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Introduction

This text covers the basics of the process of game design. It is intended for newcomers to game design, especially students in introductory level classes.

The aim is practical. I want to introduce the reader to a process of creating new games and analyzing existing ones. Along the way, we examine a model for thinking about games on three different levels (from bare mechanics through dynamic behavior and gameplay to end-user experience) and how we can use these levels to simplify the design problem by dividing it into stages.

In writing this text, I wanted to describe the tools and techniques used by game designers working in the industry. As a game designer and developer, I felt that it was important to share with students the basics of the knowledge that we have collectively accumulated. Our industry is new, only several decades young, and it keeps evolving rapidly—but some of the foundations are starting to take shape. So now might be a good time to survey what we have learned so far in anticipation of building on it in the future.

Game Design and the Scope of This Text

Games are syntheses of the work of many disciplines, and all parts must work well together to produce a great experience for the player. Interesting and engaging gameplay, visuals and visual design, music and audio design, user experience design for smooth interaction, technical design and implementation, and so on.

Game design is typically used in the industry to refer only to the design of the gameplay aspect. A design for a game is a kind of formulation for how the game should *work:* how it will behave, what the player will do, who the characters are, how they act when the player interacts with them, and so

on. This is complementary to the visual design of how the game will look, or the technical design of how exactly all the pieces will be implemented, but it is treated as a separate practice. Gameplay design works with the other elements and brings them together.

There are many ways to approach the broad topic of game design, and this text focuses on a few specific motifs, as follows.

1. *Focus on models and vocabulary used in industry practice*. We will use the techniques and vocabulary used by practicing designers working on shipping commercial products. The game design community has developed numerous abstractions and mental models for working in this domain, as well as its own terminology, and this text seeks to introduce these as they are used in practice. There has also been a wealth of theoretical work in game studies and research, which introduces a variety of additional models and vocabularies; however, we will leave that work mostly untouched except for elements already adopted in industry practice.
2. *Focus on games as dynamic systems of gameplay*. We will be looking at the design of gameplay and gameplay-related elements. As previously mentioned, there is much more to contemporary games than gameplay: stories, characters, visual art design, audio design, and so on. But instead of discussing all of them, we concentrate on the *sine qua non* of games—the dynamic nature of what happens when players get a hold of the game and start interacting with it, and how to design this kind of dynamic gameplay to produce desired experiences. As for the other elements of game development, there are other, much better resources on art, story, or technical design in games.
3. *Focus on the design process, but not on the profession of design*. Similar to the above, we will focus on the work of designing gameplay, but we will not largely address the realities of the job of being a game designer. Working on a production team in a commercial environment brings with it many additional challenges: team communication, creative leadership, processes for generating and filtering ideas, evaluating commercial feasibility of design ideas, and so on. These challenges do influence game design, but we will largely ignore them here, since doing justice to commercial production issues would make the discussion far too complex for our purposes.
4. *Focus on game design, but not on game product design*. Game design is the process of figuring out what the game will be in terms of gameplay, but

product design is figuring out how to turn it into a successful commercial product—how it fits into the marketplace, how to market it and present it to an audience, how to sell it and what kind of sales or monetization model to use, and generally, how to make it successful in a very crowded market. Game design and product design are interdependent, and experienced game designers often develop a sharp eye for how product requirements inform game design, and how game design innovation can illuminate new product possibilities. However, product design is too advanced of a topic for this introductory text.

Classroom Use

This text is intended to be an introduction to elementary game design concepts. It arose out of a compilation of class notes from my game development class at Northwestern University. However, the goal for the text is to be applicable in various contexts, from more theoretical design courses, to applied game development lab courses, as well as self-study.

The text begins by introducing the core model—that of player and designers experiencing the game design differently, and the three levels for thinking about games—and the subsequent chapters elucidate the individual parts of this model. The chapter sequence itself is very flexible, however. The current sequence recapitulates the ordering I used in my own introductory game development class:

- Chapter 1 introduces the model.
- Chapter 2 discusses player experience, and identifying design goals.
- Chapters 3 and 4 discuss ways to analyze lower-level mechanical details.
- Chapters 5 and 6 discuss ways to analyze higher-level gameplay, structure, and resulting player experience.
- Chapter 7 focuses on applying these elements when building a playable game prototype.

However, other types of classes might choose to order the elements differently. For example, a course that focuses more on theory of design might adopt a sequence that looks more like the following:

- Chapter 1 introduces the model.
- Chapters 5 and 6 discuss ways to analyze higher-level gameplay, structure, and resulting player experience.

- Chapters 3 and 4 discuss ways to analyze the lower-level mechanical details.
- Skip chapters 2 and 7.

The chapters should be amenable to different orderings as well, according to the needs of each course. In addition, this book is succinct so that additional materials can be pulled in as needed for instructors who wish to combine it with external readings on game design.

Note on Exercises

Each chapter comes with a set of exercises intended for individual use and some design challenges that are best done in groups. Individual exercises are typically prompts for analysis or discussion, for example, asking the reader to analyze some game they know in the context of what they just learned in the previous chapter or chapters. These questions tend to be open ended, with the hope that they will be applicable to a variety of teaching contexts, including homework or in-class discussion, and students from a variety of backgrounds.

