



UNIVERSITÀ DEGLI STUDI DI MILANO
DIPARTIMENTO DI INFORMATICA

OGD Lesson 003: Formal elements & c.

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– ay 2021-22



LO03. Summary

- Working with formal elements
- Working with dramatic elements
- References:
 - Chapters 3, 4 “Game Design Workshop” by T. Fullerton
 - Chapter 3 “Designing virtual worlds” by R. A. Bartle
 - Chapter 5, 8, 9, 12, 13, 20 «The art of game design» by J. Schell
- Suggested readings:
 - «Challenges for game designers» by B.Brathwaite & I.Schreiber
 - Designer perspectives “Game Design Workshop” by T. Fullerton
 - “Untold Riches: The Intricate Platforming of *Tomb Raider*” - Gamasutra
 - “Rational Design: The Core of *Rayman Origins*” - Gamasutra
 - “Understanding Comics” - S. McCloud



Structure of games
Formal elements



The importance of formal elements

- Formal elements form the structure of a game: **without them, games cease to be games**
- You can use them to create innovative combinations and new types of gameplay
- Let's dig a bit deeper in formal els. and their "mix" ... because:



**A STRONG UNDERSTANDING OF POTENTIAL
INTERRELATIONSHIPS AMONG FORMAL ELEMENTS IS THE
FOUNDATION OF GAME DESIGN**

Formal el.: 1. Players

- **Games** = experiences designed for players, which voluntarily accept rules and constraint («magic circle»)
- While playing, **players perform actions** which:
 - **They'd never otherwise consider** (killing, shooting, betrayal, etc.)
 - **They'd like to think to be capable of** (courage, sacrifice, decision making, ...)
- Important elements to consider:
 1. **Invitation** to play
 2. **Number** of players
 3. **Roles** of players
 4. Player **interaction patterns**



IGN

1. Players: 1.1 invitation to play

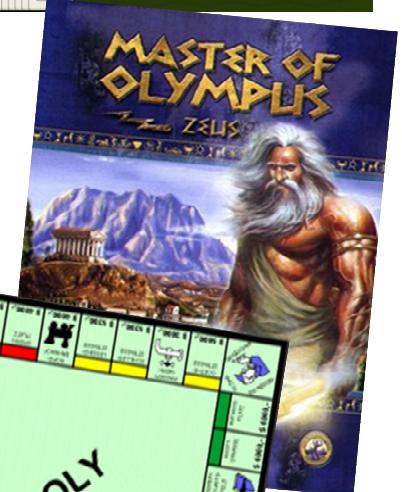
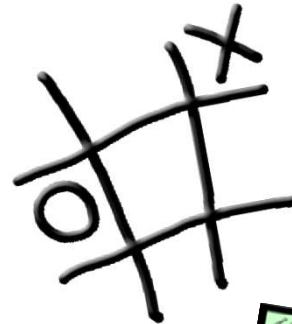
- Invitation to join in the magic circle =
one of the most important moments
 - In a theatre/cinema: proscenium/screen
 - In a card game: social moment
 - In a videogame: ???



- Try to craft the invitation in order to make it **visceral & compelling** (to your target players!!)

1. Players: 1.2 Number of players

- The **number of players** (1 to $n > 0$, exact vs variable) has great impact on the game design ...
 - **Exactly 1** player: solitaire
 - Generally **1 player**: many video games
 - **Exactly 2** players: tic-tac-toe
 - From **2 to 4** players: Labyrinth
 - From **2 to 8** players: Monopoly
 - **Tons** of players: WoW



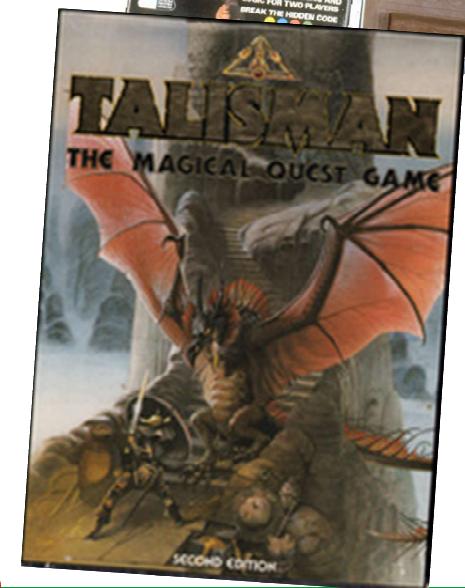
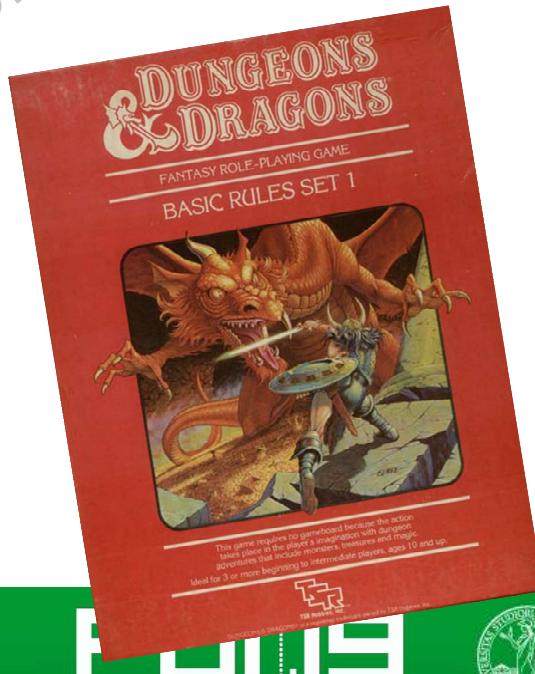
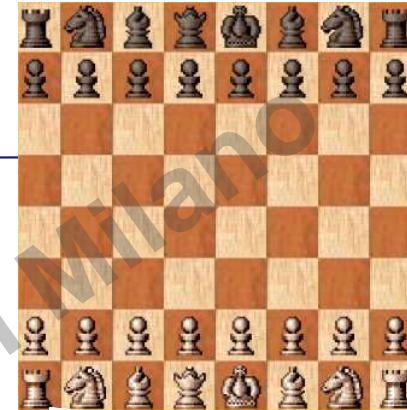
1. Players: 1.3 Roles of players

Bartle's Player Type

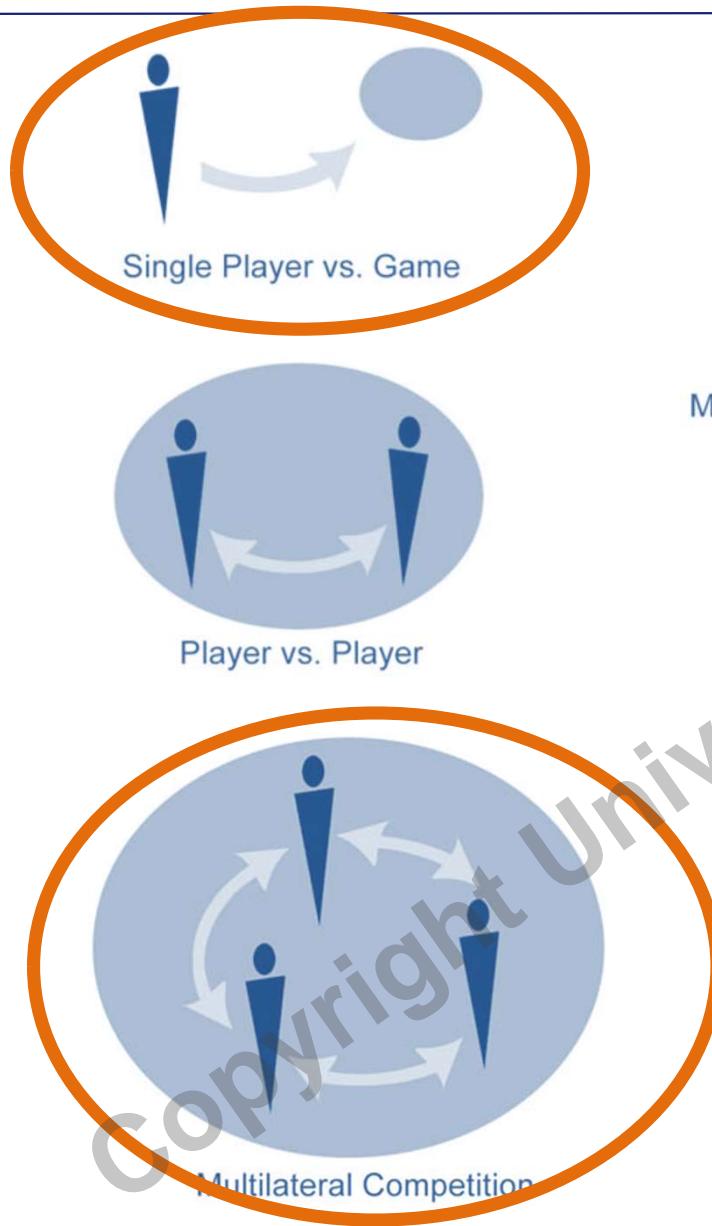


1. Players: 1.3 Roles of players

- **Same role for all players:** Chess, Monopoly
- **More than one role:** Master Mind
- **A variety** of roles: Talisman
- **Role-Playing:** D&D
- **Player-defined** roles: Minecraft

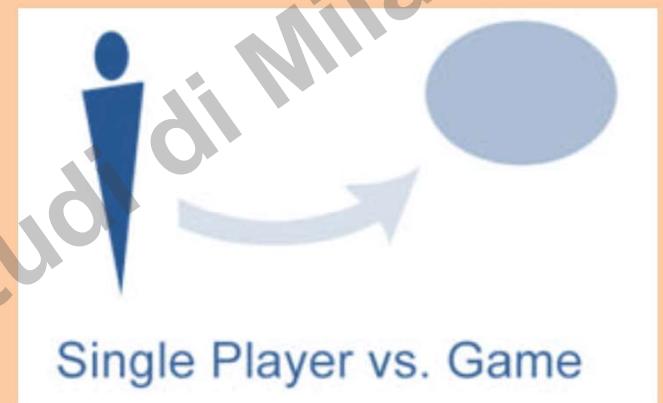


1. Players: 1.4 player interaction pattern

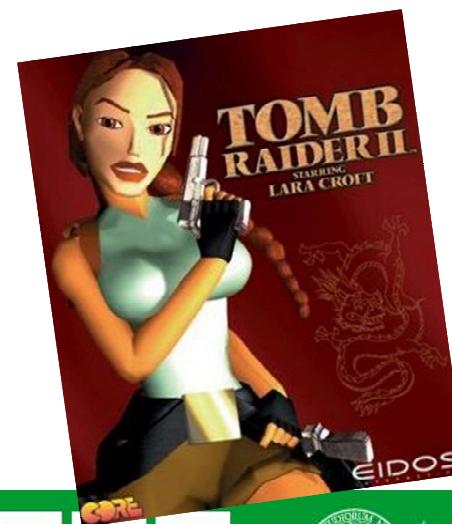


1. Players: 1.4 player interaction pattern

- Very common pattern
 - Solitaire, Pac-Man, Tomb Raider, etc.
- Usually includes **puzzles** to generate **conflict** (no real opponent)



- Note: this pattern comes to mind when thinking of video games, but games have always been intrinsically multiplayer!



1. Players: 1.4 player interaction pattern

- Multiple players compete against the game system
- No interaction among players



Multiple Individual Players vs. Game

- Pattern not so common in videogames
 - Exception: AOL Slingo
- Pattern works well for:
 - Non-competitive players
 - Gambling games



1. Players: 1.4 player interaction pattern

- Two players compete
 - Chess, tennis, checkers, etc.



- Pattern ok for:
 - Strategic games
 - Competitive players



1. Players: 1.4 player interaction pattern

- Two or more players compete against one
 - Tag, Scotland Yard, dodge ball, etc.



- Pattern undervalued, ok for:
 - mixing cooperative & competitive gameplay
 - Highly strategic or “free for all” games

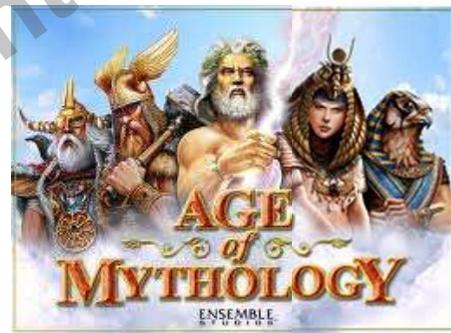
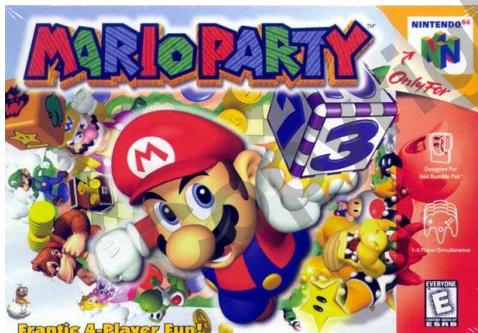


1. Players: 1.4 player interaction pattern

- Three or more players compete
 - The pattern of so-called “multiplayer” videogame
 - Ex.: Age of Mithology, WarCraft III, Poker, Call of Duty: black ops, Starcraft II, Monopoly, etc.



