

# Affordance Theory in Game Design

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# Affordance Theory in Game Design (2020)



- ▶ Co-authored with Hamna Aslam
- ▶ Introduction to the concepts of playtesting
- ▶ Available in print and ebook from Morgan & Claypool
- ▶ <https://bit.ly/3bMcsfY>

# Objectives

1. Give an understanding of Norman's and Gibson's Definition of Affordances
2. Give an understanding of the Aslam-Brown Synthesis
3. Examine some of the applications in the domain of games
  1. Game Rules
  2. Dice Fairness
4. Examine the use of the Focused Conversation Model (ORID-Model)

# Describe a Teapot

- ▶ Large area to hold tea
- ▶ Lid on top
- ▶ Handle on the lid to open it
- ▶ Handle to allow for pouring
- ▶ Spout
- ▶ Made of a non-porous heat resistant material

TADA!

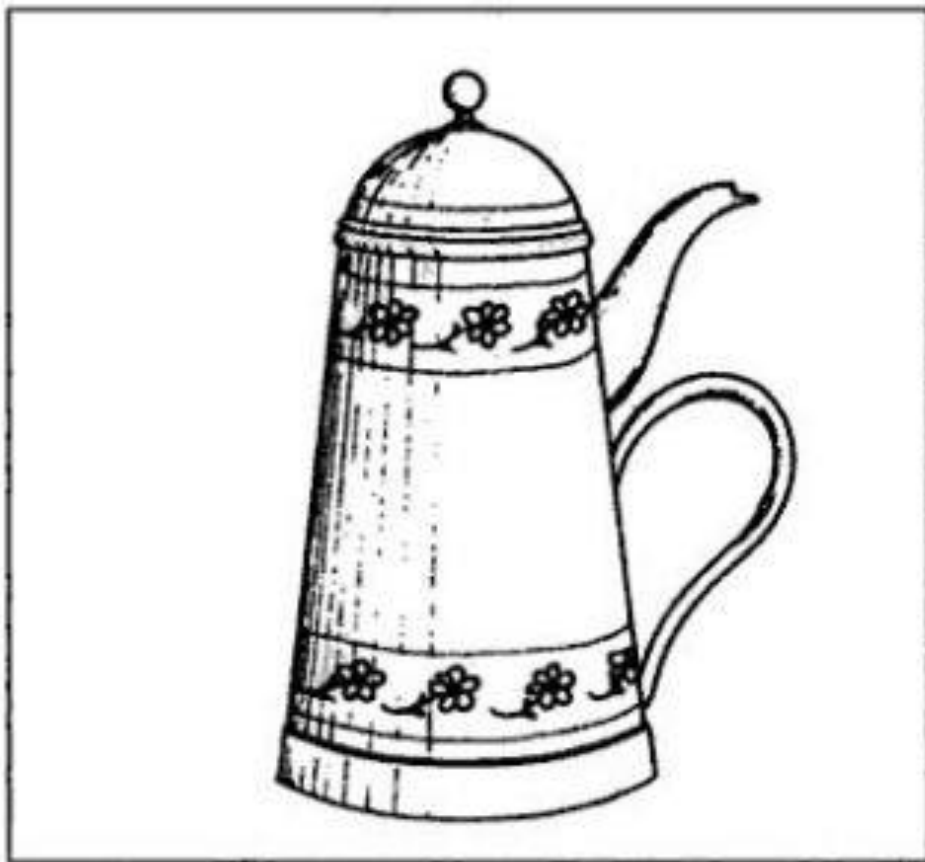


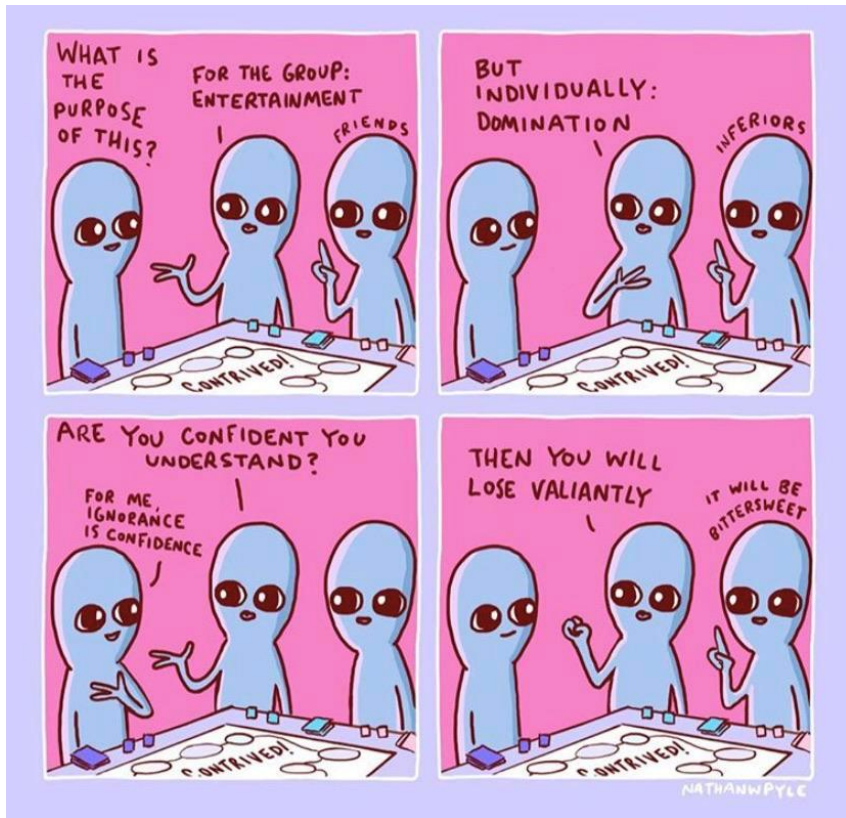
FIGURA 1-1. CAFFETTIERA PER MASOCHISTI Il disegnatore francese Jacques Carelman, nella sua serie *Catalogue d'objets introuvables*, fornisce esempi deliziosi di oggetti quotidiani che sono liberamente impossibili, insensati o comunque malformati. Da: Jacques Carelman (1969), per gentile concessione dell'autore e A.D.A.G.P., Parigi.

