Title: Modelling visibility judgments using models of decision confidence

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Abstract: 2.45

How can we explain the regularities in subjective reports of human observers about their subjective visual experience of a stimulus? The present study tests if a recent model of decisional confidence, the weighted evidence and visibility model, can be generalized from confidence to subjective visibility. In a masked orientation identification task, observers reported the subjective visibility of the stimulus after each single identification response. Cognitive modelling revealed that the weighted evidence and visibility model provided a superior fit to the data compared to the standard signal detection model, the signal detection model with unsystematic noise superimposed on ratings, the postdecisional accumulation model, the two-channel model, the response-congruent evidence model, the two-dimensional Bayesian model, and the constant noise and decay model. A comparison between subjective visibility and decisional confidence revealed that visibility relied more on the strength of sensory evidence about features of the stimulus irrelevant to the identification judgment and less on evidence for the identification judgment. Subjective visibility It is argued that at least two types of evidence are required to account for subjective visibility, one related to the identification judgment, and one related to the strength of stimulation.