Chapter 7: Defining Games

Overview

*The word [game] is used for so many different activities that it is not worth insisting on any proposed definition. All in all, it is a slippery lexicological customer, with many friends and relations in a wide variety of fields.—**David Parlett**, The Oxford History of Board Games*

*What are games? Are they things in the sense of artifacts? Are they behavioral models, or simulations of social situations? Are they vestiges of ancient rituals, or magical rites? It is difficult and even curious when one tries to answer the question "what are games," since it is assumed that games are many things and at the same time specific games are different from one another—but are they?—**E. M. Avedon**, "The Structural Elements of Games"*

Entering by way of meaningful play, following a path of embedded concepts connecting design to systems to interactivity, we have arrived at the heart of our study: games. It is therefore high time to define just what it is that makes a game a game. Should we even attempt such a definition? Perhaps, as game historian David Parlett warns in the quote that opens this chapter, any attempt to define the word "game" is a foolish endeavor. On the other hand, if one of our goals is to help formalize the field of game design, then it seems crucial to define the object that is so central to the discipline.

Historically, play and games have been studied in a myriad of ways, from economists using game-like simulations to literary theorists studying the "play" of meaning in language and literature. These investigations study games or play in the service of another field. Our intent, on the other hand, is to study play and games within the field of game design. A definition of "game" should help to not only distinguish game design from other design practices, but also bring us closer to an understanding of meaningful play.

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Play and Game

As a first step, let us see how *game* relates to the equally complex *play.* We begin with an obvious question: Is there a difference between the words "play" and "game"? Do they refer to the same thing? In English, there is a clear distinction between the two words. But as David Parlett points out in the *The Oxford History of Board Games,* not all languages separate the two concepts. The phrase "to play a game," in both German and French, for example, uses different versions of the same word for both "play" and "game." In French *"on joue á un jeu;* in German, *man spielt ein Spiel."* [1]Although there are many ways to define play and games, we will take advantage of the difference that English affords to consider games and play as two separate ideas with related, but distinct meanings.

It turns out that play and games have a surprisingly complex relationship. Play is both a larger and a smaller term than "game," depending on the way it is framed. In one sense, "play" is a larger term that includes "game" as a subset. In another, the reverse is true: "game" is the bigger term, and includes "play" within it. Consider each of these relationships separately:

Relationship one: Games are a subset of play.

If we think about all of the activities we could call play, from two dogs playfully chasing each other in a grassy field, to a child singing a nursery rhyme, to a community of online role-players, it seems that only some of these forms of play would actually constitute what we might think of as a game. Playing Dodge Ball, for example, is playing a game: players obey a formalized set of rules and compete to win. The activities of playing on a seesaw, or horsing around on a jungle gym, however, are forms of play which do not constitute a game. Most forms of play are looser and less organized than games. However, some forms of play are formalized, and these forms of play can often be considered games. In this sense, it is clear that "game" is a subset of "play." This is a typological approach, one that defines the relationship between play and games according to the forms they take in the world.

Relationship two: Play is a component of games.

In a different sense, games can be thought of as containing play. This entire book is about games, and one component of games is play. The experience of play is but one of many ways of looking at and understanding games. Within the larger phenomenon of games, then, the play of the game represents one aspect of games. Although play is a crucial element of the larger concept of games,"play" is in fact a subset of "game." Rather than typological, this pairing of the terms represents a more conceptual approach that situates play and games within the field of game design.

This double formulation of play and games may sound contradictory, but it is not simply a terminological sleight-of-hand.The point is that there are important differences between the words "game" and "play." English may be an anomaly in the way that it differentiates between these two terms, but it is an extremely useful distinction. A good definition of game should distinguish it clearly from play in both of the senses described here.

[1]David Parlett, *The Oxford History of Board Games* (New York: Oxford University Press, 1999), p. 1.

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Comparing Definitions

One challenge of understanding the term "game" is that it has so many uses. Consider, for example, many of the ways that the word is utilized in English: For our purposes, only a single subset of all of the possible meanings of "game" is relevant: the category of games proper, a category that includes board games, card games, sports, computer games, and similar activities. Put another way, games are what game designers create. Although this is an important qualification, it does not bring us any closer to a precise understanding of what is and what is not a game.

- limp or crippled:
- a *game* leg a hunted animal: *game* hunting season is open
- being skilled, particularly in sports or in romance: having *game;* "he got *game*"
- to partake in gambling: to spend a night *gaming* in Vegas
- social and psychological manipulation: playing hea *games*
- a procedure for gaining an end: playing the waiting *game* with a stubborn friend
- a field in which one earns a living: the writing *game* and, of course
- board *games,* card *games,* computer *games,* etc.

Luckily, we are not the first to attempt a definition of "game," so we will be taking a close and comparative look at eight definitions that come from a variety of fields. In and among the definitions a handful of thorny issues appear again and again. These issues not only include articulating the unique qualities that make a game a game, but also differentiating games from similar phenomena, such as other forms of play, conflict, and contestation. It is also clear that there is a difference between defining games themselves and defining the act of playing a game.

There is one final point to make regarding the difference between "play" and "game." The definitions of "game" to follow were written in many languages, and when translated to English there is some slippage between "play" and "game." As a result, we look at definitions of play as well as "game" in the course of our investigation. Bear in mind that we are not building a definition of play (that comes in a later chapter), but are using definitions of play to shed light on an understanding of games.

Definition 1: David Parlett

David Parlett is a game historian who has written extensively on card games and board games. Earlier we noted Parlett's skepticism regarding the ability to define the slippery term "game." Yet despite his assertion to the contrary, Parlett does provide a model for understanding games.

