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Designing an RPG

Using Emergent Narrative

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Abstract

Narrativity in videogames is a complex subject. Most titles prefer delivering traditional narratives that resemble ones from films and books while other titles provide some choice to the player and have distinct endings. Yet, most of them fail at providing dynamic narratives.

Unlike other media, in video games the player can interact with the world and the characters in real time. This theoretically provides a system that should be able to accept the player's input and use it to build a coherent and interesting narrative. Is it possible to build a game with these ideals? and if it is possible, what is the current state of the technology?

The main task will be researching, reading and organizing papers. Understanding what the researchers are saying will provide enough knowledge to create a solid work. Case studies will also be done to increase the comprehension of the subject.

The final result offers theoretical knowledge about Interactive and Emergent narrative and their procedures as well as in Game Design. At the end there is a "Decalogue" with the most important insights of the work.

Keywords: emergent narrative, interactive narrative, game design, role-playing games, simulation, agency, interactive paradox, procedural generation

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Glossary

Acronyms

ABL A Behavior Language.

AI Artificial Intelligence.

GD Game Design Document.

IEN Interactive Emergent Narrative.

MDA Mechanics, Dynamics and Aesthetics.

NPC Non-Playable Character.

RNG Random Number Generator.

RPG Role-Playing Game.

LARP Live Action Role-Playing Game.

MMORPG Massive Multiplayer Role-Playing Game.

UI User Interface.

Vocabulari

Agency The degree to which a player is able to cause significant change in a game world.

Low agency means that the ability of the player to affect the world is very reduced while high agency allows the player to greatly impact the world.

Emergent The property of allowing the narrative to naturally appear from the interactions between the player and the world, and the interactions between NPCs.

Framework A set of beliefs, ideas, or rules that is used as the basis for making judgment, decisions, etc.

Improvisational Theatre Often called improvisation or improv, is the form of theatre, in which most or all of what is performed is unplanned or unscripted, created spontaneously by the performers.

Level In videogames, the physical area that contains the characters and objects in the virtual world, designed to allow the player to traverse and explore it while having the desired game experience.

Medium Specific form or channel of communication between people. Artistic mediums are, for example, literature, photography, music and video games.

Metalepsis Narratives can generate other narratives. For example, If a character starts remembering past events, these events add another layer on the narrative, and need to be resolved before going back to the main narrative. This phenomenon is known as metalepsis.

Methodology A set of methods and principles used to perform a particular activity or area of study. It encompasses the overall framework, techniques, tools and strategies employed to address research questions, validate hypotheses, etc...

Paradox Statement, situation or concept that appears contradictory or absurd but may reveal an underlying truth or insight when examined closely.

Plot The main events of a play, novel, film or similar work, devised and presented by the writer or author as an interrelated and meaningful sequence.

Procedurality Quality or characteristic that refers to the process of creating new content through the use of specific steps.

Prototype Early or preliminary version of a product, system, or design used to test and evaluate concepts, functionalities, or feasibility. Serves as a working model allowing designers and developers to gather feedback and refine the final product.

Simulation The representation or imitation of real-world processes or systems using computer models, algorithms, or other methods. Used in video games for representing the actions and behaviors of the characters in the world through time.

Triple-A The videogames that big companies produce are referred to as Triple-A 'AAA', which implies a huge budget, team and resources. Middle companies are known as Double-A 'AA' and smaller companies are referred to as Indies.

Introduction

Motivation

I have always enjoyed literature, reading and empathizing with interesting characters, getting surprised by a well done plot twist and discovering incredible worlds. When I started playing video games the narrative part took a big importance for me. It annoyed me the fact that I couldn't really have an impact over the narrative, I dreamt of a game that could create epic and dramatic stories personalized for the player.

While studying the career I have realized that the field that passionate me the most is Game Design. Both in the part of creating the systems that operate behind the scenes as well as everything regarding the narrative. This work allows me to focus on what I like the most, and should provide me with a solid foundation for future projects.

And last, I think that this subject (Emergent Narrative) will have a great impact on the industry of video games. I have the chance to take a step deeper into innovative technologies, and that this research will open me interesting and challenging opportunities in the future.

Problem Formulation

Narrativity, in videogames, is not as different as other traditional mediums such as books and films. Most of the time, the player can only transverse the content that the authors designed. Triple A productions all opt for a simple and successful formula. Control up to the last detail to make sure it's, at least, profitable, polemic-free and according to the standards. In result, games that are considered narratively strong are pretty much the same, offering almost zero possible interaction from the player with the plot.

My hypothesis is that game designers are constraining the capabilities of the game system by controlling too tightly the content, thus leaving the player unable to truly interact with the game, the NPCs and the world.

It is a task that is not as easy as it could sound. **How can a system create coherent and compelling narratives while allowing the player to make decisions?**

Since the term “Narrative” involves other elements, this question can be decomposed into other, more approachable ones:

- Regarding the plot, how should it change according to the player’s actions?
- What degree of freedom would the player have?
- Regarding the characters, how should they behave?
- The resulting system, what characteristics and components does it have?

General Objectives

What are the main goals and objectives of the project? It is important to know them beforehand as a way to align the whole project. Objectives, just like in video games, set the final goal, leading the path of the research and investigation.

- Investigate the history, evolution and implementations of Emergent Narrative, as well as find out what are the current challenges and issues around it, if any.
- Analyze and learn the fundamentals of Game Design and, more specifically, Role-Playing Games.

Specific Objectives

There are as well a few secondary objectives for this final grade research.

- Make case studies and learn more in depth about RPGs.
- Learn what is a Bachelor's Thesis, what is it that a mi being asked for?
- Get better in the fields of Game Design and Narrativity.
- Acquire knowledge about how to perform accurate and scientific research.

Scope of the Project

This is a theoretical Final Grade Research. This work aims at finding a proper current challenge or problem in the development of videogames as well as summarizing all the important elements in the design of an RPG. It should be clear, concise, and should properly answer the fundamental questions.

Having no side project, the scope is rather limited, yet that does not mean that it is not ambitious. The final work should provide a solid foundation for future projects.

This work should be useful for writers and game designers that wish to know more about the field and that want to take their work one step further, innovating and creating systems never seen before.

Methodology

Documentation Structure

The structure of this final degree thesis will be mostly based on the guidelines provided by my college institution, my tutor's advice, and my own take on the formula. It aims at being as clear and instructive as possible.

The format of the document will try to follow the 7th edition of the APA style. Which ensures a formal and academic presentation. This includes the general text, headings and titles, citations, references, and similar parameters.

Phases of development

The methodology used for this project is the Waterfall. A linear methodology that provides a steady and controlled flow of work. The approach that it takes consists of dividing the development into several phases, where each one needs to be completed in order to advance to the next.

A more *agile* methodology was considered, since it allows a more iterative approach, making a balance between researching and developing. However, the nature of this project is rather theoretical (therefore it is less important prototyping and gathering feedback). It needs less time for prototyping but invests more in making a deeper investigation and problem-solving. It also aligns very well with having set deadlines and concise instructions and references.

There are four phases:

1. Preparation
2. Research
3. Case Studies
4. Verification

Preparation

In this phase I will investigate what is a final grade research, what are its components, its objectives, and what skills I have to learn in order to do the best possible work. It is also often called Requirement Gathering.

It is also the phase in which I will plan all the deliveries and set a basic plan of work. Using a calendar or tools like Trello to make the process as simple and optimized as possible.

This phase also sets the overall subject of study and initial question, goals and objectives. Once it is done, it is time to start researching references.

Research

This phase aims to make a thorough investigation of the subject. That translates into finding the most relevant authors and reading their work, as well as browsing and organizing many academic papers, conferences, and other articles.

In this phase, I will also work on refining the scope and the goals of the work. It is important to find what are the current challenges in the area, as well as its origins and historical evolution.

This phase includes the development of the Theoretical Framework and the State of the Art. It will set the needed bases of knowledge in order to be able to do a proper analysis of video games and create my own emergent-based system.

Case Studies

In order to acquire deeper knowledge into the field, several case studies will be done. It will be selected for their relevance in the context of the study. Should provide insight on how to develop other projects and should improve the conclusions of the work.

Verification

After I have the document written I will have to iterate it a few times to polish it and give the final touches. Also a review of all the fonts, citations, format requirements, and other details.

After all that work it will be time to do the final delivery and prepare the presentation and defense of it.

Project Management

SWOT

SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. It is a simple yet powerful tool that gives a quick evaluation of the project.

Overall, the SWOT analysis provides the project with a comprehensive and structured approach to evaluating the current situation and planning for future and potential threats. Using it leads to more informed decisions, identifying potential areas of improvement as well as finding what are the strong areas of the project.

Table 1

SWOT Analysis

	Positive	Negative
Internal	<p><i>Strengths</i></p> <p>Caring for details</p> <p>Avid reader</p> <p>I can always ask for help from my friends</p>	<p><i>Weaknesses</i></p> <p>Regular procrastinator</p> <p>Low energetic and prone to getting sick</p>
External	<p><i>Opportunities</i></p> <p>Good support from my college institution and my tutor.</p> <p>Economically fine and a lot of spare time.</p>	<p><i>Threats</i></p> <p>That the subject is truly stuck and innovation is hard.</p> <p>The resulting product could fall short in many aspects</p>

Risks and contingency plan

Understanding the main risks and creating a strategy to overcome them results in a better quality product. Risks can come from exterior factors but most of the time will be internal, and while the solutions might not always be effective knowing them will at least reduce the risk.

Table 2

Risk and Contingency Plan

Risk	Solution
Losing motivation	There is always an intrinsic motivation because I like a lot what this project is about.
Prioritizing other activities	Although life is always unpredictable and difficult to manage, I should prioritize this project very highly, since it may open doors in the future and I also want a good taste for this last year of university.
Having such high standards that will end up giving me anxiety	Lowering the expectations, and maintaining a balance between something affordable but stretching the limits a bit.
Failing other subjects, thus leads to less morale	It is hard to do everything at its best but passing the other subjects seems relatively doable. Organization of time needed.
Having a combination of bad habits, therefore having less energy and morale.	If possible, maintain a minimum sleeping and eating routine. Sport every now and then would be ideal.

<p>Doing Gestalt at the same time takes me one weekend each month, sometimes combined with exams and deliveries makes it awkward.</p>	<p>As always, time management and organization are key. Sometimes doing the best that I can is good enough.</p>
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Cost Analysis

This project is expected at least to be 300 hours of work time, the equivalent of 12 ECTS (European Credit Transfer and Accumulation System), since each credit is considered around 25 hours. With a salary of 10€ per hour, it's a total of 3.000€, almost as if I was working part-time.

Books and needed sources can all be found on libraries or internet portals for students, so that part will be free.

As for the hardware, I will take into account the extensive use of my computer and peripherals during these four months as well as the electricity used. PC and both screens' lifetime is expected to be five years, while mouse, headphones and keyboard only two.

Software I will only take into account the games needed for this work, programs used are free and don't need licenses.

In total, the development of this final grade research is around **3.600€**, technically it also costs me the price of the subject itself (around 900€) but I will not take that into consideration.

Table 3*Cost Analysis*

Concept	Cost
Salary	3.000 €
Hardware	293.33 €
Computer	80 (1.200)
Screens	20 (400)
Peripherals	33.33 (200)
Electricity	40/month
Software	314.79 €
The Last of Us	59.99
Dwarf Fortress	28.99
Caves of Qud	16.79
Kingdom Come: Deliverance	29.99
The Outer Worlds	19.79
Skyrim	39.99
Left 4 Dead 2	9.75
Risk of Rain 2	24.99
Shadow of Mordor	19.99
Shadow of War	39.99
Rain World	24.50
Total	3.608,09 €

Theoretical Framework

Introduction

“Agency is the satisfying power to take meaningful action and see the results of our decisions and choices” (Murray, 2017, p. 159).

Agency is the feeling of freedom that the player has in a video game. The player wants to interact with the story and the characters in a meaningful way. The issue for the players is that their agency needs to be limited by the authors. If the author/writer of the story wants that character A becomes king, that character can't, by definition, die or not succeed in the task. Because the whole story is designed in a way that the ending feels satisfying to watch. Maybe the fact that this character becomes king is why the player has been fighting for the whole game.

For the gaming community, it is popularly thought that the more agency the better, and players might even demand or get disappointed by systems that limit it too blatantly.

Authorial Intent is the name that receives the amount of input on the narrative and final experience by the designers. In a film, the authorial intent is at its peak, controlling up to the shortest shot, light and word spoken.

Authors and designers of videogames need to limit the amount of choices and possibilities of the players in order to create a coherent experience. On the other side, players want to be as free as possible within the world.

This polarity is known as the **Interactive Paradox**: the difficulty of conveying a coherent story in the presence of an unpredictable human interactor (Louchart & Aylett, 2004)

The Interactive Paradox is one of the bases on which the theory of Interactive Narrative (IN) is settled. IN is a term that is used to describe a narration or set of events that can change by the consequence of a user's action and decisions.

Hypertext¹ is the traditional form of IN. The user can interact with it by selecting nodes (pieces of information) that are connected by links (the path in between). Hypertext creates structures similar to a web or a tree. A clear example of hypertext is the Internet, pages connected through links.

“The potential uses of hypertext links in a narrative fiction are multifarious, ranging from offering the reader conscious plot choices in a choose-your-own-adventure style to establishing multiple narrative lines of narrative or multiple character perspectives on the same set of events, to serving as any kind of footnote-style reference, to poetic or linguistic play between words or scenes in a narrative” (Koenitz et al., 2015).

Videogames have tried to solve this paradox in different ways. To summarize, there are basically two main approaches. The first one is “**Top-Down**” and is what Hypertext does. The author creates everything until the smallest detail and lets the player explore it. The second approach is “**Bottom-up**”, where the narrative emerges from the interactions of the world, the NPCs, and the player. It gives more agency and experimentation at the cost of detail and control over the experience.

¹ First conceptualized by Theodore Holm Nelson in 1965 in his paper “A File Structure for the Complex, the Changing, and the Indeterminate”.

There are also games that do not rely on narrativity at all. Here we can find arcade titles, roguelikes, and most multiplayer games (shooters, sports, fighting). Those games often focus on the mechanics and do not require any sort of narrative. The narrative is not one of the core pillars of these video games.

If the videogame aims at having a plot, with dramatic characters, plot twists, and a climax in the story (just like a book or a film would have), the easiest way is by limiting a lot the impact of the player's actions over the narrative (top-down). This often leads to games having long and beautiful cinematics while still capable of delivering complex and engaging gameplay. Productions such as *The Last of Us* (Naughty Dog) enter this category. In those games, the player will often have windows of gameplay, where they will explore the world and complete the objectives until another big piece of narrative will be delivered. If there is a main argument against these games is that sometimes those games feel 'too forced' and the player can't really have any impact on the overall plot even if trying.

Having a **branching narrative** is also quite popular, and it can be said that video games really shine as a medium in this area. It requires a bit more of a design process since many paths need to be written and produced, but it gives a bit more agency to the players. Although all the content is, still, completely authored. It actually does not differ a lot from the 80s gamebooks *Choose Your Own Adventure (CYOA)*.

Detroit Become Human (Quantic Dream, 2018) is one of the most recent and detailed examples of it. Having around one hundred possible endings and three playable characters with intertwining plots. The player is able to choose how they want to transverse the story during certain events.

These systems still have similar issues, an example of this happens in *The Walking Dead* from Telltale Games. This game is known for having many decisions that do not feel rewarding to the player, for example, having the choice to save character A or character B, to only see them die in a few chapters, no matter who was saved. It leaves the player with a bad taste, as if the choice was meaningless.

Those games are either A (*The Last of Us*) full narrativity but zero choice from the player, or B (Branching narratives, *Detroit Become Human*) the player has some choice, but all they can do is explore the possibilities that the designers created. Both approaches are able to create engaging experiences and great storylines, at the cost of limiting agency.

If we move completely to the agency side we need procedural technologies. In these titles, there is a lot of work to do a proper simulation of an interesting and vivid world, where the player can interact freely with it (bottom-up). Procedurality is required in order to keep the simulation alive, from the creation of the worlds to each individual NPC decision. Those games will often have systems that will let the player interact with the world in multiple ways, some of them even unthought to the designers. An early example of a simulation of this kind is *The Sims* franchise (Electronic Arts).

We will find those games labeled as “Story Generators”, “Colony-Sims” or “Simulation” in Steam, the popular video game digital distribution service by Valve. However, if we search for “Emergent Narrative” we will find nothing.

Before moving into the next section, the meaning of narrative in a video game can be a bit confusing. A player having just survived after defeating a boss with one health point left

feels both epic and rewarding. At the same time, when an NPC sacrifices themselves for the same player in a cinematic will also be captivating and narrative plenty. Both are narrations, but the first kind is not explicitly told or narrated in the game and happens mostly in the player's mind, while the second one has been carefully thought of previously by the author or authors with the aim to create a dramatic effect. For the following part of this work, I will refer to narrative as the second form.

