INTRODUCTION TO GAME DESIGN

CSD2511 – Week 06

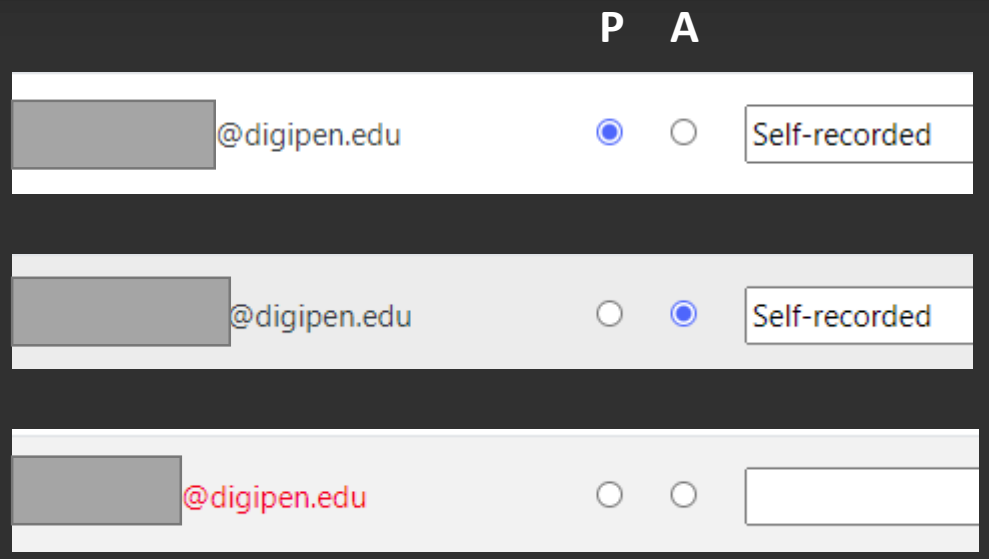
Lecturer . Jonathan Kwek

Before we begin

- Use the first 15 minutes to settle in
  - Sign your attendance
  - Log into your workstation
  - Log into Moodle, specifically CSD2511 module
  - Log out from your game, application, communication, chats
  - Prime yourself physically for the next hour, ie. Finish your food, fill up your water, visit the restroom, get comfy
  - Prime yourself mentally for the next hour, ie. Recall what happened during last week's session, put a save point on any ongoing conundrums, meditate on what to do this morning

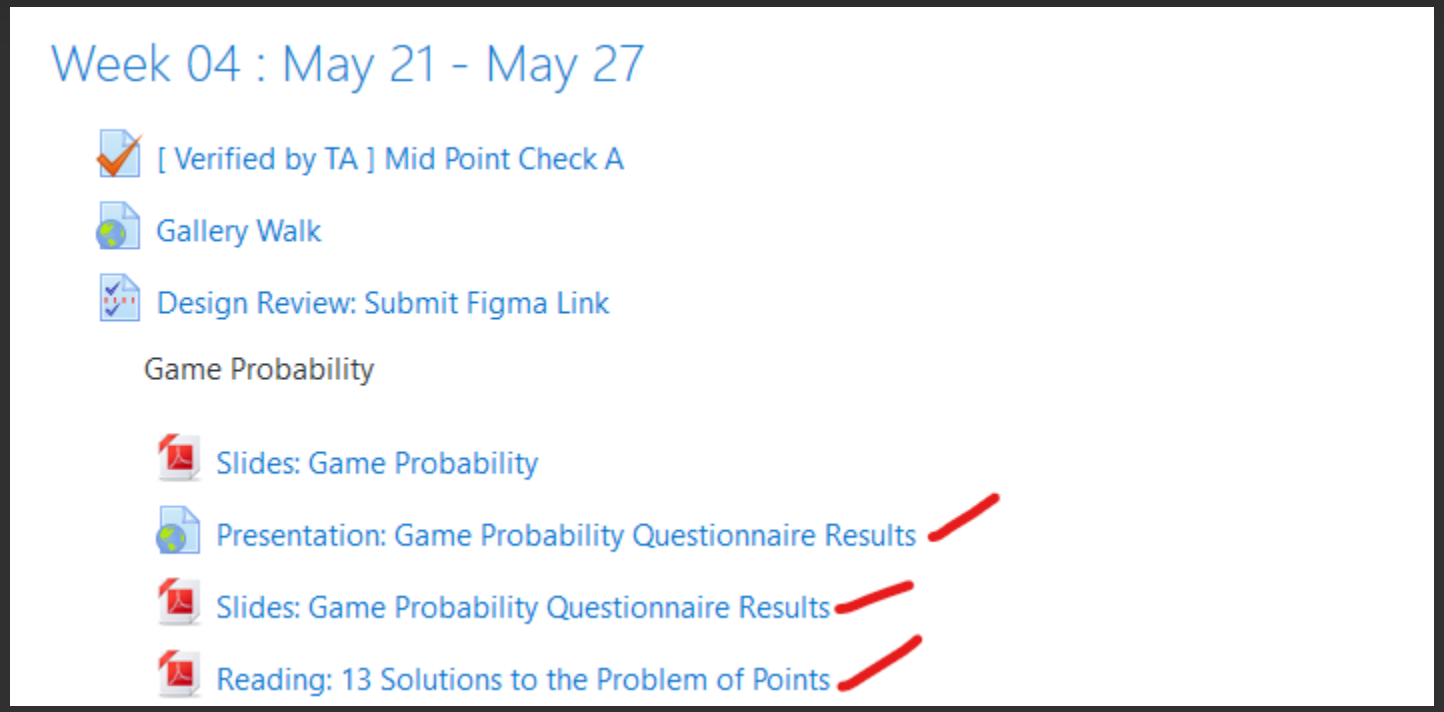
Module Matters

- Attendance
  - Remember to mark “Present”, even on Presentation days
  - Immediately notify me via MST or email if you were present and forgot
  - Don’t mark “Absent”; just submit your MC/leave for approval
  - If your status in the SIT system isn’t updated, let me know