Parlett begins by distinguishing between formal and informal games."An informal game is merely undirected play, or 'playing around,' as when children or puppies play at rough and tumble." He contrasts this kind of activity with a "formal game":

> A formal game has a twofold structure based on ends and means:
>
> *Ends.* It is a contest to achieve an objective.(The Greek for game is agôn, meaning contest.) Only one of the contenders, be they individuals or teams, can achieve it, since achieving it ends the game. To achieve that object is to win. Hence a formal game, by definition, has a winner; and winning is the "end" of the game in both senses of the word, as termination and as object.
>
> *Means.* It has an agreed set of equipment and of procedural "rules" by which the equipment is manipulated to produce a winning situation.[2]

Parlett's distinction between formal and informal games directly addresses a key challenge in arriving at a definition of "game:" how to distinguish games from other forms of play. What Parlett calls an "informal game" of two puppies romping about might more simply be called *play*. His definition of a "formal game" has two main components:

- *Ends:* The fact that a "formal game" is a contest with an endpoint as its goal.
- *Means:* The agreed-upon rules and materials by which one wins the contest.

Both components—the idea of winning and the idea of doing so by means of rules—are key ideas in defining games, and in distinguishing them from other, less "formal" kinds of play.

Definition 2: Clark C. Abt

In his book *Serious Games,* Clark C. Abt proposes the following definition of games: \

> Reduced to its formal essence, a game is an *activity* among two or more independent *decision-makers* seeking to achieve their *objectives* in some *limiting context.* A more conventional definition would say that a game is a context with rules among adversaries trying to win objectives. [3]

Abt's definition offers an understanding of games that emphasizes the active role of players in a game. Here are the four key terms he highlights:

- *Activity:* a game is an activity, a process, an event;
- *Decision-makers:* games require players actively making decisions;
- *Objectives:* as with Parlett's definition, games have goals;
- *Limiting context:* there are rules that limit and structure the activity of the game.

Comparing Abt's definition to Parlett's, we have another instance where games are seen to have a goal or objective. Abt refines Parlett's idea of rules-based *means* by implying that rules are intrinsically limiting. But perhaps the most interesting component is Abt's acknowledgment that games are an activity in which players *make decisions.* We know from our discussion of meaningful play that the interactivity present in games is based on players making decisions that have meaningful outcomes.

Does the scope of Abt's definition feel appropriate? A definition of games can fail by being so narrow as to leave things out that are games or by being so broad that it includes things that are not games. Abt writes, in the same volume, that his definition fails on both accounts:

> The trouble with this definition is that not all games are contests among adversaries—in some games the players cooperate to achieve a common goal against an obstructing force or natural situation that is itself not really a player since it does not have objectives.[4]

Abt, of course is correct. With its requirement of two or more independent decision-makers and emphasis on adversarial contest, his definition is too narrow—it leaves out cooperative or solitaire games. And, as he goes on to add, the definition is also too broad:

> Of course, most real-life activities involve independent decision-makers seeking to achieve objectives in some limiting context…. Political and social situations can often also be viewed as games. Every election is a game. International relations are a game. Every personal argument is a game. And almost all business activity is a game. Whether these contests of politics, war, economics, and interpersonal relations are played with resources of power, skill, knowledge, or luck, they always have the common characteristics of reciprocal decisions among independent actors with at least partly conflicting objectives." [5]

War? Elections? Arguments? Games do bear similarity to other forms of human conflict. Although there are some very useful concepts in Abt's definition, we still have a long way to go in demarcating exactly what does and does not constitute a game.

Definition 3: Johann Huizinga

In 1938, Dutch Anthropologist Johann Huizinga published a groundbreaking study of the play element in culture, *Homo Ludens* ("Man the Player"). Among other things, *Homo Ludens* provides a definition of what Huizinga calls "play":

> [Play is] a free activity standing quite consciously outside "ordi-nary"life as being "not serious,"but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings, which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means.[6]

In this definition, Huizinga asserts that play:

- is outside ordinary life;
- is "not serious";
- is utterly absorbing;
- is not to be associated with material interest or profit;
- takes place in its own boundaries of time and space;
- proceeds according to rules;
- creates social groups that separate themselves from the outside world.

One of strengths of this definition is that Huizinga manages to identify some of the more elusive and abstract qualities of play. The idea that play is both utterly absorbing but also not serious, for example, wonderfully describes the sense of being at play. On the other hand, it is not clear that these experiential qualities will help define a game: just because a poorly designed game fails to be absorbing doesn't mean that it is not a game. Other aspects of his definition, such as his emphasis on play's separation from ordinary life and the fact that play takes place within special boundaries of time and space, point to the intrinsic artificiality of games. Is this feature of artificiality a defining quality of games? We shall see.

Huizinga's definition includes many important ideas, but on the whole it has some problems. Several of the components, such as the fact that play creates social groups, address the effects of play and games rather than games themselves. Other elements, such as the disavowal of material gain from play, are too closely linked to the ideological agenda of *Homo Ludens.* In the end, the inclusive generality of Huizinga's definition is its greatest weakness. It does not, for example, ultimately differentiate between "play" and "game".

Definition 4: Roger Caillois

Expanding on the work of Huizinga during the 1960s, the French sociologist Roger Caillois published *Man, Play, and Games,* a book that is in many ways a direct response to *Homo Ludens.* Caillois also presents a definition of play, describing it as being:

- *Free:* in which playing is not obligatory; if it were, it would at once lose its attractive and joyous quality as diversion;
- *Separate:* circumscribed within limits of space and time, defined and fixed in advance;
- *Uncertain:* the course of which cannot be determined, nor the result attained beforehand, and some latitude for innovations being left to the player's initiative;
- *Unproductive:* creating neither goods, nor wealth, nor new elements of any kind; and, except for the exchange of property among the players, ending in a situation identical to that prevailing at the beginning of the game;
- *Governed by rules:* under conventions that suspend ordinary laws, and for the moment establish new legislation, which alone counts;
- *Make-believe:* accompanied by a special awareness of a second reality or of a free unreality, as against real life.[7]

Some of these ideas were part of the previous definitions; several are new. Every definition so far includes reference to the fact that play is governed by rules. The ideas that play exists in a separate space and does not create capital are borrowed from Huizinga. But Caillois extends an understanding of play by describing it as free or voluntary, by pointing out that the end of a game is uncertain, and by associating play with a sense of make-believe.

