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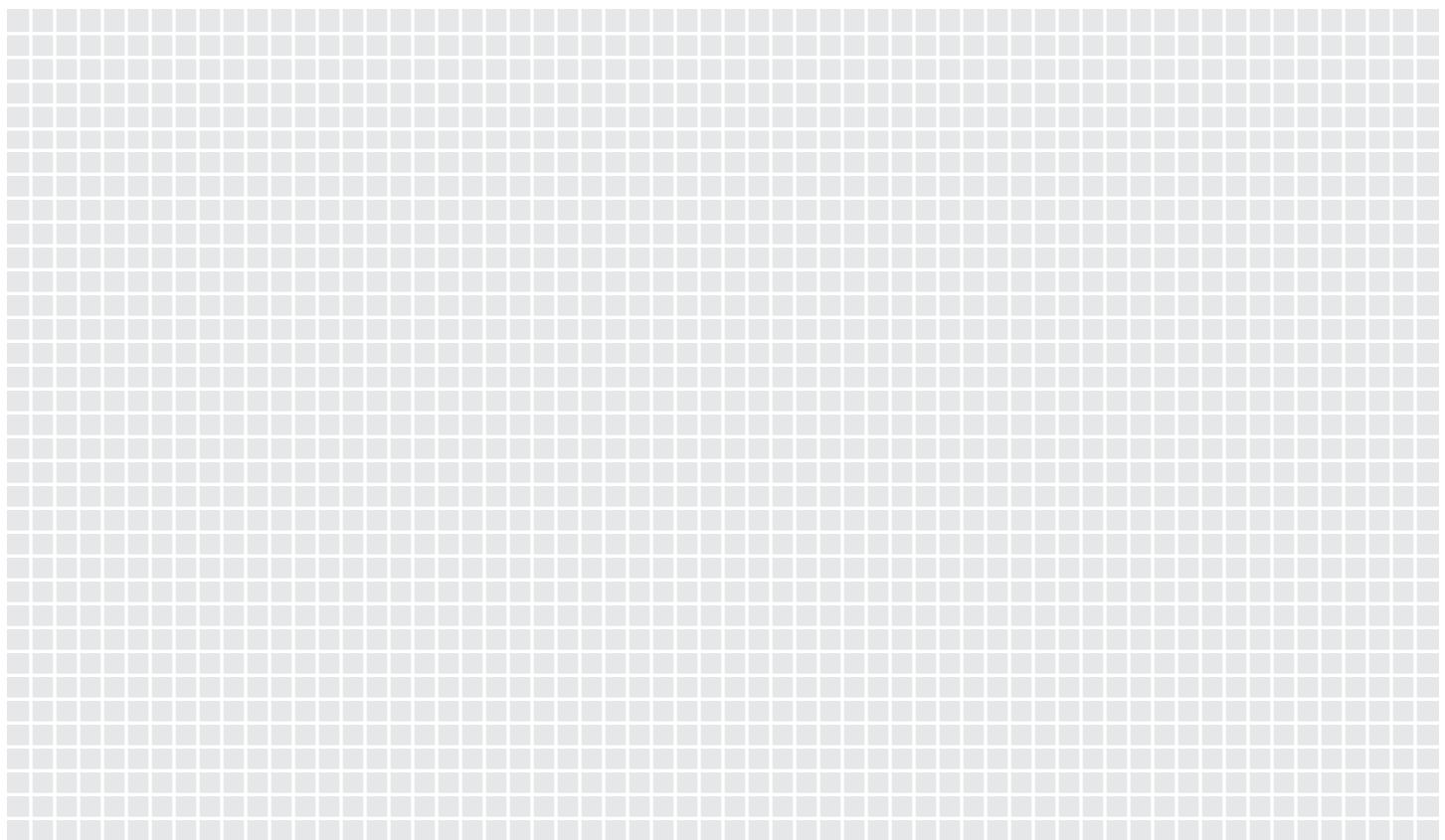**Long Beach, California**
November 15, 2007

■■■■■ 15th Annual Conference ■■■■■■■ Object Perception, Attention, & Memory ■■■■

Monica Castelhano
Queen's University

Kim Curby
Temple University

Steven Franconeri
Northwestern University

Sarah Shomstein
George Washington University

Eye-tracking swings into view for E-Prime users

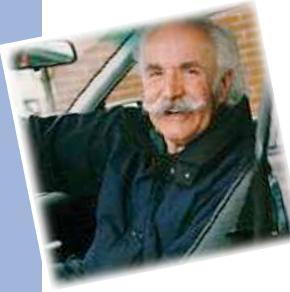|	
OPAM 2007 Talk Session **Regency A, Hyatt Regency Hotel**	
7:15	Registration
7:55	Opening Remarks
Chair: Monica Castelhano	**Scene & Spatial perception**
8:00	Naohide Yamamoto & Amy J. Shelton	Integrating object locations in the memory representation of a spatial layout
8:15	Adam J. Woods, & John Philbeck	Perceived effort recalibrates verbal distance judgments without altering perceived distance
8:30	Kristin O. Michod & Helene Intraub	Conceptual Masking: Is concept the key or does layout play a role?
8:45	Hirokazu Ogawa, & Katsumi Watanabe	A dual-processes model of attentional guidance for contextual cueing
9:00	COFFEE BREAK	
Chair: Sarah Shomstein	**Perceptual Organization**
9:15	Joseph Brooks & Jon Driver	Putting figure-ground organization and perceptual grouping in context
9:30	Destinee Chambers & Kyle Cave	Factors Governing Inhibition of Occluded Regions in Superimposed Objects
9:45	Timothy Vickery, Joshua Hartshorne , & Yuhong Jiang	Learning to form new perceptual groups
10:00	Catherine Ouimet, Pierre Jolicoeur, Jeff Miller, Alexia Prito, & Maryse Lassone	Enhanced Redundant Target Effect in Callosotomized Individuals is not Sensory in Nature: Evidence from Total and Partial Split-Brain Individuals
10:20-11:45	Poster Session -- Grand Ballroom, Convention Center	
11:45	LUNCH	
Chair: Kim Curby	**Object and Face Recognition**
12:45	Noah Schwartz, & Shuinn Chang	Subjects use configural information more than feature information to recognize inverted faces
1:00	Nicolas Davidenko, Nathan Witthoft, & Jonathan Winawer	Gender aftereffects in face silhouettes reveal face-specific mechanisms
1:15	Ann Remond & Veronika Coltheart	Effects of Repetition on Comprehending and Remembering Action Pictures
1:30	Mark Lescroart, Xioamin Yue, Jules Davidoff, & Irving Bierderman	Cross-Cultural Study of the Representation of Shape Dimensions
1:45	COFFEE BREAK	
Chair: Steve Franconeri	**Object selection and memory**
1:55	Clayton Hickey, Vincent Di Lollo, & John McDonald	Target and Distractor Processing in Visual Search: Decomposition of the N2pc
2:10	Harry Haladjian, Carlos Montemayor & Zenon Pylyshyn	Depth cues affect inhibition of nontargets during a 3D Multiple Object Tracking task
2:25	Melissa Kibbe & Alan Leslie	Evidence for separate development of working memory capacity for objects and for features in infants
2:40	Tao Gao, Mowei Shen, Zaifeng Gao, & Jie Li	Selection of High and Low Discriminable Information in Working Memory: Object-based Storage and the Visual Hierarchy
2:55	BREAK	
3:00	**Keynote Speaker:** **Vince Di Lollo**	**Memory and prediction:** **that's what the brain is in business for**
4:00	**Closing Remarks**	