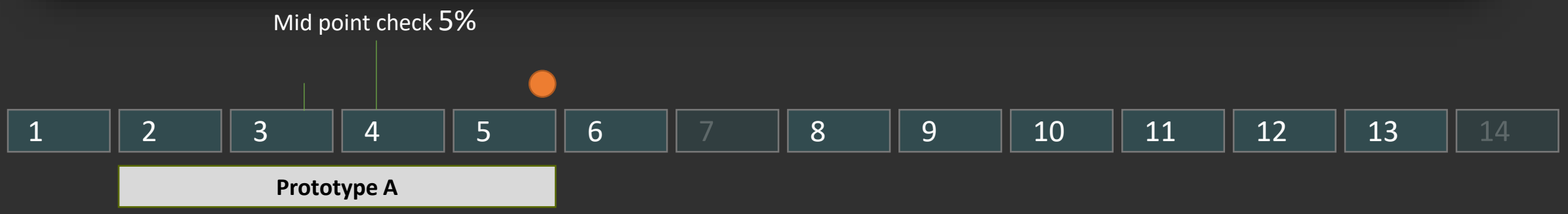
Module Matters

- Week 4 Probability Quiz feedback

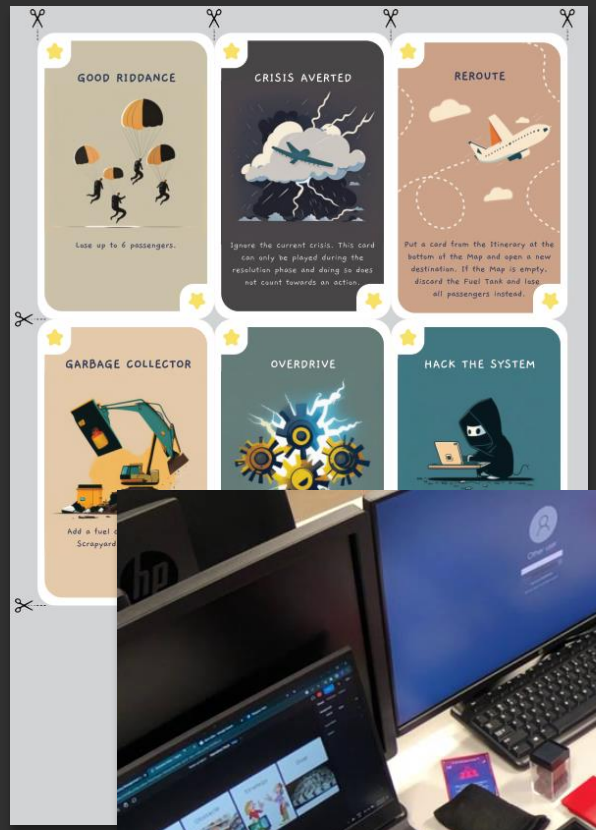


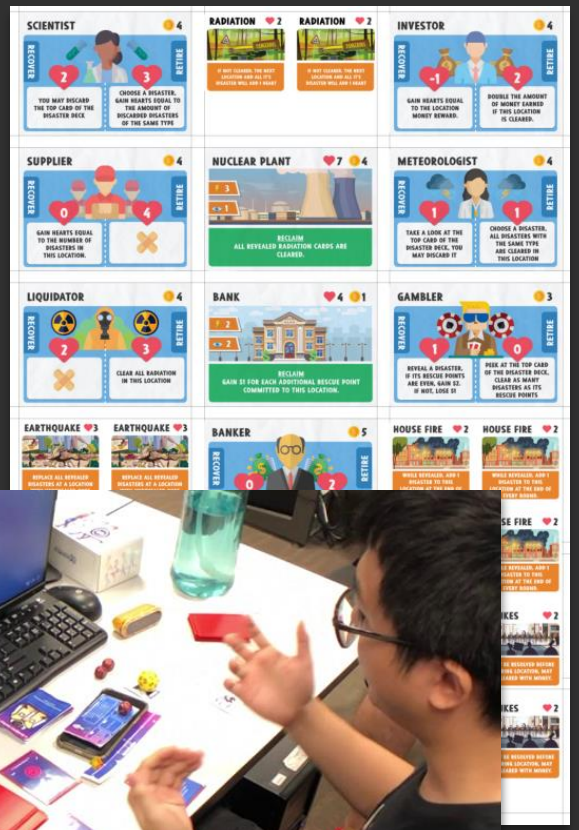
Module Matters

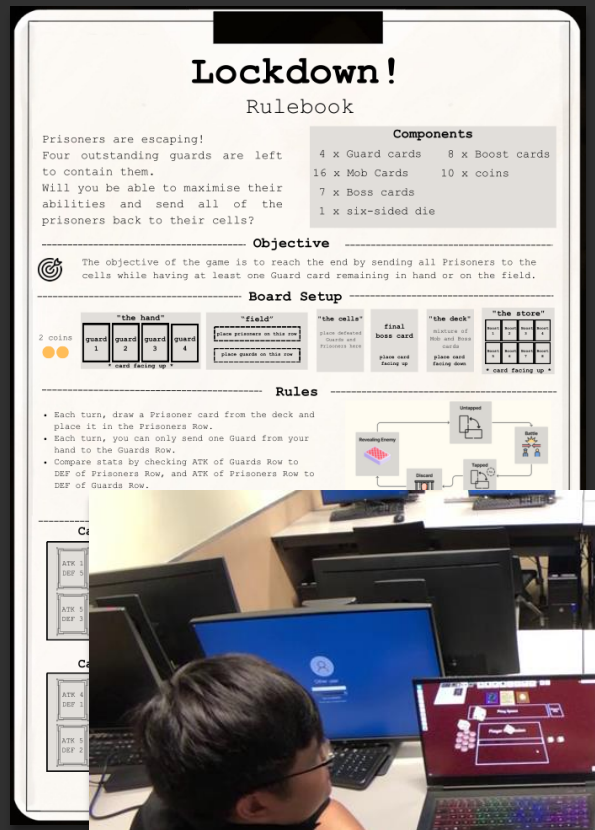
- Week 6 - Our module so far

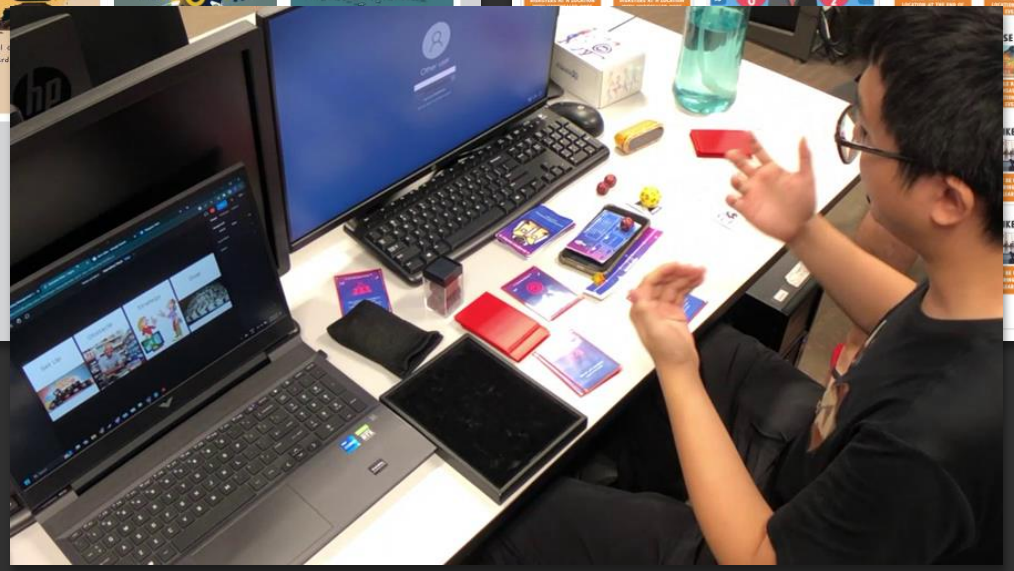


Module Matters









Module Matters

- How Grading and Feedback works

B
Good

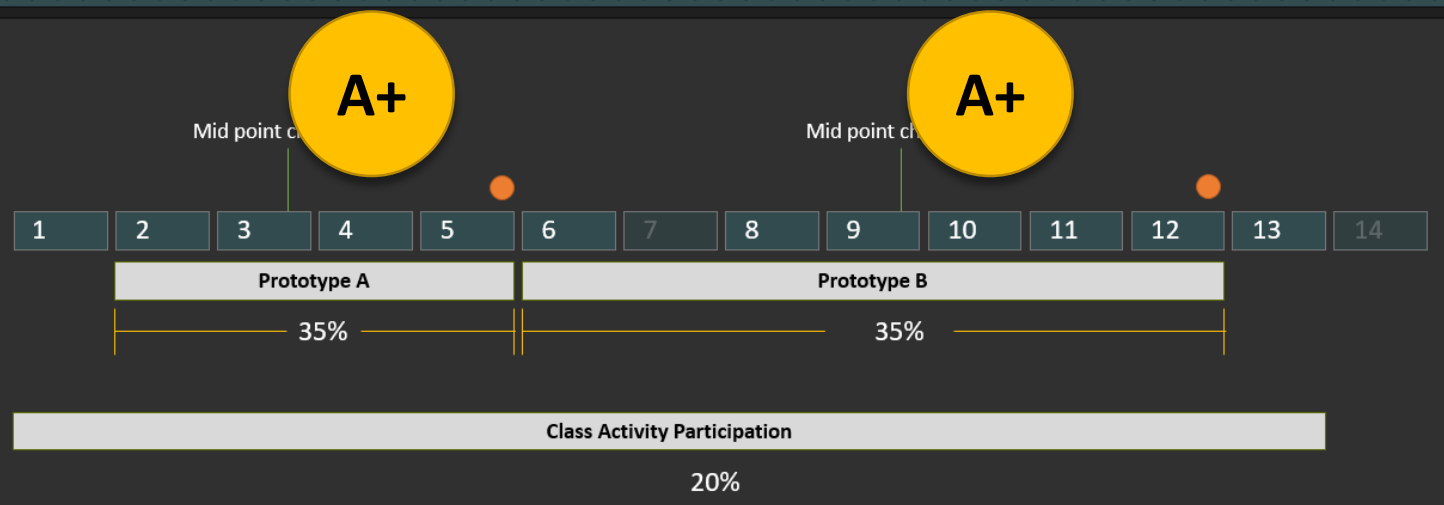
Individual Lecturer Grading will not be released

Very Good	Good	Fair
B+	B-	C+
33.333%	33.333%	33.333%

Module Matters

- How Grading and Feedback works

Timeline and Assessment



Mid point checks

Module Matters

- How Grading and Feedback works

Rubric	Value
Compliance Whether the project adhered to the requirements of the deliverables	Excellent/Very Good/Good/Fair/Adequate
Rules Whether the rules stated in the rulebook adequately and accurately explained how the game is played and resolved, as well as all its gameplay components	Excellent/Very Good/Good/Fair/Adequate
Gameplay Whether the game offered an engaging and smooth flow of activity of its players, with a clear objective to base their strategy and choices on, as well as mechanics that are easy to learn and apply	Excellent/Very Good/Good/Fair/Adequate
Theme Whether the game had a creative and appealing theme that made its game rules and mechanics feel intuitive	Excellent/Very Good/Good/Fair/Adequate
Quality Whether the physical design of the game's components are articulated with good visual clarity and aesthetic appeal	Excellent/Very Good/Good/Fair/Adequate

Module Matters

- How Grading and Feedback works

“Good”, “Fair” OR “Adequate” tally

“Excellent” OR “Very Good” will not be reflected

Continue to improve on:

Compliance (1), Rules (1), Gameplay (1), Theme (3), Quality (3)

Quality – Fair

Quality – Fair

Quality – Good

Individual Lecturer Assessment will not be released

Module Matters

- How Grading and Feedback works

- [ ] Good use of randomness; clear assignment of probability distributions to specific ever
- [ ] Not enough randomness, predictable outcomes
- [ ] Too much randomness, confusing and difficult to calculate risks
- [ ] Excellent presentation
- [ ] Confusing explanations; unclear; disorganised presentation
- [ ] Appropriate mechanics; strategic choices for the player to engage with
- [ ] Too simple mechanics; insufficient agency and choices
- [ ] Too many mechanics and player decisions; difficult to prioritise
- [ ] Excellent application of visual design principles
- [ ] Sufficient application of visual design principles
- [ ] Good application of visual design principles
- [ ] Visual elements are confusing/insufficient; difficult to extract information from them
- [ ] Visual design looks amateur/cluttered/bland; needs improvement
- [ ] Excellent production value
- [ ] Overall lack of development/production effort
- [ ] Missing members - check attendance for this team

- *A lot of effort has been put into laying out information for the cards but they seem too cluttered.*
- *The imageries chosen are good but the information text boxes are in very bland colours which makes them seem less important to focus on.*
- *Need to have a better balance in terms of contents on the cards.*

Speak to individual lecturers for more specific feedback

Assignment A - Post Mortem

- It’s not a difficult assignment
  One person could do it…
  One person could do it faster and with more ease!
- It’s more difficult to do it with other people…
  More people more problems…
  More people more hands/eyes/ideas!
- Even if you are the sole designer, you still have to work with people

Assignment A - Post Mortem

- Was it too rushed?
  It would be nice to have more time to balance and polish the game
- Reality:
  If you were given 3 hours, you'd still be able to submit a game
  If you were given 3 months, it would not be very different from 3 weeks
- GAM Projects
  Get used to short development cycles
  You cannot use a whole semester to decide on a game idea
  Are the tools built to the gameplay's needs? Or will the tools define the gameplay?

Module Matters

- Move your player card to the new team slots
- If your team is intact, please use the same number
- If your team is disbanding, let everyone know
- A questionnaire will be sent out next week
- Teams of 4

Assignments

Prototype B – 8 TURNS IN A 20 TILE WORLD

- Group Work – 4 team members (*assemble by beginning of Week 2, can be different from Prototype A group*)
- Pitch and prototype a solo(*1 player*) board game, constructed out of 20 tiles, where the gameplay has to be concluded in 8 turns
  - 1x A4 page narrative pitch
  - Maximum 8x A4 pages rules and setup + ~~Video playthrough~~
  - Up to 20x tile board pieces
  - 20x card deck limit
  - Dice and tokens allowed, no more than 40 in total
  - Individual - 1x board extension/mod DLC per team member (total 4)
  - More details in separate doc
- Submit by ~~end of Week 12~~ (W13 Monday 11.59pm)
- Live Presentation and Recording in Week 13

8 TURNS IN A 20 TILE WORLD

Design Specifications (see brief for more)

- Positional Strategy within a game space must be a core design focus
- The game must conclude naturally at the end of the 8th turn
- You may choose to define your game space using at least 1, and a maximum of 20 tiles
- Tiles vs Tokens/RNG vs Cards

8 TURNS IN A 20 TILE WORLD

Target Audience:

- 16 years and above
- SUBCULTURE
  - A subculture is a group of people within a cultural society that differentiates itself from the conservative and standard values to which it belongs, often maintaining some of its founding principles. Subcultures develop their own norms and values regarding cultural, political, and sexual matters.
- Teams have to pick an existing subculture and perform research on it
- Game is not necessarily *about* the subculture, but rather it needs to appeal TO the people from the subculture, ie. their values, likes, aspirations, etc.

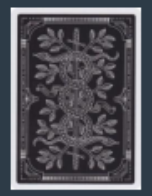
8 TURNS IN A 20 TILE WORLD

Rubric	Value
Compliance Whether the project adhered to the requirements of the deliverables	Excellent/Very Good/Good/Fair/Adequate
Rules Whether the rules stated in the rulebook adequately and accurately explained how the game is played and resolved, as well as all its gameplay components	Excellent/Very Good/Good/Fair/Adequate
Game Space Whether the game space allows for complex positional strategies to be employed by players, with unpredictable challenges and high replayability	Excellent/Very Good/Good/Fair/Adequate
Gameplay Whether the game offered an engaging and smooth flow of activity of its players, with a clear objective to base their strategy and choices on, as well as mechanics that are easy to learn and apply	Excellent/Very Good/Good/Fair/Adequate
Theme Whether the game had a creative and appealing theme that made its game rules and mechanics feel intuitive	Excellent/Very Good/Good/Fair/Adequate
Quality Whether the physical design of the game's components are articulated with good visual clarity and aesthetic appeal	Excellent/Very Good/Good/Fair/Adequate

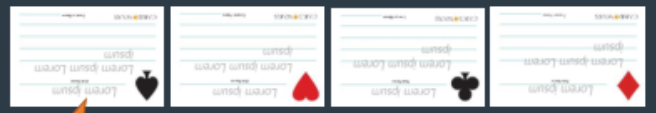
CARD WARS

Great exercise for practicing Rule writing, clarifying and resolving rules, power balancing, etc

Stone Librande's "Card Wars"

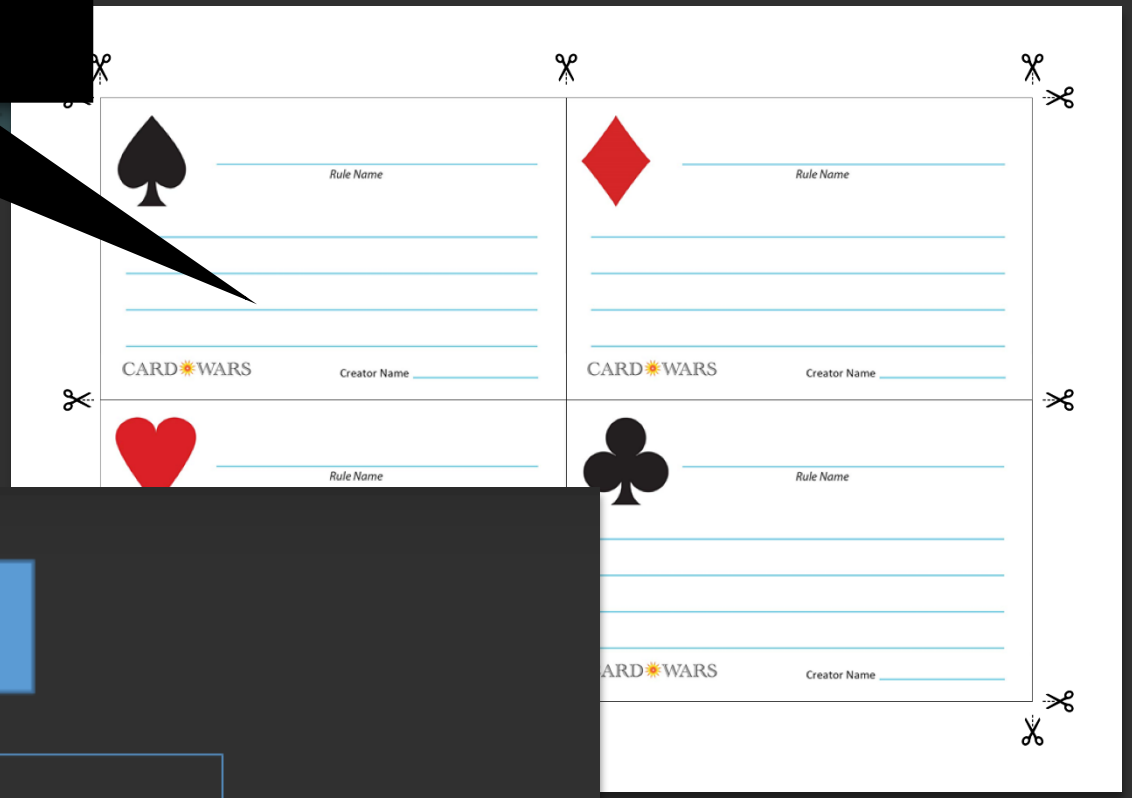


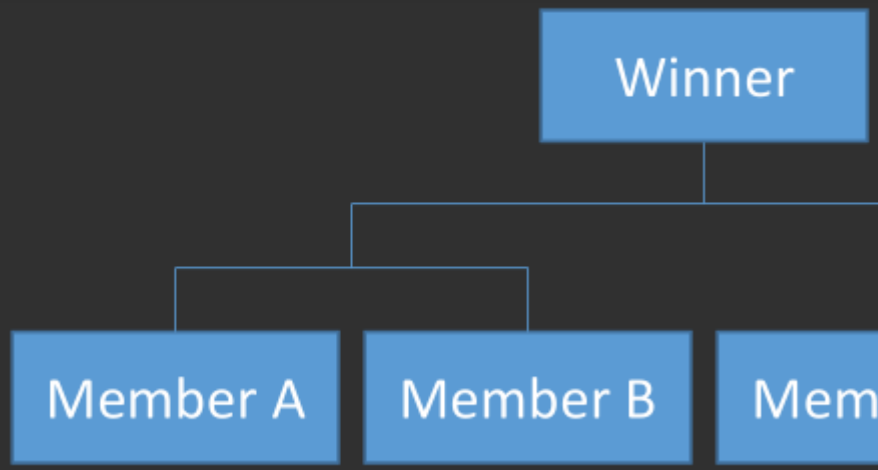
3 of Spades



Triggers!

