Moving Agency

A practical exploration of agency in computer role playing games

Abstract

This thesis explores through critical technical practice (Khovanskaya et al, 2016) the consequences of moving agency away from the player character and towards non-human agents.

The context of the prototypes is non-player characters, or npcs, in computer role playing games. The motivations behind the research are justified through a socio-historical analysis of the role of player agency in video games, the rationalization of games as a medium and the concept of value capture (Nguyen, 2020). The resolutive framework to these identified problems, which informed the research through design, has been a post-human understanding of agency rooted in cybernetics (Pickering, 2011) and the concept of dis-playing as proposed by Fizek (Fizek, 2022).

Research keywords

#Agency #VideoGames #npcs #crpgs #Cybernetics #Posthumanism
#ResearchThroughDesign #CriticalTheory

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Introduction

Overview

This research adopts critical technical practice to examine what are the potential consequences of shifting the agency from the player to non player characters; the process is also a subject of the research, as having a post-human consideration of the network of agencies present during the prototyping is a key factor in the final discussion.

First, in the introduction, I will establish the theoretical basis that connects neoliberal ideology to game agency, as well as framing this research in the context of a wider project concerning the harnessing of playful activities in the design process.

In the following chapter I will use the concept of value capturing (Nguyen, 2020) to understand how the computational models of video games can constitute a danger as well as limitation - especially given the predominant role given to player agency.

The focus will then be put on computer rpgs and their computational models, since the object of the developed prototypes has been aimed in particular to their shortcomings.

The final theoretical examination will be on post-human agency, which has been key in developing the methodological approach adopted in this research. This shift in agency will allow us to tackle the issues presented by value capture.

While being rooted in critical technical practice, this project is also inspired by other methodologies, such as critical design *(*Bardzell et al, 2012) and animistic design (Marenko & van Allen, 2016): how all of these approaches are considered and merged will be the subject of the methodology section, were criticalities and constraints of the research will also be addressed.

Next the four developed prototypes will be described in their form and in their performance, accounting for each the empirical observations emerged from playtesting.

These observation will be then discussed in the context of the methodology and of the desider post-human approach to rpg development; the three main point of discussion will be:

- Overly complex and overly simple systems: where i collect observations concerning the dynamics risen from different kinds of systems
- The failures of procedurality: where I will examine how the proceduralism adopted in my previous stages of research crumbles in the hands of player

- The non-human commune: where, adding to the previous two points, I tackle the research question more directly. Here the relationships between humans in the previous prototype, non-humans in the final one and the player are analyzed to determine the potential and difficulties of moving control away from the player, and generating npcs from player behavior observations.

A summary will finally conclude the research, followed only by remarks and consideration for further research, with an emphasis on large language models for npcs development and alternative approaches to the value capturing problem.

The rationalization of games and the centrality of player agency

It has been noted by multiple scholars how the shadow that modernity has cast upon games is the darkest in their digital encarnacion. The connection between videogames and the capital system it's in fact both historical and, through the process of rationalization (Habermas, 1989), ontological.

Video games are digital technologies and as such are "responses to the predicaments and opportunities of capitalism", as well as a tool to manage control and consent, making them inherently political agents (Ekbia & Nardi, 2017).

The dominant paradigm in the reading and development of games has been one of interaction acts to exert control over a cybernetic system, a paradigm that media scholars have described as a "western technocratic myth of individual empowerment within and through the digital" (Fizek, 2022, p. 7).

Looking at the historical context surrounding the birth of video games one must not dig too much to find, for example, how the american military complex has been a major actor since their inception: both William Higinbotham, creator of the first paddle like game, and Steve Russels, programmer of SpaceWar! (1961) were in fact employed by various branches of the US military (Dyer-Witheford, 2009).

More relevant to the purposes of this research is how rational thinking and computation have shaped videogames to be a medium that strongly embodies modernist and neoliberal ideologies of power and control.

The fact that videogames are an effective conveyer of ideology and meaning has been already the focus of much of the academic discourse in the early 2000s. This view is well summarized by Frasca in his introduction to ludology. Games, paraphrased from simulations as per ludologist view, convey ideology in three ways: through representation, through manipulation rules and through goal rules (Frasca, 2002).

While representation is important and has been key in the reproduction of values, think of modern military shooters, I will focus on rules, of which hidden nature makes them less obviously ideological. If we examine first the ideology of goal rules, we can notice how they tend to be "thin and precise", as opposed to the way we value objectives in our lives, which is instead "subtle, flexible and ambiguous". Examining game goals and the way they express values, Nguyen comments how this simplification ideologically supports one of the main assumptions of classical economics "that we are all identically rational, identically self-interested agents engaged in pure self-interested competition", assumption that is true in games, but " problematically false in real life" (Nguyen, 2020, p.66).

Shifting our attention to manipulation rules, which Frasca defines as "what the player is able to do within the model, we can see how they hint at what I will argue is the major agent of rationalization in the medium: the underlying computational models and how they define the agency of the player. In *Playing at Distance*, Fizek notes how "the mainstream rhetoric of video games is an example of a modern Western rhetoric of play as progress, power, and the self" (Fizek, 2022, p. xii): my argument is that this rhetoric is both product and source the aforementioned historical context, and, more importantly, a dominant, computation oriented view of the world. The remarks made by Fizek align perfectly with Habermas theory, which writes how rationalization necessarily extends to "relations of possible technical control" (Habermas, 1970, p. 81), and thus implies an attitude of dominance. This establishes then how rational thinking has been an hegemonic view through game's computational models, but the relationship doesn't end there, as this influence seeps back into society. The consequence is the perpetuation through technical means of a particular set of values and norms, which relegates minoritarian perspectives on play and games. (Fron et al, 2007)

> *"Video games are therefore not detached from the dominant political rationalities; games are shaped by the existing social forces, as much as they contribute to mould them"* - (*Muriel & Crawford*, 2018, p. 149)

Emblematic in this strict application of hegemonic values is the centrality of the individual as a powerful free agent and the prominent spot that player agency has in the understanding and development of games. In *Games: Agency as Art*, Nguyen describes games as unique social artifacts that enable the player to experience the designed forms of agency (*Nguyen*, 2020). There is also a direct connection between the apparently paradoxical coexistence between the values of control, in this case exerted by the system, and the freedom sold to the player. Video games are one of the idioms through which political rationalities express their moral form, in this case one of freedom, control, and responsibility. Thus we arrive at our state of things, where the player is the absolute protagonist in charge of what's happening on the screen. Directly quoting Muriel and Crawford: "At a more socio political level, this perspective reflects and reinforces the political rationalities of neoliberalism, in which one of its central axioms is the construction of an active, autonomous subject who takes care of themselves and, at most, participates with others in order to solve their specific problems." (Muriel *& Crawford*, 2018, p. 150)

Despite agency in video games not being seen just as ""free will" or "being able to do anything" (Mateas et al, 2009, p. 7) , it is still based on the broader view of human-centered socio-technical agency, which sees humans doing things with and through technology (Introna, 2013). This perspective doesn't consider the effect that technology and other actors have towards humans, but considering the symmetrical relationship we established in the transmission of ideology, this seems like a short sighted view of the subject. Nonetheless, the role of game designer is to "entice players to desires the game can satisfy" (Mateas et al, 2009, p. 7) so that players experience narrative opportunities of success through agency, projecting the view of an empowered individual who can overcome any obstacle in their way (Muriel & Crawford, 2018).

