

The Game Definition Game: A Review

Games and Culture
2017, Vol. 12(6) 499-520
© The Author(s) 2016
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1555412016655679
journals.sagepub.com/home/gac



Jaakko Stenros¹

Abstract

In this article, over 60 definitions of games since the 1930s are reviewed in order to pinpoint what those definitions agree on and, more importantly, what they disagree on. This article is conceived of as a tool game scholars can use to better position themselves in regard to the concept of “game” by working out their answers to the 10 questions regarding game definition presented in here.

Keywords

game, definition, game studies

Introduction

Somewhat surprisingly, it was only in the early 1970s that workers in the gaming field were finally able to agree on what the definition of a “game” should be. The definition that is now accepted by the majority of workers is that which had been proposed by Clark C. Abt in 1968, namely: “any contest (play) among adversaries (players) operating under constraints (rules) for an objective (winning, victory pay-off).” (Ellington, Addinall, & Percival, 1982, p. 9)

The question about what constitutes a game is a foundational issue in game studies. In a field built around an object of scrutiny, the definition of that object has an impact on the delimitation of the whole field. During the past decade, more

¹ University of Tampere, Tampere, Finland

Corresponding Author:

Jaakko Stenros, University of Tampere, Kanslerinrinne 1, Tampere 33014, Finland.
Email: jaakko.stenros@uta.fi

definitions of game have been offered than ever before, yet all these new definitions create more polyphony than clarity. Simultaneously, a canonical, yet-contested game definition is grudgingly being accepted—or actually two.

Works that do not seek to define games follow a ritualistic process of referencing, with minor criticism, the syntheses created by Juul (2005) and Salen and Zimmerman (2004), comment about the difficulty of defining games with a nod toward Wittgenstein, and maybe add a few words about the narratology–ludology debate or how games actually are a mess, an assemblage, or a mangle. The canonical syntheses are not bad; on the contrary, they have been wonderfully inclusive and have helped foster a fertile field of game studies.

However, as collections of favorite features from earlier definitions, the syntheses have a “best of” quality to them. They are not clear, coherent, or grounded in a philosophical sense. A good definition brings about clarity. Tavinor (2009, p. 16) has noted in a discussion on the lack of proper game definitions that “[i]t is often just not clear what it is that theorists are arguing games to be, and hence it is sometimes very hard to know what would support or falsify their theories.” Game scholars talk past each other precisely because we do not explicitly state our foundational assumptions.

Yet there can be strength in having fuzzy concepts. In an analysis of how qualitative research is conceived of, Potter (1996, p. 6) has debated if definitions tend to be static and put emphasis on linearity: “[D]efinitions serve only to limit the organic nature of the subjective and creative process of meaning making.” There are conflicting accounts of what qualitative research is, yet the field has flourished. Among the trained scholars in qualitative research, as Potter discusses, there may be a tacit understanding of what the key terms mean even if definitions are missing or conflicting. Comparably, perhaps a tacit understanding of what games are is developing in game studies, but considering the multiplicity of researcher background, it is doubtful that one exists yet.

This article is not about creating yet another definition, but assessing where we are on the issue at the moment. By reviewing over 60 definitions, I want to highlight older, obscure definitions and discuss new contributions to the discourse. The goal is to uncover the key differences between the definitions. Identifying the divisive questions that mark definitions apart helps game scholars explicitly position themselves.

Ten Points of Interest

The review is based on a corpus of 63 definitions of games gathered through key word searches, following the references of later definitions, and serendipity. The oldest definitions are from the 1930s, and there are definitions from each following decade—although almost half of the corpus hails from the new millennium. The corpus set is heterogeneous, including formal and strict definitions (e.g., Duke, 1974; Myers, 2009; Suits, 1978), incomplete conceptualizations (e.g., Lévi-Strauss, 1962/1966; McLuhan, 1964; Mead, 1934), and approaches to games (e.g.,

DeKoven, 1978; Holopainen, 2008). Some of the definitions are created from a ludological impulse to understand games *as* games (e.g., Montola, 2012; Sicart, 2009), while others are geared toward disciplinary enquiry (e.g., Goffman, 1961; Kelley, 1988; Midgley, 1974).

This article mostly concentrates on what is a game, not on what is a “video game,” or “play,” but as games are often conceptualized in relation to something, the neighbors do surface. Furthermore, seemingly a current trend in game studies is either to widen the concept of game toward the broader category of play or to narrow the scope to video game.

This analysis is the result of a systematic literature review (cf. Petticrew, 2001, p. 99; Salminen, 2011, pp. 8–9), aiming to contrast conceptualizations of games to produce an overview. Ten topics of interest in definitions were identified.

Rules

If there is something most game definitions agree upon, it is the importance of rules. However, their exact function is conceived of in different ways. A game may be an activity confined by rules (Avedon & Sutton-Smith, 1971; Lévi-Strauss, 1962/1966; Nachmanovitch, 1990, p. 43), constituted by rules (Suits, 1978), “a little cosmos of its own” brought on by the rules (Riezler, 1941), or a domain of contrived contingency (Malaby, 2007). Some even go so far as to state that a game *is* its rules (Ellington et al., 1982, p. 9; Parlett, 1999; cf. Hunicke, LeBlanc, & Zubek, 2004).

Indeed, although there is agreement that rules are constitutive of games *in general*, considerable disagreement exists on if a *specific* game is its rules. Some definitions clearly make this claim, such as the structural definitions of mathematical game theory (Von Neumann & Morgenstern, 1944) and the strictest formalists claim (Myers, 2009), but most definitions do not proceed from rules being central to games to a specific game being its rules.

The field of operational gaming is not concentrated on the game (the model), but the gaming, and what can be learned through it, defined gaming as “an interactive simulation, involving more than one player, of strategic game situation” (Ståhl, 1983b, p. 30). In this context (Shubik, 1983; Ståhl, 1983a), activities are divided into two categories: *Rigid-rule gaming* refers to gaming where the rules are exactly specified by game constructor, are often implemented as a computer program, and do not change after play starts, and “every possible combination of players’ decisions is thus exactly defined” (Ståhl, 1983b, p. 37). *Free-form gaming* refers to situations where the participants supply some of the game rules, possibly inventing them along the way.