Types of Interactivity

A key piece of the theory is the types of interactivity by Marie Laure-Ryan (2006, ps. 107-121). It is a useful framework to categorize games by the way that the user interacts with the story.

The main two axes are

- Internal - External
- Exploratory - Ontological.

In the **Internal** mode, the player will embody and be the personification of a character, represented in the virtual world and able to interact with it. First Person games and most modern RPGs fit here.

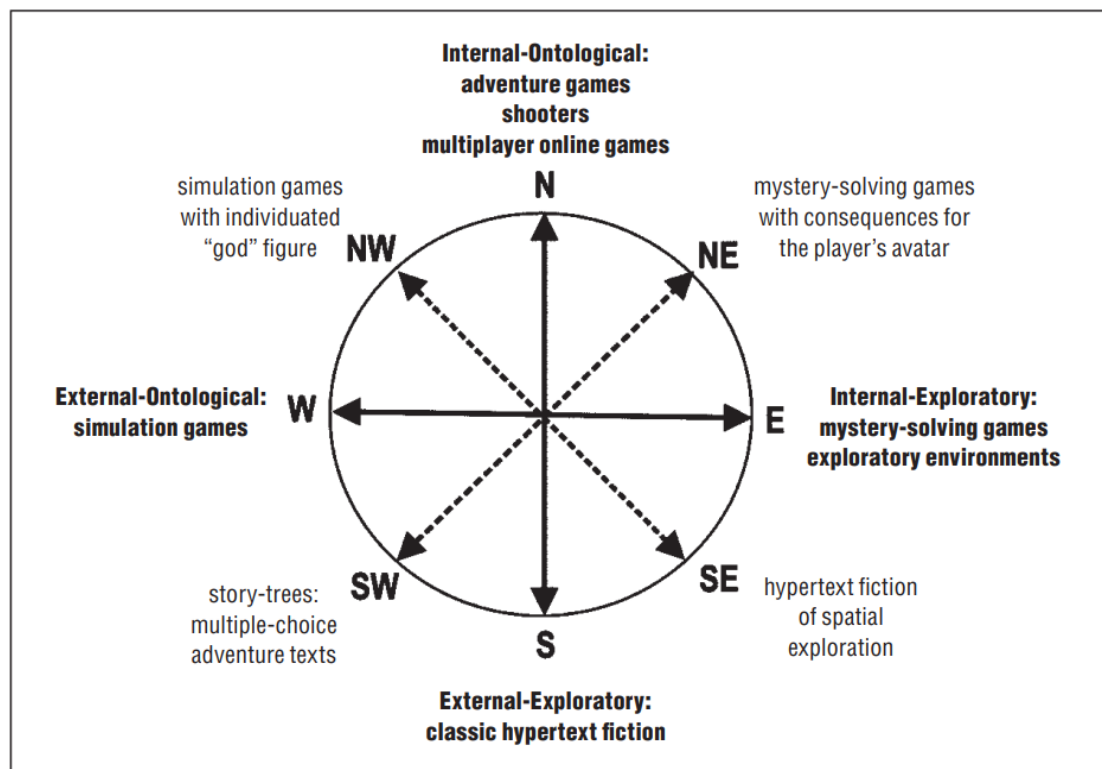
In the **External** mode, the player adopts the position of a 'god', the games focus more on the system and allow the player to make decisions such as how many units to produce, how to expand the colony, and command whole armies. "Colony sims" are a popular way to define games about maintaining and growing a family, city, or empire. This is interesting because those games rely more on simulations and care less about having dramatic or Aristotelic narratives.

Regarding the second dichotomy, **Exploratory** is when the paths are pre-scripted (designed beforehand) and all the player is allowed to do is explore and find them. Having multiple permutations and complex paths yet without any trace of emergency (new content cannot be created, cannot emerge from the interactions between the player and the game). The actions of the player cannot, in a way, modify the preexisting world.

And last but not least, **Ontological** is when the different paths in the story are dynamic and can change depending on the player's decisions. The main issue is that often those games are not really narrative-dependent again. Games such as Civilization, The Sims and Dwarf Fortress.

Figure 1

Types of Interactivity



Note. (Marie Laure-Ryan, 2006, p.121)

Exploratory is what Hypertext does, all the paths and possible routes have been designed in a top-down manner, and all that the player can do is go through them and is unable to have any real agency over the world. The Ontological axis instead presents more of a bottom-up style, setting up the initial elements and behaviors and letting the player interact with them.

Emergent Narrative

The Types of Interactivity is key to understanding what Emergent Narrative (EN) is. The Ontological axis, where the player can actually change and interact with the world, and where it is expected that the same world and NPCs can react to the player's input in a coherent way. When this happens, researchers and academics refer to it as Emergent.

The small issue is that the term has been used in multiple ways, sometimes referring to different approaches. Before defining the term, there is an important concept that will help understanding where Emergent Narrative first appears, and how has been it's evolution through the course of the years.

In 1997, Janet H. Murray published *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (and published an updated edition in 2017), where she argues about the future and the possibilities of EN, while at the same time analyzing the current state of the technology. One of the core concepts that inspired many researchers is the Holodeck, from the TV Series *Star Trek*.

To summarize its capabilities, the Holodeck is a machine the size of a room that can create an infinite amount of mesmerizing stories and simulate not only characters and environments, but even physical touch and drink. The user can step inside and submerge into any imaginable world for as long as they wish. The plot will react coherently to the user's actions and will create any kind of imaginable stories.

“No matter what the user says or does, the synthetic agents respond coherently and integrate the user's input into a narrative arc that sustains interest.” (Ryan, 2008)

Murray also proposes three points that will act as a keystone to the development of this kind of experience.

- **Natural Interface**

The users of the Holodeck can interact with the generated world the same way that humans interact with the real world, through language and gestures. That is, the ability to both affect the physical world and establish relationships with other human beings.

- **Integration of the user within the story**

The user's actions contribute to moving the plot forward. That is why, as she argues, archetypal patterns such as the ones described by Vladimir Propp and Joseph Campbell have been so popular (more on this topic later). A hero receives a mission, performs a multitude of tasks, and gets rewarded at the end.

- **Dynamic creation of the story**

Each of the user's decisions should lead to different outcomes. Each interaction with the NPCs should also affect their fictional persona and life. There are almost infinite permutations and the only way for the system to deal efficiently with them is to compute the effects of their actions in real time. That dynamic process is known as simulation. The Holodeck is by definition a bottom-up system.

“When NPCs are autonomous, their actions will be determined by their simulated consciousness, that is, their sensations, emotions, and personality traits.” (Murray, 1997, p. 218).

Two years later, Ruth Aylett, a key figure in the development of the theory of EN, gives the first definition of the concept:

“When NPCs have complete autonomy, an interactive narrative is referred to as an emergent narrative.” (Aylett, 1999).

A videogame with EN means that its narrative changes constantly depending on the player's actions and decisions. That is, the structure of the narrative is not written (pre-scripted) by the author, instead, it shifts with every playthrough. The author still has to create the setting, the world and all the needed elements and variables that the program will need. It has to develop a system that gives the player the freedom of doing whatever he/she wants, this system has to be able to produce a coherent, compelling, and dramatic narrative, or at least interesting and memorable enough.

As we have seen, the main advantage of having EN over another, more static, one is that it greatly empowers the player agency, since they will have much more freedom to interact as they like and without as many restrictions.

In videogames, it also encourages replayability to a great extent. Since every playthrough will go differently, with the NPCs reacting according to our decisions, the player is encouraged to replay it and explore everything the system offers.

There are some key examples of EN experiences that researchers have produced. The first one is *Façade*. It is an academic research project from 2003. Mateas and Stern developed during five years a short prototype of what an interactive dramatic simulation would look like. With its complex AI system, natural language processing and two compelling NPCs, *Façade* offers a short experience with multiple endings and permutations each one with an Aristotelian plot.

As a small introduction, *Façade*'s plot is that the player is a long-time friend of a couple, Grace and Trip. The game starts with a call from Trip, he is inviting the player to their house for a friendly meeting. The game lets the player interact with the two NPCs at any time by typing (as if he/she was talking to them) and discover that their relationship is falling apart (it is a *façade*). There are multiple endings, from saving their relationship to being kicked from the house. It has a length of around 8 minutes per playthrough.

Figure 2*Grace and Trip from Façade*

Note. In the moment of the screenshot, the player was about to say the line “oh yes, I’m fine”, answering their previous question.

“Façade is an attempt to find a capable middle ground between structured narrative and simulation. We want to combine the strengths and minimize the weaknesses of each approach.” (Mateas and Stern, 2003)

To find that middle ground, running in real-time there is an AI called the Drama Manager, a solution that was first proposed by Bates in 1992. Its main function is to organize and sequence the Story Beats, the smallest unit of dramatic action that moves the story forward. (McKee, 1997)

For example, the player being rude to Trip triggers a specific beat that results in him kicking you out of the house. In *Façade*, there are around 30 beats that had to be written beforehand, then the system uses them as its best trying to create a dramatic plot.

“Beyond what a pure simulation contains, however, is an additional invisible agent called the drama manager. The drama manager continuously monitors the simulation and proactively adds and retracts procedures (behaviors) and discourse contexts by which Grace and Trip operate.” (Mateas and Stern, 2003)

This Drama Manager is actually a combination of different subsystems that work together. And the concept of having an AI that constantly monitors the players and controls the flow of the plot is absolutely key to the development of EN stories.

To give a greater idea of how *Façade* simulates the world and reacts to the player, the following section will briefly explain the main systems behind the scenes.

- **Behavior Language (ABL)**

This system is in charge of the behaviors of Ben and Trip, it lets them sense and take action in the world. An example of this would be observing where the player is standing and approaching them to engage in conversation. These behaviors send simple parameterized action requests such as “take an angry walk towards the couch”.

To name a few: `GetObjectPosition`, `DoWalkStep`, `DoGestureAnimation` or `GetAllHeldObjects`. In ABL, all activities are represented as goals, each goal being supplied with several behaviors to accomplish it.

But not only do both NPCs have their own ABL, the player also has one. The player's ABL instead senses their actions and extracts meaning from them, thus supplying information to the other agents.

The practice of having a system that constantly monitors and extracts information based on the player's actions will be later known as Player Modeling (Riedl and Bultiko, 2013) and will become one of the key points in EN systems.

- **Natural Language Processing (NLP) and Reaction Decider language**

The main player interaction in *Façade* is talking to the NPCs, which is achieved by typing on the computer in real-time, this sometimes produces some awkward windows where the NPCs react strangely. The player's typed text and discrete gestures are mapped into discourse acts, that at the same time are mapped into reactions. The technology that they used is now quite obsolete (two decades) but it acted in two main phases, the first one in charge of recognizing discourse acts (what the player means) and the second choosing between potential reactions (how the NPC reacts to that meaning).

- **Beat Sequencing Language**

The idea behind this is that the author can annotate each beat with selection knowledge. That is, designing each action within the beat, and all the needed variables that will constitute it. For example precondition, weight, priority, effects, etc.

Given a collection of beats, the beat sequencer will be constantly selecting the following beats, by analyzing their needed preconditions as well as evaluating them by dramatic tension

and priority. The sequencer will try to match an Aristotelian shape, by selecting the beats that match the required score. With that process, the whole story can be constructed.

Moving to the second project, around the same time, Ruth Aylett collaborated several times together with Sandy Louchart. In 2002 they started collaborating for the EU Framework V-funded project, Virtual ICT with Empathic Characters (VICTEC, 2002). They worked on a VR anti-bullying project, FearNot!. It was released in 2005, and they published several articles regarding the process, the challenges, and the methods they used to develop the project.

The educational game places the player in front of scenes interpreted by virtual actors (NPCs) showing aggression or bullying. Then, in the middle of the scene, the NPCs will stop and ask the player what they should do next. They needed EN because it depends on the player's open answer. It is important to note that because of the nature of the project (educational game for children) the system needs to be limited to give adequate responses to the user, teaching and giving a moral and ethical message to the next generations.

To achieve that, FearNot! incorporates an "affective" agent architecture called FA*ti*MA (Aylett et al., 2005). That incorporates two components required in any EN agent architecture: a continuous planner and an emotional personality model (Louchart et al, 2008).

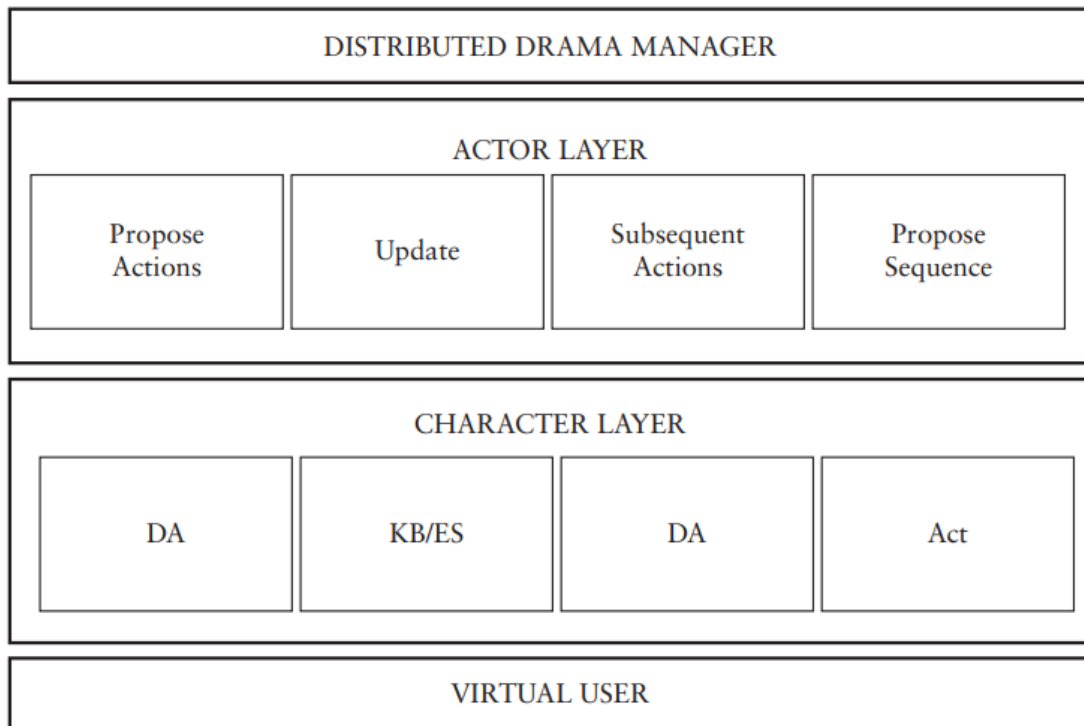
FA*ti*MA provided a glimpse of an EN implementation in its most primitive form (Koenitz et al., 2015). That featured emotionally-driven agents that also serve to enable user interaction. The model is based on the OCC cognitive theory of emotions (Ortony et al., 88). Each character had a few authoring components (such as personality, emotional reactions,

action tendencies, goals, and actions). And its architecture implements two separate mechanisms that link emotion to character actions, first, emotions feedback in the planning process and facilitate goal selection (action templates can be defined previously), and second, those emotions trigger action tendencies. In 2008, they introduced the Double-Appraisal (DA) modification.

DA introduced the core of a metanarrative layer in which characters were aware of the implications of their actions in the other characters, including the player, but not to the developing core narrative. It was implemented as a constant action-selection mechanism, aiming at all times at the most emotional answers, thus not leading to a desirable narrative composed of highs and lows.

In 2012, they investigated how pace and structure could be represented while using a bottom-up EN approach, developing yet another version of the Drama Manager, the Distributed Drama Manager (Weallans et al., 2012)

“Distributed Drama Management was developed around the notion of a metanarrative representation at character level by which the agent character is aware of its role as a character in the story as well as its relationship with the player character.” (Koenitz et al., 2015)

Figure 3*Distributed Drama Manager Components*

Note. The Actor layer refers to the reaction systems from the system (possible actions, update, selected actions and proposed sequence). Character layer refers instead to the characters systems.

- The Virtual User (VU): The Virtual User provides authors with a hypothetical user and helps them consider their possible actions and preferences. Can be used to imagine multiple cases and help develop a system that would suit them.

They also propose a few points to improve the current drama manager and EN implementation, those are contextualization and feedback gathering.

The relevant context modeling, that is, a solid narrative setting that provides a background, a structural metanarrative layer. That would potentially strengthen the

foundations of the EN approach. To give an example, the death of Caesar could have an indirect yet profound effect on the emotions and motivations of a Roman farmer at a character level.

Another important element is Intelligent Narrative Feedback (INF). The system would provide authors useful feedback for authoring EN experiences, and should be based on real time-simulation (Kriegel et al., 2007). Should address problems inherent to EN (for example, certain characters being inactive due to lack of narrative option) and feedback should assist in solving these issues.

