Classification Framework for Digital Games

Concepts and Definitions for „Play“ and „Games“

Dutch cultural historian Johan Huizinga [Huizinga, 1939; in (1)]:

(higher form of) **play** is:

1. *a free activity*
2. standing quite consciously outside “ordinary” life as being “not serious”, but at the same time absorbing the player intensely and utterly
3. is an activity connected with **no material interest**, and **no profit** can be gained by it.
4. proceeds within its own proper boundaries of time and space
5. according to **fixed rules** and in an orderly manner.
6. 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.”
Dutch cultural historian Johan Huizinga [Huizinga, 1939; in (1)]:

(higher form of) **play** is:

1. **“a free activity**
2. **standing quite consciously outside “ordinary” life as being “not serious”**, but at the same time absorbing the player intensely and utterly
3. **is an activity connected with no material interest, and no profit can be gained by it.**
4. **proceeds within its own proper boundaries of time and space**
5. **according to fixed rules and in an orderly manner.**
6. **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.”**

Writer and philosopher Roger Caillois [Caillois, 1961; in (1)]:

**play is activity** characterized as:

1. **free as in a voluntary activity,**
2. **separate in time and space and defined in advance,**
3. **uncertain in course and results beforehand,**
4. **unproductive in a materialistic way,**
5. **governed by rules just applicable to the play,** and
6. **make-believe of a second reality or free unreality.**

Caillois’ Taxonomy of Play and Games. Source: [Caillois, 1961 in (1)]
Concepts and Definitions for „Play“ and „Games“

Writer and philosopher Roger Caillois [Caillois, 1961 in (1)]:

<table>
<thead>
<tr>
<th>PAIDIA (Competition)</th>
<th>ALEA (Chance)</th>
<th>MINACRY (Simulation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racing</td>
<td>Counting-out rhymes</td>
<td>Children’s initiations</td>
</tr>
<tr>
<td>Wrestling</td>
<td>Heads or tails</td>
<td>Tog, Arms, Masks, Disguises</td>
</tr>
<tr>
<td>Dic, Athletics</td>
<td></td>
<td>Children “whirling”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Horseback riding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swinging</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Waltzing</td>
</tr>
</tbody>
</table>

Caillois’ Taxonomy of Play and Games. Source: [Caillois, 1961 in (1)]

Concepts and Definitions for „Play“ and „Games“

Philosopher Bernhard Suits: playing a game as the “voluntary effort to overcome unnecessary obstacles” [Suits, 1978, in (1)]:

1. attempt to achieve a specific state of affairs [prelusive goal],
2. using only means permitted by rules [lusory means],
3. where the rules prohibit use of more efficient in favor of less efficient means [constitutive rules], and
4. where the rules are accepted just because they make possible such activity [lusory attitude].
Concepts and Definitions for „Play“ and „Games“

Philosopher Bernhard Suits:
playing a game as the “voluntary effort to overcome unnecessary obstacles” [Suits, 1978, in (1)]:

1. attempt to achieve a specific state of affairs [prelusory goal],
2. using only means permitted by rules [lusory means],
3. where the rules prohibit use of more efficient in favor of less efficient means [constitutive rules], and
4. where the rules are accepted just because they make possible such activity [lusory attitude].

Concepts and Definitions for „Play“ and „Games“

Ludologist Brian Sutton-Smith [Sutton Smith, 1997, in (1)]:

1. Play as progress: covers children’s play or the play of animals, explicitly excludes play of adults, understood primarily as development and not entertainment.
2. Play as fate: usually applied for all types of gambling games and other games of pure chance.
3. Play as power: representation of a conflict as in sports, athletics or contests in general.
4. Play as identity: traditional and community celebrations such as festivals or rituals: means to confirm, maintain or advance the power and identity of communities of participating players.

Concepts and Definitions for „Play“ and „Games“

Ludologist Brian Sutton-Smith [Sutton Smith, 1997, in (1)]:

1. Play as progress: covers children’s play or the play of animals, explicitly excludes play of adults, understood primarily as development and not entertainment.
2. Play as fate: usually applied for all types of gambling games and other games of pure chance.
3. Play as power: representation of a conflict as in sports, athletics or contests in general.
4. Play as identity: traditional and community celebrations such as festivals or rituals: means to confirm, maintain or advance the power and identity of communities of participating players.
**Concepts and Definitions for „Play“ and „Games“**

Ludologist Brian Sutton-Smith [Sutton Smith, 1997; in (1)]:

1. **Play as progress**: covers children’s play or the play of animals, explicitly excludes play of adults, understood primarily as development and not entertainment.