OPAM 2007 Keynote Address
Regency A
3:00pm
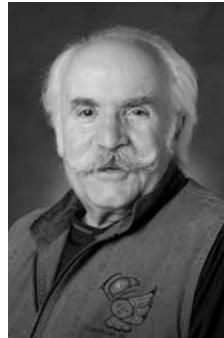
Vincent Di Lollo
Simon Fraser University

Memory and Prediction:
that's what the brain is in business for

In agreement with neuroanatomical evidence, but contrary to conventional feed-forward notions, my colleagues and I hold to a scheme in which perceptions emerge from iterative exchanges between brain regions linked by reentrant pathways. In this scheme, the brain is seen as a repository of memories in the form of neural networks (cell assemblies and phase sequences) established through Hebbian learning. Those networks are used in cortical reentrant loops to set up moment-to-moment action plans for perceiving objects and for predicting behaviour sequences.

Long-standing problems, including the development of perceptual categories and the "binding" problem, are resolved naturally within this conceptual framework. I will illustrate this viewpoint with evidence from behavioural manifestations such as visual masking, and electrophysiological evidence from MEG and event-related potentials that provide converging evidence for a reentrant theory of perception and cognition.

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OPAM 2007 POSTER SESSION
10:20-11:45
Grand Ballroom, Convention Center

(1) Can prism adaptation be used to induce neglect-like motor biases in healthy participants? Simulation of a non-spatially lateralized deficit
Janet Bultitude & Robert Rafal

(2) Expecting to Lift a Box Together Makes the Load Look Lighter
Adam Doerrfeld, Natalie Sebanz, & Maggie Shiffrar

(3) Axis-Aligned Motion Bias Effects in an Immersive, Situated Display Environment
Igor Dolgov, Christopher Todd, David Birchfield, Michael McBeath, & Harvey Thornburg

(4) The perception of human motion differs for observers with autism
Martha Kaiser & Maggie Shiffrar

(5) Hemispheric Transfer of Perceptual Learning Effects:Easy and Hard Tasks Depend on Different Cerebral Modification Sites
Marina Pavlovskaya & Shaul Hochstein

(6) Recovery from visual disruptions in reading and scene viewing: Evidence from saccade hazard rates
Graham L. Pierce & Erik M. Altmann

(7) Differential heritability for stereopsis nearer than and beyond fixation
Jeremy Wilmer & Benjamin Backus

(8) Striking Deficiency in Top-Down Perceptual Reorganization of Two-Tone Images in an Amazonian Hunter-Gatherer Tribe
Jennifer Yoon, Nathan Witthoft, Jonathan Winawer, Michael Frank, Edward Gibson, & Daniel Everett

(9) Interactions between prior knowledge and recent experience in the perception of dynamic objects
Benjamin Balas & Pawan Sinha

(10) Location and orientation judgments within the Poggendorff configuration are inconsistent
Jacqueline Fulvio, Manish Singh, & Laurence T. Maloney

(11) The effects of visual prior entry based on figure-ground assignment: Evidence of a figural benefit
Lauren Hecht, Ben Lester, & Shaun Vecera

(12) Can Prosopagnosics Discriminate Similar, Non-Face Objects?
Jonathan Kahl, Ashley Scolaro, Eric Cooper, & Alex O'Brien

(13) What have we learned in 17,000 years about depicting the join of two smooth shapes?
Jiye Kim & Irving Beiderman

(14) Cortical Activity associated with curve tracing in humans: Bridging the gap with monkey electrophysiology
Christine Lefebvre, Pierre Jolicoeur, Roberto Dell'Acqua

(15) The Influence of Object Segmentation on Perception
Xingshan Li, Kyle Cave, & Keith Rayner

(16) Influence of object orientation on reference frames in spatial representation
Steve Marchette & Amy Shelton

(17) A biased perception on the depth orientation of familiar objects
Ryosuke Niimi & Kazuhiko Yokosawa

(18) What primitives are used in visual object recognition: Evidence from Prosopagonia
Alex O'Brien, Eric Cooper, & Jonathan Kahl

(19) Are object files involved in temporal order perception?
Ekaterina V. Pechenkova

(20) Contrast Reversal of Faces and Familiar Objects Shown at Different Viewpoints
Jessie Peissig, Jean Vettel, Maritza Nieto, & Michael Tarr

(21) Limits of Expertise
W. Stewart Phillips, Michael Grovola, Cindy M. Bukach, & Isabel Gauthier

(22) Norm-based coding of inverted faces revealed by adaptation aftereffects
Tirta Susilo, Elinor McKone, & Mark Edwards