To summarize, the most researched options when developing EN experiences are:

- **Drama Manager:** An IA that is aware of both the player's actions and state as well as the NPCs' states. This IA is also in charge of deciding how the narrative should proceed.
- **Player Modeling.** In *Façade*, this corresponds to the ABL that was constantly monitoring the player's actions, and is in charge of extracting meaning from those actions and informing the rest of NPCs.
- **NPCs behaviors.** It is also important to develop an IA for the characters so they can respond in real time to the player as well as interact between them.

Having these three pieces contextualized, in the next section of this work we will explore how to design a game, an RPG in this case, while keeping in mind how EN can be implemented.

Game Design Principles

Now that IN and EN have been explored, their properties understood and a general knowledge of how videogames are approaching it, we will dive on how to design the game. What do we have to define and design exactly? What parts need to be thought over and how can we also implement EN properties on the system?

Game Design is the discipline that studies everything from how to develop mechanics, systems and rules to the world, characters and story in a video game. When designing a video game, there is a need to make a distinction between two forms of play, Ludus and Paidia (Caillois, 2001). Ludus refers to those games with clear instructions and goals (most competitive games for example, from chess to League of Legends). Paidia is the opposite, the goals, objectives and underlying systems are not set in stone. Children games resemble a more paidia form of play, where factors such as fantasy, creativity and improvisation shine the most.

“The goals in ludus are structured, specific and measurable and it takes effort and acquisition of skills to reach them. In paidia, the goals are more flexible, implicit, changeable, and player-led, like playing a sandbox.” (Weitze, 2014)

Sometimes, that distinction is not as clear as it seems. In the recent Nintendo titles "The Legend of Zelda: Tears of the Kingdom and its predecessor The Legend of Zelda: Breath of the Wild. Although the objectives and the quests are all explicit, the ways that the mechanics available to the player can be used are multiple. The player is given a set of tools, and with these tools they can craft anything. From flying ships to incredible weapons.

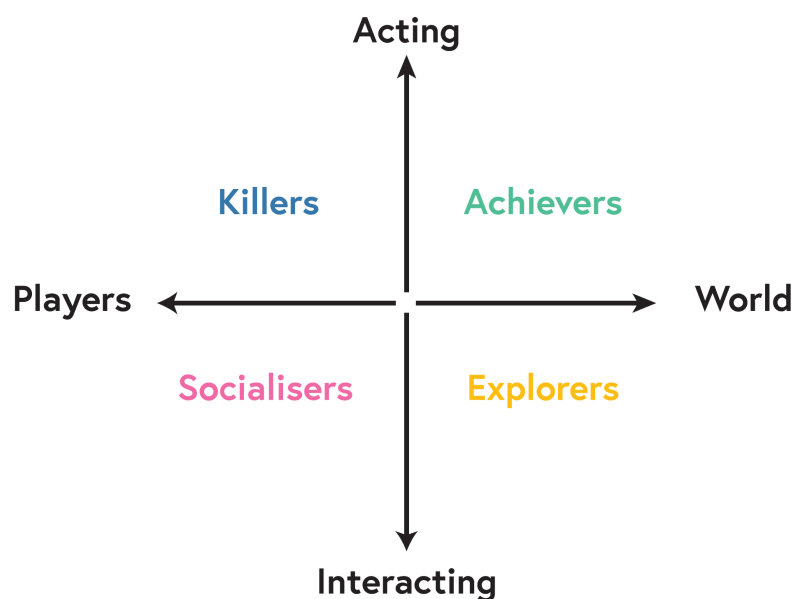
Having a proper set of mechanics will let the player face the same situation in multiple ways, some of them even unthought of by the designers. That phenomenon is known as **Emergent Gameplay**. It adds depth, replay value, and unpredictability to games. It allows players to become active participants in shaping their own experiences and it rewards creativity and innovation greatly. It is also bottom-up by definition.

Videogames are designed to be played, yet, not all players are the same, some prefer certain activities over others. What types of players are?

In the field of gamification, Richard Bartle published a paper in 1996 in which he exposed four types of players. What each one of them wants, likes, and dislikes. It can serve as a guide to better understand the player base as well as the current player in the game. It is important to know what kind of players the game is aimed at, thus improving their experience as much as possible.

Figure 4

Bartle's Player Types



- The Achiever: Those are the players that prioritize having better stats, equipment, and cosmetics than the others. They might go to great lengths just to get an exclusive item since that is the way that they have to compare and be better than others. They are also after achievements and will aim at completing all of them.
- The Explorer: Those players love discovering what the world will offer, and what the story will be. They enjoy meeting new characters and doing their quests, traveling through the map, and reading LORE².
- The Socializer: A more social type of player, they like forming communities, helping new players, and joining clans/teams. They will prefer multiplayer games where they can meet new and interesting people.
- The Killer: Another of the social types, killers are all about beating their opponents. They are very competitive gamers that aim at mastering the game and dominating their rivals.

MDA Framework

The MDA (Mechanics, Dynamics, Aesthetics) is a popular framework for Game designers to analyze the core system of the game. According to Hunicje et al., games are subdivided into different components: rules, systems, and fun, which are related to their design counterparts, mechanics, dynamics, and aesthetics, respectively. (2004)

Mechanics: Those are the rules and the interactions that define how the game functions at a fundamental level. Those are the tangible components of a game: the player's actions, controls, goals, resources, and algorithms that govern the game's behavior.

² LORE is when the story is scattered through details and dialogs over the world, it is not explicitly told and the player has to infer most of it. The Dark Souls franchise for example.

In a shooter, for example, shooting, reloading, and swapping weapons, as well as running and crouching. Those are the actions that the player has to interact with the game.

Dynamics: The behaviors, experiences, and player interactions that are possible thanks to the mechanics. The patterns of gameplay, the strategies employed to succeed, and the resulting experiences.

In an RPG for example, there is a popular mechanic that lets the players open doors and chests that otherwise wouldn't, "Lock Picking". That leads to the dynamic of the player practitioner thievery around the map and probably being prosecuted by the authorities sometime later.

Aesthetics: It refers to the emotional response and subjective experience of the player. It encompasses everything from the sensory, emotional, and psychological impact of the game on the player. Elements such as the game's visual and audio design, storytelling, immersion, visual effects, and similar.

Crafting compelling mechanics and dynamics is probably the most important part of a game's design. It is what the player will be doing most of the time, and constructs the backbone of the game experience. Not only that, mechanics are what define a game's genre. Jumping for platformers, shooting for FPS...

After these elements have been exposed, a question arises. What are the elements of a videogame? What needs to be defined in order to craft the final product? We find the answer

in the document that Game Designers deliver when pitching their new ideas or when entering the production phase of the game, the **GDD (Game Design Document)**.

There are three types of GDDs, the first one is for pitching the new ideas to potential investors, the second one is when entering production phase (gameplay, mechanics...) and the third and longest type of GDD consists of the world bible (all the world, races, characters explained) and the story as well.

A proper GDD consists of the following items:

- The characters (appearance, psychology, background, goals...)
- Story (dramatic background and setting)
- The world (where is the action taking place)
- Gameplay (mechanics, player progression, game loop, victory and defeat conditions...)

In the following section of this work, each element will be explained in depth. Not only that, how these elements often are designed for RPGs and how EN demands to adapt them.

But first of all, what is an RPG needs to be explained.

The RPG genre

A Role-Playing Game (RPG) is a genre that is characterized by allowing the player to take control over a character and giving them multiple options as to how to traverse the story, explore the world, dialogues and choose playstyle. (Adams, 2013)

It has its origins in tabletop games such as Dungeons & Dragons (D&D), a cooperative game where players create their own fictional characters and role-play them, that means they impersonate the characters and act as if they were them. Not only that, Dungeons and Dragons as well as similar games feature what is called a “Dungeon Master” (DM). One of the players takes the position of a “god”, and is in charge of creating the encounters with monsters, advancing the story and deciding the outcomes of the dice throws from the players.

What is very interesting from this example is that the Dungeon Master is actually similar to the concept of the Drama Manager. It has the role to progress the narrative as well as incorporate the player’s actions into it. The DM is also aware of the state of the players at all times and has the power to affect them directly, by creating events, battles and plot twists.

In fact, D&D has its roots in Improvisational theater (Improv), where participants and performers build a narrative in real time according to the other’s unexpected actions. The performance progresses without a pre-written script, surprising and innovating all the way through. Not only that, D&D as well as Improv are all collaborative experiences, where many people interact with each other at the same time.

“An important theoretic belief of this work is that when individual contributions are put together, a collective wisdom emerges that produces interesting relationships and properties that can transcend single authorship.” (Swanson & Gordon, 2008)

At the core of the RPG Genre, there is **Combat** and **Movement**. All RPGs rely mostly on combat with enemies and with the player progressing from area to area. Combat is the main mechanic of the game and the rest of mechanics are mostly designed around it.

Movement is necessary in order to progress through the world, new scenarios and locations are key to unfolding the narrative and keep the player engaged.

Most of them have a fantastic or sci-fi setting, offering a variety of Non-Player Characters (NPCs) to interact with, a multitude of weapons, armor, and spells, and several side quests to enhance exploration and content.

RPGs have multiple sub-genres due to their all-time popularity. Some of the most well-known genres of RPGs are Dungeon Crawlers, which focus on fighting and looting special locations. MMORPGs (Massively Multiplayer Online Role-Playing Games) that feature huge worlds and allow multiple players to be connected at the same time. Souls-Like RPGs due to the success of the Souls Franchise, it has become a very popular genre that mostly focuses on difficulty and roll and parry mechanics and many others.

The Parts of the RPG

Story

The story is one of the central pieces in any audiovisual work, be it a film, a book, or a videogame. But, how can we create compelling and interesting stories? What are the most commonly used methodologies that we can learn and use to create our video game?

Creating a story that hooks the player, that keeps them engaged with the world, and the characters, that intrigues and excites them, is not an easy task. Literature Theory can provide useful guidelines to Game Designers for constructing the world, the plot, and the characters.

Three acts Structure

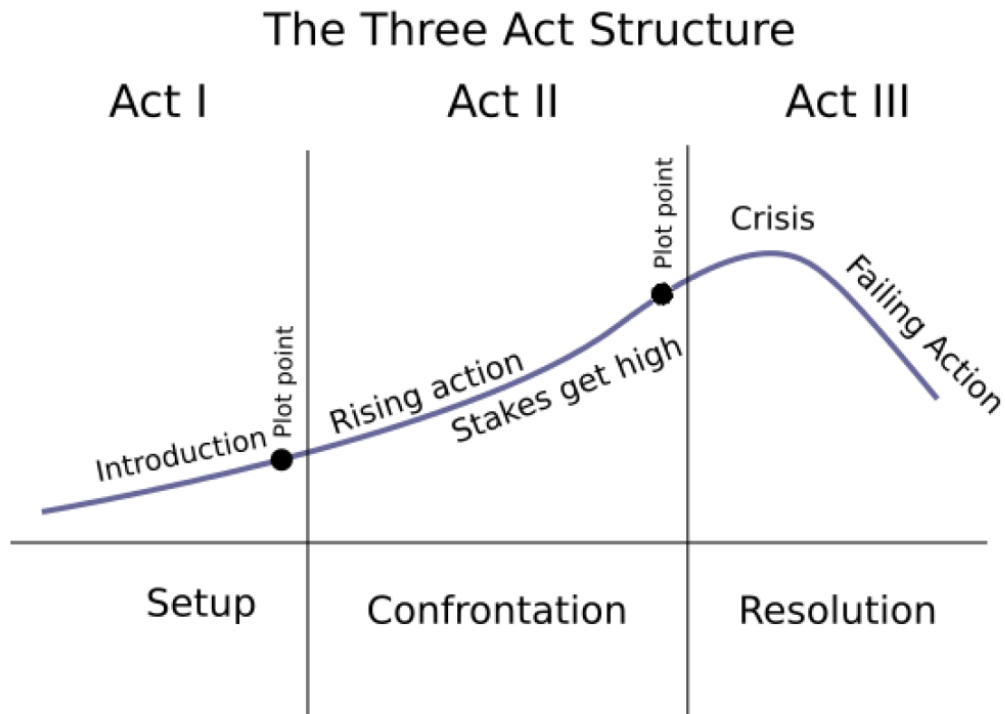
Structuring the narrative in three acts is probably the most known and used technique, from films to books and theater. It has several key elements in each act, all together forming the necessary pieces for a dramatic and epic story. It was originally developed by the Greek philosopher Aristotle in 335 B.C (Poetics, Aristotle)

Aristotle emphasized in the phenomenon known as “catharsis”, as he defined it, the purification of emotions through art. Catharsis is one of the most important mechanisms to move the reader and as well the main enjoyment of the spectator.

The three acts structure was popularized by Syd Field in his 1979 book *Screenplay: The Foundations of Screenwriting*, and was mostly focused on the film industry.

Apart from the three acts, creating a plot sometimes can use having a prologue and or an epilogue. The prologue narrates the facts that happen previous to the first act, can be even many years earlier, and most of the time introduces an important element that contextualizes the story. The epilogue happens after the end of the plot, most of the time it is used to show a future time and see how have the characters followed their lives, or the state of the world after the main conflict is solved.

The whole story aims at answering a **dramatic question**, will the hero save the princess? Will the world be saved? The spectator/reader will be expecting to answer that question.

Figure 5*Aristotle's Three Acts Structure*

- ***Act 1: The Setup***

The first act introduces the world, the characters, and the central conflict of the story. It is a rather short act that ends with the first **plot point** (also known as the trigger event). It is when the conflict is introduced that sets the story in motion. The break in the pattern.

- ***Act 2: The Confrontation***

The second act occupies most of the story length. The stakes are getting high, the characters are developing and the plot is unfolding. This is often named as “**Rising action**”, it creates tension and prepares the end of the story.

The second act sometimes has a midpoint, it is when a significant event changes the protagonist's perspective or goals, a moment of realization, or an important setback.

- ***Act 3: The Resolution***

A short act, it is when the story reaches the **climax**, often accompanied by an important plot twist, the tension is at its highest and the conflict is resolved.

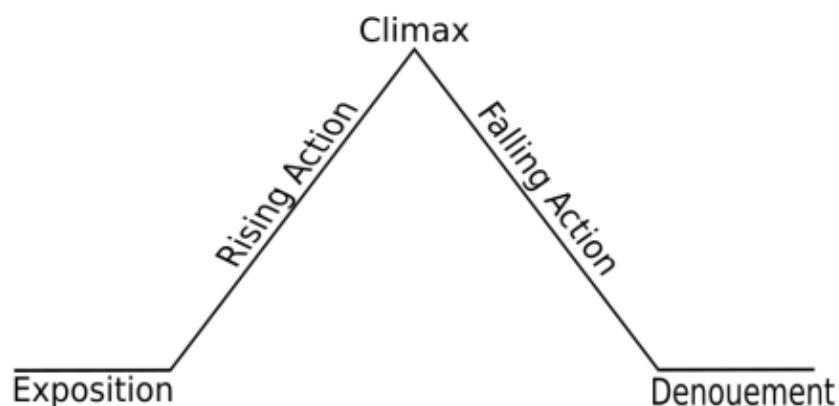
After the climax, there is the **denouement**, the aftermath. The loose ends are tied, the characters often reunite together and the story finishes. Sometimes some of the secondary character arcs are finished here.

Five acts structure

German novelist and playwright Gustav Freytag (1816 - 1895) recognized five main stages in the development of a story after studying Shakespearean and Greek tragedies... He created what is known as Frytag's Pyramid, a simple diagram that indicates each stage and how they are connected. Freytag published his work in the book *Technique of the Drama* (1863), and since then his model has been widely used across literature, film, and video games.

Figure 6

Freytag's Pyramid Simplified



1. *Exposition*

Freytag identifies “Exposition” at the beginning of the story, the introduction of the main characters and the world, as well as providing enough context of the overall situation (the setting).

2. *Rising Action*

The exposition will lead to the Rising Action. In this stage, the main conflict is introduced and the main characters will have to face obstacles and challenges, building suspense and tension to its highest.

3. *Climax*

The climax is the most intense and dramatic moment of the story. It is the turning point, where the dramatic question will be answered, the main character transformed and, most of the time, the villain defeated.

4. *Falling Actions*

After the peak has passed, the tension will start to decrease. The consequences of the protagonist's decisions will be shown, the secondary characters' arcs completed and the loose ends will be tied.

5. *Denouement*

The last stage of the story, the denouement is the moment previous to the end. Should be a cathartic conclusion in which the plot is cleanly resolved in some way (?)

