Player Discretion is Advised: Designing for Rule-Changing Play

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Abstract

This paper uses research through game design to explore how we can make video games that invite players to invent their own personal play-practices through making and changing rules. Through a reflective process of designing and playtesting a multiplayer game in which changing rules and parameters is the central mechanic, we have identified how we can create opportunities for players to exert their own creative authority on the structure of their play-practices. As our contribution, we present three design themes which aim to invite player authorship on practices of gameplay: opening up digital rules and parameters, bringing internal rules to the surface, and leaving space for internal goals. We also bring a larger discussion of these design patterns in which we investigate the duality of responsibility and freedom in play when we design for player creativity, and the role of video games as tools to make metagames.

CCS Concepts

• **Applied computing** → Computers in other domains; Personal computers and PC applications; Computer games.

Keywords

Rules, Metagames, Game Design, Play

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1 Introduction

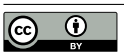
With any rule-based activity there are states of exception, contextual elements in which rules are bent, changed, suspended, or directly transgressed. However, in interacting with software, we often engage with rules that are specific and rigid to the point that they leave very limited room for discretion or negotiation [13]. Combined with the dominant cultural values of games, such as competition and achievement [20], and how play can be reduced to a form of consumption under the commercialisation of video games [9], we see that many video games create a context of play in which the diversity of play-practices are inhibited as the explicit goals enforced by games prioritize satisfying these goals and leave limited space for player creativity. In other words, we see in the traditions of video game design that systems often define and prioritize a 'correct' way of playing which encodes resistance to alternative interpretations of games.

In this paper, we are interested in alternative avenues in which video games are approached as tools for players to make and play games which carry semblances of their own authorship, thus enabling players to play and explore with the freedom to invent their own personal practices. To this end, we explore the role of rules in both setting the context of play, but also how rules can be designed with malleability in mind. Instead of "closed off" rules which enforce specific ways to play, we instead investigate how we can bring the rules and parameters to the surface, and the alternative design possibilities this creates. We also give attention to rules over which a designer has very limited power, such as internal rules -the rules which players can define- [12] and discuss rulemaking as a form of player expression. Through deconstructing the rules and parameters within a game, and finding different ways to give control of these rules to the players, we can create new spaces in which players can use the video games as tools to create their own forms of play.

The research question motivating this research can be articulated as 'How can we design video games in which players experiment with rules to form novel play-practices?'. We understand interpretation of game rules, be it through changing or negotiating them, as a form of play, and aim to find different practical ways in which we can invite this form of behaviour.

To achieve our aims in this project, we used a Research through Design (RtD) approach to contribute to an underexplored area of game design research. Through an iterative and reflective development process, a 2D competitive platformer shooter video game called 'Player Discretion is Advised' centered around the mechanic of 'changing rules' was developed. We explored the design space of digital games with malleable rules, including different ways to design for player experimentation with game rules and parameters. As playtesting and iteration has been central to the development of this prototype, player feedback allowed us to also explore pleasures and challenges this form of play presents.

Our contribution in this paper comes in the form of intermediary knowledge between theoretical and practical design work and is relevant to a diverse body of work in HCI and games research which explores supporting player creativity. We present three design themes that can be used by game designers to invite players' authorial interpretation in the form of creating personal play-practices. First, deconstructing digital games and bringing the



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often "black boxed" rules and parameters to the surface, which can create a space where players can experiment with the structure to form play-practices in the process. Second, opening up reflective spaces where the internal rules of players can become explicit, and allow players to engage in rulemaking as a form of expression. Third, designing with the consciousness that the players can reject or define the goals of a game, and giving the players the freedom to affect the goals of the game by translating the goals of a game from digital to internal.

In the next section, we present the background of our work which has informed the design process. First, we discuss rules as a central concept and a design material in our approach to making games, highlighting their diverse qualities and sources. Second, we explore works which have aimed to support appropriative forms of engagement, whether in games, or software design in general to build on the existing work which aims to empower users and players to apply their own creative authority in their own practices.

2 Background

2.1 Rules and Play-Practices

Rules are heavily discussed in games research, but it is not often easy to pin down a specific definition as they are diverse in qualities and origin. Rules can mean the formal rules of a game [27, 51], the social norms surrounding a game [32, 44], material conditions of a game artifact including the code of a video game [9, 47], the internal rules and goals of a player [12, 37], and/or the regulations around a game such as EULAs [47]. What brings all these different kinds of rules is that they all structure player action. Through creating the means, ends, conditions, limits and patterns, these diverse kinds of rules ultimately come together and make possible sites of play where different forms of agency and ways of being are experienced [52].

While rules are a central point of discussion in games research, it is worth reminding that rules pervade all aspects of life, and limiting our understanding of rules through games inadvertently also limits how we understand rules. Daston, exploring the history, origins, kinds and qualities of rules, gives special attention to the specificity of a rule through the concept of "thick" and "thin" rules [13]. While a thick rule is often vague, and requires interpretation, such as 'be nice to others', thin rules are often very specific to leave no space for interpretation, like how many milliliters are allowed in a single bottle on a plane.

Daston notes that algorithmic rules are the thinnest of rules, and that this understanding of a rule, along with the fact that there is no way to disobey an algorithmic rule, has become the dominant social understanding of a rule. What thin rules do is that they 'freeze context', meaning, by leaving no room for interpretation or discretion, they try to make sure that any person will have a similar experience of the rule. As different forms of computing have become central to our lives, our interactions with thin rules have also increased manifold. Our ability to use technology depends on our understanding and internalisation of thin rules. Likewise, video games rely on algorithmic thin rules which freeze the context and leave limited room for discretion, as they are often centered around how to meet the criteria and goals presented by games.

Thick rules, in contrast, rely on discretion as they leave space for interpretation; consequently, thick rules become meaningful through experience. Often, our contexts require discretion to decide whether applying a specific rule or not will be better for our aims and context. Tabletop roleplaying games, for example, rely heavily on thick rules as the game master of a game often takes discretionary initiative to let certain interesting situations play out [43].