Not all definitions of games mention rules. Often the conceptualizations offered by designers neglect rules in favor of *choice*. Costikyan’s (1994, p. 25) older definition states that:

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 centrality of choice is epitomized by designer Sid Meier's famous maxim: "A game is a series of interesting choices" (Rollings & Morris, 2004, p. 61). Costikyan does not mean that rules are not important in games—he discusses them extensively (1994, 2002)—but he does not place rules at the core. Neither does play designer DeKoven (1978, pp. 3–4):

I consider a game to be something that provides us with a common goal, the achievement of which has no bearing on anything outside the game. [...] I think of games as social fictions, like works of art, which exist only as long as they are continuously created. [...] At the same time [...] they do reflect reality.

DeKoven connects play and games with art and reality. For him, a goal is important, but the rules are merely a means to an end. The rules can be—and he has later argued (DeKoven, 2011) should be—changed in order to ensure that everyone has a good time playing.

Although rules are often conceived as central to games, very few definitions specify what "rules" are. Are only explicit rules considered rules? What about implicit rules and more general social norms? Indeed, what about material rules imposed by reality, such as limits of human physiology and gravity? These questions are important if one wishes to construct a definition that specifies the necessary and sufficient conditions for a game (cf. Montola 2012). Human interaction is guided by norms and values, that is, social rules. How does one tell a dinner party from a game? Viewing a dinner party—and life in general—as a game has inspired popular books on the topic, such as instructions for pickup artists *The Game* (Strauss, 2005), religious treatise *Finite and Infinite Games* (Carse, 1986), and an exploration on psychological mind games *Games People Play* (Berne, 1964).

Purpose and Function

Very few game definitions include any explicit mention of their function. However, this does not mean that the ontology of game is disconnected from use. Games have been conceptualized in varying research traditions—and the purposes of games, often implicit, are diverse.

A particularly interesting definition comes from Kelley (1988, pp. 49–52). His starting point is that a game is a human activity, which he then narrows down:

[A] game is a form of recreation constituted by a set of rules that specify an object to be attained and the permissible means of attaining it. (Kelley, 1988)

Importantly, Kelley is not a game scholar, but a philosopher offering his take on the subject as an example of constructing a definition. He is not tied to the goals of a specific field of game or play research; thus, he cannot take the purpose of games for granted.

Similar to the definitions emphasizing the autotelicity of play and games (Goffman, 1961; Maigaard, 1951; Matsunaga, 2014; Nachmanovitch, 1990; Sicart, 2009; Tavinor, 2009; Waern, 2012), Kelley indicates that unlike in work, in recreation, the activity is the end in itself. What differentiates games from other recreations is the presence of rules.

Games are facilitators that structure player behavior, and whose main purpose is enjoyment. (Aarseth, 2007)

Games are algorithmic entertainment. (Dakota Reese Brown in Newman & Simons, 2004, p. 36)

The inclusion of purpose in these sparse definitions is striking. For Brown and Aarseth, enjoyment and entertainment are what sets games apart from other structured or algorithmic behaviors. Indeed, Aarseth (2007) has noted that his definition is designed to include toylike games and online worlds lacking victory or end conditions.

The operational gaming tradition, where people interact in problem-based simulations in order to aid decision-making and planning, stands in stark contrast to these kinds of definitions. Ståhl (1983b, pp. 33–34) lists five types of games, and *entertainment games* are but one of them. In them, “all positive results derived from the game are obtained during the playing of the game.” The other types are *educational games* (long-term learning benefits), *experimental games* (for testing hypotheses), *research games* (for obtaining empirical material), and *operational games* (aiding decision-making).

The lack of explicit function or purpose sticks out in certain definitions. Both McLuhan (1964) and Costikyan (1994) define games as forms of art. Now, art does not possess a singular function; on the contrary, art gets to define its purpose afresh.

Furthermore, the purposes of game definitions themselves are fascinating. There are clear drives to delimit the object of scrutiny. Aarseth includes virtual worlds in his definition of games, and Ståhl sees entertainment as but one facet of games. Both delimit not only the central object but also the whole research field (game studies and operational gaming, respectively). Such delimitation tends to happen in relation to another cultural object, such as simulations (cf. Crookall, Oxford, & Saunders, 1987).

Some definitions are clearly created as criticism of a field, while others are about positioning games (some do both, e.g., Malaby, 2007), or about building a coherent theoretical grounding. When Von Neumann and Morgenstern (1944) define game, it reflects the needs of mathematics. Similarly, Lévi-Strauss’s (1962/1966) brief conceptualization of games relates to ritual, and Holopainen’s (2008, p. 44) “games are caricatures of intentional activities” is sensible apropos biology and evolution. The emphasis shifts from the political question (what counts as a game) to the ontological one (how games are).

Definitions lacking delimitations also exist. They have a more practical purpose: By describing games, they aid designers in creating new games. Some aim to be general (e.g., Oxland, 2004; Salen & Zimmerman, 2004), while others seek to foster *good* games (e.g., Meier's maxim).

Artifact or Activity

Are games a negotiated activity or a systemic artifact? They are both; "the term 'game' covers two modes: the material(s) and the live performance" (Crookall et al., 1987, p. 159). However, game definitions rarely (e.g., Deterding, 2013; Mortensen, 2009; Ståhl, 1983b) make such distinctions. Instead, they define one or the other—or some amalgamation thereof. Game scholars have debated this division for a decade, and it is apparent in game definitions.

A key definition comes from Suits (1978). For him, the elements of games are goal, means, rules, and lusory attitude, but these are framed by the active "attempt":

to play a game is to attempt to achieve a specific state of affairs (prelusory goal), using only means permitted by the rules (lusory means), where the rules prohibit use of more efficient in favour of less efficient means (constitutive rules), and where the rules are accepted just because they make possible such activity (lusory attitude). [...] [P]laying a game is the voluntary attempt to overcome unnecessary obstacles. (Suits, 1978, p. 41)

Games are activities for Suits, although he also addresses the systemic artifact. Another take on games as activities comes from Abt's *Serious Games*. His definition is broad, highlighting the continuity between games and nongames:

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*. (Abt, 1970, pp. 6–7)

Games are commonly defined as systemic artifacts when discussed in relation to studies of digital games. A turning point was Crawford's (1983, p. 4) *The Art of Computer Game Design* (Stenros, 2015). He identified four common factors in games: representation, interaction, conflict, and safety. His discussion on representation has been particularly influential: "a game is a closed formal system that subjectively represents a subset of reality." Before this were games not conceived of as activities only in *game theory*, a field of mathematics. In game theory, the players are abstract, and games are studied as formal, rule-bound systems. In the founding text *Theory of Games and Economic Behaviour*, Von Neumann and Morgenstern (1944, p. 49) write: "The rules of the game [...] are absolute commands. If they are ever infringed, then the whole transaction by definition ceases to be the game described by those rules." A player can adopt different strategies, but the rules do not change. For them, a game is an abstract concept, a play is an individual

enactment of that game, moves are abstract possibilities, and choices are something a player makes when picking a move.