6 of Hearts



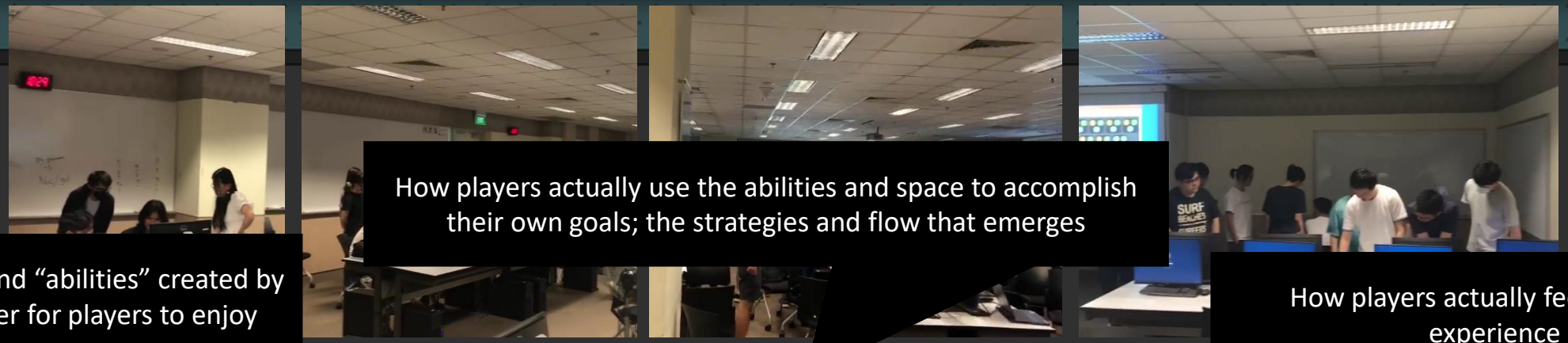


US vs IT

Gameplay prototyping; Gameplay Technical specification; AI design; Randomness; Player dynamics; Rules writing and clarification

Design as you play!

MDA Framework



How players actually use the abilities and space to accomplish their own goals; the strategies and flow that emerges

The “level” and “abilities” created by the designer for players to enjoy

How players actually feel after the experience

DESIGNER

MECHANICS → DYNAMICS → AESTHETICS

M → D → A

PLAYER

“Mechanics create Dynamics that provide the game’s Aesthetics”

In 2004, *Robin Hunicke*, *Marc Gateau LeBlanc*, *Robert Zubek* developed a formal approach to understanding games

Let’s Play

Let’s Play - Thunderstorm

- Last Player Alive – “Thunderstorm”
  - The game starts with 6d6, and each player has 7 counters
  - The goal is to be the last player alive (*0 counters = disqualified*)
  - The first player rolls all the dice
    - If you roll a “1”, remove all the dice with “1” face-up, then pass the remaining dice to the player on your right
    - If you don’t roll a “1”, lose a counter, then pass the dice to the player on your right
    - If you roll ONLY 1s, pass all the dice (6d6) to the player on your right

Mechanics

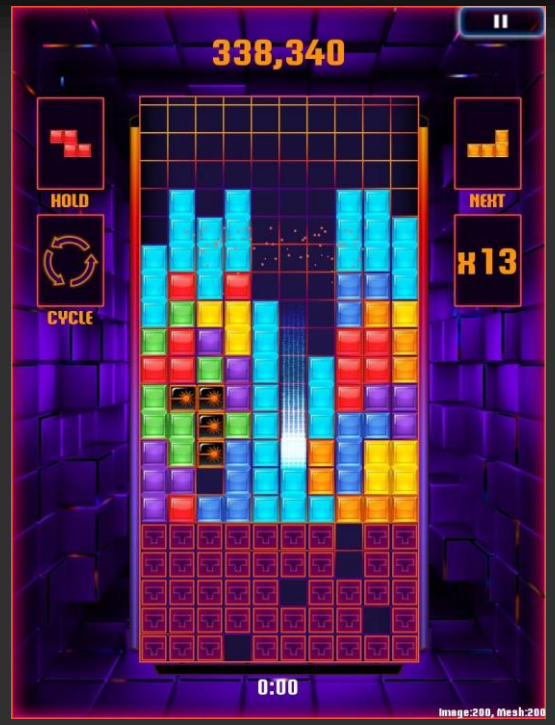
GAME STATES

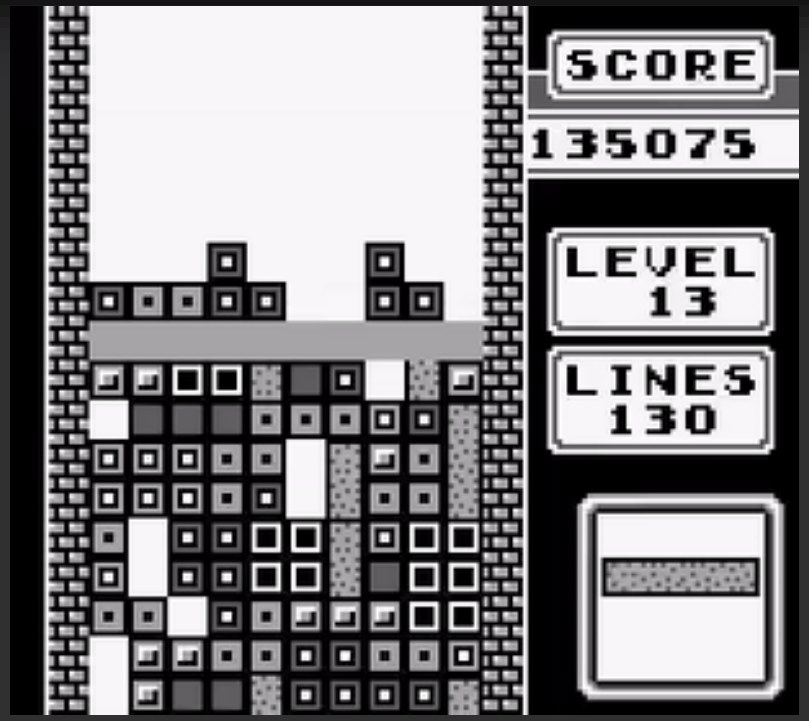
- The information required to recreate a particular moment in a game, *eg. How much resources a player has, where the enemies are, etc*

Once the player moves a step to the right, levels up or spends MP to cast a spell, the game state has changed

MECHANICS

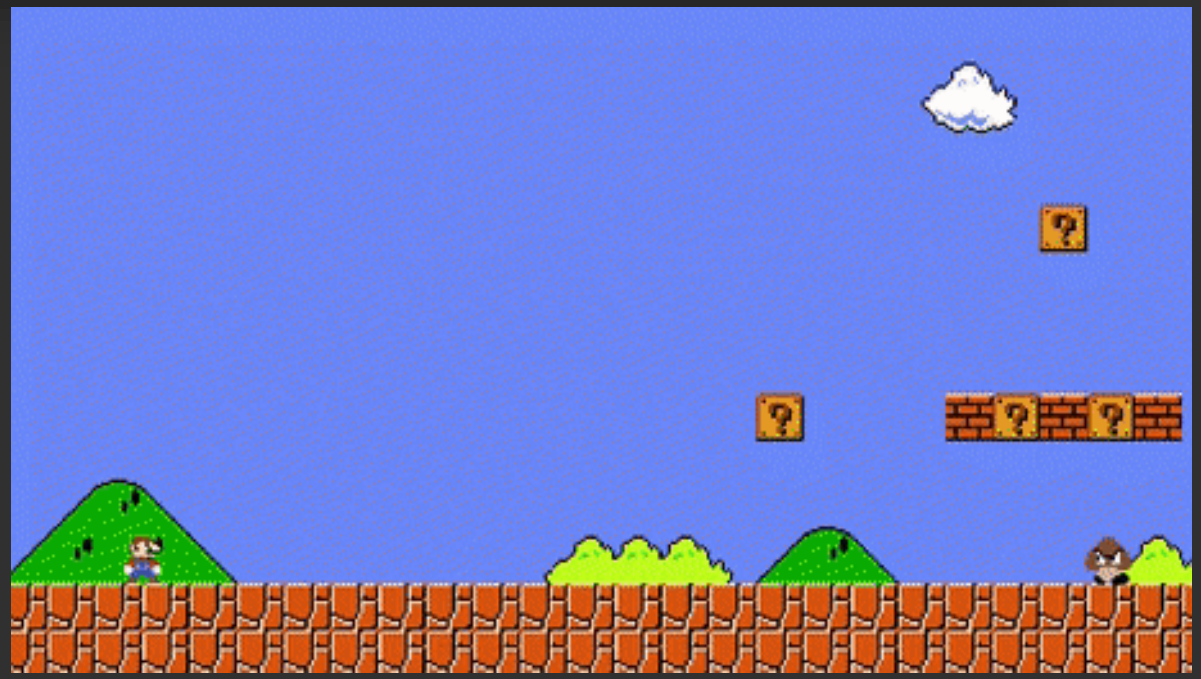
- The processes and actions that can cause the game state to change, *eg. In Tetris, a timer reduces the clock as long as the game is active; a sequence of blocks is released every few seconds, players may shift the active block left, right or rotate it*





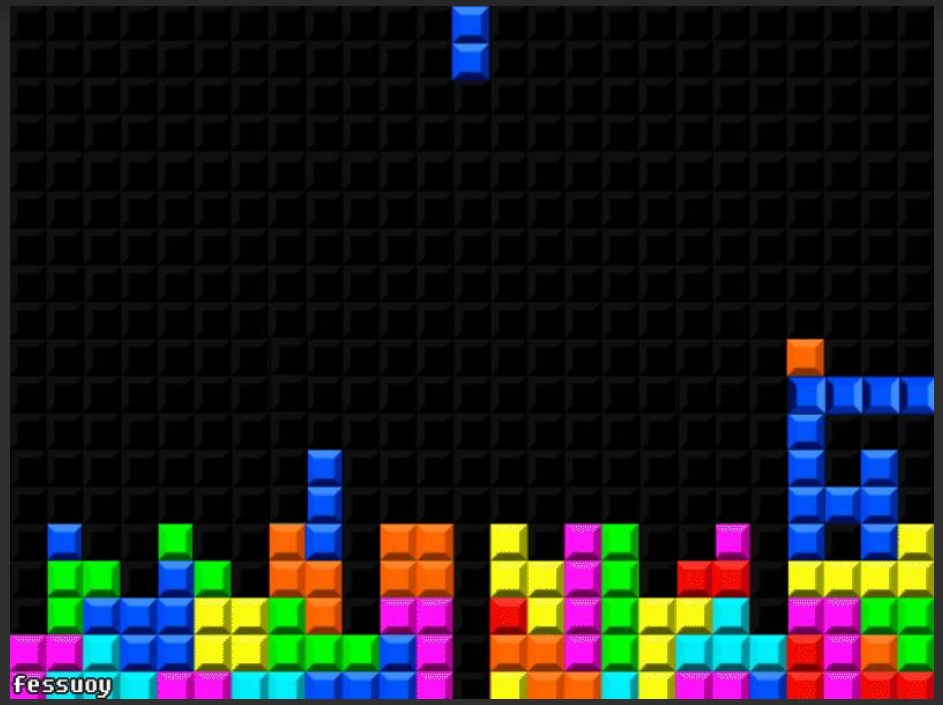
GAME Mechanics

- Game Mechanics are actions that the player has some control over, *ie. The player can "input" to "effect change in object" in order to "achieve result"*



SYSTEM Mechanics

- System Mechanics are system-driven; they are triggered automatically, by another mechanic or by a game state, *eg. In Tetris, the blocks are generated by the system, and moves downwards regardless of the player*



Game Mechanics vs System Mechanics

- How would you apply “game mechanics” and “system mechanics” to *Thunderstorm*?

- Last Player Alive – “Thunderstorm”
  - The game starts with 6d6, and each player has 7 counters
  - The goal is to be the last player alive (*0 counters = disqualified*)
  - The first player rolls all the dice
    - If you roll a “1”, remove all the dice with “1” face-up, then pass the remaining dice to the player on your right
    - If you don’t roll a “1”, lose a counter, then pass the dice to the player on your right
    - If you roll ONLY 1s, pass all the dice (6d6) to the player on your right

