements, equipment, notable events and a description of the monster that killed\textsuperscript{69}. When a particular level of the dungeon was loaded for which a 'bones file' existed, there was a random chance that the file would be incorporated into the level data. If this happened, the player entering the level would encounter the same level that the dead character had (violating the standard ‘random’ generation), including a ghostly version of the dead PC.

But the stronger push that Adams describes is even more personal than the bones files: names and personal touches into a legendary record. The art and artifacts and histories of Legend mode appear to be a beginning step in fulfilling this aspect.

Players are encouraged to revisit old fortresses in a variety of ways: a separate game mode, Legends Mode, allows players to examine the historical records of their worlds, and a player in Adventurer Mode can find these engraved representations and even see which specific

\textsuperscript{67} Tarn Adams, personal interview over e-mail
\textsuperscript{68} Ancestor to Nethack
\textsuperscript{69} Dylan O'Donnell, Kate Nepveu, Dan Fabulich, (2005) http://www.steelypips.org/nethack/343/bone-343.html
events they refer to.

Illustration 18: This engraving depicts the symbol of its home civilization.

Illustration 19: A sample description from the Age of Heroes in Legend Mode
But the function of these is not intended for the dwarves themselves, as yet; rather, it is aimed at enriching the player's experience of the world.

While other games which make heavy use of procedurally generated content tend to reset themselves at every play, *Dwarf Fortress* encourages replay by giving players additional feedback about the consequences of their decisions. Instead of supplying a score, *Dwarf Fortress* notes a player's progress by giving them new spaces, images, and descriptions. Moreover, many of these are based out of the same kinds of procedural systems as the rest of the game's content, and are framed as expressions of the inner mental life of the game's characters. The player thus is not only asked to reflect on their own actions, but on how their actions have affected the lives and minds of their dwarves. Most games do not give players the opportunity to play muse, but it seems *Dwarf Fortress* encourages this.

Through the procedures of the game and the player's set of interactions with the world, a unique history is developed for each fortress. This history isn't just told to the player in the abstract roll found in Legends mode, but is filtered through the dwarves themselves, in the form of representations and images, as though they were documenting a culture.\(^70\)

If we were anthropologists (pygmologists?) examining dwarven objects, we might have a lot to go on: the creation of representational art referencing specific historical events is a fairly complex undertaking. But features incorporated into DF encourage players to play the role of, if not cultural archivists, then archaeologists, giving a number of ways to revisit, play through, and understand the day-to-day lives and perspectives of their dwarves.

\(^70\) This feature can be activated in “Fortress” mode, by editing one of the text files, but it is deactivated by default.
and examine the historical records of fortresses. These features come a focus on preserving the unique set of choices and events which mark a player's path through a given game.

What this implementation achieves is not persistence of existence (like in most MMOs), but the persistence of actions – and their consequences. Combined with the procedural relationships of input and output and the many connections between systems, decisions made by the player can have powerful ramifications in both short-term and long-term gameplay. These decisions are reflected in the represented spaces of the game (as we saw in spatial narrative architecture), and in the output of the various procedural models (as we saw in code). Player decision-paths over the course of any given fortress maintain some degree of unique history, and one that isn't merely kept in the memory of the player, but is inscribed on the world.

5.3.3 Feedback and Choice
If, as I made the case earlier, Dwarf Fortress has complexity in the significant number of potential outcomes relative to the number of inputs, now we look at some of the formal properties in which those inputs are structured, especially when it comes to how players are able to interact with the game. The way in which all of this complexity is communicated also plays a role in shaping the choices available to players. The abstract-yet-representational style of the graphics, and the indirect nature of the menu-based interface both to provide a useful layer of opacity to gameplay, a layer that can be tapped by authors for creative storytelling.
5.3.3.1 Jobs, Menus, Designation: Interface

Throughout Fortress Mode, players act at a distance on the game, without an embodied avatar; even when a cursor is available, it is abstracted as 'X' and not, say, a pointing arrow or a hand with extended finger. The implementation of the interface, described earlier as abstract, indirect, and contextual, contributes somewhats counterintuitively to storytellers, by giving the game a sense of 'independence' that is key to making it function as a world populated by individual agents.

Players do not have control over all these parts, but often only indirectly can influence them. This indirect control over interconnected and complex simulations make for an unpredictable, dynamic system. Because of this, feedback is key: feedback to the players in terms of information made available in response to decisions, and feedback within the game across different systems. The first means that a player's understanding of the game and its mechanics has a large effect on their ability to get particular results. Knowledge of the game's systems and mechanics allows for a larger degree of control (still far from absolute); conversely, those game functions over which a player has little-to-no-control can become sources for imaginative and creative re-interpretation. One simple version of a story like this is recounted by user Nerserus:

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I need to release some GODLY RAGE!

Well, as you might have read in another thread (Hey, that rhymes! Anywho) that my axe dwarf Bomrek, got his leg broken by a thief... Yeah, embrrassing, well, i tried to make a well to actually keep him alive. My miner was doing great, everything was going to plan. THEN. At the last freaking second, a child thinks it's a great idea to run inside the flooding well. Luckily he escaped and all was swell. Until: Datan Uristkib, Baby has drowned.
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Yeah. So, this "Caring dwarf brother" apparently went into the well with his baby bro, and kinda. . . Left him there. . . The miner not really giving two shits kind of carried on channelling ( I know i told her to but, i didn't even know it was in there and it was kind of common sense ) suddenly miner: "OH MY GOD MY BABY! HE IS DEAD AND IT'S ALL NERSERUS'S FAULT BECAUSE I DIDN'T SAVE HIM, YEAH, THAT'S MY STORY AND I'M STICKING TO IT. . ." Seriously. When i thought dwarves could not be anymore retarded, that happens. WHO LEAVES, A BABY IN A FREAKING WELL?

At any rate, the only annoying thing about Dwarf Fortress is that fortress mode is a brutal twisted blend of "Dwarves doing everything themselves" and "You cleaning up the mess and solving the inevitable problems", honestly, i never saw this coming, i may sound like i'm over-reacting, but so would you if you just saw a child go into a well, leave his brother there, then just casually walk away as he drowns. If that were not a child, me thinks chasm + dwarf = Splat.

EDIT: Slightly amusing note, the child has "Lost a sibling recently" ( Thats because you left him in a well you dumbass ), yet it says: ESTATIC!, i can imagine him talking to another dwarf:

Urist Mcmayor: "So what did you do after i iced an Orc thief with my bare hands?"

Urist Mchild: "Well, i threw my brother down the well, and he kinda drowned, i also saw the same bed i saw every day, and for some reason it kind of made me feel better about being a heartless retarded ass-hole. So to celebrate i got pissed and randomly talked to people about how happy i am now that my sibling is now 7 feet under water and we'll never retrieve his body."71

Nerserus' story turns on the fact that individual dwarves carry out jobs, but the player can

only designate what jobs are to be performed, and can crudely control who does it by adjusting which dwarves can perform what jobs. When they get to it, and who or what they bring along, is much less under a player's direction.

Sidebar: Interface, Complexity and Audience

The interface of *Dwarf Fortress* is complex, powerful and detailed, but it is also very obtuse and difficult to learn. In the language of user interface design, it has low "usability" (Glinert, 2008), and it would be remiss to ignore this aspect of the game. The controls are inconsistent from menu to menu, with different buttons to advance or cancel in different screens. There's little mouse support, and the keyboard controls require use of the number pad, which is difficult for laptop users. The tutorial provided in-game is all text, with little contextual advice to players. While the use of player-created video tutorials and the wiki help mitigate this, it still presents a high barrier to entry, and probably dissuades broader audiences.

Obviously these systems can be confusing, and are not perfectly transparent even to fairly experienced players. But while it may be an obstacle to some audiences, it also provides a layer of abstraction over the game's events that provides a fertile gap for storytellers to fill in. Storytellers like Nerserus are able to fill in the gaps with elaborate imagined scenarios, intentions and actions. The substantive back-and-forth of control proves a valuable source of inspiration and constraint on storytelling, as we shall see in some of the later cast studies, as it allows authors to fill in or create new gaps in the world status.

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72 Glinert, 2008
6 Tellable Moments

So far we have elucidated why player narratives might be an interesting example of narrative in games, and we have examined the design of Dwarf Fortress in terms of narrative architecture. But it is not entirely clear what the relationship between that narrative architecture and the player stories might be. I contend that the forms of narrative architecture give rise to player stories through tellable moments. If narrative architecture is the work of the developers of Dwarf Fortress in enabling player-authored stories, then tellable moments are what the authors take from the game in order to tell their stories. These moments are the ties between the game and the stories of the players.

I have previously mentioned that the categories of narrative architecture are somewhat formal and abstract; in the course of play, they are not necessarily so clear-cut. Similarly, the stories that players tell draw on many different sources. I don't think we could explain all of the content of the stories through this method: as authors bring in characterizations from television\textsuperscript{73} or embark on philosophical allegory\textsuperscript{74}, their stories pull from a wide variety of interests. The authors are creating texts by combining the materials of gameplay with a variety of other bits and pieces, and this creative appropriation needs to be remembered when we look at the stories.

\textsuperscript{73} As when one of the authors in the story Boatmurdered references the HBO television show Deadwood through the gruff, expletive-prone dwarf narrator Ral "major failure" Swearengen.

\textsuperscript{74} Heavy Flak, the primary author for Migrursut, makes allusions to both Atlas Shrugged, the novel by Ayn Rand, and the videogame Bioshock in the course of the story.
It is this kind of creativity that is at the heart of my skepticism regarding the “transcription” view of player narratives, that players merely 'record' the events of the game in their stories. As we established earlier, antiquated models of the developers maintaining absolute authorial control of the story doesn't make sense when thinking about the open-ended nature of gameplay, and neither do those models account for the stories that players tell. It is more interesting to ask why players share some moments, and what role the narrative architecture plays in their authorship.

6.1 Defining Tellable Moments
What are Tellable Moments? As suggested above, tellable moments are the storyteller's answer to “What is the point of this story?” But there's a bit more structure that is worth exposing for the future purpose of examining tellable moments in the player stories. The term is borrowed, originally from sociology, but I take my initial cues from Marie-Laure Ryan and Lisbeth Klastrup's uses of the terms in analyzing narratives.

Marie-Laure Ryan identifies tellability as an important quality of moments or points in a story: the reason why a story is told, and why it has resonance or interest for a listener. Tellable moments are moments with “potential narrative appeal”\(^{75}\), moments worth re-telling. Looking for tellability doesn't imply that the stories are told well, as “realization is governed by performance”, but rather asks how and why a storyteller chose to relate some event in some manner. As a narratological note, tellability is also restricted to “properties of plot” in

\(^{75}\) Ryan (1991), 149
stories, rather than thematic elements or archetypes. Essentially, we need to keep two things in mind about tellable moments: that authors are selecting moments to tell, and that they are doing it with a particular audience in mind.

Ryan notes that some tellable moments “are heavily dependent on cultural fashion and current events,” but argues further that “substantial points cannot be left out of a theory of tellability, but their study is not particularly interesting. It begins with a catalog of themes, motifs, and topoi, and ends with the reasons for their appeal. Far more compelling, and in need of more work, is the study of the formal properties that support tellability.”

The formal properties of the game as they comprise a narrative architecture were examined in the previous chapter, and in the next we will examine several stories and a few key tellable moments. Rather than catalogue all possible kinds of moments, I propose to examine events that do depend on the narrative architecture of the game, and lay out how those events become tellable moments in the player stories.

First, I’ll lay out what tellability means in the context of narrative architecture and how we might recognize it, and secondly I’ll lay out some features of 'moments', since it is not as clear-cut as might be expected.

### 6.2 Pattern-Building and Breaking Expectations

Tellability comes from patterns, either in their establishment or in breaking. Moments can be

76 Ryan (1991) p.149
77 Ryan (1991), pp.154
used to establish a pattern or set a tone for later moments, or to surprise readers with an unexpected outcome. Conversely, a moment can be tellable because of the way it breaks expectations.\textsuperscript{78} Events that are unusual form the crux of individual arcs.

\begin{quote}
In order to be tellable, a story must have a point. [. . . .] In most pleasure-oriented narratives, points of interest are varied and distributed throughout the text. “Narrative point” becomes in this case synonymous with “narrative highlight”. A theory of tellability implicitly regards plot as a sequence of peaks and valleys, and seeks out the formulae for building up the peaks.\textsuperscript{79}
\end{quote}

The idea that narratives can be seen as “peaks and valleys” isn't unusual,; many writers are familiar with the concept of narrative arcs, or Gustav Freytag's model of dramatic structure\textsuperscript{80}. But the salient features of tellability as a tool of analysis are how it maintains the attention on building patterns, while also keeping in mind the relationship between author and audience.

Of course, many different kinds of patterns exist in games; Raph Koster's \textit{A Theory of Fun}\textsuperscript{81} posits a model of game design based on patterns, arguing that games provide pleasure by allowing players to recognize and solve complex patterns. In \textit{Dwarf Fortress}, the use of proceduralism and complexity are particularly important in establishing patterns: the defining aspect of proceduralism is applying the same process to different data. And the unpredictable complexity exhibited in the interconnected simulations provides enough ambiguity to keep players guessing at the results of their actions. Lisbeth Klastrup points out how in computer games, the use of complexity provides a useful way of achieving tellability:

\textsuperscript{78} Ryan (1991) pp. 152: “According to the principle ,events are tellable if they are unusual, problematic, or scandalous”
\textsuperscript{79} Ryan (1991). pp 150-151
\textsuperscript{80} Freytag (1894)
\textsuperscript{81} Koster (2004)
“The more complex the chain of events, the greater chance that unexpected turns of events will also take place, including the possibility of deceptions, potential conflicts (with opposing classes, NPCs, other players' interests) and following, the emergence of something 'tellable'.”  

Between these two aspects we begin to see the necessary conditions for tellability, but by no means are tellable moments limited to these two qualities of the game's design. Some of the moments within the stories are used to build new patterns:

Many events are not told for their own sake, but for their illustrative value: their function is to fix an atmosphere, outline a milieu, reveal the personality of characters, promote a symbolic or allegorical interpretation.  

Authors aren't just dealing with patterns in the game, but also patterns in the readership. Ryan takes from sociologist Wilensky the idea of “strategic points”, the kind of points which deal with authors using moments to build new patterns:

'A dynamic point is one in which a story event violates a previous expectation,. Such points include irony, surprise and humor.' According to Wilensky, the violated expectations can be those of either characters or reader. While the violations of the character's expectations are a matter of content, the manipulation of the reader's expectations is mainly a matter of presentation and forms what I shall call a "strategic point".

These strategic points can be responsive, being transformed as an author provides context to a given moment. But they can also planned, or at least planned for, as the authors grow familiar with the patterns of a particular fortress. Players know the kinds of events which can occur,

82 Klastrup (2003), pp.286-7
83 Ryan (1991), pp.150
and as they grow more knowledgeable about the game’s rules, they recognize some situations as turning points with multiple possible outcomes: and more to the point, they can recognize when one of those possibilities might have dramatic impact. Because of this, authors can exploit their understanding of the mechanics and their audience’s expectations of the game to create tellable moments designed to highlight, accentuate or reveal a situation “full of narrative possibilities”.

### 6.3 Where do moments come from?
If the previous section was laying out some of the basic forms of ‘tellability’, then now we should be clear about the basic kinds of moments. *Not all of the event that people want to talk about happen inside the game.* But the ones that do are especially important to us, because they show the special relationship between the worlds of the game, and the worlds that authors create in their stories.

So am I looking at the tellable moments of the game? Or tellable moments of the stories? It is getting hard to tell. It is important to be clear about the relationship between moments or events in the stories, and moments or events within the game. In Ryan’s exploration of the concept, the exterior references which authors relied on were philosophical worlds of textual possibility, while in Klastrup’s documentation of player stories, players were telling stories inside a shared game world. The stories we will be looking at aren’t told *inside* of the program *Dwarf Fortress*; but they aren’t independent of the program either.
In particular, tellable moments in *DF* are produced in three (related) ways. Some moments in the stories correspond directly to events in the game, others correspond to events located elsewhere (frequently, in the social milieu of the forums), but most are a hybrid of some kind of event in the story and some desire, goal or interest of the authors.

### 6.3.1 Game events become moments

Some moments clearly have their inspiration in an event located within the game: the discovery of a vein of valuable metal, the arrival of a nobles within a new season’s migrants, or the completion of a new artifact after a Strange Mood are exciting moments in the development of a fortress and, because of the narrative architecture of the game, they are rich with possibilities for tellable moments: are the nobles merciful and patient with their mandates, or are they cruel and capricious, regularly demanding windows made from rubies?

We need to remember, however, the essentially creative act of storytelling, and the fact that authors change, edit and transform the moments in telling them as pieces of a story. The most absurd model of game-based storytelling would be like Borges' map which is so accurate, it covers the territory it aims to represent\(^{85}\). But this isn't really what we see: any story about an event will emphasize some features and not others, and come from a particular perspective.

In some stories, the death of a character, the creation of an artifact, or the arrival of an immigrant wave provides an interesting moment to talk about. But sometimes, this is either outside of the author's interest or not noteworthy enough to warrant re-telling.

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\(^{85}\) From the story “On Exactitude in Science”
"Justification is a prominent factor of tellability for information-oriented texts, but if unusual facts make good news, they rarely sustain interest in fictional communication: making up improbable events is just too easy to do.\textsuperscript{86}

The insight that we should take from Ryan isn't just that people don't want to tell boring stories. It is also that we should recognize how, amidst all the creative possibilities of the written word or visual depiction, our authors aren't making up all of the events. They're looking to the game to help keep a sense of spontaneity, of semi-randomness. This is how the storytellers are using the narrative architecture of the game to create the necessary tensions for tellability.