Do all of the elements Caillois lists really describe games? Although they seem to make intuitive sense, it is possible to think of situations where games are not voluntary, uncertain, or make-believe. If you are pressured by your friends into playing a game that you don't want to play, is it still a game? If a Chess master plays against a beginner, is the outcome of the game uncertain for the Chess master? Is there a make-believe element to Tic-Tac-Toe?

A central problem with Caillois' definition is that like Huizinga's definition, it is too broad for our purposes. In *Man, Play, and Games,* Caillois includes under the rubric of play activities such as theater and informal rough-housing. Although these activities might be considered play, we are looking for a definition that more narrowly addresses the particular instance of games.

Definition 5: Bernard Suits

Bernard Suits is a philosopher with a strong interest in games. His playful book *Grasshopper: Games, Life, and Utopia* is a retelling of the Grasshopper and the Ants fable; it is also a deep investigation into the nature of games. Suits offers this definition of games:

> To play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favour of less efficient means, and where such rules are accepted just because they make possible such activity.[8]

> —or more succinctly—

I also offer the following simpler and, so to speak, more portable version of the above: playing a game is the voluntary effort to overcome unnecessary obstacles.[9]

Although Suit's definitions sound abstract, he is covering familiar territory. Here are the primary elements from both versions:

- *Activity:* as with Abt, Suits emphasizes the activity of playing a game;
- *Voluntary:* games are freely entered into;
- *A specific state of affairs:* games have a goal;
- *Rules:* as in the previous definitions, Suits identifies rules as a component of games;
- *Inefficiency:* the rules of games limit behavior, making it less efficient;
- *Rules are accepted:* playing a game means accepting the rules.

Other definitions have included many of these elements: the fact that a game is an activity, that it is voluntary, has a goal, and involves rules. However, Suits adds some new ideas to the mix. When he states that "the rules prohibit more efficient in favour of less efficient means…such rules are accepted just because they make possible such activity," he is referring to what he calls the *lusory attitude,* the peculiar state of mind of game players. Part of the lusory attitude is that the rules of a game make play inefficient: if a runner wanted to cross the finish line as efficiently as possible, she might leave the track and cut across the field—but the rules tell her to stay within the white lines. Another component of the lusory attitude is that players accept these rules, taking on the "unnecessary obstacles" of a game simply because they make play possible. Suits is actually pointing to the way that games create *meaning* as players accept these rules, goals, and obstacles in order to play.

As insightful as this definition is, it is important to note that Suits does not ultimately offer a definition of game, but a definition of the act of *playing a game.* In fact, the definitions of Huizinga and Caillois similarly focus on the activity of play rather than on games themselves. However, the next two definitions will bring us closer to the territory of games themselves.

Definition 6: Chris Crawford

Chris Crawford is a pioneering computer game designer who has written extensively about game design, narrative, and interactivity. In his influential book *The Art of Computer Game Design,* Crawford does not offer a succinct definition of games, but he does list four primary qualities that define the category of things we call games: representation, interaction, conflict, and safety. We have pulled together excerpts from the first chapter of his book, where he summarizes these four qualities:

Representation: A game is a closed formal system that subjectively represents a subset of reality. By "closed" I mean that the game is complete and self-sufficient as a structure.The model world created by the game is internally complete; no reference need be made to agents outside of the game. By formal I mean only that the game has explicit rules. A game's a collection of parts which interact with each other, often in complex ways. It is a system. A game creates a subjective and deliberately simplified representation of emotional reality. [10]

Interaction: The most fascinating thing about reality is not that it is, or even that it changes, but *how* it changes, the intricate webwork of cause and effect by which all things are tied together. The only way to properly represent this webwork is to allow the audience to explore its nooks and crannies, to let them generate causes and observe effects. Games provide this interactive element, and it is a crucial factor in their appeal. [11]

Conflict: A third element appearing in all games is conflict. Conflict arises naturally from the interaction in a game. The player is actively pursuing some goal. Obstacles prevent him from easily achieving this goal. Conflict is an intrinsic element of all games.It can be direct or indirect, violent or nonviolent, but it is always present in every game. [12]

Safety: Conflict implies danger; danger means risk of harm; harm is undesirable. Therefore, a game is an artifice for providing the psychological experiences of conflict and danger while excluding their physical realizations. In short, a game is a safe way to experience reality. More accurately, the results of a game are always less harsh than the situations the game models. [13]

We can consider each of these four qualities separately. Crawford's notion of *representation* is reminiscent of the quality of make-believe listed by Caillois. But Crawford takes the concept one step further, linking the game's capacity for representation directly to its rules, and to its status as a *system* of interlocking parts. In fact, Crawford's definition is the first to explicitly call games a system, perhaps because he is the first of these authors writing from a digital game point of view.Tied closely to the systemic nature of games is Crawford's element of *interaction.* His scheme of interactive "cause and effect" parallels the ideas of action and outcome outlined in the previous chapter.

Crawford's definition names *conflict* for the first time. Although Parlett's "contest to achieve an objective" and Abt's "contest among adversaries" imply conflict, Crawford names conflict explicitly, linking it directly to the fact that games have goals. His final characteristic of games, *safety,* echoes the emphasis made in other definitions on the artificiality of games, that they take place in a space and time separate from ordinary life. Although these four characteristics describe games, they are not, strictly speaking, definitional.

Definition 7: Greg Costikyan

Greg Costikyan, a game designer and writer who has authored many articles on games, proposes a definition for the term in his essay,"I Have No Words and I Must Design:" [14]

A game is a form of art in which participants, termed players, make decisions in order to manage resources through game tokens in the pursuit of a goal.

The key terms in this definition are:

- *Art:* games are identified as a form of culture;
- *Decision-making players:* games require active participation as choices are made;
- *Resource management:* player decisions hinge on manipulating resources;
- *Game tokens:* the means by which players enact their decisions;
- *Goal:* a game has an objective.