Game Mechanics vs System Mechanics

Select Team

Autoplay

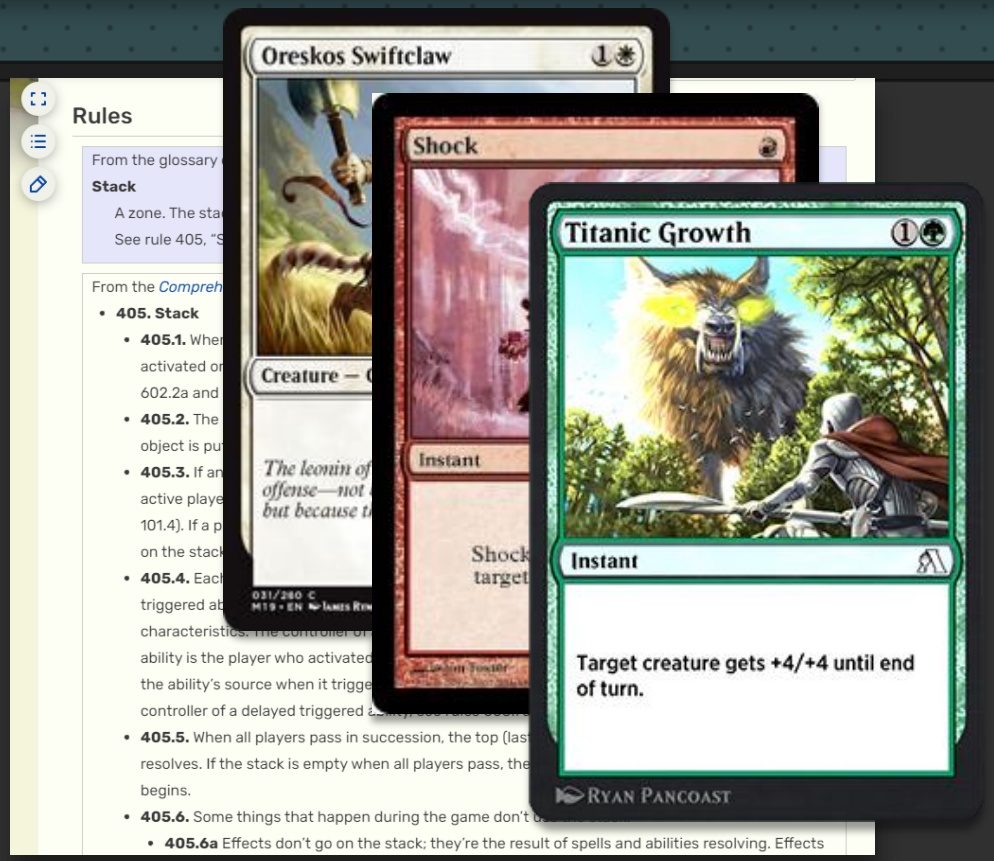
Select Team

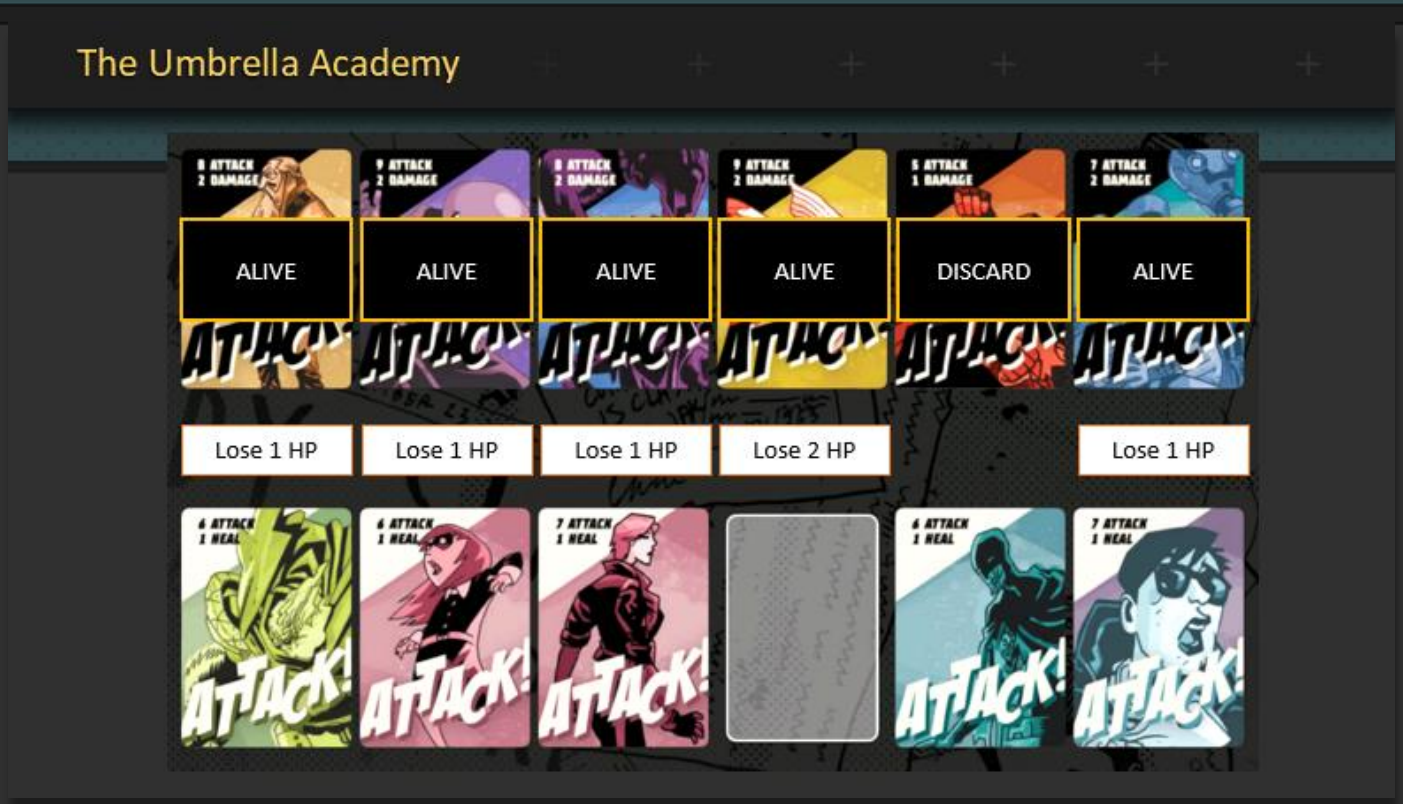
Autoplay

Current Game State → **Game Mechanic** → **System Mechanic** → New Game State

Many casual mobile games only require players to decide the team line-up while the system handles all the combat decisions and outcomes

Game Mechanics vs System Mechanics





During prototyping, especially for tabletop games, it helps to be aware of which mechanics involve active decision making by the player, and which involve systemic procedures and resolution

Agency

Agency

Let's Play – EVEN MINUS ODDS

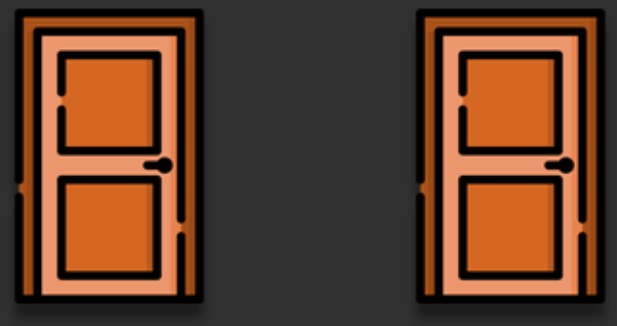
- Each player has six 6-sided dice. There are ten counters in the middle.
- Player with the most counters at the end of the game wins
- During their turn, each player will roll all the dice
- The total sum of the ODD dice values is deducted *from* the total sum of the EVEN dice values
- If you have a positive result, take that many counters from the middle
- If you have a negative result, return that many counters to the middle
- The game ends when no more counters remain in the middle

Here we have a <u>mechanic</u> – "roll all the dice", but there is no <u>agency</u> because there are no other actions to take, or choices to make. A machine could play this game on its own for you.

Agency

Decisions with no information

- What if there was no information to base your decisions on?



Select one of the two doors:
One door gives you +2% bonus to your final grade
The other door gives you a -30% penalty to your final grade

Here we have options but there is <u>no information</u> for us to base our decisions on, in order to make a meaningful choice. Once again, we have no agency as we are entirely at the mercy of luck.

Agency

- The player has a reasonable amount of information about the game state, and a variety of possible responses to choose, *ie. having meaningful options to affect the future game state*

The player has a set of actions that can be taken now and in later turns; in RPGs, you could take many different possible actions during battle, even fleeing! The user interface provides information about the game state; even the fact that some are still hidden is useful information to players

Agency

- The player has sufficient time and information to properly consider the options, *ie. forcing a decision from the player too quickly is as good as not giving the player a choice at all*

Frequently subverting expectations, breaking established rules and even intentionally deceiving players

Agency

- The player's choices are meaningful, have consequence, and feel like they made the choice willingly, *eg. cosmetic weapon and character skins offer variance but no impact on gameplay*

Players feel genuinely curious and confident about their decision to enter the door. Eventually the game rewards the players' curiosity with new information

Feedback Loop

Feedback Loop

- Without timely feedback from the system, players may not realise the consequence or impact of their actions

The Art of ScreenShake ; https://youtu.be/SkgkIXZ_13Y

Feedback Loop

- Without timely feedback from the system, players may not realise the consequence or impact of their actions

The Art of ScreenShake ; https://youtu.be/SkgkIXZ_13Y

Feedback Loop

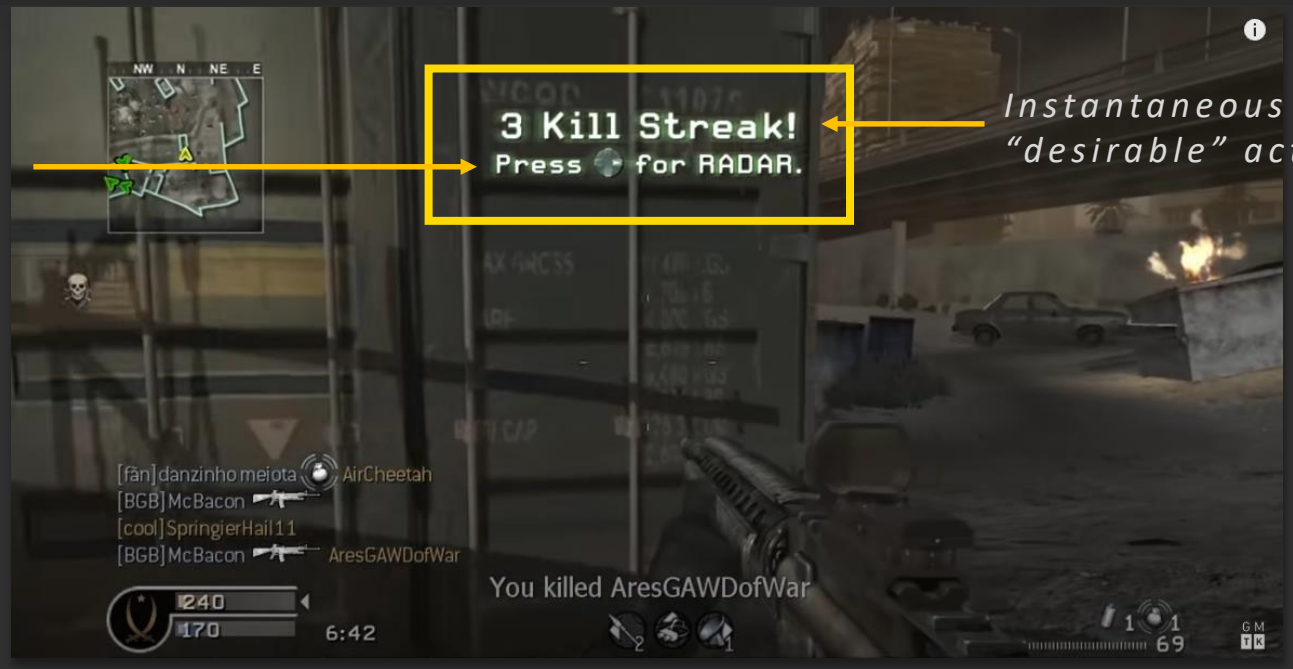
- Without **timely** feedback from the system, players may not realise the consequence or impact of their actions

The cage pendant, or the bird pendant? In Bioshock Infinite, Elizabeth makes a big scene of making you choose a pendant for her to wear. Players are left wondering for the rest of the game whether there was any impact other than a cosmetic change in her outfit. Spoiler: it doesn't.

Feedback Loop

- When players understand what they have just done is desirable, and are even rewarded for it, it generates a positive feedback loop

Reward for said accomplishment that makes it easier for you to carry out more of the same action

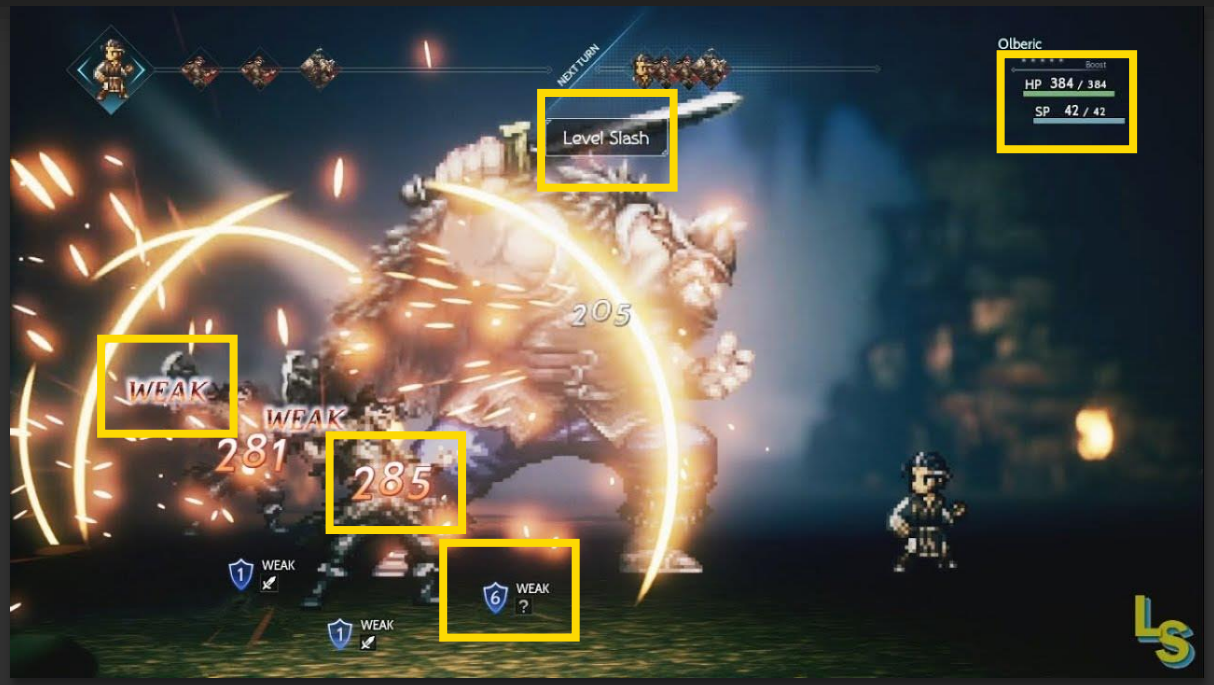


Instantaneous feedback for the "desirable" action taken by you

Getting 3 kills in a row unlocks more powerful weaponry and equipment

Feedback Loop

- Reporting changes in the game state and tangible rewards are essential to providing good feedback