The text does not include exercises where students practice building entire games or game prototypes, since those exercises can be highly specific to the teaching context (different exercises would be needed for courses that focus on digital games as opposed to physical games, for courses that assume programming knowledge as opposed to no programming knowledge, and so on). For readers interested in physical design exercises, I wholeheartedly recommend Brathwaite and Schreiber (2009).

Note on Style

In this text, I tend to use first-person singular "I" as myself, the writer, speaking on my own behalf, and use first-person plural "we" in the context of myself and the reader, working together through a problem or examining game examples. Phrases such as, "We now see that … ," are used as rhetorical flourishes to highlight the trajectory that we, the writer and the reader, are taking while exploring the topic.

However, I would like to emphasize that the "we" is decidedly *not* intended to suggest that I am speaking for other game designers or developers. I would not dare to speak for them, and besides, it would be impossible

as the game design community is highly heterodox and ever-evolving. Please consider views and opinions in this text as entirely my own.

Note on Definitions

It has been customary for game design texts to start by defining the word "game," but I will resist this temptation.

Many definitions have been suggested over the years. Some popular ones include defining games as "conflicts in which the players directly interact in such a way as to foil each other's goals" (Crawford 2003, 8) or "a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (Salen and Zimmerman 2004). Many more have been offered as well, and Sellers (2017, 90–96) and Salen and Zimmerman (2004, 73–81) provide many examples and excellent summaries.

These kinds of succinct definitions tend to be inaccurate, however, because they routinely fail to match the vastly heterogeneous variety of *things* that people call games. The word "game" is used to describe an enormous category of activities and artifacts, including arcade games (shoot-'em-ups such as *Arkanoid* or *Gauntlet*), action games (*Super Mario Bros.*, *Grand Theft Auto*), cerebral or puzzle games (*go, sudoku*), story-driven games (*The Curse of Monkey Island*, *Gone Home*), sandbox simulations (*SimCity*, *Minecraft*, *Dwarf Fortress*), realistic simulations (*Microsoft Flight Simulator*, *Forza Motorsport*), video game sports (*Madden*, *NBA Live*), real-world sports (*football, baseball*), card games (*poker, gin rummy*), collectible card games (*Hearthstone, Magic the Gathering*), parlor games (*Fictionary, Exquisite Corpse*), games of pure chance (*roulette*, various slot machines), strategy board games (*chess, Diplomacy, Risk*), strategy computer games (*Civilization*, *Master of Orion*), kids' board games (*Snakes and Ladders, Candy Land*), playground games (variants of hide-and-seek, or cops and robbers), augmented reality games (*Majestic*, *Pokémon Go*), freeform role-playing (LARPs), rule-based role-playing (*Dungeons & Dragons, Ultima*), open-world games (*The Witcher*, *The Elder Scrolls V: Skyrim*), interactive fiction (Inform- and parser-based games), hypertext stories (Twine games, *Choose Your Own Adventure* series), and various others that I skipped because the list so far already makes the point.

The problem with simple definitions is that they routinely fail to capture this variety and, paradoxically, end up excluding many famous games from being considered "games." For example, the definitions offered by Crawford or Salen and Zimmerman both reject some of the best-selling games

of all time, such as the *SimCity* series, *Minecraft*, or *The Sims* series, as being "not games," based on nothing more than a declaration by fiat. This contradicts the actual, real-world usage of the word "game," and as such, they are inaccurate and inappropriate for use.

Second, and more problematically, inaccurate definitions can be taken as normative and used to deny new types of games their ontological status as games. There are numerous historical examples of this phenomenon. In the late 1990s, we saw arguments about whether simulation games like *SimCity* or *The Sims* are games or merely "toys" because they lacked clear goals and victory conditions. Similarly, in the early 2000s, casual games were debated as marginal games because they were very easy and lacked a meaningful physical or strategic challenge. In the late 2000s, this repeated itself with social games like *FarmVille* and mobile games like *Candy Crush*, accused of not being games because they were reductively simple yet addictive and allowed players to pay to skip any undesirable challenge. Then in the 2010s, the so-called "walking simulators" like *Gone Home* and hypertext games like *Depression Quest* became targets of debate about whether they are games, as their designers rejected traditional mechanics and systems in favor of storytelling and emotional experience. This phenomenon of using incomplete definitions of "game" to marginalize non-core games and deny the importance of their contributions seems to repeat itself with an unfortunate consistency.

A comprehensive definition seems elusive. Therefore, instead of a prescriptive definition, in this text we take a descriptivist approach: that games are what people who play games, who talk about games, who make games, and who enjoy games say they are. They may have some traits in common. They usually lack real-life consequences. They can incorporate pretend-play. They might make use of competition, goals, or observable outcomes, and so on—but these traits are not all necessary. The gamelike traits may be present but do not all have to be, and if the thing under consideration is *similar enough* to other things we call games, we will happily call it a game. In this manner, we follow Wittgenstein's approach to language (1959, paragraphs 66–71) and treat "game" as a description of a family of phenomena that resemble each other. They cannot be positively defined with a set of necessary and sufficient conditions, but we can identify when something shares many characteristics with other things we know as games and include it in the family.

With this preamble out of the way, we can now finally switch over to the main question that will drive this text: So, how to make those things?