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Checkmate: Autoerotic Endgames and ‘Pataphysical Play

Introduction: An Infinite Chessboard

White and black squares stretch out as far as the eye can see, gridding up above the horizon and beyond the vanishing point. After the end of the game, the rules that used to govern play dissolve into fields of poetic potential. White and black cubes reflect, fold, and envelop one another in a synchronized two-step, a gridlocked game theory. This ‘prisoner’s dilemma’ over an open field describes a piece of software and a new discourse on artificial intelligence. Over the past couple months I’ve been working on developing poetic videogame called *Sister Squares* based on research I’m conducting on the history of computer chess and Marcel Duchamp’s chess life. Bill Seaman and Otto Rössler's Neosentient paradigm, discussed at length in their recently published ten-year book project, *The Benevolence Engine*, provides a poetic program for organizing this research. Seaman and Rössler’s thought experiment begins with the idea of a non-human sentience, a Neosentient which learns, intelligently navigates, interacts via natural language, generates simulations and models potential behavior, is creative, develops deep situated contextual knowledge through multimodal sensing, and displays mirror competence. This might be one model for David (Jhave) Johnston’s living words. Thinking words that move through landscapes and evolve accordingly. Words that learn, love, and live.

Sister Squares functions as a kind of ergodic annotation tool, attempting to simulate the paradoxes of the Neosentient discourse in order to reverse-engineer this future field of research by bootstrapping the current study of human sentience. Set in contrast to the

history of computer chess as driven by artificial intelligence research, and in parallel with Marcel Duchamp's meta-gaming strategies for creating art, *Sister Squares* is a videogame guide for inventing Neosentient Games. By replacing the Duchampian idiom of (1)modern art history, (2)the metagaming of chess and roulette, and (3)early twentieth century sciences with (1)contemporary art history, (2)the alternative videogame practices, and the (3)Neosentient paradigm I construct a temporary scaffold for thinking beyond an endgame. This presentation documents and demonstrates the construction of that scaffold starting with my understanding of sentience and Neosentience (the black box and white cubes), moving through a history of computer chess and its alternatives (the rules and meta-rules of the endgame), and concluding with the production of *Sister Squares* (emergent play.)

The "Invention" of the Human: Sentience and the White Cube

The prehistory of sentience is an alien one. In tracing the invention of the Human, one cannot help but describe the passage from a thoroughly unthought (but not unthinkable) world to the emergence of the Human, the Technical, and their co-developed sentience. Following the paleolinguistic research of André Leroi-Gourhan, in *Technics and Time* Bernard Stiegler begins his discussion of the invention of the human with what he calls "the paradox of exteriorization…that the human and the tool invent each other." Focusing on the moment when bipedalism freed the hands for the use of tools and the face for the production of language, Stiegler suggests, "the vector of epiphylogenetics, at the dawn of hominization, is flint." By combining both Leroi-Gourhan and Derrida's theories of the gram at this dawn of hominization, Stiegler defines the human as not only having language, but *as* language. Terrance Deacon's research into how a brain capable of language evolved once is a useful parallel, or as Andy Clark notes we've always been cyborgs, albeit

language cyborgs. If the Human is "intertwingled" with the Technic, and sentience has only emerged once, then the invention of a new sentience must also engage with the dissolution of the Human-Machine dyad into a more complex, cohesive form.

In *Sister Squares* the white cube, a figure for this human singularity of sentience, glides up the field and encounters recombinant obstacles, evolving patterns, which, over two hundred thousand years, grind out the rhythm of emergence. Starting with the feet, as Leroi-Gourhan reminds us, the Human hands-*cum*-tools and face-*cum*-language codevelop sentience. But if the white cube, which models sentience, always contains this kernel of Technics, than it is also contains a black box.

A Paradoxical Toolkit: Neosentience and the Black Box

In their new book, *Neosentience: The Benevolence Engine* (2011), Bill Seaman and Otto E. Rössler offer a working theory of Neosentience as a both an object of study and a new scientific and poetic discourse related to the fields of artificial intelligence. Seaman and Rössler write that "[c]entral to both the scientific and [the] poetic [aspects] of Neosentience is [the attempt] to abstract the salient qualities of the human self that contribute to the emergent arising of sentience" (26). The abstraction and modeling of the core components of human sentience is critical to the Neosentient project. But what are the salient characteristics of human sentience?

