

“A game is a series of interesting choices.”

Sid Meier  
Civilization Creator

## VII. GAME MECHANICS (PART 1)

Game mechanics are what define what the game is. If you take away the aesthetics, the technology, and the narratives, what's left are the interactions and relationships. The objects and how they interact with each other are game mechanics. You can use the element of game mechanics, which falls into five distinct classes, to construct your game's design (Schell, 2008). I prioritize making the rules first. Since rules define everything else, they are my top priority, followed by objects, space (since space is also an object, programmatically), action (once all rules and objects are set), and finally, skill (players will have a strategy after they gain knowledge in the game's design). However, you can start from any. Figure 54 shows summary of five game mechanics elements.

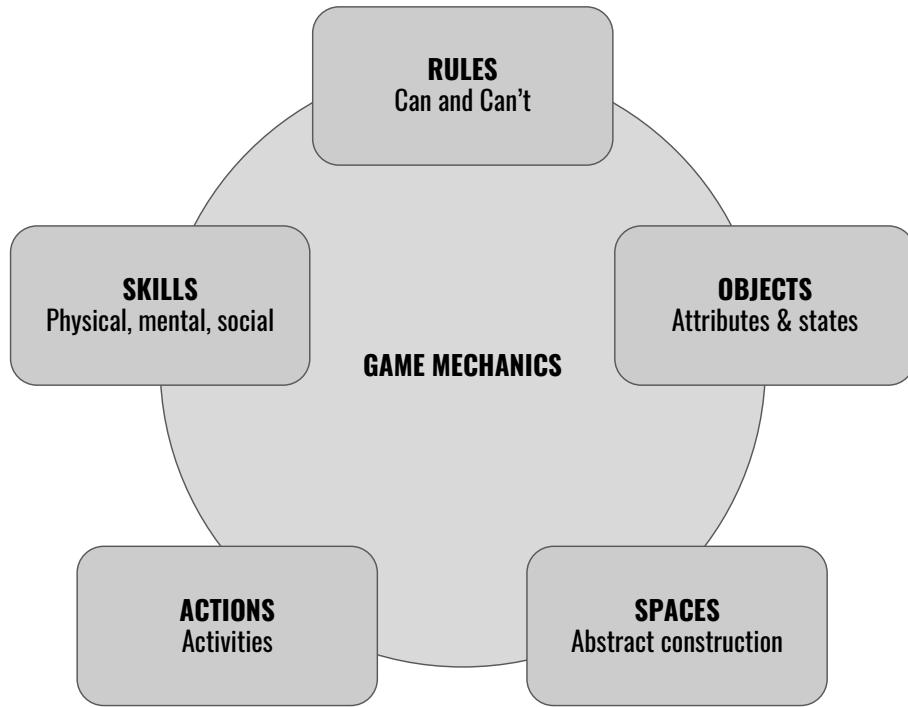


Figure 54. Game mechanic's five elements.

## 7.1 Spaces

Every game takes place in a certain environment. This area serves as the gameplay's "magic circle". It defines the various locations in a game and the connections between them. Space is a mathematical construct in terms of game mechanics. Remove all visuals and aesthetics of the game, then it remains solely on the abstract construction of a game's space. Figure 55 and 56 shows two different applications of space.



Figure 55. A classic Asteroid game by Atari in 1979. If the player's spaceship exceeds the right boundary of the screen, it will eventually appear on the left boundary. It gives us the perception of parallel space.



Figure 56. Sid Meier's Civilization VI. The space in this type of game is commonly defined by hexagonal tiles. You can see the different type of space will give you different mechanisms of gameplay and experience.

## 7.2 Objects, Attributes, and States

This category covers characters, props, tokens, scoreboards, and anything else you can see or manipulate in your game. Objects are the “nouns” of game mechanics. The space itself may be considered an object. Still, the

space in your game is usually distinct enough from other things to stand out to be a different element type. Objects have one or more properties, the most common of which is their current position in the game world. Attributes are many forms of information about an entity. For example, a car in a racing game could include attributes like maximum speed and current speed, the health of the engine, etc. Each attribute has a current state and several inactive states. See Figure 57 for instance.

