Taxing attentional resources amplifies cue competition in associative learning

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Highlighting

Learn Test Observed
AB>X A A>X
AC>Y BC BC>Y

Backward blocking

Learn Test Observed
AB>X; CD>Y B[CD] B[CD]>Y
A>X; EF>Z B[EF] B[EF]>Z

Major accounts of these cue competition phenomena are attentional and propositional.

Attentional accounts predict that disrupting the ability to resolve similar compounds should amplify HL & BB.

Propositional accounts predict that this manipulation should reduce or not affect HL & BB.

Reducing compound specificity

Experiments 1–3: Shared-cue salience, secondary task bracketing training trials (remember location, size, & magnitude of digits).

Experiment 4: Vary inter-stimulus similarity by varying stimulus sets.

Overall level of HL was low in Experiments 1 and 3 relative to literature.

If difficulty resolving compounds is part of what drives HL, low HL with grids and pictures may be due to relatively low inter-stimulus similarity versus typical stimuli (words).

Tested grids and pictures as well as words, within subjects.

Highlighting is amplified when it is harder to resolve competition from the shared cue. This is consistent with an attentional account of the phenomenon and argues against a propositional account.

Highlighting and backward blocking are positively correlated within subjects. This is consistent with an attentional account of the phenomena and argues against the MKF account.

Highlighting is more pronounced for more similar stimuli. This is consistent with a role for attention in reducing the influence of the shared cue.

Future work: Parametric modulation of compound similarity; disruption of attention shifting (behaviorally and/or via FEF or parietal tDCS); imaging.

References


Winman et al. (2005). QJEP.


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