

Visual completion is a ubiquitous phenomenon: Human vision often constructs contours and surfaces in regions that have no sharp gradients in any image property. When does human vision interpolate a contour between a given pair of luminance-defined edges? Two different answers have been proposed: relatability and minimizing inflections. We state and prove a proposition that links these two proposals by showing that, under appropriate conditions, relatability is mathematically equivalent to the existence of a smooth curve with no inflection points that interpolates between the two edges. The proposition thus provides a set of necessary and sufficient conditions for two edges to be relatable. Based on these conditions, we suggest possible ways to extend the notion of relatability.