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Before we start, I want to thank Rachel Beth Egenhoffer and acknowledge her own work as a ludologist which has been an inspiration.

A Children's Game Transformed By The Solvent Of Computational Method Thus Allowing For The Displacement Of A Moral Overlay By A Free Play Of Algorithmic Patterning

Warning: Choking Hazard - Contains small parts not suitable for children under 3 years.

First, I will show some examples of the work created under this title. Then I'll try and explain how I arrived at it, and hopefully by the end, you will understand the beginning.

[slide: 02Nietzche]

Beyond Good and Evil
Nietzche wrote, "Behind all logic and its seeming sovereignty of movement, too, there stand valuations or, more clearly, physiological demands for the preservation of a certain type of life."

I mean in this presentation to assert that the logic of programming and of games like all logics are implicated in a particularized set of values that are as arbitrary as they are bound to cultural allegiances.

A Children's Game Transformed ...

These images were produced by the program with the above mentioned ridiculous title and with the equally cumbersome subtitle ...

[slide: 03Series3]

series 3
where in 100 games
the chances of adding chutes and ladders is 50%
the chances of removing chutes and ladders is 20%
chutes and ladders are removed only when there are 5 or more present
the program quits a game if there is no winner after 100 turns
a chute or ladder may be no longer than 1/2 the length of the board
each square is 10 pixels on a side
there are 10 games across
there are 6 faces on the die
a player must land exactly on the 100th square to win

which enumerates the parameters. Here are the images from three runs of the program with the same values.

[slide: f series3]
[slide: f series 3a]
[slide: f series 3b]
[slide: f series 3c]

Interlude/Explanation

[slide: f gameboard]

The children's game in question, you may now recognize, is "Chutes and Ladders."

Chutes and Ladders

 [slide: f gameplay]

The rules of the game are simple: players role a die or spin a spinner to determine their progress along a linear track of 100 numbered squares advancing extra spaces when they land on a ladder and falling back when they land on a chute. The first player to the 100th square wins.

Rules: A Children's Game Transformed ...

[slide: 04 rules]

The rules of the simulation may not be as obvious; they are:
Each unit of 100 squares on a 10x10 grid represents the playing of a single game.
The game is played until there is a winner or the maximum number of turns is reached
Shoots and Ladders are added and subtracted from the game board before each game according to the probability parameters set at run time.
4 players are represented by 4 colors: cyan, yellow magenta, and black.
The color of square is determined by summing the colors of the players that landed on it.
A fraction of the color is added for each time the player lands on the square.
The density of the color is proportional to the number of times the square was landed on.
The most landed on squares will be 100% dense.
A square where no player landed will be white.

series 2

[slide: 05 series 2]

Here is another set of parameters and results.

where in 100 games
the chances of adding chutes and ladders is 100%
the chances of removing chutes and ladders is 50%
chutes and ladders are removed only when there are 7 or more present
the program quits a game if there is no winner after 100 turns
a chute or ladder may be no longer than 1/4 the length of the board
each square is 10 pixels on a side
there are 10 games across
there are 3 faces on the die
a player must land exactly on the 100th square to win

[slide: f series2]
[slide: f series 2a]
[slide: f series 2b]
[slide: f series 2c]

Series 1

[slide: 06 series 3]

And another, this time with the die faces set to one.

where in 100 games
the chances of adding chutes and ladders is 100%
the chances of removing chutes and ladders is 50%
chutes and ladders are removed only when there are 7 or more present
the program quits a game if there is no winner after 100 turns
a chute or ladder may be no longer than 1/4 the length of the board
each square is 10 pixels on a side
there are 10 games across
there is 1 face on the die
a player must land exactly on the 100th square to win

[slide: f series3]
[slide: f series 3a]
[slide: f series 3b]
[slide: f series 3c]

The Milton Bradley Version

[slide: f MB1]
[slide: f MB2]

Milton Bradley as the games canonical instantiation

In the US, at least, this version of the game by Milton Bradley seems standard and well imbedded in the cultural imaginary. Even as the illustrations of the board have changed over time, keeping up with a demand to remain contemporary in style and reflect changes in societal attitude towards the representation of multiculturalism and race, for example, the placement of the chutes and ladders has remained static. The dissemination by a corporate entity of this board has seemingly produced a public assumption that this is *the* board, without a past or a future of difference. This fixity betrays an allegiance to a peculiarly American ideology of stasis that appropriates culture as intellectual property as it banishes history and revolution.

History

[slide: 07 History]

The game does in fact have a history. "Chutes and Ladders" was a British import, originally called "snakes and ladders" and first appeared in the US in 1943. The British, in turn, appropriated the game from India in the 1890's, a trinket of colonial exploit. The Indian game derives from Mokshapat (lit. "Salvation cloth") attributed to the 13th century religious poet Maharashtra Gyandev who used it to explain the tenets of Hinduism. In this game each of the hundred squares represented an emotion and snakes and ladders vices and virtues respectively which transport one to an appropriate emotional states.

Some contend that the game is related to the *Dasapada*, a ten by ten game board whose ancient rules are now a mystery, but whose history is entwined with that of chess and its variants played out on this and on the 8 by 8 *Ashtapada* . Both of these boards are mentioned in the Theravada Buddhist 's Pali cannon in the *Brahmajala Suttra* which is dated to the 5th Century at the latest (and possibly as early as the 3rd Century BCE).

Variation

Here are some different boards.