(23) Are some people exceptionally good at face recognition?
Richard Russell, Garga Chatterjee, Brad Duchaine, & Ken Nakayama

(24) Training in motion discrimination rapidly improves reading fluency
Teri Lawton

(25) Eye movements predict subsequent visually specific memory for non-emotional, but not emotional, scenes
Michael Blank, & Chad Marsolek

(26) Differential modulation of intra-parietal activation by "what" and "where" load in visual short-term memory: An fMRI study
Amabilis Harrison & Pierre Jolicoeur

(27) Stimuli related to information in working memory may indirectly influence attention
Christopher Masciocchi, Waw Pheow Tan, & Veronica Dark

(28) Visual short-term memory for letters and words: An electrophysiological investigation using the sustained posterior contralateral negativity
David Predovan, David Prime, Martin Arguin, Frédéric Gosselin & Pierre Jolicoeur

(29) Neural network implicated in visual short-term memory: a Magnetoencephalographic Study
Nicolas Robitalle, Kevin Sauvé, & Pierre Jolicoeur

(30) The Visuospatial Sketch Pad (VSSP): Investigating the Dissociation of Object and Spatial Imagery and Storage and their Roles in Reading
Jodie Royan & Roger Graves

(31) Investigating the RWI effect with an AB paradigm
Wah Pheow Tan, Moses Labgley, & Veronica Dark

(32) Memory of an Attended objects: Top-down and Bottom-up Interaction on Delayed-matching of Features
Cheng-Ta Yang & Yei-Yu Yeh

(33) Top-down control in singleton detection mode: Distractor probability affects attentional and oculomotor capture
Jeff Moher, Jared Abrams, Howard Egeth, Veit Stuphorn, & Steven Yantis

(34) Simultaneous and sequential presentations for object selection and memory recall
Carlos Montemayor, Zenon Pylyshyn, H. Haroutioun Haladjian

(35) Selective Attention Blues – A Sensory Origin for Stroop Effect and Aging: A Meta-Analysis
Boaz M. Ben-David & Bruce A. Schneider

(36) Distractor proximity affects the magnitude of interference under high perceptual load
Adam Biggs & Brad Gibson

(37) Contingent capture of attention requires central resources: evidence from human electrophysiology and the psychological refractory period
Emilie Leblanc, Benoit Brisson, & Pierre Jolicoeur

(38) Separate gradients of attention in early and late stages of spatial selection.
William Bush, Lisa Sanders, & Kyle Cave

(39) Eyes off the prize: the effect of diverting spatial attention away from a goal-directed visuomotor task
John Dewey & Adriane Seiffert

(40) Directional Conversation is Especially Adverse to the Functional Field of View
Jeff Dressel, Paul Atchely, Todd Jones, & Rebecca Burson

(41) Statistical processing of correlations between visual features
Tatiana-Aloi Emmanouil & Anne Treisman

(42) Varying the rate of contraction and expansion of the attentional window
Lisa Jefferies & Vincent Di Lollo

43) Visual event is labile during an attentional blink period: Direct evidence from first target performance
Ken Kihara, Nobuyuki Hirose, & Naoyuki Osaka

(44) Contingent capture of attention requires central resources: evidence from human electrophysiology and the psychological refractory period
Emilie Leblanc, Benoit Brisson, & Pierre Jolicoeur

(45) Feature-based attention alleviates the attentional blink for a popout target
Carly Leonard[1], Howard Egeth, & Palomires Melanie

(46) Self-construal priming modulates the scope of visual attention
Zhicheng Lin & Shihui Han

(47) The relationship between two types of working memory and spatial cueing tasks
Yukihisa Matsuda & Syoichi Iwasaki

(48) The effects of limiting cognitive resources on interhemispheric interaction
Urvi Patel & Joseph Hellige

(49) Task Co-representation improves Memory
Natalie Sebanz & Adam Doerrfeld

(50) Masking and decay in the attentional blink
Bradley Wolfgang & Philip Smith

Scene and Spatial Perception
8:00 – 9:00

Session Chair:
Monica Castelhano, Queen's University

8:00 Integrating object locations in the memory representation of a spatial layout

Naohide Yamamoto & Amy J. Shelton
Johns Hopkins University

The present study investigated how object locations learned separately are integrated and represented as a single spatial layout in memory. Two experiments were conducted in which participants learned a room-sized spatial layout that was divided into two sets of five objects. Results suggested that integration across sets was performed efficiently when it was done during initial encoding of the environment but entailed cost in accuracy when it was attempted at the time of memory retrieval. These findings suggest that, once formed, spatial representations in memory generally remain independent and integrating them into a single representation requires additional cognitive processes.

8:15 Perceived effort recalibrates verbal distance judgments without altering perceived distance

Adam J. Woods, & John Philbeck
George Washington University

A recent theory proposed by Proffitt and colleagues suggests that egocentric distance perception is influenced by both optical and internal variables, rather than just optical variables (as most distance perception theories assume). The theory states that a person's current physiological potential to perform an action alters distance perception; as effort increases, so too does the perceived distance of a target object. However, we found evidence that effort influences the calibration of verbal reports, rather than distance perception per se. Furthermore, we demonstrate that instruction-type can play an important role in mediating response biases in verbal reports of distance.

8:30 Conceptual Masking: Is concept the key or does layout play a role?

Kristin O. Michod & Helene Intraub
University of Delaware

The onset of a new, meaningful scene captures attention; thus disrupting picture memory during RSVP (conceptual masking). Does the new concept alone cause masking, or might the new layout contribute? Observers viewed target scenes interspersed with to-be-ignored scenes that changed in terms of gist, layout, both, or neither. When both changed, target memory suffered more than when gist alone changed (Exp 1). Similarly, when gist always repeated, changes in layout impaired memory more than when layout was preserved (Exp 2). Novel layout draws attention, but an abstract representation of repeated layout mitigates the impact of a novel gist.