Reporting information about the outcomes of the action, or the use of tokens and counters in tabletop games are useful in feedback loops

Theme

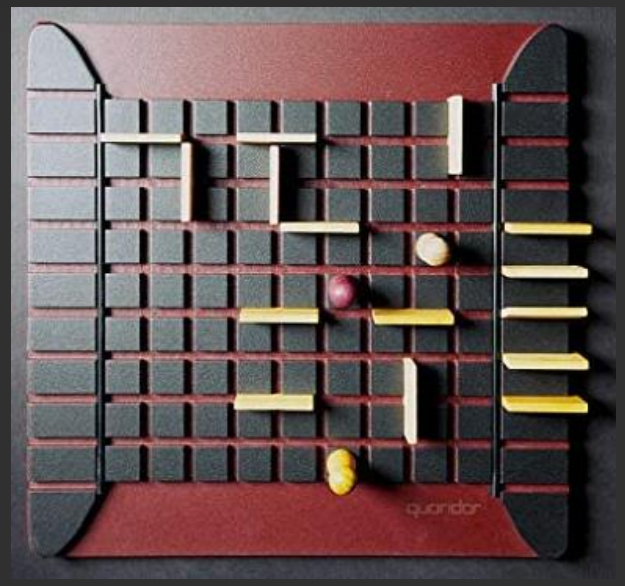
Theme

- A game's Theme is more than just surface graphics and narrative. It brings meaning to the player's actions, and even make them feel intuitive

The game's theme makes the experience of rolling 3 dice quite rich and exciting

Theme

- Games like Chess, Go, Quoridor, have simple mechanics and are considered “abstract” games; they have little or no need for themes to support the overall experience



Theme

- A good connection between the theme and the game's mechanics makes the end result feel more rewarding and meaningful. It can even make learning the rules of the game easier, because it builds on expectations

Let's Play – SHIP CAPTAIN CREW

- Five 6-sided dice (5d6) for each player
- Player with the most points at the end of 3 rounds wins
- Player gets to roll dice at least once, and up to 3 times per round
- For the first roll, player must roll ALL the dice
- After which, player decides which dice to roll, and which to "freeze", or whether to end the round
- The numbers "6", "5" and "4" must appear and be "frozen", before points can be tabulated
- Once "6,5,4" have been assembled, the remaining two dice values are added for points
- The round ends after 3 rolls, or when the player ends the round

6 5 4 — Must have

? ? — Sum of these two = points

We can't set sail to deliver goods without a ship, captain and crew!

RESOURCE

x1

Mana

SPELL

A wizard needs tap into nature for mana to cast spells!

Theme

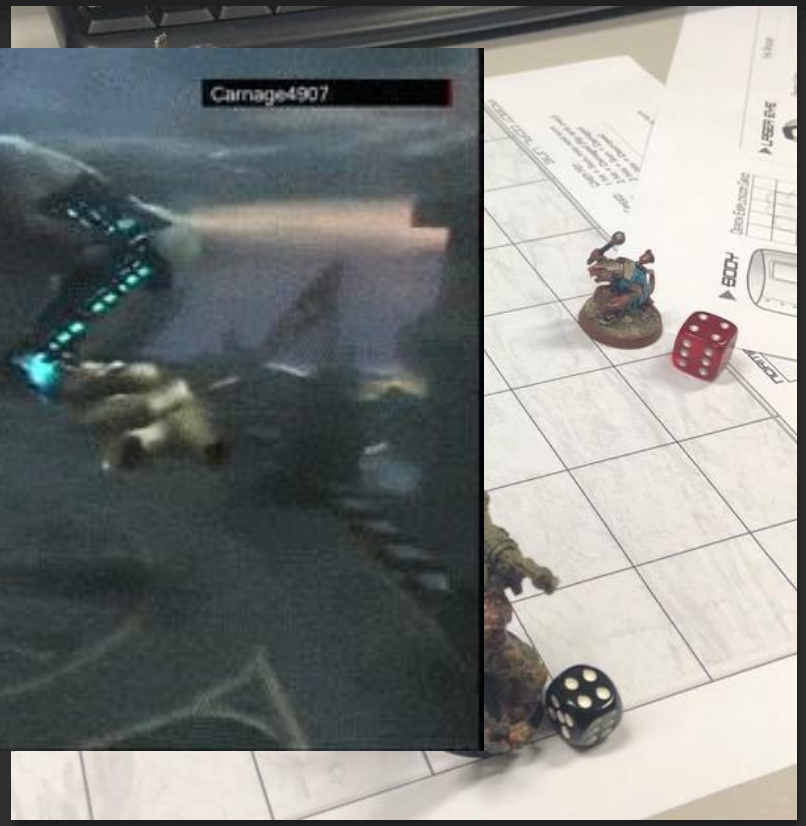
- A bad connection between the theme and mechanics just makes the gameplay confusing and the experience unsatisfying

Mr Bacon's Big Adventure (2009)

Quarantine (2013)

Theme

- Did you feel like you were building your own robot?
- Did you feel like you were doing battle with one?



Theme

- How would you design a game about 2 people fighting each other?

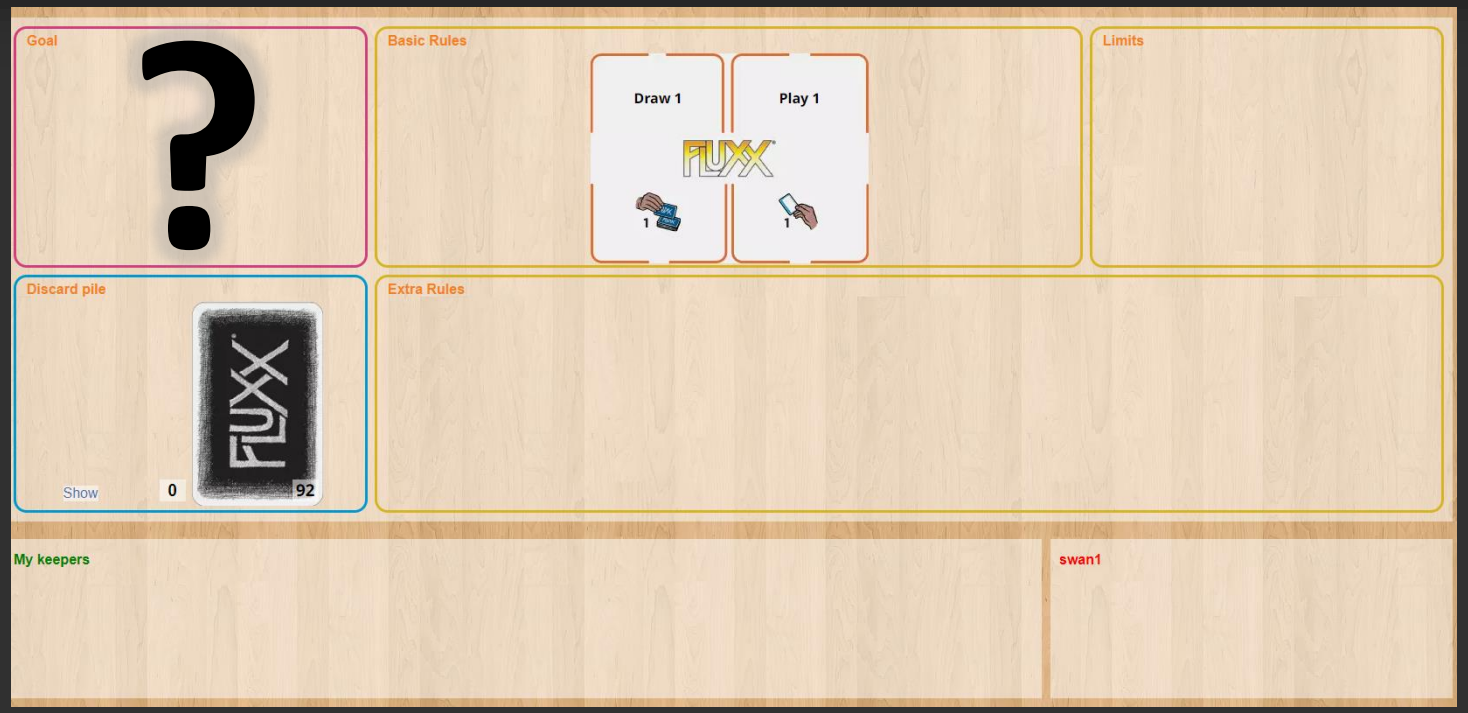
Goals

Goals

- Without Goals
  - *Mechanics in a game can be fun, but are meaningless and "mechanical" without a purpose*

Goals

- Without Goals
  - *Goals not only serve to conclude a session of play, but forms an anchor for strategy and urgency to arise*



Goals

- Goals Drive Player Behaviour
  - *Dynamics of the game changes based on the goals set upon by the rules as well as by players*

Goals Drive Player Behaviour

SKIRMISH MODE

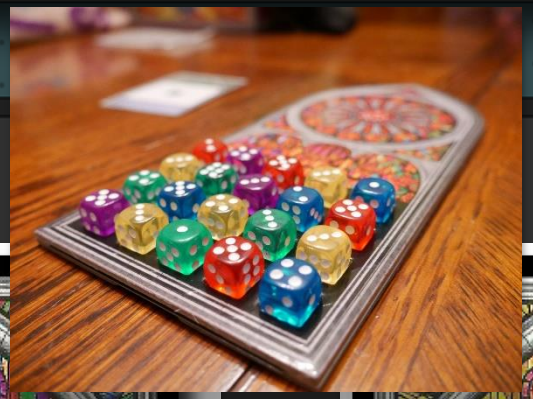
Destroy all enemy units and structures

VICTORY POINT MODE

Capture and Hold Victory Points until Timer Runs out

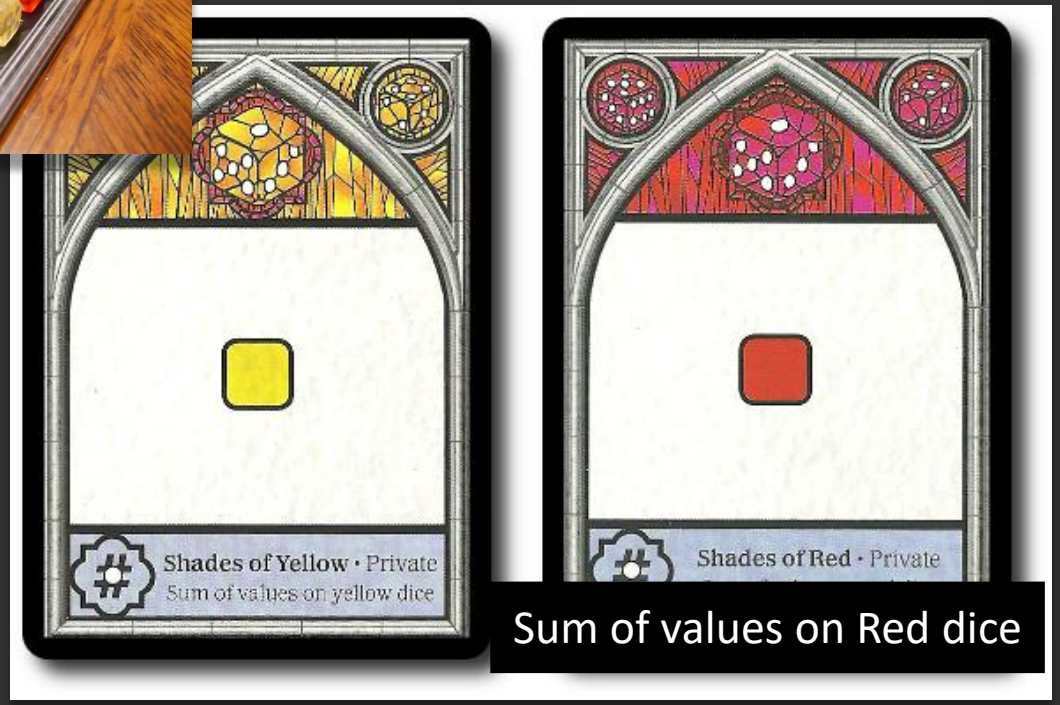
Changing the Goal can change player strategies dramatically, and may even make certain rules meaningless!