As video games are built on thin, digital, rules, they aim to freeze the context of play since the designers won't usually have any input on the actual gameplay once a game is installed on a player's computer. Game designer and scholar Barr [7] notes that this "black boxing" of rules in video games -how they are hidden in code, unavailable to most players- implies games are monolithic and complete. As thin rules leave limited space for interpretation, or discretion, it has a standardisation effect on the play-practices that surround video games. Fron et. al. similarly argue that video games, and the cultures surrounding it, have created a 'hegemony of play'[20]. Comparing ever-changing folk games and fluid role-playing games to video games, they note the technical limitations implicit to video games limit the space of rule negotiation we experience in other forms of gameplay.

Boluk and LeMieux take a step further and argue that the commercialization of video games and the consequent reduction of play to consumption has inhibited the diversity of play, proclaiming 'The biggest trick the video game industry has pulled was to convince video games were games at all' (p. 8)[9]. They argue, instead, that video games are not games at all but rather, tools to make metagames. Boluk and LeMieux define metagames as games made out of games, and argue that metagames are the only type of games we play. Many of the metagames we play are practices of play we share culturally. For example, we approach playing strategy games and party games with different sets of expectations, where game genres create their own 'right way to play' [35]. However, metagames are made by people, and every person can invent their own. In this work, we approach metagames as a conceptual tool to understand the diversity of practices surrounding a game, with emphasis on the inventive capabilities of players to formulate novel metagames using the video games. Playing with rules can be an especially fruitful way to create new metagames. Players can, and often do, break, transform, add rules to form new metagames [6, 37]. While this can already be observed, it often takes player expertise, initiative and literacy to happen [1]. In this work, we approach the inventiveness of players from a design standpoint and explore how we can support players to make games their own through forming personal metagames. While doing so, we especially focus on different qualities of diverse kinds of rules that can be tools to support player creativity through experimenting with rules. Our research here works against the orthodox video game design practice and literacy, where the stability and authority of video games as rule-based systems are accepted uncritically as underlying assumptions.

While digital games are dominantly built on thin rules which restrict player interpretation, the experience of gameplay cannot be reduced to the rules of an artifact. As we have noted already, there are many types of rules that come together and form the assemblage of gameplay, and players often find novel ways to play through various forms of hacking, modding and transformation.

In the next section, we cover different forms of appropriation in the context of play and games to understand how rule-changing play is situated within this realm. Afterwards, we explore different ways appropriation has been approached in design, in both games research and in the wider context of HCI, to inform and create the background of the design work we present in this paper.

2.2 Designing for Player Appropriation

Appropriative play, how players can re-invent the terms of play, often going beyond design expectations, has been approached and conceptualized many times in games research [4, 11, 21, 40, 51] and has been identified as one of the central forms of creativity in games and play [24]. From the ever-inventive practices of speedrunning [41], to developing community practices and rituals in MMO's [38], to modding, which can range from altering a game's art assets to changes in mechanics, or even total conversion mods which effectively create new video games [53]. While many forms of appropriative play, especially modding, require specialized expertise and happen outside and around gameplay [45], in this paper we are interested in forms of player appropriation which happens within the act of gameplay. Here, we approach rule-changing play as a form of appropriation, and explore how we can support this behaviour in digital games. We choose to focus on digital games in this paper because the prevalence and expectations of thin rules and the larger assemblage in which video games are socially and culturally situated provides a fruitful sandbox for the exploring how players can invent metagames through engaging with rules.

Despite the attention appropriation in play has gathered, research into it from the design perspective has been relatively scarce. One of the notable works on this topic is Wilson's PhD thesis, which explores different ways to support a collaborative spirit in games, through using games they have designed such as B.U.T.T.O.N. (2011) or J.S. Joust (2014) as case studies [55]. Wilson argues that broken, or incomplete systems can invite a collaborative form of play in which players need to invent their own interpretation of rules [54]. As players can't know what is the 'right way to play' in broken or incomplete systems, they will be naturally pushed towards making up new ways to play. While not focused on games specifically, Gaver also notes that ambiguity can be a powerful resource for designers who may want to invite a deeper, personal engagement with the artifacts as the ambiguity in different forms can push the people who interact with the artifacts to engage in meaning making [23].

Back et. al. [5], when exploring designing for "transformative play", refer to Salen & Zimmerman's [51] use of how players can transform the games they play, and present a model of gameplay-as-engagement with structure. In this model they present four forms of engagement, centered on the alignment of designers and players: conforming, exploring, transgressing and co-creating. Through various case studies, they explore how games can be designed with the consciousness that players can engage with the structure on creative and transformative levels. Building on this work, we shift our attention to rules as a central component of structure and explore how rules can be designed in a way which supports players' creative authority.

Appropriation has also been an important concept in HCI as people have explored how technology is changed when it enters the messy realities of life and user experience [22, 31]. Dourish [17], for example, has argued that understanding appropriation is a critical problem for developing interactive software since design doesn't stop at the moment of implementation. Building on more social perspectives regarding appropriation, in HCI, researchers such as Dix [16] and Tchounikine [50] have explored how we can "design for appropriation". Dix's work presents practical insights regarding design of artifacts such as providing visibility to what is under the hood and "supporting, not controlling". Considering Barr's argument that video games are often understood as black boxes [7], exploring how we can give visibility to what's "under the hood" in video games presents an interesting problem for game design, allowing for an exploration of openness in game structures.

Tchounikine argues that "designing for appropriation" means empowering users to continue design in use [50], building on Rabardel's Instrumental Genesis Theory [39] regarding how people turn artifacts into instruments through using and adapting the artifacts to their own aims. Almost similar to how Boluk and LeMieux talk about video games as "tools to make metagames" [9], Tchounikine approaches software as "tools to create instruments". Tchounikine presents three avenues to design for appropriation, first is 'Usage Informed Design', understanding how users try to appropriate the technology, to iteratively develop to support these. Second, 'User Adaptation' (which is similar to Dix's principles), is about creating spaces in the technology where it is open to be adapted and appropriated. Last, 'Community of Users Design' is about how appropriation is a phenomenon that happens socially, and how this can be supported by creating ways to allow users to share and communicate about adaptations of systems.