8:45 A dual-processes model of attentional guidance for contextual cueing

Hirokazu Ogawa, & Katsumi Watanabe
University of Tokyo, Japan

We examined how and when association processes between a target location and a surrounding configuration of distractors take place in contextual cueing. To dissociate the processes that occur during active search and at the moment of target detection, we used an eye-movement contingent display technique. Detailed analyses of reaction time and eye movements indicated that although contextual information during active search and at the target detection are responsible, they differ in accuracies of attentional guidance and time courses. We propose a dual-processes model of attentional guidance for contextual cueing.

Perceptual Organization
9:15 – 10:15

Session Chair: Sarah Shomstein,
George Washington University

9:15 Putting figure-ground organization and perceptual grouping in context

Joseph Brooks & Jon Driver
University College London, United Kingdom

Gestalt psychology inspired wide interest in perceptual grouping and figure-ground organization (FGO). But while often mentioned

together in textbooks, these topics have rarely been directly related. FGO determines the assignment of edges to regions whereas grouping involves linking otherwise discontinuous image elements. Here we address whether FGO might be affected by grouping. Specifically, we tested for 'context' effects, whereby the figural assignment of one edge might induce a corresponding figural assignment for a separate, but grouped edge. We used subjective report and an objective task to measure FGO. The results suggest that context can affect FGO via perceptual grouping.

9:30 Factors Governing Inhibition of Occluded Regions in Superimposed Objects
Destinee Chambers & Kyle Cave
University of Massachusetts Amherst
This study explores location/object attentional interactions by measuring how attention is allocated to superimposed objects. Under some conditions, when the target object is partially occluded by a distractor object, there is an attenuation of attention at the overlapping region. Earlier studies suggested that the factor governing the presence of this effect is differences in depth cues. Our research eliminates a number of factors, including, but not limited to depth, number of objects and overlaps, and use of verbal cues or discrimination tasks. Occluder inhibition apparently arises only when the target object is fully processed, demonstrating flexibility in attentional allocation.

9:45 Learning to form new perceptual groups
Timothy Vickery[1], Joshua Hartshorne[1], & Yuhong Jiang[2]
[1]Havard University, [2]University of Minnesota
Previous research has shown that the visual system is sensitive to statistical association between objects, but the utility of such learning to scene segmentation remains unknown. Here we show that learning of shape associations directly influences segmentation of an otherwise undifferentiated row of objects. Participants were repeatedly exposed to shape pairs that co-occurred within a common-region cue during training. After the common-region cue was removed, a residual training effect transferred, as reflected by faster detection of color repetition for objects within learned group boundaries. We

propose that visual associative learning modulates the perception of scene structure.

10:00 Enhanced Redundant Target Effect in Callosotomized Individuals is not Sensory in Nature: Evidence from Total and Partial Split-Brain Individuals
Catherine Ouimet[1], Pierre Jolicoeur[1], Jeff Miller[2], Alexia Prito1, & Maryse Lassone[1]
[1]Université de Montréal, Canada
[2]University of Otago, New Zealand
This study investigated the Redundant Target Effect (RTE) in partial split-brain (SB), total SB, and neurologically-intact individuals. All completed an RTE protocol in which targets were presented on the midline or in an inter- or intra-hemispheric manner. Our results showed that the RTE pattern in partial and total SBs was similar. Despite the preservation of the splenium, partial SBs, just like total SBs, differed from the RTE pattern shown by callosally-intact individuals. This pattern suggests that the absence of the anterior portion of the corpus callosum is crucial to enable the occurrence of enhanced RTE.

Object and Face Recognition
12:45 – 1:45

Session Chair:
Kim Curby, Temple University

12:45 Subjects use configural information more than feature information to recognize inverted faces
Noah Schwartz, & Shuinn Chang
University of Southern California
Inverted faces are recognized with less accuracy than upright faces (Yin, 1969). Explanations of this deficit focus on the belief that upright faces are processed configurally or in a holistic/distributed manner, whereas inverted faces are processed in terms of their local, constituent features. Using a novel recognition paradigm that controls for individual differences in task difficulty, we show that subjects recognize upright and inverted faces in the same manner: with an emphasis on configural information and not feature information. While a slight shift toward feature based recognition was found for inverted faces, it was not significantly different from upright.

1:00 Gender aftereffects in face silhouettes reveal face-specific mechanisms

Nicolas Davidenko[1], Nathan Witthoft[2], & Jonathan Winawer[2]
[1]Standford University, [2]Massachusetts Institute of Technology

Profile face silhouettes have been used recently to create a parameterized face space (Davidenko, 2007). Silhouettes provide enough information for accurate judgments of age, gender, and attractiveness. Here we extend these results with several novel findings. First, rapid, implicit gender aftereffects can be obtained using silhouettes. Second, these aftereffects fully transfer across changes in contrast polarity and left-right orientation of the silhouettes, but not across vertical inversion. Finally, aftereffects transfer between silhouettes and front-view faces suggesting that front-view faces and silhouettes share underlying neural mechanisms. Silhouettes provide a valuable tool for testing hypotheses about face-space representation.

1:15 Effects of Repetition on Comprehending and Remembering Action Pictures

Ann Remond & Veronika Coltheart
MACCS, Macquarie University, Australia

Experiments investigating the rapid processing of action pictures suggest that there are differences between objects and actions that affect performance on recall and recognition tasks. The data supports evidence from neuropsychological and psycholinguistic
studies indicating that nouns and verbs are processed by different cognitive processing systems representing words for objects and actions. Our experiments examined the
effects of repetition on recall of action pictures. We contrast these results with those found with other classes of stimuli, pictured objects and words, in an attempt to understand the processes underlying initial comprehension and encoding of actions in
immediate memory.

1:30 A Cross-Cultural Study of the Representation of Shape Dimensions

Mark Lescroart[1], Xioamin Yue[1], Jules Davidoff[2], & Irving Bierderman[1]
[1]Universityof Southern California
[2]Goldsmiths, University of London

Several theories of object recognition hold that shape is represented in terms of the dimensions of generalized cones (GCs), the volumes created when a cross section is swept along an axis. Recent psychophysical and electrophysiological work has shown that humans and macaque IT cells represent GC dimensions, such as aspect ratio and axis curvature, independently. The Himba, an African tribe with limited exposure to developed-world artifacts, do the same. Independent representation of GC dimensions is thus likely a consequence of robust statistics that characterize any reasonable visual environment rather than exposure to simple, regular artifacts.