# What went wrong?

## Aka - Talking to a USER as a Dev.

- ▶ I made something which met with the specification
  - ▶ Everything you told me was factually correct
  - ▶ Everything you told me was shown in the final model as per your instruction
- ▶ Conceptually, I missed the point, I did not factor in what the purpose of the object was - only the form of the object
  - ▶ My realization was not looking at your use
  - ▶ I didn't look into your actions
- ▶ Understanding your user
  - ▶ GET YOUR BOOTS ON AND SEE THE PROBLEM IN ACTION
  - ▶ Lean Development, Agile Programming, Scum

# Act like an Alien!



- ▶ Strange Planet by Nathann Pyle
- ▶ Little blue aliens attempting to understand their universe
- ▶ Common objects are astonishing
  - ▶ Sun Burn = Star Damage
  - ▶ Coffee = Jitter Liquid

# James J. Gibson

- ▶ Sees affordances as **ANYTHING** the object allows for regardless of function
- ▶ If the object allows it - it is a function of the object
- ▶ Focuses on the ability to visually perceive the object



# Donald A. Norman

- ▶ “The Psychology of Everyday Things”
- ▶ Retitled to “The Design of Everyday Things”
  
- ▶ Many everyday things which should make sense
  - ▶ Are designed for form and not function
  - ▶ Allow for mistakes



# Principles

- ▶ **Visible** --- actions should be easily discovered by a user
- ▶ **Conceptual Model** --- a user is making a conceptual model of a design in how it operates, and the designer should facilitate its creation
- ▶ **Mappings** --- a user should be able to determine the relationship between action and outcome, and these should be consistent
- ▶ **Feedback** --- a user receives continuous feedback about actions, success or failure

# Plato v. Aristotle

- ▶ Plato
  - ▶ Ideal (pointing up to heaven)
  - ▶ Eide/Essence
  - ▶ Platonic Forms
- ▶ Aristotle
  - ▶ Realism (covering the world)
  - ▶ Empirical based analysis



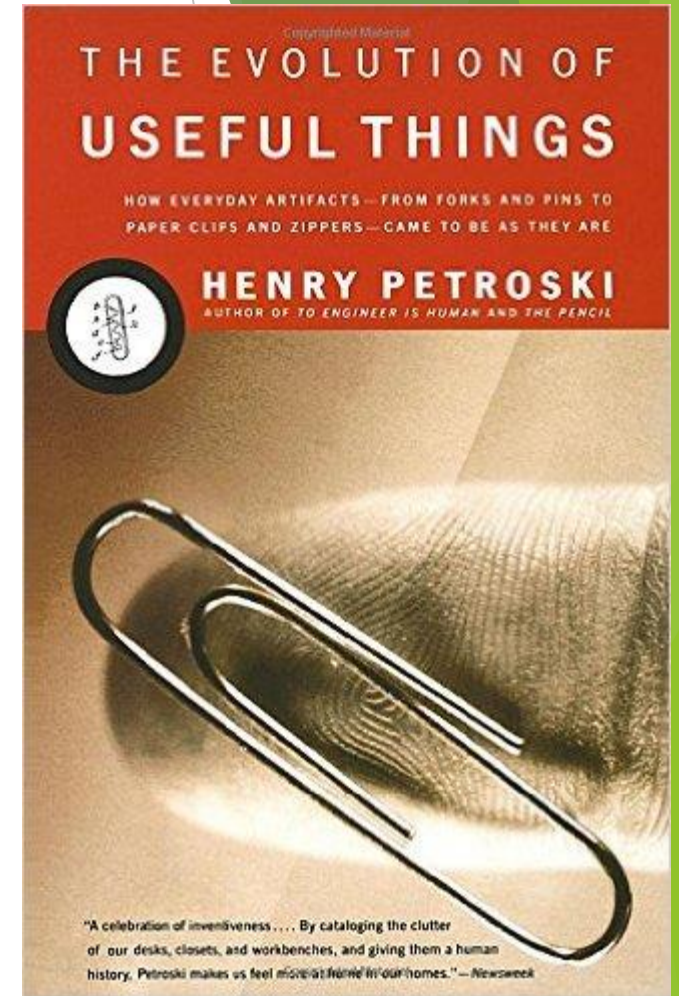
School of Athens - Raphael

# Aslam-Brown Synthesis

- ▶ Gibson set the outer universe of what the object affords
- ▶ Norman sets the accepted set of what the object affords to a “rational” user
- ▶ Signifiers and Choices of design are what leads a perception of this set or a lack of perception of the affordance
- ▶ Anything outside of the Norman set could be deemed as an error state OR a different use case

# Evolution of Objects

- ▶ As someone who comes from Evolutionary Computation
  - ▶ Putting existing principles into place
  - ▶ Iteration in design
- ▶ Design is not monolithic
  - ▶ Eating with two knives
  - ▶ Eating with a knife and a prong
  - ▶ Eating with a knife and a carving fork (two tines)
  - ▶ Eating with a knife and fork



# Free Parking

- ▶ In Monopoly what happens when you land on Free Parking?
- ▶ Rules - Nothing Happens
- ▶ 68% of respondents to a survey by Hasbro said they had “never actually read the game’s rules”
- ▶ 30% of players made up their own rules while playing
- ▶ Some of the House rules are now ‘officialised’
  - ▶ All taxes and fines to centre of the board collected by whomever lands next on free parking
- ▶ Many rules intended to speed play are rarely utilized
  - ▶ Bidding
  - ▶ Taking Properties from those bankrupted



# Anecdotal Study at MIT by Rob Daviau - The Kobold Guide to Board Game Design

- ▶ Daviau is a Games Developer
- ▶ Says that rule books should be minimized and rules should be embedded into the game objects
- ▶ Went to MIT and presented to groups
  - ▶ States “they did an amazing job”
  - ▶ Okay - what does that mean... “Amazing”



# Teams Presented with the Parts





# Observational Process



# Asked to Describe the Game



# Presented Games

- ✓ **Carcassonne**
- ✓ **Love Letter**
- ✓ **Hanabi**
- ✓ **PirateFLUXX**
- ✓ **Flip City**
- ✓ **Hive Pocket**
- ✓ **Mag.Blast**
- ✓ **Cthulhu Dice Metal**

# Criteria for Rules Assessment

To determine whether the students have understood the game rules, the following aspects were considered:

- ✓ Identification of number of players
- ✓ Identification of overall rules of the games
- ✓ Identification of the winning strategy

# Analysis

Games	Are Number of Players correctly predicted?	Are Rules correctly predicted?	Is Winning Strategy correctly predicted?
Carcassonne	Yes	?	Yes
Cthulhu	Yes	No	Yes
Hive Pocket	Yes	?	?
Pirate FLUXX	Yes	?	Yes
Love Letter	No	Yes	?
Flip City	No	?	?
Condottiere	Yes	No	?

