Response Paper

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Two different accounts of the human depth-perception mechanism are offered. Berkeley posits the empiricist view that a representation of depth is acquired through experience. On the other hand, Descartes presents the rationionalist perspective that suggests there are innate mechanisms (i.e. geometrical) deployed in the mental operations by which distance is perceived. Three strong empirical results favor the rationalist claim of innate mechanisms at play in the development of depth perception over the empiricist account.

First, Gibson and Walk's experiments on identifying whether different species avoid a “Visual Cliff” suggests that humans and animals can perceive depth as soon as they are able to move. This evidence supports Descartes’s claim for an internal mechanism that is not learned exclusively from sensory experience.

Second, Held’s work shows that stereopsis, depth perception derived from binocular vision, is first demonstrated in human infants around 16 weeks. This evidence is relevant when compared to the mean age of 21 weeks at which infants show signs of vision acuity, which is the recognition of small details with precision. The difference suggests the existence of an innate geometrical mechanism (stereopsis) that is not built from experience.

Third, Slater shows that size constancy is present in human infants at or soon after birth. The experiment reveals through babies’ novelty responses that they can perceive an object’s real size regardless of the distance at which it’s positioned from them. The existence of size constancy in babies is evidence of another mechanism that seems not to be a result of learning or experience.

To sum up, the empirical evidence supports the existence of innate mechanisms in the perception of depth in both humans and animals. The behavioral evidence of both animals and humans avoiding “visual cliffs”, the early emergence of stereopsis in human infants, and signs of size constancy in babies make a compelling case in favor of innate mechanisms for depth perception.