Introduction

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What would the world be without rules? Would it be totally chaotic and anarchic or simply free and unbound or even boring and uninteresting? The question is rather pointless, because there is no world without rules. For the purpose of play, there are worlds that have rules and create their own rules. Subjects who enter these worlds are immediately confronted with these rules or laws (of physics). It starts with gravitation and motion – the gravitational force on the moon, for example, differs from that on earth and therefore offers different types of motion. In a fictitious world the designer defines these (basic) forces according to the needs of the world that is being developed. It continues with the topography of the landscape, its obstacles, its textures and objects, the different possibilities of movement and transportation, nutrition, shelter and so on – the rules of nature. And then, within a set of laws of physics, there are worlds whose complex rules have been created and recorded by many generations of living beings, and all who live in the catchment area of these rules (e.g. a country) sign a social contract (Rousseau 1762) and must abide by its rules – the artificial rules (of law). Of course, small parts of these rules can be changed again, but only through institutionalized processes that usually take some time. Life according to these rules seems like a playful simulation. The frame is fixed. The course of life is foreseen. However, the world of rules can always be interpreted – to a certain degree. As an (inter-) active agent in this system we can explore how far we will go to gain benefits, or we can use the rules to cooperate better with others or support them in their goals. It may also happen that we become exasperated with the rules and their strict interpretation and struggle to maintain our life simulation. Or perhaps we do not like the rules and fight them in all possible (and impossible) ways.

Once we have sounded out how to gain advantages, we can easily bend the rules. We may use the loopholes in the control system and dismiss difficult em-

ployees, or even add an additional system such as bribery and favoritism, in order to gain greater economic success and more power. The mechanics of the control system include numerous small gears, and usually work excellently for those who control the machinery. As long as we stay within the parameters of the system and use its weaknesses and, to use the above example, dismiss employees (in accordance with existing labor laws), nothing can happen to us. But as soon as we introduce an additional system such as bribery, it becomes a little trickier. This may necessitate further game mechanics: namely that of hiding and (not) being discovered. And when we are discovered, there may be the need for yet another game mechanism: that of denial and distraction. From here on, that is where things starts getting interesting for any fictitious or not so fictitious world, as we are confronted with the decisive question: who is really in control of the control system?

Games are such control systems, developed by game designers by means of motivation design. They come with virtual physical rules and artificial laws and (in-game) rules – a framework for play. The system itself is especially motivating for the player. The players may even "sign" a social contract when they commit to playing the game and to its quests. As a simple control system it represents a challenge that offers opportunities for action and events, and it also evaluates them. Assessing and evaluating means matching the rules and allocating rewards or punishment. Punishment may be harsh and could mean death of the avatar. Reward may be small and encourage more action. Each game is a unique construction that is integrated into its own structure by execution, acceptance of the rules and (if digital) processing on a computer. It becomes the actual game by enclosing the player in its "Magic Circle", a symbolic space of play (Huizinga 1938). This space of play is a world of its own, in which different rules apply to those in the real world. And this new "fictitious" world uses different motivational structures that are genre- and addressee-dependent.

WHY DO WE PLAY GAMES?

Why do we play games and why do we play them with computers? This book takes a closer look at the core of each game, the motivational system that is the game mechanics. Generally, games are control circuits that organize the game world (according to a special social contract) with their (joint) players and establish motivations in an own space, a "Magic Circle" or a (new) game world. In this self-sufficient circle, arena or playground, players interact with each other, with NPCs and with (rigid and dynamic) objects according to the action, out-

come and consequence principle. And “Game Mechanics” are constructs of sets of rules designed for these interactions of players, NPCs and different mobile and immobile objects that provide gameplay. Those rules are the basis for all the excitement and frustration we experience in games.

GAME MECHANICS

In a videogame, game mechanics mean: jump, climb, dodge, reach, collect, fly or shoot. This is what you do as a player or let your avatar do. These “actions of play” are the core of any game: analog game, augmented game or video game. As a player you have a set of actions – special rules with conditions depending on the player – available at any time to progress through the game space. This might be a limited field like the pitch of a ball game, a linear A to B level of a platformer or an extended fictitious world like a GTA map. Your activities are crucial; they let you discover this new space, its possibilities and restrictions. You hit the ball and see where it goes; you jump and land, fall down somewhere and find out how far your jump can get you. You drive like a berserker and find out that this has consequences. You make use of the actions that you have available and get to know the rules and mechanics of the game, the laws of physics (of this particular game), the restraints and the dominant social behavior. And this gives you a better feeling for your gameplay.