The connection between digital games and systemic definition continues to be strong. Tavinor (2009, p. 26) is clearly in the artifact camp. His definition for *video game* opens with “videogame is an artefact.” Similarly, Myers’s (2009) minimalist game definition does away with players and concentrates on games as formal systems.

The earlier, pre-Crawford definitions tend to describe games as activities (Caillois, 1958/2001; Duke, 1974; Huizinga, 1938/1955; Maigaard, 1951; Mead, 1934), as do the definitions not strongly connected to digital games (Costikyan, 1994; Dempsey, Haynes, Lucassen, & Casey, 2002; Kelley, 1988; Klabbers, 2006), with the exception of board game historian Partlett (1999) who is clearly in the systemic artifact camp.

In game studies, the tension between games as systemic artifacts (often lumped under the header of *procedurality*) and as negotiated activities (*play centrism*) has been generating articles and keynotes for 10 years. At stake is the meaning of playing a game; is it in the artifact or in the playing (e.g., Bogost, 2006, 2007; Flanagan, 2009; Juul, 2008; Lantz, 2009; Sicart, 2011; Stenros, 2015; Taylor, 2006, 2007; Treanor & Mateas, 2013; Wilson, 2012). A middle ground is found in approaching games (and the related players, production, consumption, intentions, technology, bodies, communities, legal structures, practices, histories, values, secondary uses, etc.) as a hodge-podge, where numerous approaches can be adopted, and “What is a game?” is sometimes seen less as a political question and more as an ontological one (e.g., Bogost, 2009; Kultima, 2009; Steinkuehler, 2006; Taylor, 2009).

Separate yet Connected

What is the relationship between games and the world around them? Are games disconnected or continuous with the everyday life? What is the boundary like?

A disconnect is usually implied in relation to definitions that see games as systemic artifacts, just as there is a connection between the continuous approach and games as activities. However, the idea that games are completely disconnected from the surrounding world is a straw man (Stenros, 2014). Even Crawford (1983), who emphasized games as closed formal systems, did not deny consequences of playing, only that the consequences are “less harsh.” Usually in definitions, a game is marked apart by the constitutive rules and lusory attitude of the participants’ acceptance of them (Suits, 1978) or “confined by the procedure and rules” (Avedon & Sutton-Smith, 1971, p. 7). At the other end, Maigaard’s (1951) definition explicitly mentions how hard it is to distinguish between games and nongames. Midgley (1974) even points out that metaphoric uses of game do not imply a closed system. Most definitions that address this issue occupy a middle ground; games are seen as somehow separate, but connected. The differences between definitions are quite nuanced.

Abt (1970, p. 13) considers games effective teaching and training tools offering “a rich field for a risk-free, active exploration of serious intellectual and social problems,” which implies a disconnect. Yet he is not a proponent of the exceptionalism of games. He thought that games are good at simulating the real world and the real world as having gamelike structures—to the point that in a sense “all human history can be regarded as gamelike in nature” (Abt, 1970, p. 7).

A game is a semibounded and socially legitimate domain of contrived contingency that generates interpretable outcomes. (Malaby, 2007, p. 96)

Malaby's (2007) definition addresses the boundary directly. For him, the rules of a game are not designed to reduce unpredictability, but to foster predictable *and* unpredictable outcomes. This he brands *contingency*. He also stresses that games have a capacity for open-ended meaning generation. Bateman's definition (2011, p. 53) follows the same logic and conceives of games as “processes that utilize uncertainty in particular ways to create compelling and engaging experiences.” Malaby, importantly, is not just interested in the end state, but all events gameplay produces. He also explicitly discussed games as socially recognized, a rare move anticipated by DeKoven's (1978) *social fictions* and Goffman's (1961) *gaming encounters* (see also Egenfeldt-Nielsen, Smith, & Tosca, 2013, p. 30; Riezler, 1941).

Goffman (1961) does not offer a concise game definition, but he does discuss games as a prototypical example of a social encounter. Games, or actually gaming, are for him a social situation that has some specific characteristics (such as ease and fun), but which are not dissimilar to other types of social situations. Yes, they are somewhat disconnected from the worlds around them, existing behind a boundary that transforms meaning. However, this is how all social encounters function even if it is more obvious in gaming encounters. Later, Deterding (2013) has presented the frame analytic (cf. Goffman, 1974) account of gaming:

Gaming is sociomaterially framed (that is, materially organised to afford and socially expected, understood, normed, enacted and communicated as) the autotelic enjoyment of euphoric ease, spontaneous engrossment, and demonstration of skill in the pursuit of a problematic outcome with slight consequentiality—in a word, voluntary safe action. (Deterding, 2013, p. 237)

Many definitions also refer to the connection between the game and the non-game. The first feature that Crawford analyzed was representation, which has been picked up by Myers (2009) who highlighted the falseness of games, how they are contrary to the real (cf. Juul, 2005). Others talk how games model situations (Ståhl, 1983b), are structures of endogenous meaning (Costikyan, 2002; Montola, 2012), are a limiting context (Abt, 1970), and how the actions performed are resignified (Waern, 2012). According to Crookall, Oxford, and Saunders (1987), games need not be representations of something that exist

outside of the game. Klabbers (2006, pp. 81–82) sees games as both social systems and models of social systems. Duke (1974, p. 205) goes a step further as he defines gaming/simulation as one thing: “A gestalt communication mode which contains a game-specific language, appropriate communication technologies, and the multilogue interaction pattern.”

Finally, it is interesting to note that although Huizinga’s influential *Homo Ludens* is about the connection between play and culture, that connection is a feature in only one definition. McLuhan’s (1964, pp. 235, 237) take on games is unique:

Games are popular art, collective, social *reactions* to the main drive or action of any culture. Games, like institutions, are extensions of social man and the body politic, as technologies are extensions of the animal organism. Both games and technologies are counter-irritants or ways of adjusting to the stress that occur in any social group. As extensions of the popular response to the workday stress, games become faithful models of culture. [...] Games are dramatic models of our psychological lives providing release of particular tensions. They are collective and popular art forms with strict conventions.

McLuhan, looking at games from the outside, sees them as extensions of man. They are reactions to and models of culture.