[slide: f MB1]
[slide: f fvar-01bangla]
[slide: f fvar-02moksha]
[slide: f fvar-03rock]
[slide: f fvar-04enviro]
[slide: f fvar-05mystery]
[slide: f fvar-06pic42]
[slide: f fvar-07bingo]
[slide: f fvar-08vote]
[slide: f fvar-09giant]
[slide: f fvar-10goofy]
[slide: f fvar-11mystical]

A Contemporary Ethic

[slide: f ethics]

Even in its present incarnation, the game retains some sense of its moral mission but only through the illustrations. Essentially, Chutes and Ladders has become one of many variants of the classic racing game where the point is to get to the finish before the others.

An ambivalence about the moral aspect is betrayed in how the game is described in marketing materials.

[slide: 08 ethics]

Winning/Competition
"Children will love making their way to the winning square! "

Here ethics are clearly subordinated to the joys of competition and, of course, winning is everything.

Morality/Behaviorism
" In going up the ladders and down the chutes, a child will learn by the pictures the rewards of good deeds and the consequences of naughty ones."

Here, the attribution of a Skinnerian efficacy to the rewards and punishment portrays the game as a kind of behaviorist conditioning rather than the instilling of a capacity for ethical reasoning.

Cheating/Instrumentalizing
And this, from an actual parent: "An alternative strategy ... ,is simply to let your child cheat. This not only shortens the games, but has the additional incentive that it usually causes the child to win and puts them in a better mood ..."

Even as the parent emphasizes the importance of winning and the irrelevance of ethics, his unconcern for ad hoc modification of rules opens up possibilities.

Object Lessons: Computer Science

[slide: fcsegamelength]

Like other children's games, Chutes and Ladders holds a place within the pedagogy of computer science serving as an example for projects in object oriented design, simulation and probability. A survey of such projects turned up these typical examples :

Probability

This figure shows the distribution of game length produced by a simulation.

[slide: fcsefrequency]

This one shows the probability of landing on any given square.

Object Oriented Design

[slide: fcseOO]

Here is an outline of classes, responsibilities and collaborations for a constructing a simulation of the game and learning OO design:

Simulation

[slide: fcseSimul]

and this is a screen shot for a simulation from another CS course.

Object Lesson

In almost all cases, the authors of these lessons and programs take the "canonical" Milton Bradley board as a given in their work, even though in the creation of a "board class" the placement of chutes and ladders is clearly arbitrary and parameterizable.

The computer makes every constant a variable, as Marcos Novak observes as he described the liquefaction of architecture under computation. At its most radical, computation is a solvent of convention (and of representation and realism). But programmers, like everyone else, are prisoners of a world of superstructral constraint that limits the imagination.

Though the moral overlay of the game is never modeled or even represented at the level of interface, somehow the authority of the commercially published board acts as an inhibition towards rearrangement of the chutes and ladders, and simulation and statistical analysis are aimed at revealing the characteristics of the canonical board. This inhibition represents not just a capitulation to corporate authority, but also a resistance to the tendency of computation.

Monument for the Mourning of Unexplored Possibility

A children's game playing the canonical board.

[slide: 09Memorial]

In a gesture aimed at memorializing that inhibition, I created this piece which using a strategy of representation from the "solvent" piece demonstrates the monotony of the cannon. The program displays the accumulated tally of where the game pieces have landed so that after just a few games, there is no significant change in the appearance of the display. The frozen characteristics of the board, the most and least likely spaces to land, are clear, unchanging, and frankly, boring.

Playing the Meta-Game

 [slide: 10AchildrensGame]

In contrast, "A Children's Game Transformed ..." allows for the playing of a "meta-game" where a tweaking of the rules creates a relationship to a field of aesthetic difference. And while it may be argued that the results of some of these games also produces a kind of monotony – where the significance of a given difference is illegible, lost in the miasmic haze of noisy randomness–the experiment foregrounds several significant issues: the arbitrariness of rules, the relationship of agency to rule making, the location of changing rule sets within a diachrony or history, and finally, the aesthetic nature of rules and their characteristics.

Lets play a few games here. Suggestions?

Conclusion/Free Play

[slide: 11game]

Bernard Suits defines a game as follows:
"To play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favor of less efficient means, and where such rules are accepted just because they make possible such activity."

The point of all this is to suggest allegorical relationships between not just computation and gaming, but also political and ethical realities which in the cultural domain can be seen as rule based systems which are "accepted just because" they make possible what they do.

Equipped with this insight, we might unmask the legitimizing apparatus that mobilizes notions of efficiency, progress, tradition, etc, for the preservation of particular rule sets as ideological and ultimately aesthetic and idiosyncratic.

[slide: 12fascism]

For example, the neo-fascism of the Republican Party becomes recognizable as an aesthetical movement: one which values the image of power and stability as conveyed in

metaphors of physical and temporal scale. This aesthetics of power, is then decipherable as well in the nostalgic "triumph of the will" of Governor Schwarzenegger, with his cinematic armored body and vehicle, or in the Speer inspired architecture of the new WWII veteran's memorial. The affective affinities of what amounts to a political style are arguably far more effective in securing a constituency than are the contents of the political game.

[slide: 13Nietzsche]

In this case, as with "A Children's Game Transformed ... " the perception of and pleasure in the recognition of rule produced pattern is implicated in a desire for law, and a desire to be ruled. If this desire can be redeemed at all, it must be redeemed in a willingness to engage in rule making and rule changing: the participation in a kind of free play, with a Nietzschian bracketing of truth claims.

What is optimistic within computation is its invitation to variation: both rhizomatic profusion of difference, and the methodical systematization of variability are characteristic. One would hope that computation could instill a certain suspiciousness of instrumentalizing subordinations of rule making, and clarify the aesthetic dimension of making rules, but ultimately, it is the reception of aesthetic gestures that are determinative of their meaning.

As Nietzsche wrote, "There are no moral phenomena at all, but only a moral interpretation of phenomena"