This is the player's perspective. For the player, the basic gameplay defines the game. (The player's activities are central to the game.) The developer knows that a structured gameplay is necessary for the player. Thus, when the developer chooses and implements the mechanics in terms of actions like jump, shoot a ball or drive, they become structured with parameters and with rule sets. A whole system is developed in this way: the ball is not allowed to get out of bounds. The player avatar can only reach the other side of the gap with a supporting object like a spring. And the driver is not allowed to injure pedestrians or run several red lights; should that happen, police cars will start a chase. In the fictitious game world, you can easily try this out. There are also always limits to the game space you can explore at any one time. The playing field has lines, the platform works from A to B, and even the open world environment has clear boundaries, temporary and permanent ones like road blocks on bridges, an ocean or a range of mountains that cannot be surmounted.

Franz Kafka was already aware that he needed to introduce precise rules and parameters in order for his stories to function like a game. He cleverly put the reader into the story, assigned them an avatar role, played with their expectations

and took more and more freedom away from them. In the tale "The Metamorphosis" Kafka creates a recognizable but not quite real world that is detailed and yet dreamlike. The avatar, formerly a human being, wakes up, discovers that he has six legs and struggles to crawl out of bed. In this new setting the rules are clearly set. The avatar is confined to his room (narrow boundary). His body morphs into a bug, his physical movements become increasingly difficult, he has to hide from his family, but he has to communicate and eat, if he wants to survive and sit out the horrific, unexplainable difficulty he is in. As the morphing progresses his troubles and the horror increase. Kafka designed the mechanics of his tale so thoroughly that they have to be "played" by his readers.

It appears that what is good for literature is good for many other areas too. In politics, game mechanics are implemented to advocate decisions and choices, elect people and express rights and wrongs. This can be illustrated by the phenomenon of fake news in politics. It does not matter whose fake news we are talking about because they are all developed with a deliberate strategy to conduct a successful game or, we might say, "to game the system". The tactics of play as rhetoric of power (cf. Sutton-Smith 1997) may be deviation, stealth approach, ploy, bluff, disguise, charade, destroying someone's reputation, eroding ethical concepts, avoiding inconvenient truths, hushing up research results or policies and so on. Game mechanics run and occupy the world in almost all imaginable areas. And "playing games" may have negative connotations in many ways.

THE CORE OF A GAME

The subject of this book is the game mechanics of games, a somewhat neglected, but constitutive element of game design in the field of game studies. We are convinced that the heart of a game is not artistic expression, aesthetics and beautiful assets or clever programming, but mechanics as the basic mechanical system of a game that creates the possibility of a (good and challenging) gameplay for the player and provides motivation. To discuss this assumption we organized a series of conferences on game mechanics and invited international guests who had been dealing with game mechanics in theory and practice for some time. The name of the conference "GameZ & RuleZ" was deliberately programmatic. The "Z" stands for the culture of games and game designers and suggests other ways of analyzing games and rules or cracking their codes (of perception). The first part of our conference series focused on game mechanics and rules, the second part was dedicated to game mechanics and motivational design, and the third and final conference put the spotlight on motivational design for non-human play.

The outcome was a good understanding of different perspectives and methods and a continued discussion that will be fueled by further events in the future. To make the results available to the public, the participants presented their thoughts in individual essays and tried to get to the bottom of game mechanics in video games and their integration into the real world. They offered different perspectives on the topic: as player, game designer or researcher. It was essential for the conference to bring game developers and game studies scholars together in order to illuminate the core subject of game mechanics from all possible sides.

In other words, we do not only ask why we play games, we also raise the question of why we make games. In the light of the recent popularity of games, we need to ask: Why do we integrate and intertwine our games more and more with our world? And what are the consequences of gamifying our world? Is it not enough to interact playfully? Do we really need more badges, leaderboards, virtual currencies and awards for all sorts of activities? There are so many awards that each of us receives one, and so many badges that we do not notice anymore how little sense it makes to distribute badges, for example in job recruitment when badges are given to all applicants – even those who do not get the job!

"GAMEZ AND RULEZ"

It all started with a Game Mechanics Manifesto (2013) for the first "GameZ & RuleZ" conference at the "GameZfestival" in Zurich, Switzerland. The manifesto was a short pamphlet on how game mechanics function as the core of any game. It was short yet provocative, and served its purpose by starting the discourse on game mechanics from the perspective of game designers. The participants of the conference were intrigued and brought their own views and angles to the table, illuminating important aspects of the puzzle of game mechanics. However, not all of the participants were able to contribute to this volume; they include the scholars Jesper Juul, Staffan Björk, Margarete Jahrmann, Annika Waern, Floyd Müller, Michael Cook, and other invited game designers from different studios.