Object Selection and Memory
1:55 – 2:55

Session Chair:
Steve Franconeri, Northwestern University

1:55 Target and Distractor Processing in Visual Search: Decomposition of the N2pc

Clayton Hickey, Vincent Di Lollo, & John McDonald
Simon Fraser University, Canada

Investigations of attention using the event-related potential technique have identified an ERP component, the N2pc, which indexes selection in visual search. The N2pc has been associated with a mechanism that shelters the cortical representation of targets by suppressing information from distractors. However, results from other methodologies suggest that attention acts through processing of both targets and distractors. We present four ERP experiments that show the N2pc can in fact be decomposed into discrete components that reflect processing of targets and distractors. This work continues the integration of ERP results with what we know of attention from other neuroscientific methodologies.

2:10 Depth cues affect inhibition of nontargets during a 3D Multiple Object Tracking task

Harry Haladjian, Carlos Montemayor & Zenon Pylyshyn
Rutgers University

In a typical Multiple Object Tracking (MOT) display of identical objects, inhibition occurs on task-irrelevant objects (nontargets). Using a probe-dot detection task during MOT, we tested inhibition of nontargets that are preconceptually separable from other objects, that is, having different stereovision depth (Nakayama, 2002). The probe detection results from this current experiment support our hypothesis: nontargets on a depth plane different from targets are preattentively removed from the MOT task and are not inhibited. Superior probe detection was observed on front-plane targets and back-plane nontargets; probe detection on front-plane nontargets was significantly worse.

2:25 Evidence for separate development of working memory capacity for objects and for features in infants

Melissa Kibbe & Alan Leslie
Rutgers University

Previous research has shown that visual working memory (WM) capacity increases over the first year of life. However, current methods designed to assess this capacity confound WM for objects and for features. We have adapted the violation of expectation method used by Kaldy and Leslie (2003, 2005) to tease apart object WM and feature WM by testing infants' ability to remember the identities of up to three objects hidden sequentially. We have found evidence that feature WM and object WM have different capacities. We conclude that it is feature and not object WM capacity that develops over the first year.

2:40 Selection of High and Low Discriminable Information in Working Memory: Object-based Storage and the Visual Hierarchy

Tao Gao[1,2], Mowei Shen[2], Zaifeng Gao[2], & Jie Li[2]
[1]*Yale University,*
[2]*Zhejiang University, China*

Visual information is represented hierarchically during visual perception. Here we explored in working memory, whether there are distinct mechanisms for storing information represented at different levels of the visual hierarchy in working memory. By showing how high and low discriminable information are distinctively selected and consolidated in working memory, we proposed that working memory is actively involved into the feedforward and reentrant processings of visual perception. Object-based storages in working memory is not attributed to focal attention, but originate from high discriminable information which has already been represented as integrated whole at the end of feedforward, parallel perceptual processing.

POSTER SESSION
10:20-11:45

(1) Can prism adaptation be used to induce neglect-like motor biases in healthy participants? Simulation of a non-spatially lateralized deficit

Janet Bultitude & Robert Rafal
Univerisity of Wales, Bangor

Prism adaptation can ameliorate hemispatial neglect symptoms and induce neglect-like performance in healthy participants. This study examined whether adaptation to 15º leftward shifts in healthy participants (N=40) can induce two motor biases that are associated with neglect: 1) slower leftward versus rightward movements ('directional hypokinesia'); and 2) faster withdrawal than approach responses. Directional hypokinesia was not found following leftward adaptation, possibly due to subcortical rather than parietal involvement in this deficit. Faster withdrawal responses were observed, however, suggesting that prism adaptation may not only improve the spatially lateralized bias of neglect, but also improve associated non-lateralized deficits.

(2) Expecting to Lift a Box Together Makes the Load Look Lighter

Adam Doerrfeld, Natalie Sebanz, & Maggie Shiffrar
Rutgers University

This study investigated effects of social context on object perception. Two experiments examined how weight judgments are affected by one's action plans. While expecting to lift boxes of varying weights either alone or with another person, participants judged how heavy they perceived the box to be. Results show that when one intends to lift a box with another person, the box looks lighter, resulting in under-estimation of the actual weight, than when one intends to lift the same box alone. These findings suggest that the perception of object affordances and object properties is modulated by shared action plans.

(4)

(3) Axis-Aligned Motion Bias Effects in an Immersive, Situated Display Environment
Igor Dolgov, Christopher Todd, David Birchfield, Michael McBeath, & Harvey Thornburg
Arizona State University
The axis-aligned motion (AAM) bias is a human perceptual tendency to assume that the primary symmetry axis of moving object indicates it direction. We examined the impact of observer locomotion on the AAM bias in an immersive, situated-display environment that utilizes a large floor-projection display. Participants judged the final destinations of projected geometric figures (symmetric and asymmetric) using different judgment methods, which varied in mobility. The findings confirm the existence of AAM bias in large situated-display environments and demonstrate that its impact on motion perception can be mitigated by engaging the action system in making judgments.

(4) The perception of human motion differs for observers with autism
Martha Kaiser & Maggie Shiffrar
Rutgers University
Social impairments are diagnostic of autism. Successful social interact requires the accurate perception and rapid interpretation of other people's actions. Thus, perception is a primary input to social processes. Surprisingly little work has examined how people with autism spectrum disorder (ASD) perceive human movement. We therefore asked participants to detect coherent human and tractor motions in point-light displays. Control observers demonstrated greater sensitivity to human motion than to tractor motion. Conversely, observers with ASD demonstrated equivalent perceptual sensitivity to human and tractor motion. These results suggest that selective perceptual deficits may underlie social impairments in ASD.

(5) Hemispheric Transfer of Perceptual Learning Effects:Easy and Hard Tasks Depend on Different Cerebral Modification Sites
Marina Pavlovskaya[1] & Shaul Hochstein[2]
[1] *Tel Aviv University, Israel*
[2] *Hebrew University, Israel*

Differences in learning transfer may be related to the cerebral sites of modification due to experience: hard tasks require low-level representations while easy tasks use high level.