Even though in more recent years designers have expanded their views on agency from an absolute value, to something that can be manipulated and even removed, this is often only done to achieve an even greater sense of dominance over the system once agential control is reestablished . Much like in the hegemonic neoliberal world view "... The loss of agency, the fragility, and the sense of powerlessness are seen as temporary: The player has the ability to succeed, and if they fail, it is because of their lack of skill or because they did not invest enough time perfecting their skills." (Muriel & Crawford, 2018, p. 152)

Considering the predominant role that agency has and has had in game development, together with the necessity of rule sets, which can be understood as computational models, it is then apparent how this paradigm has dictated what is or isn't apt for commercial production in the medium.

> *"Given the importance of agency, and the necessity of a computational model for agency to take place, it makes sense to focus gameplay on areas for which well-developed computational models are available, such as spatial movement and combat." -* (*Mateas et al*, 2009, p. 9)

This is also supported by Sicart reading of Huizinga, which sees modernity as adversary to rituals and myths, as not subject of reason: games then, shifting during modernity from the realm of the myth to the one of reason, have necessarily shied away from what cannot be reasoned - which in practical sense, means computed (*Sicart,* 2011). This however, has not stopped developers, pushed by their unaware modern ideology, to force the unreasonable to the realm of reason through simplistic computational models. The dissonance between reason and myth, computable and non computable, is what enables us to problematize value capturing in video games, a concept that will be discussed later.

Connected research: solarpunk co-design

To make better sense of this thesis, it's important to situate it into the wider research arch that took place previously in my academic career. All of the developed prototypes are in fact based on the result of my semester-long project on speculative co-design applied to solarpunk worldbuilding.
The research proposed an adaptation of *Storytelling Group* (Kankainen et al. 2012), a co-designing methodology for service design, modified to suit critical-design oriented speculative worldbuilding. The work was also hugely influenced by Ian Bogost procedural rhetorics (Bogost, 2007), trying to harness them not only into the product, but in the development itself through playful co-design. In this way, still postulating a biased preferred state for things that was disclosed by the developer, it was possible to ideologically splice the

worldbuilding, obtaining as a result a less centralized speculative fiction, that suited the eco-anarchist leanings of the research.

Being aware of the rhetorics and results of this previous endeavors is relevant in two major ways:

- Firstly, much of the critique given to speculative design and critical theory have been already tackled by the means of a transparent co-design process that builds the ideological foundations of the prototype. This topic will be further defined and explored in the methodology section.
- Secondly, the present research can be seen as both a continuation and a subversion of the proposed process.

The objective of the co-design was to enable co-creators to write better fiction, while still adhering to a proceduralist view that seeked to create a specific controlled rhetoric out of the systems. This thesis doubles down on the potential of players and playfulness in the design process, but does so from a post-human anti-proceduralist perspective. The details of the matter are what constitutes much of the discussion of this project, and the shift is more a product of the research than a pre established objective.

It will suffice to say that after focusing on using play and proceduralism to define less biased design principles in worldbuilding, in bringing back the attention from the game object to the player, those very principles ended up not surviving the transformative power of play.

Literary and theory review

Value capture and reductionist models

To understand why the current stance on player agency and the rationalization of games have the potential to be damaging for players and society at large, we will consider the concept of value capture - as defined by C. Thi Nguyen in *Games: Agency as Art* (2020).
The author stresses how the real dangers of video games are far different from what they have been traditionally accused of doing, they are way subtler, and they fit the status quo values. Generally the awareness of fiction "blocks most of the psychological after effects of viewing violence" for example, and "a mature game-player should have the capacity to adopt the all-consuming instrumentalizing attitude as part of a temporary agency during game play, and then set it aside afterward" (Nguyen, 2020, p. 191). Leaving the game and treating others in an instrumental way, not valuing their agency I might add, would be obviously "morally terrible" to most people.

> *"I am more worried about games breeding Wall Street profiteers than I am about their breeding serial killers." - (*Nguyen*, 2020, p. 190)*

How is it then that games can negatively affect the way we interact with the world?
The problem arises from the fact that the way values are generally presented in games differs greatly from the way we create and shape values in everyday life.
"The experience of games is one of a cleaned and simplified landscape of values" (Nguyen, 2020, p. 215): games produce value clarity. Value capture happens when we export the simplicity of video game logic in the outside world. It is then a side-effect of the perceived necessity for value clarity given the characteristics and limits of the video game medium. Furthermore, the strive for clarity is a byproduct of the employment of reductionist computational models, which have been proven to be dangerous in other fields of study. It is to be kept in mind however that value clarity is in fact not an unavoidable postulate in making video games, and also has its advantages: Nguyen describes this orderly simplification of chaos as akin to harmony in music, or the narrative structure of witten fiction. In essence it can enable easy and controlled aesthetic expression.

Nguyen describes value capture in action as such:

1. We first posses rich and varied sets of values

2. Through media (video games in this case), we encounter a reductionist representation of those value, often in quantized form

3. The strong allure of those models co-opt our reasoning heuristics when it comes to values, reducing them in complexity and nuance

4. To directly quote Nguyen "Our lives get worse" (Nguyen, 2020, p. 201), which is a consequence of the different requirements and expectations fictional and real values have. To give a blunt example, love is not a dating simulator.

Value capture in video games is hence a form of belief in bad faith: they pressure us to change just for ease of use and aesthetic satisfaction.

The problem arises from the fact that the way values are generally presented in games differs greatly from the way we create and shape values in everyday life.

Nguyen acknowledged how value capture happens everywhere, not just in games: I would argue that it's a consequence of how modern science describes the world as all knowable and representable (Pickering, 2011). Everything must then be possible to calculate and model. In a critique of machine learning, Birbane and Sumpter mention how this assumption, which leads to the creation of simulations that are passed as truth, is actually a scientific fallacy that can produce great social harm (Birbane & Sumpter, 2022). In *Knowing Algorithms* the author N. Seaver explains how the algorithms that we employ today require developers to formalize informal qualities (Seaver, 2019), and how even transparency is often not enough to avoid unintended consequences and behaviors. As Nguyen says "Quantified measures strip away context" (Nguyen, 2020, p. 204), it distorts the information, making it easy to aggregate, comprehend and to use across contexts. It is exactly how you achieve value clarity. When things can be measured, they can be ranked, compared and traded, which is not possible to do with our values regularly. All of this concurs to the problematic position that "reality is always already articulated in the form of human measurement" (Wittkower, 2021, p. 2): we end up believing that only that which can be measured is real.

But where is the connection between computational systems, video games and value capture?

Fizek in Playing at a Distance describes video games aesthetic as fundamentally computational.

> *"Computation is not only the technological core; it is also a method and a logical framework. That which is seen, touched, and experienced cannot be decoupled from the computational logic determining the aesthetic experience."* - *(Fizek, 2022, p. 102)*

The association between computational models and video games is then apparent, as is how value capture is at the same time an intrinsic danger stemmed from the dogma of knowability that applies to both, and how games are particularly susceptible to it, since their application is always user (player) focused and aesthetic oriented.