The manifesto itself had to be revised thoroughly and expanded into an essay for this book, and it now provides an insight into motivational systems and the development of core elements for games. In our book's first section on "Play Motivation", René Bauer identifies the "Magic Circle" as the "Special Zone of Play" that makes different rules and laws culturally possible. From challenge to reward and punishment, motivation design is able to use all the rules in a game

system to keep players busy. Bauer states that a game system consists of different game mechanics as elements of motivation and he takes us on a tour from analog games with humans assuming the role of processing units to electronic games as highly integrated control systems, and finally into rule-based reality that works with similar motivational concepts. In "Rules of Play as a Framework for the 'Magic Circle'" Beat Suter outlines a framework for playing games in which he sees play as communication between player and game. Playful action in a game world must be similarly meaningful for the subject as actions and events are in real life. The game and its rules build a dynamic system that creates not only sense, but also commitment. Furthermore he divides game mechanics into the heuristic motivation sets of macro and micro mechanics where macro mechanics establish the framework for decisions and interactions in a game and micro mechanics network with each other to establish playful experiences for the player.

Also part of the first section is Miguel Sicart's "Playing Computers". The essay steps back from the mechanics discourse and gains a better view of play culture. In letters to the reader, Sicart starts an inquiry into similarities of computation and play. Using a post-phenomenological approach he delineates their shared capacity to create worlds. This process of world-creation may be seen as re-ontologizing worlds and thus shaping human experience. For Sicart, play is a way of interfacing; it "allows us to understand how to live, and how to experience the computational world" (Sicart, in this volume).

In the second section, on "Game Mechanics", we address established theories of game mechanics. Imre Hofmann gets to the bottom of three main theories taking a philosophical perspective with a meta-theoretical approach. He evaluates the state of the art of the theories and defines the attributes of a general game mechanics theory. Furthermore, he makes the case for a clearer distinction of the following three crucial terms: game experience, gameplay and game mechanics.

Carlo Fabricatore on the other hand goes "Underneath and Beyond Mechanics" and offers a new view on meaning-making in gameplay. He focuses on an activity-theoretical perspective and points out that meaning-making is a key driver for the player experience. It is crucial for the player's comprehension and decision-making – his agency – and a primary source for motivation. Fabricatore therefore suggests exploring games as systems of meaning-making. This involves analyzing which meanings are relevant for a definition of gameplay entities, causal relationships and significance, and how exactly they are conveyed to the player.

The third section, on "Guidance Systems", offers different insights and studies on the topic of player guidance: How exactly are games built to lead, and mislead, the players on their adventures inside the "Magic Circle"? In "Design and Reception of Orientation Cues in Game Space", Hiloko Kato and René Bauer take a closer look at orientation cues in games from both the perspective of reception and game design. By analyzing player behavior and communication in Let's Plays on YouTube, Kato and Bauer focus on the central player question: "What are we actually supposed to do here?" They describe how games, by means of guiding principles, achieve the satisfactory balance between the challenge and the player's reward.

To take their interdisciplinary and Let's Play-oriented study of guiding principles a step further, Bauer and Kato also define the "The Spectacular Space" in computer games as hyperreal. By examining some early games and introducing different approaches (comparisons between the analog world and the digital game world, trial-and-error method, space appropriation model), this essay helps to understand how players learn to inhabit the hyperreal, impossible, irrational spaces in video games.

Open-world games seem to offer players complete freedom in terms of their actions and decisions. By presenting six different "Nonverbal Guidance Systems", Francine Rotzetter shows that, in contrast to that assumption, the open-world player constantly faces complex sets of signs and cues, among them some more intuitive and obtrusive ones. By analyzing different games with her "100-steps method", Rotzetter suggests combinations of guidance systems for the designer to create a more balanced game experience, thus offering an academically based, but at the same time development-oriented approach to guidance systems.

The fourth section of this book concerns itself with "Ethics". How can game designers use ethics as a means of game motivation? This is the leading question that Wolfgang Walk tries to answer in his essay on the subject of "Ethics as a Game Mechanism". He has been studying the topic over the course of several years from the perspective of a game designer and producer. After making a clear distinction between ethics and morals, and defining what an ethical game is (and isn't), Walk reveals how ethical dilemmas and the complexity of ethical decision-making can create outstanding, lasting game experiences, in order to enable other game designers to implement ethical game mechanics in a skillful way.

The following essay by Hiloko Kato and René Bauer likewise deals with meaningful decision-making and proposes the notion of "The Player as Puppet". In comparison to the reception of literary texts, the role of the player of a game surely exceeds the position of the powerless spectator – or does it? How influential and consequential are, in fact, the decisions of the player of a computer

game? After addressing the notion of games as decision machines and providing examples of visualized decisions, the essay analyzes the challenge of implementing moral decisions as a significant game mechanic.