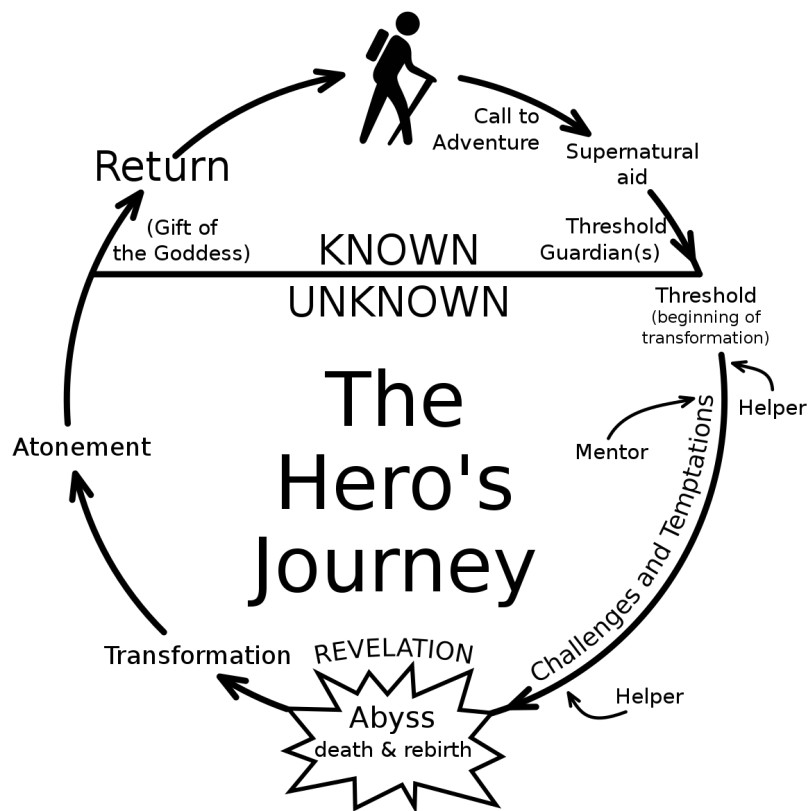
The structures seen until now regard more to the shape of the narrative, the ups and downs, and the overall flow of dramatic tension. Now we will address methods that refer more to the contents of the stories.

The Hero's Journey

Joseph Campbell (1904 - 1987) in his work *The Hero with a Thousand Faces* (1949) investigated many religions and mythology tales and found what he nominated as “The Monomyth”, summarized in the 12 stages of the journey of the Hero. He argues that most folktales and religious/mythological stories often have similar elements and characteristics.

He based part of his work on the study by Vladimir Propp on Russian Fairy Tales. Propp analyzed over a hundred tales and extracted 31 functions that are common in these stories (for more information, see *Appendix A, p. 118*).

The structure of the **Monomyth** is divided into three main stages, Departure, Initiation, and Return. And thus it fits very well with a three acts structure. Not only that, simplified, the Journey of the Hero is based on the following loop: Receive a quest, get stronger enough to complete it, fight the villain and complete the quest. This is perfect for RPGs, set objectives that need to be accomplished before moving forward.

Figure 7*The Hero's Journey Representation*

Note. For more information about the stages, see *Appendix B, p. 120.*

Character-Driven Narratives

The structures seen until now are plot-driven. The story is mostly focused on action, with a developed and exciting plot. character-driven plots instead focus much more on the evolution of each character, their own story arcs, and, most importantly, their internal struggles and insights. Most of the popular manga and anime³ are character-driven, they present a likely character cast and present their evolution and challenges through the story.

³ Anime (Japanese animated shows) have multiple genres that are based on character evolution and not plot-driven. Examples are Shonens (hero gets stronger by defeating villains), Spokons (sports anime) and many more.

The reader is drawn to them and (if it is properly done) will empathize and understand the characters. Characters become the main point of interest rather than the plot.

Character arcs: Although this term is also common when building more plot-driven storylines, its relevance increases a hundredfold when building a character-driven story. If each character had their own plot, that plot would be their arc, similar to an Aristotelic pattern. It is the transformation of the character over the course of a story. (Gerke, 2010)

Character arcs are intertwined with each other, and will progress and be subjected to the plot arcs.

- *How do videogames use the plot?*

In most video games, the way that the player has to keep track of the story, as well as where he has to go and what to do, is by acquiring and completing quests. Sometimes the quests are also shown in the minimap as a guidance help.

Therefore, **Quests** are the main mechanism that guides the player to the next step. In her TED Talk⁴ Jane McGonigal, Game Designer and Researcher, argues that quests in games provide players with a sense of purpose, autonomy, and mastery, leading to increased engagement and motivation (2010).

Videogames often have a main quest that can be composed of several, smaller quests. Each of these will progress the plot. RPGs also have secondary quests (or sidequests), those that the player acquires by exploring the world on their own and talking with NPCs. This

⁴ Available at: <https://www.youtube.com/watch?v=dE1DuBesGYM>

second type of quest helps enrich the world and the experience as well as helping the player get new levels and special equipment.

A very interesting EN approach is to procedurally generate quests. Thanks to that, the plot can change and proceed more freely. This technology is still under development and faces many challenges,

“Quest generation for games involves several challenges, especially regarding the dynamic interaction between player, environment, and story, where the logical coherence must be a primary concern. Indeed, even relatively unimportant sidequests (quests that usually have no effects in the main storyline of the game), must affect future sidequests or game events that involve the same characters, objects or places (e.g. if a character dies in one quest, he cannot appear alive in a future quest without any justification).” (Soares de Lima et al., 2019)

This technology still has not been used this way in Triple-A productions, there are a few examples of secondary quest generators that are used for increasing the playing time, not very well received by players, since it is appreciated as a cheap tactic to add hours of gameplay, and that the quests feel random and tasteless. As seen in the satiric episode “How procedural quests are made” by Viva La Dirt League⁵.

World

The world is one of the fundamental elements of any video game. It is where the characters live and what provides the setting for the story. The process of creating a world is referred to as “Worldbuilding”. Tracy Fullerton (2014:102) defines it as “The deep and

⁵ Available at YouTube: <https://www.youtube.com/watch?v=5C3mvRm0aOY>

intricate design of a fictional world, often beginning with maps and histories, but potentially including complete cultural studies of inhabitants, languages, mythologies, governments, politics, economies, etc.” and Ernest Adams (2014:84) defines the game world as “an artificial universe, an imaginary place in which the events of the game occur. When the player enters the magic circle and pretends to be somewhere else, the game world is the place she pretends to be.”

Trent Hergenrader, in his book *Collaborative Worldbuilding for Writers and Gamers* (2017), defines worldbuilding as “Worldbuilding means all of the available information about the fictional world, and how all those pieces fit together.”

Level Design is the practice of creating compelling levels. This includes everything from appearance to functionality. Placement of enemies and loot, structure, traps, etc...

A good level design also takes into account aspects such as Player Guidance⁶, the use of different techniques that make the player progress with ease and without getting lost, while giving the impression that the player is actually free to go wherever they want.

It gets even more complicated for EN. Following the procedural generation of quests, to give even more freedom to the system, the creation of levels could be an interesting thought. Now the quests could even be “defeat the villain that hides in the palace”. This includes the generation of assets as well as the understanding of the techniques shown above.

- *How is the world represented in RPGs?*

⁶ Techniques for player guidance range from the good use of textures and lighting to using movement (for example small animals or birds) that lead the path.

The vast majority of RPGs offer an Open-world structure. Having an Open-world means that the player is free to go anywhere whenever they want (within certain limits), which gives them a lot of freedom on how to approach the game. Yet, building a world that can be transversed in multiple ways arises several challenges. Having a huge world leads to the assumption that a lot of virtual space also means a lot of storytelling but that is not entirely true (Ulrich Götz), open world games have acquired the reputation of demanding the player to cover long distances before progressing the story. It is also common the use of teleportation spots, shortcuts, and mounts to help traverse the world.

Procedurality

Simulation is another important property that a world can have in a video game. Although it is less often seen in RPGs and more in other types like colony-sims or strategy-focused games such as Civilization. A good simulation creates the impression that the world is alive, and that even without the player's input, the world keeps growing and changing.

Procedural techniques have been used for the creation of whole worlds as well as parts of it (most of the time dungeons). From the early Rogue (1980), which featured a full world generated for each run (represented with ASCII code) to entire 3D maps (Minecraft) and entire civilizations (Dwarf Fortress). In the case studies we will analyze how procedurality is used for creating entire worlds as well as how a simulation works.

Characters

The characters are an integral part of the narrative. There are two main concepts that form the idea of character in a video game. The first one is narratively speaking, who they are,

what they are going to do, and how that influences the other characters. Secondly, in the videogame, what is their role, and how does their existence affect the player (merchants, quest NPCs, enemies...), that is, the mechanics side of the NPCs.

There are a few frameworks for character development that will serve as a guide, a solid base, for crafting compelling and human-like characters. An example of it are the Jungian archetypes, a framework that divides types of characters into four main categories: The ones that provide structure, the ones that follow a spiritual journey, the ones that “leave a mark” and the ones that connect to others. For more information, see *Appendix C, p. 124*.

- *How are NPCs used in RPGs?*

NPCs fill the world, every character that populates it, be it an animal, a peasant or a slime is an NPC, therefore there are many types of them used in RPGs. The most common are:

- Enemies

Probably the most obvious type of an NPC are the enemies. From low-level bandits to game end bosses, enemies constitute a core part of RPGs. Enemies also mark the progression in the game, the difficulty as well as the main way to acquire experience for the player.

- Merchants

Merchants are a very common type of character in an RPG. They will let the player sell and buy different types of equipment. Some merchants are universal while others are more

specialized (Weaponsmith, Woodcraft, Tailor...). There is also a special type of merchant that can mentor the player. They will teach different skills at the cost of some gold.

- Quest NPCs

One of the vital NPCs. They can be part of the main quest or give the player secondary quests. Those NPCs are key to the progression of the story.

- Companions

Companions are a special type of NPC that will follow and help the player through their journey. Most of the time the player can interact with the companions, change their equipment and control their behavior to a certain extent. Companions also often have their own sidequests, that helps provide them background as well as strengthen the dramatic relationship player-character.

There are many other types of NPCs, from animals such as horses and fauna to filler NPCs. As we have seen through EN theory, developing their behavior (at least to some of them) will be key when developing a simulation. Enemies should also be considered, most of the time they exist only to be killed yet offer no other possibilities. There are systems such as the Nemesis System that make use of them to create something unique. More information on the Case Study of it.

Player

The playable character is the virtual representation of the player in the world. RPGs often have two approaches. The first one is by having a predefined character, with its backstory, personality and motivations already given (The Witcher, God of War). In these

cases the player is allowed to play it with multitude styles, but cannot change them or roleplay other characters. The second approach is by allowing the player to create their own character, giving more options and possibilities to the players (Dark Souls, Fallout franchise).

An important aspect that needs to be taken into consideration is known as “Player Progression”. The most common way is by using experience and levels, as well as the newfound equipment that the player will receive through the playthrough.

Common elements of the playable character in RPGs

- Stats

The stats are a quantifiable way to describe a character’s current state and overall power. Health, mana, dexterity, etc... It is also the mechanism behind the difficulty progression of the game (more stats on an enemy, the harder it is) but also the way that the player gets stronger. Stats are almost universal in any character of any RPG.

- Skills

Most RPGs let the player specialize in different fields, and skills are an integral part of that. Rogues for example will have skill trees dedicated to stealth and assassination, while Priests will learn health and support abilities.

Figure 8

Henry's Stats from Kingdom Come: Deliverance



Note. Most RPGs have similar systems. Stats and skills are common from the genre, and a way of representing them through the UI is needed.

- Traits/Quirks

Another common way to customize a character is by choosing their traits, that is, passive elements that change the way the character is and is played. Not only that, the same thing but in a negative way are the quirks. In *Darkest Dungeon* (Red Hook Studios, 2016) for example, there is a quirk called “Cleptomancy” which means that the character will sometimes steal part of the loot without the player being able to do anything.

- Inventory

An inventory system is universal to any RPG, where they can store loot and equipment that they will find, and then customize their character. It often comes with the visual support of a character window.

- Profession/Job

Some RPGs (often MMORPGs) have a profession/job system where the player is able to specialize in some kind of profession that will let them learn extra skills to enhance and customize even more their gameplay. An example would be an armorsmith, allowing the player to upgrade and enhance their armor and weapons, another example would be cooking, where the player is able to create strong consumables.

- Reputation

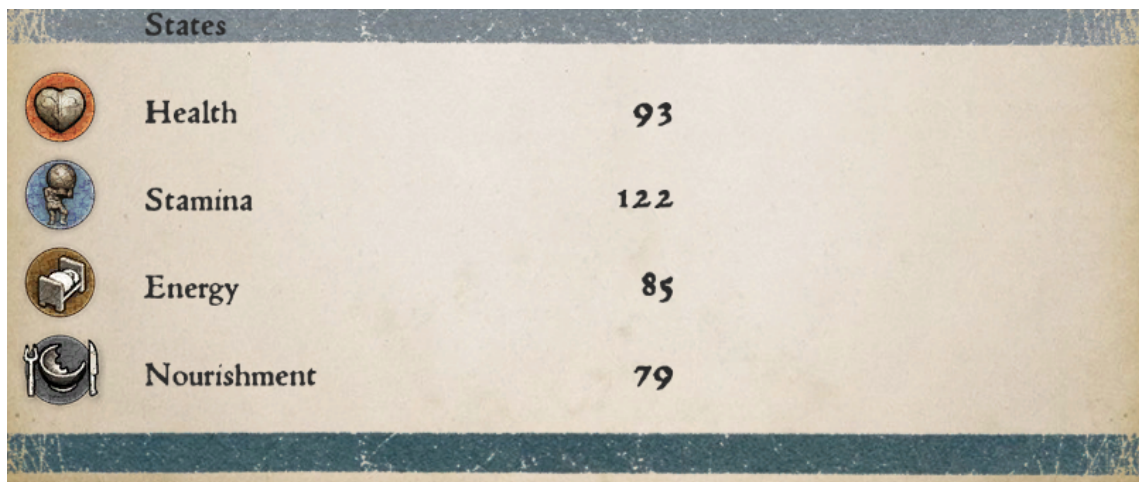
Some games have a reputation system that allows the player to keep track of their relationships between factions. Having higher reputation often results in better prices and an overall better receptance by the NPCs, having low reputation does otherwise, but can also trigger events such as being prosecuted by the authorities.

- Statures/States





Statures represent temporary states that the player can be. Examples of it are energy and nourishment, in games that aim at a more realistic style. As well as being poisoned, tired, stunned, etc...

Figure 9

Henry's States from Kingdom Come: Deliverance



The image shows a screenshot of the 'States' menu from the game Kingdom Come: Deliverance. The menu is titled 'States' and lists four attributes with their corresponding values: Health (93), Stamina (122), Energy (85), and Nourishment (79). Each attribute is accompanied by a small icon: a heart for Health, a person for Stamina, a bed for Energy, and a plate with a fork and knife for Nourishment.

States		
	Health	93
	Stamina	122
	Energy	85
	Nourishment	79

State of the Art

In this short section we will review what the researchers are saying as of today. With the aim to answer the following question. *What is the current picture of EN?*

In the theoretical framework we have studied the origins as well as how it theoretically works, not only that, we have also seen how RPGs can benefit from it. But most of the studies seen are almost 10 or even 20 years ago, it would seem that there should be a huge improvement. But that is not entirely true, the term EN is still being given new definitions, and other aspects are still in need to find consensus between the researchers.

In 2021, in the International Conference on Interactive Digital Storytelling, Max Kreminski and Michael Mateas (the co-designer of *Façade*) made a great work on synthesizing the history of IEN (Interactive Emergent Narrative) and giving a nice picture of the current landscape. They emphasized on the distinction of the two main uses of IEN: The use of IEN that enables a participatory form of play, and the use of IEN to enable authorship play. In the article they say:

“IEN has predominantly been framed as a solution to the problem of creating narrative play experiences in which the player may meaningfully participate as a character in an authored storyworld. For almost as long, however, there has also existed an alternative perspective on the purpose of IEN. This alternative perspective frames IEN as an approach to the creation of play experiences in which the player takes on the role of the author of the “emergent” narrative, rather than a participant.”

The Participatory View of IEN

In this case, the player is introduced into a system that reacts to their behavior. A system with the objective of building a coherent and dramatic narrative, with the main problem being the unpredictability of the player. It is the form of IEN that has been studied the most through the theoretical framework. The Holodeck, for example, is a machine that precisely enables participatory play. The research by Ruth Aylett and collaborators have also been framing this specific approach. In their project FearNot!, they used IEN to create situations that escalate according to the user's input.

In *Façade*, the system yet again creates a simulation and uses the player's actions as a driving force for the narrative. The concepts of Drama Manager (or Distributed Drama Manager) are systems that work around that idea, they need to understand (at least partially) the player's input, and have the power to control NPCs and the world.

The Player-Authorship View of IEN

The other view of IEN is used to enable authorship play, that is, to give tools so the player can actively create stories. The system does not control and manage the story according to the player's inputs, the system in this case provides support to the player to create the stories that they want.