# Parts are just the beginning

The results show that a particular assemblage of parts is not enough to give an insight into the rules, for example

- **Flip City** has number of players printed on the box, yet participants were unable to find that information.
- **Hive Pocket** has nothing written on the bag, still participants were able to identify the number of players by tiles having two colors.

# Best Defined

PirateFLUXX and Carcassonne were the easiest games to figure out rules.

## Reason

- ✓ PirateFluxx has rules embedded on cards.
- ✓ Carcassonne has colors and the images on the tiles that push players in the right play direction.

# Least Defined

Least well defined game was **Condottiere**.

## Reason

No text on cards

Player has to understand only from color, image, and number.

Theming



# Does Age/Education Effect Outcomes

- ▶ Looked at two groups:
  - ▶ Professors (16 participants)
    - ▶ All with at least 10 years of study/work in the computing field
    - ▶ Diverse International group with average age of 40
    - ▶ Were statistically less likely to play games
      - ▶ Only one had played more than a single hour over the previous month
  - ▶ Students (37 participants)
    - ▶ Average age of 22
    - ▶ No more than 4 years of study in an IT field
    - ▶ Average of 3 hours playing non-digital and 21 hours playing digital games

# Age Meaning “Wisdom”?

- ▶ Arguments that age reduces speed of learning, action
- ▶ Arguments that age increases logical capacity and executive function; until senility
- ▶ Arguments that Education affords critical thinking
- ▶ Yet, students are more exposed to the domain
  - ▶ Potentially have better conceptual model creation for like domains and are able to draw upon this

# Hive Pocket

- ▶ From our previous limited study has been shown to have some intuitive factors such as the number of players and the linkage with rolls of the creatures.
- ▶ Each creature is able to move in a way related to their type
- ▶ Goal is to surround your opponents queen bee with your own creatures to win
  - ▶ Analogous to chess with checkmate



“

I think a player wins when he can place the yellow queen bee piece surrounded by its solders. There should be a rule about which piece can connect to which, e.g. spider can connect to any other insects since it can use its web [...] I choose the Bee to be the queen, since there are 3 insects with only one piece and among them [...] the mosquito looks like an evil solder [...] the ladybug is not elegant enough to be queen. Ladybugs can attack ants, I guess.

”

Comment by one of the professors in the study

Note: This shows that the professors are exercising very large conceptual models in order to grasp the point of this game and are utilizing the framing of the game, not just the mechanics

# Quantitative Analysis

- ▶ Responses were collected into categories
  - ▶ Various pieces have strengths:  
“Stones have different powers”  
“This is the spider can hop over ants”
- ▶ Two tailed z-test for Population Proportion
  - ▶ Used when wanting to find the difference between two groups, e.g. Prof. v. Students, differ in some categorical characteristic, e.g. stated that “various pieces have strengths”
- ▶ Professors declares that stones should be placed one at a time 33% more often than students ( $p=0.038$ )
- ▶ Less likely to declare that white stones play first ( $p=0.242$ )
- ▶ More likely to declare each piece has a strength ( $p=0.226$ )

# Hanabi

- ▶ Has a “strange” rule of holding ones cards to the “opponent” and not being able to see them yourself
  - ▶ Note this is a cooperative game as well, about passing information to others at the table in order to make the correct plays
- ▶ Cooperative Game
  - ▶ Players work together passing information table in order to create strings of cards



table in order to

# Violation of Intuitive Play

- ▶ The majority of participants were greatly confused by the rules of Hanabi
  - ▶ unable to declare them from the game objects
  - ▶ Many allusions to Poker or UNO
  - ▶ Saw it as a game of competition
- ▶ Yet, once we stated the rules
  - ▶ “Oh... wow! That is really neat!”
  - ▶ One professor went so far as to request that I bring him five copies for Christmas gifts

# General Findings

- ▶ Professors outcomes were more in depth than the students and generally more correct
  - ▶ Students very quickly would want to give up on the problem
    - ▶ More likely to get “I don’t know”
    - ▶ Less likely to engage in reflective thought
- ▶ Nobody was good at Hanabi
  - ▶ Hanabi completely opposes the normal conceptual models seen in other games
  - ▶ It is hard to apply current learning
  - ▶ Purposeful violations of preconceived conceptual models, however, might exist in objects and it can be worth reading the rules for their enjoyment



# Dice

The research work presented investigates the oldest and most popular object in games, Dice.

Over years and centuries, dice have seen diversification in terms of design, shape, size, symbols, colors, and contrast etc.

How people have adjusted to, affected by, or embraced these modifications is a focus of our research work.

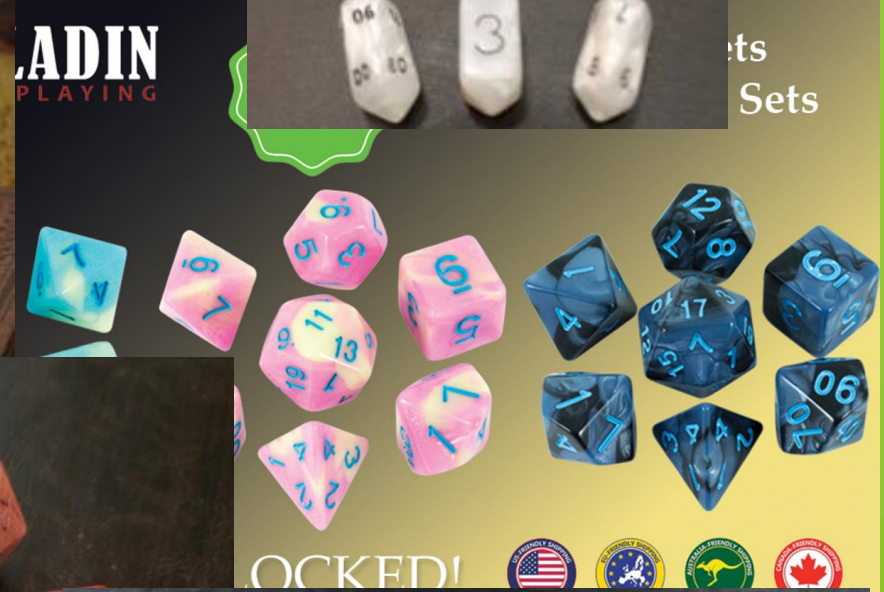


# DUNGEONS & DRAGONS



The Deadly Dragons  
of  
Dice Desires

# Lots of Fun Dice on the Market



# Demand in this Creator Market for Research



- ▶ Smaller operations
  - ▶ Sole proprietorships
  - ▶ Family businesses
- ▶ Kickstarter Dreams
- ▶ Remember that even the big boys started here
  - ▶ TSR
  - ▶ Games Workshop