The Role of the Player

A game implies someone who enacts the game, performers usually called *players*, but also *decision-makers* (Abt, 1970), *participants* (Avedon, 1971; Costikyan, 1994), *contenders* (Parlett, 1999), *people* (Waern, 2012; Whitton, 2009), as well as *adversaries* and *teammates* (Klabbers, 2006). Often an actor is implied by discussing either activity or strategy. For Gee (2008, p. 23), the (video) game is an experience the player participates through the point of view of the character. However, surprisingly many definitions of games make no mention of any kind of actor (cf. Crawford, 1983; Kelley, 1988; Maroney, 2001; Myers, 2009), and it is often unclear if the term “player” refers to actual people or to an abstraction like player position. This lack of understanding of the structures of participation has attracted criticism (Taylor, 2007).

At its most abstract, the players are structural positions within the framework of the system of the game (cf. Björk & Holopainen, 2005, p. 24; also Björk & Juul, 2012). This position can be controlled by a number of actual people (team play). Sometimes oppositional elements in digital games are discussed as players. Goffman (1961, pp. 34–35) divides the participating individual into two. For him, there is an *interest identity*, *team*, or a *side*, something unembodied that is a function of the game. This interest identity wins or loses due to the outcome of the game. The other part is player who is an agent of play, “who thinks and acts but does this for the side on which he is playing.”

The *implied player* has been discussed in game studies as comparable to the *implied reader* (Iser, 1974) in literature studies and has been formulated “as a role made for the player by the game, a set of expectations that the player must fulfill for the game to ‘exercise its effect’” (Aarseth, 2007, p. 132). The implied player is also a design aid for game designers, as it helps them picture the people who will be playing their creations (cf. Smith, 2006, pp. 23–24).

What, then, is the game for the human participants? Huizinga (1938/1955, p. 13) holds that “[play] 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.” Goffman (1961, p. 34) has comparable ideas about the transformative effect of games. These formulations address the effect of games without invoking the term player. Goffman (1961, p. 36) separates roles and contexts: “A play of a game has players; a gaming encounter has participants.” A player plays and can win, but only the participant can enjoy winning. Aarseth makes a similar point:

Clearly, players cannot exist without a game they are players *of*. A generic *player* is an unthinkable, not merely ahistorical, figure. Games, on the other hand, can exist without actual, current players, as material and conceptual game objects (“texts”). (2007, p. 130)

Aarseth’s thinking connects a player to a specific game and rejects it as a general marker. Compare this to the ideas that games in general are defined by rules and specific games being their rules. Yet the term player is in practice used also to refer to future players (especially in the game industry and marketing), past players, and identity marker. Player is not just a person who is playing at that moment, but a label for a person who often plays.

As a term player is vague, just as game and rule. Numerous definitions leave unsaid whom these games happen to.

A game is a form of play with goals and structure. (Maroney, 2001)

Games are the things that (are intended to) produce autotelic and aesthetic (sensitivity-requiring) actions. (Matsunaga, 2014)

By analyzing the so-called *zero-player games*, such as setup-only games and hypothetical games, Björk and Juul (2012) explore removed player traits. These are continued agency, humanness, temporality, intentionality, and aesthetic preferences. They also add a sixth category of voluntariness and ask if it is possible to lack these traits and to still be considered a player.

(Un)productive

What do games produce, or are they completely unproductive? For Caillois (1958/2001, p. 10), the unproductivity of games is a defining feature. It is possible for property to be exchanged, but nothing new is ever created. This follows Huizinga

(1938/1955, p. 13), who wrote that play “is an activity connected with no material interest, and no profit can be gained by it.” The idea that nothing is created in play seems odd; at least the experience of playing is created. But, of course, this is a question of framing, for even Huizinga emphasizes how being apart together “retains its magic beyond the duration of an individual game.”

When games are considered as social situations, the sociability of the players and the effects that it produces are apparent. It is not only a homogenous mass of players in a secret society that is produced, but distinction between players:

A game is a form of *play* where players agree on a system of rules that assigns social status to their quantified performance. (Frasca, 2007, p. 70, emphasis in original)

According to Frasca, social status is not only awarded though winning and losing, but player performance in general is measured and valued. Nor is it possible to opt out of the consequences of games. Abstracting the “consequences” leads to “feedback,” mentioned by some recent definitions (Oxland, 2004; Prensky, 2001; Whitton, 2009).

Most definitions do not consider the products of games as key features. The insistence on the unproductive quality of games seems connected to play as autotelic, as a goal in itself. If something is produced, it is a by-product, not the goal. Obviously, in a society where serious games, professional players, and user-generated content are everywhere, telic games are hard to ignore. The operational gaming tradition is built to use games to produce data that can be used as basis for policy decisions.

When games are considered as systems, the product is not the social status awarded by a victory, but the end state in itself:

an exercise of voluntary control systems in which there is an opposition between forces, confined by a procedure and rules in order to produce a disequilibrium outcome. (Avedon & Sutton-Smith, 1971)

Determining the winner and the loser, or just the score, is also a product of playing a game. Avedon (1971, p. 423) calls this “results or pay-off.” His examples are a kiss in *Spin-the-Bottle* and a gold medal in *relay race*. Games produce the needed state for acquiring certain payoffs.

Competition and Conflict

One common feature of game definitions is the inclusion of conflict or competition. There are numerous ways to formulate this and emphasize subtle differences, from underlining the *agôn* between players to emphasizing the struggle participants must engage in.

A game is a set of activities involving one or more players. It has goals, constraints, payoffs, and consequences. A game is rule-guided and artificial in some respects.