Computer role playing games in context

I will now go deeper into computer role playing games, as they are the subject of my prototype work and, as I will explain, they are particularly relevant when it comes to value capture and artificial agents.

Crpgs are the digitalization of traditional pen and paper role playing games, among which the most popular example is the Dungeons and Dragons series.

It's interesting to observe how even here the genre can be traced to militaristic roots: *Dungeons and Dragons* traces its lineage to miniature wargames through its predecessor *Chainmail* (1971)[1].

Computers role playing games are described as having the following characteristic (Zagal & Deterring, 2018):

- A single player plays with a computing device.
- The player creates and governs the actions of one or more characters in a fictional game world.

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[1]Birnbaum, J. (2004). Gary Gigax Interview. Dungeons & dragons online @ gamebanshee. https://web.archive.org/web/20090203084227/http://www.gamebanshee.com/interviews/garygygax1.php

- The computer runs an internal model of the game rules and game world, including all NPCs, renders a representation through an interface, and updates model and representation in response to player input.
- The game world is constituted by the computational models generating audiovisual representations that ground the player's imagination
- The game world is usually some form of genre fiction: fantasy, science fiction, horror, or a mixture thereof.
- Attempted character actions are limited to options made available through the game interface.
- The abilities of characters and the outcomes of their actions are usually determined by quantitative-probabilistic rule systems or by the player's reflexes and abilities in inputting commands.
- A game is often played over multiple sessions
- In-game events are usually guided along a pre-planned plot through the extensive scripting of the game world (including non-player character actions) toward clear end points, but players may play open-endedly before, during, or after the conclusion of those plots
- There are extensive rules for combat resolution.
- Player characters improve over time via systems for progression.

Of all of these elements the one more pertinent to the thesis is how essentially it all runs on a series of computational models upon which the player acts through probabilistic methods. Crpgs tend to pride themselves with the richness of these models, in particular concerning npcs. And it's the modeling of non player characters that tends to give us the more problematic representations in terms of value capture. Some of the most common aspects of human behavior that are quantized and modeled are reputation, morality and personal relationships - usually with an emphasis on romantic love.

Focusing our attention on morality systems, they usually give a numerical evaluation to the player action, which then npcs will use to define their relationships towards them (Domsch, 2013). The efficacy of this method to create moral dilemmas has been challenged by some (Sicart, 2009), who critique the simplistic morality at play. Others see potential in these systems: Domsht theorizes that since players tend to see their action in games in semantic

terms (i.e. to give them contextual meaning), and since this behavior is actively encouraged by the games models and representations, the game choices associated with moral models can be understood as genuine ethical dilemmas (Domsch, 2013). Despite this observation, even he acknowledges the implicit nudging that these systems opt in favor of what he calls catholic, for games where good and evil values cancel each other out, or protestant models, where the two metrics are kept separate. Concerning this topic Muriel and Crawford note how the often depicted good / evil dichotomy is but a naturalist realist simplification of ethics, and that oftentimes evil just equates to the moral other (Muriel and Crawford, 2018). Discussing the game systems for ethics Domsht also write:

> "Converting ethical to numerical values creates the illusion that they are measurable on an absolute scale and, more importantly, comparable and negotiable." - (Domsht, 2018, p. 165)

It should be now obvious how the crpg genre is particularly relevant when discussing value capture and reductionist models in games, and why it was chosen as object of experimentation. The prototypes will seek to create a model of player values that challenges these conventions while trying to harness the potential benefits of creating a simple frame of reference for the players.

Crpgs are also where non player characters tend to be the most relevant and intricate. The industry has long understood that the quality of an Npcs is important to the believability of a game world (Domsch, 2013), and as such much research has been conducted to enhance their characteristic: from complex personality models, to dynamic appearances that reflect their state in the world, to models that simulate emotions (Mooney & Allbeck, 2014). Even though it seems that the mentioned research is spurred by an understanding of humans as machines, a view that enables us to think of machines as humans (Birhane & van Dijk, 2020), there is at least a general awareness among programmers of video games that much of the task lies in faking a behavior more than in simulating it (Domsch, 2013). This however doesn't change the experience that the player has towards them, especially considering that the structure of an rpg does everything to encourage the player to adopt an intentional stance towards them, or reading them as possessing intentionality.

> *"If we consider more complicated games, like role-playing games (RPGs), we see cases where consideration of the thoughts and motivations of non-player characters (NPCs) is necessary to game play, and we are required to "read" these others as people, not as mere sprites and in-game instructions"*
> *- (Wittkower, 2021, p. 9)*

It also doesn't stop the industry and academia to keep trying to represent computationally what we do not experience systemically, especially in the wake of the "AI revolution". My proposal then is that to achieve more believable npcs we should stop trying to model human behaviors to be put into the hands of players for their dominance, but we should instead give more power to the Npcs themselves, highlighting their role as agents in the systems and not their supposed intelligence.

Towards a post-human understanding of agency in games

To set the theoretical foundation of the prototype stage, I answered the problem of value capture and reductionist models in crpgs through a post-human approach to npcs. This approach is built on top of a cyberneticist reading of actor network theory, as well as the concept of assemblages, all of course in the context of games.

In actor network theory, all agency is seen as "distributed throughout our networks of humans and non-humans" (Adam, 2018, p. 3). This means that even non-humans (animals, objects, software etc.) are considered as capable agents contributing to the network of action. Whether things can also be ascribed moral agency is still subject to debate, and while a fascinating discussion, it is only tangential to this thesis; what needs to be stated though is that "de-centring the human may not involve over-centring non-living things" (Adam, 2018, p. 2). The objective is to identify and gather the potential of a missing agential mass in video game production and analysis.

Considering a wider range of actors and their interrelations can equip us for a better understanding of the medium (Taylor, 2009), and thus crafting better experiences more aware of their handling of values. I will say though that considering non player characters as part of a distributed moral agency enables us to see even better the dangers of value capture, as well

as creating a sense of accountability for their morality that can both inhibit value capture and improve the sense of believability of the fiction (Adam, 2018).

Another argument in favor of accentuating the role the non player characters play inside a crpgs lies in that fact that by aligning the fictional with the real, through npcs that behave on the same level as the player character, the player assumption on their behavior can gap much of the literacy required to play video games *(Bardzell et al, 2012)*.

The very nature of games led Muriel and Crawford to declare them "proof of an ontologically promiscuous notion of agency that requires new lenses" (Muriel & Crawford, 2018, p. 153).

The paradoxical obsession that video games have adopted towards agency it's so clashing with their structures and dynamics that they end up becoming the perfect frame to explore a less-human centric perspective.

> *" The manifestation of play on the screen, in the case of digital games—that which is displayed—is a representational image of multiple agencies: the instantiation of rules, the execution of code, the cognitive and physical actions of the player, and the material possibility of play" - (Fizek, 2022, p. xvii)*

Adopting actor network theory brings us to the concept of assemblages. An assemblage is a way of understanding a distributed network of agencies composed of many actors (Taylor, 2009), and has already been proposed as an alternative to systems in the study of complex structures, such as the environment (Brain, 2018).

