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Dissertation Précis

The central claim of my dissertation, “An empirically constrained study of visual perception,” was that the relationship between three-dimensional objects and their two-dimensional retinal projections had significant implications for how theorists must think about visual representation. The overall argument consisted of two parts. Part One explored the theoretical issues raised by the aforementioned relationship from both a historical and contemporary perspective. Part Two investigated the implications these considerations have for various problems in the philosophy of mind and epistemology.

In Chapter One, I argued that a problem first voiced by Berkeley (1709) and subsequently expanded upon by Helmholtz (1866) and others should be brought to center stage again in philosophy. This problem, generally referred to as the “inverse optics problem,” states that the sources of visual stimuli cannot be uniquely specified by the patterns of light that reach the eye, and therefore a given image can arise from a multitude of real world conditions. Because a visual representation must be appropriate to the *source* of an image and not the image itself, yet the only direct information the system has is from underdetermined retinal projections, questions arise concerning how we should understand the idea of visual representation, how representational content could be determined, and indeed what is being represented. These issues were explored in Chapter Two, where an appeal was made to modern vision science. Here I argued that perhaps the only way the visual system could come to produce representations of the world from underdetermined images is by exploiting a probabilistic strategy. On this view, visual percepts are generated according to what similar retinal images signified in the accumulated experience of an organism, rather than by their present physical characteristics. Various clarifications of this position were offered, and evidence was adduced for the conclusion that the idea of veridical representation in vision must be false.

Chapters Three through Five appealed to the conclusions drawn in Part One to overturn several long-standing perspectives in the philosophy of mind and epistemology. Chapter Three examined the traditional division drawn between sensation and perception, and demonstrated the conceptual flaws inherent in maintaining this distinction by examining two naturalistic, though contrasting theories offered by Fred Dretske and Daniel Dennett. A corollary of this argument was that the way philosophers have characterized the non-conceptual/conceptual content debate is also in need of readjustment.

Chapter Four argued that because of the conclusion drawn in Chapter Two concerning veridical representation, the dichotomy between representation and misrepresentation is false. An argument was then made that not only does internalism with regard to the representational states of vision fail, but that externalism is also incomplete. Only a different way of thinking about the representational content of vision, one based on what I called “probabilistic externalism,” could provide what is required.

Chapter Five confronted several intuitive objections to the idea of a probabilistic approach to visual perception, and offered further arguments to support the philosophical position of the dissertation. The conclusion was that, although counterintuitive, the perspective defended in the dissertation should guide our philosophical and empirical theories of visual representation.