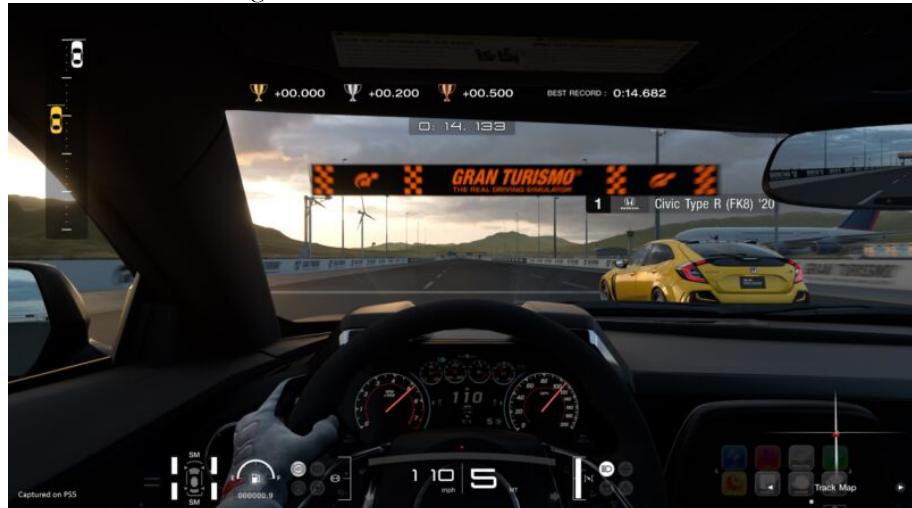


Figure 57. Gran Turismo 7: informative UIs are shown such as speed, wheel damage, fuel, leaderboard, and many other. Even in the PlayStation 1's version, once you finished a race, your car will be covered in a dirt – especially when it was raining. Worry not, you can even carwash it in the workshop to refresh the car's look.

### 7.3 Actions

Actions are what we call the “verbs” of game mechanics. There are two ways to look at actions. The first is what we see as “What can the players do?”. The first form of action is the operative action. These are the most fundamental actions that a player can execute. In a chess game (Figure 58), a player can only do some basic operations, such as:

- Move any owned pieces regard with how it moves.
- Swap the owned pawn with any pieces that are eaten by the rival earlier after our pawn reaches the opponent’s edge.
- A king piece and rook piece may do special movement, castling.

The second form of action is a resultant action. These actions are only relevant in the context of the game’s wider view. They have to do with how the player employs operational actions to achieve a goal. Consider the following chess actions:

- Move a pawn two tiles instead of one to avoid getting eaten by opponent.

- Force the opponent into making an unfavorable move.
- Do checkmate with some pieces.
- Sacrifice pieces to create a checkmate opening.

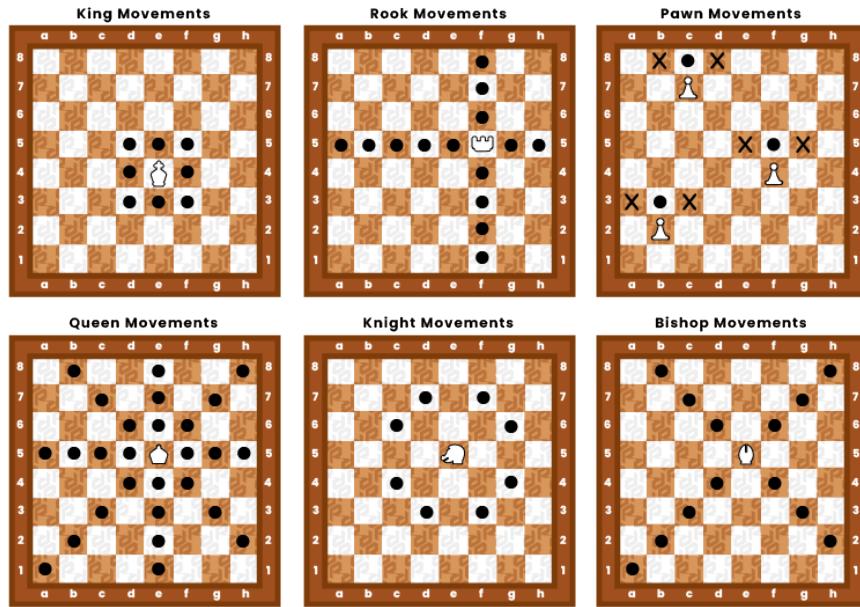


Figure 58. The chess basic movement patterns. Generally, the pieces can only move or capture an opponent's piece on one of the black dots. Except for a pawn, it needs to capture diagonally at x-mark.