Like Crawford, Costikyan is influenced by digital game design and shares an emphasis on the decision-making, interactive quality of game playing. Although his acknowledgement of the goal of a game is something mentioned in other definitions, Costikyan's formulation has a number of unique elements. For example, his is the only definition to leave out the special quality of rules in defining a game. Also notable is a detailed explication of the systemic quality of a game: the way that players manage game resources through game tokens. Costikyan is also the only writer to link games to art, or to any other cultural practice, for that matter. While we also emphasize the fact that games are cultural, Costikyan's decision to associate games with "art" is less useful for our purposes. Labeling games as art embroils them in contemporary debates about games and art, high culture and low culture, and the social status of games. Undoubtedly, this is Costikyan's provocative intention.

Definition 8: Elliot Avedon and Brian Sutton-Smith

Brian Sutton-Smith is perhaps the most prolific and important scholar of play and games in the twentieth century. In *The Study of Games,* which Sutton-Smith co-edited with Elliot Avedon, the authors present an extremely concise and powerful definition of games:

> Games are an exercise of voluntary control systems, in which there is a contest between powers, confined by rules in order to produce a disequilibrial outcome. [15]

The key elements of this definition are:

- *Exercise of control systems:* games involve some form of physical or intellectual activity:
- *Voluntary:* games are freely entered into;
- *Contest between powers:* games embody a conflict between players;
- *Confined by rules:* the limiting nature of rules is emphasized;
- *Disequilibrial outcome:* the outcome of a game is a goal-state which is different than the starting state of the game.

Although none of these elements are wholly original to this definition, the strength of Avedon and Sutton-Smith's formulation is that it is compact, clear, and addresses games themselves, rather than the activity of playing them. Elegantly narrow in scope, their definition clearly demarcates games from less formal play activities. On the other hand, it doesn't contain all of the elements found in other definitions. Perhaps it is time to step back and take stock.

Elements of a game definition	Parlett	Abt	Huizinga	Caillois	Suits	Crawford	Costikyan	Avedon |Sutton-Smith
Proceeds according to rules that limit players	√	√	√	√	√	√		√
Conflict or contest	√					√		√
Goal-oriented/outcome-oriented	√	√			√		√	√
Activity, process, or event		√			√			√
Involves decision-making		√				√	√	
Not serious and Absorbing			√					
Never associated with material gain			√	√				
Artificial/Safe/Outside ordinary life			√	√		√		
Creates special social groups			√					
Voluntary				√	√			√
Uncertain				√				
Make-believe/Representational				√		√		
Inefficient					√			
System of parts/Resources and Tokens						√	√	
A form of art							√	

[2]Ibid. p. 3.

[3]Clark C. Abt, *Serious Games* (New York: Viking Press, 1970), p. 6.

[4]Ibid. p. 7.

[5]Ibid. p. 7–9.

[6]Johann Huizinga, *Homo Ludens: A Study of the Play Element in Culture* (Boston: Beacon Press, 1955), p. 13.

[7]Roger Caillois, *Man, Play, and Games,* Translated from the French by Meyer Barash (Champaign: University of Illinois Press, 2001), p. 9–10.

[8]Bernard Suits, *Grasshopper: Games, Life, and Utopia* (Boston: David R. Godine,1990), p. 34.

[9]Ibid. p. 41.

[10]Chris Crawford, *The Art of Computer Game Design.* <http://www.van-couver.wsu.edu/fac/peabody/game-book/Coverpage.html>.

[11]Ibid.

[12]Ibid.

[13]Ibid.

[14]Greg Costikyan,"I Have No Words and I Must Design." *Interactive Fantasy* #2, 1994 <www.geocities.com/SiliconValley/Bay/2535/nowords.html>.

[15]Elliott Avedon and Brian Sutton-Smith, eds, *The Study of Games* (New York: John Wiley & Sons, 1971), p. 405.

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A Comparison

The chart above summarizes the elements of a game, as described in each of the definitions.

In simplifying complex ideas to a grid of common elements, much of the context and subtlety of the authors' ideas is clearly lost. Each author defines games for particular reasons within specific contexts; for example, with the exception of Chris Crawford and Greg Costikyan, none of the authors are operating from within the field of game design. On the other hand, this cannibalistic dissection of their approaches to defining games yields some interesting comparative results. All of the authors except Costikyan include rules as a key component. Beyond this there is no clear consensus. Although 10 of the 15 elements are shared by more than one author, apart from rules and goals, there is no majority agreement on any one of them.

It is clear that not all of the elements need to be included in a definition of game. Some elements, such as games being voluntary or inefficient, do not seem to apply to all games. Others, such as the fact that games create social groups, describe the effects of games rather than games themselves. Still other elements, such as the representational or make-believe quality of games, appear in many other media and do not help differentiate games from other kinds of designed experiences.

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Our Definition

Cobbling together elements from the previous definitions and whittling away the unnecessary bits leaves us with the following definition:

A *game* is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.

This definition structurally resembles that of Avedon and Sutton-Smith, but contains concepts from many of the other authors as well. Here are the definition's primary ideas:

>*System:* We introduced the concept of a system in chapter 5. Systems are fundamental to our approach to games.

>*Players:* A game is something that one or more participants actively play. Players interact with the system of a game in order to experience the play of the game.

>*Artificial:* Games maintain a boundary from so-called "real life" in both time and space. Although games obviously occur within the real world, artificiality is one of their defining features.

>*Conflict:* All games embody a contest of powers. The contest can take many forms, from cooperation to competition, from solo conflict with a game system to multiplayer social conflict. Conflict is central to games.

>*Rules:* We concur with the authors that rules are a crucial part of games. Rules provide the structure out of which play emerges, by delimiting what the player can and cannot do.

>*Quantifiable outcome:* Games have a quantifiable goal or outcome. At the conclusion of a game, a player has either won or lost or received some kind of numerical score. A quantifiable outcome is what usually distinguishes a game from less formal play activities.

For the rest of this book, this definition is what we mean when we say "game." It applies to all kinds of games, from computer and video games to parlor games and sports. We can also use this definition to define the field of study at the center of this book:

Game design is the process by which a game designer creates a game, to be encountered by a player, from which meaningful play emerges.