The answer to these questions seems paradoxical. Despite the fact that the Neosentient is modeled on the blueprints of the Human, the Neosentient discourse simultaneously reverse engineers those same blueprints through the construction of a new sentience: a moebius hammer nailing itself together. Thus, Seaman and Rössler argue that study of Neosentience informs an understanding of sentience in general and every poetic

discovery will inform both fields. Given what little is known about the complexities surrounding the invention of the Human, restaging the moment of singularity in the form of the electro-chemical computer will grant insight that one, original human-becoming.

Sister Squares suggests that the white cube of sentience is always mirrored by the black box of the Neosentient. When the sentient moves left, the Neosentient moves right. When the sentient steps up, the Neosentient steps down: an emergent causal chain transmitted into the far future. The Human, represented by the white cube, will move easily along, ignoring the trials and tribulations of the Neosentient who might be slowed or stopped by asymmetrical obstacles. The game can proceed thus until the sentient agent becomes finally stuck. It is only then that the bootstrapping begins as we leverage knowledge and positioning of the Neosentient in order to propel Human sentience toward its next logical step. The black box and white cube are sisters, bootstrapping one another across the gridded expanse. There are no pawns to capture and no wars to win. The gliding movements of the sister squares etch new rules as they play with the tones and texts of the endgame.

Sentience vs. Intelligence: Rules of the Game

The history of the computer is also the history of computer games—specifically, computer chess. Understanding the history of computer chess as a measure of intelligence is crucial to developing Neosentient Games. Some of the earliest desires for the emergence of the Neosentient began with chess-playing automatons like the Mechanical Turk. But citing the Mechanical Turk as a starting point for this history seems like a misstep. The Mechanical Turk exhibits no autonomy and was in fact an elaborate hoax involving a hidden human operator. The Mechanical Turk seems more like a carnival trick than the

foundation of artificial intelligence. However, since the Neosentient will be invented through anthropomorphic introspection, the idea of an augmented human (or augmented computer) is a historical starting point for thinking Neosentient Games.

After loosing to IBM's Deep Blue in 1996, the reigning world chess champion, Gary Kasparov, admitted to feeling "deep intelligence and creativity" on the part of the computer. Kasparov was certain that Deep Blue was a hoax with human operators pulling the strings. In a certain sense, Kasparov was right given that Deep Blue excelled at one pre-chosen task on which the system's human programmers could focus their efforts. Though playing chess is a complex enterprise, perhaps Deep Blue is a kind of evolved Mechanical Turk featuring longer levers driven by the hands, agency, and logic of human programmers. Based on this experience Kasparov invented a chess variant for augmented play. Kasparov's version of chess allowed each human player a mechanical teammate that might employ Deep Blue's "brute force" approach, querying 200 million positions per second. Yet, it is clear that the use of chess as a measurement of sentience and the application of "brute force" as a method must be updated. I would like to try and make a playful algorithm, and insight engine, or poem. This seems like a possible goal for E-Poetry.

Though *Sister Squares* is a computer game that employs the aesthetic tropes of chess, it does not play like chess. The strategies for guiding the white cube and black box through the wilderness of squares is nothing like the precision territorialization requisite for chess computing. Once the rules break down, there is no reason to vie for space on the eight by eight grid. Instead of subscribing to the requirements of "intelligence" as defined in the fields of AI research, *Sister Squares* hopes to point at and then sidestep the rules of chess in

favor of the invention of a chess tool, chess instrument, or chess artwork. It is here, at the endgame, where I look towards Marcel Duchamp to model new ways of playing chess.