# We Investigate Views on Fairness

How people perceive dice when it is different from the one they are used to of using?

In other words, what is fairness in a die in people's opinion and how they investigate it?

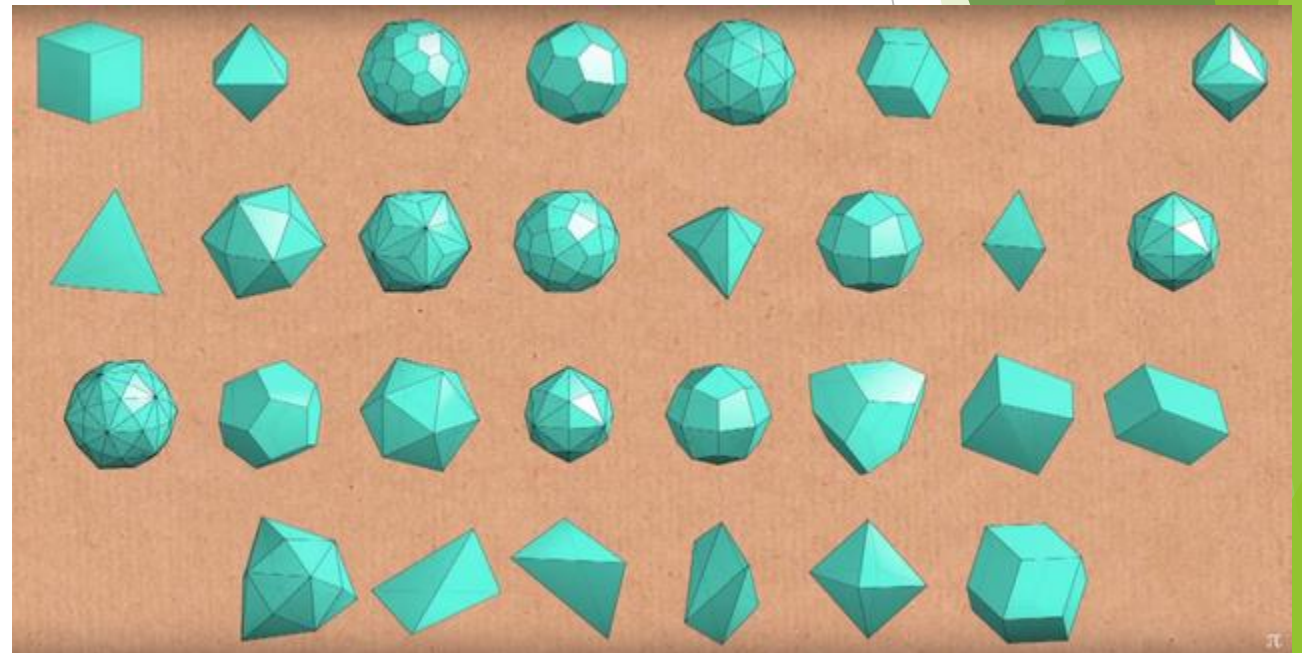


# Interesting Fact: Thirty Euclidean shapes, symmetric both by faces and edges

A die to be fair must be symmetrical both by faces and edges.

This means that with a reflection or a rotation, any face can be transformed into another one.

There are thirty shapes, shown on the side, discovered by Euclid with these characteristics.



# Experimental Setup (4 steps)



Normal Dice



Skewed Dice



Unusual Dice

**1. Initial Survey:** The study start by a general questionnaire about participant's profession, age, gender, and their interest in video games and board games.

**2. A Priori Questions on Fairness:** The second part of the study includes putting three pairs of dice, shown on the side, in front of the participant. The participants informed which dice they think are fair and which are unfair and why they consider them to be fair or unfair.

The question follows, which type of dice from the presented set, would they prefer to use if they had to play a game requiring a dice roll? For this question, participant had to pick one type of dice from the three types presented.

# Experimental Setup (4 steps)



Normal Dice



Skewed Dice



Unusual Dice

**3. Dice Usability:** The participants were provided a possibility to use as many body sensors as possible via playing a game.

The participant's perception of the fairness of die might change depending on, what they see, if they touch the die, form the sound and any other factor felt by the brain.

Each participant is asked to play the famous board game **“Snakes and Ladders”**, three times, each time with a different pair of dice in the order they were presented by the observer.

The game rules were modified to reduce play time such as in order to end the game the player can go over the final square if the dice roll shows bigger number than required to be on the final square.





Normal Dice



Skewed Dice



Unusual Dice

## Experimental Setup (4 steps)

### 4. Re-evaluation of Fairness Opinion after Dice Usage:

Participants are again asked about their perception of fairness in dice, if it has been changed after playing with all the dice.

The last question is, which pair would they prefer to use in the play. Again, as in second part of the experiment, they had to pick one type from the three dice pairs presented.

# Who were our Participants?

The study includes sixty-five participants, forty-eight males and seventeen females between eighteen and fifty-seven years old.

In terms of game play, participants have spent approximately five hours on average playing board games and thirteen hours on average playing video games.