Since this approach relies on the player being able to manipulate the world and characters in order to make stories, it means that the player is not part of the virtual world. The player is outside of the narrative. If we were to describe it using the types of interactivity, it would correspond to the External-Ontological.

The Expansive View of IEN

There is a third point of view that takes into account both perspectives, and is mainly supported by Marie-Laure Ryan. For Ryan, Emergent Narrative includes all works of narrative media as “emergent” if “at least some aspects of the story” are created via improvisation and in real time. This phenomena occurs on both, player as participant and player as author, roles. In the same article, they expose:

“Ryan views the simulative and participatory modes as subcategories of the emergent mode. Her simulative mode is “specific to digital media” and characterized by its use of simulations, or “productive engines that generate many different courses of events through a combination of fixed and variable parameters”, to implement the improvisatory dynamism of emergent narrative. Her participatory mode, meanwhile, contains works of narrative media in which the recipient plays an “active role” in shaping either the events presented by the narrative (story-level participation) or the narrative presentation of those events (discourse-level participation).”

Videogames can offer both experiences, as seen in the Case Studies, games that rely more on simulation such as Dwarf Fortress or The Sims place the player exterior to the narrative. These games allow creating stories according to the player’s will.

I argue that a participatory view is more aligned for the purpose of RPGs. In these games the user is placed inside the narrative as an active participant of it. The stories that these systems provide should surprise and keep the player’s engaged with them. The system uses their actions and builds on them in a non pre-scripted way. A clear example of this is the Nemesis System.

Case Studies

The first step when designing something new is by looking at what has already been done, and by a process that consists of researching and processing information for a more polished, wide and deep product.

Each case study theme has been chosen carefully in order to allow a deep dive into the matter. The items that I will inspect are the following.

- Procedural generation of worlds and characters
- NPC Companions / Followers
- Semi-Emergent Systems

Case Study 1. Procedurally Generated Simulations

The first case study aims to explore the techniques that video games use to procedurally generate entire worlds and characters. Not only that, it also includes how large simulations are accomplished. The games are the following:

1. Caves of Qud
2. Dwarf Fortress

Caves of Qud

It is a science fiction and fantasy 2D RPG Rogue-like. Developed by Freehold Games and published in 2015. Most of the information for the study of Caves of Qud comes from a conference that the developers J. Grinblat and B. Buclkev did for the GDC (Game Design Conference) in 2019 as well as my own experience with the game.

The game allows the player to create their character however they like, and explore at their own will the world. It has a pixel-art style and is turn-based. Allows a high degree of customization in terms of skills and equipment.

Figure 10

A village in CoQ



The world of CoQ is huge and deeply simulative, it is technically Internal-Ontological, since the player is identified with a character, and the world reacts organically to the player's inputs to a certain extent. One of the most interesting features is that every time a new game is started, the whole world is created from scratch. The base layout of the map (forests, rivers, mountains...) is always the same, but the placement of villages, cities and tribes will be different each time.

In order to create a single village, the game follows a pipeline that consists of five steps. We will not go in-depth into each step since the objective is to acquire a general knowledge

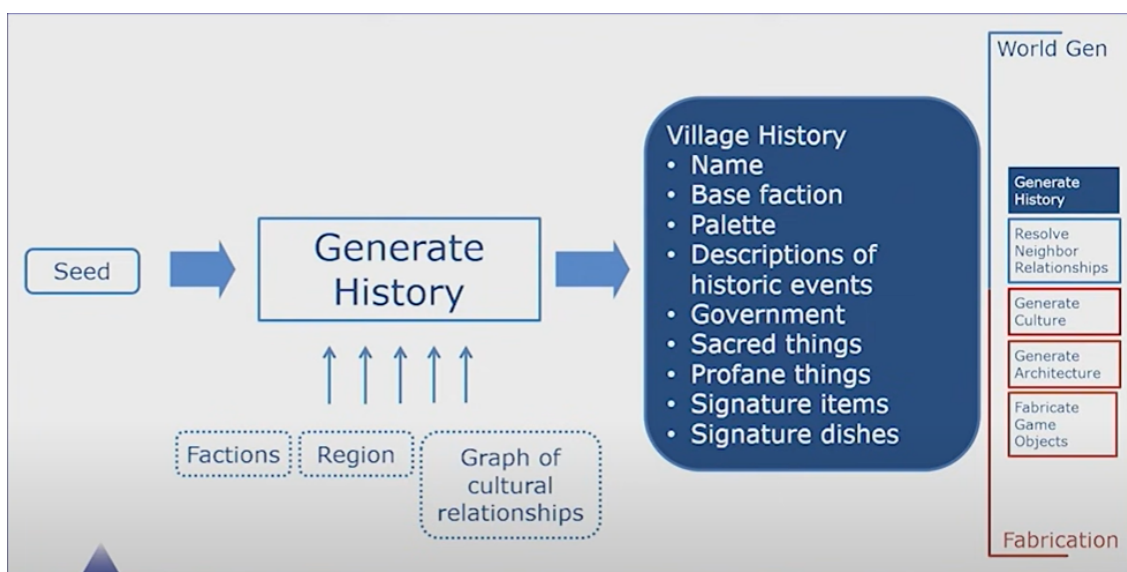
on how procedurality works. The main concept, to use an expression that the developers used in the talk: “from abstraction mountain peak to concrete valley”.

The process begins with the abstract concept of what is a village (physical location and architecture, culture, inhabitants...) to concrete Game Objects (walls, door, furniture) and individual NPCs. Sounds familiar? That’s because it is, in fact, a top-down process. There is a set of rules defined that generate desirable outcomes.

1. Generate History

Figure 11

Step 1. Generate History



The first step is Generating the History of the village. Elements such as name, base faction, palette, descriptions, etc... The first input element is the **seed**. A random number that acts as a starting point that will be used by the algorithm to make all the necessary operations⁷. The seed will be constant every step, so I will not mention it again. Then, there

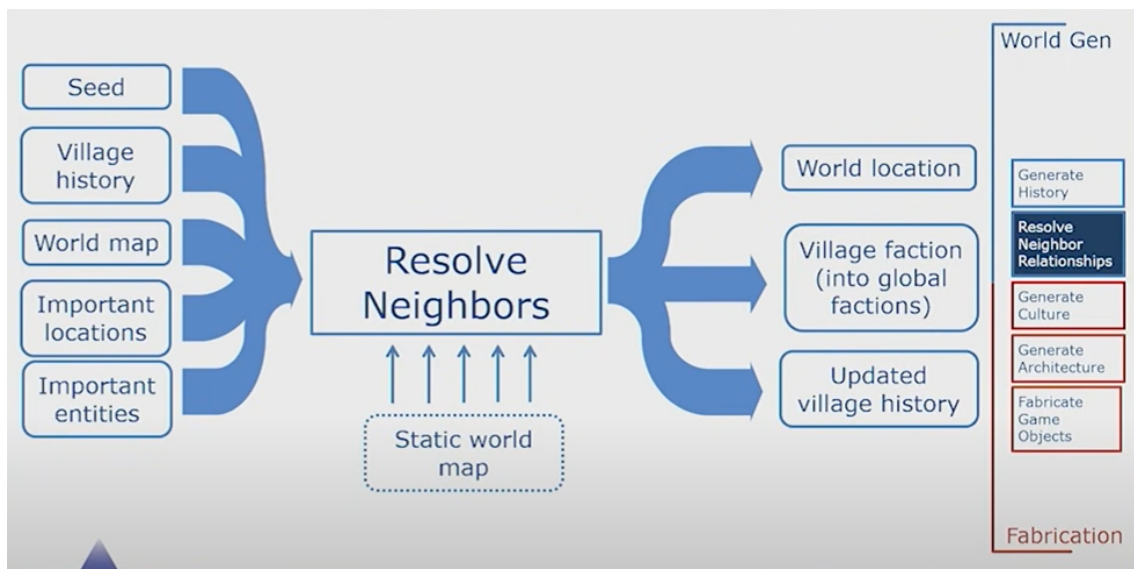
⁷ As an example, if the seed for two worlds is the same, all the random operations that the algorithm will do will have the same sequences of numbers. The resulting world would be the same.

are a few inputs from the designers, that is, certain elements (factions, religion, and cultural relationships) that have been designed and written beforehand. The input for the first step is the seed and these pre-designed elements. The output is a concrete list of facts and descriptions about the village. Concrete facts such as “they harvest fruits every season”, “they despise strangers” or “they are at war with kobolds”.

2. Resolve Neighbors

Figure 12

Step 2. Resolve Neighbors



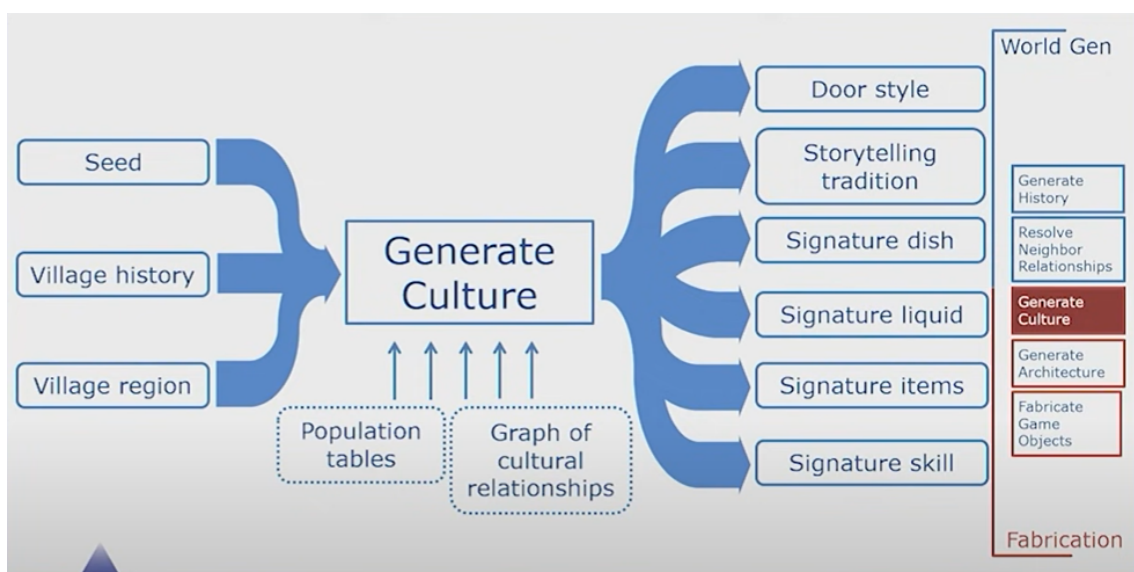
Step two, Resolve Neighbors. The inputs are: The village history that was generated in the previous step, the world map, important locations and important entities. In this step all the locations for the villages are decided, thus having a world map filled with many villages at the end. What they do now is that they fill all the abstract relationships.

For example, a village X worships a monster, from this fact, the program will search for a nearby legendary monster and will define it as the worshiped monster. As they say, they retrofit history with these more concrete elements that are spatially correlated. They will also create the relationships between the villages and cities as well as the paths that connect them. The output is a world filled with interconnected villages, and each of the villages with its concrete history defined.

3. Generate Culture

Figure 13

Step 3. Generate Culture



Moving into the third step, Generating Culture. The map generation is completed and now the player drops into the game. The inputs are still the seed, the updated village history as well as the whole region. They also have some designed inputs for this step, the graph of cultural relationships, which is mostly used for generating text and prompts, and **population tables**, that is, weighted elements put in the form of tables that help the program take

decisions. A quick example would be a table named “Wild Creatures”. Depending on the request, a highly possible encounter would be a venomous snake, while encountering a wolf leader would be less likely.

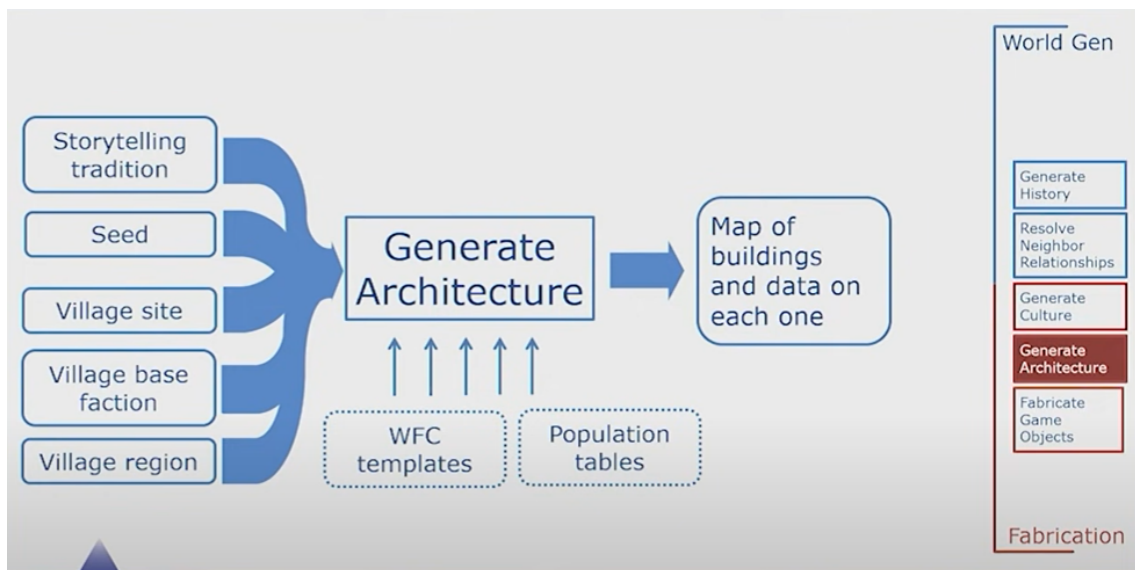
Table 4

Population Table Example “Wild Creatures”

Item	Quantity	Weight
venomous snake	1	8
wolf scouts	1-2	6
wolf leader	1	4
...		

The output of this stage gives more definition to, for example, the style of the village. It answers questions such as what they eat, and what they do for a living. What are their traditions, their skills, and so on. To do this it is required that the village is placed in the world map (a dish from the desert will be different than a dish from the jungle).

4. Generate Architecture

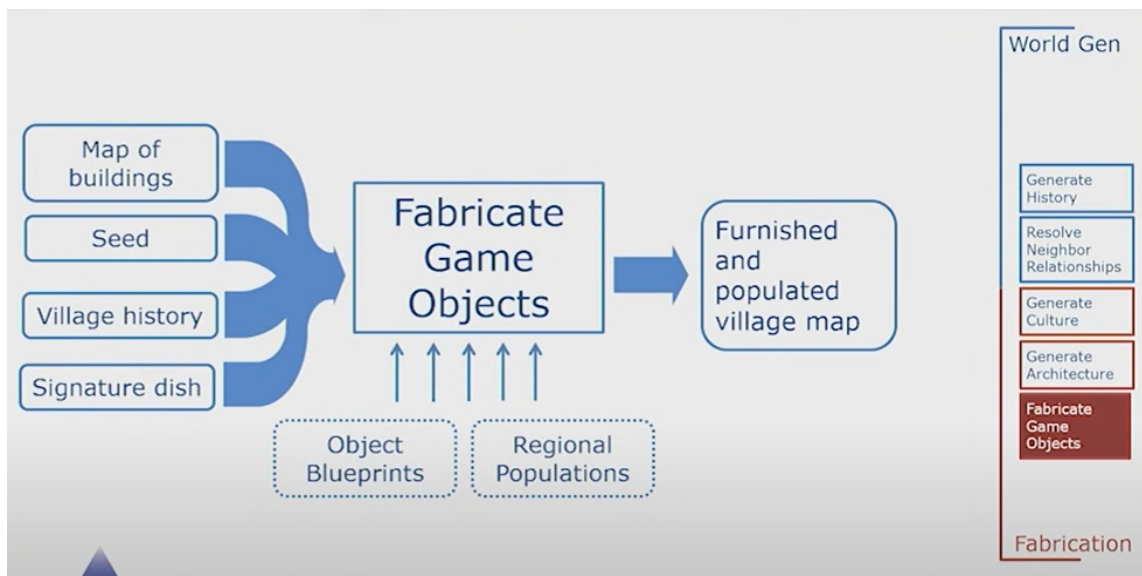
Figure 14*Step 4. Generate Architecture*

This is the first step that will actually start generating concrete elements, but before that, there are a few more decisions that need to be made. Architecture style, important buildings, decorative plants, etc... The inputs are all the previous ones but also the village site (the actual tile⁸ of it) and the base faction. What they do is they run a Dijkstra algorithm⁹ to find where each building can be allocated, creating a base layout for the village, then the program knows exactly what space it has and where the individual objects can be placed.

5. Fabricate Game Objects

⁸ 2D maps are generated in grids. Each single “square” of the grid is called Tile.