"The edges of an assemblage are fuzzy – modes of interaction are always shifting and agencies within them are heterogeneous" (Brain, 2018, p. 10), as such the assemblage of a video game is made up many elements and dynamics, including the materiality of hardware and the influences of the social context of the player (Taylor, 2009), but to the purpose of this paper we will focus on non player characters, as they are the most obvious component of the assemblage perceivable by the player and they tend to embody the value systems we seek to challenge.

The final element in my approach to video game agency is rooted in cybernetic ontology. Taking a cybernetic stance means favoring performance over absolute knowledge, and recognizing that "much of being does not have a cognitive and representational aspect"

(Pickering, 2011, p. 23). Cybernetic, in particular the British current, goes against the opening of the Black Box, against the need to unveil unknowable secrets.

> *"A Black Box is something that does something, that one does something to, and that does something back—a partner in, as I would say, a dance of agency" (Pickering, 1995, p. 20)*

I will argue that much of the models behind npcs behavior have exactly the ambition to calculate and predict human behavior, my approach will employ an intentionally simple and inscrutable black box. The intention is to create a behavioral model for npcs that looks empirically at player dynamics as a main source of reference for its performance, while keeping a simple underlying model that challenges the player's desire to dominate, predict and calculate.

The hope is to open the way for other "aesthetic modes of engagement with playful technologies", accustoming the player to being only one of the multiple agents in a "distributed algorithmic entanglement" (Fizek, 2022, p. 1).

Methodology

Implementation of critical technical practice and design principles

The conducted research has been based on principles taken from critical technical practice: the methodology sees technical problems as philosophical ones, applying sciences and critical study theory to find new innovative solutions. Technical practice is then not seen as a self conclusive activity, but as a means to "reflectively explore underlying assumptions and attitudes about technology and humanity" (Khovanskaya et al, 2016, p. 1). In their reinterpretation of critical technical practice, the quoted authors also suggest to put emphasis on historical analysis, as it is fundamental in detecting the dominant rhetorics of a given system. Critical systems can be crafted to identify and alter the status quo implicit decisions that tend to filter into everyday designs unnoticed.

To support this approach, the focus has been put onto historical and theoretical analysis as well as on empirical observation, as opposed to a more data driven method. In *The Environment is Not a System*, Brain writes how data driven research tends to dismantle opportunities for paying close attention to the world, as well as unintentionally maintaining the status quo through big data collection (Brain, 2018).

Furthermore, the cybernetic view held in this research focuses on iterative performance and results rather than "opening the black box" or obtaining accurate and predictable systems (Pickering, 2011). This led to multiple prototypes, each made in response to the empirical observations made on the previous one.

Cybernetic thinking, together with viewing games and their development as an assemblage, also caused the player to be put as an active agent that influences the system (in this case the research), through their observations: "the scientific observer is part of the system to be studied" (Pickering, 2011, p. 25).

This is also acknowledged by Bardzell et al: the authors advocate for the necessity of fluidity in critical research, as the unpredictable and iterative nature of design makes it a inappropriate tool to "operationalizing theoretical frameworks" (Bardzell et al, 2012, p. 296), and should be thus be flexible and adaptive in its goals.

I will mention that this realization is strictly in contrast with Bogost's procedural rhetoric, which constituted one of the core theoretical foundations at the beginning of this thesis as it took the torch from the previous project mentioned in the introduction of this paper. As such, this research went through a drastic shift of trajectory once players had the opportunity to test the prototypes, going from focusing on the mechanical aspect of creating consensus with non artificial agents, to the opportunities and consequences of shifting the agential balance in the assemblage of play.

The prototype design was also based on the power of unpredictability in technical systems described in *Animistic design: how to reimagine digital interaction between the human and the nonhuman* (2016).

The animistic design of Marenko and van Allen was heavily influential in embracing unpredictability in systems as a thought provoking tool capable of giving a sense of believability and vastness to the user: if the black box cannot be easily opened "the potential for a wider range of behaviors to take place, rather than the predictable and mechanical ones" (Marenko & van Allen, 2016, p. 54). The researchers argue that while there is space for efficiency driven predictable designs, and thus my prototypes will not totally be void of user-friendliness, having an opposite take can be useful "to foster difference, novelty and creative engagement" (Marenko & van Allen, 2016, p. 56).

To summarize the research process:

1. A social and historical analysis of agency and npcs in computer role playing games sets the basis for the design choices.

2. A series of prototypes is built to explore how human and non-human agents act when facing different game systems and when they have different degrees of agency.

    a. The prototypes inform each other and determine the direction of the research

3. Based on the empirical observation emerged from playtesting, the results are discussed considering the established theory

The prototypes

Process overview

The four prototypes will be analyzed with the following template:

- A brief description of the game systems and mechanics will give a broad understanding of the game rules; if any structure builds on top or changes a previously established mechanic, it will also be mentioned in this section.
  The description will be only a partial representation of the game, since detailing every aspect of the game is not necessary for the purpose of this thesis.

- The objectives of the prototype will be clearly stated, defining how it fits in the overall research and in relation to the other ones.

- The modes and results of the playtesting will then be described. This observation will set the basis for the discussion in the following chapter.
  The observations will also include any potential issues detected in the design, which have been then used to develop the subsequent version of the game.

The four prototypes have been developed in paper form, following fast paper prototyping techniques, with the objective to quickly reach the desired goals and move to the next one. The first three are multiplayer and set the basis for the fourth one, which gathers all the core dynamics emerging from human agents interacting between each other, and tries to replicate the experience with a digital ready version.

By digital ready I mean that the game is single player, and all of the game systems are designed to be easily implemented with computational logic; however due to limitations in the scope of the thesis, it is still a paper prototype. A game master, kept as impersonal as possible, has been used to set the game events in motion by following behavioral diagrams for npcs and reading pre-defined text from a script.

As a general premise, due to the nature of my previous research, the theme surrounding the game is social dynamics around consensus and democratic choice, in the context of an environmentally sustainable commune. The setting is relevant to the present research as it provides a context in which multiple agents end up collaborating to achieve a common goal. To introduce tension and to better examine how modeled values are perceived and explored,

the prototypes' main objective is to explore the conflicts of interest that are born out of following one's personal goals, and having to compromise them for the benefit of the commune. The value system that has been modeled to reach this goal is based on the fictional genre of solarpunk, which tackles issues of environmentalism, technology and communal living.

Prototype 1: understanding the requirements

Description and objectives

This first prototype core objective was to define the value system upon which to construct the rest of the games. As such, much emphasis was placed on the systems, which were all transparent to the player. The game took the form of a cooperative survival tabletop role playing game. The game started with each player selecting their three main attributes: they could decide whether their character was going to be capable, incapable or very skilled in three realms of action; technological action, social actions and natural actions. These represented their attitude toward technology, nature and other people, and provided bonuses or maluses during gameplay. The players could then roll dice to gather resources: there were three main resources, tech, nature and information, which were mimicking the player attributes. As such a player could be better than another at gathering info, but worse at obtaining natural resources. Following the gathering action, players had to vote for which communal action they wanted to perform. The actions were enabling players to do things like obtaining more resources (the research action), improving the structural stability of the commune, or healing a wounded commune member. Only the action voted by the majority took effect and the players were encouraged to discuss the decision. As a last phase of the turn, a random event took place that would generally consume resources, eroding away at the structural integrity of the commune, or damaging one or more players directly. These random events were all orchestrated by a game master that was also providing a narrative context. The game lasted a fixed number of turns, the objective was simply to survive until the end: if all the players reached zero health points or the structural integrity of the commune was completely consumed, the game would end in a loss. To encourage a diverse range of play

patterns, one player was secretly tasked with the objective of making the commune fail as fast as possible. The game board was hand drawn on paper, with no representational element except crudely drawn icons for the different actions; the game master would manually keep track of the resources.