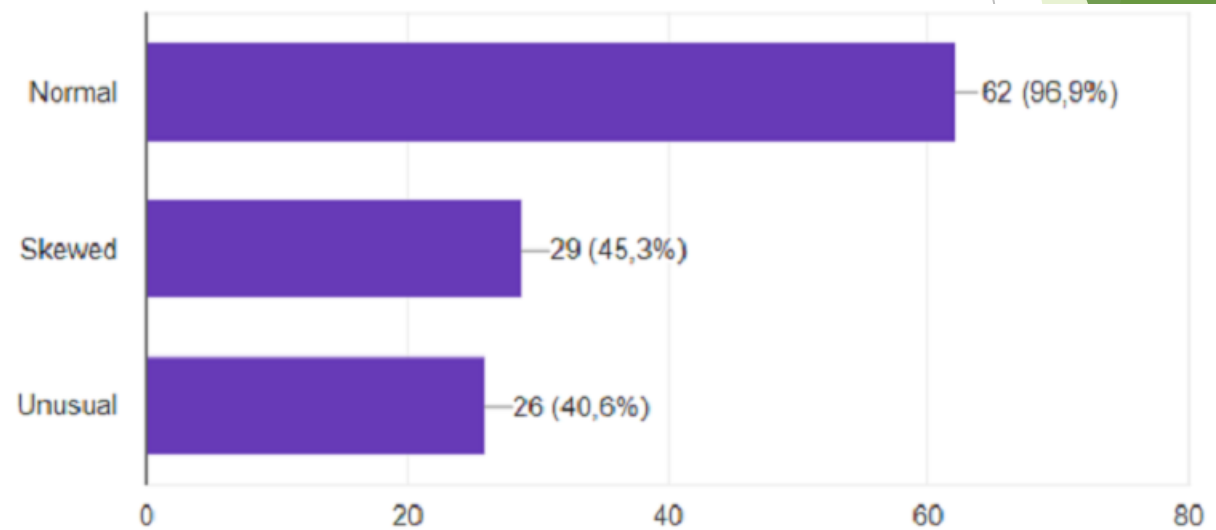


# Participants' Perception of Fairness in Dice Before Playing Snakes and Ladders

- ▶ The majority of the participants consider a die to be fair if there is an equal probability of the occurrence of all faces of the die.
- ▶ Some participants mentioned, they never thought an unfair dice could exist, and declared all the dice fair.
- ▶ Some participants rolled the dice to inquire which are fair and unfair.

# Participants' Perception of Fairness in Dice Before Playing Snakes and Ladders

From the first phase of the experiment, 96.9 percent of the people declared normal die as fair, 45.3 percent considered skewed die fair and 40.6 percent, the unusual.

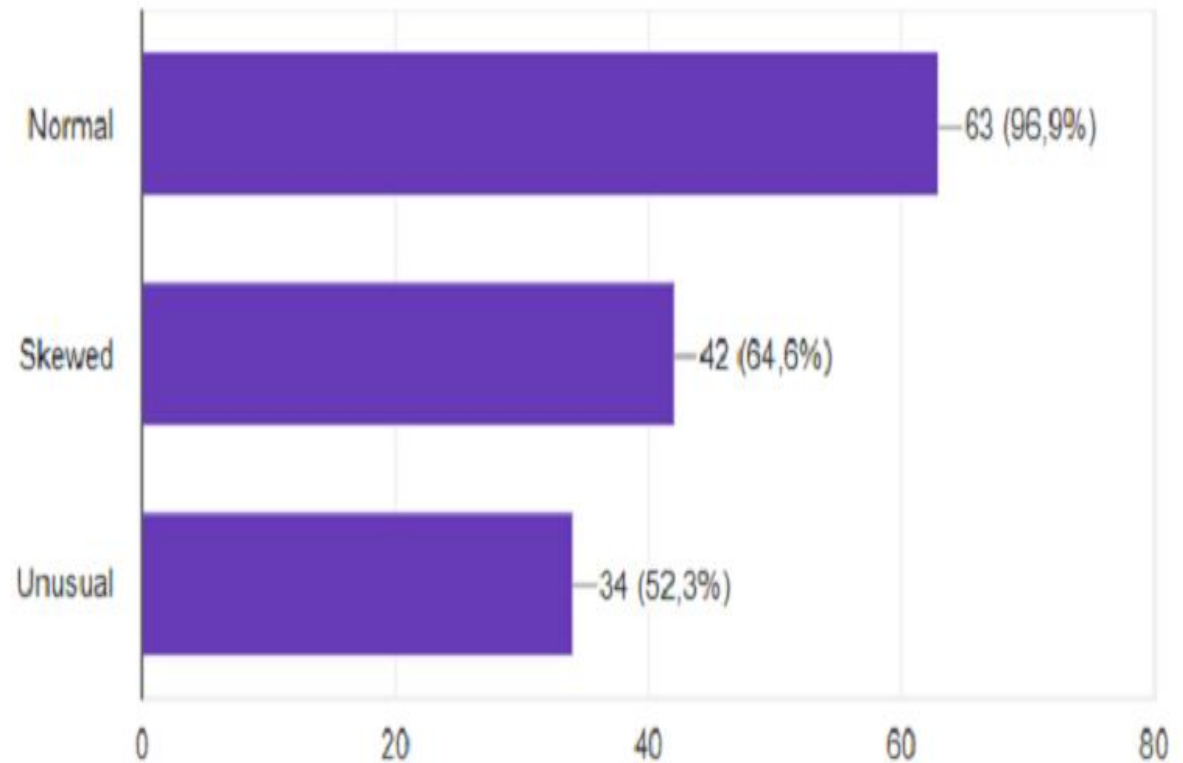


# Participants' Perception of Fairness in Dice Before Playing Snakes and Ladders

- ▶ The reason for considering normal dice fair was, all participants were already familiar of it.
- ▶ The decision about the unusual die was mostly unfair because of the repeated numbers on the die.
- ▶ For both unusual and skewed dice, majority of participants declared them unfair because of the shape that did not seem symmetric.

# Participants' Perception of Fairness in Dice After Playing Snakes and Ladders

After playing the game, Snakes and Ladders, with all three pairs of dice, participants responses yield that 98.4 percent claim normal dice to be fair, 64.6 percent considered skewed dice are fair and 52.3 percent of people thought unusual dice are fair.



