New Research From *Psychological Science*

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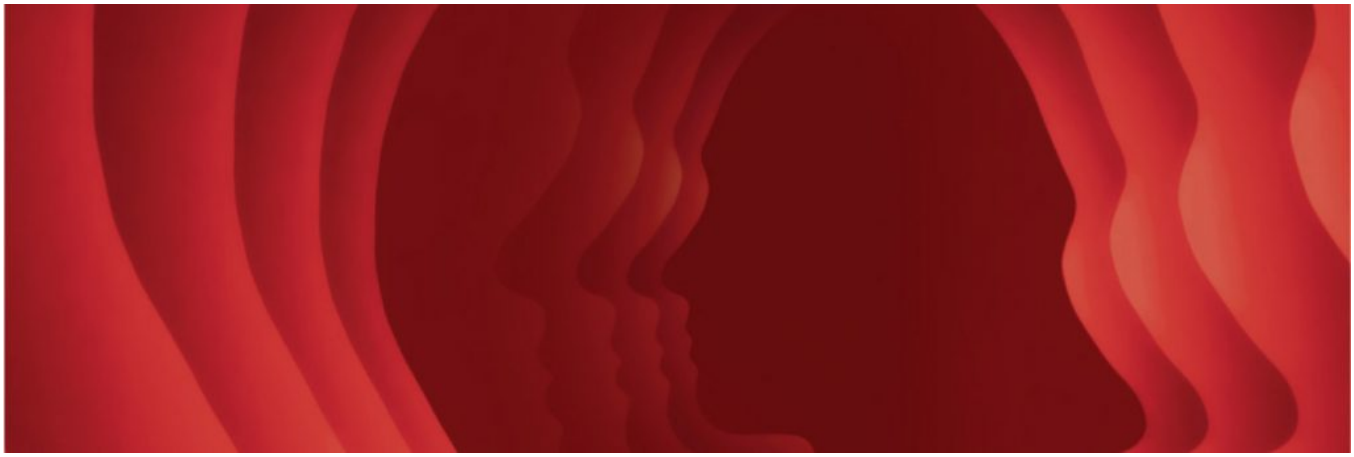

Read about the latest research in the APS flagship journal.

How to Change the Weight of Rare Events in Decisions FromExperience
Jared M. Hotaling, AndreasJarvstad, Chris Donkin, and Ben R. Newell

This research suggests that the timing of information about the value and likelihood of possible outcomes affects people's risky choices. Participants directed a robot to draw balls from two boxes, knowing only that there were 100 blue and red balls in each box and that the blue balls were associated with a variable reward and the red ones were not. Participants could freely draw from each box to infer the probability of drawing the blue balls and the values associated with the balls—for example, if they drew 1 blue ball worth $16 and 9 red balls from one box, and 8 blue balls worth $2 and 2 red balls from the other box, they could infer that choosing the first box was a riskier option (because it offered a 10% chance of winning $16) and that choosing the second was a safer option (because it offered an 80% chance of winning $2). After sampling from the two boxes, participants chose the box from which they would like to draw an extra bonus ball. Critically, participants were informed of the rewards either during sampling or only at the choice stage. Participants made riskier choices (i.e., chose the high value/low probability box) when they learned the rewards at the choice stage, and results suggested that they also overweighted rare events only when the value information was absent during sampling. These findings indicate that having to weight outcome value and probability at the time of choice leads people to treat rare events differently. Hotaling and colleagues discuss two possible explanations for these results. The first emphasizes different methods of combining value and probability depending on when the information is provided, and the other suggests that the memory retrieval of outcome probability when value is not provided during sampling increases the attention allocated to rare outcomes.

Reading Increases the Compositionality of Visual Word Representations
Aakash Agrawal, K. V. S. Hari, and S. P. Arun

Reading seems to alter visual word representations by making the words more predictable from single letters, this research suggests. Participants were fluent in reading either Telegu or Malayalam (two languages spoken in different regions of India that have shared phonemes but distinct characters). In a visual search task, participants indicated whether an oddball target, presented among identical distractors, was present on the right or the left side of the screen. In one experiment, the search set was composed of single Telegu or Malayalam letters, and in another experiment, it was composed of Telegu or Malayalam bigrams (composed of five letters). Participants were faster when searching for letters or bigrams in the language in which they were fluent readers, and they showed increased dissimilarity processing for similar letters in that language. Readers were faster than nonreaders on transposed bigrams (e.g., AB and BA) but not on repeated bigrams (e.g., AA and BB), however, indicating that reading fluency increased the discrimination of letter transpositions compared with repeated letters. Agrawal and colleagues further showed that for readers, this effect was due to decreased letter-letter interactions within a bigram, which predicted participants' overall reading fluency. In two brain-imaging experiments, the known language elicited brain-activation patterns different from those of the unknown language, indicating higher compositionality (i.e., bigrams were more predictable from single letters) in readers. Also, perception of the known bigrams was driven by neural activations in higher visual areas, whereas perception of the unknown bigrams was driven by neural activations in lower visual areas. Thus, reading seems to facilitate visual processing by making words easy to parse into letters and by increasing the compositionality of visual word representations.