Aren't you happy to finally know what it is this book is about?

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The Puzzle of Puzzles

This definition of games is intentionally quite narrow. It is not our intent to understand the broad phenomena of play, but instead to clearly demarcate the realm of games and game design. But is the definition *too* narrow? Are there things that are clearly are games but that don't fit this definition? This chapter on defining games concludes by looking at two kinds of game-activities that may or may not fit into the category of games

this definition delineates. These "limit cases" will help clarify how this definition can help us investigate game-like phenomena.

First, puzzles. According to puzzle and game designer Scott Kim, puzzles are different from games because puzzles have a correct answer or outcome. Think of a crossword puzzle: the puzzle designer creates the correct answer, and the player's activity consists of trying to reconstruct that answer. This is a very different situation than a game of Poker, for example, in which there is no fixed "right answer" posed by the creator of the game. Instead, in Poker, players make complex decisions at every moment, taking into account the evolving dynamics of the game.

But this does not mean that a puzzle is not a game. Recall our definition:

A *game* is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.

A crossword puzzle contains all of the elements of this definition. It is a system of squares, letters, and clues, in which a player follows rules in order to arrive at an appropriate outcome. Although the conflict is between the player and the system rather than between a set of players, a crossword puzzle is most certainly a game.In fact, all kinds of puzzles are games. They might be considered a special subset of games, but they clearly meet the requirements of the definition.

Sometimes, it is difficult to determine whether or not a game is a puzzle. In his article,"What is a Puzzle?" [16]Kim references game designer Kevin Maroney, who points to Solitaire as a borderline case. If we think about Solitaire as an open-ended activity that can play out in many ways, it is not a puzzle. On the other hand, as Kim states,"in fact it is a kind of puzzle, since any given deck has a definite solution (or sometimes no solution). Shuffling the cards is a way to randomly generate a new puzzle." [17]

We are not going to split hairs. In our opinion, all puzzles are games, although they constitute a special kind of game. Thinking about a game as a puzzle, a game with a correct answer or set of answers, can be a useful way to frame a game. For example, is your 3D adventure game lacking a sense of play? Perhaps it is too puzzle-like, with all of the outcomes predetermined, and you need to ease the overall design away from puzzle territory. Alternately, if your adventure game feels too open-ended, perhaps you can inject some puzzle-like game play into it and better shape the player's sense of accomplishment. The idea of the "puzzle" can be a helpful way to frame game design problems.

[16]Scott Kim,"What is a Puzzle?" <www.scottkim.com/articles.html>.

[17]Ibid.

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Role-Playing Games

The second game "limit case" is role-playing games. Off the computer, these are games such as Dungeons & Dragons, in which players are cast as characters in an imaginary world. Digital role-playing games can be single-player adventures like the classic Ultima games, or multiplayer community worlds like EverQuest. In both cases, the player controls and evolves a character over time within a narrative setting.

Role-playing games (or RPGs) certainly have the trappings of games. A paper-based, tabletop RPG usually involves dice, rulebooks, statistics, and a fair amount of strategic play. Role-playing games clearly embody

every component of our definition of game, except one: a quantifiable outcome. As an RPG player, you move through game-stories, following the rules, overcoming obstacles, accomplishing tasks, and generally increasing the abilities of your character. What is usually lacking, however, is a single endpoint to the game. Role-playing games are structured like serial narratives that grow and evolve from session to session. Sometimes they end; sometimes they do not. Even if a character dies, a player can rejoin as a different character. In other words, there is no single goal toward which all players strive during a role-playing game. If a game does end, it does not do so quantifiably, with players winning or losing or receiving a score. Gary Gygax, co-designer of Dungeons & Dragons, would concur: "Advanced Dungeons and Dragons is, as are most role-playing games, open-ended. There is no 'winner,' no final objective, and the campaign grows and changes as it matures."[18] This is true of both digital and non-digital multiplayer RPGs. (Note that single-player digital RPGs are structured differently—usually with an adventure game-style winning outcome.)

From this description, it would appear that multiplayer role-playing games are not, in fact, games. But this seems like a ridiculous conclusion, because RPGs are so closely bound up in the development of games and gaming culture. Our position is this: RPGs can be framed either way—as having or not having a quantifiable outcome. If you look at the game as whole, there may not be a single, overriding quantifiable goal. But if you consider the session-to-session missions that players complete, the personal goals players set for themselves, the levels of power that players attain, then yes, RPGs do have quantifiable outcomes. In this sense, an RPG is a larger system that facilitates game play within it, giving rise to a series of outcomes that build on each other over time. Game designer Greg Costikyan puts it this way:"No victory conditions, true. But certainly [RPGs] have goals; lots of them, you get to pick. Rack up the old experience points. Or fulfill the quest your friendly GM has just inflicted on you. Or rebuild the imperium and stave off civiliza-tion's final collapse. Or strive towards spiritual perfection. Whatever." [19]

It is possible, of course, for RPGs to become more game-like. At game conventions, there are often "tournament-style" games, in which players or teams earn points for completing certain actions and accomplishing goals, and a single winner can in fact be declared. Conversely, there are RPGs that de-emphasize power, statistics, and advancement and instead focus on storytelling and narrative.This form of RPG seems very unlike games as we have defined them.

Role-playing games are not the only kind of play activity that exists on the border of our definition. A computer program like Sim City does not have explicit goals, and in that way is more like a toy than a game. However, as its designer Will Wright has often stated, players can turn it into a game by constructing their own goals. Does this make Sim City an informal play activity or a formalized game? It all depends on how it is framed.

Sometimes the answer to the question of whether or not a game is a game rests in the eye of the beholder. Any definition of a phenomena as complex as games is going to encounter instances where the application of the definition is somewhat fuzzy. Rather than seeing these moments as a breakdown of the definition, we view them as valuable opportunities to understand games as a whole. The terrain along the borders of more rigid definitions offers fertile ground for insight and investigation. In these playful and liminal spaces, assumptions are challenged, ideas evolve, and definitions change. It is this kind of transformative play that is at the heart of our model of game design.

