The two dominant

Thus, the goal of this article is to review and critique single-process models and, by extension, the arguments against dual-process models. In light

the model would produce effects similar to criterion shifts; however, this has not been demonstrated.

It should also be noted that a signal detection interpretation of remember/know responses does not necessarily doom the idea of a dual process. Wixted and Stretch (2004) reinterpreted the signal detection model and proposed that the strength dimension could be a combination of recollection- and familiarity-based recognition. The

centage of recollection and familiarity responses can be combined to predict *old*/*new* responses. These predicted response percentages are based on the current activation values of memory traces within the model. The relationships among in

Familiarity responses are based on the activation of the concept node and sometimes, spuriously, of the specific context node.

The initial strength of each concept node is based on the participant's history of exposure to that word, which is estimated on the basis of word frequency. This baseline activation (B) of a node both increases and decays slowly, according to a power function[6]:

$$B = B_{\mathrm{w}} + \ln\left(c_{\mathrm{N}} \sum t_i^{-d_{\mathrm{N}}}\right), \tag{1}$$

in which B_{w} is the base-level activation of the node (set to zero for episode nodes), c_{N} and

mantic and lexical features, and the components of the experimental context node. We do not claim that these representations are, in fact, simple but, rather, that the details of the representations will not affect our simulations (except in the case of plurality recognition, in which added complexity is necessar

proposing that representations of low-frequency words are less variable than representations of high-frequency words, on the assumption that high-frequency words have more definitions than do low-frequency words and, therefore, have more common semantic features. Therefore, the parameter that controls the noise in the representation is set to a higher value for high-frequency words.

In summary, REM says that low-frequency targets are more likely to produce hits, due to the likelihood ratio, whereas high-frequency foils are more likely to match the episodic trace of a target, due to having more common letter features. McClelland and Chappell (1998) claimed that there is greater variance in the representations of high-frequency words, as compared with low-frequency words, due to the greater number of common semantic features. It was originally thought that these models would predict that both hits and false alarms will show the same effects for any manipulation. They must provide an additional explanation for those situations in which only the hit rate or the false alarm rate portion of the effect occurs.

Malmberg, Zeelenberg, and Shiffrin (2004) showed that in situations in which episodic encoding is noisy at study, the hit rate portion

ceived more hits than did high-frequency words, but high-frequency reversed-plurality lures did not receive more false alarms than did those of a low frequency. Single-process models may have difficulty accounting for these data without assuming that a second process is involved in the discrimination of reversed-plurality lures. However, some single-process modelers have claimed that this type of task requires the use of a recollection process in REM, and thus they may explain these results in that way (Malmberg, Holden, & Shiffrin, 2004).

These exceptions to the mirror effect fit with the hypothesis that the hit portion of the mirror effect is caused by a recollection process, wherea

words are due to the fact that low-frequency words have fewer connections (sometimes called *lower fan*) from the concept node to competing contexts, allowing more activation to spread to the relevant associated episode node.

The performance of amnesic patients on

tion memory are a regularity within the field. However, there are also situations in which this regularity does

on recollection. Thus, they concluded that the dissociation provides evidence for a dual-process model of recognition. In fact, the data were fit with a two-process model that

likely to false alarm to lure words that are presented in a high-fan font than to those presented in a low-fan font (Diana et al., 2004). Therefore, the fan of associated contextual features creates a mirror effect for recognition accuracy. The font fan mirror effect may be explained by models such as REM and the McClelland and Chappe

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the episode and conce

two explanations are equally effective in explaini

complex than the claim that the process is always available. This is particularly true in the absence of a princip

word. Therefore, the remember false alarms

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