Exploring similar ideas, the framework of Meta-Design [18, 19] explores how to create social and technical infrastructures to support users to act as designers. Meta-design challenges the notion of strict boundaries between the 'design' and 'use' of software and prioritises designing conditions in which the users of software can continue designing the software in use. For this aim, Fischer and colleagues explore how software can be designed to be flexible and evolvable through use. They argue that meta-design encompasses a novel design space where designerly capabilities of the users are supported through different means. Our work explores a similar design space where we explore supporting players' capabilities to design games in the act of play itself. While existing work in HCI and Design Research gives us fruitful areas to explore how we can design to support rule-changing play, we are aware that games (particularly digital ones) come with their own priorities which can make it harder to apply the same strategies directly. An important distinction is that many of the works we have discussed in HCI and Design Research explore appropriation through problem solving, prioritizing giving the users the tools to create their own workflows through customizing software (e.g. macros in spreadsheet software) [18]. In contrast, as the context of our work here is play and games, we are more interested in design as an act of play in video games and the potentials and pleasures which come along with it. If we were to look at contexts of play in which appropriation is central, we can see folk games, for example. Folk games are often based on a simple set of rules, upheld by the players, where changing

rules during play is a natural characteristic of these types of games. Bernie De Koven and the New Games Movement approach changing rules as one of the most important tools a play community has in "finding well-played games" [14]. There have been several calls to take inspiration from folk games in digital games for alternative aims such as fostering festivity [54], exploring non-hegemonic forms of play [20], and inviting player creativity [33].

With this background, our work contributes to literature regarding how we can design for appropriation in the context of play and games, empowering players to make their own metagames. While doing so, we especially focus on changing and making rules as an important form of appropriation, and a critical tool which allows players to interpret structures of games. This can be through using internal rules like folk games, or through understanding how to design systems which are open to change. Identifying rulemaking as a form of play, and exploring how we can support this form of engagement with video games, then becomes a way for us to both highlight alternative avenues of game design and a way to support players' creativity and the diversity of play-practices.

3 Method

To explore how we can invite players to play with the rules of the games on a structural level, we employed a Research through Design (RtD) methodology for multiple reasons. First, the research objective at the heart of this project is an open one, as such, it lends itself better to reflection and exploration. Second, as the aim of this research is to explore and collaborate on building alternative avenues of digital game design, the work is inherently speculative [3].

While research through design has deeper roots in Design Research and Human-Computer Interaction (HCI) [56], in the last decade there have been considerable attempts to formulate RtD in the context of game design and development. As games research has been mostly carried out through theoretical and empirical research in fields like game studies and HCI [15], establishing game design research has been put forward as a way to bridge games research and non-academic practices of game design [25]. Khaled, Lessard and Barr, investigating the academic practice of applied game design research, argue that an accountable and documented process of game design can materialize tacit knowledge of designers [29, 30]. In a later work, Khaled and Barr present 'Method for Design Materialization' (MDM) [28] based on documenting the design trajectory of a game in both design journals but also in version control platforms such as git. In our work, we used this methodology to reflect, generate insights and document the design process as we navigated our research. The relevant repository can be accessed publicly (https://github.com/dorukbalci/Player-Discretion-is-Advised).

In the design process of this project, we have embraced an iterative approach of playtesting as part of the design process, as others have done in research through game design [2, 25, 36]. The design and development process of the game, the playtests, and the engagement with literature, were all in service of a grounded way of formulating insights about designing for rule-changing play. The orientation of our research places our work in the broader HCI tradition of 'reflective design' [42], where the design act is used as a probe for thinking and questioning assumptions. In the playtests we did not aim to systematically analyse player behaviour to report formal findings. The playtests' main function was to provide additional opportunity for iteration and reflection. While we do refer to instances from the playtests (as it informed our design approach), an investigation of player behaviour and attitudes with regards to rule-changing play is beyond the scope of this paper. We can summarize our method in this paper as a reflective process of triangulation between the literature, the process of developing the game and playtesting.

Additionally, while our work here is intimately interested in supporting players' creative capabilities in the design of metagames they play, our method to explore this issue is not co-design [10] or participatory design [34]. In these approaches, players and users are approached as co-creators of the artefact as part of the design process. We were interested in how players responded to and engaged with acts of design as part of the gameplay itself, however, we did not approach the playtesters as co-designers of the game artefact itself.

The whole process was documented in two main avenues: a reflective design journal consisting of 23 entries, and a git repository consisting of 32 commits. The design journal contains the theoretical background which drove our work, personal thoughts and reflections about the literature with which we engaged, and discussions (with co-authors) about the game through various iterations and playtests. The first entry on the design journal was on 29.10.2024 and the last entry was on 20.02.2025, showing that the whole data gathering process through designing, reflecting, testing and iterating took approximately four months. The git commits often include shorter comments on the technical aspects of the game but also keep track of the game's trajectory.

During game development, the game was tested on 7 different occasions with 7 pairs of players, with semi-structured interviews following the playtests in 5 of these sessions. All 14 playtesters were PhD students recruited through the authors' departments, and each pair consisted of two friends (i.e. people who had an existing relationship with each other). All playtesters played video games regularly in their own personal lives. While 9 of the playtesters have had some experience of making games in non-professional contexts, none of them engaged in forms of appropriative play which require specialised literacy such as modding. The length of the playtests ranged from 20 minutes to an hour. In the beginning of each session, the testers were given a brief introduction to the game, the controls (both players were required to use the same keyboard to play the game), and how rule-changing worked in between rounds (through the rule-deck, which is explained in the next section). After the introduction, the players were left to explore the video game on their own. The playtests were not interrupted by the researchers unless a game breaking bug happened, and the game had to be restarted. Each playtest was followed up by a semi-structured interview lasting around 20 minutes. In these interviews, players were asked about their experience, what they found interesting or challenging about the game, moments in the game in which they experimented with rules and formulated novel play-practices, and things they wished they could do in the game.

The playtests and interviews were part of an iterative and reflective design process, helping navigate our research and explore rule-changing play from a design perspective. Thus, we did not

analyze the data from the playtests through a qualitative research method, but the playtests and interviews provided additional opportunities to engage in reflection as part of the research through design process. The feedback from the playtests also influenced the trajectory of the game as it helped identify bugs, problems and challenges of designing for rule-changing play, allowing us to work on them in the following iterations. Sometimes these problems were technical (such as bugs), but in most cases the playtests allowed us to reflect on our research problem, and think about it in relation to the players' experiences.