2. **Play as fate**: usually applied for all types of gambling games and other games of pure chance.

3. **Play as power**: representation of a conflict as in sports, athletics or contests in general.

4. **Play as identity**: traditional and community celebrations such as festivals or rituals: means to confirm, maintain or advance the power and identity of communities of participating players.

5. **Play as the imaginary**: applied to the playful improvisation in a play world; idealizes imagination, creativity and flexibility.

6. **Of the self**: individually desired experiences by the player, i.e. fun, relaxation, escape with an intrinsic satisfaction.

7. **Play as frivolous**: usually applied to the activities of the idle or the foolish, such as in ‘playing around’; can be understood as an invert to the classical ‘work ethic’.

**Concepts and Defs: Vrtl. Play & Dig. Games: Academic Prspctv.**

„play“ ↔ „game“:

- [Salen and Zimmerman, 2004; in (1)]: 3 categories of “play”
  - **being playful** (incl. playful state of mind → cp. Suits’ lusory attitude; Sutton-Smith: informal social play, solitary play, or playful behaviors)
  - **ludic activities** (incl. all non game behaviors of „playing“; cp. loosely Callois’ mimicry, and ilinx)
  - **Game play**: formalized interaction when players follow the rules of a game and experience its system through play.

- **„Play“ vs. „Game“**
  - Social aspects in aforementioned general classification frameworks often implicitly contained:
    - formation of social groupings (Huizinga)
    - community identity (Sutton-Smith)
    - ...

- **playful**
"play" ↔ "game":

- [Salen and Zimmerman, 2004; in (1)]: **definition of game**:  
  - A game is a system
  - in which players engage in
  - an artificial
  - conflict,
  - defined by rules,
  - that results in a quantifiable outcome.

- Hunicke [Hunicke et al, 2004 in (1)]: games:  
  “systems that build behavior via interaction”

- Dormans [Dormans, 2012; in (1)]: **game play**:  
  “emergent property of the game as defined by its rules”

- [Salen and Zimmerman, 2004; in (1)]: **definition of game**:  
  - A game is a system
  - in which players engage in
  - an artificial
  - conflict,
  - defined by rules,
  - that results in a quantifiable outcome.

- Hunicke [Hunicke et al, 2004 in (1)]: games:  
  “systems that build behavior via interaction”

- Dormans [Dormans, 2012; in (1)]: **game play**:  
  “emergent property of the game as defined by its rules”

[Salen and Zimmerman, 2004; in (1)]:  
**digital games** (games involving computers) as systems:

- as emergent systems
- as systems of uncertainty
- as information theory systems
- as systems of information (imperfect, perfect); information economy of a digital game: value created by information through its relationship to other pieces of information.
- as cybernetic systems: (input → state → output; feedback-loop; “agent”)
- as game theory systems
- as systems of conflict
[Salen and Zimmerman, 2004; in (1)]:

digital games (games involving computers) as systems:

- as emergent systems
- as systems of uncertainty
- as information theory systems
- as systems of information (imperfect, perfect); information economy of a digital game: value created by information through its relationship to other pieces of information.
- as cybernetic systems: (input → state → output; feedback-loop; “agent”)
- as game theory systems
- as systems of conflict

Social aspects of digital games:

- [Salen and Zimmerman, 2004; in (1)]: “When games are framed as Social Play the relationships between elements in the game system are considered to be social relationships”

- [Salen and Zimmerman, 2004; in (1)]: “games are emergent social systems in which simple play behaviors and social interactions can result in incredibly complicated experiences of play”

- [Salen and Zimmerman, 2004; in (1)]: “In transformative social play players extend, transform, and manipulate existing social relationships through play itself”

Ludologist
Jasper Juul:
Game vs. Non-Game

Figure 3.2: Juul’s Classic Game Model. Source: Juul, 2005 in (1)
Frasca [Frasca, 2007; in (1)]: properties of games

- social ("by default social endeavours") ("single gaming: always framed through social concepts")
- games are play activities and objects
- games have rules
- player performance is measured and valued correlating to a certain social status
- players believe to actively participate in games (↔ Juul’s required ‘player effort’) (cp. games of pure luck).
- game consequences are not optional
- "Any activity can be a game but not every activity is a game"