6.3.2 Gameplay is shaped to create moments

The idea that the software generates moments on its own is an abstraction: player input is required for any events within the game to occur. But more important, the design of the game allows players significant room for shaping gameplay, which is often leveraged by authors for the purposes of directing the end of their stories. This is perhaps the core form of tellability in Dwarf Fortress: a kind of storytelling enabled by generation of moments from the narrative architectures of Dwarf Fortress, and the community has embraced it.

While Ryan focuses on tellability in traditional written stories, using concepts from computer technology to highlight the roles of complexity and possibility in the narrative form, and Lisbeth Klastrup offers a model of tellable moments based in virtual worlds (like massively multiplayer games\textsuperscript{87}, we are concerned with the tellability of moments in stories that are tied to gameplay. In Klastrup's model, the interactions of different agents (like multiple players,

\textsuperscript{86} Ryan (1991) pp.152
\textsuperscript{87} Klastrup (2003) pp.286-7
computer-controlled characters, or even the rules of the game all qualify as agents) are responsible for tellable moments. Similarly, it is the interaction of players with the software that give rise to most of *DF*-specific moments.

“Now, what can produce tellable events in a virtual world? It would appear to be events which might involve several or all action forms or agents: events which only consist of one action form involving only one agent (one man killing one monster) intuitively appear to be rather uninteresting, whereas complex events in a world like Modus Operandi or EverQuest could be those which present directed and more unusual experiences like longer quests, which often involve elements of both manipulating, navigating, socially interacting and coping with the world rules..”88

Here we might remember our earlier discussion about the unsustainability of sheer 'unusualness' as a sole criterion for tellability. While stories about dwarves needing to butcher cats or a fortress dying under the weight of a siege might be interesting the first time around, they bear much in common from one to the next, and over time lose tellability as a surprising or strategic event. In order to keep the flow of tellable moments arising, new expectations must be built up.

This is where the effects of procedural content, the presence of editability, and the open-ended architecture of choice take special precedence. Our mixed, hybrid player-authors shape their gameplay for the purpose of creating tellable moments. Since a product of this gameplay is stories, I would like to call the process of gameplay which produces these stories **narrative play**. Narrative play isn't necessarily about the intentions of the player, who may not be

producing stories like the subjects of this inquiry. Rather, it is a way to talk about gameplay which constrains future possibilities, either adding new dimensions, removing old ones, or giving them a different meaning and weight.

Sometimes, this is as simple as providing explicit constraints on gameplay possibilities, as Dadamah, the initiator of the thread “Nostalgia Fort, Using Old 2d Version [23_130_23a]” suggests:

We've all played DF through and through. We know how it goes. Z-levels, roadless wagons, hills, valleys, endless farming, the whole works.

Ha! No. This game is using the last of the 2D versions. That's right: No z-levels! Build roads if you want useful caravans! No FPS higher than 50! Reflood farms every year! Flooding rivers! Magma! Demons! Guild representatives! Dangerous depths!

Anyway, rules are similar to Boatmurdered. One week from the posting of the save for you to take your turn, or you are skipped. We revert on unfixable issues, like world floods and massive tantrum spirals. Feel free to steal ideas from places, hell, a lava cannon wouldn't really be a bad idea. No cheaty crap like huge long bridges to kill demons, but you can magma the chasm if you want.

Also no mining Adamantine. We are trying to survive here.89

Here, three player-instituted prohibitions are requested: returning to an older version of the game, preventing the world-ending phenomena of disastrous flooding or mining Adamantine,

and “no cheaty crap”. Reinforced by the claim that this fortress is intended to survive, the desire for interesting stories requires adding additional constraints to prevent boring sources of ‘excitement’. Even though their dwarves would be surprised or caught off guard, this is too predictable for the players; predictability is contrary to the rules of tellability, and thus, these events do not seem particularly tellable to Dadamah, or the other players who join in the fortress.

The imposition of these constraints on play bring to the surface the core of this player-authored storytelling, that it is somewhere between unfettered creative authorship\(^{90}\) and free, reactive play. Sometimes, tellable moments are sought out; other times, a specific moment is engineered into place; and some times, they are surprises that need to be dealt with. The narrative architecture constrains the moments that arise, provides boundaries on the kinds of patterns that can happen, structures the narrative play. The choice of whether and how to tell, however, is all on the authors.

So the question before us is how the narrative architecture of Dwarf Fortress leads to tellability. Again, I remind readers that the distinctions between the types of narrative architecture exist more for the sake of analysis than in the objects themselves: authors might take advantage of several affordances in the course of one moment or another.\(^{91}\)

### 6.3.2.1 Space

The narrative architecture of space helps contribute to tellable moments by presenting an

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90 If such a thing is even possible; I'm skeptical.

91 Do also bear in the mind that we are not accounting for all tellable moments within the stories, but rather, those which arise out of the formal structure and architecture of Dwarf Fortress.
environment that expands with player input and exploration to provide new possibilities. For instance, an author can use the discovery of a gold deposit to include the acquisition of vast riches and wealth into their story. More elaborately, a group might choose to start their fortress in a isolated glacier away from other civilizations, in order to tell a story about a lost expedition team, as we saw in *Nist Akath*.

The spaces of *Dwarf Fortress* can be shaped more literally for events with narrative potential, as well. Many community fortresses organize around a particularly elaborate construction, like *Mountainbanners*[^92], *Greatbridge of Oceans*[^93], or the ship *Bellsmau* in our case study *Pirates of the Fondled Waters*. And fortresses often feature constructions built to honor a particular event, character, or reference, as with *Migrursut*’s temple to Zefon, or the Axe mosaic from Veryinky’s *Copperblazes*[^94].

[^94]: http://mkv25.net/dfma/poi-283-theaxemosaic DFMA link
Yes, I remember.

It was a summer morning, forty-three years ago. We - my family and I - were to find a place to hide in the mountains and enjoy the quiet of the morning. We had come, as my family had come each year for generations, to the southern valleys from the northern mountain town, and we were here. But I was the eldest, I knew just fourteen. Of the last three of the Jungle of Piracy, we rode on a wooden cart, each driving a bullock, carrying large packs, to the mining town. I was riding on the cart, while my brother rode on the back. I was the eldest, I knew just fourteen. Of the last three of the Jungle of Piracy, we rode on a wooden cart, each driving a bullock, carrying large packs, to the mining town.

Yes, I remember.

Illustration 20: The story of Mountainbanners, a contest entry. Image generated through 3Dwarf. Illustration courtesy of user Fedor.
6.3.2.2  Code

The most prominent aspect of the narrative architecture of code that affects tellability is the nearly ubiquitous use of procedural content in Dwarf Fortress. The non-deterministic aspect of procedurality creates ripe opportunities for surprising outcomes, while the fact that it is still very much governed by explicit rule and data structures mean that players (rightly) can expect and rely on the presence of patterns.

We saw in the Butcher's Story how the presence of psychological models in particular led to tellable moments; these anthropomorphic traits lend themselves to the kind of interpretive richness of good tellable moments. Because the game provides a model of how dwarf minds and values work, the distance between psychological events in player stories and psychological events in the game world is shorter in DF than in games which do not model them at all, and players might be encouraged to think about the dwarves as intelligent agents, rather than abstract agents with no motives of their own.

But other elements of the narrative architecture of code can also be leveraged for tellable moments. The presence of edits and mods are used as tools to help shape the outcomes of procedural content. Klastrup, claims that "a world is not editable"\(^{95}\); but this appears to be a design feature of a certain class of game world, rather than a claim about worlds per SE. We can see authors leveraging editability to create tellable moments, both indirectly and directly. Indirectly, when they adjust features of the world in order to change the range of possible outcomes, such using tools to find particular hidden features on a map space or increasing the population cap of a fortress.

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\(^{95}\) Klastrup (2003) p.283
More direct examples happen when authors will exploit game mechanics or use advanced features of tools to edit the current game state in order to create, prevent, or alter events as they occur, in order to create specific moments necessary for a desired moment. One moment of this type in particular will be examined in detail in the following chapter’s case study of *Migrursut*, a multi-authored story about a haunted fortress.

### 6.3.2.3 Choice

The narrative architecture of choice, unsurprisingly, plays a significant and broad role in shaping almost all tellable moments within these stories. The abstraction of the graphics and interface creates a very strong gap between the events of the game world and relevant relationships among the systems underneath. In other words, players and authors are invited to use their imaginations regularly when imagining *DF* as a coherent world. To take an absurd case, none of the stories which I have seen describe a cougar as a yellow capital 'C', despite that being how the literal interpretation of their in-game depiction. In a less absurd case, we might look to how authors describe the relationships of dwarves, which are not represented graphically within the game, but enough description is given through text for authors to imagine thinking beings behind them.

On the level of control, we should expect to find tellable moments occurring at sites of conflict between dwarves; because players do not control the game’s characters directly, authors might be led to narrate about developments in a dwarf’s behavior or status to the audience. As with the psychological models, the individual dwarves are interesting because they are not
under the direct guidance of the player/author, but maintain some autonomy within the system. They are somewhat unpredictable, but because players can pause and examine their Thoughts, it is tempting (and entertaining) to treat them as agents with intelligence and personal motivations that can change over time, or in response to events.

Moreover, we are given a great deal of detail in some areas, but not in others. In Fortress Mode, dwarves do not speak with each other, but it is easy to imagine that they do when socializing, or when couples retire to their shared bedrooms.

The few ways in which players *can* influence a particular dwarf also generate interesting and tellable moments, there are several examples in case studies of authors building up to these decisions and using them to structure and shape other kinds of events and moments. The way that players are able to direct and influence the interactions of dwarves in the game affects how authors are able to use the game in their stories, even if they could have greater control over the characters in the stories. Conflict between the author's intentions and the game might be a fruitful source of moments, but it would be hard to know what the author intended, except in the case of out-of-character discussions or other extra-diegetic communication, and even then some skepticism may be useful.

Thirdly, the use of persistence transforms player choices by both making them more permanent, and by embedding them in the world. Permanent, because the implementation of save files and permadeath make it difficult to move 'backwards' or to turn back from a disastrous or unintended event; events are sticky, requiring significant effort to return back, if
it is possible at all.

Embedding moments and events into the world is best seen in the use of legends and history, and how the game encourages re-visiting previous explorations to see their effects over time. We will see two examples of this, one in the case study *Boatmurdered*, when StarkRavingMad engages in an archaeological expedition, and another in *Migrursut*, when we are given an elaborate backstory for the character Kuli.

### 6.3.3 Examples of non-game-derived events

Not all of the moments in a story need to correspond to events located within *Dwarf Fortress*. There are moments whose tellability arises not from events in the game or the machinations of an author. Some might map to the idea of “cultural fashion and current event” that Ryan notes. We can identify some of these, but we don't need to imagine that the only things players have to tell about are tied to moments in the game.

Sometimes players are able to tie these story moments to game events. For instance, when a new contributor to a Community Fortress signs up, they usually ask to 'adopt' a dwarf. This adoption is almost always a tellable moment from the community's perspective. These introductions always have a non-fictional social dimension to them, serving to welcome a newcomer to the group and often incorporating the requests of collaborators. Frequently, they are often worked into a moment within the game. Sometimes, they might be timed to arrive with a wave of migrants, or in other cases, a character is introduced performing some unusual

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96 Ryan (1991)
Tellability is inherently social: it is narrative viewed as sharing, not as reading, and the relationship between a storyteller and their expected audience is key. This seems doubly-true in the case of the community surrounding *Dwarf Fortress*, where knowledge of the game and the specific history of the community would function as a significant subtext to the written works. In generic terms, outsiders might not 'get' references from the software, as when particular phrases are repeated ("Urist McDwarf has been ecstatic lately"). More elaborately, some of these references might instead be sourced to the discourse of the forum participants and stories, like my usage of Urist McDwarf as a genericized Dwarf name\(^{97}\). Such events "can become part of a world's --or in-world community's mythology."\(^{98}\)

### 6.4 Tellability and Social Stories

The frame of tellability requires an imagined relationship between author and audience: the author intends a particularly moment to convey a sense of flow, to be a part of the peaks and valleys of the plot.

We might oppose the concept of 'tellable moments' to the idea of 'memorable moments', or "micronarratives'. Jenkins identifies “micronarratives” as one form for spatial storytelling: compact, emotionally dense moments located inside a text-- in his example, they are

\(^{97}\) [http://www.dwarffortresswiki.net/index.php/Urist](http://www.dwarffortresswiki.net/index.php/Urist); The argument for quoting the wiki here not being to rely authority of the statement in the wiki, but that a wiki entry for this name exists at all.

\(^{98}\) Klastrup (2003) 288
compared with Eisenstein's idea of “attractions”\textsuperscript{99}. He says these correspond with the cinematically-influenced developer vernacular of “memorable moments”, and some of the features we have described (like the emergence of demons from the mysterious pits, or a carving of the death of a loved one onto the fortress walls) seem aptly described by this term. But micronarratives are more isolated than tellable moments, which are sequential, parts of a larger whole. Moreover, tellable moments are moments which permit (and seem to require) \textit{sharing}. Tellable moments are not moments experienced which 'stick' in a viewer's mind, but rather 'spread'.

The social side of tellability is key to Klastrup's analysis:

\begin{flushquote}
It is worth noting, that the tellability most likely has greatest value within a community of users of the world, since they are the ones who are able to distinguish between trivial and unusual events. Hence, it seems that tellability is also closely related to an experience of sharing and being part of a community of equally interactive peers.\textsuperscript{100}
\end{flushquote}

This also seems true for the stories that arise from narrative architecture, even though her sense of “users of the world” is different than \textit{Dwarf Fortress} players, because of the single-player approach to the software. Klastrup accounts for tellability in virtual worlds, where participants are interacting in the same spaces as players (instead of authors, as in our case), storytelling can happen synchronously. By her definition\textsuperscript{101}, DF probably doesn't count as a virtual world. But it also has world-like properties, spatial relationships, a consistent set of global rules and common objects, and the ways in which choices and actions persist in their

\textsuperscript{99} Jenkins (2004)
\textsuperscript{100} Klastrup (2003) p.288
\textsuperscript{101}“Social Interaction is a feature unique to multiplayer games or worlds”, Klastrup p.274
consequences. And while (obviously) there is a high degree of social interaction in the forums, the presence of collaboratively authored stories represents a specialized form of such interaction. Moreover, the players, through the trading of save-files and the incorporating of collaborator requests and desire, have found ways to involve multiple players in the direction and command of individual fortress, as we'll see soon in the case of Succession Fortress.

Klastrup discusses how players, even in 'strict' roleplaying environments, will switch between fiction-embracing in-character voices and non-fictional (or at least, less fictive) out-of-character voice.

This is also apparent in many of the DF story threads, with authors using multiple voices even in the same posts, or using voices that are indeterminate diegetically: we can't always tell, for instance, if the author mariguana (of Boatmurdered) is writing as a character within the story, or outside of it:

<table>
<thead>
<tr>
<th>1st Granite 1052</th>
</tr>
</thead>
<tbody>
<tr>
<td>I came to this dump looking for a royal fortress. Instead, I found this hole in the dirt, complete with useless hillbillies.</td>
</tr>
</tbody>
</table>

And here:

| 3rd Felsite 1052: Some blockhead is holding my carpenter's shop hostage and demanding shells and wood. I've ordered the worthless immigrants to go fishing; who knows, maybe one of them will find a dead turtle on the riverbank. |

Some time later:
4th Timber, 1052: It's late in Autumn now and ANOTHER DAMN IMMIGRATION has arrived. Why didn't anyone tell me about this? I had everything nice and neat and... oh, forget it. I always knew I was destined for misery. ¹⁰²

But this polyphony doesn't disrupt the tellability of DF stories: rather, it is frequently a core feature. Authors switch between “the framing of the world as fiction” to “the framework of the world as a simulation” or even “the social network of which [they are] a part”¹⁰³, as Klastrup puts it. Klastrup goes on to cite sociologist Gary Allen Fine, who remarks that “possibility of oscillating between frames of interpretation of the social situation can actually be part of the fun of playing a (fantasy) game”.¹⁰⁴

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¹⁰² All from [http://lparchive.org/LetsPlay/Boatmurdered/chapter1-4.html](http://lparchive.org/LetsPlay/Boatmurdered/chapter1-4.html), author mariguana
7 Case Studies

7.1 Background on kinds of stories
The following case studies are presented in order to demonstrate the kinds of storytelling and narrative play at work. I will be examining them, highlighting key tellable moments within each story, and demonstrating how the author or authors of the story are taking advantage of the narrative architectures of the game for their specific story. Extradiegetic (or out-of-character) comments will be referenced, as they provide significant context and insight into the motives, practices and goals of the contributors.

Each story was originally posted on a publicly accessible website, in a subsection of forums designed for community interaction. The story Boatmurdered was originally written on the forums for the website SomethingAwful.com, but moved into the hosting website’s archives six months after thread activity stopped. When this occurred, a ‘compilation’ edited by a forum participant (Thanks, evilslug) was collected and made publicly accessible. The other two case studies (Migrursut and Pirates of the Fondled Waters) were written in the DF Community Games & Stories forum on the official Bay 12 Games website, are still publicly readable as the time of this writing. User Jamini on the Bay 12 forums curates a compiled list of “powerful tales, shocking accounts, and amazing feats of engineering” titled the “Hall of Legends”.  

These stories are picked because they are exemplars of a particular practice: long-form stories

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involving multiple authors. *Boatmurdered* in particular gained a lot of attention, and is frequently mentioned in reviews of the game, like those at Gay Gamer\(^{106}\), Penny Arcade\(^{107}\), Metafilter\(^{108}\), Quarter To Three\(^{109}\) and other game sites. These kinds of stories are not the only fan creations around *Dwarf Fortress*, as there are other locations and formats, including a web-comic\(^{110}\) and more traditional fan-fiction\(^{111}\).

For clarity’s sake, 'player' will refer to a contributor who is or has played the fortress in question; 'character' to an intelligent agent (usually dwarf) within the story, 'author' to a contributor who adds content into the story as it progresses. In the case of succession forts, this means that each 'author' is also a 'player' at some point. In the case of community fortresses, authors are further divided into 'primary author' and 'collaborators'. The primary author directly providing input to the software, and typically contributes the most writing to the thread.

