Motion and Attention
Grand Ballroom, Friday Morning, 8:00–9:40

Chaired by Gary Chon-Wen Shyi, National Chung Cheng University

8:00–8:15 (1)

Differential Distribution of Visuospatial Attention in Tracking Multiple Moving Objects. GARY C.-W. SHYI & SUNG-EN CHIEN, *National Chung Cheng University*—Paying attention to a relatively complex object has shown evidence for differential distribution within the object. Here, we explored differential distribution of attention when multiple moving objects were visually tracked. In Experiments 1 and 2, we not only replicated the findings reported by Alvarez and Scholl (2005), demonstrating both attentional concentration and attentional amplification, but also generalized the effects to uniformed circular shapes. In Experiment 3, we used dart-like figures as stimuli and found evidence suggesting that (1) single uniformly connected representation (single-UC) appears to be the basic unit of visual selection, and (2) multiple-UC representation attenuated the effect of attentional concentration. Finally, in Experiment 4, we examined whether specific visual features would affect the relative salience between different parts of an object and hence attentional distribution within the object. The results revealed a reversed concentration effect when stimuli with the same shape had different colors. Implications are discussed.

8:20–8:35 (2)

Semantic Constraints on the Spatial Distribution of Selective Attention. BRADLEY S. GIBSON & BRADLEY A. DOBRZENSKI, *University of Notre Dame*—Humans routinely use spatial language to control the spatial distribution of attention. Spatial information may be communicated from one individual to another across opposing frames of reference, which in turn can lead to inconsistent mappings between words and directions (or locations). These semantic inconsistencies may have important implications for selective attention because they can be translated into differences in cue validity, a manipulation that is known to influence the focus of attention. Consistent with this expectation, the results of three experiments suggested that spatial word cues with low-learned validity (LEFT/RIGHT) focused attention less well than did a variety of other directional cues with high-learned validity (such as ABOVE/BELOW or ←/→), even when the experimentally controlled validity of the cues was equal. Altogether, the present findings demonstrate important semantic-based constraints on the spatial distribution of attention and have important implications for theories of voluntary and involuntary control of attention.

8:40–8:55 (3)

Feature Binding in Attentive Tracking of Distinct Objects. TAL MAKOVSKI & YUHONG V. JIANG, *University of Minnesota, Twin Cities*—To what degree can attentive tracking of objects' motion benefit from increased distinctiveness in the objects' surface features? To address this question, we asked observers to track four moving digits among a total of eight moving digits. By varying the distinctiveness of the digits' color and identity, we found that tracking performance improved when the eight objects were all distinct in color, digit identity, or both, compared to when the eight objects were identical. However, when the eight objects were distinct in a combination of color and digit but targets and nontargets shared color or digit identity, performance enhancement was not observed. Four follow-up experiments extended the range of the feature dimensions generating the effect and ruled out alternative strategic accounts. We conclude that surface features can be used to enhance tracking performance. This enhancement is feature based, revealing a limited degree of feature binding in attentive tracking.

9:00–9:15 (4)

Visuomotor Prioritization for Looming Motion. PAUL A. SKARRATT, *University of Hull*, ANGUS R. H. GELLATLY, *Oxford Brookes University*, & GEOFF G. COLE, *Durham University* (sponsored by Geoff G. Cole)—Several recent studies have sought to determine whether looming motion attracts attention more readily than does receding motion. At present, however, evidence for the attentional prioritization of looming motion is mixed. In the present study, target stimuli were associated with objects that loomed, receded or remained static in arrays of varying size. Results showed that both motion types received equal prioritization, as evidenced by their parallel search slopes, yet looming targets benefited from an overall reduction in reaction time (RT). Further investigation ruled out possible confounding explanations for this RT advantage, while a perceptual measure of performance confirmed the attentional equivalence of the two motion types. Taken together, these results indicate that looming and receding objects receive equal prioritization during attentional selection. However, it may be that postattentional processes, possibly those involved in motor preparation, facilitate responses to looming motion.