[18]Gary Gygax, *Advanced Dungeons and Dragons Players Handbook* (Lake Geneva: TRS Hobbies, 1978), p. 7.

[19]Costikyan, "I Have No Words and I Must Design." <http://www.geoci-ties.com/SiliconValley/Bay/2535/nowords.html>.

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Further Reading

Man, Play, and Games, by Roger Caillois

A book that builds directly from the work of Johann Huizinga's *Homo Ludens, Man, Play, and Games* by philosopher Roger Caillois has a similar agenda: to identify and analyze the general phenomenon of play and locate its larger significance within culture. For our purposes, his early chapters on defining and classifying games are the most useful, providing insightful typologies and definitions for understanding play in and out of games.

Recommended:

I. The Definition of Play

II. The Classification of Games

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Summary

- The words **play** and **games** have a unique relationship in the English language. There are two ways to frame their relationship, both of which are useful:

    1. **Games are a subset of play**: The category of play represents many kinds of playful activities. Some of these activities are games, but many of them are not. In this sense, games are contained within play.
    2. **Play is a subset of games:** Games are complex phenomena and there are many ways to frame them and understand them. **RULES**, **PLAY**, and **CULTURE** are three aspects of the phenomena of games. In this sense, play is contained within games.
- **A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome**. The key elements of this definition are the fact that a game is a system, players interact with the system, a game is an instance of conflict, the conflict in games is artificial, rules limit player behavior and define the game, and every game has a quantifiable outcome or goal.
- A **puzzle** is a special kind of game in which there is a single correct answer or set of correct answers. All puzzles are games.
- Multiplayer **Role-playing games** (RPGs) do not clearly possess a quantifiable outcome. Whether or not they fit the definition of a game depends on how they are framed. As with other open-ended game-like experiences such as Sim City, RPGs have emergent quantifiable goals but usually no single overriding outcome.

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Chapter 8: Defining Digital Games

Overview

*[The video game] is the most complex toy ever built and is vastly more responsive than any other toy ever invented. Compare it, for example, with its contemporary, the doll Chatty Cathy, which has about a dozen different sentences with which to respond when you pull the string. Chatty Cathy does not take into account the variety of your responses; the computer does. Chatty has a dozen responses; the computer has millions.-***Brian Sutton-Smith***, Toys as Culture*

The definition of "game" that we proposed in the previous chapter makes no distinction between digital and non-digital games-the qualities that define a game in one media also define it in another. Most of the thinkers whose definitions we explored were writing before the invention of computer games, let alone before the recent explosion of the video game industry. Yet computer and video games are an important part of the game landscape, as they bring a number of unique qualities and concerns to the practice of game design. Before proceeding any further, in this chapter we take a brief look at the special qualities of digital games.

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The Computer Is Not a Computer

Digital and electronic games take a multitude of forms and appear on many different computer platforms. These include games for personal computers or TV-attached game consoles such as the Sony Playstation or Microsoft XBox; handheld game devices such as the Nintendo Game Boy Advance or specialized handhelds that only play one game; games for PDAs or cell phones; and games for arcades or amusement parks. Digital and electronic games can be designed for a single player, for a small group of players, or for a large community. For simplicity's sake, we will refer to all of these game forms as *digital games.*

Digital games are systems, just like every other game discussed so far. The physical medium of the computer is one element that makes up the system of the game, but it does not represent the entire game.The computer hardware and software are merely the materials of which the game is composed. One would not say that a

deck of UNO cards is the same thing as the game of UNO. But people often fall into this kind of thinking when it comes to describing digital games. Take a straightforward example of a digital game: the game title Tetris for the Nintendo Game Boy handheld platform. Is the system of the game constituted entirely by the Game Boy console and the Tetris game cartridge? As outlined in **Systems**, the four elements of a system are objects, attributes, relationships, and an environment. The identities assigned to these elements within a game depend on how the game is framed: as a formal system of rules, as an experiential system of play, or as a contextual system embedded within larger systems of culture.

In order to see how this analysis functions within the present discussion of games and digital technology, we start with the widest frame-culture-and work our way in. If we view Tetris as a system of *cultural context,* the actual hardware and software of the game is a relevant component, but it hardly tells the whole story. In considering Tetris within the context of culture, we would need to include elements such as game fan magazines (*Nintendo Power,* for example), the marketing, manufacturing, and economics of the Game Boy console, the hybrid cultural identity of the game (Tetris' original designer, Russian Alexy Pajitnov and Japanese publisher Nintendo), the demographics of players, and so on. We would need to take each of these components into account. The exact elements to investigate depend on the specific cultural reading undertaken. In any case, culturally speaking the technological facet of Tetris is merely one element among many others.

Now consider the *experiential play* of Tetris: the cognitive and psychological, physical and emotional relationships that emerge between a player and the game. In this case, the elements of the system are constituted by 1) the player and 2) the Game Boy Advance console. The circuit of interaction between player and game runs in a kind of loop as the player plays, responding to the game even as the game responds to the player. In this picture, the digital technology itself is a part of the system, but certainly does not constitute it entirely.

Narrowing the focus to the *formal rules* of Tetris, the mathematical system of the game that exists apart from the player, are we talking just about the technology? Yes and no. The rules are embedded in the hardware and the software, but they are also something separate from the code. For example, the enactment of the rules is contingent on the player. The rules determine, among other things, what happens when a player pushes a button at a certain moment in the game. In this way, the internal logic of the game is not something that can be completely severed from the ways that the game exchanges information with the outside world. Even here, in looking at Tetris as a formal system, considering the technology as an end in itself can be misleading.

What is the point of these multiple framings? A game designer doesn't create technology. A game designer creates an experience. Computer and video game technology can be a part of that experience-it can even be the focal point of that experience-but in order to design meaningful play a designer has to consider the complete picture.

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What Can It Do?