There are some general shared attributes between these stories and the categories which they are examples of. First off, all originally took place on web forums, within pre-existing communities. Second, each is written by a team of collaborators, although the shape of this collaboration are organized differently for Succession and Community Fortresses.

There are several community conventions, a common form. Usually, an initiator makes an

\(^{108}\) [http://www.metafilter.com/63759/All-go-no-show](http://www.metafilter.com/63759/All-go-no-show)
\(^{111}\) [http://1d4chan.org/wiki/Journal_of_Kith](http://1d4chan.org/wiki/Journal_of_Kith), a story about a dwarf rediscovering the lost fortress... of *Boatmurdered*.  

111
invitational posting. In this post, they present the fortress, describing their particular 'take' on the fortress, often a challenge or unique setup. Often, they will post some initial screenshots of the world, region and local areas generated by the game, and occasionally post screenshots of the fortress if their initial conditions include a particular fortress design. Sometimes, this invitational post will include a framing story or in-character prologue, often setting up why a particular group of dwarves are sent to this location or are building a pirate ship or fortress made entirely of soap. Of course, there is also an invitation, a request for collaborators.

In Succession Fortress, collaborators sign up to take control of the fortress at a particular time, usually marked by either a passage of fictional, game time, but occasionally in real-world increments. In Community Fortresses, the first poster will ask collaborators to sign up for individual dwarves. Collaborators might ask for a dwarf of a particular gender, job or even personality, and usually give name , frequently either the same or a reference to their forum identity. In response, the primary author will try to accommodate their requests, balancing the desires of the players and the results of the random distribution of personality traits.

7.1.1 Why Collaborative Stories
Throughout the previous sections, most of the stories we’ve examined have involved a single author. While this form of storytelling is useful, I’ve decided to focus on the collaborative forms of storytelling as found in the Succession and Community Fortresses. This is primarily for two reasons: for one, it is in these formats that the authors talk about their process, occasionally discussing the methods and intentions behind their narratives.
Moreover, collaborative stories exhibit a strong sense of the social aspects of worldliness. For the members of the community, Dwarf Fortress is a social experience, and as Lisbeth Klastrup notes, “We cannot underestimate the importance of community in the creation of story in a world which is always already a social space.” Even when writing their stories individually, the authors are relying on shared conventions and expectations, in the patterns understood by their audience. Just as “a community of users of the world. . .are able to distinguish between trivial and unusual events,” communities of players foster shared expectations about interesting moments. While the process of collaborating may make talking about authorship a bit more complicated, it is actually simpler to model theoretically, as we don't have to attribute hypothetical models of audience to the writers, but can instead look at how they interact together.

7.1.2 Notes on Narrative Architecture
My initial hope was to look through the stories and find examples of each form of narrative architecture and isolate how they used their respective form. One would exhibit the architecture of code, another that of space, and the third, choice; in this way, I hoped to illustrate in detail how these forms are expressed in the hands of storytellers.

But this became less obvious as I went on, because neither the game nor the stories adhere solely to the categories of the theory. Rather, what differentiates them is the relationship the

112 Klastrup (2003) p.286
113 Klastrup (2003) p.288
authors have to generating moments from the game. The architectures are justifiable not because they lead to different kinds of moments, but because they work in combination to affect each moment in the game. And the important fact is that the game does not create the stories, but rather a material or substrate for them. In Boatmurdered, the story seems to be built on connecting these moments that occur within the game, while in Pirates of the Fondled Waters, the authors have taken a step back and consciously engineered a space rich with narrative potential; they use features of the code (intentional and unintentional) to maintain the functions of the space, in order to finish their story. In Migrursut, however, the authors have asserted a different kind of control over the space, choosing to edit much more frequently and deeply: Heavy Flak intends for certain kinds of moments to happen in the game, and works to ensure that those moments are reached.

This view (narrative play) is a spectrum of ways of using narrative architecture, a range of modes of authorship. At the end, I found myself asking: “why do they keep playing, why not just write fiction set in the game’s world?” But I don’t think I can provide a profound answer to that, because the answer is both obvious and non-obvious. I’m not sure as why they are engaged in narrative play as I am of how they go about it. This how is the narrative play that results from the outcome of decisions and choices within the game that give rise to tellable moments. Thus, the case studies presented are intended to demonstrate the fruitful collision of players, authors and the game’s designers in creating the collaborative stories.
The fortress of Boatmurdered burns, without and within. All is smoke and fire. Everybody is dead, save two. I ask you to picture a lone, abandoned child and the well-known madman Guerilla Burialgears outside the heavily decorated mountainside entrance.

The child plays in a bone pile, simpleminded and happy. She seems oblivious to the death and decay that surround her on all sides. Once a celebrated hero, Guerilla Burialgears has found himself helpless as this idiot child when he was needed the most. The would-be ruler silently mourns for the poor child's future while he knowingly and selfishly prepares to leave her behind. As he pulls on his pack and begins searching for the road, the girl suddenly yells "SHINY!" and thrusts a pebble toward him. Guerilla reaches out to take the smooth stone and rubs it thoughtfully between his fingers while returning an empty smile. The girl quickly goes back to her bones and he takes the opportunity to leave.

This is all he knows to do. Killing her would be a service, but his swords seem too heavy for the task. Or is it his heart? He once more rubs the stone and decides this is how it must be. He simply cannot kill her. One of the greatest dwarven warriors to ever live, unable to kill a child. He would find it pathetic and laughable, were he still sane.

Alas, his very soul is broken, along with his mind. The famed dwarven warrior now finds himself too emotionally weary to do more than mindlessly pilot his body toward safer fields or a pitiful and uncelebrated death. After a bit of searching, Burialgears finds the outline of the main road and begins to follow it toward civilization. The only coherent thought he can seem to muster will ultimately become his mantra and his sole reason for continued life in the early months of his upcoming journey: "Any place is better. I must press on."

I ask that you picture this dwarven champion pausing briefly atop the last ash-encrusted ridge in the distance. In the waning light of a setting sun, he looks back upon the gaping, smoking maw of hell's door one last time. At this moment, he finally sees Boatmurdered for
what it truly is; a wicked and foreboding blight upon the surrounding lands. The windswept and charred landscape robs him of any tears he might have produced. All are dead at Boatmurdered. The best dwarves he has ever known... gone. In his mind, the blood of the dozens he could not save will eternally stain his hands. In his head, he will forever hear the screams of the dead as they burned or murdered one another in the last days of the once-proud fortress.

Guerilla Burialgears absently tucks the child's rock into his pack and turns to leave for good; his head hung low. His words trail behind him as he disappears over the ridge. It is a haunting whisper, quickly stolen away by the wind: "All burn..."

And then he is gone.

High atop the cliff, a lone child waves goodbye and chases her gesture with the kind of carefree laughter only youth can enjoy. She then returns to her game with a pair of pretty stones, almost immediately forgetting about the nice dwarf in the shiny suit. This unfortunate young girl will come to be known in legend as "Dodok Sabrefrenzies, last survivor of Boatmurdered". In all cultures, both name and place will come to elicit hushed tones and ultimately grow to be synonymous with doom of the very soul, itself."

The story Boatmurdered revolves around the development and destruction of a fortress in a hot, elephant-filled jungle. Written as a Succession Fort with multiple authors each taking over the game in series, the fortress becomes a kind of exquisite corpse story, as the authors attempt to deal with not only the threats presented by the fortress' natural enemies, but complications arising from multiple players acting within the same space. The tellable moments here extend not in spite of the confusion but because of how the authors relate to it, turning a failure state in the game into a remarkably successful narrative about the dangers of dwarven expeditions.

114 http://lparchive.org/LetsPlay/Boatmurdered/chapter2-24.html
8.1.1 Background
The above passage comes from Boatmurdered, a story is well-known in the Dwarf Fortress community. As mentioned earlier, Boatmurdered can be attributed with bringing attention to Dwarf Fortress fairly early in its development. The story of Boatmurdered was originally written on the forums of the popular website Something Awful, with the first post on November 9th of 2006 by a forum user under the handle “TouretteDog”. It continued for several months, ending in March of 2007. The first forum thread (volume 1) began to slow down in January of 2007, due to a number of players becoming unavailable. The story was picked up in a new thread (volume 2), continuing off the same inherited save file. Fourteen players would join in playing the fortress, with additional non-playing collaborators also adding stories, screenshots, and drawings to the threads. The thread was eventually archived by a forum member by the name of Evilslug, and it is this archived version that will be referenced.

The thread is part of a larger tradition of 'Let's Play' or “After Action Reports” in which people document and describe their gameplay experiences. But what makes Boatmurdered particularly interesting to us will be how it is different from documentation of a single player's experience: the collaborative mode of authorship, the use of narration, and the experimentation with the world-state brought on by this different approach to play and writing. As a Succession Fortress, the fortress is played (and the story written) by multiple authors sequentially, as they trade game data from one player to the next, adding on top of each other's work.

115 Some examples of this attention were given earlier
116 http://lparchive.org/LetsPlay/about.php

117
The version used for this story is identified in the first post, version 22f, meaning it is the earlier, two-dimensional mountainside arrangement. Thus, the physical features of the fortress are fairly well-known to experienced players: the river, the chasm, the magma flow, and the adamantine caverns. Additionally, many of the models that exist in later stories are simplified here: there are no marriages, personalities and religious beliefs aren't yet implemented, and mechanical devices are simplified compared to their later versions.

The first, invitational post written by Tourette Dog\(^\text{117}\) contains a set of rules, outlining:

- a set of rules governing the transfer of the save file from one player to another, and regulating the amount of time each player was to play (one year in-game, within one week of play).

- A set of rules for players about the actual management of the fortress: certain tactics were asked to be kept off-limits.

- A “”mini-FAQ” containing basic game interface and access, including a link to a wiki about the game, so that players unfamiliar with *Dwarf Fortress* could follow along and jump in as needed.

Eventually, this post would be updated\(^\text{118}\) to include a section titled “*What's happened so far?*”, with rough synopses of each author's turn, and a “*Player List*”, containing names and links to the posts in which successive author takes over the story.

\(^{117}\)http://lparchive.org/LetsPlay/Boatmurdered/chapter1-1.html

\(^{118}\) The forum software, like many, offering an 'edit' feature, allowing individual posts to be updated without adding a new post to the thread's total.
8.1.2 Analysis
The first batch of storytelling comes in TouretteDog's first update, in the form of a prologue that sets the stage for the collaborators. It opens describing the reason for why the home capitol sends out a team (the Mountainhome has run dry of resources, driven by greed to search for gold and adamantine); already contains hints of the possibly (probably?) messy end:

**Prologue**
In the year 1050, the dwarven civilization of Kinmelbil, "The Oaken Tomes", exhausted the last of its mines. Driven by lust for gold and rumors of the priceless and all but mythical metal adamantine, a team of seven colonists was dispatched to build a new home for the dwarves of Kinmelbil in the Smooth Points of Pride. The first year of diaries from the ill-fated foreman of the mine were recovered, giving some hint as to the beginnings of the fortress that once stood there, if not its mysterious and presumably gruesome fate. . .

The framing story of “recovered journals” becomes a common trope in later stories, and for good reason. The utility of this framing story is that it allows for narrators to reflect and provide retrospection, but also keeps open the possibility that the narrator dies at the end, a distinct possibility when the only ways for a fortress to end are abandonment or destruction.

TouretteDog picks the starting crew and supplies. Unlike the Community Fortresses, the authors do not adopt characters yet: this practice doesn't begin until author Locus suggests it, several transitions in: “I propose that we each name one dwarf after ourselves when we end our reign and retire/get demoted for gross negligence. I can do that retroactively for previous rulers if you all think it's a good idea.”

119http://lparchive.org/LetsPlay/Boatmurdered/chapter1-2.html
120http://lparchive.org/LetsPlay/Boatmurdered/chapter1-2.html
121http://lparchive.org/LetsPlay/Boatmurdered/chapter1-7.html
But even at TouretteDog's early writing, the tone is already fairly pessimistic, and points to likely threats:

“The nearest civilization -- if you can call it that -- is a goblin citadel to the northeast. But the Guildsman swears they've surveyed for precious metals and this is the best spot. “

"Of course, he waits till he's leaving to tell us the name of the site...”

Using screenshots from various menus as part of the narration, TouretteDog sets up the story:

Illustration 21: This image is a screenshot of the archive page, in order to show how the author uses the screenshots alongside text. The individual images in between the text were included in the original story.

When TouretteDog implies a threat of goblin sieges, he suggests that their fate is already sealed, but this isn't what will trigger its later collapse. The selection of the space is important,  

122http://lparchive.org/LetsPlay/Boatmurthered/chapter1-2.html
because of the climactic conditions of the region in which the fortress is located – namely, warm, wet, savage and neutral. This sort of environment tends to be the habitat for elephants. At this stage of the game, elephants are powerful, aggressive, and very resilient. This is a problem, as we will see.

Later, same month

"God damn but there are a lot of elephants around."

### 8.1.2.1 Tellable Choices: Collapse

On the Dwarf Fortress wiki, the community has posted as motto: “Losing is Fun”. Part of the reason for this is being able to trace and lay out where the wrong step happened, and see the chain of events unfold as a fortress collapses. And if you, dear reader guess that such collapses would present tellable moments, you deserve your own statue. The climactic sequence of

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123http://lparchive.org/LetsPlay/Boatmurdered/chapter1-2.html
Boatmurdered focuses on the extended collapse of the fortress, and is a remarkable display of how the narrative architectures work across the decisions of multiple players.

We can begin to understand the collapse of the fortress by looking at the conditions that set it in motion. On the arrival of the author 'Sankis', the collapse arc begins to take shape for readers of the story. By this point in the story, each player-author is also adopting a dwarf to stand in for their 'manager' or 'ruler'. Sankis-the-author narrates in first person, with a character also named Sankis, so there's a bit of confusion that might arise. Sankis-the-narrator begins with a special construction attempt:

Since Goblin invasions and elephants have been a threat in the past, I planned to rectify it by ordering the construction of a series of channels to release lava into the world. I cancel all other orders and begin construction immediately.

The plan is to bypass the botched area that was done by a previous ruler. I am also planning on relying on only 2 floodgates. The pathway I have dug out will do the rest, guiding the lava to the outside and killing whatever threatens us.  

Here, he directly references the activity of other managers, and how they have affected the constructions he's been building.

“I am just about to release the lava over the river when I look outside. I notice the canals that the previous rulers had done extensive canal work. Were I to release the lava into the wild, these would instantly dry up on contact with the lava. Testing it now would be too risky. I will have to save it, else my "test" would make the most trafficked portion of the

fortress a steamy deathtrap.” 

But by winter, Sankis-the-narrator expresses surprise at the result of these constructions:

“Remember when I said shit was getting boring?

I take that back.

I have no idea what the fuck just happened. I was cleaning up outside a bit and mining out useless areas. By the gods!”

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125 http://lparchive.org/LetsPlay/Boatmurdered/chapter1-25.html
On the left of the screenshot, we see that a significant portion of the ground outside the fortress is covered in water (the blue ~ and ≈ characters). What has occurred is that one of the “useless areas” was holding in a channel of water. When Sankis marked them for mining, he removed a wall which preventing that channel from overflowing, and which is now emptying out into the playable (and crowded) space. The dwarf icon (the small face) has a blue background, indicating that the dwarf is underwater, and probably drowning, confirmed by another screenshot below. At least one dwarf has died, and many others are in danger from the flooding.

Sankis goes on:

“I get an idea to possibly save the fortress. If I release the lava I have trapped up, it will evaporate the water on contact. With nothing to lose, I do it.”
The release of the lava over the water creates a new effect, an enormous cloud of steam. Steam, which is very hot. And spreads quickly. Several dwarves die, but the fortress is kept safe from an otherwise unstoppable flood of water. The flooding phenomenon is known to occur (they even warn against it in the invitation), so it is not the surprise event of a flood that catches their attention. Sankis’ concern portrays the flood as unplanned and seemingly uncontrollable, but coolly heads it off with the lava. The importance of this moment is marked by a drawing that the user Zakuu offers.

Illustration 25: Image included in original story

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126http://lparchive.org/LetsPlay/Boatmurdered/chapter1-27.html
127http://lparchive.org/LetsPlay/Boatmurdered/chapter1-27.html
This pattern of attacking the elephants with steam continues into the second volume, and maintains a kind of equilibrium for a while: elephants attack, a dwarf dies, someone hits the lever and floods the outside world in twin torrents of piping hot lava and an icy flood, a few more dwarves die in the crossfire; it eventually becomes a bit routine. Routine until the author
marijuana decides, instead of waiting for the elephants to come across the river and attack, to strike at the elephants where they live:

**12th Hematite, 1063, Early Summer**

Today, the bridge to the elephants was completed. Oh, how they will rue the day that they opposed *Boatmurdered*!

Illustration 27: Image included in original story

Ahhhh, sweet magma.
OH GOD. OH GOD OH GOD OH GOD. What have I done? It is too late to stop the magma now. Ancestors help me!
So many, diary, so many... their blood is on my hands. And I can do naught to save them.

Ahahahahahahahaha! Yes, fool, yes... you have no idea how right you are.
The voice of death calls to you, humans!
Illustration 34: Image included in original story.

Illustration 35: Image included in original story.
Illustration 36: Image included in original story.

Illustration 37: Image included in original story.
The once-routine lava trap has hit upon a new complication with the arrival of a human trade caravan directly in the path of the oncoming flood. The sequence of screenshots depicts the progress of the lava (red ~ and ≈) towards the wagons of the human traders (the humans being represented with different shades of U). Eventually the chaos from this fire subsides, and the humans don't attack, despite the insult of losing a caravan. In honor of the narrow escape, mariguana begins constructing a monument in the form of an enormous gecko made of bridges.

Illustration 38: Image included in original story.