Goals Drive Player Behaviour



Rows with no repeated colours

Public Goals

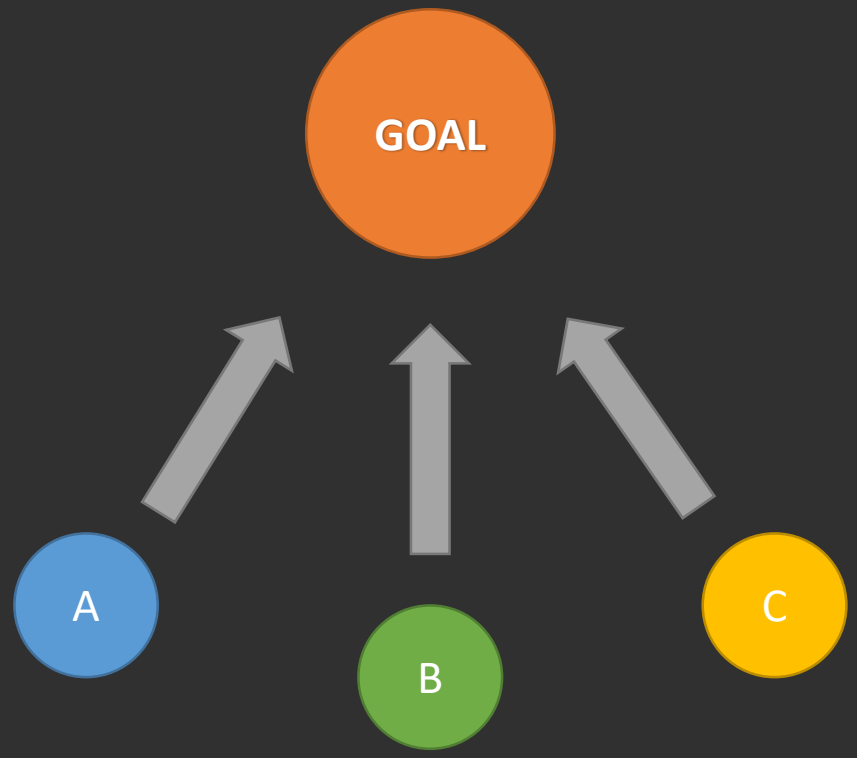


Sum of values on Red dice

Secret Goals

In the dice game, Sagrada, players have public goals which everyone can use to score points; they also have personal goals which only they can use to score

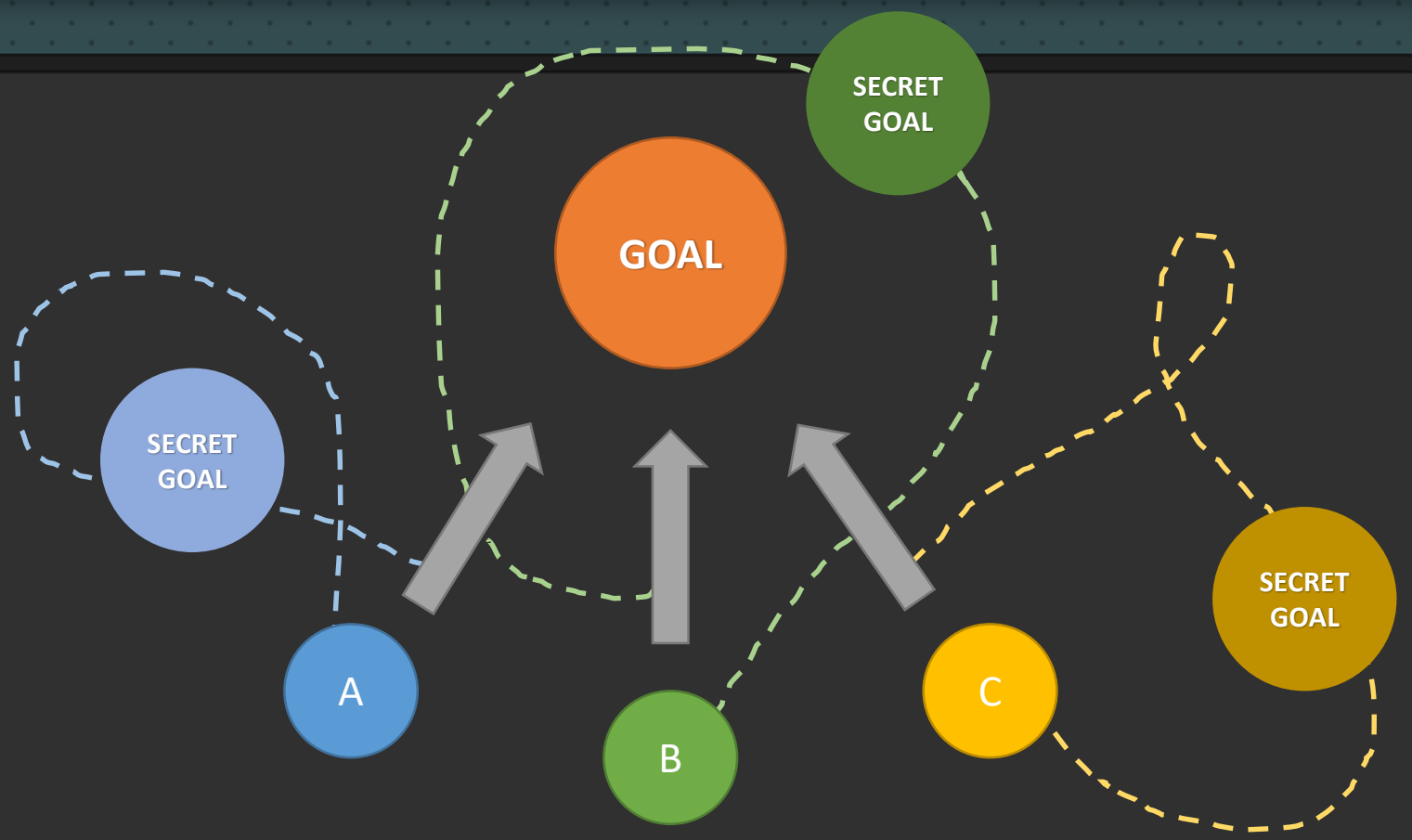
Same Destination, Different Journeys



Common Goal

Easy to understand other players' motivations

Same Destination, Different Journeys



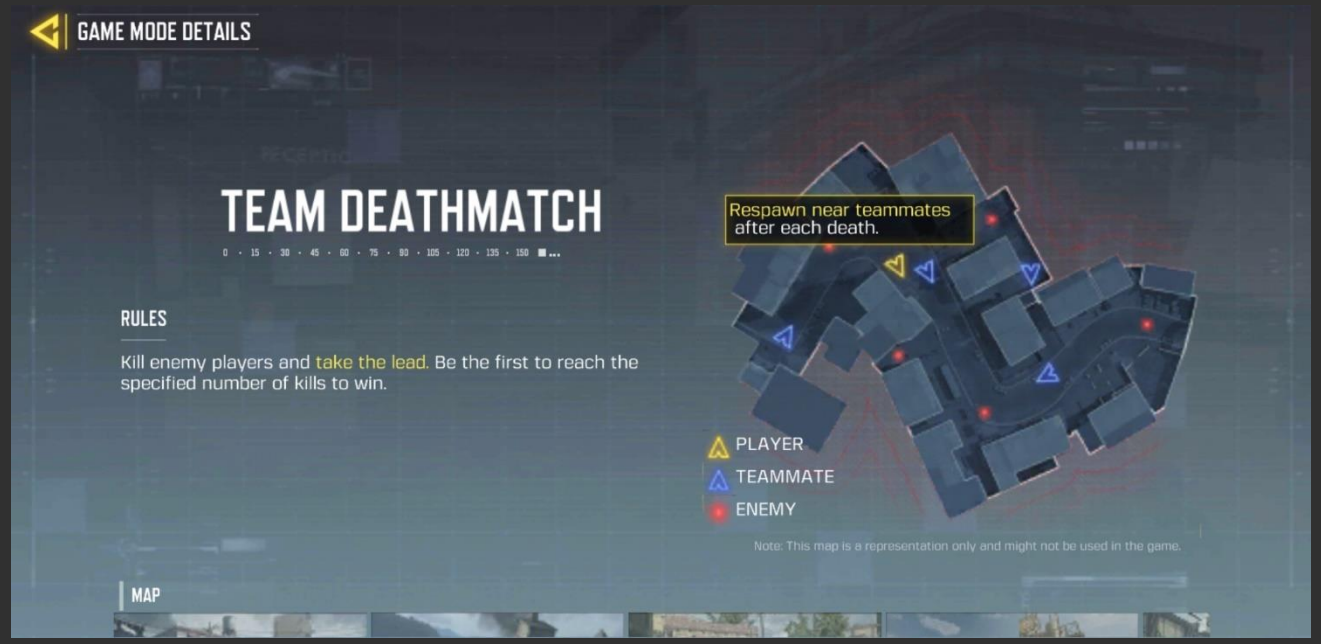
Secret Goals

Each player's personal journey is different

Goals

- Goals cannot be arbitrary or random
  - *Must exist within the boundaries of the rules*
  - *Achievable by the mechanics offered to the players*
  - *Clear, articulate and unambiguous*

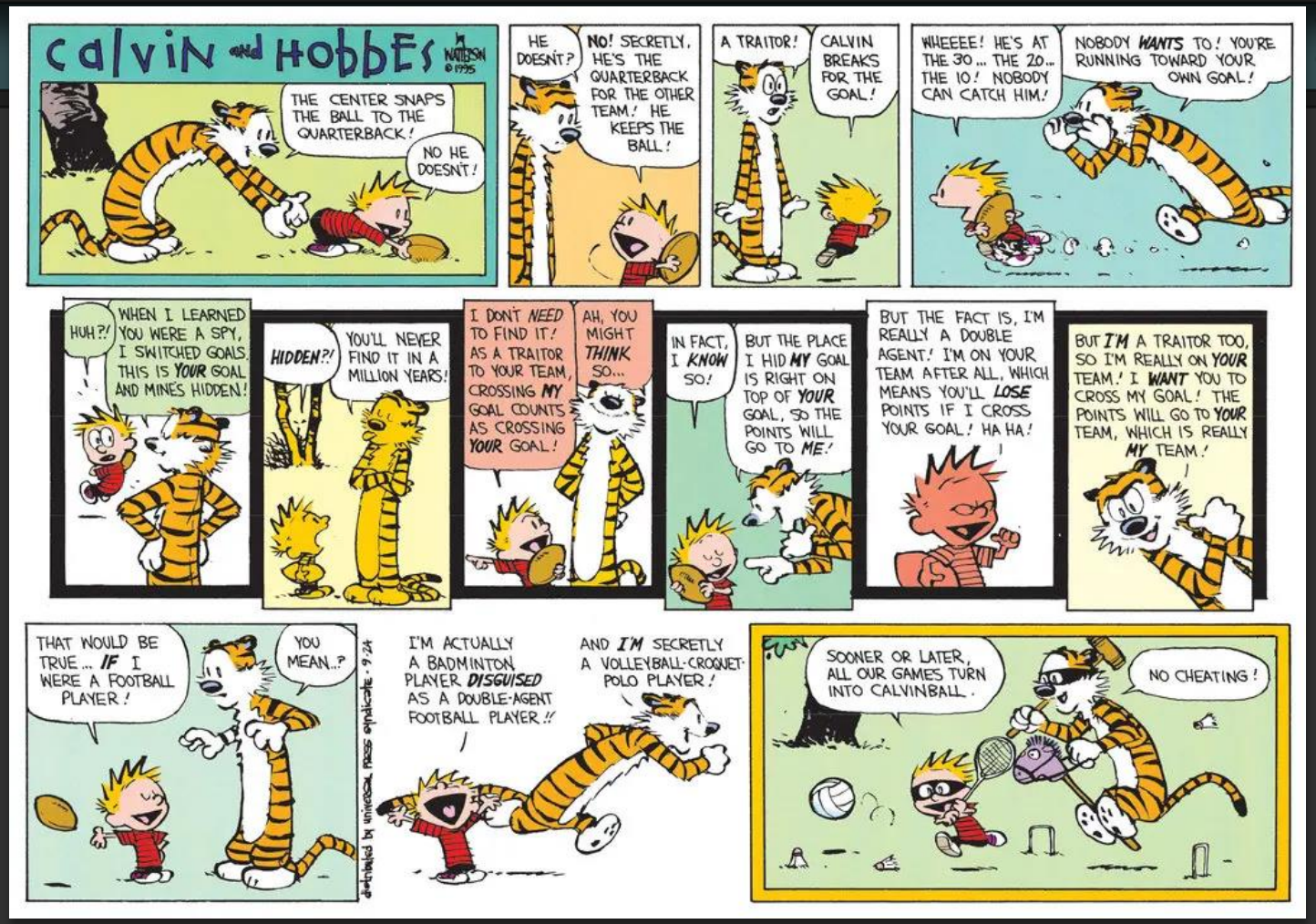
Clear Goals



Multiplayer games require clear goals in order to function properly

Simulation-type games are more about being creative with the mechanics

Clear Goals



Calvinball – it can be argued that the spirit of "play" needs no goals

Goals - Typology

Public

Hidden

Goals - Typology

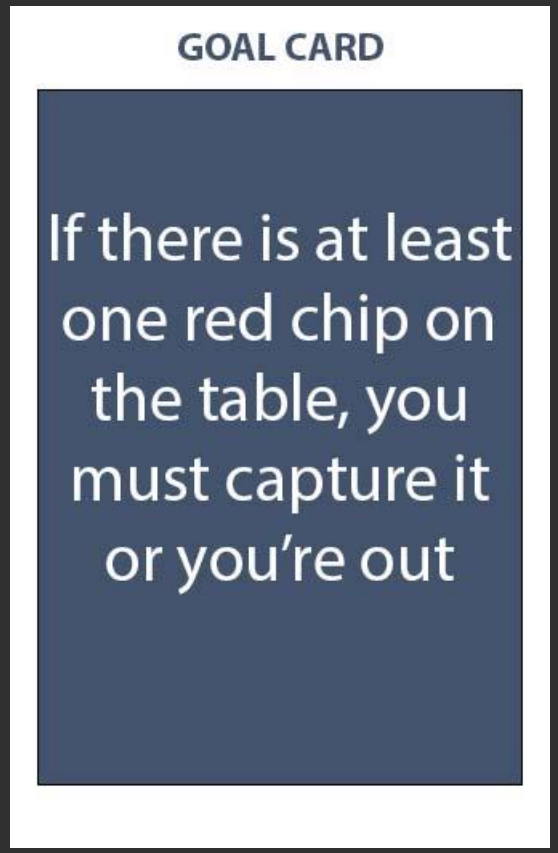
Timed

(leaves play if unfulfilled)