Playtesting results

The game was playtested twice with two different groups of five players. The game lasted between 1 hour and 30 minutes and 2 hours.

The players generally tried to understand the game systems and to play optimally, the antagonistic player was able to stay hidden, as the dice based nature of the game, together with the multiple interacting systems (resource gathering, commune action and random events), made it difficult to pinpoint if someone had malicious intents. Despite the lack of representation and just some basic narrative prompt improvised by the game master, the players found archetypal figures in their characters depending on their values, and generally filled in the gaps with their imagination when a particular event such as a character dead during a gathering incident would take place. Despite this, many players reported the lack of context confusing, and had difficulty in dissociating the state of play from the systemic machination presented by the game board and the dice rolls.

Since the goals of the players were all aligned, with the exception of the player tasked with bringing down the commune, no particular conflict of value emerged among the players, and the problem posed by the game was tackled exclusively as a statistical one.

Prototype 2: defining the values

Description and objectives
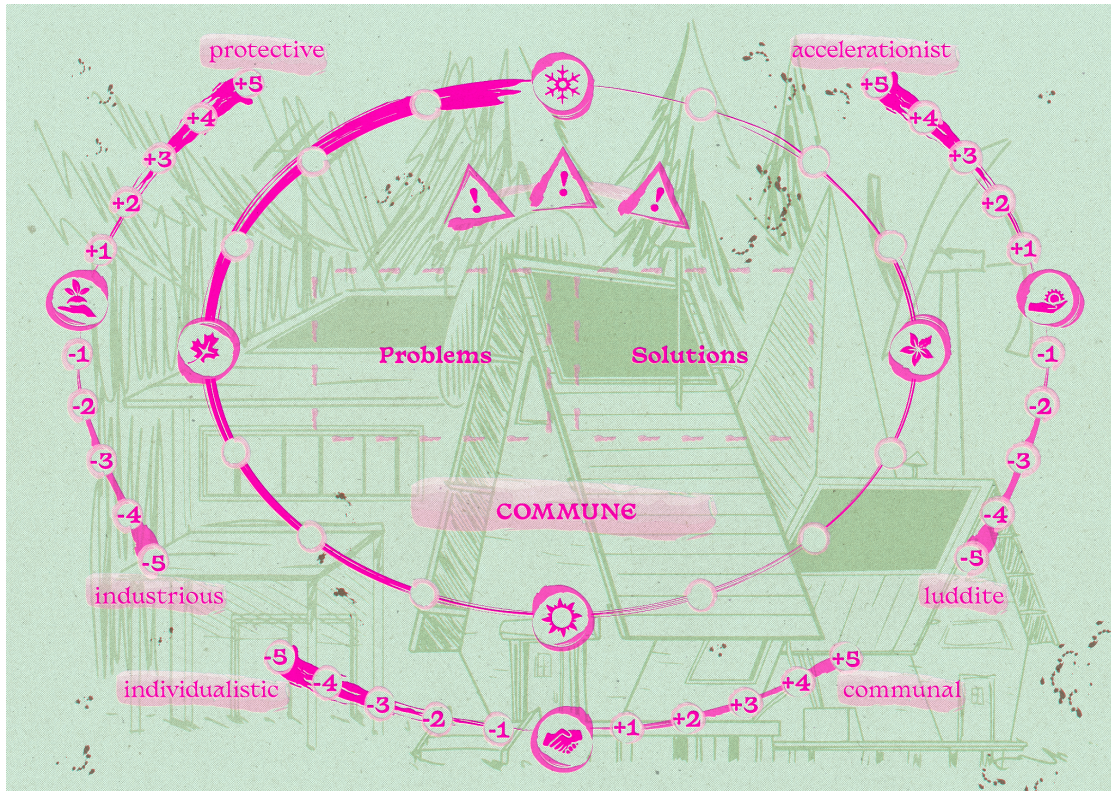
Img 1: game board used from prototype 2 onward

The second prototype was simpler and more focussed, the core goal was identifying a value structure and a single game mechanic that could, with few moving parts, encourage discourse surrounding the theme of the game and conflicts of value among players. The game was played five times by different playgroups of four to six players, and didn't require the presence of a game master: all of the context was given by the game pieces. The game master's sole role was to explain the rules, observe player behavior and answer any question regarding the game state.

Overall the game was much less rudimentary and presented itself as a complete board game. The value model created for this prototype ended up becoming the final one upon which further iterations will also base themselves: the commune had three attributes defining it,

relationship towards nature, technology and among people. The values went on a range from -5 to +5. The relationship towards nature moves from industrious to protective, the one towards technology from luddite to accelerationist, and the social scale goes from individualistic to communal. The players did create characters anymore, streamlining also this part of the game. They instead could choose between different archetypal commune members, each represented by a different alignment of commune value. For example, the eco capitalist archetype hac +3 towards being protective, +3 towards industrious and -3 towards individualism. Characters also had a core value, which mechanically determines whether they would stay or leave the commune: if the commune voted for three solutions that go against that value, the player would leave it. Finally, players also had action points that determine the amount of work they are capable of putting towards completing a solution, and define their voting power inside the commune.
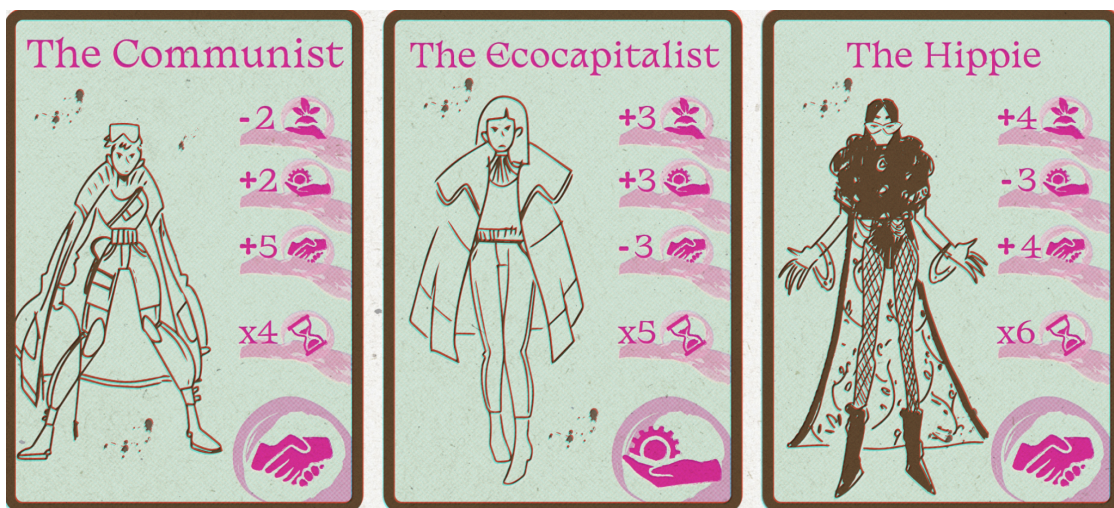
Img 2: player card, used first for player characters, later for npcs

Each turn the players revealed a problem card, which defined narratively an event that the commune had to deal with: the players would then be able to vote for one of the two solutions proposed by the card. The solutions were only present through numerical values and they were encouraged by the game master to describe what they were diegetically doing inside the game world. The solution with the majority of the votes shifted the value of the commune of the described amount. Players could choose not to vote, and if no majority was reached the commune got a crisis point: at three crisis points reached, the commune failed. Players were also given two different winning conditions randomly, and they were instructed to keep them

secret: visionaries would seek to align the commune values with their own, winning if they managed to do so, the rest of the players just needed to stay in play for twelve turns.

