

The Remember/Know Paradigm from the Perspective of Mixture Signal Detection Theory

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Recent research has shown that results from remember/know (RK) and remember/know/guess (RKG) studies are consistent with signal detection theory (SDT). The SDT approach treats the response categories in RK or RKG studies as simply being ordinal (i.e., as confidence rating responses). Here it is shown that an extension of SDT, namely mixture SDT, is informative when applied to data from RK or RKG studies. In the mix SDT approach, only one dimension is involved in remember/know judgments, as in conventional SDT, however mix SDT also allows for the possible effects of a second process, such as the level of processing. This makes mix SDT useful for examining the effects of various experimental manipulations that have been used in RK studies. Results from several RK and RKG studies that used within-subject experimental manipulations, such as trying to vary the level of processing, support the mix SDT interpretation. It was found, for example, that manipulations of the level of processing systematically affected the mixture parameter, which supports the interpretation that it is a measure of the level of encoding or attention. It is also shown that some variations of the dual process model, as used in RK studies, can be embedded within the mix SDT model, that is, they can be viewed as being special cases of mix SDT. Fit can be assessed in RKG studies (but not RK studies because of insufficient degrees of freedom); the results for several studies support the mix SDT model over the dual process model.