Finally, a game involves some aspect of competition, even if that competition is with oneself. (Dempsey et al., 2002)

An interactive structure of endogenous meaning that requires players to struggle toward a goal. (Costikyan, 2002)

A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome. (Salen & Zimmerman, 2004)

The definitions that emphasize overt competition tend to discuss games as activities between players. One definition identified two essential features of games and prioritizes competition even over rules:

First, [a game] must involve *overt competition* of some sort, either directly between individuals or teams (as for example in bridge or soccer) or between individuals or teams who are each competing against the 'game system' (as, for example, in golf). Second, the exercise must have *rules*, ie the players must operate under a set of arbitrary constraints specific to a particular game. (Ellington et al., 1982, p. 9, emphases in original)

The challenge with definitions like these is that they tend to fit certain types of games, namely, games with more than one side, whereas single-player games like *solitaire*, *Tetris*, and *pinball* fit less well. Ellington et al. solve this by viewing the designer as the adversary in single-player games. Such approaches muddy the line between games and puzzles. Dempsey, Haynes, Lucassen, and Casey (2002) side-step the issue by deciding that it is possible to compete with oneself. This dilemma also differentiates Abt's two definitions. His earlier one (quoted in Ellington et al., 1982, p. 9) specifies a contest between adversaries, whereas his later one (Abt, 1970, pp. 6–7) specifies achieving objectives in a limiting context. Half of Klabber's definition is devoted to addressing the competition aspect of games, with emphasis on the aleatory aspects of games:

A game is any contest or effort (play) among adversaries or teammates (players) operating under constraints (rules and resources) for an objective (winning, victory, prestige, status, or pay-off). The exercise, or activity, should involve overt competition, or cooperation between the individuals or teams, who are competing against each other, or together (while jointly conquering circumstances) fighting the odds. (Klabbers, 2006, p. 33)

Suits's (1978) concise and abstract formulation of "unnecessary obstacles" has been an influential account of competition. The conflict is collapsed into the rules, as that is where obstacles (even in the form of other players) are rooted in. Salen and Zimmerman's "artificial conflict" is similarly an economic way of expressing the idea. However, there are also numerous definitions that do not account for competition or conflict in any way.

Goals and End Conditions

Do games have definitive ends? Is a victory or an end condition required? Is struggling toward a goal enough? What about persistent games? The strictest advocate of end conditions is Parlett. His definition has two requirements, and termination clause is the first:

A formal game has a twofold structure based on ends and means: Ends. It is a contest to achieve an objective. [...] Only one of the contenders, be they individuals or teams, can achieve it, since achieving it ends the game. To achieve that objective 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. ‘Every game has its rules’, says Huizinga in *Homo Ludens*. But we may go further, and say ‘Every game is its rules’, for they are what define it. (Parlett, 1999)

Other definitions talk about “a specific state of affairs” and “preludory goal” (Suits, 1978) and “explicit aims and objectives” (Whitton, 2009; also Klabbers, 2006). These refer to bringing about a certain kind of state within the game. These approaches rule out open-ended toylike games, online worlds, and persistent games (e.g., Aarseth, 2007).

Caillois (1958/2001) has a different end condition. He discussed play as circumscribed, in advance, in limit of not only space but also time. The end condition need not be a state within the game, but a predefined time. Caillois wanted to emphasize the temporal boundedness of play.

The relationship between rules and ends is also worth consideration. Some definitions develop the concept of rule to include goals and objectives. However, the rule that one should strive for the goals, that one should play to win, is an extraludic rule, Suits’s “preludory goal.” Is it a game, if one is not trying to win—or follows goals different from the official objectives (cf. Dansey, Stevens, & Eglin, 2009; Montola, 2012)?

A step further is not only to refute clear endings but to deny clear beginnings. Carse’s (1986) philosophical take on games divides them into two groups: finite and infinite games. Finite games have a beginning and ending, and the goal is to win. Infinite games—of which there is but one, life—are all about keeping the game going.

Construction of the Category

By now, it should be apparent that the definitions in the corpus are not trying to define the same thing. The category of games is a construct as are its limits. Each scholar has a different set of existing game examples they use to test their definition. Limit and borderline cases are sometimes discussed (e.g., Juul, 2005; Salen &

Zimmerman, 2004), but usually it is left to the reader to reverse engineer, a definition to see what it is meant to include and what it is useful for. Avedon and Sutton-Smith (1971, p. 2) explicate this before disclosing their definition: “a game is whatever we decide it should be; that out definition will have an arbitrary character depending on our purpose.”

The idea of the core of games has changed over the years. As discussed above, definitions have moved from considering games as an activity to foregrounding their systematic nature and existence as artifacts, with Crawford’s definition as a watershed moment. This is reflective of not just the shifting fields of the study of play and games in academia, but changes in the kinds of game products that are available and how central they are in culture. Certainly, the rise of digital games has been influential.

All definitions are arbitrary and political in the sense that they set out to mark inclusion and exclusion as well as core and periphery. Sometimes these choices are explicit: Suits (1978) spends multiple chapters going over what is included and what is not, whereas Waern unambiguously states that her definition is crafted to exclude sports:

A game is a (designed or emerging) system of rules, goals and opposition, which has as its primary purpose to allow people to engage with it for paratelic reasons, while agreeing that the actions performed are re-signified. (Waern, 2012)

Sports are usually considered as a subcategory of games and a common source of examples in game studies literature. Although the question of *professional* sports is more divisive (cf. Caillois, 1958/2001). Suits has argued the case both ways: “sports are essentially games” (Suits, 1973, p. 11) and sports, play, and games are three separate things that partially overlap each other (Suits, 1988).

The separation between play and game is another interesting case. The earliest definitions in the corpus do not make a clear distinction between play and games, partly for language reasons. Whereas the English translations of Huizinga and Caillois use the word play, Maigaard uses game for the broad category he describes (cf. Walz, 2010).

Games in the most extensive sense of the word are all sorts of activities which are not “real work” for livelihood or common physiological functions—e.g. connected with digestion and sexual life. Games are performed from mere desire. But as activities connected with the exceptions mentioned above also may arise from desire, it is difficult to draw a definite borderline. (Maigaard, 1951)

Mead (1934, pp. 151–154) does not offer a comprehensive definition but offers an early account of the difference between play and games for children: In play, you only take your own role and attitude; in a game, you take everyone’s.

It is common to conceive of play as a broad category and games as its subset with clearer rules (cf. Caillois, 1958/2001; Frasca, 2007; Harviainen, 2012, pp. 26–30).

Definitions that underline the connection between play and games by discussing both automatically put emphasis on these two as separate categories (cf. Bateman, 2011; DeKoven, 1978; Klabbers, 2006; Malaby, 2007; Salen & Zimmerman, 2004; Suits, 1978).

Play is the free spirit of exploration, doing and being for its own pure joy. Game is an activity defined by a set of rules, like baseball, sonnet, symphony, diplomacy. Play is an attitude, a spirit, a way of doing things, whereas game is defined activity with rules and a playing field and participants. It is possible to engage in games like baseball or the composing of fugues as play; it is also possible to experience them as *lila* (divine play), or as drudgery, as bids for social prestige, or even as revenge. (Nachmanovitch, 1990, p. 43)

A game is the formalization of free play via the introduction of rules. (David Thomas, quoted from Newman & Simons, 2004, p. 41)

However, it is not just play that looms over the definition of games, but all neighboring concepts: simulation, sports, video games, puzzles, interactive fiction, and so on.

