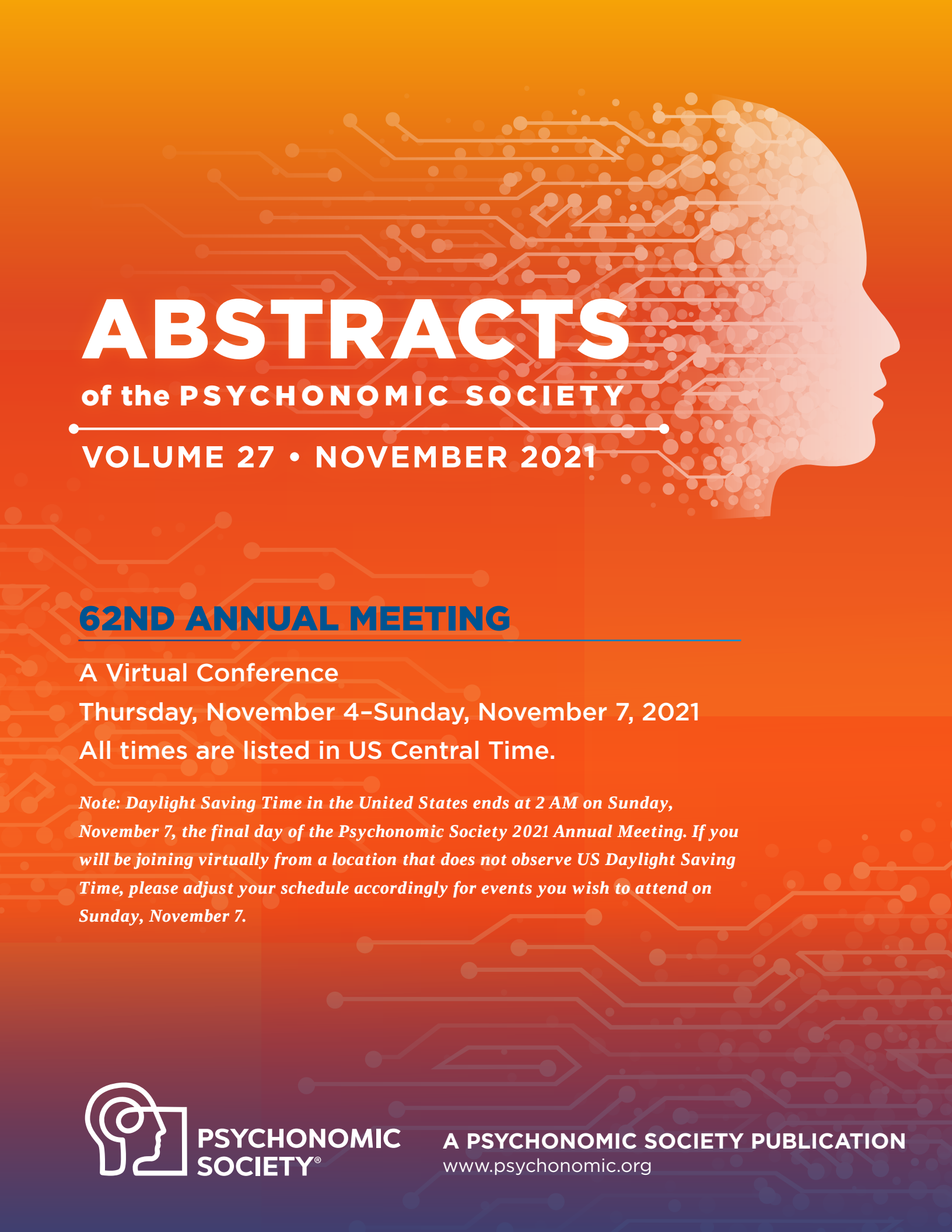

ABSTRACTS

of the PSYCHONOMIC SOCIETY

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62ND ANNUAL MEETING

A Virtual Conference

Thursday, November 4–Sunday, November 7, 2021

All times are listed in US Central Time.

Note: Daylight Saving Time in the United States ends at 2 AM on Sunday, November 7, the final day of the Psychonomic Society 2021 Annual Meeting. If you will be joining virtually from a location that does not observe US Daylight Saving Time, please adjust your schedule accordingly for events you wish to attend on Sunday, November 7.