In the next section, we explain the design process and the game itself in more detail, elaborating on the intentions, the mechanics and the final artifact which came out of it. While discussions within the research team regarding the research and the design process occurred throughout development, the game itself was developed by the first author. As such, the next section regarding making the game is written in first person.

3.1 The Game: Player Discretion is Advised

To explore how to invite players to form novel play-practices through engaging with rules, the initial idea of the game was to design a game in which changing rules was a central mechanic. Building on previous research, where making up new rules can be a powerful way to invent novel play-practices [6], the motivation of the game was to support players' rule making engagement and encourage them to invent their own personal play-practices. The ideating process immediately brought forward many considerations such as the genre of the game, or the number of players.

I decided that the game should be an easily recognizable genre because it would allow me to explore how existing traditions of digital game design would react to the approach of changing rules. As changing rules and appropriating structures of games often requires some amount of literacy [1], selecting a recognizable genre would also create a sense of familiarity so players wouldn't feel lost in the experience. Through a deliberation of different genres, I decided to focus on a 2D competitive platformer-shooter since the familiar genre conventions such as movement, aiming and round-based scoring were likely to create a ruleset which players could easily understand. Furthermore, competitive games dominantly rely on stable, non-changing rules, as any changing or bending rules re-defines the terms of competition and can open fairness up to question. I thought exploring rule-changing play in this context would bring to surface a productive tension between the freeform aspect an open system brings, and the rigid expectations of competitive play.

Second, I decided that the game should be multiplayer, as the social aspect of a game can often invite forms of negotiation of rules [47]. The social nature of the multiplayer game, combined with the open structure of the video game was intended to provide an opportunity for fruitful negotiations between players during the act of play.

After deciding on the genre, I began to draft game structures and came up with one in which players would compete in rounds, and after each round ends, the player who lost would be able to change rules and parameters of the game they are playing (see figure 1.). To allow this, there would be a rule deck, which includes certain digital rules and parameters underlying the game, and a notepad to add or change internal rules, rules agreed between players but not encoded in the system (see figure 2.). This rule deck would be foregrounded and presented in the center to communicate to the players to be aware of the rules and parameters, and invite them to experiment with them. Consequently, the game would have two distinct phases: a 'design phase' and a 'play phase'. In the design phase players would be invited to experiment with the rule deck before the round starts, though they would still be able to control the characters without affecting the score. After pressing the 'Start Round' button, the play phase would start and the players would play according to the metagame they have formulated in the design phase. Separating the game into these phases allowed players to explore the structure in a freeform way, but also to formalise their metagames and play through the goals and structures they created. This basic structure became the central point of development and became more pronounced through the iterative and reflective development process as I continued to design and playtest the video game. The game was developed in Godot game engine (version 4.3) using open-source game assets credited in the github page and is designed to be played as local multiplayer, on the same computer, using the same keyboard for all player inputs.

I first developed the game as a simple closed structure in which the players did not have any control over any parameters or rules of the game, using this process as a way to reflect on which areas are traditionally closed off and which could be opened up to player interpretation, and the possibilities they created. After the closed off version was built as a reflective design exercise, I started implementing the rule deck and working on opening up some parameters. I also added a 'House Rules' section, which was an empty notepad, to invite reflection on internal rules. The notepad was named 'House Rules' as this was likely to be a more familiar term than 'internal rules'. In the first prototype that was tested, the players could change the sizes, speeds and quantity of the characters they controlled and also add their own rules to the notepad. After this first playtest, two avenues to follow became immediately clear. First, further exploring the space of parameters which can be opened to player control. Second, how to scaffold and support players' internal rules and goals.

Continuing the development process and following the emerging avenues, the video game became more complex while also maintaining its janky qualities as a prototype. As my aim with this game was to explore our research question, finding ways in which we can support players' rule changing play, I intentionally did not attempt to turn this game into a polished product (however I did keep the game playable and clear for the players as much as possible). As I continued the development process by adding new mechanics, I always thought about how each new mechanic could be opened up to player appropriation. For parameters I considered fruitful to open up, such as the gravity multiplier of the level, I added them to the digital part of the rule deck (the left side, see figure 2). In contrast, the "House Rules" part of the rule deck worked as a notepad which invited players to reflect on and experiment with their internal, non-encoded, rules. After the first playtest, seeing players struggling to unearth by what implicit rules they play, I included some starting rules to prompt players to question their implicit, pre-conceived notions of playing a game, for example "Try to Win"

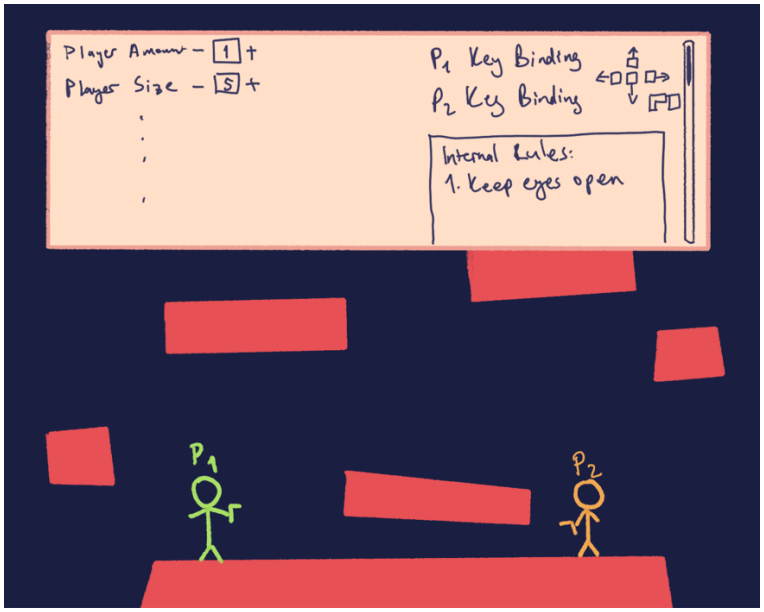

Figure 1: An early sketch of the game

and "Keep eyes open". With time, more parameters and rules were added incrementally to the digital rule deck, adding complexity as the new parameters interacted with each other in surprising ways. Through development, the main priority was maintaining player freedom to decide their own practices and make up novel ways to play, be it through the digital parameters or the internal rules.