In the following collaborative essay, Wolfgang Walk and Mark L. Barrett propose a set of game design tools which they call "The Ethical Avatar". They consider the deep impact that ethical decisions can have on gameplay, but for their research, they chose a practical, applied point of view. The authors argue that their Ethical Avatar enhances the player's participation in the game world, revolutionizes storytelling for video games with better feedback loops and, in fact, impacts the game production workflow as a whole.

The fifth section "Game Spaces" deals with the interdependence of space, rules and game mechanics. In his essay on how "Rules Shape Spaces" and how "Spaces Shape Rules", Ulrich Götz draws analogies from the real world for digital game design. He describes how rules form the typologies of spaces and points out that it is essential to create controllable situations in game worlds in order to observe consequences and gradually enhance spaces, connections and motions within these spaces. Götz further explains how the extended possibility space of environmental design in games has not reached its full potential yet, but still leaves plenty of room for more innovative visual and functional designs.

Sharing post-mortem insights from intercultural games for the "ludic city" (Zurich/Hong Kong), Mela Kocher analyzes the development conditions for "Game Mechanics of Serious Urban Games". Comparing the design process of video games (mainly for entertainment purposes) with that of urban games (mainly for "serious" purposes), and drawing insights from the MDA model, Kocher defines a set of design rules and constraints that the designers (and, in fact, also the players) are faced with when they create for, or play games in, the ludic space.

The sixth and last section of this book, "NPC and Non-human Game Design", looks into recent game design trends and asks the following questions: How do design and research conditions change when the players are not human, and what effect does this trend have in general on the shaping of a game culture, which has traditionally been geared towards the human actor? Furthermore, how does the motivation design have to be re-designed in order to meet the changing demands of the new users? And last but not least: What happens if we apply game rules to society and start rediscovering ourselves as elements of a game?

In "NPC and me", Günter Hack provocatively discusses "How to become a Non-Player Character" in times when "everyday life and game mechanics converge in ever new digital media remixes" (Hack, in this volume). Drawing from the mechanics of early NPCs and their relationship to the fiction world i.e. the

system, Hack ponders on the quantification and gamification of everyday life (with examples such as the Chinese "social credit system"). He debates the resulting status of people with concepts derived from cybernetics and political science: "In this all-encompassing totalitarian context, everybody has become a Pac-Man ghost or a Tamagotchi, even the President of the United States!" (Hack, in this volume).

Though the notion of non-human game elements such as NPCs is employed rather metaphorically in the preceding contribution, it surely is meant very literally in Michelle Westerlaken's article on what happens "When Game Mechanics Come Crawling out of Ant Colonies". Taking Miguel Sicart's approach to game mechanics (Sicart 2008) a step further and understanding "agents" not only as humans or artificial intelligences, but also as animals, Westerlaken investigates the design of playful artifacts and games that involve animals (specifically ants), both as players and as co-designers, thus sharing her insights from her experiments in non-speciesist game studies.

TO BE IN THE GAME OR (NOT) TO BE

Game designers open worlds in the design process by enriching, varying and experimenting with avatars, figures, objects, motions, actions, events, mechanics, feedbacks, sounds, visuals and environments. And then they close them by reducing, optimizing and adapting elements so that the game becomes more coherent. It is an iterative optimization process that we are increasingly losing sight of. Today's games manage to cover up as perfectly as they perform. They manage to hide their complexity behind playful surfaces and, at the same time, offer a wide variety of motivational designs. Games no longer have a direct influence but rule over the abundance of decision-making possibilities and their consequences. They have become so successful in society that their power mechanisms are no longer just used in games. In fact, they are applied as much in the real world.

In an increasingly self-designed world, game mechanics have become a kind of operating system for society, its design process and ubiquitous designs. Since 2010 more than 50% of the human population live in self-designed cities. Concepts such as gamification, serious game and games for change are widespread today, and continuously implemented in society. This clearly illustrates that game mechanics have become a kind of operating system for society – if they have not always been one. We live in a time in which we have to look ever so closely at when and where game mechanics emerge or are strategically imple-

mented and applied in a more or less creative mode, be it in the economy, architecture, healthcare, private and public transport, education, refrigerator design or cultural and social processes. There seems to be no stopping the amazing and frightening spread of game mechanics.

This book is a first step in exploring our role as people and players in this "new" overarching game world. Electronic games are the forerunners and mirrors, the playgrounds for all kind of experiments and combat zones for society. And at the same time they are leading the way for current and future technological and cultural progress. We may be able to learn from games how to design the future. But first there has to be the realization: *We do exist, when we play, but we don't solely live in the game.*

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