Goals - Typology

Simultaneous/Multiple Goals

Goals - Typology



Negative/Punishing

Goals - Typology

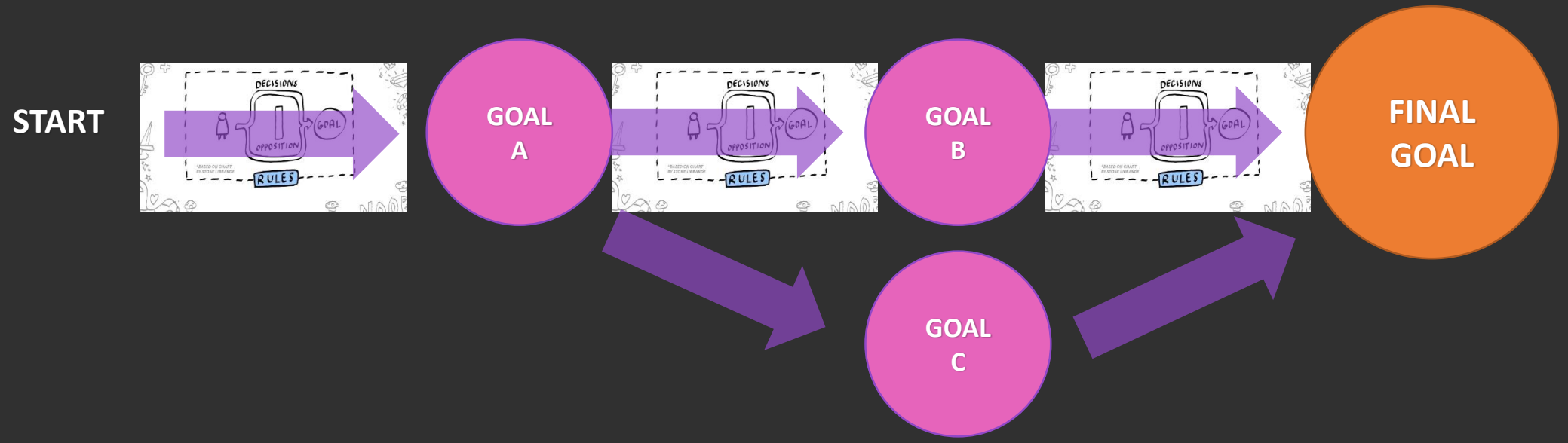
Cooperative

Goals - Typology

- Goal typology helps us create variety in gameplay, using the same mechanics
  - *Too often, we rely on creating new mechanics for variety*

Progression

- Progressive Goals
  - *Easily attainable goals are rarely fun or engaging*
  - *Challenging and monumental goals are broken down into smaller, more manageable sub-goals*



Progression

- Progressive Goals
  - *Easily attainable goals are rarely fun or engaging*
  - *Challenging and monumental goals are broken down into smaller, more manageable sub-goals*

Accumulating resources

Scouting

Early Game Goals

Building an army

Skirmish

Mid Game Goals

Homework

Have a thought exercise:

- How attached are your game's mechanics to the game's goals?
  - *Can your mechanics be used for other goals, or have to be heavily modified?*

Rules for Rules

- Turn Order
  - *Rules have to be executed in sequence, otherwise there will be a lack of consistency as well as confusion*

1. Draw a card from your deck.

2. Play a card from your hand by putting it onto the table in front of you. Sometimes you can play more than one card in a turn, but you have to play at least one.

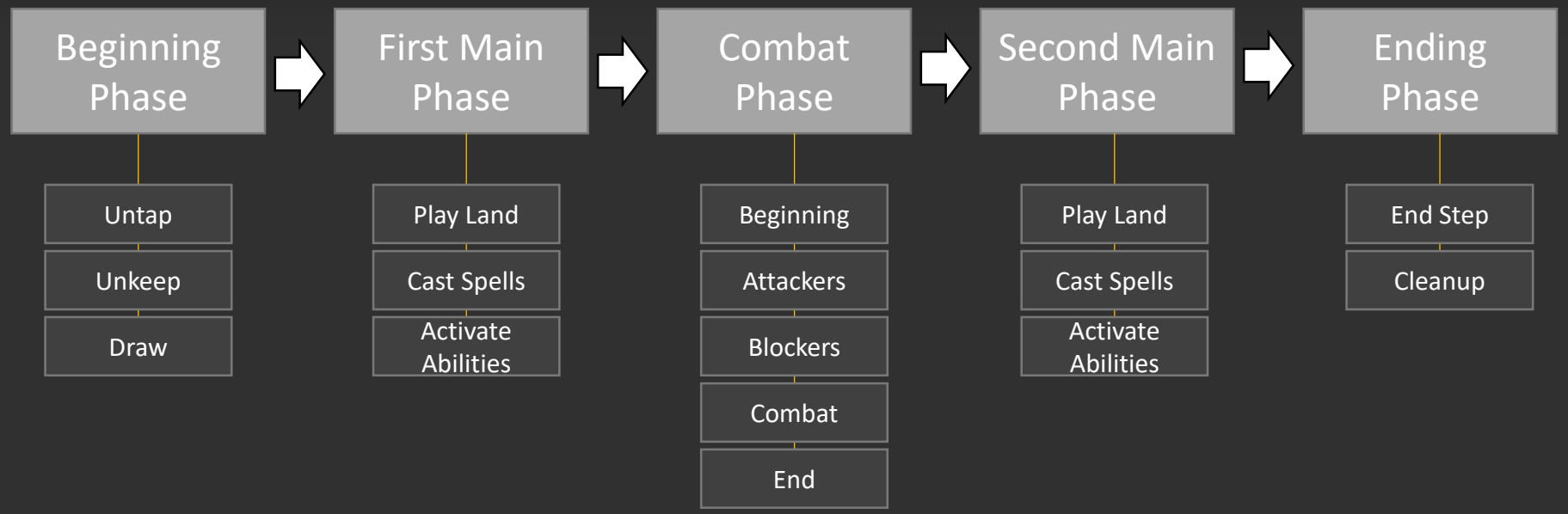
Check your reference card to decide which card you want to play. You can see what all the different cards do on the back of this sheet.

3. Put all the cards you played this turn into your discard pile unless they have the symbol on them. Cards with the symbol stay on the table in front of you until they are destroyed-then they also go to the discard pile.

4. Pass the turn to the player on your left.

Rules for Rules

- Phases
  - *Long lists of rules can be broken down into separate phases and compartmentalised*
  - *This makes it easier for players to remember the steps and understand the flow of the game*

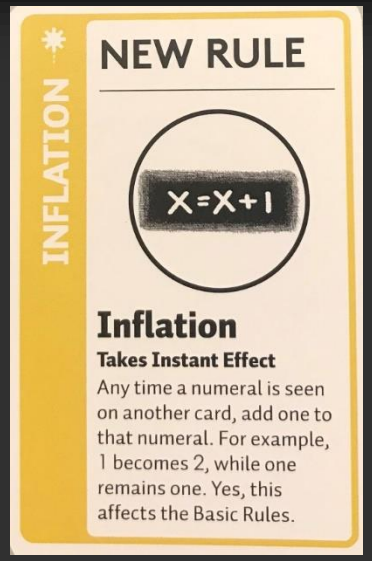


Rules for Rules

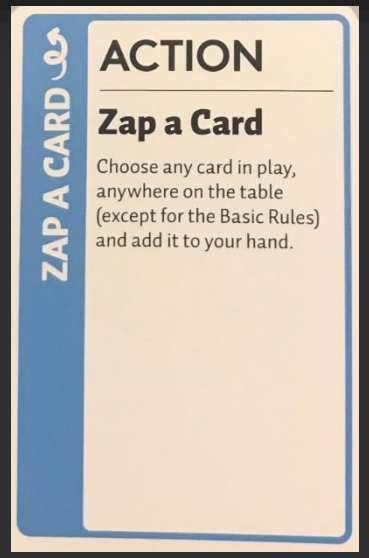
- Simultaneous Play
  - *Allowing players to act at the same time improves the tempo of the game, and keeps them engaged (not waiting)*

Rules for Rules

- Persistent Rules vs Event Rules
  - *Persistent rules will increase players' cognitive load, but allow for long term strategies*
  - *Event rules, which need to be activated during play, can add variety to players' mechanics*



Persistent Rules



"Fire & Forget" Rules

Rules for Rules

- Priority Resolution
  - *Simultaneous actions require priority in order to resolve properly*

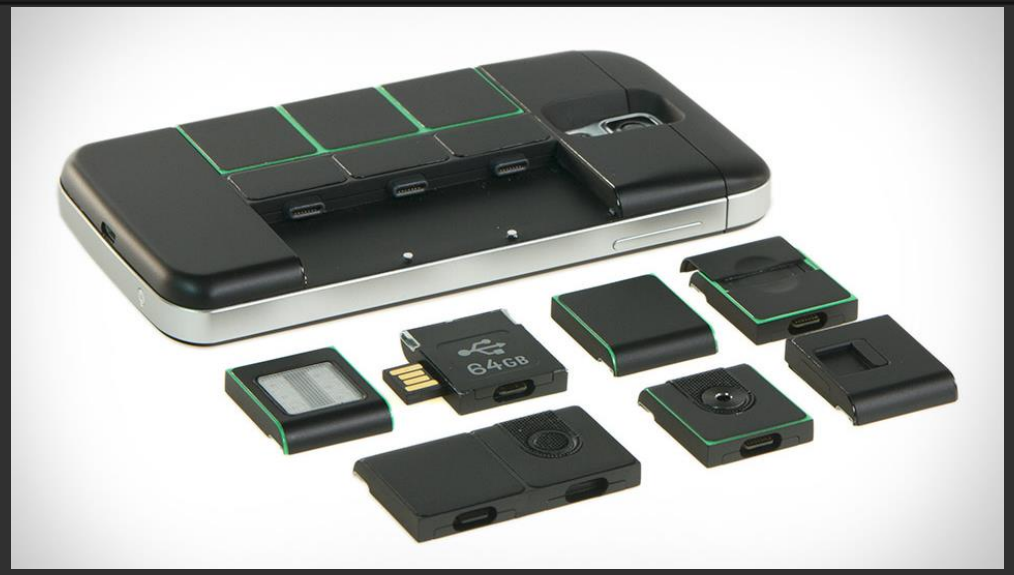
$$25 - 6 \times 2 + 6 \times 1 \quad \rightarrow \quad 25 - 6\underline{(2+1)} \quad = 7$$

Street Fighter Parry System

MTG Stack System

Modularity

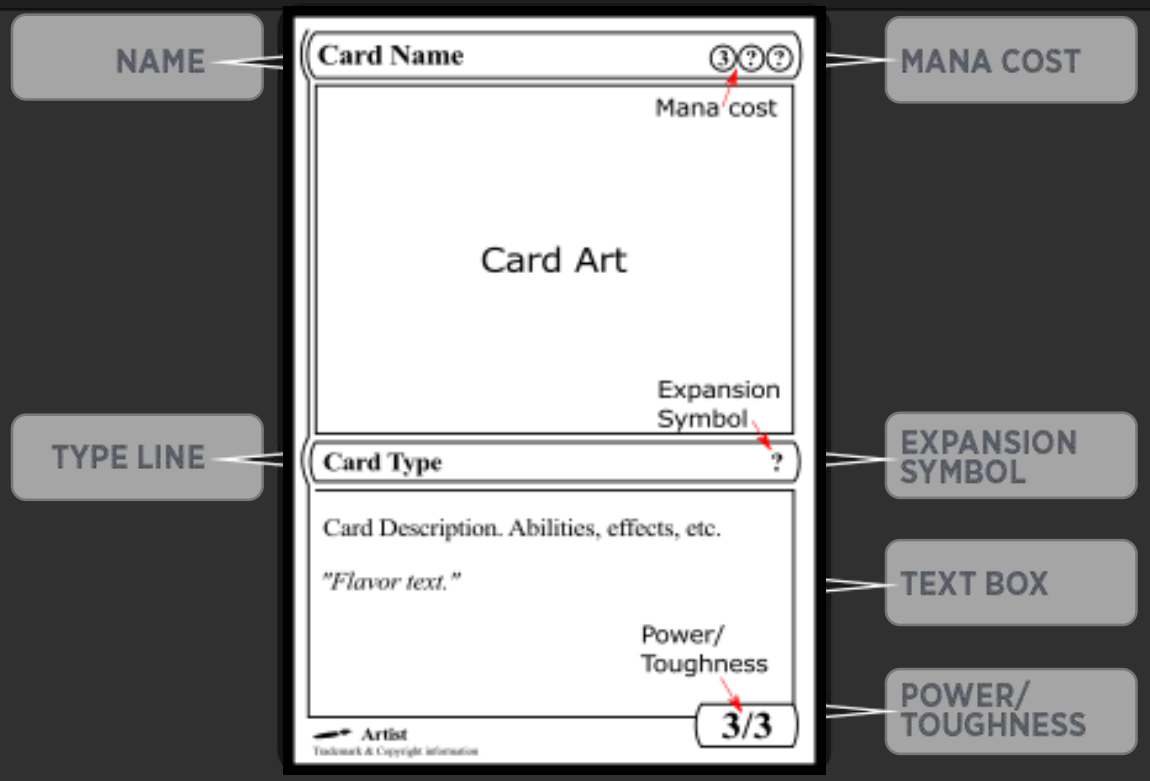
Modularity



A modular cellphone which uses common cell dimensions and connectors for each swappable component

Modularity organises information into an optimized state, and allows for scaling as well as variance

Modularity



Stripped of its graphics, it's easier to see how information is organized

When prototyping, this phase is known as wireframing

Modularity

Early prototypes before and after proper organisation

Modularity

Some modules have more function than others

Modularity

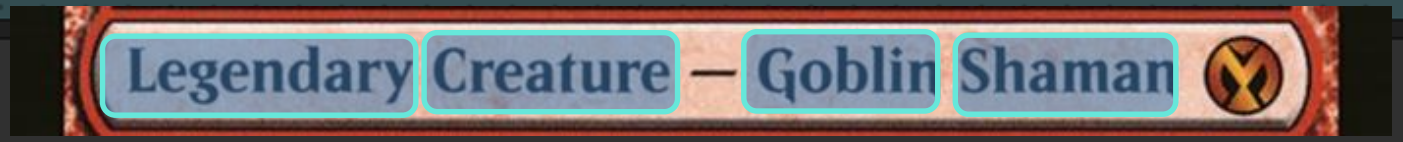
Type Line

Modularity allows for interdependency and hierarchy of information; more gameplay possibilities are arise from this organised structure

Modularity

Name

Type Line



Super Type *Type* *SubType1* *SubType2*

From MTG Comprehensive Rules 2021:

704.5j

If a player controls two or more legendary permanents with the same name, that player chooses one of them, and the rest are put into their owners' graveyards. This is called the "legend rule."