Img 3: event cards for prototype 2

Playtesting results

The higher quality of the game presentation together with the simpler game system allowed the players to get more involved with their characters.

Overall, giving clear archetypes and their values gave players enough tools to project their own world views through role playing, however this was not the case for everyone: many players expressed how a lack of explicit narrative made it difficult for them to care about the events taking place. This proved to be particularly true for event cards. Simply asking the player to engage with the system non-mathematically and instead to give a description of the chosen solution didn't work, and even the players most committed to gameplay ended up forgetting to describe the solution once it was voted. Completely removing random chance also made the game easier to predict, enabling rationality oriented players to decode the optimal solution for every problem: the one that wouldn't cause any player to leave and that could be balanced by the following one. This problem was particularly prominent in a variant of the game where the players could see what the following problem card would have been. While the updated game systems managed to encourage more discussions concerning the personal and commune values thanks to the core value and crisis point mechanics, the game still left potential unexplored since for the most part the players' goals were still aligned. The main cause of this issue was how easy detecting the visionary was, as it was the only player that had a reason to vote for solutions that actively resulted in a player to leave the commune.

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Prototype 3: player empowerment
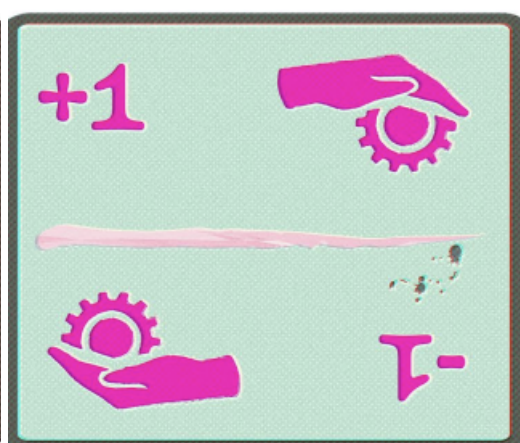
Description and objectives

The third prototype kept much of the structure of the second one, since it proved effective enough in conveying the desired aesthetics, while allowing more agency to the player to experience the most boundless version of the game possible before constraining it with artificial agent in the following one.

Two major changes were implemented:

- The problem / solution system was discarded in favor of a pitching system: the players were now encouraged to create their own solutions to the presented problem and proposed it to the others. This was done through a hand of cards each player was dealt. To pitch a solution, the player had to select two cards that defined the value changes that the solution would cause, write a name on the given project card and also draw a simple sketch. The value cards chosen would remain hidden until the project was completed. Any player had the power to pitch to any of the solutions, but a pitching player couldn't vote that round. Other players then voted for the solution they preferred, trying to deduce the underlying value changes from the project description, name and drawing given by the pitching player.


Img 4: pitching template for prototype 3   *Img 5: example of a value card*

- Additional roles were added, so that a wider range of player motivations had the chance to clash with the commune goals. The previous roles were kept and the mole, the protective and the crafter were added. The crafted was encouraged to pitch solutions, the mole seeked to eliminate other players, the protective had the power to call for a banishment vote and had to find the mole. Completing a personal goal now gave points to the commune instead of finishing the game, this was true also for visionaries. The objective of the game thus became reaching the end with the highest amount of personal objectives completed and least number of players out of the commune.
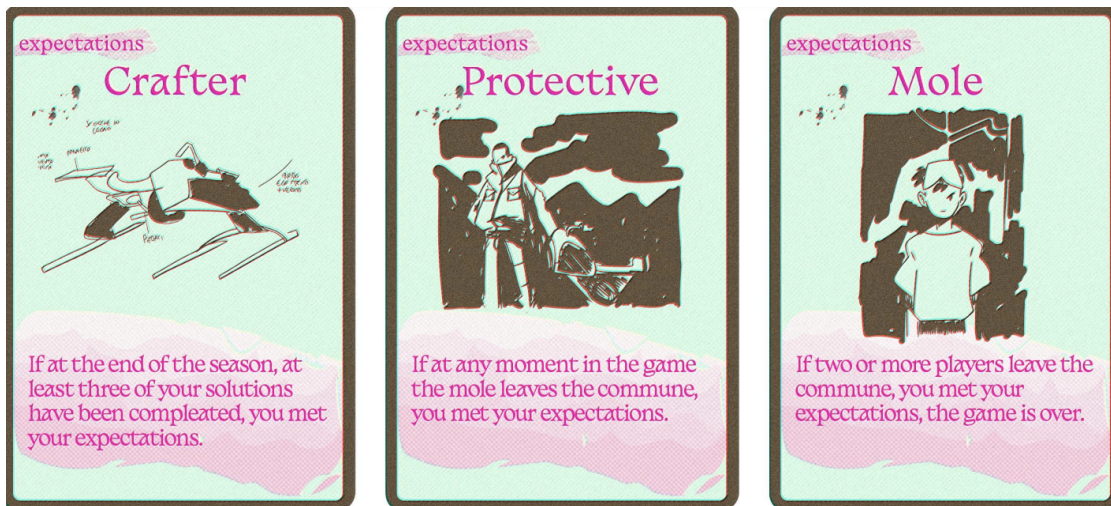
Img 6: extra role card implemented in prototype 3

The game was tested by groups of four to six players a total of five times: many of the players had experience with the previous version of the game and were asked to comment on the changes.

Img 7: updated open ended problem cards for prototype 4

Playtesting results

This version of the game resulted well functioning in the desired goals of creating tension between individual and communal value, and was generally met by players with enthusiasm. Players engaged with their characters, roleplaying them, giving them personality and pitching solutions that were resonant with their values and their roles. The game required up to two and half hours of playtime, since the pitching mechanic severely slowed up gameplay: the length of the game resulted in a loss of engagement in the later stages of play. While most of the roles were working, the players mostly didn't engage with the banishment mechanic. While the pitching system was successful in making players interact creatively with the theme of the game, it resulted in player dynamics hard to translate as npc behaviors, as they were mostly informed by the social context of the table, context which in turn tended towards the comedic, invalidating the speculative fiction intention of the game.

Some of the proposed solutions included a rave cave as a functional expansion of the commune facilities and an axolotl farm to better manage the resources of the nearby lake.

Prototype 4: power to the (non)people

Description and objectives

The prototyping process reached its end goal of observing agential dynamics between players to attempt delegating them to non player characters in the fourth prototype. The game remained essentially the same, but some features had to be removed or altered to accommodate for the automation of the non-human-agents.