One of the later additions to the game was the option for players to re-bind each other's keys as a rule-change in the game. This was an important change for two reasons. First, it allowed players to manipulate the inputs, giving access to the material rules of control schemes. As players explored using different ways to use the keyboard, they played with well-established traditions of how a character is supposed to be controlled, going beyond genre conventions. Also, as they shared the same keyboard, they had to physically deal with each other, as if playing Twister with their hands. Second, as the input methods could be affected asymmetrically, binding actions to keys one by one, it also created a potential for breaking the fairness of the game in a radical way. Many players engaged and sometimes struggled with this aspect, and this is discussed more deeply in the sections below.

A comprehensive list of all the digital and internal rules which were given to the players can be found below while figure 2. above shows the final state of the prototype with the rule deck. The list below also includes a further explanation of how each of the parameters worked (available to the players in the game as hovering tooltips).

Digital Rules:

- Reset all rules: Resets all the parameter and rule changes made in the deck.
- Player 1 (P1) and Player 2 (P2) scores: Manually Increases/Decreases the score of the players.
- Quantity of player characters: Changes the amount of characters both players can control in a scene by cloning them.
- Player Speed: Changes the basic movement speed of the characters.
- Horizontal and Vertical Sizes of the characters: Changes the size of each of the player characters.
- Shooting Bullet Cooldown: Changes the amount of time required to pass between shooting bullets.
- The Force of Bullets (& their speed): Changes how fast the bullets move.
- Sizes of Bullets: Changes the size of the bullets.
- Jumping force: How high characters jump.
- Jump Amount: How many times players can jump before touching the ground.
- Gravity Multiplier: The strength of gravity, which affects every physical object in the room.
- Maximum block duration: Amount of time players can shield before it expires.
- Block Cooldown: Amount of time required after block expires to renew again.
- P1 and P2 Inputs: Changes the mapping the inputs of the players to different keys.
- The Map: Changes the map to a different designed one.
- Dash Speed, Duration, Cooldown: Changes the parameters of dashing.

House Rules (A Notepad for internal rules, editable by players):

- Try to Win
- First player to reach 9 points wins.
- Player who loses the round can change any rules.
- Keep eyes open.

This set of digital parameters and rules, with the combination of the "House Rules" section which invited the players to experiment with

Figure 2: A screenshot of 'Player Discretion is Advised' with implemented features. The digital rule deck it on the left hand side, and the house rules on the right. Each player could interact with these at the start of each round. Once the round began, player 1 controlled the blue avatar, and player 2 the pink avatar.

their implicit internal rules, was developed through an iterative process. As the game itself presented a structure which was open to change in an untraditional manner, the playtests were often a surprise to both me and the players, and it prompted reflections about strategies to give players the freedom to invent their own play-practices through engaging with the rules of a game on a transformative level. In the next section, we present three design themes which summarize our findings from the research through design process of this game.

4 Design themes for supporting rule-changing play

Here, three design themes that were formulated through reflection on the design process are presented in the form of intermediary knowledge [26, 49], aiming to be relevant to researchers who are interested in player creativity, but also designers who want to make games. Throughout the development process, I built and reflected on how to design for rule-changing play, and how to invite players to invent their own novel play-practices. This design process was also accompanied with discussions with the research team, and themes were constructed out of both the reflective design process and the conversations between the team.

4.1 Opening Up Rules and Parameters

Video games often have a black boxed set of rules [7]. This structure of digital games is maybe a part of what makes them feel so pronounced as a game, as it almost makes it feel like an 'other'. However, these rules are not impossible to change. They are written by people, they carry with them many variables and parameters and are open to interpretation as well as appropriation. Throughout the development process of the game, each mechanic I added came with its own set of rules and parameters, typically unavailable for players to change, such as the size or speed of the players, or the physical parameters of an environment such as gravity.

In most digital games, the agency of the player is constrained to playing through a set of rules and parameters. For example, you can change the position of Mario, but only pre-coded power-ups can change how big he is, or how much he can jump. Other parameters, beyond the player character, are not available for players to change. In this project I explored making as many of the parameters available to be changed by the players as possible, with the

underlying aim of letting them decide their own goals and structure of their play-practices. The digital part of the rule deck consisted of rules and parameters which the player could change easily between rounds. These rules and parameters created a meta possibility space in which players could experiment with different combinations of rules and parameters to create their own metagames.

In each playtest, players would initially start experimenting with each parameter to get an understanding of how they worked, the effect it had on the game and its mechanics, and how different changes interacted with each other. However, after a few rounds they would then start creating interesting combinations of different parameters, effectively creating new play-practices out of the rulesets. During this experimentation, they would have an idea for a metagame, or stumble across it through exploration of the possibility space created by the open parameters. For example, in one metagame created by players, they realized they could make the bullets larger, and as the bullets had mass and then stayed around for an amount of time, they could use the bullets as a way to add new platforms to the level. This led the players to explore with different metagames such as using the bullets to get to the top of the level as fast as possible to get a point or making them into different bases they had to reach.

As this example illustrates, once the players found an interesting idea, be it through reflection or experimenting with the rule deck, they started experimenting in a more focused manner, polishing or improving the metagame they had designed. In this way, bringing to surface the rules and parameters which traditionally are black-boxed in video games gave the players a powerful tool to explore and interpret the structure of a game, creating their own personal games out of games in the process. As we design games, we can keep an eye out for ways to give players the control of the rules and parameters which can allow them to experiment with their play-practices.