We ask if inter-hemispheric learning transfer also depends on task difficulty. We trained subjects on a local detection in one hemifield and on global identification in the other hemifield. Following training, we switched the sides of the tasks. We found transfer for the trained dimension for easy cases. The data confirm the Reverse Hierarchy Theory: learning begins at high-level areas, and progresses backwards to the input levels (Hochstein & Ahissar, 2002).

(6) Recovery from visual disruptions in reading and scene viewing: Evidence from saccade hazard rates
Graham L. Pierce & Erik M. Altmann
Michigan State University
Little is known about how a visual disruption at the start of a fixation affects saccade planning. Participants either read short stories or viewed full-color photographs of scenes, and fixation-onset masks delayed stimulus availability during particular fixations. It was found that the timing of saccades programmed immediately after mask offset matched that of normal fixation onset. In addition, fixation N+1 following a mask was shorter in reading but not scene viewing, which may reflect the visual system attempting to mitigate the effects of the prior delay in a task involving highly structured eye movements.

(7) Differential heritability for stereopsis nearer than and beyond fixation
Jeremy Wilmer & Benjamin Backus
University of Pennsylvania
Given the importance of stereopsis for object segmentation, the large individual differences in stereopsis are striking. We conducted a classic twin study to assess genetic and environmental contributions to these differences. Precision of depth estimation from stereopsis was measured, and genetic model-fitting techniques were used to estimate genetic and environmental influence. Almost all reliable individual variation in precision beyond fixation was attributable to genes, but genes did not contribute to individual variation in precision nearer than fixation. Thus specific genetic markers may correlate with far stereopsis and therapeutic interventions may be most successful if they target near stereopsis.

(8) Striking Deficiency in Top-Down Perceptual Reorganization of Two-Tone

Images in an Amazonian Hunter-Gatherer Tribe

Jennifer Yoon[1], Nathan Witthoft[1], Jonathan Winawer[1], Michael Frank[2], Edward Gibson[2], & Daniel Everett[3]
[1]*Stanford University*
[2]*Massachusetts Institute of Technology*
[3]*Illinois State University*

The Piraha are an Amazonian hunter-gatherer tribe having little contact with outsiders and an extremely sparse visual culture without symbolic representations such as writing, drawn artwork, or maps (Everett, 2005). In an experiment, adult Piraha were shown two-tone images made from photographs of animals and individuals found in their local environment. As expected, subjects were often unable to recognize the two-tone images, but were able to recognize the corresponding photographs. Surprisingly, Piraha subjects often remained unable to recognize the two-tone when viewing the corresponding photo simultaneously, conditions that trigger vivid perceptual reorganization in non-Piraha controls.

(9) Interactions between prior knowledge and recent experience in the perception of dynamic objects

Benjamin Balas & Pawan Sinha
Massachusetts Institute of Technology

Temporal association between object views is a useful tool for learning invariant representations for recognition. We examine untested aspects of the temporal association hypothesis using images of the human body. Specifically, we investigate how recent dynamic training with an object interacts with established prior knowledge concerning object movement. Observers performed a change detection task using upright and inverted images of a walking body after viewing: 1) no dynamic stimulus, 2) forward walking, or 3) backward walking. We find that prior knowledge modulates sensitivity, and that the effect of dynamic exposure depends on agreement between the training stimulus and past experience.

(10) Location and orientation judgments within the Poggendorff configuration are inconsistent

Jacqueline Fulvio[1], Manish Singh[2], & Laurence T. Maloney[1]
[1]*New York University*
[2]*Rutgers University*

We examined contour interpolation in the Poggendorff configuration. In Part I, observers extrapolated an oblique line-segment (+45 degrees) across a rectangular gap. All observers extrapolated significantly below and slightly less oriented than collinear. In Part II, they interpolated position & orientation in the occluded portion of the Poggendorff Configuration (physically collinear) & Extrapolated Configuration (perceptually collinear). In both conditions, observers interpolated the position of the physical line-segments, but the orientation of the subjective ones (distorted by the Poggendorff illusion). Failure to interpolate a globally-consistent contour under certain geometric conditions is an important but neglected factor in the Poggendorff illusion.

(11) The effects of visual prior entry based on figure-ground assignment: Evidence of a figural benefit

Lauren Hecht, Ben Lester, & Shaun Vecera
University of Iowa

Foreground figures seem to be perceived as more perceptually salient than ground regions. We provide evidence that targets presented on figures are perceived earlier than targets appearing on grounds (Experiment 1). This 'prior entry' effect suggests that targets appearing on figures reach perceptual level processes sooner than grounds. Importantly, our results were not due to a response bias for targets appearing on figures (Experiment 2). When the figure-ground regions were spatially separated the temporal benefit for foreground figures disappeared (Experiment 3), suggesting that figure-ground processes are responsible for the prior entry effect.

(12) Can Prosopagnosics Discriminate Similar, Non-Face Objects?

Jonathan Kahl, Ashley Scolaro, Eric Cooper, & Alex O'Brien
Iowa State University

Farah, Levinson, & Klein (1995) claimed that a prosopagnosic patient who had great difficulty recognizing faces had no difficulty discriminating other similar, non-face stimuli (specifically eyeglasses). This result contradicts some theories of prosopagnosia that posit prosopagnosics should have difficulty discriminating any objects that share a structural

description. The current research attempted a replication of the Farah et al (1995) study using eyeglasses that either did or did not share the same structural description. The results show that the prosopagnosic had great difficult discriminating eyeglasses that had the same structural description but was unimpaired with different structural descriptions.

(13) What have we learned in 17,000 years about depicting the join of two smooth shapes?
Jiye Kim & Irving Beiderman
University of Southern California
An examination of prehistoric art (ca. 17,000 years ago), almost all of it depicting animals, reveals that the nonaccidental characteristics of simple parts, such as horns and hooves, are accurately rendered (such as whether the part has a straight or curved axis); metric properties or texture, much less so. There is another invariant that, mathematically, must appear when smooth surfaces meet: a concave discontinuity. The incidence of depicting this invariant in a sample of 299 leg-body joins in prehistoric art was 42%. In drawings of such joins from individuals made this year with no formal art training, 46%.