#### 7.4 Rules

Actually, the most basic mechanic is the set of rules. They define the spaces, objects, actions, actions' implications, constraints on the actions, and objectives. In a sense, the rules enable all the elements we've mentioned while adding the important element that distinguishes a game as "a game". We borrow the diagram that shows the different kinds of rules involved with gameplay initially summarized by a game historian, David Parlett (Figure 59).

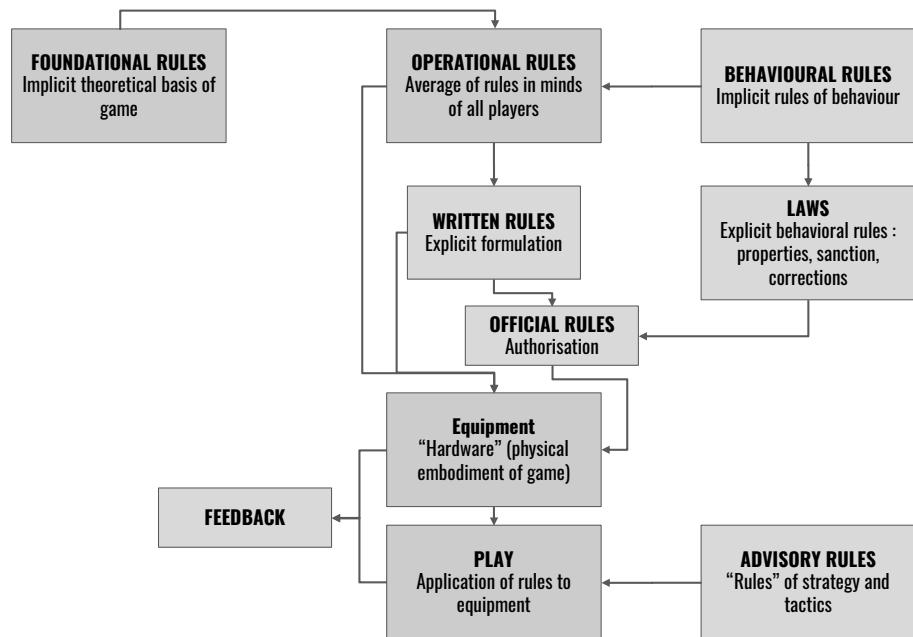


Figure 59. Different types of game rules.

## 1. Operational Rules

These are the rules that need the slightest effort to understand. These are essentially “what the players do while playing the game”. Players can play a game after they understand the operational rules. For example, in Super Mario, the player can only move to the left or right side towards the screen’s edges by pressing the arrow key button on the joystick.

## 2. Foundational Rules

The basic rules are the game’s underlying formal structure. Say we have an operational rule “Player may add manna by using certain items”, in Dota2. “The player’s manna value is then increased by a certain number that could be calculated by other stats”; this is the foundational rule, which is more abstract. The foundational rules are a mathematical representation of the game state and how and when it changes.

## 3. Behavioral Rules

These are implicit rules for gameplay that most people accept as part of “good sportsmanship”. For example, during a game, one should not tease the other player while attempting to think or wait too long to make a move. These are rarely mentioned openly, yet everyone is aware of them. But today, competitive games also force players to apply the norm, especially in professional competitions. Some of them are even written formally.

## 4. Written Rules

The “rules that come with the game” are the documents that players must study in order to comprehend the

operational rules. Video games today tend to skip printed rules and instead use interactive tutorials to teach users how to play. This method is more effective, but it can be challenging and time-consuming to develop and implement, as it requires multiple iterations that can only be done after the game is finished.

## 5. Laws

This form is only used when games are performed in serious, competitive contexts, when the stakes are high enough that it is deemed necessary to expressly record the standards of good sportsmanship, or where the official written rules need to be clarified or modified. Take a look at Root (see Figure 60), the board game, for example. Root has two main rulebooks: The Law of Root and the Learning-to-play guide. The Law of Root contains strictly defined, formal rules in a concise reference style. Besides that, the game has a more friendly teaching-to-play guide, teaching conversationally and showing many graphical examples.

**The Map**

Most action in Root unfolds on the map of the Woodland, consisting of 12 CLEARINGS connected by PATHS.

A river runs through some clearings. Only use the river if the Riverfolk Company, an expansion faction, is in play.

**Moving Around the Map**

You can MOVE from clearing to clearing. When you move, take any number of your warriors from one clearing and move them to a clearing connected by a path.

The spaces on the Map enclosed by paths are FORESTS, which only the Vagabond can move into.

To move, you must RULE the clearing you are moving from or moving to.

You rule a clearing if you have the most combined warririors and buildings there. On a tie, no one is ruler.