128http://lparchive.org/LetsPlay/Boatmurdered/chapter2-15.html
129 The possibility of a human-led attack on the fortress is possible, as continued insults to diplomats and traders can turn a friendly civilizations hostile, enabling them to siege in the same manner as goblins.
130http://lparchive.org/LetsPlay/Boatmurdered/chapter2-17.html
When elephants attack again, mariguana releases the lava. Unfortunately, this triggers two events with dire consequences: First, the lava flow results in the destruction of some masterpiece engravings created by the dwarf Sankis. Secondly, the lava also sets a catapult *inside* the fortress on fire, creating an enormous smoke cloud. Both the destruction of masterpiece-quality productions (like engravings) and exposure to smoke are very unpleasant events for dwarves, bringing very large reductions in their happiness. Between these two events, Sankis sinks into a tantrum, and then into a berserk rage. Sankis' tantrum:

20th Moonstone, 1063, Early Winter

Uh oh.

Sankis, buddy? I'm sorry about the beard comment. Think you could calm down a little?
And the rage follows. Oh, and Sankis has caught fire at some point in his uncontrollable state:

OH MY GOD. Sankis is on a bloody rampage! He mauled a baby and a cow, and now, at this very instant, he's beating the Elite Marksdwarf Kadol Lokumad into paste!

DID I MENTION HE IS ON FUCKING FIRE!??
Oh dear god, Sankis, just let him die! You don't need to break every part of his body!

Illustration 41: Image included in original story.

Oh my god, Sankis beat the Elite Marksdwarf, until he finally died from BEING ON FIRE.

Illustration 42: Image included in original story.
In fact, he beat him so long that the Elite Marksman ALSO caught on fire and died shortly after.

Between Sankis' tantrums and the smoke from the catapult, they develop a tantrum spiral. Namely, the feedback loop of unhappy dwarves becoming agitated, causing damage and making other dwarves miserable, who become more agitated and go berserk, making other dwarves even more unhappy, and so progressing until either all the dwarves are crazy, dead, or far enough away from each other that they stop murdering and depressing each other.

Another author, Guerilla Medic, takes over at this point, but due to the chaos in the fortress,
there are limited options. When the audience is polled for advice\(^{133}\), whether to continue digging for admanantite (and triggering the waves of demons) or letting the fortress come to a less forced (if not quite 'natural') end. Rather than actively bring about an ending whose results are predictable, Guerilla Medic decides to press on trying to play.

But attempting to keep the fortress running has become very difficult: a tree has grown inside the unused aqueduct, preventing the irrigation of the farms, the nobles are tantruming because there isn't enough production to meet their mandates, and there are still piles of flaming rubble, drawing the attention of unwary dwarves and setting them alight.

<table>
<thead>
<tr>
<th>By the gods! &quot;Megor Grendel&quot; tried to extract the flaming puppy, but caught fire and died instead! By the gods, WHY?! (^{134})</th>
</tr>
</thead>
</table>

And a bit later:

<table>
<thead>
<tr>
<th>ahahah oh god the miners guild representative wanted to pick up some clothes and now he runs around on fire (^{135})</th>
</tr>
</thead>
</table>

Dwarves will attempt to acquire certain goods or remove certain obstacles on their own, without the player creating a job to order it. But they also don't recognize potential risks of acquiring those items, and so will do things like pick up flaming socks or the smoldering remains of a lost pet. This happens outside the control of players, and so Guerilla Medic is able to portray them as chaotic, uncontrolled and signs of apocalypse. The perspective of the narrator shifts as this continues, giving a very different feel from other narrators:

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133 In [http://lparchive.org/LetsPlay/Boatmurdered/chapter2-23.html](http://lparchive.org/LetsPlay/Boatmurdered/chapter2-23.html)
134 [http://lparchive.org/LetsPlay/Boatmurdered/chapter2-22.html](http://lparchive.org/LetsPlay/Boatmurdered/chapter2-22.html)
135 [http://lparchive.org/LetsPlay/Boatmurdered/chapter2-22.html](http://lparchive.org/LetsPlay/Boatmurdered/chapter2-22.html)
8th felsisle 1046

All burn. Children burn fastest. less fat. Locked lot crazy nobles in statue garden.

Illustration 44: Image included in original story.

Won't move until they all stop moving. And burning. Some escaped. Still burning.

Illustration 45: Image included in original story.

all burn.
And:

The very stones themselves are burning. Nothing can stand in the heat. The fires have claimed all of the second hall. There are only five of us left, and Unib Berog walks back and forth, carrying objects uselessly, not understanding anything.

The tales are true... adamantium is cursed. We did naught but uncover the vein, and doom befell us.

Cerol Likotag told me "He had to fill the pool", and wandered into the fires. Poor creature.

Berog declared that he wants new -Bonobo leather trousers-
Repeat, no adamantium has been mined. Yet. Human merchants have arrived 😈

BURN THEM

Edit:

AHAHAHAHAHAHA
3rd Malachite, 1064.

Rakust Ulterolin went mad and slaughtered 2 dwarves, then wandered to the flames.

Illustration 49: Image included in original story.

I am now the last one. I saw a child, feral and crazy, lurking in the bonehoard. She looked happy enough, so I left her alone.

Illustration 50: Image included in original story.
I will leave, cut my beard and seek my death somewhere else. There is nothing for me here. The child will now be the ruler of Boatmurdered.

Abandoned

Your settlement has been abandoned.

Illustration 51: Image included in original story.

The behavior of the dwarves, erratic and indirect in the best of times, is rendered insane in the context of the fortress' collapse. In the screenshots, the spots normally occupied by jobs in the description of the dwarves are used as dark punchlines: “Go Shopping”, “In a berserk rage!”.

The story which leads off this case study (“The fortress of Boatmurdered burns. . .”) comes after Guerilla Medic's post. Narrated in third person, it was written by Evilslug, the archivist who eventually creates the archive on the Let's Play site. Two other pieces, tributes and capstones follow this. Locus, one of the authors, presents a depiction of Sankis, on fire and mid-rage:
Illustration 52: Author Locus provides this illustration of Sankis in the original story.

and Shanty presents “a little engraving... to go with EvilSlug's short story”: 136

136 http://lparchive.org/LetsPlay/Boatmurdered/chapter2-24.html
Just as many authors contribute to the telling and re-telling of *Boatmurdered*'s extraordinary collapse, many of the moments within this story come from the complications wrought by the
many different players over time. When Sankis adjusts the channels and adds a lava flow, the set of possible options for the other players is shifted: mariguana can use it to flood out the elephants. But it doesn’t grant total control over the events either, as the chain of collapse depends on their decisions working alongside the continued processes of the code. The players are reacting to the events within the game, but even *those* events are dependent on the actions of the players. The limitations of individuals in controlling the events means that they, as players, are dependent on patterns: but when the same pattern can have wildly variant outcomes, it is only a matter of time until something special happens to break the pattern.

The complexity of the systems combined with the all the additions and changes made by other players makes the system more difficult to maintain, and more difficult to predict. To take a cue from the author StarkRavingMad: “. . . I love that the place has become so complex and messy that literally no one knows how everything works anymore.”

Part of the complexity that StarkRavingMad loves is the result of ’bugs’, or unintentional errors, in the programming. For instance, the initial flooding that distresses Sankis into releasing magma across the whole map is the result of a “permaflood”, triggered when water channeled from one source makes contact with water from another. The game’s model is unable to drain away the water as normal, and so the flood continually increases in size. Additionally, the flaming catapult that produces the smoke clouds which perpetuate the tantrum spiral isn’t destroyed by the fire, and so continually burns. Bugs provide an interesting source for tellable moments in that not only are they often (by nature) unpredictable, but they also serve to identify the boundaries of the systems they occur within. Bugs expose some of the interior logic of the game’s systems and so might be very prone to

137 http://lparchive.org/LetsPlay/Boatmurdered/chapter2-8.html

146
producing tellable moments.

By the time Sankis is enraged, the authors seem to encourage the confusion and collapse. Paradoxically, it is not an interruption of their play, or of their story, because it is providing a particular sort of pleasure that is even gleeful about the chaos. For instance, while Sankis' tantrum isn't the first in the fortress, having an adopted character who has also ruled over the fortress and who has been depicted as an artist with a bent for cruelty and brutality seems to present an unusually rich opportunity for a tellable moment about one. And mariguana's decision to build the lizard statue adds to the desperate, Ozymandias-like idea of a wealthy, powerful fortress undone by greed and ambition.

8.1.2.2 Tellable Choices: Revisiting
The engravings and drawings found inside provide their own arc within the broader story of Boatmurdered, too. At one point in the course of Boatmurdered, one author has to duck out of turn and be replaced. In the interim, author StarkRavingMad contributed an interesting series of episodes with a different perspective on the fortress and its doomed inhabitants.

StarkRavingMad posted:

INTERMISSION

Journal of Ushav Birtarenal, human archeologist

Entry 1:
After long searching, I believe I have finally found the ruins of the Dwarven fortress that was hypothesized to have been in the Smooth Points of Pride. According to the ancient journals we found, it was called Koganusan in the Dwarven tongue, which roughly translates to "Boatmurdered." It is unknown from what that name derives. How excited the guild will be! We have been looking for this outpost for some time now, as it may shed some light into the historical events of the time period around 1050. Perhaps I can find some old records or journals in here which will be instructive.

I will proceed immediately into the cavern and see if this is indeed the remnants of the fortress.

**Entry 2:**

It is better than I could have hoped! The fortress is truly grand, this must have been an outpost of great value to the Dwarvish kingdom. I cannot yet tell how deep into the mountain it goes, but it appears to be quite vast. And even more importantly, the Dwarves preserved their history, not in books, but in the stone of the fortress itself! Many of the surfaces are engraved with depictions of the historical events of the time. I will endeavor to determine what some of these pictures mean, and document them via descriptions and charcoal rubbings to take back to the guild for entry into the Great Histories.

I cannot imagine why no one has documented this before!

**Entry 3:**

It appears that the people of Boatmurdered encountered great sorrow. Apparently they had enormous amounts of trouble with the local pachyderms:
These are just a representative sample. There are dozens and dozens of engravings of dwarves being struck down by an seemingly-endless herd of legendary named elephants. The slaughter must have been unimaginable. I cannot conceive of what they must have done to engender this much hatred from the elephants.

Illustration 54: This sequence of screenshots was used in StarkRavingMad's story and are presented along with some of the text from the Archive

As we discussed in the original mention of dwarven artifacts, these engravings are created by assigning jobs to 'smooth' and then 'engrave' walls and floors of the fortress, which increases the value and attractiveness of the respective areas, and the engravings contain descriptions of events that have occurred in the fortress. StarkRavingMad uses them within a framing

138http://lparchive.org/LetsPlay/Boatmurdered/chapter1-30.html
narrative of a “human archaeologist” who is exploring the ruins of the fortress, looking back. The narrator is used as a comic foil, as jokes refer to the extradiegetic writing within the original game (the phrase “craftdwarfship” occurs regularly within the game) or to events familiar to the players (“Apparently they had enormous amounts of trouble with the local pachyderms”)

The writing describing the engravings is given a different texture when framed this way: the technical details, formulaic writing and focus on names and dates seem an apt fit for the framing narrative of an archaeologist's records. These journal notes give an account of some events in the fortress' progress, noting the defeat of Soarships, a particularly nasty elephant responsible for several dwarf fatalities. At the end of this episode, a different form of in-game description is given, again in the form of a screenshot:

**Entry 5:**
Wait, I hear sounds from deeper within the fortress! Perhaps some remnant of the ancient civilization lives yet! Could the dwarves merely have retreated deeper into the mountain and cut off their ties with the outside world? This is fascinating! I will go see what is making these noises immediately.

![Illustration 55: Image included in original story.](image-url)
In the death of the narrator, something interesting is revealed: the final screenshot is taken from Adventure Mode, one of the alternate gameplay modes in DF. Adventure Mode is different in many respects from standard DF (“Fortress Mode”): for one, players take on a role of a single character, who they control via the keyboard. The gameplay is generally typical of roguelikes, except that it takes place within one of the generated worlds of DF, including worlds which have been used as fortress sites. When a fortress collapses or is abandoned, it is saved and turned into an abandoned structure, which can be reclaimed by another colonizing team (“Reclaim Fortress Mode”) or visited by a lone hero in Adventure Mode. This single adventurer explores an overland map, discovering sites full of wildlife, monsters – and relics of the previous inhabitants.

The feature to explore old fortresses in Adventure Mode was explicitly built into the game, and reflects a conscious decision to encourage players to visit their old experiences. The world that has been created out of the combination of the developer's models and the player's inputs is preserved in some form. Rather than present it in the form of a high score or unlocked achievements, the accomplishments and events are written into the space, and turned into further material for play. But it doesn't only preserve accomplishments, it also allows disasters and failure to be revisited, and similarly transformed into new fun.

The creation of artifacts and engravings is an excellent example of how tellable moments arise out of the mix of player interactions within the game system: players can request that engravings be made, and even have some control over which dwarfs carry them out and when,
but cannot specify their content. But that content is drawn up from the game's list of important events which may be drawn from player events. Additionally, the fact that they are given a diegetic presence as artifacts made by the dwarves inhabiting the fortress adds a layer of psychology to their use. As the archaeologist character implies, the history of events in the fortress is important to the dwarves themselves. There is even a model of tellability that the dwarves exhibit: why would they be carving moments like famous battles or caravan visits, into their objects?

8.1.3 Summary

The obscuring and distancing elements of the narrative architecture of choice factor strongly into the collapse arc as the decisions of multiple players reflect onto the dwarves and the space they inhabit. The indirect control over spaces and characters in the game are accentuated by the authors in embracing the idea of the fortress collapse, and the complex interconnections amongst the game's code gives them numerous tools with which to tell that story. If the game represents a possibility space, the narrative architectures of DF structure the ability of players to navigate it, while simultaneously creating artifacts of their course. This is one sense of the term “narrative play”: play which generates the tools for storytelling. Moments like the lava flood or Sankis' tantrum give the authors hooks to hang the story on, while both game and audience supply artifacts that support the storytelling. These artifacts, coming in the form of screenshots, jokes and commentary, and even drawings and sketches, function to both extend the story and to advance it along by encouraging the author in control to focus on certain moments and not others. In the next case study, Pirates of the Fondled Waters, we'll see these moments being shaped and modified explicitly in order to maintain a fortress and to tell a particular kind of story.
Still the 1th, Felsite, Late Spring, 1059:

Skipper watches as Sigurd hauls up the massive anchor, coiling chords of iron chain around his biceps. Sigurd grunts, pulling, coiling, pulling, coiling pulling, coiling. He reaches for another length of chain when he suddenly feels a massive blow hit him in the forehead. He looks up, confused, as the chain uncoils the anchor begins to sink back into the ocean.

A streaming rope is flying at his face, with a shining 4 pronged hook on the end of it. It flies over his shoulder and coils around the ships wheel, jerking it to the right, jamming the rudder. Skipper, shocked, falls back and yells, unsure of what is happening.

"IMP, what's going on?" Skipper yells up to the crows nest, looking up to see Imp's feet crossed on the edge of the fortified railing. Imp jolts awake at the yell, dropping his spyglass over the rail which happens to fall directly onto Sigurd's already bruised head.
"Hey?" Sigurd looks up at the clouds, confused, rubbing his bruised head, wondering why the gods keep throwing things at him.

"CAPTAIN!" Imp shouts, watching below as streams of rope come aboard the ship like tendrils of a kraken. "GRAPPLING HOOKS!"

Kalen bursts out of her quarters, pulling up her boots, eyepatch askew and hat missing, hopping on one foot. "What's all this racket?" she yells, clambering across the deck.

Fishgut hops to the door and closes it quickly, but not before Skipper catches sight of him, in the buff. Skipper thinks back to Kalens early warning to him about keeping his "cannonballs" wrapped up and his heart sinks, covering his face with melancholy until, out of the blue, a grappling hook hits him in the face and knocks the melancholy right out of him.
Kalen runs to the rails and starts unhooking the grapples, but there are too many. They aren't boarding them, they're just holding them. She looks up to see who has dared attack her ship, and sees something horrible.

"Oh my blood god . . . " she whispers, "fucking NATIVES!"

Beardless Bob and Boucher are in their bunks, celebrating the victory of the urine still. Horatio and The Professor are well watered and fed, but still bedridden. Skipper is out cold, and Sigurd is confused, but that's quite normal.

Q-Tip, Jaina, and Duncana come to the deck to see what's happening, horrified by all the yelling.

"Grab the grapples and toss them overboard! Jaina, pull Skipper off the wheel and set the rudder, we've got to get out of here!"
Q-Tip and Duncana run to the rail to help Kalen throw off the grapples, Q-Tip asking, "What the hell do they want, cap?"

"They want to get on the ship!" Kalen says, running from hook to hook. Q-Tip, running along, "They can't, we put the plank do--"

Another plank falls on the railing right where Q-Tip is standing, knocking her backwards onto the deck. "Oh," Q-Tip mutters, as she stares up at the oddly engraved wooden plank.

A tan slim dwarf in a loincloth jumps over the plank, landing directly on Q-Tip's face. "AIAIAIAIAIA!!" comes the battlecry as the natives attempt to stream on board.

"MRRFF", Q-Tip yells, a mass of native villager covering her mouth. She feels herself suffocating under the weight when she hears Sigurd give a mighty roar and plow into the native, shoving him off of Q-Tip. Another native jumps on Sigurds back, the viking grabbing the first, the three spinning around screaming until Sigurd tumbles down the stairs into the galley, natives still pinned to him.

Duncana and Kalen grab the plank quickly and toss it back, sending natives streaming off to the sides and into the waters.

"Get us the HELL out of here!" Kalen yells, rushing over to one of the ballistas and pulling off the cover. The chanting natives gather on the dock, preparing to lower another plank. Kalen wastes no time attempting to disperse them as the crew unties the rest of the lines.

Before firing, Kalen hesitates. Not for concern about the villagers the mighty ballista is pointed at, but because she remembers that Beardless Bob crafted these ballistas, and she remembers vividly the explosion of the urine still just moments earlier.

