Selectively Searching for Conjunctively-Defined Visual Targets

Charles E. Wright, April M. Main

An experiment elaborating that Egeth, Virzi, and Garbart (1984) shows that subjects (26 undergraduates) can search selectively through visual displays for a target defined by the conjunction of two features. Holding constant the number of distractors while varying, from equality, the relative number of the two distractor types, which share one of the target's features, reduces the time to detect the target. This occurs without prior knowledge of the relative number of each distractor type. These data rule out a serial, self-terminating search that is always limited to the stimulus subset with fewer members. More generally, these data argue against mechanisms for selectivity that operate on individual stimulus elements without reference to the other stimuli in the display. Fitting these data to the guided-search model (Cave & Wolfe, 1990) and a probabilistic selective-search model favors the later model. neither model accounts, however, for a distinctive pattern in the error data.