An important aspect of creating a game system which is radically open to change is that it will break in ways you can't anticipate, especially as the complexity of the game starts building up, and different mechanics start interacting with each other in surprising ways. In contrast to 'balanced' games, one of the most engaging aspects of playing with an open system is breaking it. Since many of the parameters in the deck do not have limits that enforce specific ways to play by design, the process of exploring different combinations often resulted in breaking the game in surprising ways. During the playtests, I observed a variety of situations such as players with unnatural sizes, speeds, parameters, or combinations of unlikely parameters, 80 player-characters in a level designed for 2, and bullets being bigger than the players. Many of these created situations were deeply enjoyable to the players as they used the game as a tool to explore different ways of playing within the space presented by the game, to the extent that they asked me to 'please don't fix this bug' in some cases, as it created novel and interesting ways for them to play. Letting the structure be open to change allows players to create their own "jank" - their personal ways to find broken, sloppy, untraditional, glitchy metagames [8].

The rule deck was designed to function as an invitation that led players to experiment. As the game responded immediately to the modifications players made, it was welcoming to beginners who did not yet understand how to play the game. However, exploration of the digital rules and parameters was constrained by the limits of the digital structure and its accompanying possibility space. We can try to make mechanics accessible to change from the players, but they will always be playing through a set of base rules that will shape their play. Another, perhaps even more expansive area of players' creativity is the internal rules they play by [6, 12], which is discussed in the following section.

4.2 Bringing Internal Rules to Surface – Rule Making as Expression

While opening up the digital rules creates a space in which players can experiment with parameters and rules to form new play-practices, the creativity in this space is constrained to the boundaries of the artifact. Stang argues that a large part of player agency often lies in the interpretive capabilities of players outside the games themselves [46]. We can see this in communities forming around games, where people invent novel metagames, make fan content, and discuss and interpret the games to create new possibilities with the games themselves [9].

As we were discussing different kinds of rules in previous sections, we gave special attention to internal rules. These are rules that are not enforced formally by the structure of the games, which can still affect the gameplay on an integral level [12]. Passive runs in video games, where players try to complete games without killing anyone, or speedrunning, where players try to complete games as fast as possible, are structured through such internal rules. These kinds of rules often allow players to make up their own play-practices through adding and enforcing rules that are not implemented in the artifact.

The 'House Rules' part of the rule deck is an editable part of the rule-deck, implemented and given a large space to invite players to reflect on the implicit and internal rules by which they play. As discussed in the background section, a large part of the rules we play by in digital games comes from pre-conceived notions surrounding the culture of video games, as our familiarity with video games affects how we approach other video games. The editable rulebook came with a small set of rules such as the winning condition and 'Keep your eyes open' to invite players to think of what implicit rules they play by. I aimed to gently prompt the players to recognize the many internal rules which are open to experimentation and transformation once we start reflecting upon and discovering them, to encourage them to assume authority on the implicit rules which underlie our experiences. While at first most players focused on experimenting with the digital rules, once they started getting comfortable with the structure of the game, the rulebook became more prominent. As these internal rules were beyond any design intentions or boundaries of the artifact, they became an expansive place for players to personalize their play-practices.

The most integral aspect of internal rules is that they are upheld only by the players, meaning that players were the main source of evaluating whether these rules were applied. Bringing internal rules to the surface through a rulebook made player discretion a critical component of gameplay. As we discussed in the background section, thick rules rely on discretion; they become meaningful through experience and change with the context. Rules written by playtesters such as 'no button mashing' immediately pushed them

to question what counts as button mashing. Players sometimes also wrote thin rules, in the second playtest, for example, players wrote 'You can only shoot 10 bullets'. This rule is quite specific and requires precision to be followed. When players write thin rules, it was often the case that they made many errors when trying to apply the rule, even in cases when they thought they were counting well.

As these rules written by the players do not actually affect the encoded structures of the game, the responsibility to uphold them also falls on their shoulders. While for some players, this prompted an exploration regarding how to make sure they kept by the rules, or how to punish themselves when one of the players broke the rules, such as deducting points, in most playtests, the players were invested to the game less competitively, enjoying the negotiations and chaos of playing through a modifiable set of rules. For example, they started writing rules that did not actually matter such as calling each other names for fun. In other cases, they wrote rules which had nothing to do with the actual video game but were fun for them nonetheless, such as 'Make a Pun, Lose a Point'.

An important point of development in the game was giving the players the option to add or remove scoring. Since 'gaining score' is the main meta goal of the game, giving the tool to the players to decide what leads to gaining or losing score allowed them a tool to give power to the house rules they wrote. It also allowed them to play through alternative, internal goals such as 'first person to land on the other person's head gets a point' or 'the first to the top of the level gets a point'.

The internal rulebook's relationship to the game artifact is also worthy of attention. As the rulebook is a notepad, and the rules written there are made and upheld by the players, there is nothing stopping them from making rules completely unrelated to the game artifact. It is possible to stop playing the artifact completely and write up the rules of hide and seek. However, as the artifact sets the context, it also acts as a gravitational point. The rules that are written up on the rulebook all latch on to the base structure of the artifact. In this manner, bringing the internal rules to the surface creates a space for the interpretational capabilities of the player on how they play.

It is also worth noting that not every playtester engaged with their internal rules on the same level. While for some players the openness of the internal rules prompted a playful exploration and reflection of the rules they bring to the game, engaging with them on a transformative level, some players found breaking the surface of the internal rules they played by difficult, as the game intentionally did not give many prompts regarding how these could be changed.

Overall, giving the players a space to reflect and alter their internal rules opens the game up to forms of interpretation which can be surprising and wide-ranging, beyond the designers' control. It can be expansive in the manner that it allows the players to invent metagames through their own assumptions and pre-conceived notions regarding how to play video games. In a way, creating spaces for internal rules in games brings a folk-game approach to them as the rules created by the players are similarly reliant on their own discretion, and open to change.

4.3 Goals of The Game: Translating Digital to Internal

There are some rules of a game that need to be implemented and enforced. For example, the movement of a character, the physical rules of the map, the input rules of the controllers. However, there are also certain rules that do not necessarily need to be implemented in code, yet we do so for various reasons. In particular, the goals of a game are often open to appropriation as the players carry the capacity to define and validate (or reject) the goals of a game [6, 12]. While many games come with their own designed set of goals, players can easily create alternative ways to keep track of scores, or to end the game through the internal goals they create (e.g., pacifist runs). Designing a game with the consciousness of both digital and internal rules, where the responsibility for upholding rules is shared between the video game artifact and the player, creates a context which pushes us to question whether certain rules need to be encoded in the artifact at all. The control we assign to the video game through thin rules, aiming to freeze the context so that the players have similar experiences, can undermine the possibilities of video games as tools for expansive forms of play.