Juul [Juul 2010; in (1)]:
- hardcore player
- casual player

Salen and Zimmerman [Salen and Zimmerman, 2004 in (1)]:
- different lusory attitudes:
  - Standard Player: follows rules
  - Dedicated Player: follows rules but unusual strategies
  - Unsportsmanlike Player: follows rules but violates spirit of lusory attitude
  - Cheating Player: violates rules to win
  - Spoil-Sport Player: violates rules, doesn’t care at all

Salen and Zimmerman [Salen and Zimmerman, 2004 in (1)]:
- general characteristics of game rules:
  - Rules limit player actions
  - Rules are explicit and unambiguous
  - Rules are shared by all players
  - Rules are fixed
  - Rules are binding
  - Rules are repeatable

- three types of rules:
  - Constitutive Rules: core logic; in code; handle internal events
  - Operational Rules: external events (e.g. user i/o: audio, video)
  - Implicit Rules: also depend on external context (e.g. platform)
Juul [Juul, 2005 in (1)]: rules: chain of dependencies:

- "rules specify limitations and affordances"
- rules map: player’s actions $A \rightarrow$ game states $S$ : state machine
- state machine: graph or tree: ‘game tree’, ‘game graph’
- utility function on states $\rightarrow$ player challenges $\rightarrow$ skills
- $\rightarrow$ enjoyable experience
[Hunicke et al, 2004 in (1)]: **MDA framework (Mechanics, Dynamics, Aesthetics):**

- **Mechanics** "are the various actions, behaviors and control mechanisms afforded to the player within a game context. Together with the game’s content (levels, assets, and so on) the mechanics support overall gameplay dynamics."

- **Dynamics** "run-time behavior of the mechanics acting on player inputs and each others’ outputs over time."

- **Aesthetics** facilitate “the desirable emotional responses evoked in the play, when she [the player] interacts with the game system.”

---

[Hunicke et al, 2004 in (1)]: **MDA framework (Mechanics, Dynamics, Aesthetics):**

- **Mechanics** "are the various actions, behaviors and control mechanisms afforded to the player within a game context. Together with the game’s content (levels, assets, and so on) the mechanics support overall gameplay dynamics."

- **Dynamics** "run-time behavior of the mechanics acting on player inputs and each others’ outputs over time."

- **Aesthetics** facilitate “the desirable emotional responses evoked in the play, when she [the player] interacts with the game system.”

---

[Härven, 2007 in (1)]: **nine game elements:**

- **Systemic** elements:
  - components: resources for play
  - environment: space for play

- **Compound** elements:
  - ruleset (including utility function, goal-set)
  - game mechanics: player’s action patterns toward goals
  - theme: subject matter of game
  - interface: e.g. UI
  - information: players need to know, coupled with game states

- **Behavioral** elements:
  - players
  - ‘outside’ contexts: e.g. spatiotemporal environment of game-playing
Järvinen [Järvinen, 2007 in (1)]: **nine game elements:**

- **Systemic elements:**
  - **components:** resources for play
  - **environment:** space for play

- **Compound elements:**
  - **ruleset** (including utility function, goal-set)
  - **game mechanics:** player’s action patterns toward goals
  - **theme:** subject matter of game
  - **interface:** e.g., UI
  - **information:** players need to know, coupled with game states

- **Behavioral elements:**
  - **players**
  - **‘outside’ contexts:** e.g., spatiotemporal environment of game-playing

---

Järvinen [Järvinen, 2008 in (1)]:

- **social interaction** of players:
  - **inside game:** social context accessible
  - **outside (“off-“)”game:** social context inaccessible

- **game mechanics:** "A game mechanic makes a particular set of rules available to the player in the form of prescribed casual relations between game elements and their consequence to particular game state(s)"
Meta-types of games (that involve social interaction of some sort):

- Simulation
- Social games
- Online games
- Mobile games
  - Location-based games

These are
- overlapping
- probably not complete

Simulation

- *generally* "to simulate is to model a (source) system" (possibly non-real) "through a different system which maintains to somebody some of the behaviors of the original system" [Frasca, 2003; In (1)].
- closely related to game mechanics, game physics

Social Games

- requires social interaction (cooperative vs. competitive)
- social interaction: inside / outside of game
- generates / uses social context