⁹ Dijkstra algorithm is a sorting algorithm, it is used for finding the shortest path between nodes in a weighted graph. For example, if an NPC wants to walk from point A to B, the path created will be thanks to this algorithm.

Figure 15*Step 5. Fabricate Game Objects*

Last step, Fabricating Game Objects: The inputs are yet again the seed, the village history and their signature dish, as well as the map with the buildings. They also use pre-designed information such as object blueprints and regional populations. At the end of the step, they will have a fully furnished village.

To summarize, to procedurally generate villages and maps, an algorithm consisting of phases needs to be built. These phases all have a predefined input and output, from abstraction concepts to concrete Game Objects. Not only that, part of the content needs to be defined previously by the designers, in the case of CoQ this is mostly done with the use of Population Tables. The system then uses that information and randomizes aspects of it, being able to create an almost infinite amount of different scenarios and villages. Another important aspect is regarding the art and visuals of the game. To generate maps, first it's necessary to produce the assets that will be needed (sand tiles, mountain tiles, character sprites...). Because that pre-designed and authored content is limited, the outcomes and margin that the algorithm has is limited. Those assets are also part of that content that needs to be designed beforehand.

Dwarf Fortress

Dwarf Fortress (DF) was released on Steam in 2020, developed by Tarn and Zach Adams. The project started in 2002 and took almost 20 years to complete, although the game was accessible much earlier (the feedback from the players was vital to the development) and is still receiving regular updates. It is considered one of the biggest simulations seen in a game, from the generation of the world until the last NPC, including items, story and locations. Thanks to that deeply simulated environment, *Emergency*, in its own way, is bound to happen. DF offers an External-Ontological experience, the player is set in the position of a god, and his goal and objectives are around managing and growing a dwarf fortress.

In this case study I will focus a bit less in the programming part. We understood from the last case the fundamentals of procedurality, everything based on several steps, each one with its predefined inputs and produced outputs. For DF we will inspect the variables of the generated NPCs as well as how they behave.

When creating a new game, DF first creates the world map and simulates a certain amount of time for the main events and locations to happen. This includes what is the current situation of the world (ongoing wars, relationships between races, main locations...).

Once the player decides where will be the starting location in the world, the following screen is what they will encounter.

Figure 16*Starting Screen in DF*

The player will be given 7 starting dwarfs and several animals. Each one procedurally generated. The player will also have access to starting items, food and drink. From that point on, the player will have to start building a proper fortress and take care of the necessities of the dwarfs (provide them food, water, rooms). Fortresses have a limited space for dwarfs, in the later stages of a playthrough there will be a bit less than 300 dwarfs.

Figure 17*Population Happiness*

The player can keep track of the overall happiness of the individual dwarfs, the more happy they are, the more productive they will be and a higher probability of having good

events. This happiness is measured on a scale from 0 to 7. At 0 dwarfs will go insane, and might even start killing other dwarves.

Each Dwarf (most of them shared with the other entities¹⁰) have the following visible elements:

- Sprite and physical representation
- Name, Age and Sex.
- Health (Status, wounds...)
- Items and Skills.
- Assigned Room, Tomb, etc...
- Labor and Function on the Society
- Personality (Traits, values, needs...)
- Thoughts (Recent and Memories)
- Can be part of the Military
- Groups (Deity, guild...)
- Relationships

¹⁰ In programming, an Entity refers to any character (be it the player, enemies, NPCs...) that shares certain variables such as health, level and position.

Figure 18

Dwarf Inspection Window*How do dwarves behave?*

Each dwarf has a regular, daily routine. They sleep, work, take breaks (to drink alcohol mostly) and have some free time for their other activities. The most important aspect that determines their actions are their **Personality Traits**, each dwarf will behave differently from the same situation.

These traits act upon their beliefs, goals and facets.

Beliefs are what the creature values, examples of beliefs are Tradition, Cooperation or Sacrifice. Personality facets, on the other hand, decide how the creature acts. Beliefs and facets can sometimes conflict. An example from the DFWiki¹¹:

“For instance, it's possible a dwarf will deeply value romance, even though one of their personality facets prevents him/her from forming romantic bonds. This particular combination would show up in the thoughts and preferences screen as "S/he never falls in love or develops positive feelings toward anything, and s/he is bothered by this since s/he sees romance as one of the highest ideals”.

Some dwarfs dream of accomplishing certain goals in their life, and these goals can affect the way they behave. Examples of different goals are as diverse as starting a family, ruling the world, mastering a skill or even immortality. These goals often encourage and reward players to help them in their journey.

These traits affect the mood and the actions of the NPCs, and there are a multitude of events that will appear eventually. Since each dwarf acts on their own (yet following the general guidelines provided by the player) and sometimes can decide to act according to their interests.

An elderly artisan dwarf that has spent their whole career crafting gems, and has the dream of creating a masterpiece, eventually will trigger on him an event known as “Strange Mood”. When a dwarf enters that state, they will withdraw from society and will try to craft their masterpiece. They will spend several days working if they have the materials required, in

¹¹ Pages resembling Wikipedias, created and updated by the communities of a game is very common, and is one of the most reliable ways of acquiring in-depth information on how the mechanics of the game work.

the opposite case they will create sketches of the material that they need (simple drawings that the player can see). If they were to not receive the materials in time, they will enter in a depression or worse, often ending in someone's death. There are several types of moods (Fey, Secretive, Possessed, Fell and Macabre) but we will leave that for another time.

Another event, capable of ending a whole fortress, is known as "Tantrum". Quick example, a very drunk dwarf starts fighting with another dwarf in the tavern. Things go so badly that one of the two ends up dead. Because that dwarf had close relationships with many of the dwarves present, they will start fighting the murderer. Once that dwarf dies, it will trigger a similar reaction on the other side. A reaction chain will follow with deadly consequences. Many fortresses ended this way.

Those are just examples of how wide and deep the simulation is. The role of the player is to manage that multitude of dwarves, and is free to play as whoever he wishes, similar to a sandbox game.

Conclusions

CoQ and DF are considered Story Generators. Games that give tools to the player and allow them to craft their own stories. In the case of the first one, the player can travel and explore the world at their own pace, and is pretty much free to do as he wishes. DF instead constructs stories about fortresses and dwarfs. The player can create the environment that they want, and is free to experiment as much as he wishes.

While having the map procedurally generated is not necessary for having a simulation (there can be simulations in pre-defined maps, such as Skyrim) it adds replayability and variations each time a new game starts.

Case Study 2. Companions

The Use of Companions, also referred to as followers in some games, is key for the understanding of how EN can completely change how this kind of NPCs behave. The cases are the following:

1. The Last of Us / God of War V
2. The Outer Worlds

The Last of Us and God of War V

The first case study is multiple. It features videogames where the player embodies a predefined character. Through the game they will be accompanied by another character for narratively purposes, in these cases will be a child, making the main character take the role of a parent/protector.

Figure 19

The Last of Us and God of War Covers



Note. In both illustrations the parent-child archetype is present

The Last of Us (Naughty Dog, 2013) is a highly narrative game, in fact, it is so narrative that recently HBO Max, a popular streaming service, created a TV show that is known for being very accurate with the original plot.

The story is set in the moment that a zombie apocalypse breaks out in the United States. 20 years later, Joel, the main character, will accept a job that requires him to deliver Ellie, a teenager that did not transform after being bitten, to the Fireflies. To do that they will have to endure an arduous journey, with the goal to create the antidote that will save humanity. It has only one ending and the player does not have any narrative choices (Internal-Exploratory).

In terms of gameplay, the game offers the classic adventure experience. The player will traverse the different scenarios while following the story, will find new weapons, acquire new skills and defeat many, many zombies. Ellie will follow Joel for almost the entire game. In order to understand better the kind of companion she is, we will consider that she has **two possible states**, one for the gameplay part and the other for narrative.

Ellie in cutscenes, that is, in the moments where the narrative truly progresses, she will act as an **active** character, be it talking, taking decisions or killing. Everything she does while in this state makes perfect sense, it is emotional and dramatic, and the character seems to be alive. Her decisions can bring big plot twists and affect all the other characters greatly.

Yet, how Ellie behaves in normal play mode is much more **passive**. Will wait if Joel stops, will help him in battle if needed and will say, from time to time, dialog lines. While this behavior makes sense from the player's perspective, it limits how both characters can interact. In this passive state, Ellie has zero power to make decisions that impact the narrative.

In short, if the overall narrative is going from A to B, only in these locations the narrative will progress and Ellie will participate, while all the path in between will be empty space. That is roughly 10% of the game length, the other 90% Ellie will be a passive, non-interactable NPC¹².

There is actually a third state, and that is when the player can control Ellie. At some point in the plot, Joel is badly injured and on the brink of death. In that chapter Ellie becomes a playable character for a short period of time. She functions exactly like Joel, has an inventory, can use and craft guns, etc... and will have the quest to acquire some medicine. Upon completing it, the player will again take control over Joel.

The second game is God of War (SCE Santa Monica, 2018) awarded as the Game of the Year. It has a very similar approach when it comes to the unfolding of the narrative. In this case we follow the adventures of Kratos, the Greek god of war, and his son Atreus. This game relies much more on the combat aspect and comes with a wider spectrum of weapons and skills. During the playthrough, Kratos and Atreus will explore the lands of Nordic mythology together, while facing the main antagonist, Odin.

Atreus behaves exactly like Ellie. Has three possible states, passive while playing, active during narrative events and playable for a short period of time. Both companions have

¹² The Last of Us is roughly 15-17 hours long, and has a total of 1 hour and 30 minutes of cutscenes.

several lines of dialog reacting to the player's actions. While those lines add flavor and depth and help create emotional bounds, they are still greatly limited. The player can never interact with them, improvisate the situation or change what will happen in the future.

I analyzed these two cases but there are many other titles that do pretty much the same. The narrative of those games will be as good as the capacity, experience and creativity of the designers behind. But, the same can be said from film and literature characters.

Do videogames need to be limited to the same constraints while having something that the other mediums can't? Video games allow the player a representation on the virtual world as well as the capacity to interact with it, yet, it would seem that designers are not interested in that aspect as much as they are interested in telling their stories.

The Outer Worlds

The Outer Worlds (Obsidian Entertainment, 2019) is an sci-fi RPG. In this game, the player will be able to travel between worlds in spaceships, find unimaginable futuristic artifacts and weapons and face an universal conflict playing a key role in the outcome. To do that, the player can recruit companions that will aid in battle.

This is an example of a simple companion system, but there are many other games that have similar systems. I picked exactly this one to also focus on what does not accomplish rather than what it does. There are several points on why the system is not as good as it could

be. First I will write down what are the parts of the system and then we will examine its weak points.

There are six companions in total, and the player will be able to select up to two of them to follow them at a time. These companions all need to be unlocked first, and have their own side quest that will expand their backstory and character as well as gain experience and resolve.

Figure 20

Party Selection Window



This sort of mechanic introduces a new concept, called party, and is fully exploited in cooperative games, MMORPGs (World of Warcraft) and top-down RPGs (Divinity: Original Sin 2). Each character in the team has a role, and it is between the balance of those roles that the team is at its strongest.

Traditionally a full party consists of 4 roles: Tanks, the ones in charge of being at the front line and absorbing most damage. Healers, in charge of keeping the other members alive. DPS (Damage Per Second), characters able to eliminate big threats quickly and Mages, the ones that have AOE (Area of Effect) spells to decimate the weaker but swarming enemies.

For each companion, the player will be able to change their equipment. This allows not only an increase of power for them but also to customize how the party works at will.

Figure 21

Parvati's Equipment Window



When the Companions level up, the player can use perk points that will enhance their gameplay and stats as well as affect the player with extra bonuses. Adding a layer of progression for them.

Figure 22

Parvati's Perks/Skills Window

At last, the player can also adapt their behavior in battles (for a melee weapon for example, distance would be short, weapon would be melee and mode aggressive)

In this last screen their stats and skills can also be inspected.

Figure 23

Parvati's Overview Window

The narrative in this game is branching and has multiple endings based on the choices that the player makes (Internal - Exploratory). Yet, in this case as well, they also suffer from this active-passive illness. During gameplay windows they will follow the player, help in battle, say some dialog lines and few more. During narrative events, they will suddenly sprung to life and act epically and dramatically.

Since this game emphasizes much more on giving choices to the player, it requires a dialog system. This will allow the player some further interaction with the NPCs, but only through some predefined options.

In the Outer Worlds, and many other RPGs, companions are no different from an item. Something that will strengths and follows them, that can be upgraded and that are replaceable at will. If they die they will just resurrect at the end of the fights and will always adapt to the player's pace, this makes emotional attachment player-character very difficult. Even with interesting backstory and personality, they will be viewed as tools, rather than intelligent beings.

Conclusions

The companions in the first case are more narratively oriented. Their behavior is completely pre-scripted. They can be very well designed, but that will only be seen in the cutscenes. Because these games are relying heavily on narrative, not even dialogs exist, allowing the player zero interaction at will with them.

In the second case, companions function as a mechanic of the game, something that the player can learn and use. While they also expand background and can be charming and interesting, the same issue seems to happen while playing.

To understand a bit more this line of thought, take a look at the following image:

Figure 24

Companions Standard Behavior



Parvatti and Vicovaro Max (the names of the NPCs) will act like that at all times. Staying a bit away and staring without doing anything. How immersive and dramatic! That is why I say that they are more similar to an item than a compelling character.

EN can improve that. If characters could be aware not only of the actions of the player but also could interpret what the player wants to do, that fact would open many possibilities. If the player could talk with them freely and not only via some fixed lines, and they could

understand terms such as “go there and get that item” or “act as a bait against that enemy”, they would add so much depth in terms of gameplay as well as emotional bonding with them. I also argue that their death should be re-designed since in a narrative dying is one of the most crucial and dramatic moments, but also when characters break through their previous selves to overcome the situation.

If companions also had their own goals and objectives, as well as could create relationships with other characters, could understand the player's intent and could act on their own... Videogames, via simulation and algorithms, can theoretically add that layer of interaction, giving the player this other level of agency that we are looking for.

Case Study 3. Semi-Emergent Systems

This case study aims at exploring and learning from several systems that have emergent features in the way that they construct narratives. There will be four cases, from more basic forms that resemble hypertext to some of the most innovative and creative ones.

1. Karma System from Knights Of The Old Republic
2. Director Systems from Left For Dead 2 and Risk of Rain 2
3. Nemesis System from Middle-Earth Shadow of Mordor
4. Behavioral Species from Rain World

Karma System from KOTOR

Karma Systems, a concept that puts the player on a balance between good and evil, and lets them explore one side or the other is by no means an emergent system. It is more an adaptation of Hypertext techniques with a higher number of possible permutations. The actions done previously affect the current ones in only that axis (Good-Evil).

There are many games that feature Karma Systems. KOTOR (Obsidian, 2003) was one of the first projects with high success. But there are many other titles such as Infamous: Second Son (Sucker Punch, 2014) or Fable II (Lionhead Studios, 2008).

I wanted to bring this case because it is an example of a system (Internal-Exploratory) that is not the classic branching hypertext that we are used to. It works and it gives the impression of letting the player forge their path, and the link between Jedi and Sith and Good and Evil fits so well in the Star Wars Universe that it can be said, KOTOR is unique in what it does and how it does it.

Figure 25*Karma System Concept***Overview of the System:**

Actions have consequences. Those actions are always binary and will affect the path that the player takes. Depending on how “good” or “bad” the player is, the NPCs will react in a variety of ways.

It can be said that actually there is only one choice that the player makes, since each path will only unlock its best abilities and skills at the higher ranks, the moment that the player makes the first good or evil choice, it will be encouraged to follow that path for the entire of the remaining game.

The main narrative is technically branching, but has only one possible ending. How does the plot manage to do that? It is actually a simple question to answer.

The game allows having companions that will follow the player and interact with them and the rest of the NPCs. The spectrum of NPCs is quite diverse, some of them will only follow the player if they are extremely in one side. But there is one NPC that will always join the party, that is Kreia.

She is the most powerful companion, and can master both light and dark powers, she is an exiled Sith that despises the Force. It also fills the role of the mentor for most of the game. At the end of the game, she will “betray” the player, becoming the final boss of the game. If the player is a Jedi, she will show disappointment and resentment, she will view the player as someone naive and misguided and will question the effectiveness of the Jedi way. In the other case, if the player has joined the Dark side, she will express approval, yet she will fight to teach a lesson and to show the true Sith path.

A Karma System is not emergent, but it is one of the earliest systems that allows a more refined and logical choice-consequence mechanic. The world reacts to how the player has decided to play, and it gives the impression of having more agency than other traditional RPGs.

Director Systems, Left 4 Dead 2 and Risk of Rain 2

A Director System is an economical system. They rely much less on any dramatic interactions and focus only on managing resources and using them to spawn¹³ an adequate amount of enemies in each moment. We will be looking into an overview of both AI Systems and their possibilities.