# Participants' Perception of Fairness in Dice After Playing Snakes and Ladders

- ▶ The opinion about normal dice is almost the same, while for unusual and skewed the amount of people who consider them fair is much higher.
- ▶ The main reason of the difference in opinion after trying the dice are the numbers that came up as outcomes of the dice roll. The average number of throws to finish the game is 7 with normal and skewed dice, and 8 with unusual dice.
- ▶ Dice rolls that gave high or especially low number many times were considered unfair, while dice with variety of outcomes were considered fair. Many rolls would need to be performed to confirm suspicions
- ▶ Some attempted to CONTROL the role – but gave up and decided them to be fair

# Interesting Observation

An interesting observation from the experiment is, some participants choosing those dice for the game play, they considered not fair because:

- ▶ It appeared funny to them
- ▶ They were curious to try them out
- ▶ They wanted to confirm if the dice are fair or not



# Conclusions

- ▶ Participant provided feedback on the context of the dice usage, and informed, they would pick a different dice depending on the usage context. As an example, if they bet money, they would prefer a fair die, but for a game they could choose an unfair die just for curiosity.
- ▶ Other people were curious and informed, they have never thought about the fairness in dice.

# Conclusions

- ▶ Another consideration made by many participants, is about the edges of the dice. Some participants explained that normal dice are easier for them to roll on the table because of the edges, and consequently roll is harder to control. In case of sharp edges like in the skewed dice, it is easier to set up the dice before throwing it.
- ▶ Majority of the participants considered the type of die fair, which they have used mostly.

# Conclusions

- ▶ Participants perception about fairness of dice, when they just looked at the dice, also changed when they rolled the dice.
- ▶ The results further inform that participants showed interest in using dice which were unfair in their opinion because of the curiosity or the likeness of the design of the dice.

# Designs of dice for the 7-die D&D set

- ▶ Originally the dice used for D&D were based off of available dice used for teaching probability to high school students.
  - ▶ D6 - have a longer history than that - more on that in our next talk, lets not bury the lead



# Subjects

- ▶ Broke our study into two groups based on their experience with 7-die systems
  - ▶ Experienced Players - 30
  - ▶ Inexperienced Players - 29
  - ▶ Total 59 players
- ▶ Randomized the trials between playing the game first with each of the two tested sets of dice

# Two Sets Used - Aesthetics



- ▶ Aimed to keep colour and numbering consistent
  - ▶ Want look purely at the difference in the mold
- ▶ Chessex® model CHX27402 Ivory w/black Marble, Polyhedral™ 7-Die Set
- ▶ PolyHero Dice Wizard Set in Parchment & Black Ink

## A closer view of the D20



# Fairness



- ▶ Based on the findings of the pervious study fairness of recast dice is often in doubt
  - ▶ Playing the game seems to change this perception for a player
  - ▶ Polyhero has made statements that they aim for fairness in the outcome of their dice, test for it during the design manufacturing process
  - ▶ Take into account weight of the ink!
  - ▶ “we do design them to be used, not just something to look at” - Dann May
- ▶ For this study we will assume they are fair within manufacturing tolerances and see the outcomes from the subjects as purely their perceptions



# Playtesting



- ▶ Had them play a modified D&D like encounter
  - ▶ Recasts the theme into a TA and a Student fighting over a grade
  - ▶ See the paper for the rules

# Experienced Players Preferred the Recast Dice

	Preference for the Wizard set (Set 2)		
	Familiar (30 Participants)	Unfamiliar (29 Participants)	p-value (two-tailed)
Before	15	5	<b>0.00782</b>
After	15	4	<b>0.00288</b>

**Table 1: Z-score for two populations' proportions of users aesthetic perceptions of the dice. Users who had familiarity with 7-dice set preferred the Wizard dice while new players were more likely to select the original type of dice.**

# Understanding Fairness

- ▶ Nobody said the normal Chessex type dice were unfair. So we only look at the fairness of the Wizard Set

		After	
		Unfair	Fair
Before	Unfair	19	8
	Fair	0	32

p=0.003906

**Table 2: McNemar's test matrix and p-value for fairness of the Set 2 – all participants**

- ▶ Nobody who played with the dice would move from thinking the dice fair to being unfair - 19 continued to say they were unfair, 8 changed their minds via the playing of the game

# Breakdown of Fairness

## Inexperienced

- ▶ More likely to start thinking they were unfair
- ▶ Changed their minds at a significant rate ( $p < 0.05$ )

		After	
		Unfair	Fair
Before	Unfair	13	5
	Fair	0	11

$p = 0.03125$

**Table 3: McNemar's test matrix and p-value for fairness of the Set 2 – unfamiliar with the 7-dice set**

## Experienced

- ▶ Less Likely to believe they were unfair
- ▶ While not-significant ( $p = 0.125$ ), 1/3 changed their minds

		After	
		Unfair	Fair
Before	Unfair	6	3
	Fair	0	21

$p = 0.125$

**Table 4: McNemar's test matrix and p-value for fairness of Set 2 – familiar with the 7-dice set**

# Findings for Our Kickstarter Dice Makers

- ▶ Recast dice are best suited for the experienced player
  - ▶ More likely to be found to be aesthetically pleasing
  - ▶ More likely to be found fair without difficulty
- ▶ Confirms the findings in F.Boschi et al.
  - ▶ Playing a game with the object increases perceptions of fairness
- ▶ Perhaps companies should look to examples of use in their marketing



# Next Steps

- ▶ We have only looked at one type of recast dice for D&D
  - ▶ Thousands of more sets - yay work!
    - ▶ Shape
    - ▶ Theme
    - ▶ Colour (more of this soon)

# As promised - Old D6

- ▶ Astragals
  - ▶ Bones used for divination
- ▶ Cleromancy
  - ▶ Dice used for divination
- ▶ Fully formed examples with the pips as we know them date to the Romans
  - ▶ Evidence of dice being carried by soldiers
    - ▶ Divination
    - ▶ Pass Time
    - ▶ Gambling



Figure 1: Bone Dice and Knuckle Bones from Byzantine Rome c. 1-3rd Century - Istanbul Archaeology Museums, Turkey - photo by authors



Figure 2: Dice from the Sarkel Fortress in Rostov Oblast c. 9-10th Century - State Hermitage Museum, St. Petersburg, Russia - photo by authors