"Bah," she grunts, cranking the line taught, before releasing a tree-trunk sized bolt into the chanting crowd.
Ssssssssszzzzzz the bolt tears out of the ship, streaming towards the natives.

"AIAIAIAIAIAIA --erp" *SPLAT* comes the sound of a native being plugged in the chest by the mighty bolt, disintegrating him.
Jaina winces at the carnage as Kalen cackles with glee, yelling "BRING ME ANOTHER!"

Bob rushes up the deck, half dressed, "WHAT THE HELL ARE THOSE?" He yells, confused, pointing down the stairs at the two oddly clothed natives pulling on Sigurd's beard as the musclebound viking rolls around trying to shake them off.

Seeing Kalen beckoning for ammunition, Bob hoists over another bolt, laying it on the ballista. He looks out into the churning, yelling mass of natives. "You're not going to . . ." he starts to ask, before Kalen cuts him off.

"Yes I am!" She responds, loosing another bolt, her eye twinkling.139

Bob covers his eyes and looks away, and Kalen lets out a yell, this time, not in joy, but in

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139 In the original story, this line is a hyperlink to an animated movie file of combat ensuing between the Pirates and the Natives: http://mkv25.net/dfma/movie-410-firingatthenatives
shock. "NO!" She yells, her eye no longer on the natives, not caring where the bolt landed or if it hit it's mark.

As the dread ship Bellsmaw pulls away from port leaving death and destruction in her wake, Kalen crawls along the deck to see the twisted and mutilated corpse of her pet cat.

"Oohhhhhhh no!" she wails, scooping the furry pulp up and holding it tight. Her heart pumps and she feels the familiar sense of loss, familiar with everything she grows to love being taken from her. She unconsciously looks up to see Fishgut unfurling sails above her before glancing away and shaking her head. She places the cat's corpse on the deck, promising to give it a proper send off at sea, later. For now, she's still in high spirits due to
her resent conquests, at sea, on land, and in her chambers . . . but there is much work to be done.

Illustration 62: Image included in original story.

Bob, sensing that he might be blamed for this, quickly scampers off down the deck to try and help Sigurd get the natives subdued.

Sigurd has finally got to his feet and he looks up to see Bob coming down the stairs. He's holding each of the blabbering natives by the scruff of their necks. "Hi Bob", Sigurd says, cheerfully, as he casually smashes the two dwarves heads together, knocking them out. Sigurd drops them to the deck before straightening his braided beard, saying "Sigurd head hurt," and sullenly walking towards the galley to get some grog.

Bob takes a look at their new captives. They certainly can't ransom them, but, no point in killing them yet. He binds their hands and feet and drags them up onto the deck of the ship.

Kalen takes stock of the situation once she is certain that they are safely out of port and at sea. She calls the entire crew to the deck, asking Duncana and Boucher to bring The Professor and Horatio up for a moment, promising to let them return below decks after they've had a discussion.

The two natives are tied to the main masts, their mouths gagged. They struggle against the ropes, mumbling in some muffled undecipherable language.

Kalen walks up and down the deck before addressing the crew.

"Crew. We have a decision to make."
"Imp said he's watched one of these two fire a crossbow from ashore, so they may have some valuable weapon skills. We only have two options in this situation though."

Kalen points at the lever leading to the plank of pirate justice. "Either they go for a walk," she says, before looking back to the crew, "or we've got two galley slaves."

"Now I may be the captain of this ship, but I know we're fast becoming a team, and as such, I've decided to allow you all to vote. You may abstain from voting if you choose, but in the end, we will tally the votes and decide what to do with the natives. One way or another, it's up to you."

The Professor, ever the conversationalist, interjects, "Can they even be trained to work with us? We don't speak their language . . . " Jaina steps forward, "Actually . . . I can understand some of it. It's just dwarvish with a hint of kobold, and my family made me learn kobold when I was in carpentry school so that I could make signs to ward them off. I can translate, but, I may get it wrong some times."

"There you go," Kalen said, shrugging, "It's up to you. I'll be in my quarters, let me know when you've decided." 140

This story, Pirates of Fondled Waters, is a Community Fortress, in which the contributor "valcon" builds a pirate ship for a fortress. The unique structure of the 'fortress', and the constraints on the playable space introduced by the authors, serve as excellent examples of how players shape the scope of tellable moments for the purposes of expressing themselves. And since in this case, many of their choices are on how to orient and react to the spaces of the game, we can see how the narrative architecture of space contributes to the stories of players.

Specifically, we’ll see the early design of the ship is an adaptation of salient features of other fortress to a uniquely conceived space, how the physical constraints of the implementation of the ship encourage the authors to find tellable moments in character relationships and romances, and how the tension between the fiction of a pirate ship and the constraints of the game creates an opportunity for narrative play.

9.1.1 Background

9.1.1.1 Community Fort

*Pirates of the Fondled Waters* (*Potfw*) is the first of two Community Fortresses we’ll examine. The structure of a Community Fortress is different than that of the Succession Fort, and the collaboration takes a different form. While the Succession Fort involved multiple players playing in serial trading the saved state of the fortress, the Community Fortress involves a primary author, who initiates the fortress, setting initial parameters, and actually runs the software, and secondary or collaborative authors, who 'adopt' characters in the story and provide both support and audience for the story.

*Pirates of the Fondled Waters*\(^{141}\) was written on Bay 12 Games' official forum, beginning on March 5\(^{th}\) of 2008 and continuing until March 21\(^{st}\). The primary author, valcon, began extended an invitation after announcing the completion of the ship:

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Thank you for the comments guys, I really appreciate it.

I'm curious to find out if anybody would be interested in doing a community fortress with
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\(^{141}\) The name “the Fondled Waters” refers to the ocean region in which the fortress is located.
this. Obviously it isn't BRAND spanking new, but I think the grounds for an interesting story have been laid.

The crew was selected carefully; there are twelve dwarves, exactly 6 women and 6 men, and at this point none of them have formed relationships, so, even though it is 1057, it's still something of a blank slate.\footnote{http://www.bay12games.com/forum/index.php?topic=19237.msg190780#msg190780}

\section*{9.1.2 Analysis}

\subsection*{9.1.2.1 A Dwarf's Ship is his Fortress}

The centerpiece of \textit{Potfw} is the pirate ship Bellsmaw, an extraordinary instance of radical fortress design. In the introductory post, valcon describes both the ship itself, and the process of building it. By laying out how the space is configured and why, valcon demonstrates how the space is built to enable a story about pirates, and priming potential collaborators with expectations of what this might mean as the story unfolds.

For instance, the description begins with several images of the ship: like many collaborative stories, the Site Selection screen is presented first. The next include some taken in the third-party tool 3Dwarf\footnote{3Dwarf is a visualization tool which takes information from the map file and displays a three-dimensional rendering of constructions and geography. It is loaded during runtime, but does not update in real-time, and does not feed any input back into the game.}, as well as screenshots with annotations of workshops and important locations of the ship, like the crow's nest, the well (powered by a pump linked to a holding tank of fresh water), the dining-room-turned grog-swilling deck, and, of course, the plank.
Illustration 63: Image included in original story.

Illustration 64: Image produced in 3Dwarf and included in original story
The specific implementation of Bellsmaw, like the architecture of all fortress, provides both parameters for the procedures of gameplay as well as the context for storytelling. But because the conceit of turning the fortress into a pirate ship, *Pirates of the Fondled Waters* foregrounds how the specifics of spaces afford interesting story moments. The construction of the ship is also detailed, in an expositional process\textsuperscript{144} that proves highly instructive.

\textbf{Illustration 65: Image included in original story.}

It's technically not floating in the water, of course. It is held up by one single pillar on the bottom level.

I constructed the ship in a dry-dock that took quite a while to dig out (partially because I hit an aquifer half-way down and had to try for about an entire day to plug it up so I could finish the dock).

The ship is 5 levels of main area, with a walkable crows nest on top of a mast about 10z's up from the surface I believe.

The ship and the dwarves aboard are fully self sufficient and have no need to ever go ashore. During construction I purified water and pumped it into a storage tank with a

\textsuperscript{144} Valcon explicitly claims that the purpose of the initial post is to request improvements to the ship, to ask about other ship-building attempts from the community, and to test for interest in trying a collaborative story in this space.
connecting well.

On board I have a large number of rapidly reproducing livestock (mules, cows, horses, dogs, etc) for slaughter in the event of a food shortage.

A crows nest sits atop the main mast. The crossbeam on the main mast houses 4 chains for jailing tantrumy pirates where they will not be able to harm anyone but themselves.

For the truly mutinous dogs, there is a retractable lever-operated plank with which I can perform pirate justice.

Fishing provides the main source of food, and the ship has the workshop capability to process any number of fish and animals and brew from the massive amounts of plump helmets I stowed below decks. When they run out, the fresh water tank will be the main supply of hydration.\textsuperscript{145}

To readers of this paper, possibly unfamiliar with how gravity and structural integrity are modeled in \textit{Dwarf Fortress}, the reason for the single pillar on the bottom might not be as clear as they are to the readers of the initial forum thread. In order to create a pirate ship, several floors, made of wood, were constructed on top of each other. But \textit{Dwarf Fortress} has no model of buoyancy---structures cannot float, and need to rest on something solid or else they collapse on each other. In the 2d version, mined-out areas larger than 6x6 would collapse in a cave-in, but when the third dimension was added, the model of structural integrity changed. The size-based limit was removed, and instead, as long as one tile of a structure had a support on the z-level beneath it, all of the tiles connected to it would be stable and usable.

\textsuperscript{145} http://www.bay12games.com/forum/index.php?topic=19237.msg190776#msg190776
The small, single-tile pillar that rests on the ocean floor is the bare minimum amount of support needed in order to maintain the rest of the structure, and thus the illusion of a floating galleon.

Valcon points out all of the available workshops on the ship, an uncommon step for a Community Fortress generally, since normally workshops are built as a fortress grows and expands over the space of the map, discovering new resources. But there's no mining inside the pirate ship, and that kind of spatial exploration has been taken out of the story.

Instead, Valcon goes on to explain:

> The year is currently 1057. It took me QUITE a while to gather all of the wood, create the supplies, stock, fit, and waterproof the ship, as well as flooding the drydock and surrounding it with water.  

Each of these locations was planned and created in advance, probably because the standard pattern of expanding the fortress over time as new resources are discovered and the arrival of nobility and their demands means additional production facilities are required doesn't make sense here: the environment isn't going to be explored, and nobles will never arrive. Instead, approximately 7 years of game-time elapsed between beginning the construction and when Valcon writes about it.

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147 Nobles only start arriving once the fortress reaches a threshold of wealth and population, somewhere around 20.
148 This doesn't give us an exact idea of how long Valcon had been playing. Because the game runs at different rates depending on the speed of the processor and the number of options it carries out, correlations between the fictional time and the play time that the player spends are inexact at best.
The presence of the workshops, chains, well and the supplies of edible flora and fauna also display adaptations of typical fortress functions into the constraints of the wooden vessel. These adaptations aren't limited to spatial adaptations, but the constraints on location and size affect how those adaptations occur. As we saw in the opening passage, the seasonal waves of migrants become roving bands of 'natives', extending the motif of pirates into a colonial exploration mythos.\textsuperscript{149}

By laying out and describing how the well-understood spaces and features of fortress have been reproduced in The Dread Ship Bellsmaw, valcon is providing the pattern-building effect of tellability: the audience, which includes potential collaborators, is being clued in to the kind of events and choices that could happen on the deck of Bellsmaw.

\begin{quote}
Yeah, I can't sail it around . . . yet =D

It's as close to functional and realistic as I could get it, mainly in that it is surrounded on every tile by water and that my little bearded pirates don't ever need to go on shore with the landlubbers. \textsuperscript{150}
\end{quote}

But after listing the workshops, valcon points out an additional constraints on the fortress. Only twelve dwarves are expected to crew the ship\textsuperscript{151}, in contrast to the hundreds of dwarves that typically populate a fortress at full capacity. All the lumber stockpiled is for additional beds or repairs to the wooden ship, so forges (which require either magma or lumber-derived coal for fuel) are impractical. But the purpose of the pirate ship isn't to create a highly

\textsuperscript{149}http://www.bay12games.com/forum/index.php?topic=19237.msg190919#msg190919
\textsuperscript{150}http://www.bay12games.com/forum/index.php?topic=19237.msg190780#msg190780
\textsuperscript{151}http://www.bay12games.com/forum/index.php?topic=19237.msg190780#msg190780
productive, efficient fortress: beyond impractical, it is unnecessary and beside the point. Pirates have more interesting things to do, different stories to tell.

The construction of the ship is both a creative adaptation of a normal fortress with special constraints, and a story that provides clues and suggestions to the collaborating authors about what kinds of stories will be produced: in this respect, it resembles very much a theatrical stage for the stories that will come out of the narrative play that is to come.

9.1.2.2 Pirate 'Ships

Once the collaborators are picked up and the story is underway, valcon mentions some anxiety about the course of the story.

Telling this story has proved more difficult than I had thought. The nature of the fort is such that I must create a narrative without the constant comings and goings of immigrants, or creation of massive trades deals or monoliths or temples or mausoleums. Our 12 dwarves are confined to a relatively tiny area with very few materials to work with and absolutely NO unsolicited outside contact. 152

But what is presented as a difficulty actually proves remarkably fruitful. In what becomes one of the major subplots of Potfu, the dwarves begin to develop a serious of intense romantic relationships; not just in the text of the story, but in the game-level events, as well.

"I'm so sorry."

"Ugh . . . " The Professor responded, his voice raspy and his eyes bloodshot, staring up at the familiar face. He could barely make out its features, but the voice was female.

"I . . . I can't believe I did this to you . . . "

A warm hand grasped his shivering and shaking left hand, caressing it. He closed his eyes and smiled, thinking of his mother, his sisters, and his dreadful goddess and the pestilence coursing through his veins.

"I . . . I love you." Duncana said, before planting a kiss on his parched lips and leaving him.

She gently closed the door, sobbing. She'd been so taken by the combat, the bloodshed, the thought of being a fierce and mighty pirate that she'd forgotten the wellbeing of her mates. The Professor was a good man. He was only doing what was best for the ship when he smashed her into the deck. She'd nearly killed him for no other reason than to please the Captain, and now, without water, he may die anyway. All because of her.
Similar outbreaks of romance are reported elsewhere on the ship. In this moment, the normally cruel and hard-edged Captain Kalen falls for the swashbuckler “Fishgut” Led:

Skipper organizes the crew and has Sigurd lift the chain to the massive anchor, Jaina pulling up the gang plank as Skipper mans the wheel. Fishgut Led walks by, heading to the mast to undo the main lines, but Skipper stops him.

"Captain wants to see you, Led. Don't be too long, we need you out here!" Skipper lies as Fishgut turns up to the Captains quarters. Skipper cranks the wheel angrily, looking over his shoulder as Fishgut knocked on the captains door, disappearing inside.

Kalen closes the door behind him.

"So then, Led, tell me about your battle with the swordfish . . . " 154

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Kalen's player responds, surprised by this turn:

> Whoa, whoa, whoa! Kalen and Fishgut?! Wowza's . . . I don't really mind it though.  

Valcon later goes on:

> Captain, I'd like to resign.

Kalen turned to see her first mate looking dejected and pitiful before her.

"Request denied," she states calmly, turning back to her desk.

"Captain, just give Fishgut my bunk and have him look after you, the two of you are," he shudders, "close now, anyway. I'd perhaps be a good carpenter, or fisherman."

Kalen turns to him and approaches him swiftly, causing Skipper to wince in anticipation of a blow.

She reaches up and puts her scarred hand upon his shoulder, saying, surprisingly softly, "Skipper . . . you've not been a pirate long. It is quite common for us to form bonds, and relationships while at sea . . . but once we're back on land, everything changes. Our whole world is confined to this floating casket, and everyone gets lonely. We must all become friends, and some of us even lovers, but these things rarely last. If you and I . . . ", she says, as his eyes light up, "were ever to become lovers", Skippers shoulder trembles under her hand, "I could not have you as my first mate. I need someone I can trust, someone who can be impartial. I need you as you are."

Skipper lowers his eyes. "Please captain, let me be a carpenter or fisherman."
This arc of the story reaches a climax in valcon's final post (and the final post of the story, as it turns out) when, in short order, three couples that have formed amongst the crew engage in joint marriage ceremony:

"Trainin's good Cap," he started, "but Istaria spotted something on a nearby island . . . Kobolds rifling through the stocks we tossed overboard."

Kalen nodded. They'd been at sea for only a day and the island they'd been harvesting wood from was still not far off in the horizon. She'd ordered some less necessary supplies be tossed overboard in order to make room for their new crew, but had noted that they might return for it. A lie, of course; she believed they would not return from their journey at all, let alone to some woe begotten goblin filled piss pot like that one.

"Let them have it, we've bigger things to attend to. See that the lads are watched closely, I don't want to see anybody coming down with a bolt through the head, eh?"

Imp nodded, giving his mates another glance before closing the door and heading back out.

Kalen gestured at Professor to stand, in order to begin the ceremonies.

Little was said in the chambers, save for the required and traditional bits. As the thuds and thunks rang out above them, and as the Kobolds rifled through their previous belongings, the gathered crew began a solemn and secret task.
Sigurd swallowed his pride and looked down at Q-Tip. He recalled vividly his hastiness to impress the captain and the horrible wounds he'd inflicted on the young lass in the process. His brain, slowly chewing over every detail of their past relationship, finally settled to the task at hand. He would not wed her out of pity or remorse or a sense of debt; he truly did love this lass. 157

The viking pirate dwarf Sigurd, right before he gives his wedding vows to Q-tip, reflects on his previous sparring sessions with his bride-to-be. These sparring sessions are actually crucial to the relationships, because of the way that social bonds are designed in the narrative architectures of *Dwarf Fortress*.