X is a videogame if it is an artifact in a visual digital medium, is intended as an object of entertainment, and is intended to provide such entertainment through the employment of one or both of the following modes of engagement: rule and objective gameplay or interactive fiction. (Tavinor, 2009, p. 26)

A game is a formalized system in its own right, while a simulation is a formalized representation of another system: a game is a “real” system, a simulation a meta-system. (Crookall et al., 1987, p. 161)

Tavinor does reference games through the curious “rule and objective gameplay.” However, what is particularly interesting here is that a video game need not contain gameplay; instead, it can contain interactive fiction (cf. Esposito, 2005; Gee, 2008; Karhulahti, 2013; Newman & Simons, 2004, pp. 29–63; Wolf, 2001, pp. 14–19).

Coherence

A common way of conceptualizing games is to offer a list of features games typically have. Definitions of game—like definitions of “art”—that seeks to capture everything that is called a game, yet leave out the things that are not games, probably must take the form of a *cluster theory* (cf. Gaut, 2000; Tavinor, 2009, pp. 175–180; also Arjoranta, 2015). There is a checklist of structures, the more checks the likelier it is that something is a game. A lower number of checks leads to the blur of limit cases.

For example, not all games exhibit all the features on Whitton’s (2009, pp. 22–33) list, but the more there are, the likelier it is that it is a game. Whitton lists competition, challenge, exploration, fantasy, goals, interaction, outcomes, people, rules,

and safety (for other lists, see, e.g., Oxland, 2004, pp. 8–22; Prensky, 2001, pp. 118–119). In 1971, Avedon (pp. 419–426) noted that the structural elements of games have not previously been mapped and then, building on the work of mathematicians and social scientists, proceeded to build a list of seven common elements in games:

1. Purpose or *raison d'être*;
2. Procedures for action;
3. Rules governing action;
4. Number of required players;
5. Roles of participant;
6. Participant interaction patterns; and
7. Results or pay-off. (Avedon, 1971, p. 422)

The way Avedon reviews earlier works and then builds his own is a common way to produce syntheses. Although he does not describe the outcome as a definition, the most popular definitions of games (Juul, 2005; Salen & Zimmerman, 2004) are crafted this way.

A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable. (Juul, 2005, p. 36)

Review-based definitions can be inclusive, but they run the risk of being “best of” collections: Although all the included requirements are relevant for (at least some) games, they do not necessarily form a philosophically sound coherent whole. The delimitation captures what the definers accept as being called “a game,” but the phenomena included can be so heterogeneous that it is difficult to say anything about the whole set that is not just about public perception of “gameness” (cf. Taylor, 2009). These kinds of definitions are good for determining if something is perceived as a game—but not for much else. The “definition” that Elias, Garfield, and Gutschera (2012, p. 6) offer makes this very explicit: “for us ‘game’ is whatever is labeled a game in common parlance.”

The alternative is to exchange inclusivity for clarity. Constructing a coherent whole, the way, e.g., Suits (1978), Von Neumann and Morgenstern (1944), Deterding (2013), and perhaps also Carse (1986) did, creates a definition that is clear, specific, and more useful as a theoretical foundation. Yet such definitions are more arbitrary in the sense that the researcher must make active choices as to what is included. These kinds of definitions tend to leave out some phenomena culturally recognized as games.

It is possible to combine these two approaches, as David Myers (2009) has done. His definition of a (digital) game is based on Juul’s (2005) review but is guided by minimalism (and formalism). He boils the characteristics of games into four

essential ones: prohibitive rules, goals, opposition, and representation. The goal of the definition is to provide criteria for determining if something is a game, yet its specificity and coherence lend the formulation clarity.

Coda

I have presented 10 topics of interest around game definitions, for there is a discourse and a tradition emerging here. Ideas about what games are change over time, and there are trends in game defining. The act of defining and the controversies created have become so expected that there is even a wonderful generator for new definitions (Molleindustria, 2013). These 10 themes indicate contested points of interest for game definitions and game studies.

Based on the review, I suggest that a scholar of games should address these questions and clarify, at least to themselves, what they consider a game: What are rules? Do games have a function? Are games an artifact or an activity of a muddle of the two? How games exist in relation to the quotidian? What are players? What do games produce? What is the role of competition? What about goals? What sorts of phenomena are relevant for games? And what purpose do definitions serve?

Game studies as a field is organized around an object of scrutiny. The delimitation and definition are part of constructing this field of inquiry. For the past decade, two inclusive definitions, although contested, have achieved a hegemonic position. This discussion is not just about defining what games are, but what game studies are. As these questions are so closely connected, it is sometimes easy to forget that the definitions can also function as an ontological foundation, but then the definition needs to be built for more than just delimiting.

Author's Note

This article was first presented at Critical Evaluation of Game Studies, the 10th annual spring seminar hosted by the University of Tampere Game Research Lab.

Acknowledgments

Special thanks to Olli Sotamaa. The writing of this article has been supported by the Academy of Finland–funded research project Ludification and the Emergence of Playful Culture.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Research funded by The Academy of Finland.