Various other actions in Root will require you to rule clearings.

**Move Example**

The Eyrie want to move out of this clearing, which they don't rule. They don't rule this clearing either, so they cannot move here. They do rule this clearing, so they can move here.

**Path** **Forest** **Slot** **Clearing**

**Warriors** **Buildings** **Tokens**

**1. Golden Rules**

**1.1 RULES CONFLICTS**

- 1.1.1 Precedence. If a card conflicts with the Law, follow that law. If the Law conflicts with a faction, follow with the Law. If both conflict, follow the Law. If you can follow both a general rule and a faction rule, follow both; if you cannot, follow the faction rule.
- 1.1.2 Use of CANNOT. The term CANNOT is absolute. It cannot be overridden unless explicitly instructed.
- 1.1.3 Simultaneous Effects. If two game effects occur simultaneously, the player taking the current turn chooses their order, unless explicitly instructed.
- 1.1.4 Use of TREAT. If you are prompted to TREAT one thing as another, the former takes on all the properties of the latter. (For example, if you called Outrage while treating yourself as another player, the other player would give the card.)

**1.2 PUBLIC AND PRIVATE INFORMATION**

- 1.2.1 Hands. Players may only show or reveal cards in their hand if explicitly instructed, but the number of cards in their hand is public information.
- 1.2.2 Discard. The discard pile can be searched and inspected at any time.

**1.3 NEGOTIATION AND DEALS**

- 1.3.1 Agreements. Players may discuss the game and make agreements, but they are non-binding.
- 1.3.2 Cards. Players may only give cards to each other if explicitly instructed.

**1.4 PLAYERS AND FACTS**

For simplicity, the Law refers to players, not factions. However, game effects (such as abilities and persistent effects) are properties of factions, not players. While controlling pieces of a faction they do not own, a player follows the rules of that faction unless explicitly instructed.

**1.5 GAME STRUCTURE**

Each player's turn has three phases: Birdsong, Daylight, and Evening. After a player completes all three phases, the next clockwise player begins their turn. Play continues until one player has won the game (3.1).

**2. Key Terms and Concepts**

**2.1 CARDS**

Each card has a suit: bird, fox, rabbit, or mouse. Most cards also have an effect you can craft (4.1).

**2.1.1 Birds Are Wild.** You can treat any bird card as a card of another suit, even if you must spend, take, or give multiple cards of the same suit.

**2.2 CLEARINGS AND PATHS**

The map of the Woodland is composed of many CLEARINGS connected by PATHS.

- 2.2.1 Adjacency. A clearing is adjacent to all other clearings linked to it by a path.
- 2.2.2 Suit. Each clearing has a suit: mouse, rabbit, or fox.
- 2.2.3 Slots. Each clearing has a number of slots (suit boxes). Whenever you place a building, it fills an open slot. You cannot place a building in a clearing with no open slots.
- 2.2.4 Ruins. Slots marked with a small "R" begin the game filled with RUINS. Ruins can only be removed by the Vagabond's Explore action (3.5.3).

**2.3 RIVERS**

Many clearings are linked by RIVERS. By default rivers are not paths, but can be treated as paths if explicitly instructed. Rivers do not divide clearings or forests.

**2.4 FORESTS**

Ares on the map enclosed by paths and clearings are called FORESTS.

- 2.4.1 Adjacency. A forest is adjacent to all clearings that touch it without crossing a path, and it is adjacent to all forests that are separated by only one path.

**2.5 PIECES**

Each faction has a set of pieces listed on the back of its faction board. Pieces are limited by the contents of the game. If you are prompted to place, take, or remove any number of pieces but you cannot, you must place, take, or remove the maximum number possible.

Figure 60. Left: a page from Learning-to-play guide; rich of visuals, easy to comprehend. Right: The Law of Root; contains complete, detailed rules of Root board game.

## 6. Official Rules

This type of rule is made when participants take the game seriously enough to want to include elements of the

law into the established norms, OR, however, big game companies such as Konami take care of the community by changing the official rule of the Yu-Gi-Oh card game periodically. Eventually, it makes the community's dynamic positively impact both sides: the company and the community. Sometimes, these formal guidelines eventually become written rules. In Yu-Gi-Oh, there are banned card lists that all the players are not allowed to use in competitive, official tournaments. Figure 61 shows the Yu-Gi-oh!'s limited card list in 2023.