Game Introductions:

Risk of Rain 2 (Hopoo Games, 2020) and Left 4 Dead 2 (Valve Software, 2009) and their previous titles are two franchises that feature what is called a Director System. AI that are managing, mostly, the spawn of the enemies. Because they provide to the player an almost

¹³ spawn, in videogames, means create. Example: an enemy that periodically summons enemies is called a spawner.

infinite number of encounters and can affect the pace and flow of the games, both systems can be considered emergent.

The first game is considered a rogue-lite¹⁴ (permadeath and proc. generated scenarios but not turn-based), each time the player starts a new run¹⁵, the progression will be similar. A set of levels that needs to be beaten, each level containing a boss that allows traveling to the next level. Constant swarm of enemies that increases with time, making each minute precious. The player will find randomized items in each level, thus will have to adapt their playstyle and build to what they find. Once the final boss falls, the run is over and the player can start again. As well as L4D2, the player can be joined by up to three other players for the co-op experience, which is considered the normal way to play these games.

RoR2 System consists of three main Directors (Scene, Camp and Combat), each one destined to a different function within the system. These Directors are no more than algorithms that act when they are required to.

The Scene Director is an instantaneous Director (does its function and disappears) and is in charge of selecting and populating the maps. The maps in RoR2 are always the same, but the location of items as well as other events changes each time, which makes the player not know where to go immediately. In a game where going fast is mandatory this fact adds a lot of depth to the gameplay. Special elements such as shrines (high risk high reward events), Teleporters (where the boss appears and where the player advances to the next level) and

¹⁴ Rogue-Like is a genre that inherits the three main mechanics of the classic Rogue (1985). That is: Permadeath, the player loses all progress on death. Turn-based and procedurally generated scenarios. Everytime the player dies, a whole new experience starts. a Rogue-Lite is a game that has only two of these three elements, in this case permadeath and procedurally gen. scenarios but real-time.

¹⁵ Since death is very common in these games, each playthrough is referred as *run*.

others all have their own Directors, the apparition of each element follows a strict order:
map->items->special events->teleport.

But the most interesting Directors are the continuous ones, those that are active during the whole game and not only in determined moments. Continuous Directors regularly receive “credits” (currency) that they can use to spawn enemies.

There are, in fact, around 10 different Continuous Directors, to name a few:

- Standard Directors: in charge of spawning enemies until the boss appears
- Teleporter Director: in charge of spawning enemies after the boss appears
- Escape Sequence Directors: in charge of spawning enemies in an special event known as Commencement. There are a few Directors related to other special events.
- Mithrix Director: spawn enemies while the final boss (Mithrix) fight is happening.

The credits that these systems receive can be used in Spawn Cards.

Each monster and enemy in the game has their own card. Each card has the following attributes:

- Entity: the unit that will be spawned
- Weight, relative chance to be selected
- Cost: how many credits need to be spent for this unit
- Stage Condition: represents the earliest stage that this unit can be selected

Pretty much, a population table. The amount of credit that each director has and receives is a key balancing question, the bigger multipliers of it in this game are time and stage.

With these directors and the fact that it is a shooter, the game is pretty much set for success. The interaction with the player (or players) and its character, with the use of abilities, items and weapons. Altogether merged in a dynamic environment that generates worlds, events and enemies in an extremely fast paced gameplay make RoR2 a game that lives up to its ideals.

Having said that, it is a shooter game. All that the player can do is shoot and kill, having no space for a single dramatic event or non-enemy character (except the shopkeeper). It is a game that relies on giving adrenaline at an adequate time and requires full physical attention from the player.

A similar system can be found in L4D2, the Director in this case is also in charge of spawning enemies, but goes a step further and takes into account the current state and condition of the players and has several phases of action.

This game is played by missions. The whole story is divided into several pieces represented as levels or maps. The players (referred as Survivors) can select any level that they want as long as they have completed the previous one. Each mission has the same map but the enemies spawned will change each time.

The types of enemies from L4D2 are key to the development of each mission. Each special zombie should change the playstyle of the party almost completely (if they were to play it correctly).

Common zombies are all what you would expect from that, weak and slow meat bags that will try to bite you. They will appear a lot and mostly annoy the players without being a real threat.

Sometimes, a Horde will happen. And an absurd amount of these weaklings will swarm the players, being quite deadly in numbers and also ammunition wasters. Since ammunition is limited, the best option for the Survivors will be to arrive in a Safe zone, a bunker, while the Horde happens.

And then there are the special types:

Figure 26

Special Enemies from L4D2



Some of them are:

- **The Charger** (foremost left). Tanky and huge zombie that will charge forward rambling with the poor survivor that it reaches.
- **The Hunter** (the second from the left). This type is the least visible of the mutations and can be even mistaken for a common Infected. It is deadly agile and can pin down (similar to a stun¹⁶) and often kill a survivor if left unanswered.

¹⁶ A stun is a special type of status that prevents the player from moving or taking any other action.

- **The Spitter** (green, third): A ranged infected that will throw projectiles of acid towards the survivors that, upon hitting the ground, will create poisonous areas.
- **The Tank** (huge in the middle): The mutation with the most HP, capable of killing Survivors with ease. When it appears the whole music changes and forces all the players to focus and fire him down.
- **The Smoker** (rightmost position): Similar to a sniper¹⁷, This class will ambush survivors from long distances with their tongues. If they manage to land a hit, they will immobilize and pull the survivor slowly towards them, leaving the player highly miss-positioned and probably dead or forcing another player to help immediately.

Upon entering a mission, The Director will begin a set of phases, relating to the current state of the Survivors. This will add a flow dynamic to the game.

The phases are the following:

1. **Build Up:** Upon starting the level or leaving a safe zone, the director will start to spawn Common and Special zombies normally. It will have an increasing amount of budget, thus the waves and difficulty of the game will gradually go up. It sometimes happens that the Director will save budget for a longer period of time. Experienced players will understand that and act accordingly, expecting an uprising in difficulty soon.
2. **Peak:** If survivors are at the max. intensity, The Director will reach this state. Will cease spawning enemies to give some breathing room and chances to survive the battle.
3. **Relax:** After a Peak, there will be an interval of time where there will be less enemies.

¹⁷ Common class in shooter games, capable of attacking Survivors from long distances.

This cycle will continuously repeat for as long as the survivors are on a mission. There are a few set encounters that will mark important encounters and events. It is common to have a midpoint with a safe zone and an end of level fight. Each level can be argued to have a three acts intensity curve. Easier at the beginning, with a peak in the middle and a final peak at the end.

How does the Director know the current state and situation of the players? Thanks to the **Survivor Intensity** meter.

The Director is constantly monitoring each individual player, their intensity meter will go up if they are attacked or kill a nearby enemy, if they go down¹⁸ or are hit by a special zombie, the meter will reach its peak. If several of the survivors are at max intensity, the Director will enter at the Peak phase.

This mechanism is very similar to what a drama manager does. It is able to understand and measure the player's state and react accordingly. Although it only has to measure "how close to dead" a player is, it follows the principles that allow EN to appear. A control on the flow of the moment, an understanding of the players situation and the capability of directly affecting them.

¹⁸ Going down is not the same as death. They will be in that position until another player heals them. This gives a second chance to the players but also builds extremely intense situations where the last survivor has not only to defeat the remaining enemies but also aid the others.

Nemesis System from Middle-Earth: Shadow of Mordor

Middle-Earth: Shadow of Mordor (Monolith Studios, 2014) innovated in a way that no other RPG has ever achieved.

The Nemesis System is a key case in the study of EN. The player will take control over Talion, a powerful warrior stuck in the middle of Mordor (from The Lord of the Rings), the land of the orcs. Having a simple, linear main narrative, the system surprises the player with the orcs, the enemies, creating another narrative in the player's mind. The game is an RPG purely based on combat, the encounters between the player and the orcs is constant through the whole game.

Warner Bros Entertainment Inc. got the patent "Nemesis characters, nemesis forts, social vendettas and followers in computer games"¹⁹ -Nemesis System, in short- approved in 2021, 7 years after the release of the video game. While this kind of action by a company is quite controversial, at least thanks to the patent we can see exactly how the system works.

This case study borrows greatly from a YouTube analysis²⁰ on the game by Mark Brown, from Game Maker's Toolkit, a prestigious channel that uploads game design related content.

First of all, orcs have a strong hierarchy between them. In descending rank: Overlord, Warchief, Captain, Soldier. This fact allows for a framework where the stories can happen. The behavior of the orcs will be different depending on their position, it will affect their goals, surroundings, personality and level.

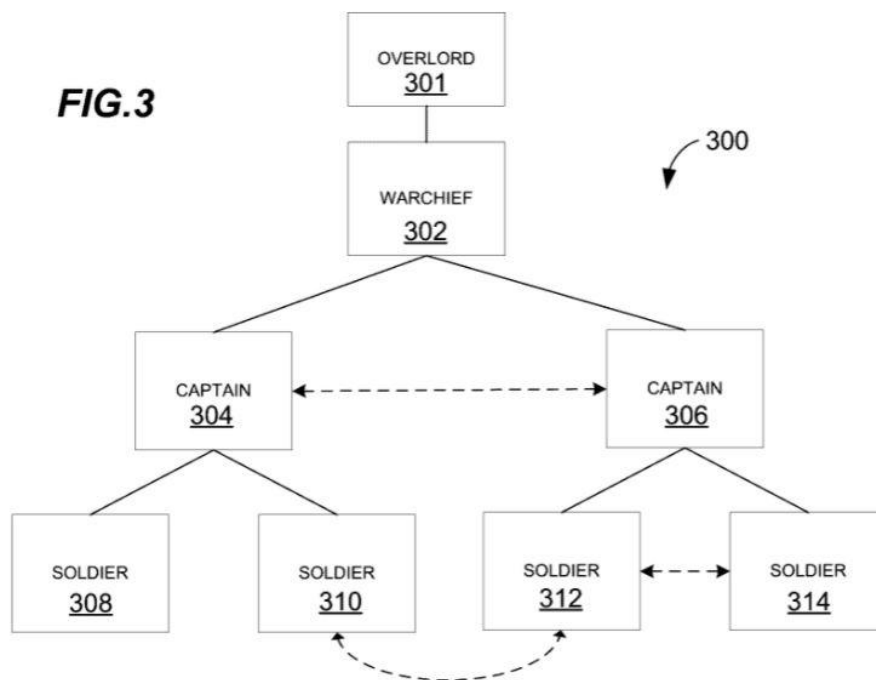
¹⁹ Link: <https://patents.google.com/patent/US20160279522A1/en>

²⁰ Link: https://youtu.be/Lm_AzK27mZY

Orcs can have different relations between them, a captain can be a bodyguard of a warchief, or two orcs can be blood sworn brothers, and in case of killing one of them, the other will try to get revenge.

Figure 27

Hierarchy of the Orcs

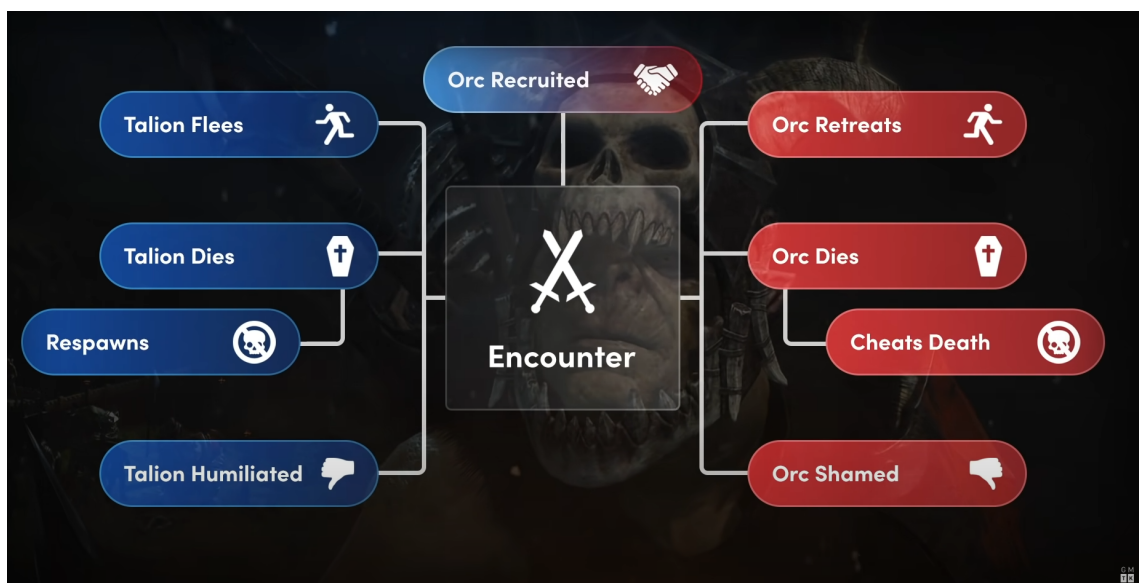


This framework represents part of the society in the world (if orcs can be considered part of a society). There is another part such as humans and elves, but those are much more limited and only for scripted narrative purposes. Then, the player is invited to enter the world and interact with the system. There are several events related to this hierarchy. Orcs can challenge higher ranks in order to ascend, if a captain defeats the player, will receive a boost in strength, resulting in a battle between these two orcs for the position. Each time a player dies or a time-advancing event occurs, the hierarchy changes dynamically, from new orcs joining the lower ranks from changes in the higher ups.

When Talion faces an orc squad, the encounter can resolve in many ways. First of all, the player can decide to run away, an enemy captain might remember that fact, and in the following encounter mock them for that. One of the most important events is that orcs have a small percentage of cheating death and reappear later on their own vendetta against the player. In an orc defeats the player, it will be rewarded with an ascension in the ranks. That orc will be stronger, will have more soldiers to command and have better loot.

Figure 28

Possible Outcomes of an Encounter



Talion's death is also relevant as a mechanic. While other games prefer to ignore the fact that the player has died and only respawn them on a checkpoint, others prefer to incorporate it in the narrative. In this case, Talion is considered to be a trapped soul between realms that can't die until completing their objective. Orcs acknowledge that fact and will often call him "The Specter".

Talion also has a power that lets him interact with the orcs in unique ways. Can decide to humiliate them instead of killing, but can also “control their mind” and recruit them, or even drive them to craziness if overused. This adds yet an extra layer of possibilities when interacting with them.

The stories that the Nemesis System produces are built upon the player’s actions, since these actions are stored in a list that keeps growing in real time, event after event. Orcs can later reference that list to choose the most interesting dialog lines. The narrative follows the rule of “Yes, and...”. Similar to Improv, it is based on always accepting the partner’s prompt and building on it. The possible actions of the player participate in constructing a particular narrative, since orcs are aware of that narrative, it allows both parties to collaborate, creating personal experiences for each player.

This leads to narratives such as killing a captain, then this captain appearing later for revenge and defeating the player. Thus being promoted to warchief and becoming one of the most powerful orcs in the area. Then, the player can decide to recruit such a powerful orc and make him their bodyguard, in order to defeat the Overlord.

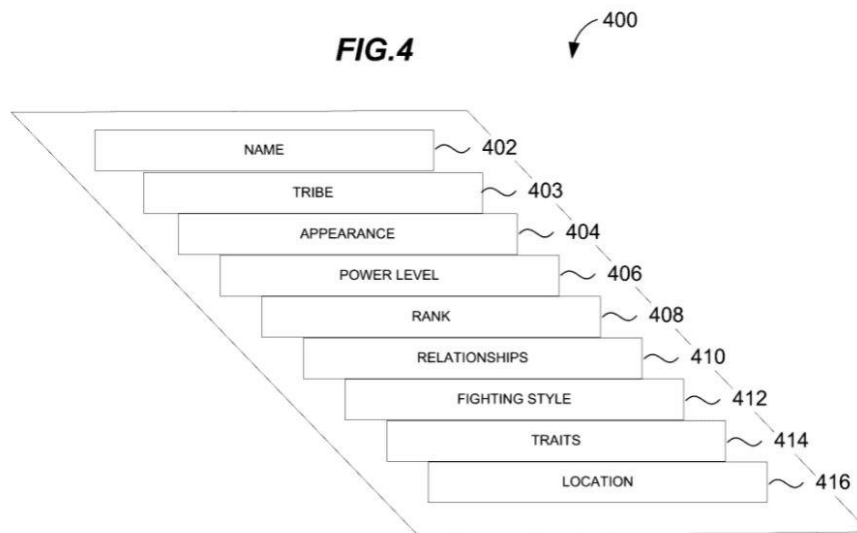
In a game that is based around fighting orcs, the player will always be encouraged to defeat these nemesis. Getting humiliated by an orc or dying at their hands, chances are very high that the player will try to hunt them down, or these orcs might appear by surprise while the player is busy in other fights.

Orcs are generated procedurally. Having a well defined and polished authored content (appearance, weapons, possible goals and fears, dialog lines...).

In the following figure the steps of the generation can be seen for further information.