As previously stated, this prototype was developed with digital integration in mind, but due to time constraints all of the procedures were instead executed by a game master which remained as impersonal as possible during the process.

The changes made were the following:

- The game only lasted four rounds, plus an extra one to determine the narrative conclusion and to break the established methods

- The player roles were not necessary, as any intentionality could be directly inscribed in the npcs behavior and justified through narrative.

- The player pitched in the same way as the previous prototype: I acknowledge that such a system would be hard, but not impossible, to implement digitally, but I was more interested in observing the agency of npcs towards players, thus how the player pitched their proposals was secondary.

- The non player character pitches were scripted: they would propose the same solution every game at the same turn; the problems consequently were also predetermined.

- The non player characters voted following a behavioral chart based on their values.

- An additional dimension of values was added as an optional feature: solutions could also be romantic or rational and passive or aggressive; these additional values were binary, not in a scale as the previous one.

    - These values were hidden, but the player could try to figure them out by paying attention to the character dialogue at the end of each turn.

    - These hidden values were added or removed in different sessions to observe how having unpredictable behaviors would influence gameplay and the player's understanding of the npcs.

- A final optional round would provide a branching narrative conclusion to the experience: non players characters would always vote according to their corresponding hidden value (pacifist / aggressive).

*Img 8: game loops for the digital ready final prototype*

Playtesting results

The prototype was overall successful in challenging the notion of player agency. However, while the players for the most part seemed to get involved in the game narrative, and their decision making reflected what was observed in multiplayer play, many players expressed confusion and frustration when the game systems and the npc behavior couldn't easily be predicted; even when the game narrative seemed to explain the apparent break in the mental image that the player formed of the computational model. This perceived inconsistencies were also the source of many speculations: the players, when asked to think out loud in their decision making, expressed how they felt there was definitely a random number generator behind the npc choices, which were instead completely scripted and based on the behavior chart reported below.

In the games where the extra values weren't present things went more smoothly as the players were easily able to keep the balance of the commune, however this led to similar problems as the first prototype: the player found the npcs behavior, when solely based on a single value too easy to predict.
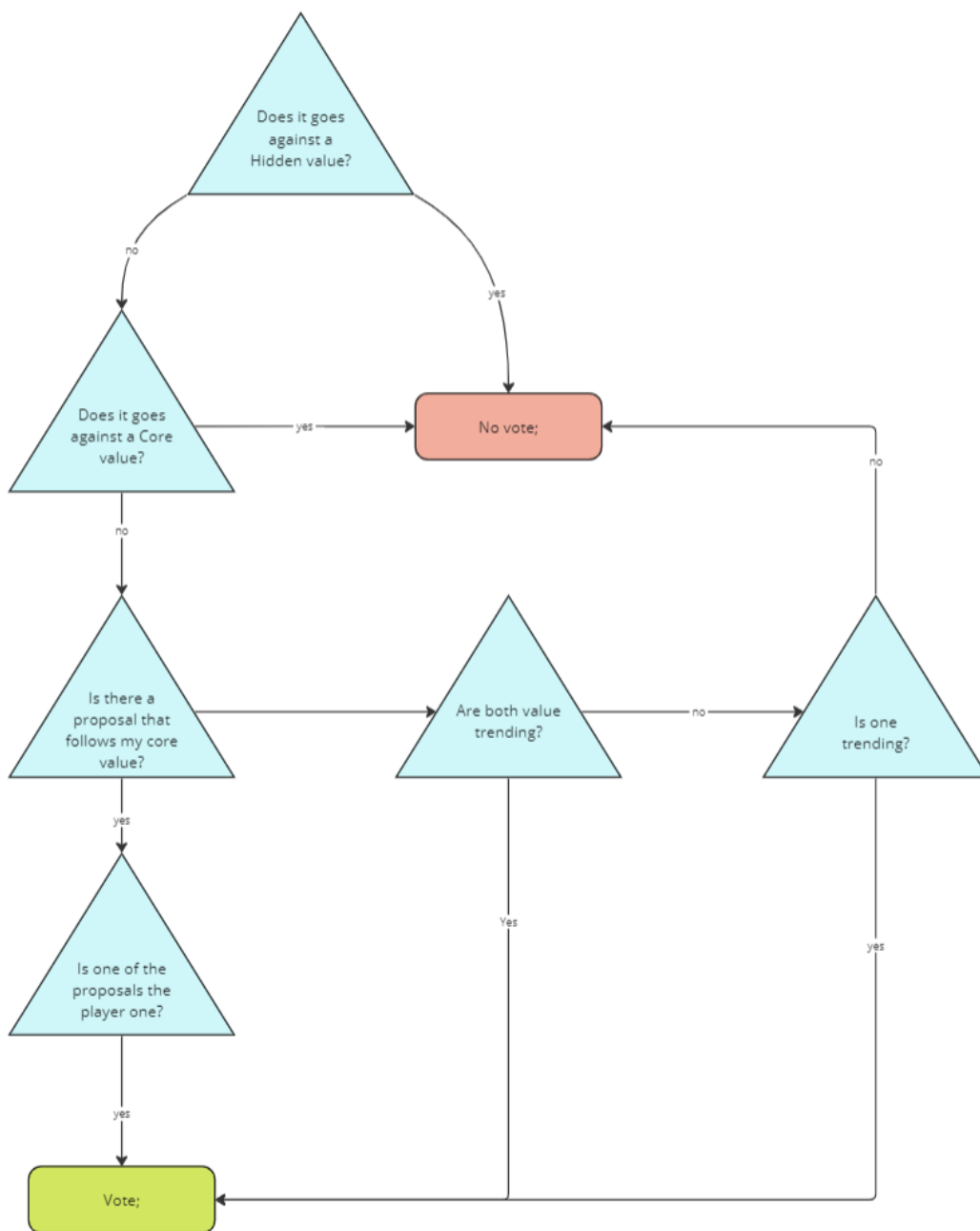
Img 9: value based npc behavior to automate the pitching system

Discussion

The consequences of simplistic and complex systems in play

The dramatic difference in complexity between the first and second prototype allowed me to observe how the complexity and clarity of systems affects player behavior.

In the case of the first prototype, the game provided an overwhelming number of mechanics for the player to process, and did so without any representation.

The result was a disjointed game experience that led players feeling confused and unable to engage with the themes of the game: they felt like they were solving a cryptic puzzle and not managing a commune.

This proves both the importance and allure of value clarity expressed by Nguyen as well as the necessity for games to include an adequate representational layer to reinforce the mechanics.

This is also supported by Frasca's analysis of game rethorics which we used to deconstruct rationalization in games: while there we focussed on the rules, Frasca also explains how representation is a fundamental rhetorical tool that games share with other kinds of fiction (Frasca, 2002).

In the second prototype, by stripping down the systems to their core and removing almost every kind of entropy in the system, be it in the form of dice rolls or hidden information, I could notice a parallel phenomenon taking place.

During one of the playtests, one of the players held throughout the game a completely rational and analytical mindset: they were determined to "solve" the game.