- 3-6 players is “ideal” for board games: why?
Social forces at play ... try to exploit this for videogames ..



1. Players: 1.4 player interaction pattern

- Two or more players cooperate against the game system
 - Cooperative quests in WoW and Dofus, LotR Board Game, Portal 2, etc.



- Pattern undervalued, adopted mainly for children games
- Lots of innovation lately (Journey)



1. Players: 1.4 player interaction pattern

- Two or more groups compete

- Team (e)sports, Tribes, Quiddich, etc.



- Teams/clans/guilds sprang up immediately upon the introduction of multiplayers / massively multiplayers



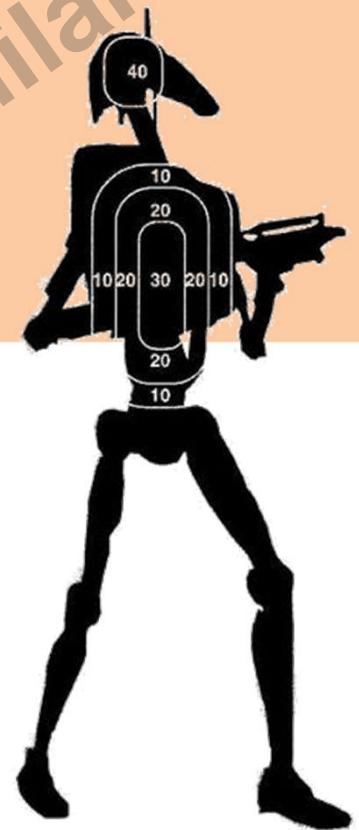
Formal el.: 2.Objectives

- Obs. define what players should accomplish within the rules of the game, but they also may **set the tone** of the game.



- Hence, they affect:
 - The **formal** system
 - The **dramatic** system

Can we make any generalization about objectives?



2. Objectives: The lens of goals

- Games are **ABOUT ACHIEVING GOALS:**
 - You MUST be able to **STATE** your **game's goal** and state it **CLEARLY**
 - If you have a **SEQUENCE OF GOALS**, you MUST **STATE EACH** and **HOW THEY RELATE** to one another
 - The more easily a player understand goals, the more she wants to play your game ... !
 - When a goal is set in the player's mind, it gives **huge motivations**

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The Lens of
Goals



Illustration by Zachary D. Coe



To ensure the goals of your game are appropriate and well balanced, ask yourself these questions:

- What is the ultimate goal of my game?
- Is that goal clear to players?
- If there are a series of goals, do the players understand that?
- Are the different goals related to each other in a meaningful way?
- Are my goals concrete, achievable and rewarding?
- Do I have a good balance of short and long term goals?
- Do players have a chance to decide their own goals?

2. Objectives: The lens of goals

- GOOD game goals are:
 - **Concrete**: clearly understandable
 - **Achievable**: player knows she has a chance of achieving the goal
 - **Balanced**: short & long term goals
 - **Rewarding**: achieving alone it's ok, but it's better to make players proud of their achievement ...

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The Lens of
Goals



Illustration by Zachary D. Coe



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- *Are my goals concrete, achievable and rewarding?*
 - *Do I have a good balance of short and long term goals?*
 - *Do players have a chance to decide their own goals?*

2. Objectives: The lens of goals & pleasure

- figure out ways to reward your players for achieving a goal!
- Possible types of **pleasures**:
 - Anticipation
 - Completion
 - Delight in another's misfortune
 - Gift giving
 - Humor
 - Possibility
 - Pride in accomplishment
 - Surprise
 - Thrill
 - Triumph over adversity
 - Wonder
 - Etc.

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The Lens of
Pleasure



Illustration by Jim Rugg

To use this lens, think about the kinds of pleasure your game does and does not provide. Ask yourself these questions:

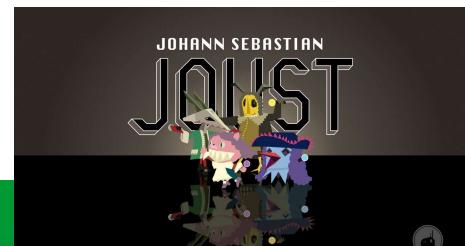
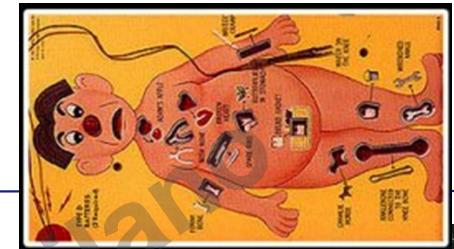
- What pleasures does my game give to players? Can these be improved?
- What pleasures are missing from my game's experience? Why? Can they be added?

2. Objectives (examples)

- **Connect Four**: Be the first player to place four units in a contiguous line
- **Battleship**: Be the first player to sink all of your opponent's ships
- **Mastermind**: Deduce the secret code of four colored pegs in as few steps as possible
- **Clue**: Be the first player to deduce who, where, and how a murder was committed
- **Super Mario Bros.**: Rescue Princess from the evil Bowser by completing all eight worlds (32 levels) of the game, each of which have their own miniobjectives
- **Spyro the Dragon**: Rescue your fellow dragons who have been turned to stone, and defeat the evil Gnasty Gnorc by completing all six worlds of the game, each of which have their own miniobjectives
- **Civilization**: Option 1: conquer all other civilizations, Option 2: colonize the star Alpha Centauri, etc.
- **The Sims**: Manage the lives of a virtual household; as long as you can keep your household alive, you can set your own goals for the game
- **Chess**: Checkmate your opponent's king

2. Objectives (generalization)

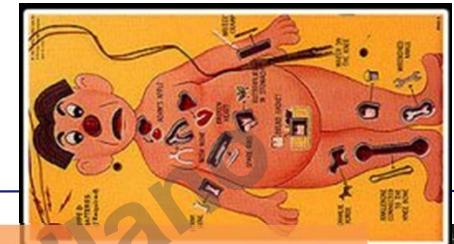
- **Capture**: take/destroy something of the opponent(s) while not dying (chess, Quake, WarCraft, Command & Conquer, etc.)
- **Chase**: catch/elude and opponent (Fox & Geese, Assassin, Need for speed: rivals, Scotland Yard, etc.)
- **Race**: reach a physical /conceptual goal before the others (backgammon, racing games, GT6, etc.)
- **Alignment**: arrange game pieces in a certain configuration (tic-tac-toe, solitaire, Connect 4, Tetris, Bejeweled, etc.)
- **Rescue or escape**: get a defined unit(s) to safety (Super Mario Bros., Prince of Persia 3D, Ico, etc.)
- **Forbidden act**: get the competition to break the rules (Don't break the ice, Twister, Operation, Joust, etc.)
- **Construction**: build/maintain /manage objects (SimCity, Settlers of Catan, The Sims, Zeus, etc.)
- **Exploration**: explore game areas (Colossal Cave Adventure, Zelda, Ultima, Everquest, Dear Esther, etc.)
- **Solution**: solve a problem before/ more accurately than competitors (Myst, Tetris, The Sims, Mario, Connect 4, etc.)
- **Outwit**: gain & use knowledge in a way that defeat competitors (Trivial Pursuit, Diplomacy, etc.)



2. Objectives (generalization)

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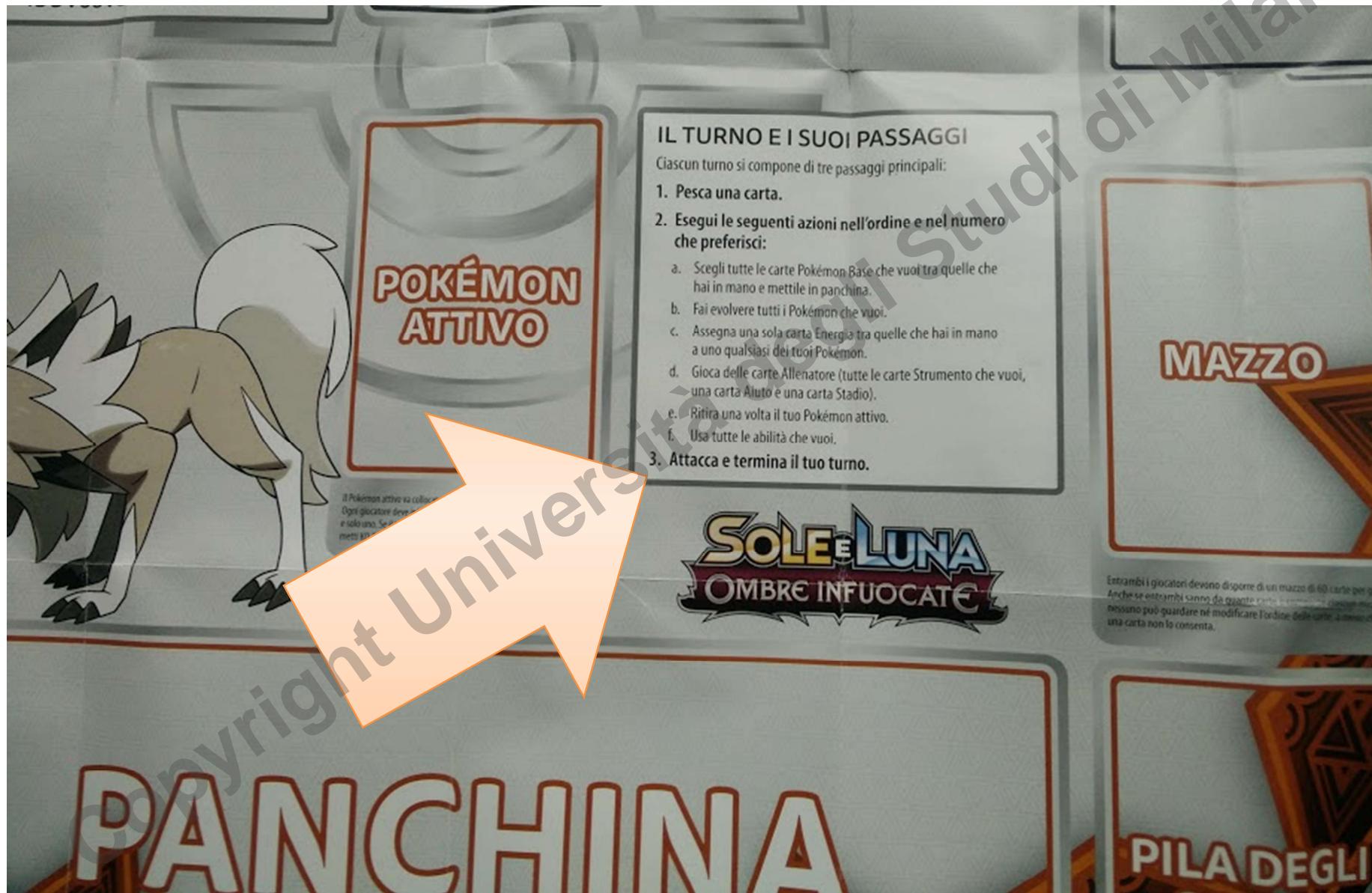


Looking for new ideas?

Just try to mix up different types of objectives...

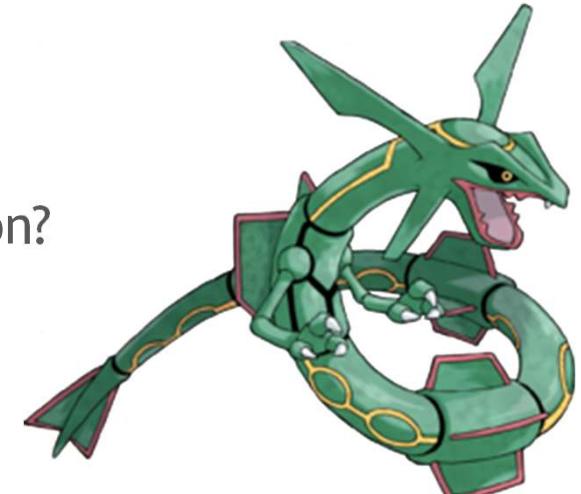


Formal el.: 3. Procedures



Formal el.: 3. Procedures

- Procedures = **methods of play** and **actions** that players can take **to achieve** the game **objectives**
- We may think about procedures as: **Who** does **what**, **where**, **when**, and **how**?
 - **Who can use the procedure?**
One player? Some players? All the players?
 - **What exactly does the player do?**
 - **Where does the procedure occur?**
Is the availability of the procedure limited by location?
 - **When does it take place?**
Is it limited by turn, time, or game state?
 - **How do players access the procedure?**
Directly by physical interaction? Indirectly through a controller/input device? By verbal command?



Formal el.: 3. Procedures

- Procedures = **methods of play** and **actions** that players can take **to achieve** the game **objectives**

- We may think about procedures as: **Who** does **what**, **where**, **when**, and **how**?