# Colour Psychology

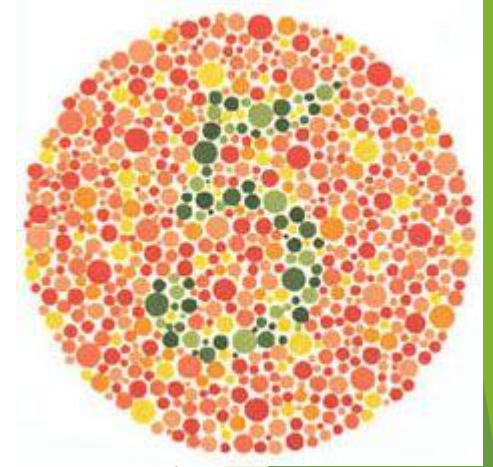
- ▶ Huge psychological impacts from colour
- ▶ Lets use Red as an examples
  - ▶ Fighters in red win more fights when equally matched when randomly assigned uniform
  - ▶ Red is also associated with Hunger and companies use this to sell their products





# Colour Blindness Test

- ▶ Developed by
- ▶ 38-plate test for colour blindness
  - ▶ Longer versions of this test exist for examination of conditions
  - ▶ Enough for our purposes of ensuring the differentiation of the colours
- ▶ Subjects who failed this examination were not used for the study
- ▶ In the end we had 68 subjects who progressed on to give data in this study



# Stage 1 - Order by Preference

Sort Papers by Colour Preference



Figure 3: First Phase - Papers for Sorting in Nine Colours

Sort Dice by Colour Preference



Figure 4: First phase - The Transparent Dice in Nine Colours (same as paper colours)

# Expected Outcome

- ▶ Colour preferences for colours alone should map well to the colour preferences in the dice
  - ▶ Someone who likes blue compared to yellow should select blue dice rather than yellow dice
- ▶ Distributions should be heavily weighted to little changes in the ordering

# Something odd is happening...

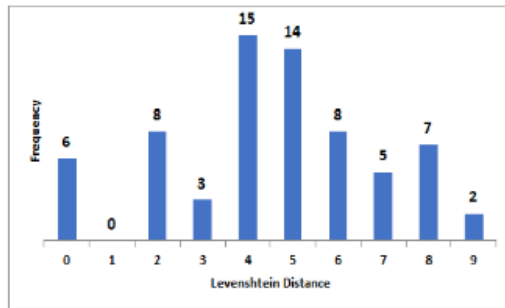


Figure 9: Levenshtein Distance calculated without Swapping

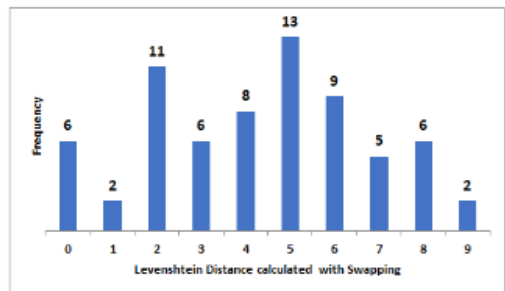


Figure 10: Levenshtein Distance calculated with Swapping

- ▶ We would expect in the distributions to be heavily weighted to the left hand side - little disruption
- ▶ No real trend
- ▶ What your colour preference is does not correlate to your dice colour preference

# Does order in the string matter

- ▶ We dug deeper
  - ▶ These measures look at the disruption in the entire series
  - ▶ Perhaps I keep my first choices, or first few choices the same, and I don't care about the rest



# Even for the top die colour, little can be gleaned

- ▶ Only 37/68 maintained their first choice of colour as being their first choice of die
- ▶ Players were most likely to replace Green from their top 3 dice
- ▶ Players were most likely to add Red in their top three dice

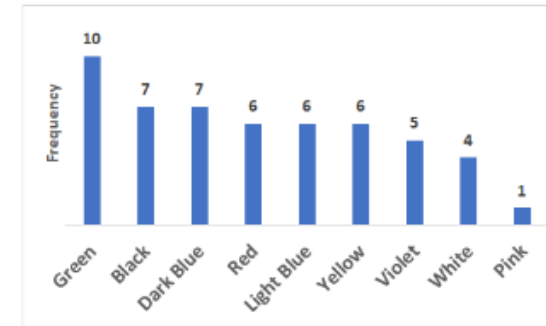


Figure 11: Replaced Colours from First Three Preferences

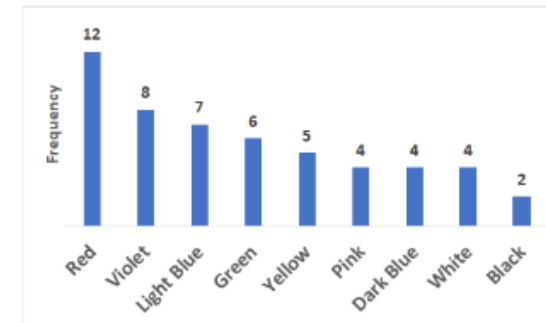


Figure 12: New Colours that are Introduced while Selecting Favorite Dice

## Stage 2 - Usability

- ▶ We have seen that colour preference is a poor measure of what colour players will use
- ▶ Perhaps it is the perception of the dice in their readability
- ▶ We looked at the speed which a player could sort five of the sets of transparent dice and at two opaque sets
- ▶ Took 30 participants for these tests

# Nothing.

- ▶ ANOVA on the times for sorting showed no significant differences in the time to completions based on the colours

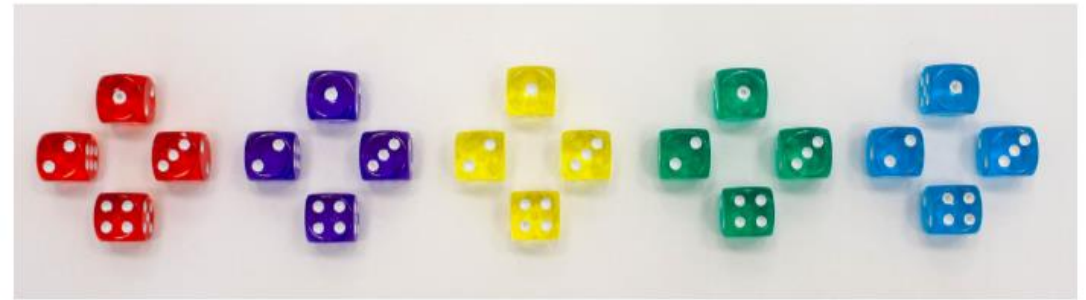


Figure 5: Second Phase - Sorting Transparent Dice in Ascending/Descending Order



Figure 6: Second Phase - Sorting Opaque Dice in Ascending/Descending Order



# Stage 3 - Knock Game and Readability

- ▶ Examined a set of dice of the same size, shape, pips
- ▶ Colours selected for various different contrasts
- ▶ Black on White die used as a control