Online Games

- require connectivity
- e.g. Web-based (browser) games

Mobile Games

- mobility $\rightarrow$ more, more interesting, more real-world contexts
- games that incorporate context, measured via sensors (e.g. in a smartphone) in a mobile scenario
- forms of context (overlapping): spatio-temporal, social, physical, medical, personal etc.
- games making use of spatial context: location-based games
- important: distinguish:
  - truly mobile $\Rightarrow$ use mobile context $\Rightarrow$ only accessed via mobile UI
**Types of Digital Games: Hardcore Games**

**Hardcore Games**

- **meta types**: simulation (primarily), on-line, social
- **intensive player immersion**
- **sub-types:**
  - (ego-shooters), MMO ego-shooters,
  - MMOGs, MMORPGs, MUDs... (see [Klastrup, 2003, p. 57-91; in {1}])
  - (vintage classic games)
  - ...
- **often:**
  - realistic physics,
  - high end (often 3D) graphics,
  - detailed game worlds
  - ....

**Types of Digital Games: Casual Games**

**Casual Games**

- **Juul [Juul, 2010; in {1}]:** **characteristics:**
  - Instant play, easy to learn
  - Quick play, do not require much time to play to get pleasure
  - Common play, address a vast majority of player types
- **meta-types**: online (primary), social (primary), mobile
- **constant development** e.g. via user feedback possible and good practice

**Types of Digital Games: Casual Games**

**Casual Games**

- **Juul [Juul, 2010; in {1}]:** **five design principles:**
  - **Fiction**: almost all: “fictions with positive valence”.
  - **Usability**: are easy to use, friendly interfaces, “presuppose little knowledge of game conventions”
  - **Interruptibility**: allow players to “play in short bursts”
  - **Difficulty and punishment**: “often become very difficult during the playing of a game” but typically only have “lenient punishments for failing”.
  - **Juiciness**: “excessive positive feedback for every successful action”
Types of Digital Games: Casual Games

Casual Games: varieties:

- **browser games**
  - Web applications
  - example: games by Zynga
- **social network games**:
  - played on social networking platforms
  - example: Farmville
- **downloadable casual games**:
  - specific distribution channel, often assoc. with brands
  - example: Moorhuhn
- **mimetic games**:
  - “exergames”, take game-play out of virtual game space to the player’s ‘real world’ space, mostly via ‘physical’ UIs
  - examples: Wii Sports, Guitar Hero, Kinect games

Types of Digital Games: Pervasive Games

Pervasive Games

- [Montola et al., 2009; in (1)]: „game that has one or more salient features that expand the contractual magic circle of play spatially, temporally, or socially” \(\leftrightarrow\) cyberphysical systems

- [Montola et al., 2009, in (1)]. other terms:
  - “adaptronic games, alternate reality games, ambient games, appropriative games, augmented reality games, big games, brink games, context aware games, crossmedia games, geogames, hybrid games, immersive games, invasive games, location-based games, locative games, massive games, mixed reality games, mobile games, pervasive games, reality games, supergames, total games, transreality games etc.”
Pervasive Games

- Kampmann Walther, 2005; in (1): “... augmented and/or embedded game worlds [...] on the threshold between tangible and immaterial space”
- May further include adaptronics, wearable, mobile, or embedded software/hardware in order to facilitate a 'natural' environment for gameplay that ensures the explicitness of computational procedures in a post-screen setting
- related: pervasive + ubiquitous computing
- meta-types: mobile + location-based (primary), social (secondary)

Pervasive Games: sub-types: [Magerkurth et al, 2005; in (1)]:

- Smart toys:
  e.g. Tamagotchi-like toys, Ravensburger tiptoi
- Affective gaming:
  integrate a player's emotional state, measured via sensors
- Augmented tabletop games:
  e.g. via tangible pawns
- Location-aware games:
  e.g. Geocaching
- Augmented reality games:
  e.g. via head-mounted displays, projected images on real-world surfaces, or hand-held devices.
- general (pervasive) trend: Gamification

Serious Games

- games with ‘useful’ side effects for users: [Susi et al., 2007; in (1)]:
  - education: e-learning, edutainment, game-based learning, digital game-based learning (related, overlapping)
  - training: e.g. military or financial simulations
  - information: political games, corporate games, and healthcare games (inform, create awareness)
- “Games with a Purpose” (GWAP):
  - side-effects not immediately useful for users
  - closely related but not necessarily with game orientation: “human-based computation”, “crowdsourcing”
  - examples: Artigo (soft ontology / folksonomy generation), Captcha-solving
- meta types: social, simulation