The screenshot shows the official Yu-Gi-Oh! website's header with the Konami logo, a red Yu-Gi-Oh! logo, and navigation links for PRODUCTS, PLAY, EVENTS, NEWS, and NEW TO YU-GI-OH!. A language selector at the top right offers English, Español, and Português. The main content area features a large blue header "Forbidden & Limited Lists February 13, 2023" and a sub-header "Effective from Feb 13, 2023". Below this, a bulleted list of rules includes:

- Cards that are "Forbidden" cannot be used in your Main Deck, Extra Deck, or Side Deck.
- You can only have 1 copy maximum of a "Limited" card in your Main Deck, Extra Deck, and Side Deck combined.
- You can only have 2 copies maximum of a "Semi-limited" card in your Main Deck, Extra Deck, and Side Deck combined.

A note states: "The next update after this will be in a few months." A link to "The previous (Dec 1, 2022) list will remain in effect until Feb 13, 2023." is provided, along with an "Updated: 2/6/2023" timestamp. The bottom section displays a table of banned cards:

Card Type	Card Name	Advanced Format	Traditional Format	Remarks
Monster/Effect	ARCHNEMESES PROTOS	Forbidden	Limited	
Monster/Effect	ARTIFACT SCYTHE	Forbidden	Limited	New
Monster/Effect	BARRIER STATUE OF THE STORMWINDS	Forbidden	Limited	New
Monster/Effect	BLACKWING – GOFU THE VAGUE SHADOW	Forbidden	Limited	
Monster/Effect	BLASTER, DRAGON RULER OF INFERNOS	Forbidden	Limited	
Monster/Effect	BLOCK DRAGON	Forbidden	Limited	

Figure 61. Official banned card list of Yu-Gi-Oh! trading card game by Konami.

## 7. Advisory Rules

Often referred to as “rules of strategy,” these are simply ideas to help you play better and are not technically “rules” at all. Many board game rulebooks clearly state a chapter of this rule with simply “Tips”.

## 8. House Rules

Parlett doesn't provide a clear description of these rules, but he notes that players may adjust the operational rules during gameplay to enhance the enjoyment of the game. This corresponds to the “feedback” rule on his diagram, as players typically establish house rules in response to perceived shortcomings after a few rounds of play.

### 7.5 Skills

The skill mechanic shifts the emphasis away from the game and onto the player. Every game demands players to use specific skills. Suppose the player's skill level corresponds to the game's difficulty. In that case, the player will feel challenged and remain in the flow channel proposed by Mihaly Csikszentmihalyi, as illustrated in Figure 7 in Chapter IV. Skills are often classified into three types:

## 1. Physical Skills

Physical abilities such as strength, dexterity, coordination, and endurance are crucial for most sports. In addition, video games like Dance Dance Revolution (shown in Figure 62) and many Nintendo Wii and Nintendo Switch games require players to possess a wider range of physical skills beyond just manipulating a game controller effectively.



Figure 62. Two players play Dance Dance Revolution in arcade.

(This photo is taken from <https://www.polygon.com/features/2017/12/11/16290772/the-rise-fall-and-return-of-dance-dance-revolution-in-america>)

## 2. Mental Skills

Memory, observation, and puzzle-solving are examples of these abilities. Although some players avoid games that demand too many mental skills, it is uncommon to find a game that doesn't require some mental skills. Games are exciting when there are intriguing decisions to make, and decision-making is a mental skill. Figure 63 shows the screenshot of A Space for The Unbound. This game serves us a story about how to overcome anxiety and depression in the rural community in Indonesia. The game mechanics in this game is simple, side-scroll with some puzzles player need to solve. All I can say is this game really depicts the situation in our community (Indonesia's rural areas). Both, story and the environment. This game has been awarded several awards.



Figure 63. In the game of A Space for The Unbound, player will face mental challenging stories (explicitly and implicitly).

### 3. Social Skills

Some examples are reading an opponent (guessing what he is thinking), deceiving an opponent, and collaborating with teammates. Typically, we think of social skills as the capacity to make friends and influence others. Still, the breadth of social and communication abilities in games is considerably broader. You and your team must carefully pick and ban the heroes from building up strategy and ruining your enemy's tactic in Dota2 (see Figure 64). Because you may construct many alternatives of combo attack with heroes. Of course, a competitive game like Dota2 demand multiple type of skills of yours to compete. Thus, team communication is essential in competitive game like this.

## GAME STARTUP MANUAL: GAME DESIGN [DRAFT]



Figure 64. In Dota2, there is a picking and banning phase. That's why you and your team need to communicate.