
Research Statement

Overview

My research is centered around two themes—**consciousness** and **structure**—and can be organized roughly into four clusters:

1. The Structure of Consciousness
2. Mathematical Metaphysics
3. The Ethics of Consciousness
4. Representational Systems

I believe one of my strengths is my philosophical versatility. My main research areas are the philosophy of mind and metaphysics, but I also have substantive research interests in ethics, the philosophy of science, the philosophy of language, and cognitive science. My work has appeared in *The Philosophical Review*, *Noûs*, *Philosophy & Phenomenological Research*, and *Philosophers' Imprint*, among other venues, and I have won two [Marc Sanders Prizes](#), in [Metaphysics](#) and in the [Philosophy of Mind](#).

The Structure of Consciousness

My research on the structure of consciousness focuses on how basic structural concepts—such as DEGREES, DIMENSIONS, PARTS, WHOLEs, CONTINUITY, DISCRETENESS, and COMPOSITIONALITY—can be applied to conscious experiences. By doing so, my work aims to make progress on questions like the following: Are some creatures “more conscious” than others? Are conscious experiences continuous or discrete? How do experiential parts relate to experiential wholes? Which kinds of mathematical structures should we use to model experiences? My work often combines analytic metaphysics, formal tools, and consciousness science.

A key inspiration comes from a famous passage at the end of Thomas Nagel’s “What is it like to be a bat?” where he speculates about an “objective phenomenology,” or a way of describing conscious experiences that’s understandable from any point of view. In other words, is there a way for even humans to understand what bat experiences are like? In “[Objective Phenomenology](#)” (*Erkenntnis*, 2024), I argue that purely structural facts about experiences—those expressible in purely mathematical terms—are objective phenomenal facts. If we can figure out the structure of bat phenomenology, then we can acquire a partial grasp of what it’s like to be a bat. I develop a related motivation for my research program in “[The Future](#)

of [Consciousness](#)" (under review), where I argue that scientific fields tend to make the most progress when they focus on "structural questions" (rather than on "essence questions").

My work sometimes explains how to apply mathematical concepts to various features of conscious experiences. A prime example is "[Modeling Mental Qualities](#)" (*The Philosophical Review*, 2021), where I develop a mathematical framework for modeling the qualities of conscious experiences. The framework enables hypotheses about mental qualities to be formulated within a common mathematical language, disentangles two kinds of phenomenal similarity, and offers new resources for the empirical investigation of mental qualities. Other work of mine has similar mathematical themes. In "[Consciousness and Continuity](#)" (under review), I explain how the mathematical definition of a continuous function elucidates the question of whether conscious experiences have continuous vs. discrete structures. In "Universal Quality-Space" (in prep), I develop a radical view of phenomenal qualities, according to which every quality has the structure of a distribution over a single high-dimensional vector space.

Other work focuses on explaining how to apply various structural concepts to consciousness. In "[Degrees of Consciousness](#)" (*Noûs* 2023) and "[The Gradability of 'Conscious'](#)" (w. Poppy Mankowitz, *Philosophy & Phenomenological Research* forth.), I examine metaphysical and semantic issues concerning the idea that some creatures are more conscious than others. In "[The Microstructure of Experience](#)" (*Journal of the American Philosophical Association*, 2019), I defend the view that experiences have non-introspectable microphenomenal properties. In "Substrate Independence" (w. Brad Saad), we develop a systematic framework for thinking about how experiences relate to "substrates," meaning the kinds of stuff out of which a system is made.

I have also aimed to clarify questions about the structure of consciousness by distinguishing two subtly distinct senses of 'phenomenal consciousness'. In "Subjectivity vs. Phenomenal Character" (in prep.) and "[The Light & the Room](#)" (*Introducing Philosophy of Mind, Today*, Routledge 2025), I use a common metaphor ("to be conscious is for the lights to be on inside") to disentangle these two senses, and I argue that questions about degrees and dimensions of consciousness look very different depending on which sense we have in mind.

I have recently begun to work on an academic monograph on the structure of consciousness. This will build upon the prior work outlined above.

Mathematical Metaphysics

My work in metaphysics addresses a cluster of questions concerning dimensionality, locations, quantities, and infinite sums. A recurring theme is that I'm interested in metaphysical questions that are connected to mathematical concepts. Some of my work in metaphysics directly informs my work on the structure of consciousness.