NOTE the difference:

- Who can use the procedure?
One player? Some players? All the players?
- **Board games: procedures & rules on paper**
- Where does the procedure occur?
Is the availability of the procedure limited by location?
- **Video games: procedures integrated into the controls, rules hidden**
- How do players access the procedure?
Directly by physical interaction? Indirectly through a controller/input device? By verbal command?

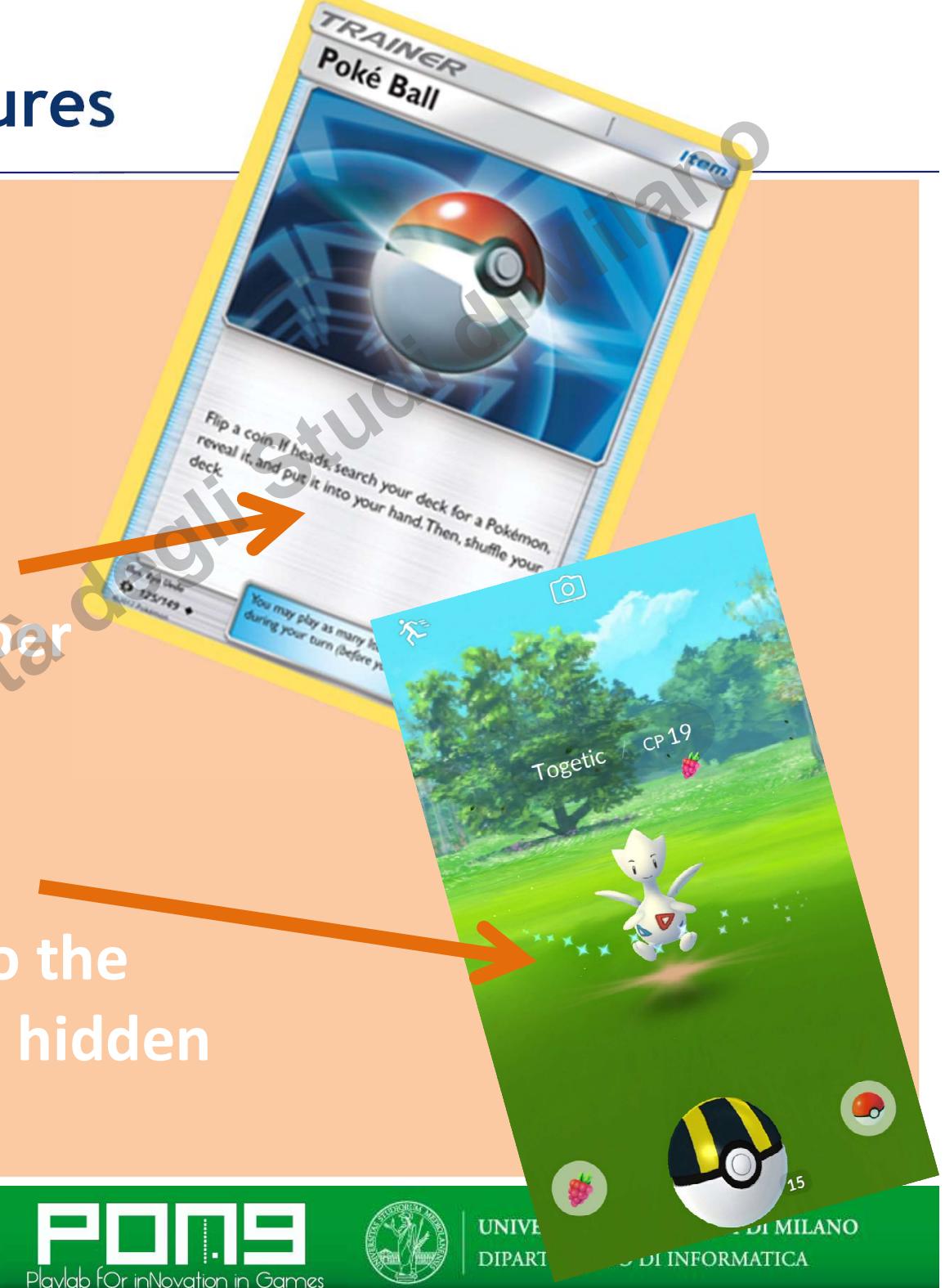


Formal el.: 3. Procedures

NOTE the difference:

Board games: procedures
& rules on paper

Video games: procedures
integrated into the
controls, rules hidden



3. Procedures

- Types of procedures that most games have:

1. **Starting action:**
how to start the game

2. **Progression of action:**
procedure after the starting

3. **Special actions:**
available depending on game state

4. **Resolving actions:**
bring the game to an end



3. Procedures

Super Mario Bros.

- **Select button:** select the type of game to play
- **Start button:** pressing will start the game or pause/ unpause (during game)
- **Left arrow:** walk/run (butt.B)
- **Right arrow:** walk/run (butt.B)
- **Down:** crouch (Mario only)
- **A button:** jump (the longer the higher, highest with B)
- **B button:** accellerate / throw fireballs

Connect four

- Choose first player
- On turn, a player drops one of her checkers in the grid
- Play alternates until one players has 4 checkers in a row (horizontal/vertical/diagonal)



3. Procedures



vs



Super Mario Bros.

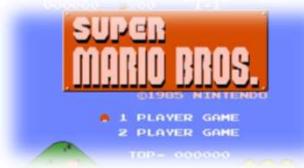
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Starting action

3. Procedures:



VS



Super Mario Bros.

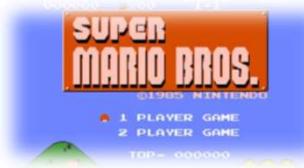
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Progression

3. Procedures:



VS



Super Mario Bros.

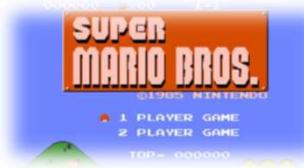
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Connect four

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- On turn, a player drops one of her checkers in the grid
- Play alternates until one players has 4 checkers in a row (horizontal/vertical/diagonal)

Special actions

3. Procedures:



VS



Super Mario Bros.

- **Select button:** select the type of game to play
- **Start button:** pressing will start the game or pause/ unpause (during game)
- **Left arrow:** walk/run (butt.B)
- **Right arrow:** walk/run (butt.B)
- **Down:** crouch (Mario only)
- **A button:** jump (the longer the higher, highest with B)
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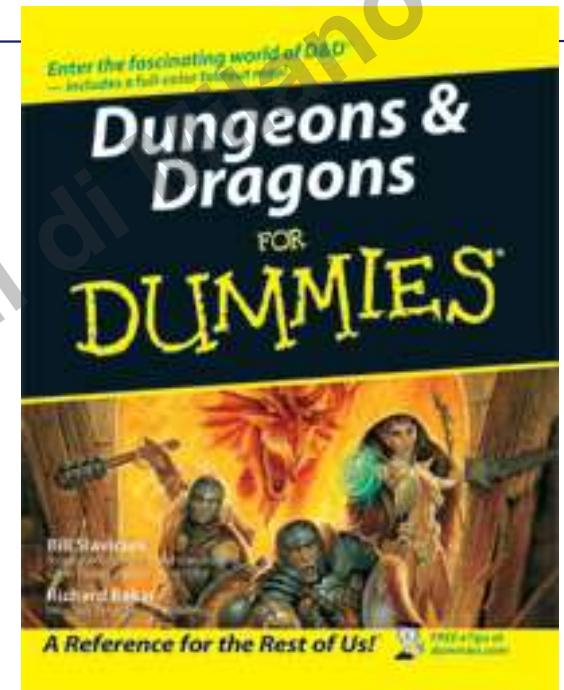
Connect four

- Choose first player
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Resolving action

3. Procedures

- Digital games can have:
 - very complex game states
 - Hidden multifaceted system procedures,
responding to situations and player actions
- NB: but high complexity may stem from very simple objects & procedures
(-> Chess) !!!





KEEP

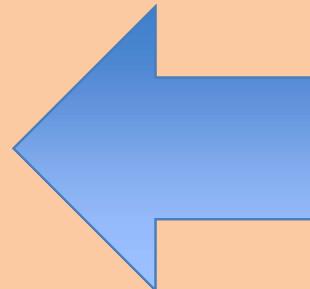
CALM

&

FOLLOW
THE RULES

Formal el.: 4. Rules

- Rules define game objects and allowable actions
They can be:
 - Explained by **players** (hopscotch, etc.)
 - Explained in **manuals** (video games, board games, RPGs, etc.)
 - **Implicit** in the game (video games)
- When designing rules:
 - Think of them in relation to your players
 - State them very clearly (avoid confusion/alienation of players)
- ... so what? ... let's try to find some generalities about:
 1. Defining objects and concepts
 2. Restricting actions
 3. Determining effects
 4. Defining rules



4. Rules - 4.1 Defining objects and concepts

- Objects in games:
 - Can be **fabricated** or **based on ABSTRACTIONS** of real-world objects
 - have a unique status and meaning **defined as part of the game's rule set**



- Objects in board & c. games:
 - defined explicitly by the rules, that players must understand
=> (generally) very simple objects
- Objects in videogames:
 - Can be made up by complex set of variables, managed by the system, that define their status



Online D&D
Class: WIZARD
Race: ELF
Alignment: Lawful Good

Starting Base Stats
Abilities (Level 1)
Strength 10
Dexterity 14
Constitution 12
Intelligence 18
Wisdom 8
Charisma 8

HOW PLAYERS WILL LEARN
ABOUT THESE OBJECTS ?

4. Rules - 4.2 Restricting actions

- Rules restrict actions:

- to **address potential loopholes** in the game system

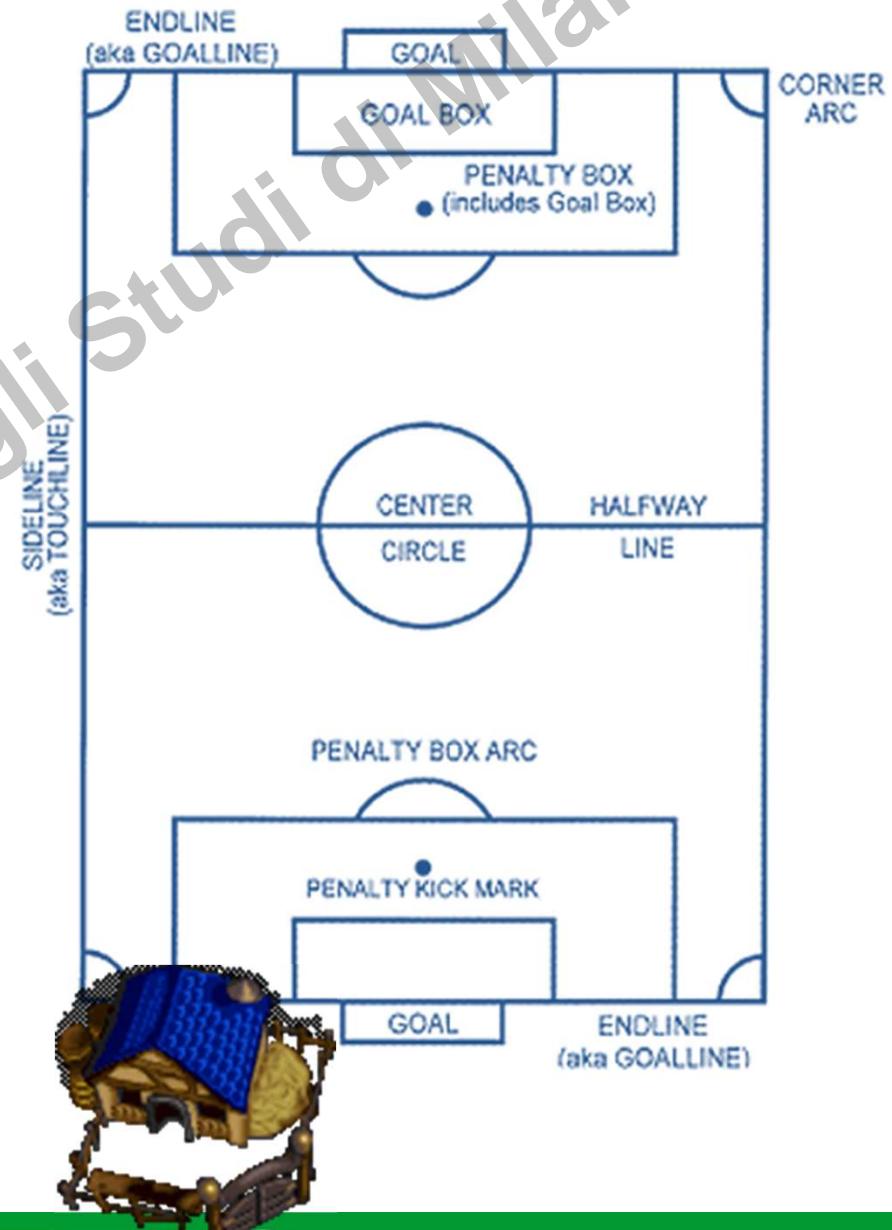
Chess: “u can’t move your king into check”

(-> prevents to loose the game accidentally)

- To produce **delimitations**

(soccer: “team of 11 players, field 360X160 feet”)

- To **avoid unbalancing** the game
(WarCraft II: “to create knights, you need a stable”)



4. Rules - 4.3 Determining effects

- Rules can trigger effects based on certain circumstances. This:

- Creates **variations in the gameplay**: in Memory the second player has an advantage if the first did not find a match ...
 - Can **get the gameplay on track**: in a single player you can die to force you to take care of your actions ...



