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Philip Goff

Galileo's Error

To understand the problem of consciousness, we must trace it back to the Scientific Revolution. More than almost anyone else, Galileo shaped the philosophical foundations of emerging science. One of his big ideas was that science should describe the physical world in a purely mathematical vocabulary. That is something we take for granted now, but at the time it was a revolutionary move. This is captured in his famous quote from The Assayer, in 1623, where he claimed that the universe is written in the language of mathematics:

"Philosophy is written in this grand book, the universe which stands continuously open to our gaze, but it cannot be understood unless one first learns to comprehend the language and read the letters in which it is composed. It is written in the language of mathematics, and its characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word of it; without these, one wanders about in a dark labyrinth."

This aspiration toward complete objectivity is what Thomas Nagel later called the "view from nowhere". To see what this means, imagine aliens with sensory systems radically different from our own. They might not understand our music or art, but if they could grasp mathematics, they would understand our physics. Science aims to provide a purely objective description of reality, one that could be understood by anyone, regardless of their particular sensory or cultural background.

Mathematical equations capture quantities, but it is hard to see how they could capture qualities. Qualities are smells, colors, sounds, and tastes. Quantities are what can be captured in the mathematical language called physics. No mathematical equation seems capable of capturing what the deep red of a sunset is like. The problem is that the qualities that fill our experience of the world are inherently subjective. They can only be grasped from a particular perspective, by someone who has experien-