References: Game Definitions

- Aarseth, E. (2007). I fought the law: Transgressive play and the implied player. *Proceedings of the 2007 DiGRA International Conference: Situated Play*, September 24–28, 2007, Tokyo, Japan.
- Abt, C. C. (1970). *Serious games*. New York, NY: The Viking Press.
- Avedon, E. M. (1971). The structural elements of games. In E. M. Avedon & B. Sutton-Smith (Eds.), *The study of games* (pp. 419–426). New York, NY: John Wiley.
- Avedon, E. M., & Sutton-Smith, B. (Eds.). (1971). *The study of games*. New York, NY: John Wiley.
- Bateman, C. (2011). *Imaginary games*. Winchester, England: Zero Books.
- Berne, E. (1964). *Games people play*. London, England: Penguin Books.
- Bogost, I. (2009). *Videogames are a mess*. Keynote at DiGRA 2009, Brunel University, West London, UK. Retrieved from www.bogost.com/writing/videogames_are_a_mess.shtml
- Caillois, R. (2001). *Man, play and games*. Chicago, IL: University of Illinois Press. Original Published 1958.
- Carase, J. P. (1986). *Finite and infinite games*. New York, NY: Random House.
- Costikyan, G. (1994). I have no words & I must design. *Interactive Fantasy* 2, 1, 22–38.
- Costikyan, G. (2002). I have no words & I must design: Toward a critical vocabulary of games. In M. Frans (Ed.), *Proceedings of Computer Games and Digital Cultures Conference* (pp. 9–33). Tampere, Finland: Tampere University Press.
- Crawford, C. (1983). *The art of computer game design*. Berkeley, CA: Osborne/McGraw-Hill.
- Crookall, D., Oxford, R., & Saunders, D. (1987). Towards a reconceptualization of simulation: From representation to reality. *Simulation/Games for Learning*, 17, 147–171.
- DeKoven, B. (1978). *The well-played game. A player's philosophy*. Garden City, England: Anchor Press/Doubleday.
- DeKoven, B. (2011). *Playing well together*. Keynote at Think Design Play, *DiGRA 2011 Conference*. Hilversum, the Netherlands: DiGRA/Utrecht School of the Arts.
- Dempsey, J. V., Haynes, L. L., Lucassen, B. A., & Casey, M. S. (2002). Forty simple computer games and what they could mean to educators. *Simulation & Gaming*, 33, 157–168.
- Deterding, S. (2013). *Modes of play. A frame analytical account of video game play*. Doctoral dissertation, University of Hamburg, Hamburg, Germany.
- Duke, R. D. (1974). *Gaming: The future's language*. New York, NY: John Wiley.
- Elias, G. S., Garfield, R., & Gutschera, K. R. (2012). *Characteristics of games*. Cambridge, England: The MIT Press.
- Ellington, H., Addinall, E., & Percival, F. (1982). *A handbook of game design*. London, England: Kogan Page.
- Esposito, N. (2005). A short and simple definition of what a videogame is. *Proceedings of the 2005 DiGRA International Conference: Changing Views: Worlds in Play*, June 16–20, 2005, Vancouver, Canada.
- Frasca, G. (2007). *Play the message. Play, game and videogame rhetoric*. Doctoral Dissertation, IT University of Copenhagen, Copenhagen, Denmark.

- Gee, J. P. (2008). Learning and games. In S. Katie (Ed.), *The ecology of games connecting youth, games and learning* (pp. 21–40). Cambridge, MA: The MIT Press.
- Goffman, E. (1961). *Encounters: Two studies in the sociology of interaction*. Indianapolis, IN: Bobbs-Merrill.
- Holopainen, J. (2008). Play, games, and fun. In L. Olli, W. Hanna, & F. Amyris (Eds.), *Extending experiences. Structure, analysis and design of computer game player experiences* (pp. 44–57). Rovaniemi, Finland: Lapland University Press.
- Huizinga, J. (1955). *Homo Ludens: A study of play element in culture*. Boston, MA: Beacon Press. Original Published 1938.
- Juul, J. (2005). *Half-Real: Video games between real rules and fictional worlds*. Cambridge, MA: MIT Press.
- Karhulahti, V. (2013). Defining the videogame. *7th Philosophy of Computer Games Conference '13*, October 2–4, 2013, Bergen, Norway.
- Kelley, D. (1988). *The art of reasoning*. Referred from the 1998 Third Edition. New York, NY: W.W. Norton.
- Klabbers, J. H. G. (2006). *The magic circle. Principles of gaming & simulation* (3rd and rev. ed.). Rotterdam, the Netherlands: Sense Publishers.
- Lévi-Strauss, C. (1966). *The savage mind*. Chicago, IL: University of Chicago press. Original Published 1962.
- Maigaard, P. (1951). About ludology. *14th International Congress of Sociology* (pp. 362–373), August 14–September 3, 1951, Rome, Italy.
- Malaby, T. (2007). Beyond play: A new approach to games. *Games and Culture*, 2, 95–113.
- Maroney, K. (2001, May). My entire waking life. *The Games Journal*. Retrieved from www.thegamesjournal.com/articles/MyEntireWakingLife.shtml
- Matsunaga, S. (2014). *Games as design of actions. An attempt to redefine games and play*. Presentation at Kyoto Game Conference, March 8, 2014, Kyoto, Japan.
- McLuhan, M. (1964). *Understanding media. The extensions of man*. New York, NY: Routledge.
- Mead, G. H. (1934). *Mind, self & society from the standpoint of a social behaviorist*. Chicago, IL: The University of Chicago Press.
- Midgley, M. (1974). The game game. *Philosophy*, 49, 231–253.
- Molleindustria. (2013). *The definition of game*. Retrieved from www.gamedefinitions.com/
- Montola, M. (2012). *On the edge of the magic circle. Understanding role-playing and pervasive games*. Doctoral Dissertation, University of Tampere, Tampere, Finland.
- Mortensen, T. E. (2009). *Perceiving play: The art and study of computer games*. New York, NY: Peter Lang.
- Myers, D. (2009). In search of a minimalist game. *Proceedings of the 2009 DiGRA International Conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory*, September 1–4, 2009, West London, UK.
- Nachmanovitch, S. (1990). *Free play. Improvisation in life and art*. New York, NY: Jeremy P. Tarcher/Putnam.
- Newman, J., & Simons, I. (Eds.). (2004). *Difficult questions about videogames*. Nottingham, England: PublicBeta.

- Oxland, K. (2004). *Gameplay and design*. London, England: Addison-Wesley.
- Parlett, D. (1999). *The Oxford history of board games*. Oxford, England: Oxford University Press.
- Prensky, M. (2001). *Digital game-based learning*. New York, NY: McGraw Hill.
- Riezler, K. (1941). Play and seriousness. *The Journal of Philosophy*, 38, 505–517.
- Rollings, A., & Morris, D. (2004). *Game architecture and design*. Berkeley, CA: New Riders.
- Salen, K., & Zimmerman, E. (2004). *Rules of play*. Cambridge, MA: MIT Press.
- Shubik, M. (1983). Gaming: The State-of-the-art survey. In S. Ingolf (Ed.), *Operational gaming. An international approach* (pp. 15–22). Oxford, England: Pergamon Press.
- Sicart, M. (2009). *The ethics of computer games*. Cambridge, MA: The MIT Press.
- Sicart, M. (2011). Against procedurality. *Game Studies*, 11.
- Ståhl, I. (Ed.). (1983a). *Operational gaming. An international approach*. Oxford, England: Pergamon Press.
- Ståhl, I. (1983b). What is operational gaming? In S. Ingolf (Ed.), *Operational gaming. An international approach* (pp. 25–39). Oxford, England: Pergamon Press.
- Strauss, N. (2005). *The game. Penetrating the secret society of pickup artists*. New York, NY: Regan.
- Suits, B. (1973). The elements of sport. In O. Robert (Ed.), *The philosophy of sport: A collection of essays*. Quoted from Morgan, William J. & Meier, Klaus V. (eds.) (1995). *Philosophical inquiry in sport* (2nd ed., pp. 8–15). Human Kinetics; Champaign.
- Suits, B. (1978). *The grasshopper. Games, life and utopia*. Toronto, Canada: Broadview Press.
- Suits, B. (1988). Tricky triad: Games, play, and sport. *Journal of the Philosophy of Sport*, XV. Quoted from Morgan, William J. & Meier, Klaus V. (eds.) (1995). *Philosophical inquiry in sport* (2nd ed., pp. 16–22). Champaign, IL: Human Kinetics.
- Tavinor, G. (2009). *The art of videogames*. Chichester, England: Wiley-Blackwell.
- Von Neumann, J., & Morgenstern, O. (1944). *Theory of games and economic behavior*. Princeton, NJ: Princeton University Press.
- Waern, A. (2012). Framing games. *Proceedings of 2012 International DiGRA Nordic Conference*, June 6–8, 2012, Tampere, Finland.
- Whitton, N. (2009). *Learning with digital games. A practical guide to engaging students in higher education*. New York, NY: Routledge.
- Wolf, M. J. P. (2001). *The medium of the video game*. Austin: University of Texas Press.