4. Rules - 4.4 Defining rules

- Remember that:
 - (similarly to procedures) how u define the rules will be **affected by the play environment**
 - Rules need to be **clear** to players
 - Rules need to be **intuitively grasped**
 - Rules should be **fair** and **responsive**
 - The more **complex** the rule, the more **demanding** for players (the risk of discarding your game rises)
 - Counter-example: Magic, D&D, many RPGs ...



4. The Lens of Rules

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The Lens of
Rules



- GD is NOT about sitting down & writing a set of rules:
rules are arrived at gradually and experimentally

– Take notes while playtesting!

- Written rules arrived **toward the end** of the design process
- Part of the GD work is to be sure that **rules cover every circumstance**

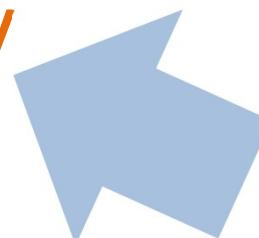


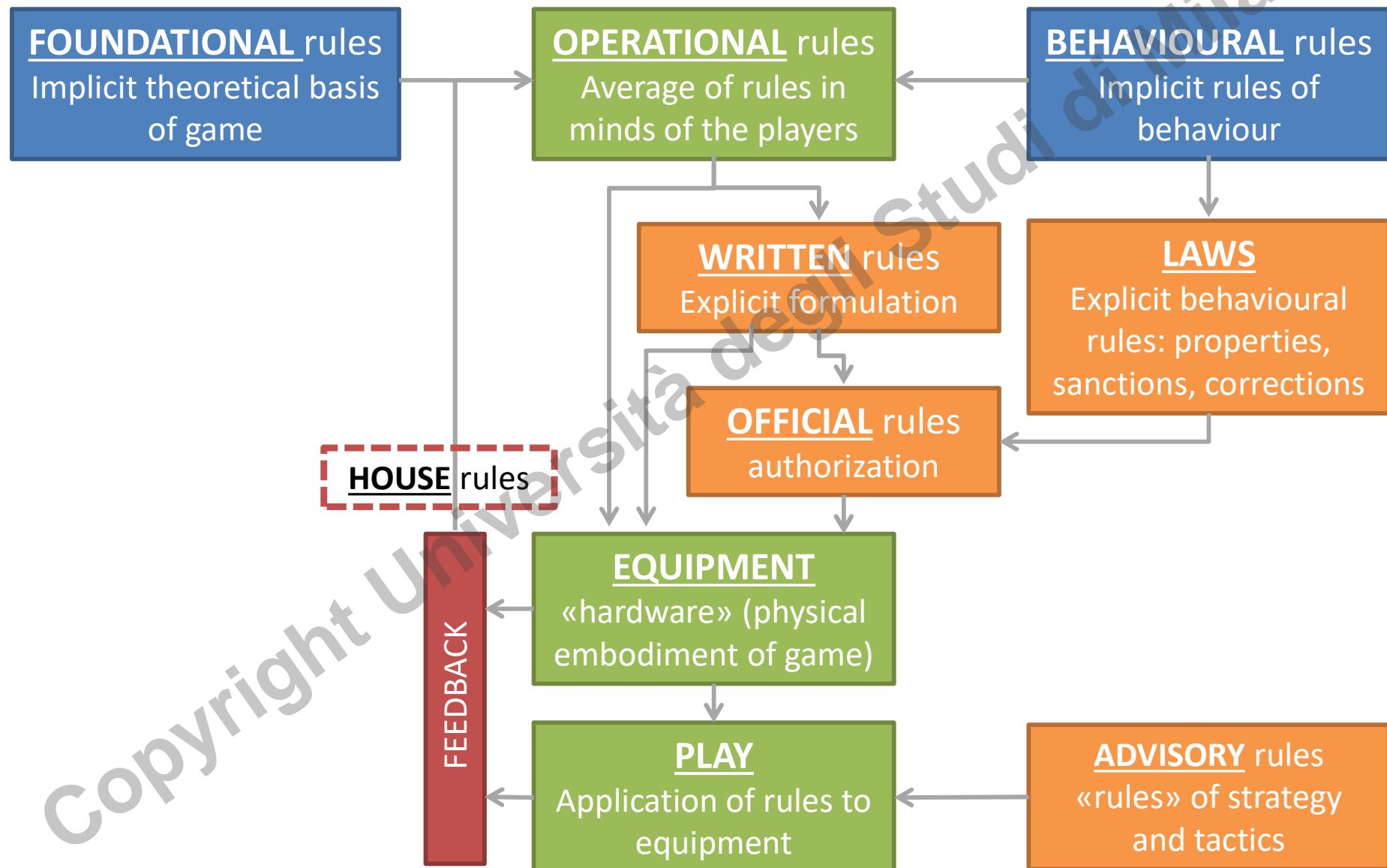
Illustration by Joshua Seaver



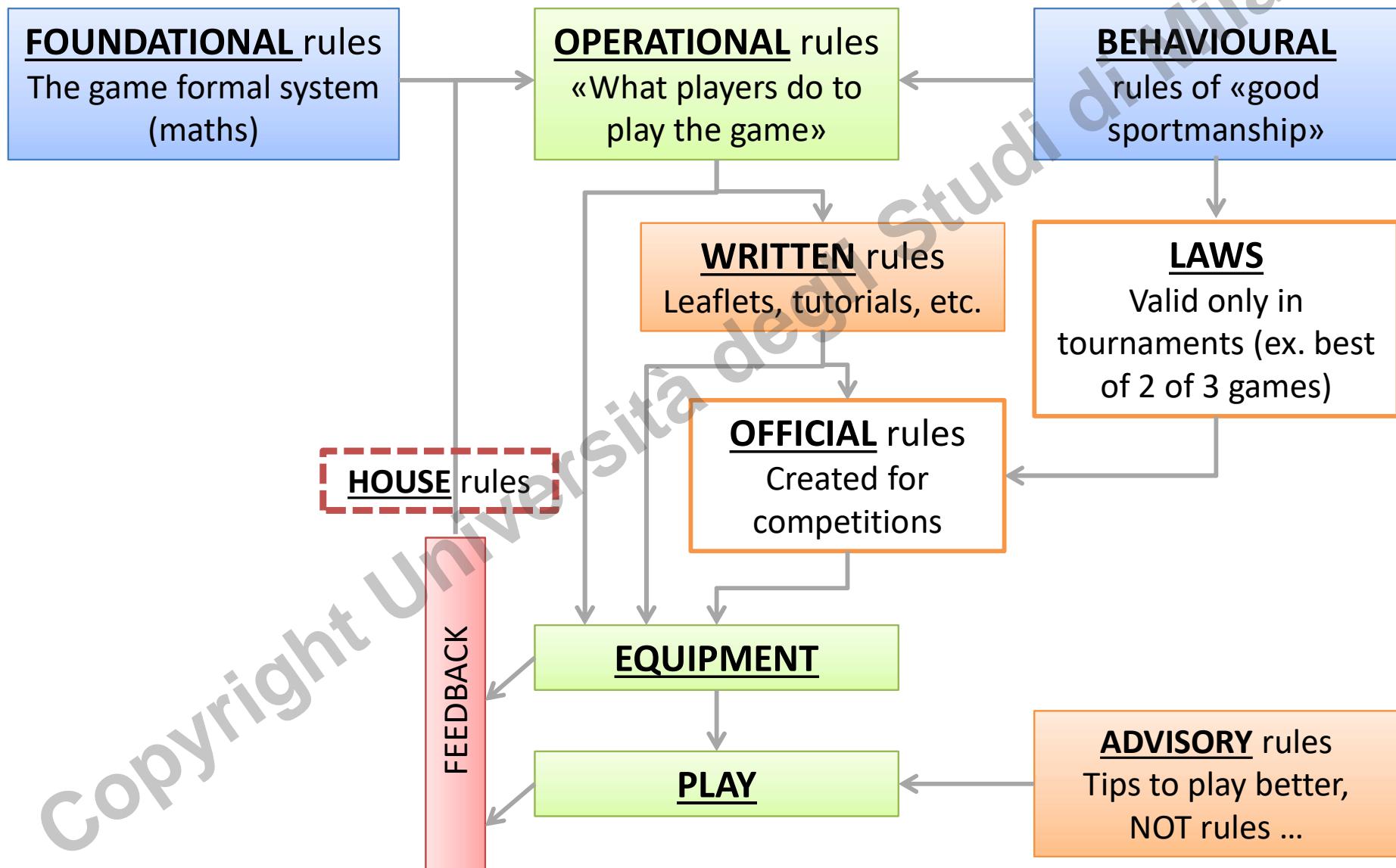
To use this lens, look deep into your game until you can make out its most basic structure. Ask yourself these questions:

- What are the foundational rules of my game? How do these differ from the operational rules?
- Are there "laws" or "house rules" that are forming as the game develops? Should these be incorporated into my game directly?
- Are there different modes in my game? Do they make things simpler, or more complex? Would the game be better with more or less modes?
- Who enforces the rules?
- Are the rules easy to understand, or are they confusing? If confusing, should I change the rules or explain them more clearly?

4. Rules: a complete set (by D.Parlett)



4. Rules: a complete set (by D.Parlett)



Formal el.: 5. Resources

- Resources are assets. It is necessary to determine:
 - Which they are
 - How and when player can access them



asset ?



asset !

5. Resources



1. Lives:

ok in action games; the more the better

2. Units:

ok (instead of lives) when player represented by several objects; may upgrade/evolve; may be of different types, can be finite/renewable (cost)

3. Health:

helps to dramatize lives/units loss; requires ways to increase (medical kit, ...)

4. Currency:

key for in-game economy; same role than in RL; may be used also barter

5. Actions:

moves/turns may be rare & scarce resources (Magic: u need to plan your turn in advance!)

6. Power-ups:

give boosts to players; generally: temporary, rare, useful only in certain circumstances, etc.

7. Inventory:

used to collect (rare) objects that help players to reach the goal (cards in Magic, ammo, weapons, etc.)

8. Special terrains:

important in map-based games (mines in WarCraft, bases in baseball, etc.);

9. Time:

periods of time may restrict players' actions (musical chairs, hot potato, time attack, etc.); high dramatic effect

This list is NOT exhaustive ...! ☺

Formal el.: 6. Conflict

- Conflict derives from **restrictions to goal reaching posed by rules, procedures and situations** (multiplayer):
 - Due to inefficient procedures, players are forced to use/develop particular (range of) skills, increasing sense of challenge & competition
- Sources of conflict:
 1. **Obstacles**: more used in single players, can be physical or mental (puzzles in adventure games)
 2. **Opponents**: other players (Quake, Monopoly, etc.)
 3. **Dilemmas**: dilemma-based choices (stay in or fold in Poker, use money to buy a property/to upgrade an existing one in Monopoly, etc.)





Formal el.: 7. Boundaries

- Boundaries creates the “magic circle”. They can be **conceptual (social agreement)** and/or **physical (a board)**
 - the designer must define boundaries and how to enter/exit them (imagine soccer with no defined field, or chess with an expanding board, or to add real money to fictional in Monopoly, ...), since they too shape the player experience
- “exception” to magic circle: **ARGs** (Alternate Reality Games) - mix real life and game:
I Love Bees, Cruel 2 be Kind, Big Urban Game, PacManhattan) Find 815, ...

The screenshot shows a web page with a green header "Margaret's Honey super-spy" and a navigation bar with links like "Home", "about me", "the hives", "honey". Below the header, there's a message: "HALT - MODULE CORE HEMORRHAGE" followed by "Control has been yielded to the SYSTEM PERIL DISTRIBUTED REFLX.". A "Mission Log" section lists tasks such as "spore", "gather", "abduct", "fertilize", "pollinate", "evade", "attack", "infect", "implant", "excrete", "clean", "harvest", "reinforce", "seed". A "Recruits" section lists "MIA" and "Recruits". A "COUNTDOWN TO WIDE AWAKE AND PHYSICAL!" section with the text "Make your decisions accordingly." A "FAQ" section with the question "Q: What happened to this site?" and the answer "A: No idea. Help me out [here](#)".