(14) Cortical Activity associated with curve tracing in humans: Bridging the gap with monkey electrophysiology
Christine Lefebvre[1], Pierre Jolicoeur[1], Roberto Dell'Acqua[2]
[1]*Université de Montréal, Canada*
[2]*Università degli Studi di Padova, Italy*
Single neuron studies in monkeys, as well as behavioural studies in humans, have shown evidence of the involvement of attention in curve tracing. Here we present an event-related potentials experiment that shows for the first time cortical activity related to curve tracing in humans. A lateralized activation, attributed to tracing, was obtained in a task where participants had to mentally trace a curve to determine its end point. More specifically, the sustained posterior contralateral negativity (SPCN) component was observed on the side where target curves were traced.

(15) The Influence of Object Segmentation on Perception
Xingshan Li, Kyle Cave, & Keith Rayner
University of Massachusetts Amherst

Word segmentation in Chinese reading is somewhat mysterious because there are no spaces between words. Understanding how segmentation is imposed in Chinese reading should contribute to understanding segmentation in visual scenes. In our experiment, four characters, which constituted either one 4-character word or two 2-character Chinese words, were shown briefly. Participants were quite accurate in reporting the four-character word, but could usually only report the first two-character word. The results demonstrated an interaction between word segmentation and character recognition. An interactive model is presented to account for the relation between segmentation and perception.

(16) Influence of object orientation on reference frames in spatial representation
Steve Marchette & Amy Shelton
Johns Hopkins University
In natural environments, objects have perceptual and conceptual properties that may influence the organization of spatial information, but experimentally these properties have been largely overlooked. We investigated the role of object orientation in the selection of a preferred orientation in memory. Participants learned a spatial layout and were tested on their performance at different orientations. When object orientation was minimized or inconsistent, memory access was best for the learned orientation. However, object orientation provided a strong cue for organizing memory when consistent. These results support an important interaction between item-specific properties and location information.

(17) A biased perception on the depth orientation of familiar objects
Ryosuke Niimi & Kazuhiko Yokosawa
University of Tokyo, Japan
How accurately can human vision determine the depth orientation of familiar objects? We asked observers to evaluate the orientation of an object presented as a 2D picture by adjusting a disk to that orientation. The results showed a significant pattern of bias. Oblique orientations were evaluated as if the objects were rotated more toward the sides; for instance, a rotation of 27.0 degrees from the front was evaluated as 39.7 degrees. We conclude that the determination of oblique orientation is not very accurate and even biased, whereas the

determination of the front, side and back orientations is unbiased.

(18) What primitives are used in visual object recognition: Evidence from Prosopagonia
Alex O'Brien, Eric Cooper, & Jonathan Kahl
Iowa State University
Biederman (1987) proposed that a set of non-accidental properties are used to define the "geons" used for object recognition. A prosopagnosic and a control group discriminated objects that had undergone a change in one of their non-accidental properties. Prosopagnosics have great difficulty distinguishing among objects that have the same structural description (Casner, 2006). Thus, if the prosopagnosic cannot discriminate objects that differ in one of the properties that Biederman proposed, it suggests that property is not used during visual object recognition. The results suggest that object recognition uses a set of 12 geons (not the 36 geons Biederman originally proposed).

(19) Are object files involved in temporal order perception?
Ekaterina V. Pechenkova
Lomonosov Moscow State University, Russia
As the key function of an object file is to update information about objects on rapid changes, we tested an assumption that it may be involved into temporal order perception. If all changes happen to the same object, we may expect the temporal order perception for these changes to be more accurate than for multiple objects presented successively. Participants performed the temporal order judgment and the target feature identification tasks under RSVP conditions. Contrary to the prediction, the performance was the same when RSVP stream included different items or just a single item changing its features throughout the presentation.

(20) Contrast Reversal of Faces and Familiar Objects Shown at Different Viewpoints
Jessie Peissig[1], Jean Vettel[2], Maritza Nieto[1], & Michael Tarr[2]
[1]*California State University*
[2]*Brown University*
Previous studies have demonstrated that faces are difficult to recognize when viewed in reverse contrast (Galper, 1970). Recent studies also report a contrast reversal effect for both novel and familiar objects (Vuong et al., 2006). Here,

we tested observers in a sequential same/different task using grayscale images of faces, dogs, and cars. The images were shown in two different viewpoints, approximately 45 degrees apart. By changing viewpoint, we can test whether these effects are image-based or object-based. We found a significant contrast effect even when viewpoint changed, indicating that the contrast reversal effect is object-based.

(21) Limits of Expertise
W. Stewart Phillips[1], Michael Grovola[1], Cindy M. Bukach[1], & Isabel Gauthier[2]
[1]*University of Richmond*
[2]*Vanderbilt University*
Substantial experience with individual-level recognition of visually similar objects leads to brain and behavior specialization similar to that of faces (e.g. cars, birds and novel objects). However, some studies fail to replicate this finding, perhaps due to using stimuli outside expertise class (e.g. antique cars with modern-car experts). We tested the generalization of expertise between antique and modern cars and found that modern car experts did not show expertise for antique cars, while antique car experts showed no expertise for modern cars. Further tests of holistic and relational processing showed a similar limitation of expertise effects.

(22) Norm-based coding of inverted faces revealed by adaptation aftereffects
Tirta Susilo, Elinor McKone, & Mark Edwards
The Australian National University, Australia
The current study investigates the representation of inverted faces using adaptation aftereffects method. Previous face aftereffect studies have shown that upright faces are encoded by opponent mechanism, which implicates norm-based representation. Across four experiments, we compare the aftereffects for upright and inverted faces by parametrically manipulating eye heights, and test two contrasting predictions for opponent and multi-channel coding. The results demonstrate that inverted faces are encoded by opponent mechanism, therefore arguing against the exclusivity of norm-based representation for upright faces.