To wit, romances are a subset of inter-dwarven relationships. Relationships grow between dwarves as they spend time socializing, but the range of activities which are considered socializing are fairly limited. As dwarves develop a greater number and intensity of relationships, their social skills increase, creating a positive feedback loop. But players do not have much control over how dwarves socialize, since most social activities are triggered by the game's internal clocks and job frequencies. There is one well-known exception to this, however: military service.

Military service includes, as one of its regular tasks, sparring. Sparring enables dwarves to build up combat skills in (usually) non-lethal combat with other military dwarves, but it also counts as socializing. Frequently, this means that experienced military dwarves become backbones of a fortress' social network, as they enter the positive feedback loop described above.

Because of the authors' interest in pursuing the image of tough, dangerous pirates, almost all of the crew of *Bellsmaw* spent time in military service. And because of the small number of dwarves and the confined spaces in which they practiced, they were socializing within a fairly small group and often with the same partners. Thus, the frequency and intimacy of the relationships is a result of the decision to keep almost all of the dwarves in some form of military training. While these choices increased the likelihood of dwarves socializing and thus forming relationships, the authors have very little control over how the pairings turn out. But this, in turn, leaves room for the authors to fill in the blanks and explain what the attractions between characters are. In the case of Fishgut and the Captain, for instance, the swashbuckler's earlier incredibly heroic victory against a zombie swordfish catches the stern Captain's respect.

Relationships other than the romances occur, too: one moment revolves around the death of a dear character from insanity, due to the loss of several of her close friends. These form a major arc. We might look back to the opening post, and the selection of six male, six female dwarves, and valcon's insistence that none of them had formed relationships yet. It is unclear whether any of the authors suspected or intended the story to take on these aspects, but even if they had, the specifics of when, who and how would be unknowable. The non-deterministic aspects of the relationship system, shaped in this case by the spaces of the game, still allow for surprises, which provide the authors a mix of constraints and tools to shape their story. The samples we've looked at illustrate how the architecture laid out in the introduction ended up

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shaping the possible kinds of events within the fortress, and the ways in which those moments became tellable for the crew of Bellsmaw. But there's one more example, similarly affected by the spatial conditions of the pirate ship, that I'd like to draw attention to.

9.1.2.3   Pumps & Dreams

The next sequence I'd like to examine in Pirates of Fondled Waters draws on the same constraints, but points us in a different direction. Most of the construction onboard Bellsmaw has occurred within the standard code of the game. But in one sequence, this constraint is lifted, under a very special context.

During a sparring match, two characters are injured, and thus they are brought to their bunks to rest. Wounded dwarves still require food and drink, but will only drink fresh water, and not alcohol. But their recovery takes longer than expected, and the ship’s well runs dry:

Kalen grunted as she stood up, following her first mate out onto the deck.

"What on earth could you possibly be," she began, as he led her across the deck.

They stopped, her eye on the back of Skipper's head as he refused to turn to face her.

"WHAT?" She demanded, furious.

"Look, Cap." Skipper responded, his voice faint.
In response to this new threat, the collaborators begin to suggest ways to deal with the problem. Dasqoot suggests using a third-party tool to add water back into the cistern individual tiles from saltwater into freshwater. Dasqoot adds a fictional conceit, that “the prof created a urine purifying machine.” A little bit further on, martinuzz suggests an alternate way of getting fresh water aboard: “I read somewhere recently that if you use pumps, salt water magically turns into fresh water.” These suggestions are given in “out-of-character” speech, as suggestions to help solve the problem. But they don’t have to be; in fact, these are fictionalized very soon, as we’ll see.

Kagus writes a small episode which frames a design for martinuzz’ pumps as the brainchild of his character, Fishgut Led the swashbuckler:

Yes, Fisghut Led was happy. But he had heard that there were water troubles aboard, and he saw the opportunity to earn a reward on top of all his other pleasures. "Arrrrh . . . ." he said thoughtfully, tapping his brown and sun-wrinkled nose and turning his salt-and-guts-encrusted mind back over the plans of the salt filtration systems he had made during his stint in the King's Navy. Perhaps he could get an increased rum ration as a reward . . . The
rest of the blighters could drink all the water they wanted, for all he cared. More rum for him. 162

Illustration 71: Illustration is a screenshot of Kagus' post, including the monospaced "code" formatting for the engineering plans.

The design is both describe in plaintext and diagrammed in a different text format, the section under the subheading “code:”. This monospaced format is commonly used in the community for drawing engineering plans; because of the equal spacing of the characters in the front, it allows for a close mapping to the physical spaces in the graphical interface.

But the more intriguing moment is how the idea for designing the pump system is narrated through the character. It is entirely possible, as the other contributors have done, to add suggestions out of character, but that's not how Kagus writes it. Rather, it is written as a tellable moment within the story; the moment is relevant to both the character and to the readers of the story, even though it has no 'source' event within the game.

valcon\textsuperscript{163} pulls these contributions together, writing them into his own contributions to the story: the Professor has a sudden realization about a process for purifying urine, while another character 'dreams' the arrangement of pumps to make it work:

I'll be fine lassy, ye' just make sure we get the well workin' again, eh?" Duncana nodded as she left. She began to make her way up to the deck to rejoin the crew, but The Professor called out to her. 'He's still insane with dehydration', she thought, continuing her pace. He cried out again, no despair or insanity in his voice, this time mild irritation.

Duncana turned and went to check on him. "Wait, tell the Captain to call off the landing party." Duncana looked confused. "There's no more water'n te' well, mate. Ye'll die for sure this time, 'nd we can't stay at port forever."

"Bring me Fishgut Led and Beardless Bob. I had a dream while I was out and I think I know the answer." The Professor reached feebly across to the table to grab his precious notebook and pencil, covered in dust from his neglect of intellectual pursuits. He began scribbling something down while Duncana went to inform the Captain.

Kalen heard her story and request to stop the party and was skeptical. A madman asking favors was not her favorite way to decide the fate of her men, but again, something in Duncana's face persuaded her to agree. However, the landing party was an incredibly dangerous venture, and anything to possibly avoid it was a good thing.

\textsuperscript{163} http://www.bay12games.com/forum/index.php?topic=19237.msg190873#msg190873
"Alright boys, shoulder them sabres, we'll see what this old coot has up his sleeve. Bob, Fishgut, see what he has in mind."

Later that evening:

Fishgut Led sat up in his chair, his sword falling off his lap, jolting awake. The Professor and Beardless Bob we're comparing notes, jotting down chemical formulas and reactions. "Ye nodded off lad," The Professor whispered, his voice still raspy. "We've got the formula down, but mechanically, it seems impossible with our supplies . . ."

Fishgut waved him to shut his mouth, a look of urgency on his face. "Quick, hand me the pad before I forget, I've seen it in my dream . . ."

Fishgut scribbled something down, handing the book back to The Professor before standing up to leave. "I don't know if it'll work, I don't even quite understand it, but I saw it."

Illustration 72: Illustration is a screenshot of valcon's engineering suggestion presented in "code:" formatting.

Fishgut's drawing is presented, not as a screenshot, because it doesn't exist in the game yet. Rather, it is presented in the same block-type format as Kagus' drawings. The pump-bug that martinuzz suggested is used, but in a variation of Kagus' construction. valcon even
incorporates the written passages, in the form of the dream sequence. Eventually, this plan succeeds refilling the well just in the nick of time to save Horatio and the Professor.

Sigurd is below decks when he hears the explosion. He grabs his axe and heads to the deck, following the sound of the captains vitriolic cursing. When he emerges, he is welcome to an odd sight. Kalen is standing near her quarters, covering her nose and waving her sword around, cursing at everything she can set her eye on. Jaina is retching over the railing into the ocean, and Bob ... Bob is laughing. He's covered from head to toe in some disgusting liquid that begins to send tendrils of noxious scent up Sigurd's nose.

"What smell funny?" The lumbering dwarf asks, his eyes watering at the stench as he moves up the deck. Bob is still laughing, never moving to clean himself.

"You stupid son of an elf!" Kalen shouts down, covering her nose as she descends the steps. "You've ruined my ship, you idiot! And we're still fish out of wa--"

Bob is hauling up the chain to the well, bring up a bucket, still chuckling. "Hold it cap," he says, bringing out the bucket. He presents it to her, clear liquid in his hands.

"Get that shit away from me you disgusting worthless mongrel!"

Bob, sensing she was very near her breaking point, decides to end the confrontation. He
quickly brings the bucket to his lips, and takes a big, long, drink. Jaina looks up from the rail, see's Bob, and immediately goes back to retching.

"Ahhhh," Bob sighs, setting down the empty bucket and patting his stomach. "A tad warm, but fresh!" He wipes his mouth and offers Kalen to take a look. She walks over, tip toeing over the puddles of urine surrounding the well, and peers down inside.


Both Kagus and valcon incorporate into the story a remarkable diversity of moments. The interactions between forum participants don't just feed ideas into the story, but are themselves incorporated, as the characters cooperate and plan together. The bug which turns salt water into fresh water as it passes through a pump is turned into a moment of ingenuity for several characters. The construction of this new space aboard the ship provides a common locus for the creative social engagement of the collaborators,, but it is also shaped heavily by the contributions of the authors, and by the desire to keep the game world coherent with the story they want to tell. The tensions underlying how and when the authors are willing to bend the rules when necessary to keep the story going is actually the central topic of the third case study, *Migrursut.*
The events of the 27th of Opal, 1062: Part 2

Marksman Boardknives was the first to fire. The squad mates were laughing, watching the Goblins as they marched towards the gates, and as the first bolt sank into the flesh at the green skins chest Boardknives let out a small cheer.

It died in her throat as the goblin glanced down at her own chest, and reached up to grab the bolt, rip it out, and toss it aside. The other Dwarves, exchanging glances, opened fire, making a pincushion out of the goblin. But her marching didn't cease.

"I'm out," yelled Pillarrushes.

"Oh Akimurist, I'm out too," seconded Smithglowing.

Mayor Likot cursed low. She'd run out of bolts seconds after them, and still the Goblins marched on. Through her green lenses she could see the leader, his arms perforated. She could also see how his jaw was only connected by the barest threads of muscle and skin, how the armor and flesh had melded together, rotting off the bones of his ribs.
Her warnings were cut off, back peddling as she bashed the lunging Zomblin in the shoulder with her crossbow. From her right, Smithgloving was shrieking, "My eyes! OH GOD MY EYEEESSS". The sounds of ripping flesh were heard over the clang over crossbows being used as bludgeons.

It was pandemonium. Likot herself brought down four of the goblins, bashing their skulls in with her crossbow. Boardknives wasn't so lucky. She was set upon by the goblins and ripped to shreds, her screams lasting for minutes as they gorged on her entrails.

Pillarrushes was the next to fall, her throat torn out by the gnashing teeth of one of the horde. Likot was backpedaling as she was set upon, her heel catching on a rock. Even as she was set upon by the horde, she continued to bash with her crossbow and kick. She took one of them down as hands peeled her armor back, bony claws digging into her stomach.

She stayed silent as she watched her guts hauled from the gaping hole in her stomach, sweat beading up on her forehead. Her left leg was twitching madly, and though she tried to lift the crossbow her strength failed - dropping it uselessly into the sand. As her vision blacked behind the glass goggles, a last tangible thought floated through her mind: *I'll make you pay Fountainspring, I'll make you pay . . .*

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The courtyard was a mess of blood and bones. Johnny hadn't expected that, as he turned to leisurely head downstairs that behind him, a host of goblins had risen from the bone piles. They were hideous and rotten, and the few that still had skin wore it like tattered rags atop their bones, their bleached grins terrible even in the night.

He was able to get to his room and the door locked behind him, but a miner and a farmer, and one of the only two millers were caught by the grabbing skeleton-hands. When Sulari and her crew reached topside, breathless from the sprint, they were greeted with horror living - at the sight of Dwarves they'd spent years working beside turned into a mass of
meat, and blood, and ribbons of flesh.

Axeman Laborfaith vomited at the sight, spewing bile beside the staircase. The others didn’t hesitate, rushing forward. The Skeletons didn't stand much of a chance, not compared to the champions of the fortress. Though covered in cuts and bruises - they were mostly unharmed.

"What's that . . . do you hear anything?" Asked Axeman Rackreleased. They went silent, Sulari's eyes widening as she heard a faint shriek in the distance.
"Drop the drawbridge! DROP IT! We need to get out there!"

By the time their boots hit the sand, they were too late. Mayor Likot was separated into two pieces. Only Smithglowing was alive - if you could call it that. She was surrounded by the dead, gnawing at her thrashing, blind body. Her arms and legs were pinned, teeth rending the flesh as they ripped away large chunks.

Distracted as they were, the zombies were made short work of, something Sulari privately held as a bittersweet victory. These weren't the brittle skeletons from the courtyard, these were more taut, their muscles hardened almost to the consistency to steel.

As the rest of the fortress came flooding across the bridge, they saw Sulari throwing the last of the corpses atop the hastily constructed pile. The Dwarves had emptied their wine skins onto them, and while it soaked in Sulari readied her flint and steel. Bertrand, at the back of the crowd, moaned low as she struck the stone to her axe, sparks catching on the high-proof alcohol.

Strong as steel the muscles may have been, they burned as easily as dried wood. In minutes, the pile was a roaring fire, the flames licking at the sky. Sulari walked slowly towards the fortress, her head hanging low. The Dwarves parted silently as she passed, and soon the flames failed to illuminate her, losing her in the night.


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*Migrursut* is a long-running collaborative story about a fortress founded by a political rebel and a cohort of mercenaries, religious fanatics and philosophers. The scope of the story is epic, involving multiple chapters, several subplots and, as we will document, even modifications to the game's code. As time progresses, the primary author, Heavy Flak, puts more planning and setup into story moments, and so demonstrates how the game can be used intentionally in order to generate very specific kinds of moments.

### 10.1.1 Background

*Migrursut* is the second Community Fortress we'll be looking at. The primary author, Heavy Flak, opened the thread on March 19, 2008, and the thread continues to this date, making it one of the longest-running stories on the official forums. The list of contributors and collaborators is extensive, and the story itself has been divided into four chapters.

Within the scope of this paper, I'll be examining moments just from the first and second chapters (*Chapter 1: Utopia in the Wastes* and *Chapter 2: Do Demons Dream?*), taking us through the story up to July of 2008.

The story *Migrursut* contains several examples of how the architecture of code in Dwarf Fortress gives rise to specific tellable moments. Many of these come from how the primary author, HeavyFlak, used a variety of ‘modding’ practices in the course of authoring the story.

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10.1.2 Analysis

10.1.2.1 Kuli’s Death

In our previous discussion of editability, we noted that players might mod the game in order to create new challenges, or in order to solve problems that were otherwise frustrating. These relationships extend to storytelling as well, as authors mod and re-configure their play both to set up stories and in order to prevent certain outcomes of the game from interrupting the flow of the story.

In the first example of how editability shapes tellability, Heavy Flak writes a passage in which one of the collaborator-claimed characters (Kuli, who in the story is the leader of a temple to Zefon, god of rebirth) is punished for violating a mandate\textsuperscript{167}.

He stepped in to the cell unprovoked, the blue-robbed Hammerer stepping in behind him, and shutting the door. She hefted her heavy maul, pointing to the wall with it. "Turn now; the one liberty afforded prisoners is the uncertainty of death. Those seconds before my hammer hits, you can live a hundred lifetimes, you could dream a thousand dreams. To take that away would be a worse crime than you could have committed."

Kuli did as told, turning to face the wall. He pressed his palms to the cool surface, his head bowed, eyes closed. And dream he did: of days past, of the travels he'd done, of the good he'd accomplished since arriving. He dwelt not on those that had wronged him, instead focusing his last seconds on the friends he had made, on his Flock, and deep in his mind he was pleased that he still wore a smile even in this cell.

The faintest of taps at the back of his head brought him back to reality. A second, light tap

\textsuperscript{167} Mandates are demands for specific products (usually a type of item or items made of a specific material) issued by noble characters, chosen from the preferred items listed in the noble's Thoughts screen. Since these preferences are usually randomly generated, it is possible to have an unmeetable mandate. When a mandate isn't met, the noble grows upset, and picks for punishment a random dwarf with the skill the mandate required. Violating mandates is considered a crime, and has two possible punishments: length imprisonment, or assigned beatings.
at the top of his back jarred his thoughts. He turned in time to see the Hammerer opening the door, her maul back at her side.

"I don't . . . I don't understand. What was this? I'd been sentenced."
"Aye, Child of Zefon. And I did my duty. Justice will always be served - but as it's mortal embodiment it is up to my will to determine the severity. Go now, you've paid your debt. Always keep the faith."168 [emphasis in original]

The punishment for violating a mandate is given to a random dwarf, and when it takes the form of corporal punishment, it is usually fatal. Punishment beatings are carried out by the “Hammerer”, a special type of noble who is, as you can probably guess, usually a very strong dwarf who carries a strong steel hammer. What is described here, though, is a seemingly rare case in which a dwarf survives the beatings.

Kuli's adoptive author and namesake, the forum user Kuli, expresses surprise (out-of-character) at the character's survival.

Kuli was really sentenced to a hammering? And survived? I don't suppose the hammerer is a Zefonist.

You really scared me there. I thought my dwarf was going to meet his maker sooner than expected. I'm totally mad at Aryn now.169

This moment becomes a topic of conversation later. Heavy Flak offers an explanation.

I actually had to be really creative on the punishments. If . . . okay, if a named dwarf gets

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killed by Camels or Goblins, they went out as a true dwarf should. If my mismanagement gets them killed in a cave in, that sucks but, well, that's kind of realistic. If I forget to meet a mandate for armor stands and someone gets picked, I hope they survive.