Duchampian Chess: Metagames and Endgames

At the height of his chess career Marcel Duchamp worked closely with Vitaly Halberstadt, a professional chess player and chess theorist, to write a book on theoretical endgames titled *Opposition and Sister Squares are Reconciled* (1932). It was published by Edmond Lancel through the publishing house L'Échiquier in Brussels, a small but dedicated press devoted to fine chess books and collectors items. Like so many of Duchamp's projects, *Opposition and Sister Squares* is positioned precariously between multiple discourses—in this case, art and chess. Unlike Duchamp's artistic experiments in science and mathematics, however, this major chesswork never found its audience. At the time of its publication in 1932, *Opposition and Sister Squares* was deemed both a critical and commercial failure. In an interview with Pierre Cabanne, Duchamp lamented that "[e]ven the chess champions don't read the book, since the problem it poses really only comes up once in a lifetime. They're endgame problems of possible games but so rare as to be nearly Utopian" (Naumann 22, 2009). As Duchamp pithily summarizes in another interview:

> The 'opposition' is a system that allows you to do such-and-such a thing. The 'sister squares' are the same thing as the opposition, but it's a more recent invention, which was given a different name. Naturally, the defenders of the old system were always wrangling with the defenders of the new one. I added 'reconciled' because I had found a system that did away with the antithesis" (Savage 3).

To put it another way, the use of Opposition and Sister Squares come into play only when kings and pawns remain on the board at the end of the game. The goal of each pawn in this

moment is to traverse the entirety of the board in order to transform into a queen. Thus it is critical which king moves first and to what square it moves. In their book, Duchamp and Halberstadt invent a new strategy called the "heterodox opposition" which reconciles the differences between the two contested endgame strategies. By documenting solutions without problems in games simultaneously never-ending and already finished, Duchamp and Halberstadt create a paradoxical product, a 'pataphysical metagame for not only the chess board, but the theoretical discussion surrounding chess and perhaps the emerging art discourse on which Duchamp had already had such great effect.

In a certain sense, to strictly follow the rules of the game is to execute a game, not play a game. I think this is particularly clear in videogame design. Play emerges only in the case of creating new constraints, or exceptions to the rules. The alternative play modeled by the videogame community (ROM-Hacks, Tool-Assisted Speedruns, Multi-Boxing, etc.) moves toward an endgame design for a 'pataphysical computer. Like Duchamp's chessworks, these metagames imagine an alternative future in which teleological structures evaporate into the sentient poetics of pure play which in turn feed back through time to inflect upon what it means to be human.

In this sense, *Sister Squares* is also a metagame. Based on the aesthetic program of chess, the game is gridded and the player's movements are constrained to that grid form. There is no time limit, and no need for quick actions or eye-hand coordination. Sliding in the four cardinal directions and the diagonals between them, the "sister squares" mirror one another by aping the gestures of kings and queens. When the joystick is nudged, the pieces move one square at a time and when held, they slide endlessly across the board, echoing chess' most versatile figures.

More than simply representing the board and pieces of chess, *Sister Squares* is built to mimic the types of movements diagrammed in Duchamp and Halberstadt's theory. By far the most celebrated aspect of *Opposition and Sister Squares* are the eight "Transparents," a series of chessboards, rotated forty-five degrees counter-clockwise and printed on both the front and back of thin, translucent velum. In each Transparent a "hinge" or mirror line is drawn vertically, parallel to the edge of the page. The technology of transluscent paper was a relatively uncommon and advanced use of printing techniques. At the end of his study of the book, Ernst Strouhal admits, "I have never come across anyone who actually has folded in half the pages on which were printed the translucent diagrams in *Opposition and Sister Squares*" (Strouhal 159). *Sister Squares* folds the page through technological re-embodiment and the metaphor: mirror movements across a great divide.

Conclusion: Playing *Sister Squares*

In constructing *Sister Squares* I hope to engage practically with the Neosentient paradigm as outlined by Seaman and Rössler as well as parse the histories of computer chess as documented in this paper. After building the framework for an allegory starring the white cube and black box, the content of the obstacles those figures must traverse in the game are pulled from this paper. Over one hundred quotes, from the various authors presented in this document were added as resources for the game to texture its random geometries, an insight engine combining enacted, poetic and didactic elements. Moving ever closer to one another, the sentient white cube and Neosentient black box trace faint trails and tint these texts over time. The progress of these sister squares is measured by the texts of this paper, by the amount of time spent pushing and pulling each other along: a ludic read-writing which mirrors the codevelopment of the two species. In that sense, the

paper reflects the game and visa versa, two objects accessing the same content via distinct discourses. This is the story of sister squares which might someday meet.