9:20–9:35 (5)

Individual Differences in Voluntary Visual Attention. MARCIA GRABOWECKY, KATIEANN SKOGSBERG, & SATORU SUZUKI, *Northwestern University*—Extensive research has characterized the sensory information that can be prioritized by attention (e.g., a location, an object, a color, or a motion), and different modes in which attention can act (e.g., focused, distributed, or sustained). Neuroscientific approaches have identified both distinctive and overlapping patterns of brain activity associated with different operations of attention, suggesting interrelationships among multiple attention mechanisms. To understand how the many hypothesized attention mechanisms work together to support behavioral goals, it is essential to understand these interrelationships. To do this, we have examined performance correlations across a battery of attention tasks that test a range of voluntary attention abilities presumed to involve the neural mechanisms identified via neuroscientific investigations. Our attention battery has been administered to ~250 participants to obtain a database of between-individual variability in attention profiles. The results suggest several core attention abilities and systematic sex differences.

Language Production I
International Ballroom North, Friday Morning, 8:00–10:00

Chaired by Zenzi M. Griffin, Georgia Institute of Technology

8:00–8:15 (6)

Bart, Lisa, Patty, Selma, Snowball . . . Maggie! Names Parents Call Their Children by Mistake. ZENZI M. GRIFFIN & THOMAS WANGERMAN, *Georgia Institute of Technology*—Words that are both semantically and phonologically similar to an intended word are particularly likely to intrude as substitutions (e.g., *rat* for *cat*) in object naming, celebrity face naming, and speech error corpora. Although retrieval of proper names differs in many ways from retrieval of object names, data collected from a Web survey indicated that these factors also influence errors in addressing people by name. Over 300 individuals answered questions about themselves, their siblings, and how often they recalled their parents accidentally calling them by various names. Respondents were significantly more likely to recall their parents calling them by the name of a sibling if the sibling had the same gender, was self-rated as physically similar, or had a name that started with the same sound. Parents also called respondents by the names of other relatives and pets.

8:20–8:35 (7)

Interference From Parallel Processing During Multiple Object Naming. ANTJE S. MEYER & DEBRA MALPASS, *University of Birmingham*—We aimed to determine whether speakers naming object pairs processed them sequentially or in parallel. An earlier study had shown that the difficulty of processing a foveated object, which speakers named first, affected how efficiently they processed an extrafoveal object, which they named second. Complimenting that study, the present experiments examined whether the difficulty of processing an extrafoveal object (named second) affected how quickly speakers processed a foveated object (named first). The first object was always easy to identify and name, whereas the second object either had an easy name or a name that was more difficult to retrieve. The objects appeared side by side (Experiment 1) or underneath each other (Experiment 2). Gazes to the first object were longer when the second object had an easy rather than

5:10–5:25 (132)

Conceptualization of Spatial Altitude Guided by Language and Perception. TIMOTHY C. CLAUSNER, *University of Maryland, College Park*, EVAN M. PALMER, *Wichita State University*, & PHILIP J. KELLMAN, *UCLA*—We studied the relation of language and perception in visual search of air traffic control displays by representing aircraft altitude as icons whose size and contrast varied in correspondence with ecological depth cues. Participants searched for potential aircraft collisions imagined from above. Relative to no-cue trials (only numeric altitude), the perceptual cues improved search performance. Conceptualizing graphical symbols that are larger or darker as meaning more altitude may have helped participants apprehend altitude information. Next, we controlled whether depth cues were consistent with imagined vantage points. Participants were instructed while viewing model displays from below or above. Interestingly, performance in the from-above, depth-consistent condition was better than in the from-below, depth-inconsistent condition, even though these two displays were physically identical. Explanations for performance improvements include the following: Perceptual cues may have engaged conceptual metaphors linking space and magnitude, some perceptual encodings could have been more natural/conventional than others, or visual depth processes could have been affected by assumed perspective.