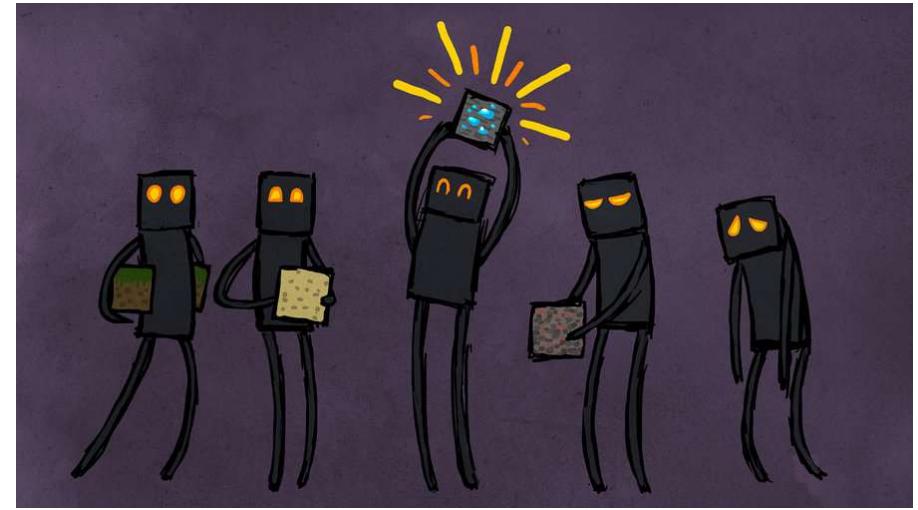
The screenshot shows a green header "B.U.G." and a "The Big Urban Game" section. It describes the game as a race between three teams (red, yellow, blue) through Twin Cities. The game involves moving a 25-foot high inflatable game piece through checkpoints. A "FAQ" section at the bottom right includes the text: "During the days of the race, the piece stands as a landmark at its current location, and becomes a center for community activity. Players can travel to the piece's location and roll a giant set of dice. The totals generated by the dice rolling of each team are compared, and the team with the highest total gets a head-start in that evening's race."

The screenshot shows a man in a green shirt looking at a laptop screen. The laptop screen displays a text message: "Not sleeping again. Something's still not right." Below the message, it says "The reporters have stopped calling. Everyone is moving on. Right 815 is a closed book for them. They think they have all the answers they need." At the bottom of the screen, it says "But I don't... S.T." To the right of the laptop is a red Poké Ball icon with the number "175".

FIND 815

Formal el.: 8. Outcome

- The outcome must be uncertain (measurable & unequal)
 - No clear “end state” (but other rewarding solutions): MMORPGs, simulation games
 - Ending condition (winner/loser): all the other games ...
- The final outcome is always related to
 - Players **interaction** pattern (single player, team competition, ...)
 - Nature of game **objectives** (points, capture, ...)
- Non/Zero-sum-games: subtle gradation of reward (ranking, statistics, multiple objectives, etc.)



8. Outcome & rewards

- People like to be judged fairly:
 - Rewards are the way the game tells «you have done well»!
 - Rewards **should fulfill the player's desire!**

- Common types of rewards:
 - **Praise**
 - **Points**
 - **Prolonged play** (*ball for pinball, extra lives, etc.*)
 - **Gateway** (*unlock new region, etc.*)
 - **Spectacle** (*music, animations*)
 - **Expression** (*clothes, decorations*)
 - **Powers**
 - **Resources**
 - **Status** (*leaderboard rankings, etc.*)
 - **Completion of the game ...!**





8. Outcome & rewards

- You can mix rewards to satisfy different players => balance?
 - The **more reward types the better**
 - Gradually **increase** rewards value
 - **Variable rewards** are more exciting than fixed ones

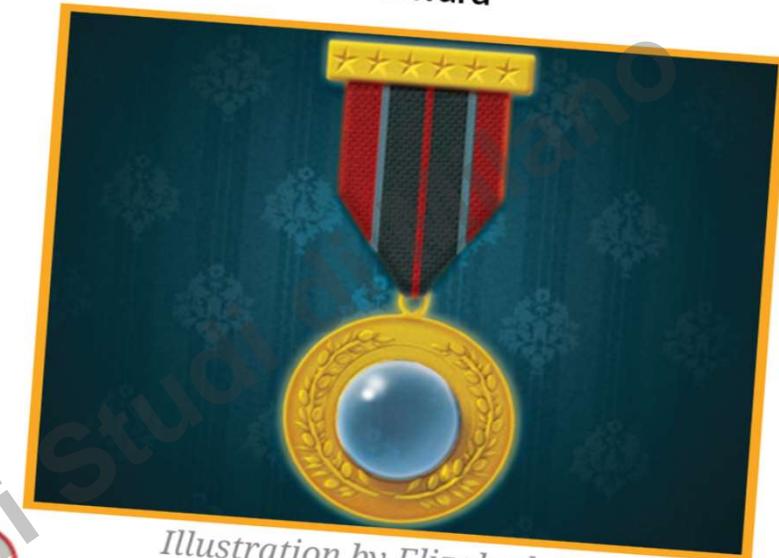


Illustration by Elizabeth Barndollar

Ask these questions to determine if your game is giving out the right rewards in the right amounts at the right times:

- What rewards is my game giving out now? Can it give out others as well?
- Are players excited when they get rewards in my game, or are they bored by them? Why?
- Getting a reward you don't understand is like getting no reward at all. Do my players understand their rewards?
- Are the rewards my game gives out too regular? Can they be given out in a more variable way?
- How are my rewards related to one another? Is there a way they could be better connected?
- How are my rewards building? Too fast, too slow, just right?

8. Outcome & punishment

Why punishing players?

- Punishment creates **endogenous value** (e.g. resources are worth higher when can be lost)
- Taking **risks is exciting**
- Possible punishment **increases challenge**

Common types
of punishment:

- **Shaming**
- **Loss of points**
- **Shortened play** (*losing 1 life*)
- **Terminated play**
- **Setback** (*last checkpoint*)
- **Removal of powers**
- **Resource depletion**



8. Outcome & punishment

- It's crucial that all punishments are for **things that the player is able to understand and prevent**

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The Lens of
Punishment



Illustration by Chris Daniel

Punishment must be used delicately. Balanced appropriately, it will make your game more meaningful, and provide successful players with a real sense of pride. To examine the punishment in your game, ask yourself these questions:

- A small subgroup of player LOVE insanely challenging games (Demon Souls ...)



- *What are the punishments in my game?*
- *Why am I punishing the players? What do I hope to achieve by it?*
- *Do my punishments seem fair to the players? Why or why not?*
- *Is there a way to turn these punishments into rewards and get the same, or a better effect?*
- *Are my strong punishments balanced against commensurately strong rewards?*

8. Outcome: reward vs punishment

- Reward is better than punishment ... if possible transform a punishment in a reward !!

- Ex.:



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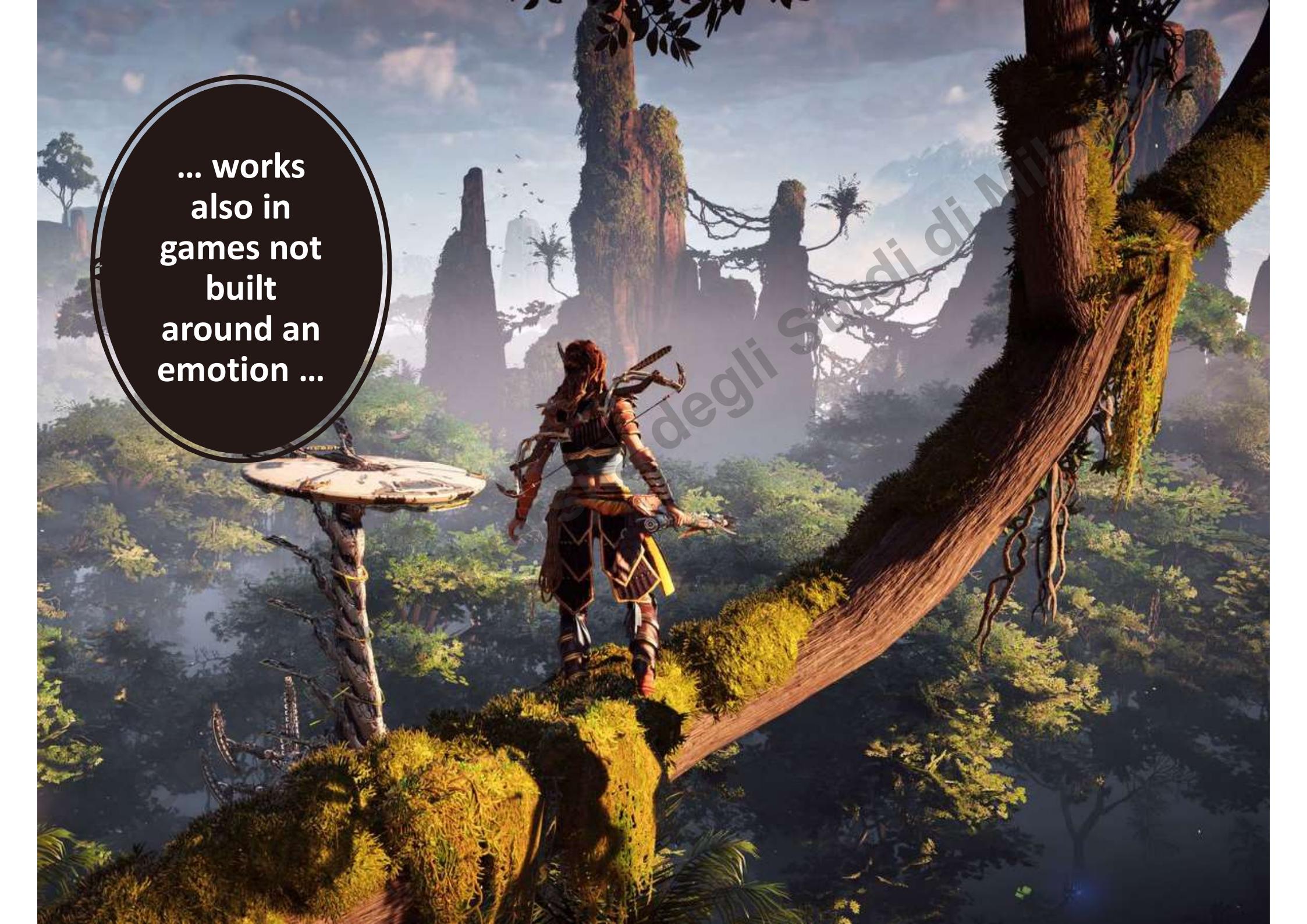
Structure of games

Dramatic elements



Adding emotions ...



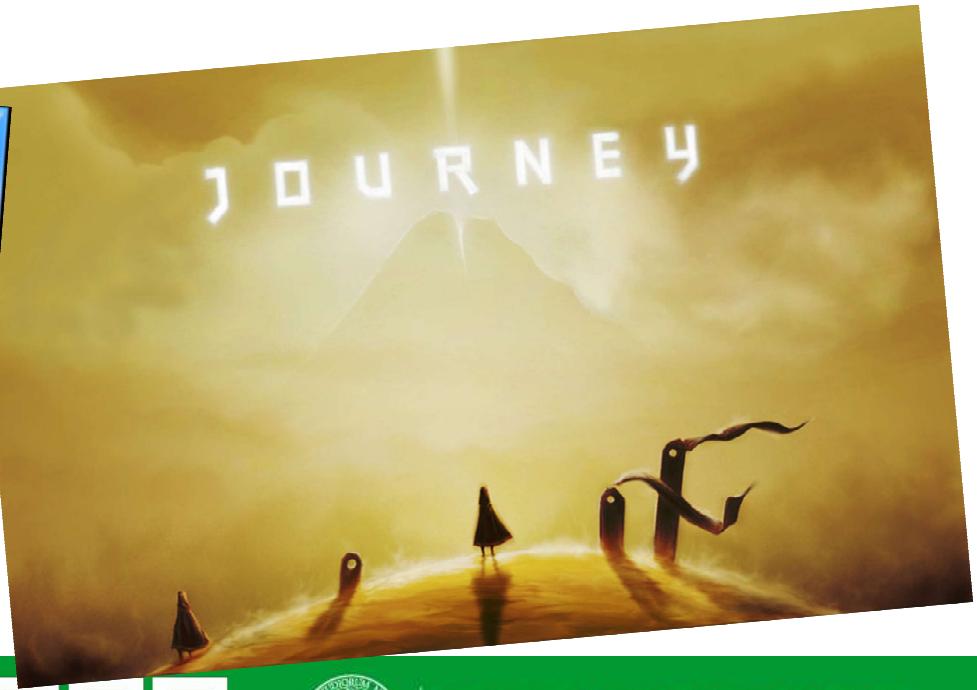


... works
also in
games not
built
around an
emotion ...

degli Studi di Milano

Adding emotions ...