References: Other Sources

- Arjoranta, J. (2015). *Real-time hermeneutics. Meaning-making in ludonarrative digital games*. Doctoral Dissertation, University of Jyväskylä, Jyväskylä, Finland.
- Björk, S., & Holopainen, J. (2005). *Patterns in game design*. Hingham, MA: Charles River Media.
- Björk, S., & Juul, J. (2012). Zero-player games. Or: What we talk about when we talk about players. *Philosophy of Computer Games Conference*, Madrid, Spain. Retrieved from www.jesperjuul.net/text/zeroplayergames/
- Bogost, I. (2006). *Unit operations*. Cambridge, MA: The MIT Press.
- Bogost, I. (2007). *Persuasive games: The expressive power of videogames*. Cambridge, MA: The MIT Press.

- Dansey, N., Stevens, B., & Eglin, R. (2009). Contextually-ambiguous pervasive games: An exploratory study. *Proceedings of the 2009 DiGRA International Conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory*, September 1–4, 2009, West London, UK.
- Egenfeldt-Nielsen, S., Smith, J. H., & Tosca, S. P. (2013). *Understanding video games. The essential introduction* (2nd ed.). New York, NY: Routledge.
- Flanagan, M. (2009). *Critical play, radical game design*. Cambridge, MA: The MIT Press.
- Gaut, B. (2000). “Art” as a cluster concept. In N. Carroll (Ed.), *Theories of art today* (pp. 130–140). Madison, WI: The University of Wisconsin Press.
- Goffman, E. (1974). *Frame analysis*. Boston, MA: Northeastern University Press.
- Harviainen, J. T. (2012). *Systemic perspectives on information in physically performed role-play*. Doctoral dissertation, University of Tampere, Tampere, Finland.
- Hunicke, R., LeBlanc, M., & Zubek, R. (2004). MDA: Formal approach to game design and game research. *Proceedings of the AAAI-04 Workshop on Challenges in Game AI*, San Jose, CA, USA.
- Iser, W. (1974). *The implied reader*. Baltimore, MD: The John Hopkins University Press.
- Juul, J. (2008). *Who made the magic circle? Seeking the solvable part of the game-player problem*. Keynote at Philosophy of Computer Games 2008.
- Kultima, A. (2009). Casual games design values. *Proceedings of the 13th International MindTrek Conference: Everyday Life in the Ubiquitous Era* (pp. 58–65), September 30–October 2, 2009, Tampere, Finland.
- Lantz, F. (2009). Pervasive games and the “Art Question”. In M. Markus, S. Jaakko, & W. Annika (Eds.) *Pervasive games. Theory and design* (pp. 245–249). Burlington, Canada: Morgan Kaufmann.
- Petticrew, M. (2001). Systematic reviews from astronomy to zoology: Myths and misconceptions. *British Medical Journal*, 322, 98–101.
- Potter, W. J. (1996). *An analysis of thinking and research about qualitative methods*. Mahwah, NJ: Lawrence Erlbaum.
- Salminen, A. (2011). *Mikä kirjallisuuskatsaus? Johdatus kirjallisuuskatsauksen tyyppeihin ja hallintotieteellisiin sovelluksiin*. Vaasa, Finland: Vaasan yliopisto.
- Smith, J. H. (2006). *Plans and purposes. How videogame goals shape player behaviour*. Doctoral Dissertation, IT University of Copenhagen, Copenhagen, Denmark.
- Steinkuehler, C. (2006). The mangle of play. *Games and Culture*, 1, 199–213.
- Stenros, J. (2014). In defence of a magic circle: The social, mental and cultural boundaries of play. *Transactions of Digital Games Research Association*, 1, 147–185.
- Stenros, J. (2015). *Playfulness, play, and games: A constructionist ludology approach*. Doctoral dissertation, University of Tampere, Tampere, Finland.
- Taylor, T. L. (2006). *Play between worlds. Exploring online game culture*. Cambridge, MA: The MIT Press.
- Taylor, T. L. (2007). Pushing the boundaries: Player participation and game culture. In K. Joe (Ed.), *Structures of participation in digital culture* (pp. 112–130). New York, NY: Social Science Research Council.
- Taylor, T. L. (2009). The assemblage of play. *Games and Culture*, 4, 331–339.

- Treanor, M., & Mateas, M. (2013). An account of proceduralist meaning. *Proceedings of the 2013 DiGRA International Conference: DeFragging Game Studies*, August 26–29, 2013, Atlanta, USA.
- Walz, S. P. (2010). *Towards a ludic architecture. The space of play and games*. Halifax, Canada: ETC Press.
- Wilson, D. (2012). *Designing for the pleasures of disputation, or how to make friends by trying to kick them!* Doctoral dissertation, IT University of Copenhagen, Copenhagen, Denmark.

Author Biography

Jaakko Stenros, PhD, is a game and play researcher at Game Research Lab (University of Tampere). He is an author of *Playfulness, Play, and Games: A Constructionist Ludology Approach* (2015) and *Pervasive Games: Theory and Design* (2009), as well as an editor of three books on role-playing games. He is currently particularly interested in playfulness, the emergence of playing in situations where play is not encouraged, and the aesthetics of social play. He lives in Helsinki, Finland.