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11:40-12:00 pm (316)

Susceptibility to Different False Memory Tasks with Age. ALEEA L DEVITT, *University of Waikato*, JEFFERY L. FOSTER, *Western Sydney University* – As we get older, we become more vulnerable to a range of false memories. However, recent work suggests that there is no false memory trait; younger adults who are susceptible to one type of false memory are not necessarily susceptible to other types of memory errors. We know little about how the relationship between different false memories changes across the lifespan. In the current study, we examine the links between different types of false memories in an online sample of younger and older adults. To elicit false memories, we used three different tasks: a misinformation task, a memory conjunction task, and the DRM paradigm. Results showed no relationship between different types of false memories for younger adults, replicating prior findings. Older adults similarly exhibited no relationship between different types of false memories. These results demonstrate that we maintain individual differences in susceptibility to different types of false memories even as we age, and pave the way toward understanding and preventing memory distortions in older age.

Email: Aleea L. Devitt, aldevitt@gmail.com

Visual Perception II
Sunday, 10:00-11:40 AM CST

10:00-10:20 am (317)

Humanlike Color Categories Emerge Naturally in a Deep Neural Network. SEBASTIAAN MATHÔT, *University of Groningen* – Visual working memory is biased by color categories, such that memories of reddish colors are biased towards prototypical red. A fundamental question is whether such category biases result purely from top-down feedback (e.g., from language or long-term memory) or whether they already emerge during the initial feedforward sweep of perception. To investigate this, I modified a deep feedforward convolutional neural network (VGG19), originally trained for image classification, and retrained it for a color-reproduction task. Remarkably, the model's responses were biased towards color-category prototypes, just as those of human participants on a similar task. (Categories were determined independently by human participants and never explicitly given to the model.) Analysis of the model's activation showed that in early layers, just as in human visual cortex, color categories clustered together in representational space. Strikingly, in deeper layers, color categories were "anti-clustered," that is, they were spread out across representational space. Taken together, these results suggests that color categories can emerge purely from the statistics of visual input and can already shape the initial feedfoward sweep of visual perception.

Email: Sebastiaan Mathôt, s.mathot@rug.nl

10:20-10:40 am (318)

Seeing the Pattern of One's Own Ocular Dominance Columns in Primary Visual Cortex (Visual Cortical Area V1). CHARLES Q. WU, *Perception and Cognition Research* – I first describe a procedure to see a weblike pattern in one's entoptic vision and then attempt to relate the phenomenon to its underlying neural substrate. Under high illumination (e.g., 10k lux), with closed eyes, one normally sees a reddish visual field. By alternately shadowing the two eyes, one will see a dynamic traveling-wave pattern: Some reddish patches (from the unshadowed eye) and some whitish-cyan patches (from the shadowed eye) "attacking" each other; after a few alternations, one will see a web-like pattern with white thin winding lines—a pattern illustrated by Purkinje as Figure 2 in his entoptic images. Since the above procedure involves competition between two colors (incurred from the two retinae) in the whole visual field, we can refer to it as the "whole-field binocular rivalry". As the observed pattern is created by the two eyes' neural activities impacting each other, it must occur at a monocular level (where the two eyes' neural activities are independently maintained) within the visual system. Mapping onto a known feature of the thalamic recipient layer (L4) in V1—namely, its tangential layout of ocular dominance columns (ODCs)—I assert that the seen pattern directly corresponds to the ODC pattern there.

Email: Charles Q. Wu, charlesqwu@percog.org

10:40-11:00 am (319)

Adaptive Comparisons Enhance Perceptual Learning. PHILIP J. KELLMAN, VICTORIA JACOBY, and CHRISTINE MASSEY, *University of California, Los Angeles* – Between-category comparisons have been shown to enhance perceptual learning in complex domains. We tested an adaptive approach to comparisons that used learner performance to target confusions in a face learning paradigm. In Experiment 1, one condition consisted of single face classification trials. In the other condition, an adaptively-triggered comparison (ATC) trial was generated whenever a participant repeatedly confused two face categories. Comparison trials involved discrimination of simultaneously presented exemplars from the two face categories. In Experiment 2, an ATC condition was compared to a condition using nonadaptive comparisons: participants received comparison trials containing randomly chosen faces intermixed with ordinary trials. All participants learned to accuracy and speed criteria, and completed an immediate and 1-week delayed posttest. Results of both experiments showed greater learning efficiency—posttest accuracy divided by number of trials invested—in ATC conditions. All conditions showed transfer to novel exemplars of learned face categories. These results indicate that using learner performance to determine the contents and timing of comparisons can enhance perceptual category learning.

Email: Victoria Jacoby, vjacoby@g.ucla.edu