- Formal els. create the game structure ... but
- Dramatical els. add **emotions** to the game. They:
 - Give **context**
 - Integrate the formal els. in a **meaningful experience** (do you remember? Metaphores...)
 - Create a **deeper sense of connection** to the game



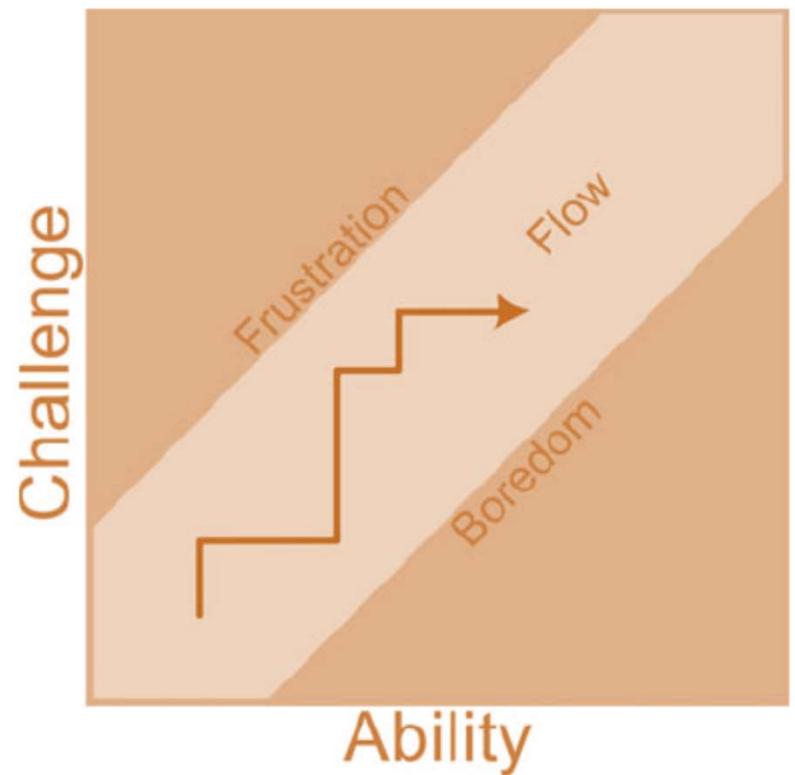
Dramatic el.: 1. Challenge

- **Challenge** = a task satisfying to complete => creates a sense of accomplishment and enjoyment:
 - **Individualization**: challenge determined by abilities of the player
 - **Dynamic**: the game must adapt to increasing skills



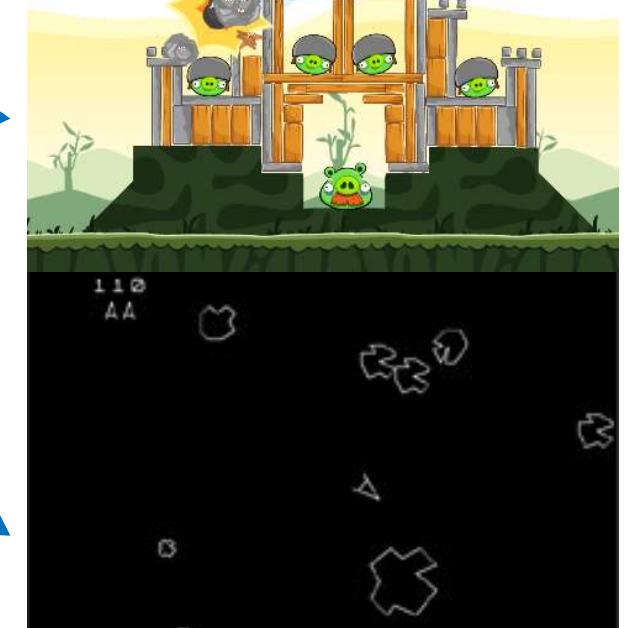
FLOW !!

... but ... how to achieve flow ?



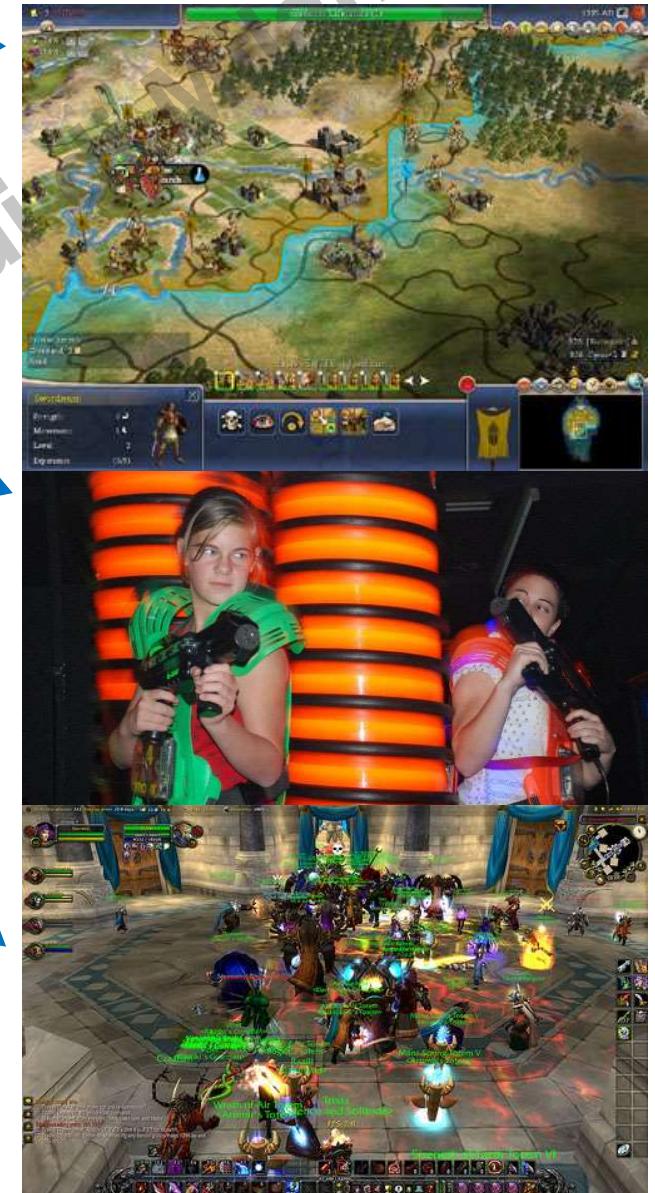
1. Challenge: achieving FLOW ...

- **A challenging activity that requires skill** (physical/mental):
having skills, but no guarantee of the outcome ... challenge!
- **The merging of action and awareness:**
when all skills are needed to cope with challenge => attention absorbed by the activity
- **Clear goals and feedback:**
we know what needs to be done and get immediate feedback
- **Concentration on the task at hand:**
we are aware only about what is relevant here and now. Focus entirely on game.



1. Challenge: achieving FLOW ...

- **The paradox of control:** → people enjoy feeling of control, but this is impossible unless outcome unsure (=> no control!)
- **The loss of self-consciousness:** → too involved to care about protecting ego
- **The transformation of time:** → perception of time is altered (videogames are addictive)
- **Experience becomes an end in itself:**
when most of the previous conditions are met, we enjoy the experience for itself



1. Challenge & skill

- Making a **LIST** of all the skills needed in your game is a very useful exercise ...
 - Listing skills can be **very tricky** (an action game is about twich? Yes, but also puzzle-solving and memorizing!)
- 3 main categories:
 - **Physical** skills
(beware of dance-based games...)
 - **Mental** skills
(memory, observation, puzzle solving, etc.)
 - **Social** skills
(reading opponents, socializing, etc.)



NB: skill chart

Not all the skills are necessary in every level: mixing skills adds fun



Skills / levels	01	02	03	04	05	06	07	08	09	10
Push trigger	x	x	x	x	x			x	x	x
Push block	x	x	x	x	x		x			x
Push creature		x	x	x			x	x		x
Open chest	x	x	x	x	x		x	x	x	x
Open lock			x				x			
Activate light	x	x	x	x	x					x
Object disappears	x	x	x	x	x	x	x	x	x	x
Object appears	x	x	x	x	x		x		x	x
Range attack		x	x	x	x	x	x	x	x	x
Clear opening			x	x	x		x	x	x	x
Clear floor			x	x	x		x		x	x
Clear wall		x		x					x	x
Cut vines/web				x	x	x	x	x	x	x
Cut rope				x	x	x		x	x	x
Cut creature				x	x	x				x
Super jump								x	x	

X = present in level

1. Challenge: the lens of skill

- Exercizing skills is joyful when skills are **interesting** and **rewarding** and the **challenge** keeps the player in the flow



Illustration by Emma Backer

To use this lens, stop looking at your game, and start looking at the skills you are asking of the players. Ask yourself these questions:

- What skills does my game require from the player?
- Are there categories of skill that this game is missing?
- Which skills are dominant?
- Are these skills creating the experience I want?
- Are some players much better at these skills than others?
- Does this make the game feel unfair?
- Can players improve their skills with practice?
- Does this game demand the right level of skill?

1. Challenge: balance for different players ...

Common techniques:

- Increase difficulty with each success
- Let players get through easy part fast
 - Skilled players should be allowed to dash through simpler levels
- Create layers of challenge
 - ex. by giving stars (more than 1 playthrough)
- Let players choose the difficulty level
 - Downside: requires to develop & balance multiple versions of the game
- Playtest with a variety of players
- Give the losers a break
 - Power-ups in Mario Kart are more frequent for players behind



1. The lens of Challenge

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The Lens of
Challenge



To define the level of challenge, remember:

- How many (%) players do I want to be able to complete the game?
- Learning to play a game IS a challenge ...
- Early success can do a lot to build player's confidence

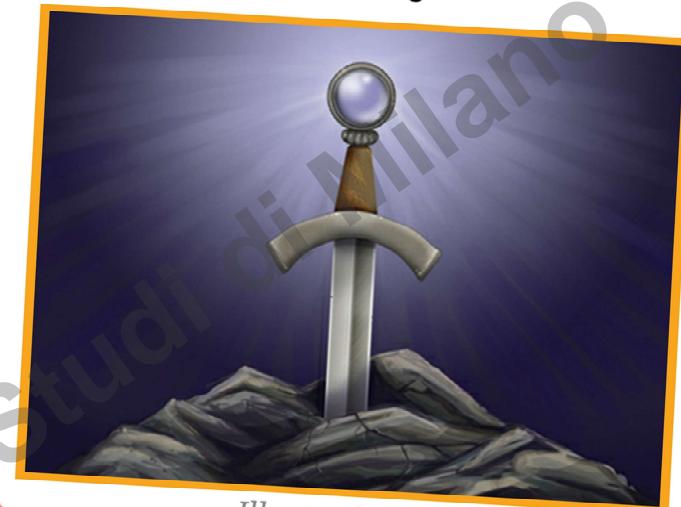
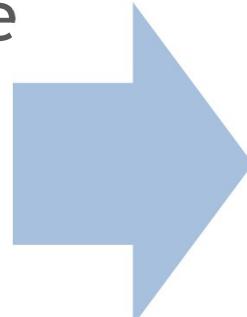


Illustration by Reagan Heller



Challenge is at the core of almost all gameplay. You could even say that a game is defined by its goals and challenges. When examining the challenges of your game, ask yourself these questions:



- What are the challenges in my game?
- Are they too easy, too hard, or just right?
- Can my challenges accommodate a wide variety of skill levels?
- How does the level of challenge increase as the player succeeds?
- Is there enough variety in the challenges?
- What is the maximum level of challenges in my game?

Dramatic el.: 2. Play

- Play = freedom of “movement” within a more rigid structure (rules & procedures). It creates opportunities for personal expression
- Play is a type of approach to an activity (a state of mind, not an action!)
- Let's try to generalize some concepts:
 1. Nature of play
 2. Types of players
 3. Levels of engagement



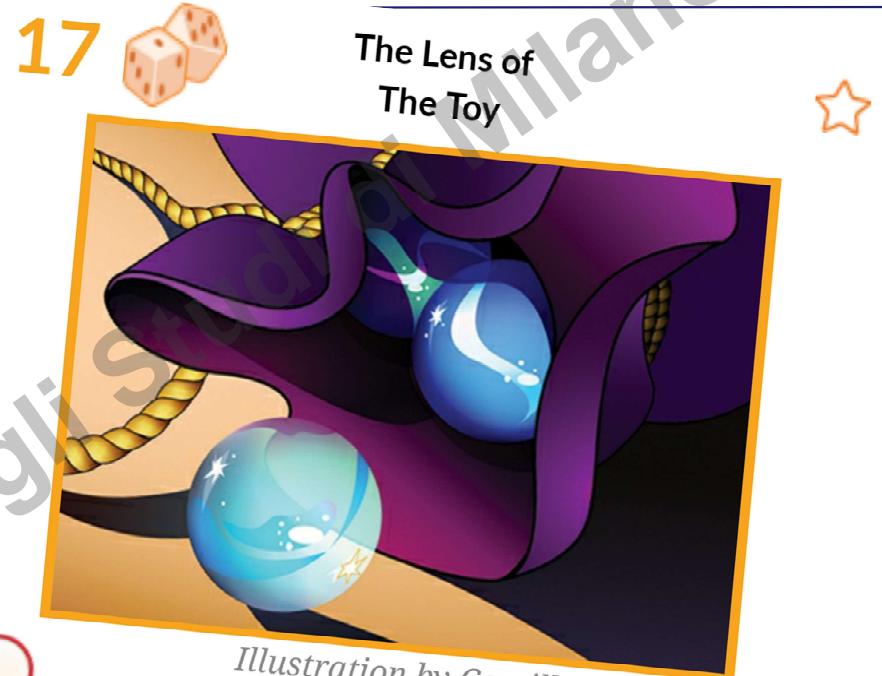
2. Play: the lens of the toy

- Many games are built on top of toys:
 - Baseball (ball)
 - Lemmings (small creatures)
 - GTA (living city & Pac Man)



- Be sure the **toy is fun** before building the game

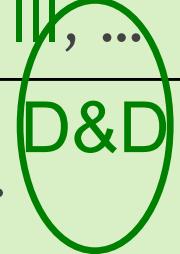
...