Figure 29

Orc Procedural Generation Steps



- *How does the Nemesis System ensure that the player will remember those orcs and that the stories are good enough?*

In part, it is thanks to giving these individual orcs memorable personalities and aesthetics. There is a great amount of highly authored content, from every aspect, character, weapon, dialogs and so on for each orc. Personalities only, there are more than a hundred, combining them with a multitude of weapons and traits... There is a vast amount of potential orcs created.

Figure 30

A Charismatic Orc



But probably, the most important aspect is that the probabilities of the events that can happen (example, an orc cheating death and reappearing for revenge) are designed to be uncommon. In fact, there are some legendary events that can occur only once per game.

There is a hidden mechanism that ensures coherency and scalability. Each individual orc has a hidden value in relation to the player, the Player Interaction Score. This value can range from 0 to 100 and will start at its lowest, every time the orc encounters the player, this value will increase. An orc with a higher PIS will be more likely to trigger an event than an orc with less PIS. This ensures that the key orcs will keep appearing on screen, making them memorable in the player's mind.

Rain World Behavioral Ecosystem

Rain world is an indie game that was released in 2017 by Videocult. It has a Pixel art style, and its main character is a small slugcat (a combination between a cat and a slug), set in an apocalyptic world where a strong, mortal rain sweeps the world every few hours.

It is a lateral 2D platformer metroidvania²¹ game. The world is populated by predators that the slugcat will have to avoid or fight and other, more primitive humanoid creatures. At the later stages of the videogame there will also appear ancient beings and futuristic IAs. It has a reputation of being extremely hard and punishing, where the player will most certainly die many and many times before starting to comprehend the world.

Rain World's Art is procedurally generated, if an NPC needs to move from one side to another, all the paths in between will be animated in real time. That is also why this style favors a 2D pixel art, making the whole process of computing the animations a lot easier.

Case Study Introduction:

Rain World is an interesting case for EN because it creates a dynamic and allows the player to interact with it in various ways. Although the number of possible actions and reactions is limited, it is so wide in many aspects that it accomplishes its goals pretty well. From the multiple usage of items to the behavior of the species, the system keeps surprising and teaching the player the many possibilities.

First of all we will analyze the player mechanics and how it progresses through the game, secondly, the simulation system will be divided into pieces and these will be examined.

²¹ Metroidvania is a genre that appeared by combining two franchises, Metroid (Nintendo) and Castlevania (Konami). The genre features huge maps that can be explored in a non-linear way, where some areas can only be accessed via special skills that the player will be obtaining in the playthrough.

Player actions

The main mechanics that the player have are moving and jumping and grabbing or utilizing objects. The gameplay is mostly wandering and exploring the world, learning and interacting with the creatures and looking for shelter before the storm. Most of the interaction between them and the creatures are by using the items in various ways. With them it can distract, attack and even feed predators and can also trade with scavengers, being this one of the main skills that the player will have to master in order to beat later stages of the game.

As for the player's health it will be important to continuously catch food supply (bats, plants and small insects) to survive. Every time the slugcat hibernates on a shelter that food will lower, urging the player each time to explore and search for food yet again.

Behavioral NPC system

The emergency in the system are the creatures, they act by behaviors depending on the situation, have different personalities and will remember the player's actions. Rain World creates a simulated and emergent ecosystem. Each individual creature has been created with random stats (location, personality, type, etc...) and has an IA operating behind that manages their behaviors.

The behavior of the predators can be quite diverse, some of them may be lazy and ignore at first the slugcat, while others might ambush them and coordinate in order to capture it. Not only that, the world also offers semi intelligent humanoids named as "The Scavengers" with more complex behaviors.

The ecosystem consists of the following creatures (and the player):

- Neutral Creatures
- Predators
- Scavengers
- Ancient beings (this forth type is mostly for narrative needs, I will not be examining it)

Figure 31

Neutral Creatures and Predators



Neutral Creatures

There are a few creatures that will not attack the player. Some of them are useful (food, travel) while others are mostly wandering around. Most of them will, logically, turn aggressive if the player attacks them,.

Predators

The main threat and obstacle in the game are the predators. They come in many types, shapes and behaviors. Lizards are the most common type of predator, at the beginning they

will be green and lazy lizards lying around, in later stages, they could be invisible and try to hunt the slugcat, or be purple and teleport around and form parties to hunt in packs. Lizards can also be fed with their favorite food, those will become friendly and follow the player, engaging in combat against other predators if necessary. The Lizard is the type of predator that has the most complex AI, the fact that they can form teams to catch the slugcat, be fed and can be distracted makes them the most complex between predators.

There are many other types of predators such as flying vultures, arachnids, piranhas and stranger more dangerous entities around the world, but the interactions with the player will all be the same, run or fight. In this sense they are all much simpler and straightforward.

Scavengers

Scavengers are humanoid semi-intelligent creatures in the world that live in a primitive way. There are a total of four tribes, each one having different attributes. Those tribes are the Nomads, Tolls, Strongholds and Merchants.

The Nomads are the homeless of the tribes. Between storms the nomads will wander around searching for shelter. In the case that the player encounters them, their first reaction will be to run away, the other possible reaction will be attacking the player. Because of this trait Nomads are the most unpredictable of the four, and should be approached with as much care as possible.

If the player's reputation with the Nomads is high enough, they will most likely invade (not in a bad way) the slug cat's shelter, and sometimes will even use it long after the slugcat leaves.

Tolls are Scavengers that live in small bases around the world, they will demand a fee to let the slugcat pass through them. The fee is around 10 value, the player will have to have or find some items that cover the value.

Higher Reputation will make fees cost less and vice versa.

Strongholds act similar to nomads, going around finding supplies and act scared, but with the difference that they have a hidden base somewhere, where they will go and restock every now and then. This makes them the easiest tribe to rob from. But without enough reputation they will attack the player if they find them in the base.

Merchants tribes will all have a single Merchant in their base. Merchants will be very friendly and will trade with the player if possible, being one of the main sources of strong items. The other members of the tribe will be nomads that will continuously resupply the merchants, being this one the “leader” of the tribe.

About the Reputation:

Because Scavengers (and most creatures from Rain World) will remember the player’s actions. Saving and helping them from other predators, giving them items for free and similar actions will higher the reputation with that faction. It is a hidden mechanism.

Conclusions

In this section we have seen several types of systems that videogames have produced over the years. Each type of game has its own particularities in regard to how the narrative

and the gameplay develops. Shooters, RPGs or Colony Sims, each system allows for a different approach. Yet, not all of these systems have the same goals and objectives yet they achieve similar features. Probably the most important of the cases is the Nemesis System, which creates an innovative system from which designers should take more in consideration. While it is true that the system as a whole has been patented, there are several ideas and concepts that can be useful for other projects. The fact that it uses the player's actions as narrative bricks, and that allows characters to go through transformations to achieve an epic effect is incredible. It is also notable for the behavioral environment from Rain World. Creating a wide variety of NPCs, all of them with their particular behavior according to their personality. What is most important is that all of this information is conveyed through animations and movement since it does not have any dialog system.

Conclusions

Let's refresh the main objectives of this thesis:

- Investigate the history, evolution and implementations of Emergent Narrative, as well as find out what are the current challenges and issues around it, if any.

At this point, the first objective is pretty much covered. It has been researched about the properties and characteristics of Emergent Narrative, as well as its origins in Interactive Narrative. A clear understanding of the subject has been achieved, and the most popular and effective methods of building emergent narratives have also been explored (drama manager, player modeling and NPCs behaviors)

Although it is clearly a very challenging proposition to create an RPG with EN, at least The beginning is clear, the first steps are already done. There will appear many more problems once the prototype starts, problems not only related to the general challenges of EN but also particular problems of the narrative. Those will only appear when the development phase begins, and will need to be solved through a prolonged research and feedback gathering.

As for the second main objective of this work:

- Analyze and learn the fundamentals of Game Design and, more specifically, Role-Playing Games.

The main fundamentals and frameworks of Game Design have been researched and explained in the Theoretical Framework in depth.

The main questions of this research are:

1. Regarding the plot, how should it change according to the player's actions?
2. What degree of freedom would the player have?
3. Regarding the characters, how should they behave?
4. The resulting system, what characteristics and components does it have?

As a way to summarize the knowledge obtained after developing this work, I made a list with the ten principles that need to be followed in order to craft EN projects. These concepts should sound familiar to those who have seen the whole theoretical framework, and should also be useful as a tool for discussing between designers. It is from cooperation of different individuals that the best project can be achieved, and It is important to keep a critical spirit when finding new ideas and concepts.

Having said that, while I have been doing the research, organizing papers, writing and creating the structure of this work, something happened. While I have been pondering about different subjects and discussing my ideas with my colleagues. A video game has appeared in my mind. Not its complete form but the main features, the main mechanisms that would work together in order to create the system.

This RPG with EN may or may not take shape and form one day. But if it does, it will be thanks to this research.

Ten principles for building Emergent Narrative projects

1. A **Bottom-Up** approach serves better for building EN-based projects. Finding a balance between Authorial Intent and Player Agency.
2. The **Role of the Designer** that develops EN is slightly different than the traditional one. Some functions of the designer are delegated to the system.
3. EN is **Ontological** by definition, the player's actions change the world dynamically and exists a feedback loop.
4. The most suited plot type for EN is **Character-Driven**. It gives special emphasis on the construction and evolution of the characters.
5. To help build the narrative, designers should use some kind of **Story Facilitator**. An AI that can manage the feedback that the player receives from the game.
6. The world is **Simulative**, it reacts organically to the changes in it. To do that, the most common practice is using procedural generation technologies.
7. **AI techniques** should be used when dealing with NPC behaviors. Most of the time based on parameterizing emotional and dramatic states.

8. A system that analyzes the player is needed, this practice is known as **Player Modeling**. It should be able to infer information by observing the player.

9. Playtesting to **Gather Feedback** is vital, developing EN is a more than ever iterative process.

10. For RPGs, **Player as Participant** approaches fit the most. The story is constructed, in real time, using the player's actions as a driving force.

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Appendix A

Propp's functions

In 1928 Vladimir Propp analyzed over a hundred Russian fairy tales and published his work as *Morphology of the Folktale*. A key work for the further development of literary theory and a breakthrough for mythologists and anthropologists.

Vladimir Propp claimed that there is a limited number of functions that a fairy tale can have, he categorized them into 31 and postulated several rules among them.

Some of these functions are, for example, the villain harming a member of the family of the main character, the hero leaving home, or acquiring a magical elixir. Stretching the limits a bit, these functions can be considered Story Beats in a way, since the combination of them form bigger stories.

Leaving the individual functions aside, there are some rules behind them that can be applied to develop a system able to create stories using unitary scenes in a logical and coherent order. More on that later.

Propp drew some inferences from observing the workings of the thirty-one functions (Dogra, 2017), the most relevant are:

- One function develops out of another with a logical and artistic necessity.
- Not a single function excludes another
- A large number of functions are arranged in pairs (prohibition-violation, reconnaissance-delivery, struggle-victory, pursuit-deliverance, etc.)
- Other functions may be arranged according to groups. Thus villainy, dispatch, the decision for counteraction, and departure from home constitute the complication.

Elements DEF also form something of a whole. Alongside these combinations, there are individual functions (absentations, punishment, marriage, etc.).

Appendix B

Hero's Journey Phases

In this appendix, the Hero's Journey parts will be seen in more detail. It is divided into three acts.

Part I: Departure

The Ordinary World

Campbell argues that the Hero moves between two worlds. The Known and the Unknown. Each mite starts with the hero in the known world, in his daily life before the journey calls him. In this stage, the world and the hero are introduced.

Call to Adventure

The first stage of the mythological journey, it is when destiny summons the hero. A certain event occurs and the Hero is called to action. In this stage the conflict is introduced as well as the main objective.

Refusal to the Call

It is common that the hero refuses the call at the beginning. In a state of denial, doesn't want to affront the truth. This could be because of feelings of insecurity, fear of the unknown, among other reasons.

Meeting the Mentor

The hero meets a guide or some form of magical help that will offer the Hero training, knowledge, advice, and similar. With that help, the hero will finally dare to cross the threshold and venture into the unknown.

Crossing the Threshold

The hero finally leaves the ordinary world and, thanks to the guidance of the mentor, will arrive at the doors of the special world. The threshold is often guarded by a Gatekeeper, which will make the hero prove worthy in order to pass.

Part II: Initiation

Tests, Allies, and Enemies

The hero starts exploring the world and goes through tests and trials. He will learn new skills and gain new resolve. He will also encounter many characters, some of which will become allies, and others will become enemies.

Approaching the Inner Cave

The hero prepares for the major challenge within this world, by facing greater challenges and more difficult obstacles. The only way to prove himself worthy and to grow enough so he can face the final challenge.

The Ordeal

The hero faces his greatest challenge yet, the antagonist. He will have to confront death and its deepest fears. It is when the hero will rebirth and overcome the challenge.

Seize The Reward

After defeating the antagonist, the hero will get a reward/treasure. This is what the hero has been after the whole journey, and it is only after overcoming the greatest challenge that he will receive it.

Part III: Return

Refusal of the Return

After experiencing the special world, the hero may be reluctant to leave behind the new sense of purpose and extraordinary experiences. They could be afraid of regression or reluctance to let go of the extraordinary. This stage represented the Hero's struggle to reconcile their changed self with the environment they once knew.

The Magic Flight

Once the Hero decides to return, they will often face a chase or pursuit on the way back. They will have to navigate these challenges while safeguarding the knowledge and treasures they have acquired during the journey.

Rescue from Without

If things get too dire, they may receive assistance or intervention from external forces. Could be allies, friends, and supernatural entities that will help them overcome these final obstacles. The hero is reminded of the importance and significance of camaraderie and the interconnectedness of their journey.

Crossing the Return Threshold

The hero comes back to their original world, often bringing with him wisdom, knowledge, and tools that will not only improve their lives but everyone else. It represents the symbolic rebirth of the hero.

Master of Two Worlds

The hero has successfully completed their quest, becoming the master of two worlds. The hero now embodies a balance between the extraordinary and the mundane, able to bring forth positive change in both spheres.

Freedom to Live

Finally, having embraced their transformed self, the hero has the freedom to live freely, authentically, and purposefully. The hero's journey culminates in a renewed sense of purpose, inner fulfillment, and the ability to inspire and guide others in their own journeys.

Appendix C

Jungian Archetypes

As Sarazen Ahana summarizes “Carl Jung (1875 - 1961) presented two perspectives in the field of psychiatry: the collective unconscious, and character archetypes. The former is a theory that essentially states the existence of a set of shared beliefs, ideas, morals, and behavior that can be unified to create a unifying force, combining every human being who were, are or will be. The character archetypes, in this regard, are selected personalities belonging to people of this collective unconscious.” (2021)

Those twelve archetypes can be useful as a guideline to create a realistic society for the world. Each one fits into specific molds and seeks particular destinies.

Those who provide structure:

- **The Caregiver:** Their core desire is to protect and care for others, their weakness is being exploited and martyrdom.
- **The Ruler:** Their core desire is control and power, with the goal in mind to create a prosperous family or community. Their weakness is being too authoritarian and unable to delegate.
- **The Artist:** Desires to create valuable things, to realize their vision. Their greatest fear is to be mediocre and their weakness is perfectionism and losing grasp of reality.

The ones that aid in the spiritual journey

- **The Innocent:** They desire to be happy and go to paradise. Their greatest fear is being punished for doing something wrong, and their weakness is naivety.

- **The Sage:** They desire the truth over anything else, the goal is to use their intelligence to understand the world and themselves. Their greatest fear is being duped and ignorant, and their weakness is that, although they may know everything they could never act.
- **The Explorer:** They desire the freedom to discover the world, with the goal to experience a more authentic life. Their biggest fear is being trapped, conformity, and inner emptiness and their weakness is becoming a misfit, endlessly wandering.

The ones that leave a mark

- **The Outlaw:** seeks revenge or revolution, to go against the rules. Their weakness is going too far, committing crimes, and crossing over to the dark side.
- **The Magician:** They seek to understand the fundamental laws of the universe, with the goal to make dreams come true. They fear unintended consequences and their weakness is being manipulative.
- **The Hero:** They desire the most to prove their worth through courageous acts, their goal is to expert mastery and improve the world. Their greatest fear is being vulnerable and weak, and their weakness is arrogance, always needing the next battle to fight.

And those that connect to others

- **The Lover:** Their core desire is intimacy and experience, their goal is to be in a relationship with the people, work, and surroundings they love. Their greatest weakness is being alone, unwanted, and unloved.

- **The Jester:** They want to live the moment with full enjoyment, with the goal to have a great time and lighten up the world. Their greatest fear is boredom and their weakness is frivolity and wasting their (and others') time.
- **The Everyman:** Their core desire is connecting with others, with the goal to belong. Their greatest fear is being left out and their weakness is losing themselves in the crowd, making superficial relationships in an effort to blend in.