A critical turning point in the research through design process occurred in relation to designing how a round, or a game ends. While implementing the winning condition (through gaining a set number of points) of the game in code, I questioned whether it needed to be a rule enforced by the game at all. Letting the players dictate when and how a game should end, by making it a malleable rule in the notepad brought forms of freedom and expression that would inherently be limited by the technical necessities of implementing an ending condition in the forms of thin rules. Yes, we could make alternative ways to end the game, alternative ways to add scoring, but it would always be inherently defined by the limits of what is possible within that. In the end, I decided to leave game-ending conditions as internal rules in the written part of the rulebook. It was as simple as writing "First player to reach 9 points wins", but as the players could easily delete and re-write it, it gave them the tools to re-define their goals.

Questioning whether the goals of a game necessarily need to be tracked and validated by the digital structure pushed me to explore where else I could let players decide the goals of playing through this structure. When I looked at the video game again to see whether there were digital rules which we could translate to internal rules, I realized that keeping score did not necessarily need to be kept track of by the artifact completely either. To accommodate players keeping track of their own scores, we added a way to change the score of the game in the rule deck.

Giving the players the freedom to decide what counts as winning a round had drastic effects on the play-practices. In most of the playtests, once the players realized they can decide the goals of the rounds, they started to experiment both with the internal rules and parameters to create new ways to score. They played to land on top of each other's head, they made versions of 'capture-the-flag' games, they scored how well they could ride bullets by making them large and slow (figure 3), scoring on the aesthetics of doing "tricks" (if you increase the bullet size and make them slow you can jump on top of them to ride them). None of these metagames were designed intentionally, but the combinations of different parameters

Figure 3: A player riding their own bullet

and letting the players decide their goals created a space where the structure of a game can be appropriated as a tool to build and play through creating their own goals and metagames.

Deciding the goals of playing is one of the most powerful tools we can give to the players. It takes the authority away from the artifact and lets the players decide on what counts as their goals. It allows players to use the video game more as a tool to invent metagames, rather than to comply with its goals. At first many players followed the traditions of the genre and video games which reward killing each other (in the game), but once the game made it clear that it latches onto this form of play very loosely, and it is open to appropriation, players saw the rules and parameters of the game as a means to formulate new ways of playing.

5 Discussion

Our research question in this project was to explore how we can design invitations for players to engage with the rules to build their own metagames. The work we present in this paper is relevant to a diverse body of research in HCI and games research. We aimed to contribute to avenues of research where player participation and authorship is explored and supported through the design of games and artifacts. To meet our research goals, we have specifically focused on game rules, their varieties and qualities which can invite or defer player authorship and exploring rule-changing play as a form of appropriation. In our research through design process, we explored how we can design game systems with malleable rules on a digital platform. Based on the reflections on the research through design process, we have presented three design patterns which serve as practical intermediary knowledge: opening up digital rules and parameters, bringing internal rules to surface, and translating goals from digital to internal. In this section, we will contextualize these design patterns in the literature and explore the implications of these patterns for game design and play.

5.1 Freedom and Responsibility: Player Discretion

The game we present, while it is built on competition, breaks immediately when played in a solely competitive manner. As the player who loses a round gets to change the rules of the game, including adding new rules, they can just make themselves the winner by just writing "X Player is the winner". What often came immediately after this was both a negotiation of fairness with the other player, and sometimes even a reflection on why they play at all. A game which is open to change in its goal and structure pushes the players to question their own attachment to winning or losing, as the game created in this work lacks the quality of being the sole authority which can rank the players depending on their success.

While playing a game we often play with a dual motivation: the motivation of fulfilling the goals of the game itself, and a larger desire to enjoy or appreciate playing [14, 48]. When given the tools to remake a game completely, we are also given the power to decide what the goal of the game is. These two motivations can create a fruitful tension, as both striving for the goals of the game and a larger desire to enjoy the act of playing a game can benefit from each other. However, this tension can also collapse, especially in a game which leaves room for players to exert their own authority. If a player is hyper competitive, then they can just declare themselves as the winner and the game doesn't take place at all. On the other hand, if the players come to the point where no goal of the game matters at all the goals of a game can

become too meaningless to care about. The responsibility given to explicitly formulate their metagames can be jarring or unwelcome to some players, as observed during the playtests. Video games, and games in general, carry strong traditions on understanding games as stable sets of rules to be abided. Especially in competitive games in which the stability of rules can be integral, subverting expectations and giving players the power to define their own terms can lend to players an alien sense of design authority, pushing them to question their role as players.

Opening up the structure of a game and letting players engage with it on a transformative level gives the players the responsibility of the metagames they play. As the structure of the game is decided by the players, the game they play is also partly authored by them. The responsibility brought by the openness of the structure, also brings with it a freedom to invent and play by new rules as well. All the design patterns we have presented work to give players the tools to reimagine and remake the structure which makes up their gameplay. If a game is broken, if a play-practice doesn't work, if it is completely unfair, this can be their responsibility. Likewise, if a play-practice surprises them, gives them pleasure, presents something unique, this is also on the players. Similar to Wilson's work on self-effacing games [44], we also argue that the expansive, creative and surprising possibilities of play become enlarged when we leave room for player interpretation.

Another way to understand these design patterns is through thickening the game rules. As we discussed in the literature review, thin rules freeze the context by removing discretion out of the equation [13]. Thickening the rules on the other hand, relies on player discretion. Understanding the thinness/thickness as a central quality of rules, especially in the context of video games, allows us to question how we can intentionally create spaces within which we can invite discretion, creativity and experimentation. Thick rules become meaningful through experience, and the rules are molded by the people who submit themselves to those rules. Context is allowed to shape the rules when rules allow discretion. We used two ways to thicken rules: translating digital goals to internal, and opening up parameters. Internal rules inherently require discretion as they are upheld by the players. Both in setting up the rules, and during the act of play, the players have authority of the rules they come up with, and enforce (or choose not to enforce) these rules depending on the context of their metagame. Second, opening up parameters and letting the players interact with them invites a form of discretion in a different manner. As the mechanics which the parameters influence are carried out by the game artifact, the role of discretion on the parameters is not on enforcing, but deciding what they mean within the larger context of the system and the accompanying internal rules players come up with. During the design phase of the video game, in which players experiment with parameters as they play without affecting the score of the game between rounds, they create the metagames they play. In this phase they use discretion as they design and balance their metagame, with considerations of their design intentions. Re-framing the design of a digital game in a way which leaves room for player discretion also needs us to recognize that freedom and responsibility come together when we give the players the tools and the authority to experiment with the structure of their metagames.

