

The perception of transparency is a remarkable feat of human vision: A single stimulation at the retina is interpreted as arising from two (or more) distinct surfaces, separated in depth, in the same visual direction. This feat is intriguing since physical transparency is neither necessary nor sufficient for phenomenal transparency. Many conditions for phenomenal transparency have been studied, including luminance, chromaticity, stereo depth, apparent motions, and structure from motion. Figural conditions have also been studied, primarily by Gestalt psychologists (Metelli, 1974; Kanizsa, 1979), resulting in descriptive laws. Here we refine, and make precise, these laws using the \diamond genericity principle \diamond , and the \diamond minima rule \diamond for part boundaries. We report experiments which support the psychological plausibility of these refinements. They suggest that the formation of visual objects and their parts is an early process in human vision, which precedes the representation of transparency.