**Figure 7: Unusual Colour Contrast Dice for Playing Knockout**

# Errors and Confusions






Die	# of Errors	# of Confusions
	0	0
	1	0
	2	26
	0	0
	0	0
	0	2
	0	0
	0	2

Table 1: Dice with Error and Confusion rate - Error refers to Incorrect Reading and Confusion refers to Correct Reading but Required more Concentration

- ▶ Errors - the player stated the wrong number during the course of the game
- ▶ Confusion - the player was caught in making an error which was corrected; or took an inordinate amount of time to read the die; or in the observer noted difficulty in the player declaring the value

# Reading difficulty

- ▶ White on clear was the loser in reading
  - ▶ 2 errors, 26 confusions
  - ▶ Players however stated it was exotic, interesting, and excited to use it more
- ▶ The control dice of black on white works well
  - ▶ Thank goodness!
- ▶ We could also select black on gray, white on transparent black, and bright green on dark red (beware, colour blindness)

# What have we discovered

- ▶ Simply asking for colour preference is perhaps not the best way for merchants to see what the demand for dice of that colour will be
- ▶ Some other factors seem to be involved in aesthetic dice selection
  - ▶ Contrast/Readability
  - ▶ Exotic/Novel
- ▶ The question of aesthetic preference of colours on dice is not just stemming from one factor alone

# Break...



- ▶ Co-authored with Hamna Aslam
- ▶ Introduction to the concepts of playtesting
- ▶ Available in print and ebook from Morgan & Claypool
- ▶ <https://bit.ly/3bMcsfY>

# Rules Rules Rules

- ▶ I am interested in how rules are developed
- ▶ Often systems create many rules!
- ▶ We created an activity to examine rule creation
- ▶ Idea
  - ▶ To demonstrate how adding of rules over time leads to a breakdown in a ruleset
  - ▶ Wanting to engage learners in the class with an activity



# The Game

- ▶ I provided a space and a number of balls
- ▶ Class was split into teams with a Facilitator
- ▶ The “game” was generated as follows:
- ▶ A player states a rule
- ▶ Play progresses for 2-3 minutes
- ▶ When the group decides the rules are too hard to follow, they declare the round over
- ▶ the goal is to continue play with the most rules possible



# The Focused Conversation Model

- ▶ The focused conversation model was first developed by United States Army Chaplain and Art Professor, Joseph Mathews
- ▶ as a method of art appreciation and reflection
- ▶ The conversational approach eschews the idea of a single expert in the teaching model and instead relies on the assumption that there is no universal truth to the appreciative process
- ▶ The only method to come to meaning is to have a series of viewpoints
- ▶ A truth is based on observing several subjective opinions, and not a result due to the existence of a truth objectively
- ▶ It is also called the ORID Method after the stages of questioning



# Rules in Games

- ▶ Upon examining the world of games --- avoiding the common folly of stating analog or digital games are completely unrelated design tasks --- we realize the need for the development of such shared truths in the rules sets.
- ▶ That being a set of rules by which the players will abide by setting out the expectations for play and those actions which are out of bounds.

# 0 - Objective

- ▶ based questions are those which explore the situation or object based upon the objective facts without recourse to emotions, beliefs, interpretations.
- ▶ The goal of this stage is to have a collective and clear agreement as to the question of ``what happened?''
- ▶ It is often the case in this stage that facilitators need to keep participants clearly on task by limiting the comments at this stage.
- ▶ Allowing this will lead to confusion for other participants and will lead to statements about actions without everyone understanding what happened from the various perspectives and will not allow an objective view of the situation or object to emerge.

# Objective Questions

- ▶ What instructions were given by the facilitator?
- ▶ What objects did you use?
- ▶ How many rules did you make?
- ▶ What were the rules you produced?
- ▶ What rule caused you to end the game?

# R - Reflective

- ▶ questions examine the feelings and base level thoughts of the participants.
- ▶ The role of this level of questioning is to have the immediate and quite often personal reaction to the data.
- ▶ This is often the emotional response suppressed in the objectives level of the questioning.
- ▶ This level examined the surface relations between the facts.

# Reflective Questions

- ▶ How did you feel when engaging in the activity?
- ▶ Why did you choose these objects?
- ▶ As the number of rules increased, what did you notice?
- ▶ What were your feelings about the rules you produced?
- ▶ How did you feel as the game went on towards the end?

# I - Interpretation

- ▶ The Interpretive level of questioning examines the meaning of connections.
- ▶ These questions examine the values of the participants and the implication of the thoughts about the situation or object.
- ▶ This stage of questioning has been built into by the previous questioning stages allowing for a firm foundation for insights to emerge.

# Interpretive Questions

- ▶ What rules were better for the game?
- ▶ What rules were contradictory and how did you solve this problem?
- ▶ Why did that rule cause to end the game?

# D - Decision

- ▶ Based on the interpretations, what actions should now be undertaken.
- ▶ The questions of this phase create resolutions and close the conversation while laying out the next steps.
- ▶ This stage also naturally lends itself to the documentation of an action plan.



# Decisional Questions

- ▶ What rules would you want to keep in future games?
- ▶ What rules would you want to avoid in future games?
- ▶ What did you learn about rule systems?

# Example Outcomes

- ▶ Later rounds went longer
  - ▶ Longer rounds of the game as the class was able to better see when rules would conflict or kill the game
- ▶ Development of Anti-Rules
  - ▶ Some rules were patched by later rules
- ▶ The Facilitator was drawn on as an appeal
  - ▶ Usually reminders that they can stop this round or that they have the power to change the rules is enough to deal with problem cases



# Move into the Domain of Requirements Engineering

- ▶ So this is a SE talk
- ▶ Look at the process of requirements from the user and the conversations required in order to examine these models
- ▶ Working with a stakeholder requires these same types of discussions and reflections about the process.
- ▶ New paper coming out soon:
  - ▶ Hamna Aslam, Alexandr Naumchev, Jean-Michel Bruel and Joseph Alexander Brown  
“Examining Requirements Documentation through the Focused Conversation Method”



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