Mysteries for Humans: Navigating the Maze of Science, Objectivity and our Mental Limits

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Abstract

My project explored the idea that science, often upheld as the epitome of objectivity, may instead resemble a maze of our own creation. Drawing inspiration from Penelope Scott's 'Mysteries for Rats' and Chomsky's concept of 'mysteries-for-humans', the work considers how social structures, institutions and scientific practices can form problems we are unable to conclusively solve. The exhibit's structure deliberately avoids resolution, echoing both intellectual dead ends encountered during philosophical discussion and the recursive loops of institutionalised science. Ultimately the goal is not to provide answers but to provoke curiosity, encourage openness and prompt reflection on the limitations of human knowledge. Engaging openly with other disciplines may allow us to examine a question more fully and utilise these unique perspectives to form creative solutions.

Mysteries for Humans

> A scientist stands watching the ants, taking careful notes to bring back to his supervisor so that we humans can make efficient technology that creatively solves problems. And when the scientist gets back to his supervisor, at a university or a company or a government agency, his research may be implemented in any number of technologies that are hostile to human life, that diminish our enjoyment or limit our creativity, that scorch the earth we live on. We find clever solutions, and we take careful notes, and our needs are rarely met.'Why didn't you change the structure?' says an ant to a scientist, 'Didn't you want your needs to be met? Didn't you want your community to thrive?''I thought I was doing what I was supposed to do,' says the scientist, 'I thought I was being good. I don't know what I did wrong.'He wants to be good, he tries to be good, and he cannot solve the maze.

(Scott, 2024a)

The inception of what would later evolve into my student-devised assessment (SDA) was an album and accompanying online essay describing the recurring themes within it. Penelope Scott's 'Mysteries for Rats' is, at its core, an exploration of the mental limits of human beings. These ideas are heavily based upon Chomsky's theory that human intelligence must have boundaries, and thus there will be some questions to which the answers lie beyond our scope. 'Just as rats are unable to run mazes with numerical properties, lacking the appropriate concepts. Such questions we might call "mysteries-for-humans", just as some questions pose mysteries-for-rats' (Chomsky, 1995). Using this as a springboard, Scott suggests that it may be possible for humans to have created so-called mazes through the formation of societies and structures that we are incapable of solving.

This idea resonated deeply with me and was pulled back to the forefront of my mind during my Rethinking Health Science module. Discussions prompt new connections, threads of thoughts that you want to pull on but can never find the end of. It is as though you can never see the whole picture at once, and perhaps if you could, it would all become clear. You cannot solve, or even attempt to map out, the maze.

Preconceptions are challenged and ripped down, but you are not handed a neat and robust alternative. This leaves a void where a confidently held belief once stood. If one is willing to engage deeply, I believe this void is not plugged with a new prevailing opinion (as Kuhn's concept of **paradigms** would suggest (Kuhn, 1970), but instead a sense of curiosity and openness. An understanding that you must leave space for the contradictory, the unexplainable and the nuanced. This is the experience I hoped to create with my SDA.

The SDA was intended to serve as an interactive exhibit for a hands-on scientific museum. The exhibition functions as a maze, inviting users to explore logical fallacies and common misconceptions, leading them through a narrative that attempts to answer the question 'Is science objective?' The

maze guides users down a number of avenues, covering statistical sleights-of-hand, moral dilemmas and conflicting perspectives. This exploration ends without a final solution to the initial question, instead offering the response 'Big problems like objectivity rarely have neat, easy solutions. Accepting and welcoming the "problem" is sometimes the only way out.' The ceiling of the maze opens, allowing the user to escape and view the entire structure from above. From here it is clear that there was never an exit; the structure is entirely unintelligible.

> The more they walk, the more pheromones they leave, which causes more ants to follow the path, which leaves more pheromones, and your ears are ringing and the sound is getting louder and we all know how that feels. Sometimes these Ant Mills dissipate, but sometimes they do not, and the ants begin to die of exhaustion.'Why didn't you break the loop?' says a rat to an ant, 'Didn't you want to live? Don't you want what's best for the hive?''What is a loop?' says the ant, 'Of course I wanted what was best. I don't know what I did wrong.'They want to live, they try to live, and they cannot solve the maze.

(Scott, 2024b)

The idea that science is strictly objective and the question of how we maintain this standard may be considered one of these 'mysteries-for-humans'. Science as an institution is shaped by hundreds of thousands of human beings across time and space, and in turn it shapes us back. What it means to be a scientist is drilled into us in education, in industry, by peers, colleagues, lectures and books. In this capacity, we might imagine science to be somewhat like the **ant mill** that Scott describes in her essay. We are stuck in a **feedback loop** where individuals shape institutions and institutions shape individuals.

Concepts become embedded in scientific practice, such as our increasing reliance on **p-values** as an absolute criterion for success, which is far from what Fisher was recommending when he first popularised it in 1925 (Kyriacou, 2016). Over time this statistical measure has solidified into the shining beacon of objective experimental design, despite its many shortcomings and vulnerabilities. What was once a flexible guideline has become a self-perpetuating norm, demanded by journals and disseminated by schools. An over-reliance on conventional procedures like p-values do not benefit the

scientific community but has been so entrenched by society that we cannot imagine another way. Perhaps what it takes to break out of this loop is to keep our minds open and communicate freely with those outside our discipline. Interdisciplinarity allows us to see our blind spots, share our strengths and conceptualise the maze in ways we previously could not.

> Turn to the rat next to you and start a conversation. […] By acting as a network instead of a single unit, you may begin to 'see' the structure of the Mystery.

(Scott, 2024b)

While Haraway argued that science should embrace our own limited positions – our 'situated knowledge' (Haraway, 1988*)* – perhaps when we work together, we are able to combine these unique 'situations' and build up a patchwork that will eventually show us the whole picture. If we are willing to engage openly with each other, perhaps we can escape the maze together. I believe that is the true value in interdisciplinarity.

The greatest challenge I faced in creating this project was reconciling the 'profound' piece of art I aspired to make, with the understanding practically the need for it to remain palatable and accessible to a general audience. Walking this line meant paring back many of the more philosophical and abstract elements, and ultimately this compromise was not entirely successful. As a result, the piece seems to be left torn between two audiences: too complex and obscure for the average museum-goer, yet too surface-level for those more familiar with the subject. However, the content itself was not the sole focus of the exhibit. If even one person were to play it and experience a lapse of confidence, a feeling of disorientation or question any aspect of their worldview, I would consider it a success. Above all else, the maze says, 'Sometimes we must live with ambiguity; we don't always get the answers.'

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Glossary

(Scientific) paradigm: A set of concepts or thought patterns that serve as a framework for observing, understanding and interpreting (scientific) phenomena.

Ant mill: A phenomenon where ants follow each other's chemical trails and get stuck in a continuous loop.

Feedback loop: A cycle where the output of a system influences the input, reinforcing the same pattern.

P-value: A statistical measure used to decide whether results are significant or not, based on a benchmark value (typically 0.05).

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