But Kuli got flagged because I didn't make 3/3 bizmuth [] items. It's an unmeetable mandate, and that's not fair at ALL. I tried to get him in full plate, but as soon as I turned that on he fell asleep . . . so, while the hammerer was dragging him to the jail, I had a peasant run up and dump her hammer just before she chained him up. Yeah, it's cheating, but it's also not fair that a bug would get a named dwarf killed

The hammerer isn't a Zefonist, but her name IS Zefon. That should count for something, right? 170

Part of what Heavy Flak is explaining here is an event within the game that is rooted in the intricacies of the Dwarven Justice system. To wit, the metal ore bismuth was one of the preferred items of one of the noble dwarves, and eventually that noble demanded the creation of three bismuth items. But the only use of bismuth is to forge bismuth bronze – it cannot be used to produce items! Thus, the mandate is functionally unmeetable, and punishment for some character is almost assured. The selection of Kuli as the intended recipient adds to the drama of the beating, and is a moment that comes out of the procedural generation of these kinds of events: punishment is applied to a randomly chosen recipient from among the dwarves who are trained in a skill which could have carried out the mandate. In this case, when Kuli-the-dwarf's skills were set up by the Kuli-the-author, in the preliminary posts on the thread, where the character was given training in Armor and Weaponsmithing. 171

In order to prevent Kuli’s death, Heavy Flak first uses the military menu to try and equip Kuli in plate armor, which would add a significant amount of damage resistance to the character. But dwarves sleep on their own schedule, and a sleeping dwarf cancels almost any other job, including equipping armor. When this happens, Heavy Flak decides to take advantage of a sub-menu command to mark the Hammerer's hammer as dumpable refuse. This creates a job to take the item and put it in a designated garbage era, which is carried out by a peasant. The hammerer then proceeds with the punishment, but without the giant steel hammer, meaning that non-lethal amounts of force are used.

Why is Kuli worth this much, when the deaths of dwarves in droves is what drives the fortress along? Collaborator Electrum responded to Heavy Flak's explanation by invoking both notions of authorship and the conventions of tabletop roleplaying games:

Bah, no, it's not cheating. You're writing an interactive story here, as the main author, so it's your prerogative to fix things if a game mechanic tosses its cookies. If this was a roleplaying game and some random die roll made an important character die, completely randomly, without player input? The GM would be so utterly justified in disregarding it.

We've got three factions now, broadly - Arynites, Stravich & Johnny, and the Zefon Faith. Letting one get beheaded just like that would make the whole story a lot less enjoyable. As far as I'm concerned, that was a completely fair choice in the face of a completely unfair game element. And hey, it's Kuli - the most engaging character you don't write, and a man of the cloth with a backstory. If anyone deserves a meaningful death, it's him.

Heavy Flak:

Electrum: Thanks for the kind words. I know exactly what you mean about the DM thing. I used to run D&D, Shadowrun, and Deadlands campaigns in high school and college and every now and again I'd have to just fake a throw because the guy who was going to die was actually doing something heroic/awesome/downright funny and just didn't deserve it. Then again, I also faked rolls so the obnoxious kid died over and over, sooo . . . I'm not always benevolent. 173

Editing isn't merely a tool for surviving or continuing gameplay; it is attributed with the preservation and creation of meaning. The comparison with the experiences of tabletop roleplaying is apt; the implication is that sticking to the rules would hold back not just 'fun', but the purpose of the collaborative enterprise altogether. But care has to be exercised that these edits don't happen all the time; the game is still incorporated into the storytelling.

'Bugs', or perceived defects in the function of the software, appear to be a particularly interesting moment for players, and possibly rich for authors. Certainly, they are useful for us as observers, because of the intersection of the author's expectations about the game's behavior and the game's actual function. Some bugs will expose the system they occur in, baring part of the raw 'function' because the output no longer makes sense as part of a natural-seeming world.

10.1.2.2 Zombie Characters, Reprise
Eventually in the course of Migrursut, we see examples of edits becoming more frequent, more extravagant, and requiring significantly more planning. As this happens we see examples of tellable moments featuring the construction and foreshadowing of these


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elements, as well as their use in key plot events.

In one sequence, from near the end of the first chapter, Heavy Flak creates a post framed as an entry in the journal of “Bertrand the Mad”, a character unattached to a forum participant. Bertrand is a noble, so the interface and code permit even fewer means of interacting with the character than with other dwarves. Bertrand's job in the fortress is “Philosopher”, a special type of Noble who is even less inclined to work than nobles usually are.

Illustration 76: Screenshot of post describing Bertrand's arrival and showing his Personality Screen.

For several weeks of updates\textsuperscript{175}, the character has been written as plotting and scheming, in passages like this one:

Bertrand shook his head slowly. One wrinkled hand lifted; came to rest on the cooks shoulder, squeezing reassuringly. "Isn't that always the way? You pour your heart, your soul into something you love, and just as you hit your stride it's snatched away from you by men who just don't understand. You could have work, and so could the carpenters, building barrels. The farmers would get work then, too. . . but a dozen have been laid off because of . . . what? The mandates of a single man, lacking vision."\textsuperscript{176}

This internal plotting and dialogue is far off from a transcription of gameplay; no screenshots are shown in the passage. But the degree to which Heavy Flak is foreshadowing and setting up themes and motifs for later surprises is noteworthy, and seems like an example of the use of \textit{strategic points} in the construction of tellable moments, shaping the expectations of the audience.

"Do you know why the camels come back to life?" asked Bertrand, breaking the silence.
"What? Uhh, no I don't. Do you?"

"I have theories," said Bertrand. "I've been studying the lands. I've bought a few bones from Akroma to look at. I think there's something in the ground here, it's seeping through. I don't want to make any wild accusations," he smiled. "But I think this. . . energy leaks out, latches on to things. I think that's why it's perverted the natural order of life, because

\textsuperscript{175}(june 1\textsuperscript{st} updates annonces as 'zombie powder', may 22\textsuperscript{nd} bertrand is talking about building it, may 17\textsuperscript{th} post on it, )
\textsuperscript{176}http://www.bay12games.com/forum/index.php?topic=19239.msg191340#msg191340
it soaks into the camels bones.\textsuperscript{177}

What is being told here? Heavy Flak is establishing a pattern. The presence of the undead camels has been a major factor in the story so far, established in screenshots, text and even drawn art, like this drawing of “skinless camels” outside a large construction:

![Illustration provided by Heavy Flak in the original story.](image)

Bertrand's plot is eventually revealed to be the creation of “zombie powder”:

\begin{quote}
\textit{From the notes of Bertrand the Mad}

28th of Moonstone, 1062

Akroma and Dojango have confirmed that more have begun to appear in their dreams,
\end{quote}

\textsuperscript{177}http://www.bay12games.com/forum/index.php?topic=19239.msg191340#msg191340
worshiping with them. I've had them keep notes on the events, and there are some discrepancies (as is to be expected), but the important details are in both of their dreams: the same people, the same outfits, the same being, hidden and unseen - The Star God. Of note, The Duchess and Mookie appeared, most likely spurred by the heavy ingestion of rum supplied to Dodik-Come-Lately's. It's a shame the Duchess ran afoul the Great Murderer, Stravitch. I'd love to see how the highborns react to these tests.

With Akroma generating so much powder, I've been dumping it outside. I've been throwing it in the magma. I've been using it to store the corpses of cats. And I've been planting it in the sand with seeds. Up until now, there were no results, nothing. I've just been looking for ways to get rid of the foul stuff when I'm not feeding it to the others.

While working late tonight, I heard the most pitiful of mews. I searched the hallway but couldn't find anything... but when I returned to the lab...

The jar had fallen off the counter, and stalking towards me was the corpse I stuffed into it, the skin rotted and hanging in tatters, the belly bloated to bursting. Oh god. The terrible thing yowled at me, dust and maggots spewing from it's maw, and lunged at me. Without thinking, I punched it out of the air, sending it sprawling on the floor.
It came at me again, tearing a chunk out of my thigh with it's rotten teeth. I was able to grab a flask from the counter and . . . beat the creatures head in. I swept the corpse into a bin with the broken jar, and dumped it into the magma. The others need not know about this, but I fear that . . the land around us may be trying to drive us out. Perhaps we've made too many changes.  

The screenshot included here marks a turning point in the plotline. What makes it tellable is two-fold: first, the plotting that has been building up in the other threads has now moved into gameplay sections, as the screenshot indicates something changing in the game state. Secondly, *there aren't zombie cats in DF*. The code that handles undead only affects 'wild' beasts, like the camels and giant scorpions that surround the fortress, spawned because of the region-level qualities of the world simulation. Imported pets like donkeys and cats aren't handled by the same level. Heavy Flak has introduced something new into the world.

The next significant moment in this series arises in the passage that opened this case study, the attack of the zombie goblins, and the death of the Mayor, Likot\(^\text{179}\). The sequence is orchestrated in great detail, with screenshots illustrating some key moments, like Johnny Fountainspring's betrayal of the mayor by lifting the drawbridge, trapping her with the invaders\(^\text{180}\).

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Like the cat, the zombie goblins ("Zomblins") are new elements in the world, but they do not appear from nowhere. Heavy Flak later explains, in an extradiegetic post\textsuperscript{181} at the end of the sequence that these 'zombified' creatures were created using a specialized tool, Dwarf Companion:

The zombie cat (and the zombie goblins) were whipped up with Dwarf Companion. There are some . . . inherent issues with both, and actually getting them to work, and attack, and not die, and not kill each other, and not be too weak, and not run away, took much more time than the actual fights. Also, it was all trial and error.

The changes that Dwarf Companion makes are more complicated than those accomplished just with editing the .raw files, and accordingly it takes significant work on the user's part in order to get the changes to function properly.

\footnote{181 http://www.bay12games.com/forum/index.php?topic=19239.msg191446#msg191446}
Further along in the story, the use of these zombies becomes a major plot point. Perhaps taking a cue from saving the character Kuli earlier, several collaborator-adopted characters who had been killed earlier in the game are brought back to life, through the efforts of the philosopher Bertrand and the author Heavy Flak. The zombified version of Mayor Likot re-enters, along with two adopted dwarves who also perished. The tools are used not just to depict her return, but to put it back in the engine of the game.

Here's where I think we reach a boundary of where editability is useful. Is this moment of the story dependent on the game's, or not? On the one hand, it appears that Heavy Flak has abandoned the game's code in favor of this modified system. But on another, they are still partial modifications, not a complete re-write, and most importantly, these changes serve to bring the intended story back to the game.

The creation of a tool like Dwarf Companion and its use in Likot's return seems to mark an interesting edge case, in that the narrative impact of the story is carried by the presence in the game, but what enables that telling is the ability to tinker with the code and rearrange it. The availability of Dwarf Companion extends the editability greatly, even as it suggests that players might have interests orthogonal to the developers.

The extent to which Heavy Flak is explicitly using the game to create specific tellable moments is extraordinary. The sequence we saw in stories like Boatmurdered, where players would spin stories off of the gameplay, is modified here: Processing inputs, the 'job of the


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software', is being used in order to create tellable moments. But if the moments discovered violate the intentions of the primary author, then the sequences are replayed until they create something tellable. But it is not a matter of getting precisely the right result: the game does add something, and it is still important that it gets used. The key is that now, the game is clearly being used in order to generate some kinds of moments: our sense of narrative play is stronger and relies more on the specific procedural and technical models within the game.

10.1.2.3 Olsmo Lives

The dwarf-Kuli is given his own story, in an extensive subplot written by his adoptive parent, the author-Kuli. Beginning with memoirs written contemporaneously in the modern fortress and moving on to cover how Kuli arrived in Migrursut. Throughout the story, Kuli-the-author traces Kuli-the-dwarf's rising faith in Zefon, a key characterization in the larger Migrursut story.

Before my apprenticeship was completed I was torn away from Master Logem when I was suddenly drafted into the army. War had broken out with the elves of Mafifidale in the southern forests. I objected to the war because of my beliefs but the only alternative was to face The Hammerer's wrath, and The Master persuaded me that it was important to obey authority.

I will not speak much of the war. I witnessed more death than any living being should, and I was forced to kill many times. Every day I prayed to Zefon for the salvation of those who died, and for the forgiveness of my own sins. In a strange way my faith was strengthened by the war, for I gained a new appreciation for the horror of death without hope of rebirth.

I returned from the war physically and spiritually stronger, and I could wield a sword nearly as well as I could forge one.

One of the goals that the author has in telling this story is to give Kuli-the-dwarf a personal connection a major plot villain:

By the way, Heavy Flak,

[quoting another collaborator] quote:

"We can prepare for the worst now, and make sure that Olsmo - whoever he is - won't be able to harm any of our number."

I haven't gotten there in my story yet, but Kuli more or less knows who Olsmo is already, or at the very least has heard of him before coming to Migrursut. I just hope my assumptions about the nature of Olsmo don't conflict with your own ideas, Heavy Flak.

As Kuli explores the ruined “House of Zefon”, he ‘discovers’ that Olsmo was responsible for the destruction of the temple\textsuperscript{184}, encounters a Goblin priest who worships Olsmo\textsuperscript{185}, and eventually has a crisis and restoration of faith, as well:

\begin{quote}
I understood everything I had done wrong. I had been far too literal in my thinking. Nothing can be gained from destruction. My mission was to restore the faith, not
\end{quote}

\textsuperscript{184}http://www.bay12games.com/forum/index.php?topic=19239.msg191382#msg191382
\textsuperscript{185}http://www.bay12games.com/forum/index.php?topic=19239.msg191404#msg191404
participate in a bloodbath. The true way to fight evil is to spread the love of Zefon so that no one will have to fear death. I pulled myself out of the fountain, understanding clearly the message of Zefon for the first time.

Kuli ends the story by tying it in to the original invitation by Heavy Flak (and the fortress leader, Aryn Estetar):

But fame and reputation did not matter to me. The only thing I cared about was restoring the faith, and because of my honest effort my congregation began to grow. Still, I was left with the feeling that there was something else I could do, some possibility I had not yet considered that would strengthen the faith.

One day, a certain Aryn Estetar came to the mountainhall where I lived. He preached wild stories about a "utopia in the wastes" and I could not help but think of Zoden Zefon - a pure jewel amidst a harsh desert. That was when I realized what I needed to do. I would go with this Aryn Estetar to seek a new life and a new home. There I would build a new House of Zefon and the faith would truly be reborn. At last Master Logem's dream would be fulfilled, and I would not let any hardship or opposition stop me from achieving it.

This expansion of the story of Migrursut from one fortress into another world suggests that the set of tools can be shifted quite radically, as long as it is meaningful.

10.1.2.4 Summary

Migrursut is probably the clearest example of the boundaries of the narrative architecture of Dwarf Fortress as a creative platform. Not only have the players created a sort of meta-game, stretching the boundaries of play to include tools and inputs from multiple-authors, but now the software is being used as a very specific type of tool for the purpose of telling a collaborative, long-form, episodic story.
By this point (two chapters into a four-chapter epic), it no longer resembles, except on the surface, the story of the butcher we examined earlier. In some respects, the goals seem similar to more traditional models of narrative, but the tools used to produce it, and the rules which govern what is considered tellable, have become radically different.

*Dwarf Fortress* has been turned into a multi-user narrative platform with a variety of user-contributed enhancements, a multiplayer game in which Bay 12's software is only one part of the rule system, and a specialized form of collaborative authorship in which the game's narrative architecture is used alongside a spate of other tools and forms to find things to tell each other.
11 Conclusion

11.1 Recap
In response to the research question “How do the player narratives reflect medium-specific characteristics of the game Dwarf Fortress?”, I think we’ve arrived at a lengthy, but accurate and insightful conclusion.

In designing Dwarf Fortress as part roguelike and part simulation, Tarn and Zach Adams of Bay 12 Games drew on a tradition of game genres that used proceduralism and simulation to give players unique paths through the game. The specific choices in their design served their goal of “giv[ing] rise to some really awesome stories from the players themselves”, I argue, because it took advantage of what Henry Jenkins calls “narrative architecture”. Expanding on Jenkins’ idea to examine narrative architectures of space, code and player choice, I demonstrate how Bay 12 not only encouraged players to view the game as a world full of stories, but also gave players tools to craft their own kinds of tellable moments through the game. Tellable moments, as described by Marie-Laure Ryan and Lisbeth Klastrup, are events which, because they either create or break expected patterns, are well-suited to use in plots, and serve as resources for storytelling. As players became authors, they engaged in a sort of ‘narrative play’ through the game's affordances (and tools created in the community) in order to craft more elaborate and specific story arcs within the general confines of the game. This narrative play is a kind of gameplay strategy in which players use the game's narrative

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186 Harris/Adams interview (2006)
architecture in order to goad the game's code into producing certain kinds of outcomes, outcomes which they aim to use for storytelling. Three different stories provided us with a set of tellable moments in which we saw narrative play alternatively respond to gameplay challenge, create an environment that embodied and staged story, and reconfigure code in order to create new types of tellable moments.

11.2 Coherence

One corollary to the idea of narrative play is that of “coherence”. By coherence, I mean the degree to which the moments in stories are the same as the events in the game world. When we examined the use of editing in Kuli’s near-death in Migrursut or the dry well in Pirates of the Fondled Waters, we saw authors taking extraordinary measures in the game to keep particular characters or features alive in their game. They could have simply ignored those events within their stories, but instead they chose to expend a great deal of work in attempting to re-play and re-configure the game in order to alter that course of events. There’s actually a spectrum of responses to moments where the game and story don’t cohere perfectly – even in Kuli’s punishment with the hammerer, the peasant who carried away the hammer is nowhere in sight in Heavy Flak's version of events. Somehow, the value of coherence is central to using their use of the game as a narrative tool and a site for storytelling. It is possible there are formal similarities between decisions to maintain coherence in favor of one or the other, but I suspect a much broader body of work and a closer analysis (possibly taking a more narrow narratological frame, or an approach through discourse analysis) would be invaluable in studying whether or not this is the case.