Rules can now be applied onto other rules with specific types

For example, you cannot summon two copies of "Kiki-Jiki, Mirror Breaker" onto the battlefield because it's "legendary"

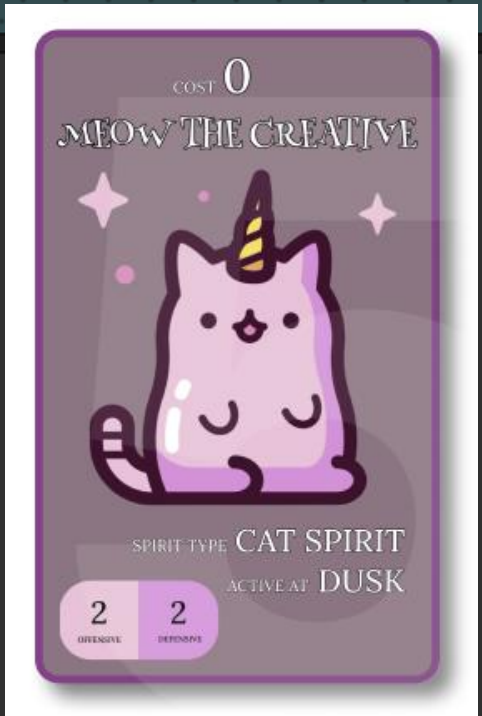
Modularity

Destroyed!

Destroyed!

NOT destroyed

Strict usage of terminology will reduce ambiguity and misinterpretation of rules. It allows your gameplay mechanics to scale in an optimal way, by creating a stable inter-dependency network



Design a dawn/noon/dusk/midnight system

Design a rule that affects only “Cats”

Summary

- Goals
  - *Importance of goals*
  - *How goals affect player behaviour as well as game rules*
- Rules
  - *Ways to organise rules*
  - *Ways to manage player engagement*
  - *How modularity makes rules more efficient in games*

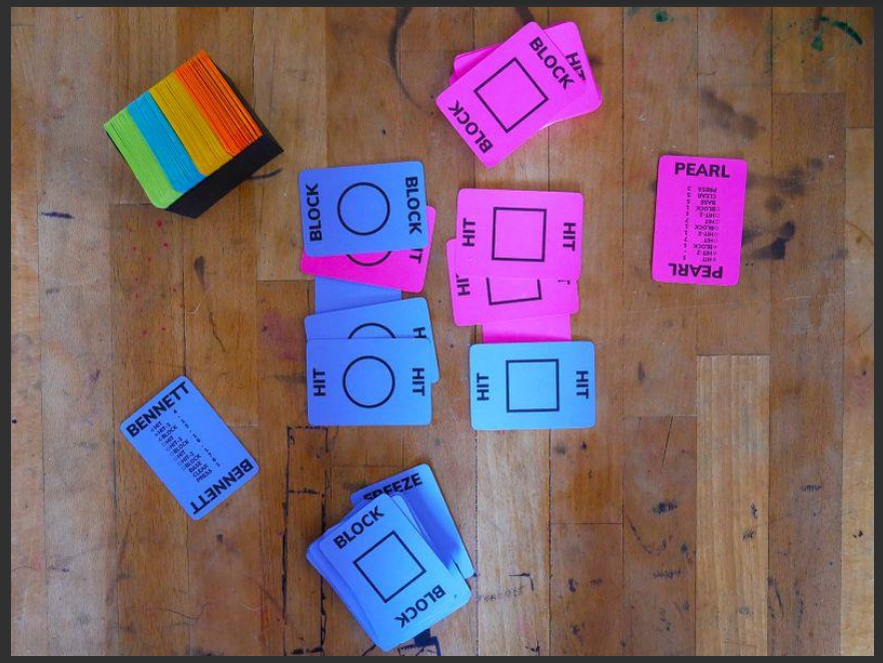
Real Time

BRAWL (1999) - A real-time 1v1 card game

Players throw out HITs and BLOCKs from their own unique decks as quickly as possible in a race to end the match first, and deliver the most hits

Real Time

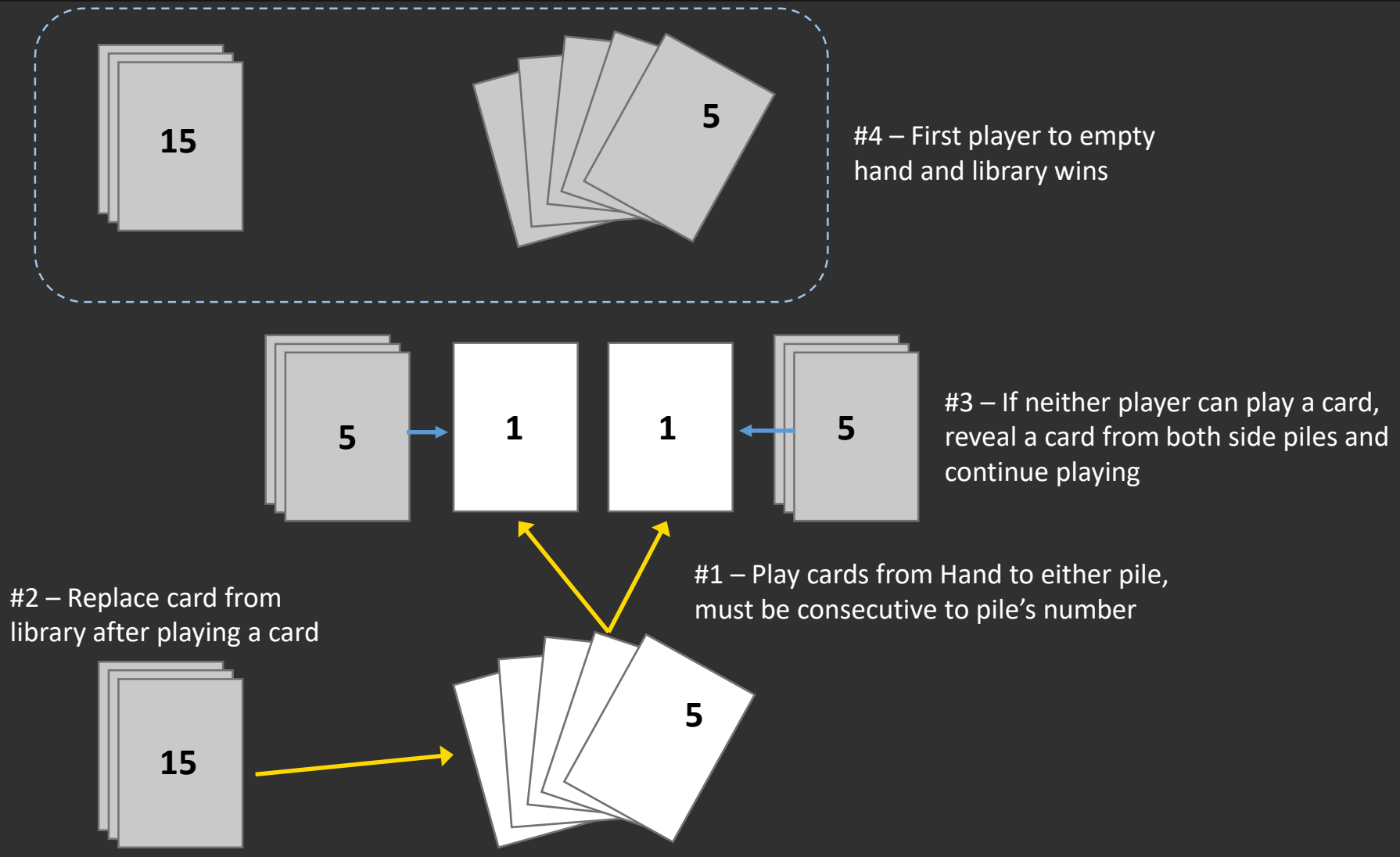
- You can download the game's print and play for free:
  - https://boardgamegeek.com/filepage/237635/brawl-pnp-files



Let’s Play - SPEED

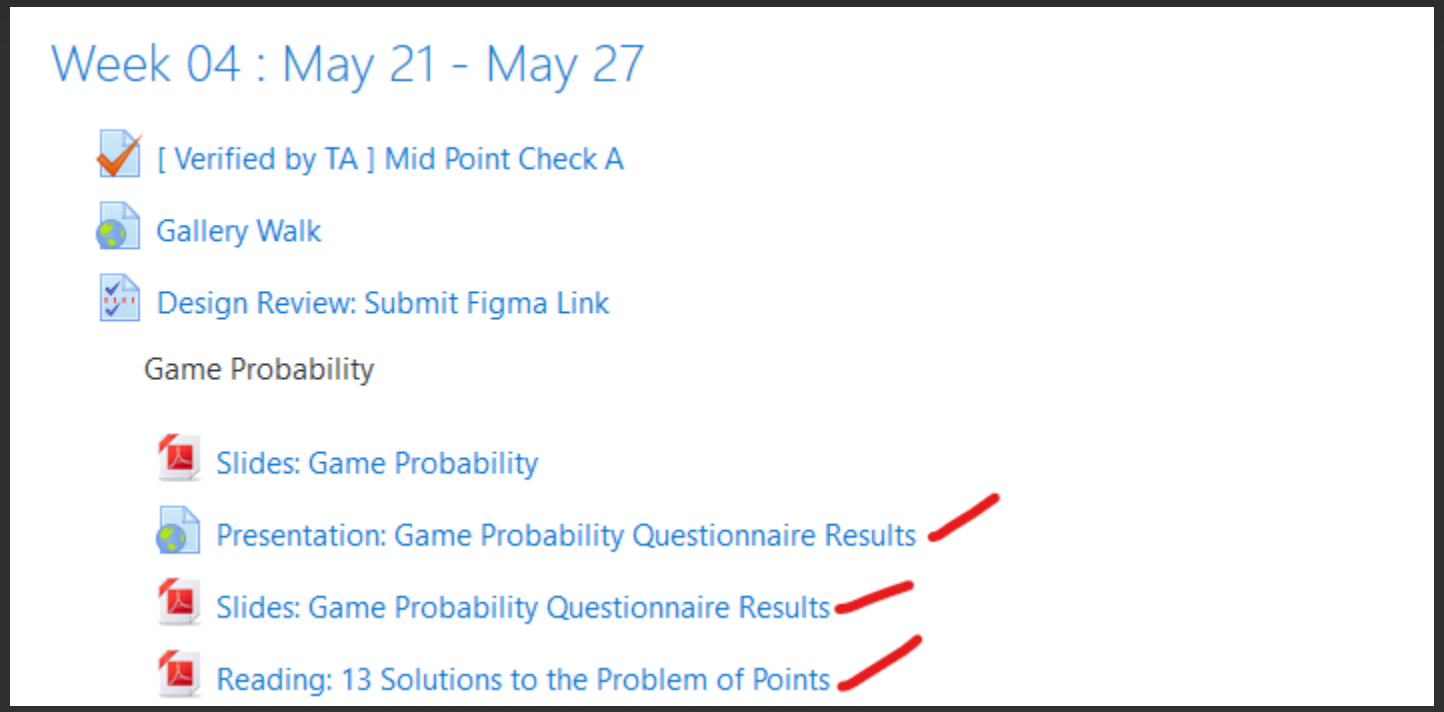
- Race to Zero – “Speed”
  - The game requires a standard 52-card poker deck
    - Deal 5 cards to each player’s hand (Hand limit is 5)
    - Deal 15 cards to each player’s library
    - Deal 12 cards to the table in 4 piles: **5**(B)-**1**(A)-**1**(A)-**5**(B)
  - Game begins when the two middle cards are flipped up
    - Players play cards from their hand to either of the two flipped up piles (A)
    - Cards must be one higher or one lower than the card on the pile
    - Once a card is played, replenish a card from your library
    - If no card can be played by both players, flip open a card from the side 5-card piles (B) until play starts again
  - First player to play finish all cards from hand and library wins!
  - https://cardsjd.com/speed/

Let’s Play - SPEED



Module Matters

- Week 4 Probability Quiz feedback



Module Matters

- Play BOARD games!
- Pandemic
  - Online: https://tabletopia.com/games/pandemic-north-america
  - Print&Play: https://images.zmangames.com/filer_public/48/20/482039b2-4b30-4fe9-9cf8-63ba8badc306/pandemic_hotzonena_printplay.pdf
  - Solo Rules: https://images.zmangames.com/filer_public/7c/6e/7c6eba67-ad9a-4690-a93d-791ffe094c24/hot_zone_solo_rules.pdf
  - Rule book: https://images.zmangames.com/filer_public/28/27/282708b6-502a-4112-abbb-2623349d0fe3/pandemic-hotzone-na_rules.pdf

Module Matters

- Move your player card to the new team slots
- If your team is intact, please use the same number
- If your team is disbanding, let everyone know
- A questionnaire will be sent out next week
- Teams of 4

Q&A