One project concerns a series of metaphysical puzzles about infinite sums. In "[A Puzzle about Sums](#)" (*Oxford Studies in Metaphysics* 2025—Winner of the Marc Sanders Prize in Metaphysics), I examine a metaphysical puzzle concerning Riemann's Rearrangement Theorem (which says that some infinite series of numbers can be merely rearranged to generate a new sum). I develop a solution to the puzzle and show how the solution leads to new insights about the metaphysics of quantities and locations. In "[A Puzzle about Hotel Infinity](#)" (in prep), I examine a related puzzle about (divergent) infinite series that has implications for certain debates in the infinite ethics literature. A related project is "[Zero Values](#)" (w. David Builes), where we examine what it is for something to have a zero-value with respect to a property (such as 0kg mass).

My principal present project is a series of papers about dimensionality. A *dimension* is, roughly, a way of varying with respect to a kind: for example, hue is a dimension of color. I'm interested in what it is for one property to be a dimension of another, and what it means for a property to be n -dimensional. I start by showing how many initially appealing answers to these questions turn out to be false starts. Then I argue that for D to be a dimension of F is for D to "quotient" the space of F -values, and that for F to be n -dimensional is for F to be generated via n "prime properties," where prime properties play a role analogous to prime numbers in number theory. My work here has implications for a wide range of philosophical debates, including in formal ethics and in the metaphysics of consciousness.

Ethics of Consciousness

Many people think that consciousness is, in some way, ethically significant. But there's no consensus on how exactly consciousness ought to figure into our ethical theories. My work on the ethics of consciousness aims to clarify these questions.

I have argued that consciousness ought to play an important role in both ethics and metaethics. In "[Consciousness Makes Things Matter](#)," (*Philosophers' Imprint*, 2025), I argue that consciousness is what makes an entity a welfare subject, or the kind of thing that can be better or worse off and that can have a life worth living

(or not). In “[Metaethical Experientialism](#)” (*The Importance of Being Conscious*—OUP Volume, 2025), I argue that value facts about experiences—such as the fact that pain is bad—yield genuine counterexamples to the idea that no ethical conclusion can be derived from purely descriptive premises. I use this to develop a version of a priori ethical naturalism, where phenomenal facts fully explain certain kinds of value facts.

Other work of mine argues against claims about the ethical significance of consciousness. In “[Is Consciousness Intrinsically Valuable?](#)” (*Philosophical Studies*, 2018), I argue that prior arguments for the conclusion that consciousness is intrinsically valuable are methodologically flawed, and I develop instead a view where consciousness is value neutral. In “[Speciesism and Sentientism](#)” (*Journal of Consciousness Studies*, 2022), I criticize some prior arguments that compared the view that consciousness matters morally to speciesism.

Some of my work in ethics addresses questions beyond consciousness. In “[The Neutrality of Life](#)” (*Australasian Journal of Philosophy*, 2022), I argue that views that take life itself to be valuable must either accept that (1) good human lives are worse than very long lives wholly devoid of any goods, or (2) very short lives containing nothing but horrific suffering are worth living. In “[The Utility Monster](#)” (*R&R, Noûs*), I develop a new impossibility result—concerning a scenario involving the utility monster—that shows how interesting questions arise when population ethics is connected to structural questions in the theory of welfare. Both of these papers apply my interests in structure to ethical issues.

Representational Systems

My interest in structure has led to a collaborative project (w. Josh Myers & Gabe Rabin) on representational systems, focused on the formats characteristic of pictures, maps, and thermometers. In “[The Structure of Analog Representation](#)” (*Noûs* 2023), we develop a theory of the difference between analog representations (such as mercury thermometers) vs. symbolic representations (such as digital thermometers). The core idea is that analog representation is a matter of structural correspondence between vehicles and contents. In “[The Structure of Iconic Representation](#)” (in prep), we build on our prior work to construct a theory of iconic representation, where the core idea is that iconic representations (such as photographs) are structured collections of analog representations. In the future, we expect to continue working on other kinds of representational systems, such as maps.

My interests in consciousness and representation have also led to work on how our minds enable us to acquire knowledge of the external world, of our own experiences, and of the experiences of others. In “[A Theory of Sense-Data](#)” (*Analytic Philosophy* 2025—Winner of the Marc Sanders Prize in the Philosophy of Mind), I argue for a novel version of sense-datum theory. In “[Knowing What It’s Like](#)” (*Philosophical Perspectives*, 2023), I develop a degreed theory of knowledge of what it’s like, whereby all knowledge of what it’s like varies along a spectrum from more exact to more approximate. In “Naïve Realism about Introspection” (in prep), I argue that introspection is epistemically privileged (it’s immune to a certain kind of error) yet still always fallible (every introspective judgment can be erroneous).