5.2 Role of The Game: Structure as a Tool to Make Metagames

A video game that is both open in structure and inviting of internal rule experimentation, is exploring a different conceptual space from traditional video games built on stable rule structures. Certain values which we can see historically valued in traditional game design, such as achievement or immersion, lose their meaning as the game acts less as an authority, more as a tool. In a way, a game which presents malleable goals, rules and parameters prioritizes 'questions over answers', and pushes players to reflect on their play-practices [28]. The structure of the video game acts as a tool for players to invent, experiment and play with metagames which carry their own authorship.

The malleable nature of the game we have made can also be understood as a form of 'incompleteness'. Wilson argues 'broken and incomplete games can invite a self-motivated and participatory form of play' [54], where they present the concept of 'self-effacing games'. Self-effacing games are games which are not understood as 'systems' but rather as festive contexts, games that are understood less through rules but as a certain form of mood. The incompleteness of a game invites players to test boundaries and rules, and form some of their own.

We share a similar approach with Wilson in this paper in the manner that we aim to share the authority of metagames with the players of the games. While Wilson argues that the mood and aesthetics of a game can have a big impact on this through 'leading by example', we also present here that bringing the rules and parameters of a game (whether digital or internal) invites various forms of experimentation. The game we present is not particularly festive, and while its janky qualities as a prototype may have created a context which invites players to break the game in various ways [8], the mood of the game wasn't particularly the main way in which we tried to create space for player creativity. Our focus was on the goals, rules and parameters which made up the video game itself, and we argue that intentionally losing some of our authority on the structure of the game allows us to re-frame the video game as a tool which can be the facilitator of metagames.

As stated in the background section, our work in this paper explores a similar design space to meta-design framework[18,19], aiming to break the boundary between design-time and use-time, albeit within the alternative context and tradition of video games, and exemplified by the 'design phase' and 'play phase' of our prototype. We approach appropriation as a central design focus, and argue that exploring different ways to make appropriation accessible to not only power-users (such as modders, or speedrunners) but also to everyday players, can help nourish fruitful cultures of play. We argue that exploring the role of 'design' as an act of play, is a relatively underexplored game design space that can also push us to question traditions and assumptions around video game design. It forces us to reflect on the agency and the intentions we have as designers on the artifacts we create, by letting players take ownership of the metagames they create. Here, we approach video games as tools to make metagames and see thickening rules, bringing them to surface, and creating spaces for player goals as a way to make these tools more open to player appropriation.

The role of the video game with the approach presented in this paper is less about evaluating whether players have satisfied standards we have set; rather, it prioritizes reflection, creativity and experimentation. Designing a game becomes less about trying to create the context for a specific type of experience, but about giving the players the right tools so they can build their own metagames. This shift in the role of a game also produces new design problems to solve. For example, opening up parameters and rules of a game also creates a design problem of how to communicate this information to the players, especially as the complexity of the game grows. Furthermore, exploring open systems in different genres, which bring with itself different expectations, will present different problems. We believe that exploring how to design for player authorship and creativity in the context of digital games can bring to surface many fruitful tensions which force us to reflect on the assumptions we have both as players and designers and we look forward to further research in this area.

6 Limitations and future work

Our work in this paper does not aim to be prescriptive, nor does it present an exhaustive list of design themes or patterns. Instead, we aim to facilitate a conversation regarding how rules can be expressed, interpreted and changed, and the role of a designer in setting the context for players' engagement with rules. We are aware that while the patterns we have presented, and the surrounding discussion around them, are not constrained to a specific genre of video games, they have been formulated and articulated through the design process of a specific game, which brings with it certain limitations. First, the game we have presented, and the rule making behaviour in and around the game, is a social one as it is a multiplayer game. Social play is one of the areas where players often come up with new rules because of the emergent communication between players. With this background, we can question whether these same patterns would work in a singleplayer game. While there are works that show how players can take initiative to play with the rules of a game in singleplayer games [6, 37], designing for rule-changing play in such a context will likely present new challenges and insights.

Second, the game we present here does not contain any narrative features or story elements. In many regards, it is a neutral game, centered around the openness of its structure. While this aspect has allowed us to focus and reflect on the relationship between rules and play-practices, it also positions it in a specific manner. We can question whether we would be able to apply the design themes presented here in narrative games, as it is often the case that the immersion and fantasy such games create are dependent on the coherence of the narrative and the structure of the games. While there is some work which highlights how changing rules in narrative games can generate meaning [4], players' changing of rules may again require new approaches.

Our work in this paper is inherently characterized and constrained by our capabilities as developers and designers. It is possible that if we had more time to develop and iterate this game we could have produced different findings. However, in this paper our aim was not to try to exhaust the design space of rule-changing play, but rather to take a step towards exploring it further. There are also likely to be alternative approaches to supporting appropriative play. Additionally, future research could investigate a more player-oriented route, focusing on the different types of creativity players express in rule-changing play, and on the player experience of a game which gives players this kind of creative authority.

7 Conclusion

In this paper we have explored how we can invite players to engage with the rules of a game on a structural level to form novel play-practices. To investigate this question, we embraced a research through game design approach and made a digital multiplayer game in which changing rules and parameters is a central mechanic. Through the process of making, reading, reflecting, playtesting and iterating, we have formulated three practical design themes: opening up the parameters and rules of a game, bringing internal rules to surface, and translating digital goals of a game to internal. We argue these three themes can help designers to build video games in which players are invited to form personal play-practices through the use of discretion and experimentation with the structure of a video game. Consequently, this approach gives players both the responsibility and freedom of making their own play-practices, as it situates the game not as a product, but a tool to make metagames.

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