This generated a player experience where, thinking out loud, that player was leading the others in selecting the optimal choice that would allow everyone to stay in the commune by balancing out the values of the voted solutions. This was possible due to a variation in the rules that allowed the players to predict what the problem in the following turn would have been, and thus making a plan. While it is interesting to attest how fast rational thinking can take charge of gameplay when players are offered the chance to do so, denoting the prominence of this kind of reasoning explored in the introduction, what was more surprising to me was the reaction of the other players. After a couple of rounds, when players figured out that this person solved the game and always knew the most optimal choice, the other players rejected their opinion and started voting for less optimal solutions that were more in line with

their character values. Some observations can be made from this event. While it is true that many players will approach the game mathematically if given the chance, if a good representational system is in place, other players will reject optimal choices in favor of free play. This shows also how players will react negatively to loss of agency and control if they are empowered to do so. This leads us to the question of what would be the player reaction to a similar loss of agency from the part of a non player character, which the last prototype attempted to explore.

The failures of procedurality

Previously I stated how this thesis was built on the basis of a previous research that explored playfulness and role play as part of a co-design process. The objective of the co-design was harnessing player agency to generate a game world based on the rhetorical perspective of the participant, not just the designer one. The project still had a proceduralist approach to it: the result aimed at conveying a specific rhetoric through its worldbuild and systems. Procedural rhetoric has been critiqued by scholars in the past for not considering other agents in the game system and giving too much credit to the designer capacity of leading the player experience of the game (Sicart, 2011). During all of the prototypes I tried to use systems to surface the dynamics of tension and collaboration of an eco-punk commune; these intentions, while being secondary to this thesis, were the result of my previous research.

During the playtesting of the third prototype I instead realized how the very same creative agential power that I directed during my previous research could transform the game thematically if players were given the means to do so. Even though the representational layer of the game and most of the systems were still the same as prototype number two, which proved to be effective in conveying the desired aesthetic, the third prototype gave the players the possibility of pitching their own creations. This in theory should have reinforced the themes even more, allowing player expression to enrich the discussion surrounding the subject.

However what happened is that the social dynamics of play overwrote the narrative and procedural context: impressing others with quirky solutions was more relevant than tackling the climatic problem posed by the game. This shattering of procedural rhetorics represented a dead end in the research, as such dynamics were profoundly context dependent and human

driven, consequentially the subsequent prototype didn't explore the results of introducing absurd solutions through npcs behavior, but it was still relevant observing the differences between the same pitching system when enacted with artificial agents. Without the pressure to conform to the social environment the players tended to pitch more thematically sound solutions. The described phenomenon proves how the social context of gameplay is a strong agential component of the assemblage of play.

In a way this shows how there are drastic differences between human players and non player agents spawned by other components of the game assemblage.

In the following chapter I go deeper into the difference I observed when I let people play with humans or npcs.

The non-human commune

The reaction to the last prototype in all its variations showed both the promises and the difficulties of removing player agency from players and redistributing it to non player characters.

Compared to the prototype number four, where the greatest amount of game agency was given to the players, by controlling the behavior of the non-human agents and still giving the same amount of agency to the player character, the players pitched solutions that were more in line with the themes of the game. This proves that there is a difference that goes beyond procedures, and that there are influences in the game that extend beyond the game itself. Other agents in the assemblage can have a strong influence on how procedures are read.

The playtesting also showed the drastic difference of attitude that players tend to have towards agents that they don't perceive as equal to them; simply put that they don't see as deserving of the same degree of agency.

Players are taught through value capture in games and other media, to expect systems that are predictable, decodable, solvable. Players expect to exert control.

When the prototype challenged these assumptions through the hidden value system that sought to emulate the player dynamics generated by the roles in the previous version, they reported frustration towards the game and the npcs directly, even though the narrative hinted at the reason for their choices. This result leads me to align myself with the developer of *Football Drama* (OpenLab S.R.L., 2019) Pietro Polsinelli. In an interview to Not: Nero, the

developer expresses how his design goal of representing the unpredictability of a football match from the perspective of a coach revealed to be frustrating to the players, who didn't understand why their commands to the team weren't followed exactly and immediately by the players.

Overall I think by going against the rhetoric that puts player agency as the most important element of the assemblage, developers and researchers are bound to encounter heavy ideological resistance.

Conclusions

Summary

Reviewing what presented in the thesis, we started by establishing an historical and social analysis of the rethorics surrounding values and agency in games. This was done in accordance with Khovanskaya, Bezaitis and Sengers reinterpretation of critical technical practice. The centrality of player agency was problematized through the phenomenon of rationalization in games and connected to value capture: the process with which technical systems can reshape our values and our heuristics surrounding them. Computer role playing games were then read through the presented lenses, defining how reductionist computational models of human behavior are prevalent in the genre and contributing to value capture. Post-human agency and cybernetic thinking is presented as a potential worldview and design philosophy to explore different kinds of agencies in game, and consequently lead to new game experiences. Four different prototypes have been developed to observe how moving agencies around affected gameplay, with the last one giving equal agency to npcs and the player. The observations supported the influence that simplistic and overly complex models have on perceived agency and player interaction, as well as unveiling the biases players possess towards non-human agents. The thesis will now conclude with some remarks concerning potential development and design suggestions concerning the modeling of npcs behavior.

Extending the assemblage

What are, considering the present research and practice, good ways to highlight non-human agency in the assemblage that both resonates with and challenges player's preconceptions? Developer Garreth Damian Martin's approach is particularly practical and easy to apply: do not rely on behavioral models and probabilistic systems when dealing with things that can't be easily modeled without encountering the dangers of value capture [2].

In his game Citizen Sleeper (Jump Over The Age, 2022), non-player characters have ultimate agency in terms of romantic relationships: there are no game systems to alter their choices, as they are exclusively informed by the narrative.

Another possible solution could be a software architecture that uses other players inputs to generate believable npcs outputs: in the case of my prototype, it would have been interesting to explore how players would react to npcs pitches that are actually pitches coming from other players playing the game. This technical implementation would extend the assemblage, and give human-like qualities to non-human agents without the necessity of creating complex value systems and behaviors.

Finally, considering current trends, I am sure that lots of developers will look at large language models' APIs to create reactive npcs able to think outside what the designers intended. While machine learning is a tool that has the potential to change how games are written and extend the capabilities for actions of non player characters, I don't think it solves the problem of value capture; if anything there is a risk of reinforcing it through an unconditional belief in the correctness of these models, also known as enchanted determinism (Campolo & Crawford, 2020). Large language models are often very biased statistical agents, and as such they would still require a developer to direct them through behavioral and value models in order to understand how and when to react to player action. This is also without considering how their unbridled use would just perpetuate what is statistically probable, thus also maintaining the status quo point of view.

Overall I sense there is a possibility space where designers might create new experiences less focused on player agency, as the rise of dis-playing described by Fizek, with auto-battlers, idle games and streaming services is hinting at.

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[2] Fellow Traveller (2022, May 8). Fireside Chat with Austin Walker & Gareth Damian Martin - LudoNarraCon 2022 [Video]. YouTube.https://www.youtube.com/watch?v=-MhUt9yzFlY

It will however take considerable effort by the developers to export this concept towards traditionally player driven genres, such as computer role playing games, but the potential could lead to new, more complex aesthetics currently hard to explore in the video game medium.

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Images

- image 1: *Cibrario Nona, S. (2023). [Prototype two board]*
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- image 8: *Cibrario Nona, S. (2023). [Fourth prototype game loop]*
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