To use this lens, stop thinking about whether your game is fun to play, and start thinking about whether it is fun to play WITH. Ask yourself these questions:

- If my game had no goal, would it be fun at all? If not, how can I change that?
- When people see my game, do they want to start interacting with it, even before they know what to do? If not, how can I change that?

2. Play: 2.1 the nature of play

PLAY	Free-form	Rule-based
Competitive	Foot racing, wrestling, ...	Boxing, billiard, football, chess, WarCraft III, ...
Make-believe	Masks, disguises, ...	Theatre, ... 
Chance-based	Counting-out rhymes, ...	Betting, lotteries, roulette, ...
Vertigo	Horse riding, dancing, ...	Skiing, mountaing walking, ...

2. Play: 2.2 Types of players

Different players are attracted by different games:

1. Competitor:

regardless of the game, only wants to best others

2. Explorer:

loves adventuring, seeks for boundaries

3. Collector:

aquires trophies, objects, ...

4. Achiever:

likes ladders & levels, plays to increase achievements

5. Joker:

plays for the fun of play, makes the game more social and less competitive but annoys “serious” players

6. Artist:

driven by creativity and design

7. Director:

loves to direct the play

8. Storyteller:

wants to create/live in worlds of imagination & fantasy

9. Performer:

loves to put on shows for others

10. Craftsman:

loves to build, craft, engineer or solve puzzles

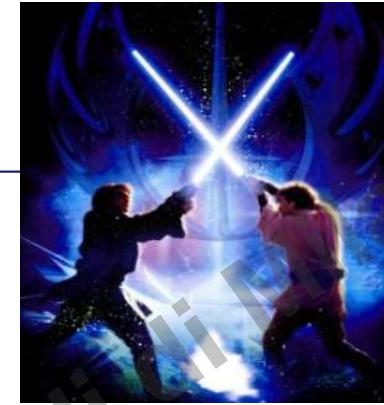
LIST NOT EXHAUSTIVE !

2. Play: 2.3 Levels of engagement

- Not all players need to participate at the same level to have fun (spectators enjoy to watch esport events, u wait for your turn looking at your friend playing a console game ...)
 - Spectator
 - Active player
 - Transformational play (the game has effects in RL)



Dramatic el.: 3. Premise



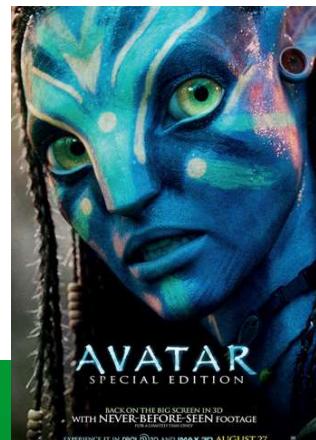
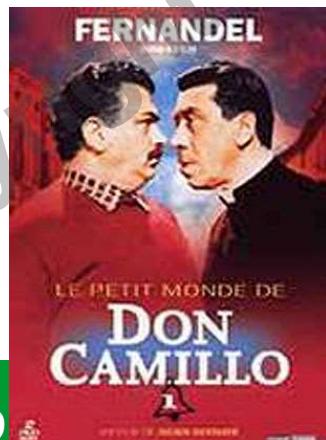
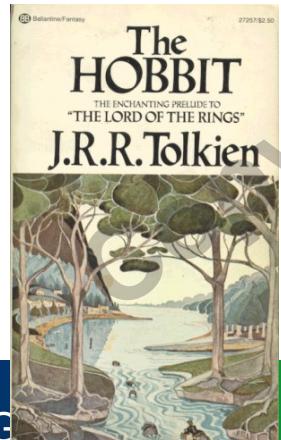
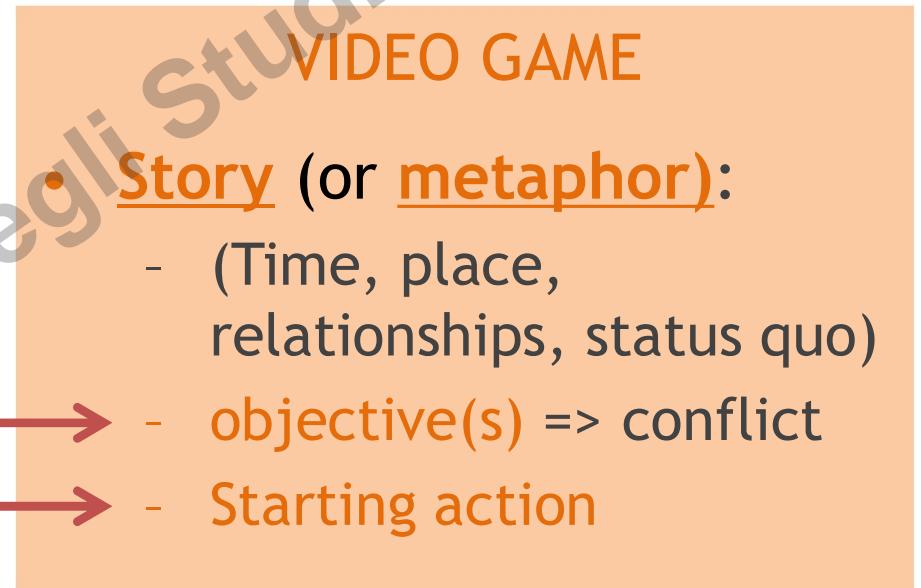
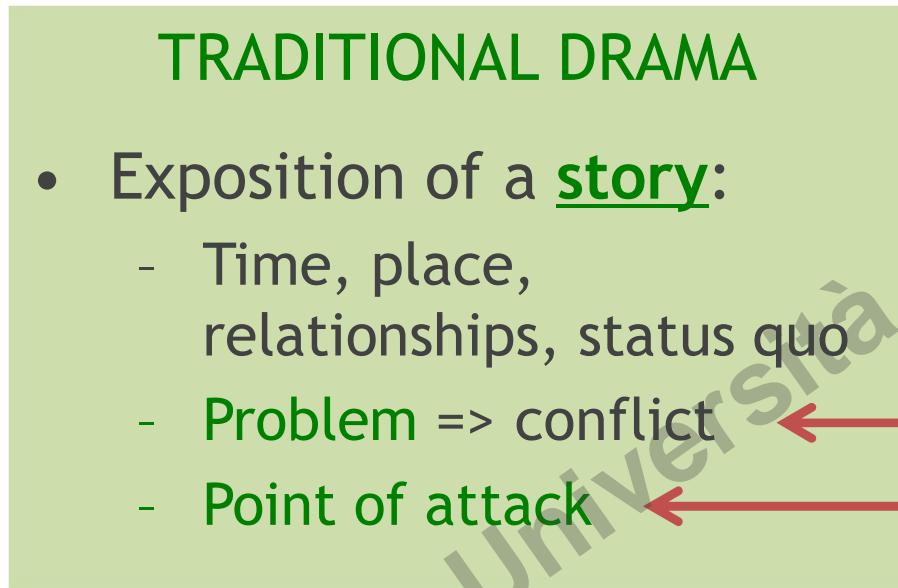
- You are a set of data
 - Objective: change your data to increase their value
 - => engage other sets of data according to complex algorithms
 - If your data wins, you win
- You are a young jedy knight
 - You want to grow iin the path of light and become a jedi master
 - You engage a powerful sith lord, attack him with your lightsaber and duel with him
 - If you win, you *survive* and *gain experience*



Same game ... but .. same experience ???

3. Premise

- Premise establishes the action within a metaphor, connecting the players emotionally with the game



Dramatic el.: 4. Character

- Characters are the *agents* through whose *actions* drama is told
- defined through the “methods of characterization”: what they **do, say, look like, other say about them**

- Psychological
- Symbolic (american dream)
- Representative (ethnic group)
- Historic (real-world figure)

- Conflict:
Protagonist/antagonist
- Impact on story:
Major/minor
 - Complexity/evolution:
Round/flat (stereotype)

- What does the **character want & need?**
- What does the **player hope & fear?**

} 4 questions
when designing

4. Character

- Game characters should balance *agency* and *empathy*

Check this at every level of the game involving characters:

- is a predesigned? Has a backstory? Is player-created?
Can grow/evolve? Can be customized? Etc.
- *Agency*:
 - Character as representation of the player in the game
 - Can be utilitarian or include creativity - RP - identification
- *Empathy*: emotional attachment to the character



Characters vs. Avatars

Predesigned characters;
backstories, motivations



Player-created characters;
role-playing, growth, customization



more
empathy

Create tension
(the Sims)
AI must be
believable

"Free will"
AI-controlled
character



Mixture:
Player-controlled
characters w/elements
of simulation that
provide "character"



"Automaton"
Player-controlled
character



4. Character

	Control	Customization	Things to do	Technè
<i>Super Mario Bros</i>	Yes	No	Few	No
<i>The SIMs</i>	Limited	Yes	Several	No
<i>WoW</i>	Yes	Yes	Quite a lot	Very limited
<i>SL</i>	Huge	Huge	Huge	Huge

+ Narrative & immersivity



4. Character & Identity: about an Avatar ...

(Meadows, 2008)

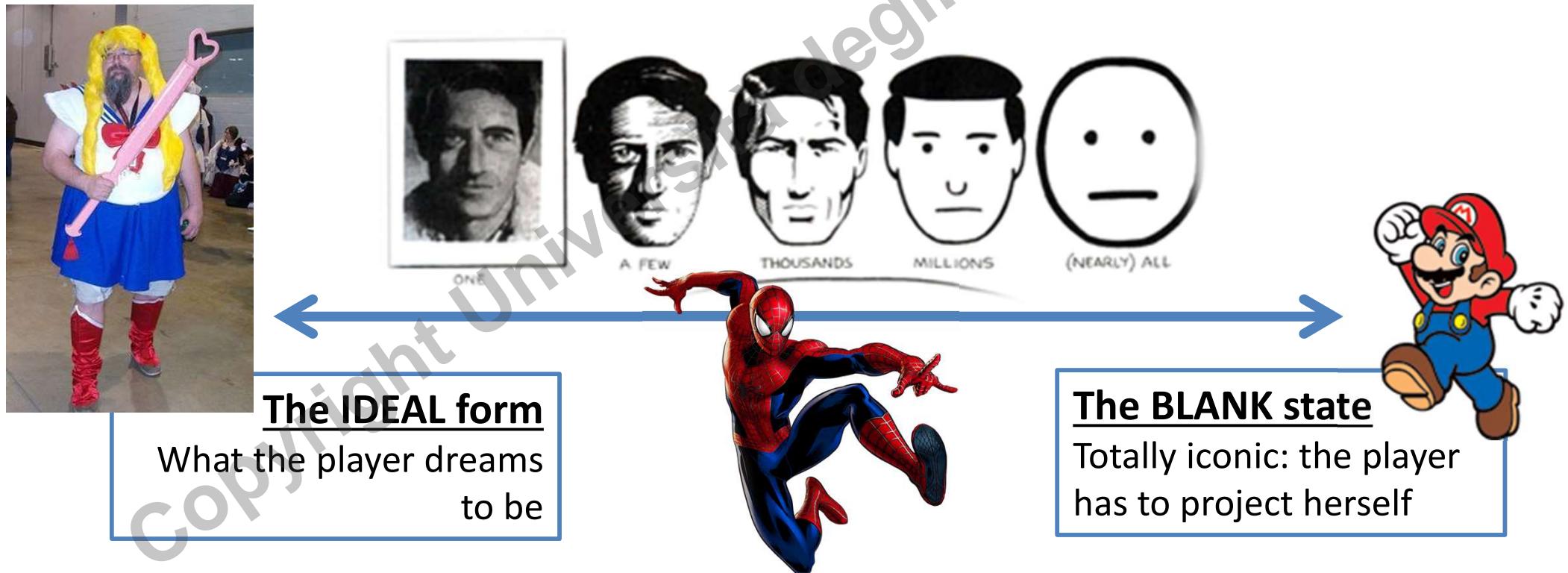
- An AV is an interactive, social representation of a user
 - Usually an AV is a mix of the real and the imagined
- Socially, an AV represents the user and allow him/her to interact in social space
 - Without a social environment the AV can't exist (Tetris has no AV)
- An AV is a *literary device*. It's the protagonist that is used for interactive narrative
 - AVs are used to control the story (they are interactive characters)
 - AVs are narrative device for collaborative fiction
 - In many games where there is no narrative (e.g. Sudoku, Solitaire, etc.) there is no AV at all