The key question for game designers and digital media is not, *What is it?* But instead, *What can it do?* Confronted with a digital platform, a game designer needs to understand how to harness the technology into a designed system that results in meaningful play. This emphasis is not unique to digital games: the materials that constitute a game are always crucial in designing an experience.

What can digital technology do? What are the special qualities of digital media that can support gaming experiences not possible in other game forms? We can list four "traits" of digital media. The qualities are not

mutually exclusive-there is some overlap between categories-and they do not constitute a definitive list of traits that appear in every digital game. In fact, these traits appear in non-digital games as well. But they do represent the qualities that appear most robustly in digital games, characteristics that game designers should take advantage of when creating games in a digital medium.

Trait 1: Immediate but Narrow Interactivity

One of the most compelling qualities of digital technology is that it can offer immediate, interactive feedback. Designing systems of actions and outcomes, where the game responds seamlessly to a player's input, is a common element in digital games. Digital technology thus offers real-time game play that shifts and reacts dynamically to player decisions.

A common misconception about digital interactivity is that it offers players a broad and expressive range of inter-action-that a computer can mimic any medium and provide any kind of experience. In fact, the kind of interaction that a participant can have with a computer is quite narrow. Interaction with a home computer is generally restricted to mouse and keyboard input, and screen and speaker output. Compare the anemic activities of clicking, dragging, and typing with the range of possible non-com-puter game interactions: the kinesthetically engaging athletic, perceptual, and strategic interaction of Tennis; the performative theatrical communication of Charades; the ritualized formality of a professional Go match. So although the immediate interactivity of digital games is a powerful element for designers to consider, the medium is rife with limitations.

On the other hand, limitations in games help shape the space of possibility. For example, an arcade fighting game such as Street Fighter II gives a player only six button pushes and eight joystick directions as a means of input, far fewer than a mouse and keyboard. Yet within this limited interactive vocabulary, players can develop highly personal fighting styles and take part in a vast range of different game experiences. The lightning-quick response of the program, paired with the streamlined control input, contribute to the uniquely meaningful play of a well-designed fighting game.

Similar pairings of limited but immediate interactivity appear in non-digital games as well. A sport such as bicycle racing gives players a very restricted set of interactions. At the same time, players receive immediate feedback for each tiny modification of speed, steering, and the position of their bodies on their bicycles. Much of the deep engagement that cyclists experience while racing emerges directly from the narrow but immediate interactivity of the sport.

Trait 2: Information Manipulation

One way of framing digital media is as machines for storing and manipulating information. Games certainly capitalize on this capacity for what Janet Murray, in *Hamlet on the Holodeck* calls the "encyclopedic" quality of digital media. [1]

Digital games can and do make good use of data: they are often filled to bursting with text, images, video, audio, animations, 3D content, and other forms of stored data. In fact, it is fair to say that digital games tax the data-rendering capabilities of computers far more than any other genre of consumer software. High-end personal computers, specially configured for the best display of 3D graphics and audio, are marketed as "gamer" machines.

But graphics and audio are not the only kind of information that a digital game manipulates. Every aspect of a digital game, in fact every aspect of its program-the internal logic, mechanisms for handling player interactivity, memory management-can be regarded as information. Digital games manipulate this information in ways that non-digital games

generally cannot. For example, consider the rules of a game. In a typical board game it is necessary for at least one of the players to learn the rules and understand them fully before a game begins. On the other hand, with a digital game it is possible, as designer Karen Sideman has pointed out, to learn the rules of the game as it is being played; to make the discovery of the way that the game operates part of the play of the game.[2]

Digital games are also excellent at hiding information from players and revealing it in very particular ways. Warcraft III, for example, is a real-time strategy game that makes use of a "fog of war" mechanic: the game is played on a large map, and the territory and actions of a player's opponents are initially hidden and only revealed as the player's units explore the game map. Of course, many non-digital games involve information manipulation as well. The simple card game Memory, in which players lay a grid of cards face-down and attempt to pick up pairs of identi- cal cards by remembering past moves of their opponents, is a game explicitly about the manipulation and gradual discovery of hidden information.

Trait 3: Automated Complex Systems

Perhaps the most pervasive trait of digital games is that they can automate complicated procedures and in so doing, facilitate the play of games that would be too complicated in a non-computerized context. In most non-digital games, players have to move the game forward at every step, by manipulating pieces or behaving according to explicit instructions outlined by the rules. In a digital game, the program can automate these procedures and move the game forward without direct input from a player.

When miniatures wargamers get together to stage their battles with tiny lead figures, they follow complex rules that determine the movement, lines of sight, and combat resolution of their armies. Even though wargamers tend to have a high tolerance for complex sets of rules, there are certainly limits on the degree of complexity that they can endure before the game becomes an exercise in tedium. This is exactly the kind of complexity that computers handle with ease. In fact, wargames created for play on computers generally take into account many more dynamic variables than their non-digital counterparts.

This is not necessarily a good thing. As James Dunnigan, a designer of wargames on and off the computer states, "While computer wargames had many advantages over manual games, they had one major minus for game designers. Computer games did not reveal their internal workings."[3] Dunnigan calls this the "Black Box Syndrome" of computer games:

Another advantage of paper games is that you know why things are happening a certain way in the game. All the rules and probability tables are right there in front of you. Yes, it takes a lot of effort to wade through all of that detail, but you do end up with a good idea of how the inner workings of the game function. A popular benefit of this is the opportunity to change the game's rules and probability tables. Many players do this, and that's how gamers eventually turn into game designers. Computer wargames show you very little of how it does its thing. The computer program just does it, leaving you sometimes muttering about mysterious "black boxes." [4]

Dunnigan feels that a player's appreciation and understanding of the internal game mechanics are a key component of the play of wargames. Because of the automated nature of digital games, computer wargames generally leave the internal machinations out of the picture, diminishing a player's experience of the game.

The kinds of automated complex systems that appear in digital games vary greatly, from the evolving ecosystems of Sim City, to the sophisticated artificial intelligence opponents of Thief, to the complex light-and-shadow rendering routines of Unreal, to the natural language

parsing of Zork. It is safe to say that nearly every aspect of digital games is automated in some way.