For instance, when Marie-Laure Ryan is discussing tellability’s relationship with fiction and
non-fiction, she points out that they might have different criteria:

"Justification is a prominent factor of tellability for information-oriented texts, but if unusual facts make good news, they rarely sustain interest in fictional communication: making up improbable events is just too easy to do. (An exception to this rule is the principle of maximal departure which operates in tall tales: the improbability of the facts is stretched so far that falsity becomes obvious, and takes over as narrative point.) That fiction and nonfiction observe different criteria of tellability is emphasized by (c); some stories must be true in order to be good. " (152-153)

The relationship between fiction and nonfiction is strained in the case of the DF narratives, though, since events in the game world are in some sense always fictional, and yet also always real. The authors are not “just making up improbable events”, and perhaps treating the game events as real, and the story events as fiction, wouldn't be as productive as we might think. In each of the stories, not all of the moments told happen in the game. But those fictional events (i.e., the dream sequence in Pirates) can come back and affect the game, because they get interpreted by players and turned into input for new events.

While we might have seen a kind of fantastic 'reporting' in the butcher's story from chapter 3, that transcription model poorly describes the storytelling model of the three stories we examined in depth. Rather, we should see the game as a tool for authorship – as Aarseth described games generally, a “technical infrastructur[e]...better described as game platforms.”\textsuperscript{188} With this in mind, not only do we understand how and why the stories are dependent on the use of the game for their construction, but we could also see this

\textsuperscript{188}Aarseth, 2004
collaborative writing process as an extension of the game into new spaces, a new mode of play unlocked by the community's efforts.

There's a long history of writing that uses interactivity, computation and randomness\textsuperscript{189} as tools for creating meaning. When we think of these player-authored stories as a form of authorship that rewards both imaginative reflection and technical expertise, we might understand better the role that narrative play has in finding and narrating tellable moments from the game.

Although all forms of narrative play involve some level of expertise, the use of external tools, code edits, and exploits are strong examples of the kind of technical expertise that goes into these stories. As we saw in both \textit{Pirates} and \textit{Migrursut}, the expansion into these stronger forms didn't happen without concern for whether or not it might be “cheating”. The topic of cheating in games has been explored by scholar Mia Consalvo. In her book \textit{Cheating},\textsuperscript{190} she talks about the way that the use of game technology acts as a form of 'cultural capital' for communities around gameplay. In particular, she suggests that conflicts around cheating tend to revolve around the questions of “does it devalue skill”, or “does it detract from other players' experiences?”

But this practice doesn't seem to have many of the aspects of cheating that Consalvo investigates: the players aren't detracting from fair competition with each other, they certainly

\textsuperscript{189} See Montfort (2003) for some evaluations of these traditions, like the Oulipo movement or the practice of Interactive Fiction authors, of whom DF collaborators might be a subset.
\textsuperscript{190} Consalvo (2007), chapter 3
aren't removing themselves from the general constraints of play or avoiding all forms of challenge. The cheating in narrative play is working around an uninteresting result in favor of something more apropos to their interest, something more relevant to why they began playing.

As far as the relevance of the code, perhaps it is similarly relevant to see their use of the tool as a use borne out of a specific context. The ways in which they aren't modding the code (they are not adding to the source code, it is not being forked and turned into a new program, and the modifications aren't made available for other players to incorporate) mean they are unique and dependent on the specific inputs and choices of their authors. They are another part of the story, one that requires significant technical work, especially when it comes to enhancements and mods.

Consalvo points out that players frequently turn to enhancements and mods in order to prevent what she calls the “phenomenon of epiphany loss”\(^{191}\), wherein the pleasure brought by new discoveries wanes as they become more predictable over the course of repetitive play.

While it is possible that the use of procedural content would delay this, procedural content relies just as much as scripted content on patterns and rules, and players grow familiar with the patterns of procedural generation. But just as the sense of agency fosters a sense of play and fun, the ability to set up new patterns helps give rise to a sense of authorship. Fighting epiphany loss isn't just a matter of extending the rules further linearly – players need to feel

\(^{191}\) Consalvo, chapter 4
like they are shaping the outcomes, or otherwise, they have no stake in the extension.

Consalvo points out that “cheating, or however such activities might be differently defined, constitutes players asserting agency, taking control of their game experience”\(^{192}\). There's a bit of a paradox of control, in that some authors are asserting agency over the engine, but still relying on it to provide newness. How might the resolution of this paradox for player-authors reflect different aesthetic goals? An ethnographic approach might help unravel some of these values, and see what they are weighed against. The invocation of “meaning” by the collaborators in *Migrursut* shouldn't be taken lightly, and could be a starting point to examine the community not as a single entity (like I have done here), but as a space in which competing notions of meaning might be debated and practiced.

**11.3 Tellability, Spreadability and the Knowing Eye**

During an interview\(^{193}\), Tarn Adams talks about how “being a mathematician is a very social profession”, and how “there are thousands and thousands of people working, and only one person gets to publish the results. Well, you can publish them jointly or whatever, and that's when people are talking to each other”. Although he's contrasting this with the small-scale development team at Bay 12, I think he's also describing the close-knit community of player-authors that we've been looking at.

Why collaborative storytelling? *Dwarf Fortress* is complex and wonderful, and intended to be

\(^{192}\) Consalvo (2007)
\(^{193}\) Gaschignard/Adams interview (2009)
a single-player game. The developers don't plan on adding multiplayer support to the game, and have mentioned in interviews that they would like to make the single-player experience even more compelling. But I don't think this should (or will) come at the expense of the community and collaborative storytelling.

Implicit in the mechanism of tellability is the idea that some kinds of moments want to be shared. While this is a reasonable assumption, I think further investigation could be useful in tracking these kinds of stories in larger issues of game culture and aesthetics. Nevertheless, I'd suggest exploring this further via the works of Mia Consalvo, Doris Rusch and Henry Jenkins, and I'll give some leading questions in their direction.

Doris Rusch\textsuperscript{194} argues that one form of aesthetic pleasure prominent in games is the cognitive pleasure of what she calls “the knowing eye”, which in her view “provides the pleasure of being right or being surprised by a clever twist.” She further breaks down the function of this knowing eye into a cross-media “narrative” and the game-specific “interface” view: many games tickle our minds because we make connections between the cues of the game world and our actions. Is this pleasure the same kind that the audiences of these stories experience in recognizing the world of the game transformed into the world of the story? Isn't expanding the game's logic into that of a narrated world a way of extending that pleasure into new domains?

This seems particularly fruitful when we think back to Consalvo's work, and remember how deeply expertise and skill are valued in game communities; when we feel like we have had a

\textsuperscript{194} Rusch (2008)
part in the extraordinary moments, we want to share them with others. It is a way of extending the world-like aspects of the game, and participating in a community that recognizes and values your expertise and creativity. If the knowing eye is one of the channels by which a video game creates pleasure, is this kind of technical interactive authorship just another extension of that cognitive, creative pleasure?

Jenkins has also of late\textsuperscript{195} spoken about the notion of \textit{spreadability} in media as the cultural notion that sharing is a vital part of experiencing a work. How might the values and practices of game communities embrace the aspects of spreadability in their experience of an ostensibly single-player game?

\textbf{11.4 Storytellers versus Story Architects}

For developers, I think there's something important in the idea of narrative architecture, as opposed to a traditional 'storytelling' model. I think Tarn Adams had the right idea in mind when he said “give rise”\textsuperscript{196}. Part of why he thought this would be okay was that traditional game stories didn't require “really beautiful symbolism or an advanced writing device like that with a random generator”, but I think he may have been underestimating the interest of players in expanding the range of stories present in the game\textsuperscript{197}.

\textsuperscript{195} Jenkins (2009)  
\textsuperscript{196} Harris/Adams interview (2006)  
\textsuperscript{197} Admittedly, there are gaps I wish were filled: the game seems absolutely ripe for a post-colonial narrative, and I imagine clever tool use could mod-out the heteronormative relationships in the game. But then again, the burden might be on me to prove it possible.
From our vantage point, the collaborative stories can be seen as participating in a 'virtual world' in the socially shared spatial sense Klastrup reserves for MMOs. While wikis, walkthroughs and similar forms of socially distributed knowledge are common for many games, these aren’t usually thought of as extensions of play, much less extensions of the narrative world that carry across multiple media and through different authors. Consider, for instance, transmedia extensions of narrative in games\(^{198}\). Though these kinds of stories aren’t unusual, they are usually conceived of as stories told by developers to the player audience. But Dwarf Fortress provides a model of a game (with a very distinct identity and design) in which the story is driven largely by the narratives the players tell each other.

When talking about alternatives to developer-authored storylines, Raph Koster identifies “post-facto storytelling”\(^{199}\) as one form, and Klastrup points to something similar in the idea of “tellable material designers”:

> Hence, what as “tellable material designers” we are looking for, is an alternative to linear editing, or pre-structured linear progression, of ways to make sure (or as sure as one can be when humans are involved) that certain events are produced or performed which in sum becomes tellable. Ideally, what we want is furthermore, what Richard Rouse refers to as the “player’s storytelling” not the “designer’s storytelling”, that is, an experience of story which takes place within the world, without interrupting the process of the various forms of interaction by the use of out-of-world narrative devices such as cut-scenes, background stories in manuals.

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\(^{198}\) See Jenkins’ *Convergence Culture* (2006) or Long (2007 pp.169-171) for examples from popular media franchises

One alternative to traditional views of storytelling in games would be situating players in an environment full of memorable moments, embedding micronarratives that respond to their decisions and allow the players to construct psychologically interior narratives to explain the connections. As fantastic as this would be, however, as long as we view player storytelling simply as a retrospective process, we'd miss the entire presence of narrative play, in which players might intend to come out with an interesting event. This narrative play is related to emergent narratives, but the active role of player-as-author is very different in this model than in the retrospectively-focused ones.

In private interview, Tarn Adams suggested that the desire of players to work together was partially an outcome of the present state of development, and that they would like to make the game as rich for single players as it is for collaborative partners.

As much as possible, we'd like Dwarf Fortress to be able to hold it's own as a story generating device in a single player environment (in particular because we'd like to end up with a game we can play ourselves!). Players pick up the slack, though, so they are already able to do some really cool things under their own power of course.⁴⁰¹

While I can't second-guess him on what is possible or what he'd like to make, I would like to remind him that their stories, like all play, are collaborative efforts.

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²⁰¹ Tarn Adams, in private interview
If developers continue to incorporate procedural generation or user-generated content (or the two together, for that matter), they’d do well to keep in mind that players will bend systems far to the edges (this is what we want them to do!) but that that same drive will push them to explore forbidden or dangerous boundaries too, since that relies on the same creative drive. I think this is a flaw in the phrase “user-generated” content, since it smooths over the different roles of users in creating content, and the importance of the connection between toolmakers and authors.

Even if the result is not what they (or the developer) intended, it is clear that good storyarchitecting has to respond to the actual choices made and paths taken by players. When players feel like their experiences are reflected in the story, it rewards their investment; conversely, if players feel like the story outcomes aren’t reflective of their experience or are too predictable, there’s little chance for tellability or the drive to continue. Thus, it seems important for story architects to let players have a hand in shaping the outcome of events not just in a binary sense (did you win: yes or no?), but in relating the outcome of events to the way they won, paying attention to the path and course and decisions made in order to get there. As Boatmurdered, Pirates of the Fondled Waters and Migrursut remind us, players can spin good play out of bad events, legends out of disasters, and stories out of chaos.


Thanks

First, a thank you to the developers of Dwarf Fortress, Bay 12 Games, and their inspired approach to their chosen medium. May the Blood God always favor them.

Second in order but not in importance, to the writers, collaborators, and community that formed the heart and imagination of these stories. I hope that they take this in the right spirit, and do not sentence me to the Hammerer for getting any details wrong. May their cats always breed rarely and their anvils ring loudly.

Any merits to these arguments, now or to follow, come from the helpful guidance of so many I’ve spoken to, butted heads with, or been utterly stumped by. A partial list, and apologies to all I’ve forgotten: Katie Clinton, Mia Consalvo, Sean Duncan, Clara Fernandez, Pilar LaCasa, Geoffrey Long, Nick Montfort, Alice Robison, Kurt Squire, Jaroslav Svelch, Philip Tan, and William Uricchio. The failures, to paraphrase a guy, are all mine.

Already, I’m grateful to be ranked with some of the finest scholars --and people-- I have ever known. Thanks peers of ’09; may our collective Intelligence never outshine our collective Wisdom.

My committee, Henry Jenkins, Doris Rusch and Constance Steinkuehler, have graciously undertaken to watch over its production and safeguard me from erring too far. Their patient and diligent guidance has been a treasure to learn under, and I’m grateful for the opportunity.

My family has never believed that stories were a waste of time; they, as always, are right.

Nicole, thank you for being here with me, there with me, and everywhere in between. You have been the best and I cannot possibly thank you enough here.

“Dwarf Fortress can be won by digging lava traps while avoiding elephants and preventing your carpenters from becoming possessed”

- David Edery and Ethan Mollick, Changing the Game

“Losing is Fun”

-dfwiki
14 Appendix I: A List of Authors, Players, Stories

14.1 Boatmurdered:

14.1.1 Location
A compilation of the authors' posts, edited by Evilslug:

http://lparchive.org/LetsPlay/Boatmurdered/

The original threads have been archived automatically at the Something Awful forum archive, located at: http://forums.somethingawful.com/showthread.php?s=&threadid=2165668;

Access requires a paid account with archive access enabled.

14.1.2 Type
Succession Fortress

14.1.3 Initiator
TouretteDog
Evilslug (archivist)

14.1.4 Collaborators
Astronautonomicon
Bremen
Cross Quantum
Doctor Zero
Evilslug
Guerilla Medic
14.1.1.5  **Duration**  
November 10, 2006 – March 6, 2007

14.2  **Pirates of the Fondled Waters**

14.2.1.1  **Location**  
Bay 12 Games Forums, Community Games & Stories

*Pirates of the Fondled Waters (Community Pirate Ship)*


14.2.1.2  **Type**  
Community Fortress

14.2.1.3  **Primary Author**  
valcon

14.2.1.4  **Collaborators:**  
AlienChickenPie  
ColonelTEE3  
Dasqoot
14.2.1.5  **Duration**
March 05, 2008 – March 21 2008

14.3  **Migrursut**

14.3.1.1  **Location**
Bay 12 Games Forums, Community Games & Stories

“*Migrursut: Goodness is a Choice (A Community Fort)*”


14.3.1.2  **Type**
Community Fortress

14.3.1.3  **Primary Author**
HeavyFlak
14.3.1.4 Collaborators (only chapter 1 & 2)

Akroma
bigmcstrongmuscle
dojango
Electrum
Flar Moonchill
Glacies
Ghostpaw
Haven
ironvalley
Jools
Kagus
Kaelem Gaen
Kuli
Lord Nightmare
Lucid_archon
Maggarg – eater of chicke
makrond
Metalax
Mookie Love
ricemastah
sparrow
Stravitch
thunderclan
Vactor
vugor
Xofrevliss
Zironic

14.3.1.5 Duration

March 19 2008 – Current (as of May 12, 2009)
Appendix II: Dwarf Bed Making

The way that players enact these kinds of plots is not particularly transparent or obvious, even by the conventions of modern gameplay, although they are related to the history of simulation games. I'll try to describe this; bear with the lengthy section to follow, as it should serve as an example of both the kind of complexity described above and the kind of information players of DF process as part of their interaction with the system.

If the player wants to create a bed, they do not walk an avatar over to a carpenter's workshop to engage in a bed-building minigame or right-click a Bed icon, or even type "make bed" into a command line; instead, they press "q" to activate the "Task List" menu, highlight the workshop, and then press "a" to "Add new task" to the building's queue. This changes the Task List menu to displays the list of potential jobs available from the Carpenter's Workshop; the player can either use the Number Pad + key to highlight and enter to select from the list, or just press "b", to choose a Bed from the list of possible objects. This selection is then listed under the 'queue' for the building, which sends a message to any dwarves who are permitted access to carpentry that a "Construct Bed" job has been issued.

From here, the game takes over creation, and the player can move on, or choose watch the already-elaborate process continue. The Construct Bed job is assigned to a specific dwarf character based on a set of priorities -- a dwarf will, for instance, override a specific job in order to eat, drink, sleep, flee from perceived threats, and other high-priority tasks; workshops can be defined to only assign jobs from their queue to dwarves of a particular skill level, ensuring that high-value items are created by high-skill dwarves, or that low-skill
dwarves receive more practice. Once the job is the highest priority task for the character, then they locate the particular piece of wood of the chosen type, walk to its location, pick it up, and carry it to the workshop holding the assigned job to create the bed. After a length of time dependent on their skill in carpentry, the bed object is then created: if the player has designated a storage location for the type of object created, a new job is created to move the object to the storage space and assigned to a dwarf who is permitted to move objects.

Once the bed is created, it still isn't ready to sleep in: the player must designate the Building of a bed by hitting "b" to access the "Place Buildings" menu. After pressing "b" again to select "Bed" and selecting the particular type of bed to be built, a cursor "X" is displayed on the map, allowing the player to select the location for the bed. Once a good location is picked (say, snuggled up against a smoothly engraved wall inside a mined-out bedroom), hitting "Enter" completes the designation of the bed's location; which creates a "Construct Building" job (not tied to a particular workshop) for the chosen bed; like with other jobs, the game selects a dwarf permitted to engage in "furniture hauling" and assigns them the task of picking up the bed from its prior location and moving to the new one. Once the bed has been placed in its designated spot, it may either be designated as part of a barracks (and thus available to any dwarf whenever it is unoccupied) or turned into bedroom. Selecting bedroom creates a cursor (a blue "X"), which allows the player to determine the size of the bedroom, which can then, depending on the state of the colony's particular economic development, be freely claimed by any dwarf currently without a bed, or rented to a dwarf in exchange for wages. Bedrooms will then be used to store the dwarf's possessions, and the amount of rent charged depends on size and quality (quality determined by the furnishings and materials: a bedroom carved out of a

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202The cursor will be bright green when a location is valid, and red when invalid, usually because the player is attempting to place it over a wall or inside another a building.
lode of silver will be worth substantially more than one carved out of sandstone). Once the type of bed has been designated, only then dwarves may sleep in it; seeing how many steps are required to get this far, one can imagine just how tired the dwarves get.