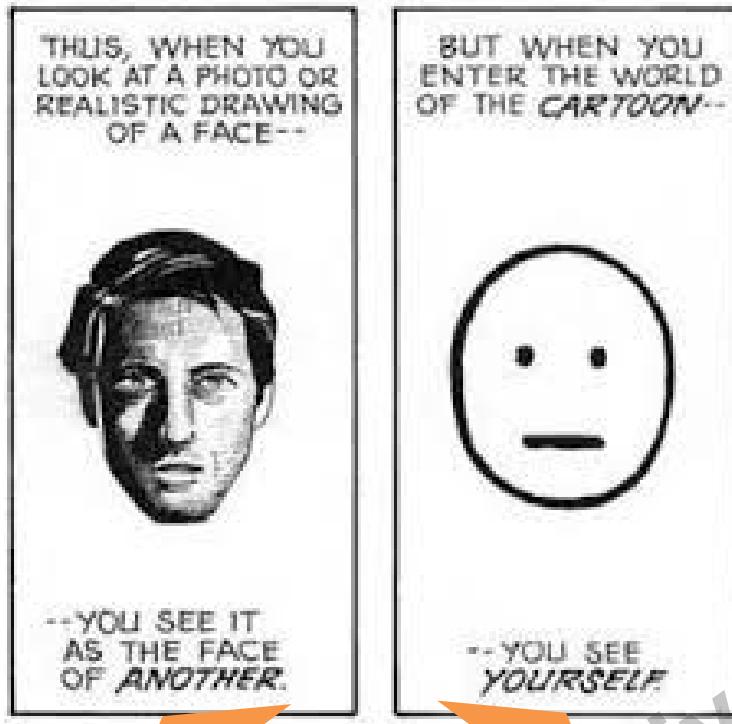
... anyway, psychologically, you are your avatar ...

4. Character & avatar (Scott McCloud - Understanding Comics)

- The relationship between player and avatar is peculiar
 - From total distinction to total identification (we project ourselves into others/things we control)

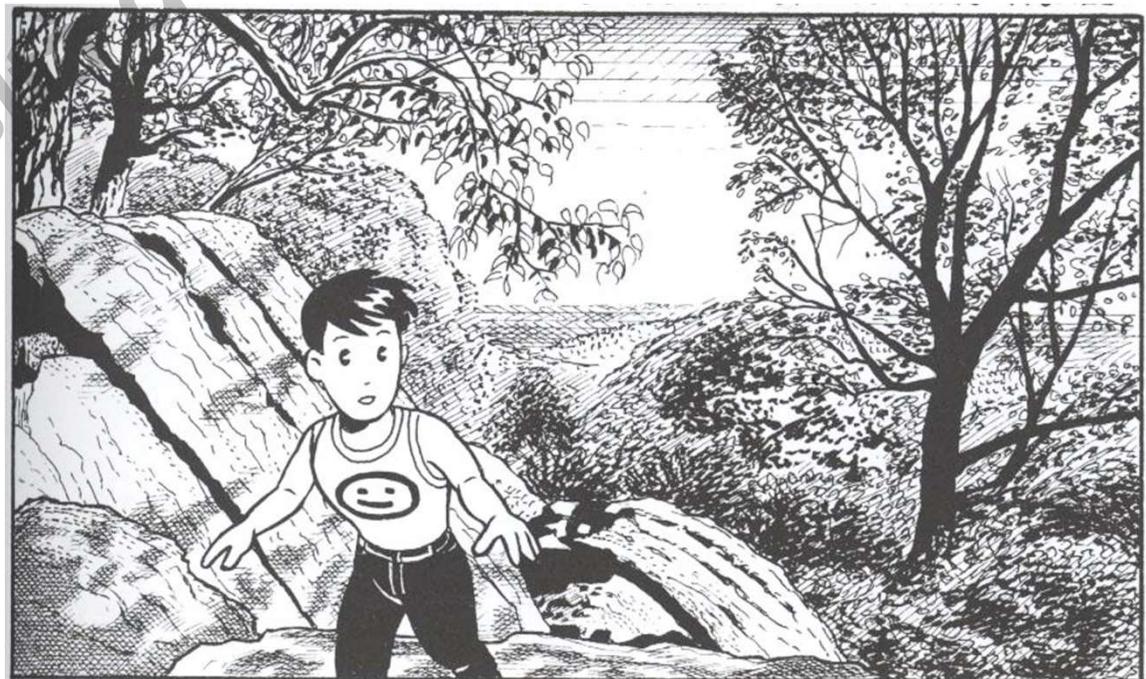


4. Character & avatar (Scott McCloud - Understanding Comics)



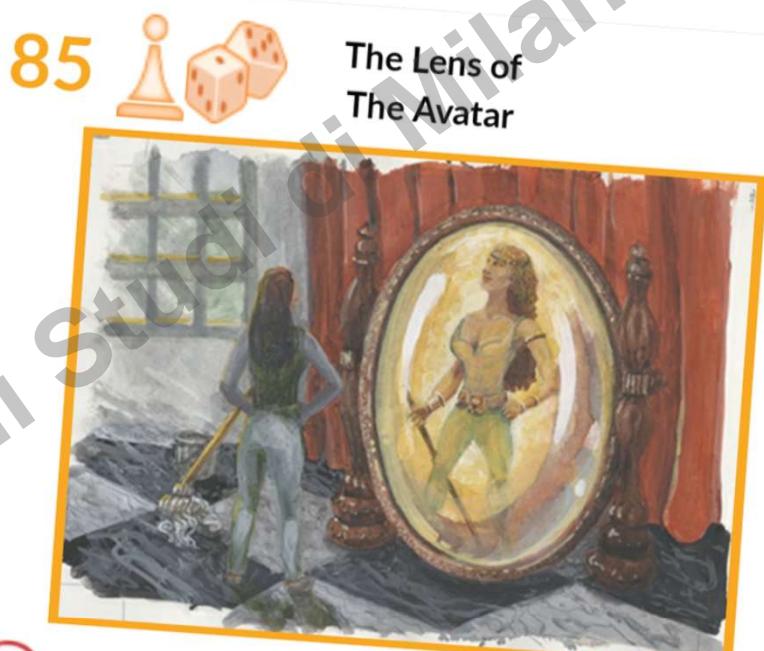
Please note the difference:
projection of **what you**
would be/look like and of
your **interior world** ...

Combining an **iconic character** with
a **detailed world** is a powerful mix:
ok for dramaticity



4. Character: the lens of the avatar

- Remember: people project into the avatar!
 - Giving them the possibility to «clone» themselves is absurd: **people DO NOT play games to be themselves, but who they wish they could be!**



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The Lens of
The Avatar

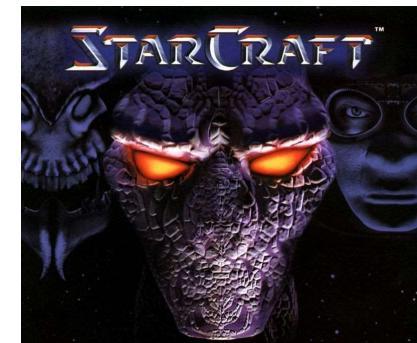
Illustration by Cheryl Ceol

The avatar is the player's gateway into the world of the game. To ensure your avatar brings out as much of the player's identity as possible, ask yourself these questions:

- Is my avatar an ideal form that will appeal to my players?
- Does my avatar have iconic qualities that let a player project themselves into the character?

Dramatic el.: 5. Story

- **Uncertainty in a movie/novel is resolved by the author, in a game is resolved by the player!!**
 - Very difficult to integrate (well) storytelling in games
 - Generally: “*story*” = elaborate version of premise ...
- Story chapters at the beginning of levels:
- Branching storylines:
- Emergent story:



5. Story: 5.1 World building

- World building is the deep and intricate design of a fictional world



- Can include:
 - Maps
 - Histories
 - Whole cultures (inhabitants, languages, governments, politics, economies, etc.)



Landmarks for VWs: Fiction and Lord of the Ring

- **Utopian narratives** and **fantasy works** have been crucial to imaginings of the virtual worlds:
 - Star Trek ToS (70s)
 - Narnia (C.S. Lewis - 1950)
- J.R.R. Tolkien's **Lord of the Ring** (1954) is considered “*the single most important influence on virtual worlds form fiction [...] creating a fully realized, make-believe world was shown to be actually possible*” (Bartle, 2004)



5. Story: 5.2 the dramatic arc

- **Conflict: heart of good drama and good game systems**

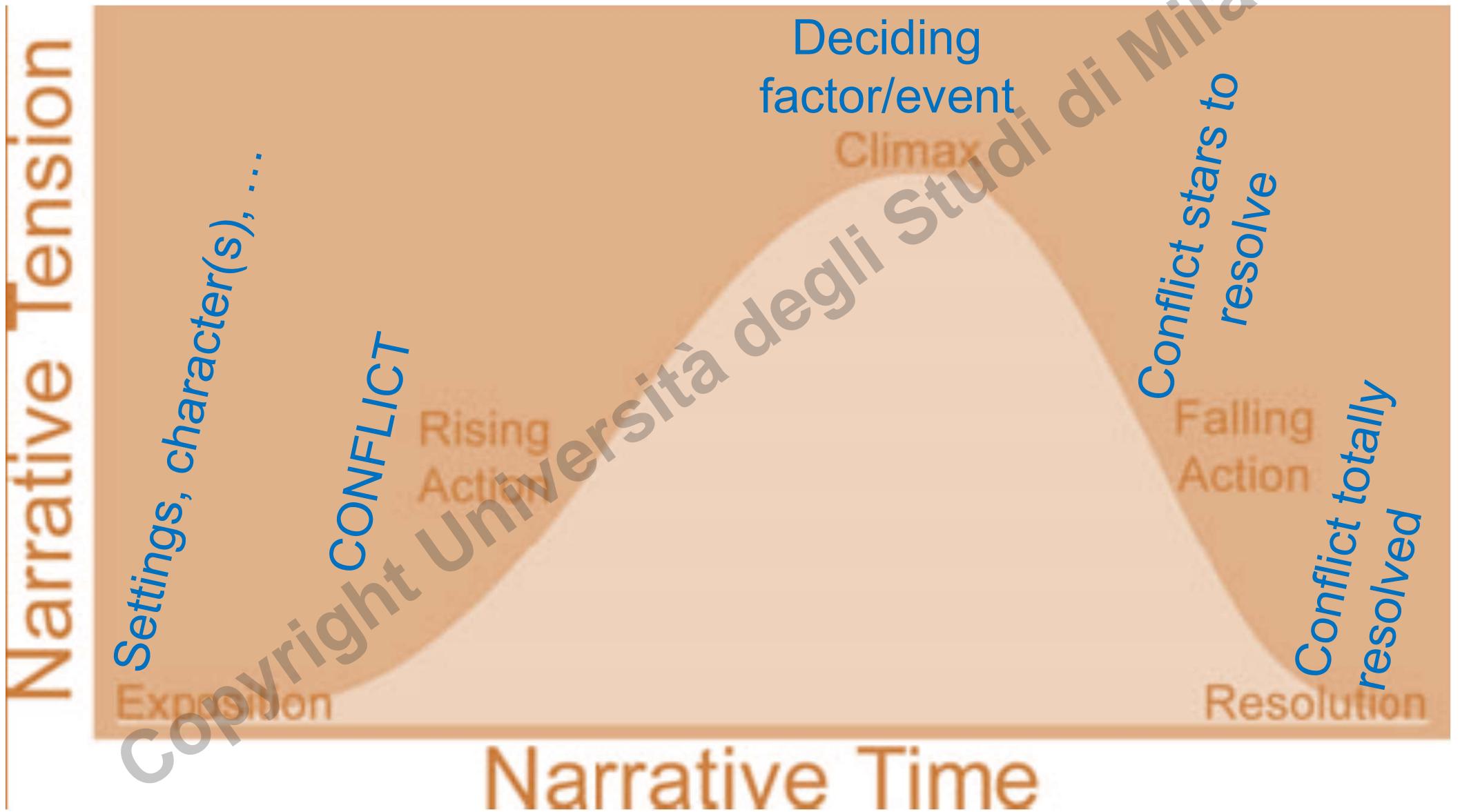
- Conflict types in drama:

- Character vs character
- Character vs nature
- Character vs machine
- Character vs self
- Character vs society
- Character vs fate

- Player vs player
- Player vs game system
- Player vs multiple players
- Etc.

When conflict is set in motion, it MUST escalate !

5. Story: 5.2 the dramatic arc



5. Story: 5.2 the dramatic arc

- The dramatic arc in games:
 - Is linked to both formal and dramatic elements (games are designed for increasing challenge)
 - ... but: **SUCCESS/FAILURE is in the hands of player!!**
 - => great sense of accomplishment (in novels it's only empathy ...)