Once again, however, there are examples of non-digital games that contain complex automated systems. The Japanese pinball-like game of Pachinko involves a complex randomizing system of metal balls falling over pegs. Once the player launches a ball, the automated, complex process of the game system takes over, determining where the ball will land and if it will score points for the player. Becoming skilled at Pachinko entails getting to know the inner workings of a particular game, and knowing how to use subtle control to arrive at the desired result.

Trait 4: Networked Communication

A final trait that many (but not all) digital games possess is that they can facilitate communication between players. There are many forms of digitally mediated communication, from email and text chat to real-time video and audio communication. Two Game Boy consoles connected through a link cable can even be considered a miniature digital game network.

It is clear that all multiplayer games, digital or non-digital, are contexts for communication among players. However, digital games offer the ability to communicate over long distances and to share a range of social spaces with many other participants. For example, the persistent worlds of Ultima Online draw tens of thousands of players, all brought together in the same complex social space.

Although communication input and output are limited by the narrow input and output of digital media, communication in a digital game does not have to be restricted to text. For example, a Quake deathmatch gathers a small number of players together in a single communicative game space. And although text chat is one way that the players interact, their primary form of communication takes place through the split-second decisions they make about their player's movement and weapon attacks. Game play itself is a form of social communication.

As with the other traits of digital games, networked communication, even over long distances, occurs in non-digital games. The postal system has long served as a medium for game play, from play-by-mail games of Chess and Diplomacy to role-playing games that take place entirely through written correspondance. In a wider sense, sports stats and records, whether for the Olympics or for a high school Basketball team, serve a communicative function similar to online high score boards.

[1]Janet Murray, *Hamlet on the Holodeck* (New York: The Free Press, 1997),

[2]Karen Sideman, Game Design address, 2000.

[3]James F. Dunnigan, *Wargames Handbook: How to Play and Design Commercial and Professional Wargames*, 3d ed. (San Jose: Writers Club Press, 2000), p. xii.

[4]Ibid. p.74-5.

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Integration

In concluding the discussion of the qualities of digital games, it is important to remember that these four traits are not a roadmap for designing games or a checklist for analyzing them. They simply highlight ways of understanding the capabilities of digital game design. In a Quake deathmatch, for example, we can see all four traits in operation:

- *Immediate but narrow interactivity:* The game controls require deft manipulation of the mouse and keyboard, with instantaneous response from the game system.
- *Manipulation of information:* Like all digital games, Quake manipulates information, from the 3D data defining the deathmatch map to the way that players' movements are present but hidden from each other.
- *Automated complex systems:* The graphics engine, control routines, opponent AI, and all other formal aspects of the game are automated.
- *Networked communication:* The online deathmatches create a forum for rich social interaction between players.

During any actual game experience, the four categories generally overlap and operate simultaneously, together providing the overall experience of play.

Before we end this chapter, let's take a moment to consider a "border-line" case: the board game Stay Alive. In this non-digital game, play takes place on a grid that houses a simple mechanical set of plastic switches. There are two sets of switches, at ninety degrees to each other. Some of the switch positions have holes and some do not. Players place their marbles on the grid and then try to eliminate opponents' marbles by moving the switches in turn.

Stay Alive is not a digital game, but it has some of the properties of a digital game. For example, Stay Alive contains a complex system that functions semi-autonomously from the players. Because there is hidden information about which positions of the sliders have holes and will drop marbles, players interact with the system indirectly, moving sliders on the margins of the system to see how the playfield is affected as a result. Players do not internalize the rules of all of the positions of the sliders; instead, this information is contained in the mechanical construction of the playfield.
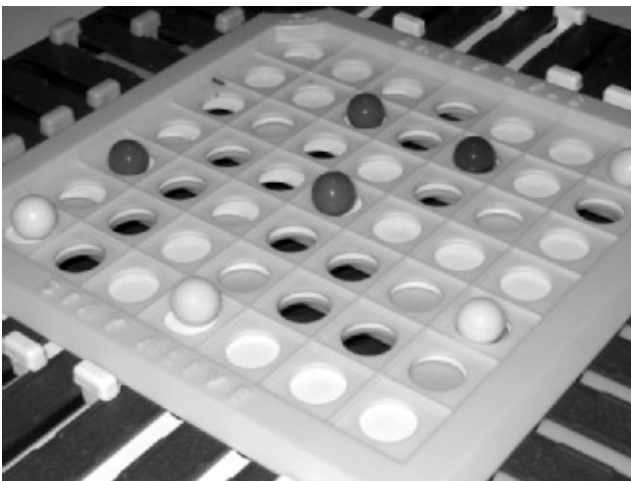
Stay Alive

Is Stay Alive a digital game? Of course not. It is not electronic and does not make use of digital technology. However, it clearly demonstrates how many of the elements of digital games are not really unique to the medium. In fact, a deck of cards can hold information as well: if a player shuffles the cards, the player does not need to internalize the order of the cards. Instead, the physical properties of the deck (the fact that it can be shuffled and that the cards can be face-down) lets the cards contain information that is autonomous from the players, such as which card is on the top of a face-down deck.

These examples of game technologies (a deck of cards, Stay Alive, a digital game) provide a sliding scale for the kinds of complexity that game materials can embody. They also help to underscore a larger point: although different game materials allow for different game experiences, the underlying properties of games are ultimately more similar than different. The core challenges of designing meaningful play hold true in any game medium.

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Summary

- If a game is framed as a system, it is clear that the game's physical medium is an important element of the game, but does not constitute the entire system. Digital technology should not be emphasized as an end in itself, but instead should be understood as one element in a larger designed system.
- There are four traits that summarize the special qualities of digital games. These traits are also present in non-digital games, but digital games generally embody them more robustly:

  Trait 1: Immediate but narrow interactivity

  Trait 2: Manipulation of information

  Trait 3: Automated complex systems

  Trait 4: Networked communication
- The underlying properties of games and the core challenges of game design hold true regardless of the medium in which a game manifests.

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