(23) Are some people exceptionally good at face recognition?
Richard Russell[1], Garga Chatterjee[1], Brad Duchaine[2], & Ken Nakayama[1]

[1]*Havard University*
[2]*University College London*
Ten individuals independently contacted us, claiming significantly better than ordinary face recognition ability. We have tested three of these individuals, confirming exceptional ability in each. On two face recognition tests they performed outside the range of control subjects. On a visual memory task with abstract art images, they performed near the high end of the range of control subject performance. On a face discrimination task with upright and inverted faces, these individuals showed larger inversion effects than control subjects, who in turn show larger inversion effects than developmental prosopagnosics, suggesting a relation between face recognition ability and inversion effect magnitude.

(24) Training in motion discrimination rapidly improves reading fluency
Teri Lawton
Perception Dynamics Institute
This study examined effects of training in direction discrimination on reading performance in 7-year-olds, using two control groups and one treatment group. In the treatment group, participants judged direction of motion of a vertical sinewave grating relative to a background. Over the course of training (biweekly 10-minute sessions for 15 weeks), contrast sensitivity increased an average of 5-14 fold for inefficient readers and an average of 7 fold for efficient readers. Reading fluency improved 2-4 fold for inefficient readers in the treatment group, but barely, if at all, for inefficient readers in the control groups.

(25) Eye movements predict subsequent visually specific memory for non-emotional, but not emotional, scenes
Michael Blank, & Chad Marsolek
University of Minnesota
Visual attention is more restricted when viewing emotional scenes than non-emotional scenes. Does this cause subsequent memory for the two types of scenes to differ? We recorded eye movements while participants viewed emotional and non-emotional scenes, then measured their visually specific memory (VSM) for the scenes. VSM was equal in magnitude for emotional and non-emotional scenes. However, for non-emotional scenes, a relative broadening of attention during encoding enhanced VSM, whereas for emotional scenes, eye movements during encoding did not predict VSM. Memory for emotional scenes may be distinctive in not requiring relatively broadened attention during encoding.

(26) Differential modulation of intra-parietal activation by "what" and "where" load in visual short-term memory: An fMRI study
Amabilis Harrison & Pierre Jolicoeur
Université de Montréal, Canada
Tasks that are used to identify regions in the parietal cortex (intra-parietal sulcus, IPS) associated with visual short-term memory (VSTM) confound objects and spatial locations. An fMRI study was conducted to determine whether object information, spatial information, or both are responsible for IPS activation during VSTM tasks. Subjects performed a delayed-match-to-sample task in which only the amount of object information or spatial information was varied between conditions. Distinct regions within the IPS responded to load manipulations of spatial and object information, demonstrating that VSTM for both types of information is represented within the IPS.

(27) Stimuli related to information in working memory may indirectly influence attention
Christopher Masciocchi, Waw Pheow Tan, & Veronica Dark
Iowa State University
We investigated whether words associated with the contents of working memory (WM) involuntarily capture spatial attention. Subjects identified a probe letter and half also held a prime in WM. Two words briefly presented prior to the probe indicated possible probe locations. Words related to the prime influenced probe RT only when the probe occurred 50 ms after word offset, at the same location, and the prime was in WM. Probe responses were slowed, rather than facilitated. Rather than showing involuntary capture, results suggest difficulty in disengaging from word processing when probes and related words occur in temporal and spatial proximity.

(28) Visual short-term memory for letters and words: An electrophysiological investigation using the sustained posterior contralateral negativity
David Predovan, David Prime, Martin Arguin, Frédéric Gosselin & Pierre Jolicoeur
University of Montreal, Canada

(9)

Electrophysiological measures were used to investigate the contribution of lexical status on the maintenance of letter strings in visual short-term memory (VSTM). The sustained posterior contralateral negativity (SPCN), an electrophysiological correlate of storage in VSTM, was measured for words and pronounceable non-words. A larger SPCN was found for non-words than for words, indicating that lexical status influences storage in VSTM. One possibility is that words produce a smaller SPCN because they can be recoded to a form that does not require a low-level representation in VSTM. Other possible accounts are raised in the poster.

(29) Neural network implicated in visual short-term memory: a Magnetoencephalographic Study

Nicolas Robitalle, Kevin Sauvé, & Pierre Jolicoeur
Université de Montréal, Canada

We used magnetoencephalography to study the mechanisms of maintenance of information in visual short-term memory. We presented coloured disks, on both sides of the screen. Independent-components analysis allowed us to isolate sources from the parietal cortex that showed increased activity when more stimuli were to be retained. This modulation of activity was dependent on the position (left versus right) of the stimuli to be encoded. However, contrary to previous results using this kind of task, we also found frontal, occipital, and temporal sources that show this increase of activity when more stimuli were encoded.

(30) The Visuospatial Sketch Pad (VSSP): Investigating the Dissociation of Object and Spatial Imagery and Storage and their Roles in Reading

Jodie Royan[1] & Roger Graves[2]
[1]*George Mason University*
[2]*University of Victoria, Canada*

The dissociation of object from spatial working memory was investigated within the context of the visuospatial sketchpad of Baddeley and Hitch's (1974) model of working memory. The expected dissociation was found in a group of individuals with developmental dyslexia but not in a group of non-dyslexic individuals. Furthermore, spatial, but not object, processing contributed to reading fluency in dyslexic but not non-dyslexic individuals. This research adds to the growing evidence for an object/spatial dissociation in memory but suggests that shared variance techniques may not always reveal this dissociation in normals.

(31) Investigating the RWI effect with an AB paradigm

Wah Pheow Tan, Moses Labgley, & Veronica Dark
Iowa State University

When subjects were presented an item rapidly in the retrieval phase of a recognition memory experiment to determine if it was previously studied in the encoding phase, the item's old/new discrimination was successful even though it was not identified. This effect is termed 'recognition without identification' (RWI). Previous RWI studies failed to examine the process of recognizing unidentified items due to methodological limitations. We proposed shifting the identification task from retrieval to encoding phase to overcome the limitations, by employing the attentional blink paradigm during encoding. The findings suggested that attentional influence on the RWI effect is minor.

(32) Memory of an Attended objects: Top-down and Bottom-up Interaction on Delayed-matching of Features

Cheng-Ta Yang & Yei-Yu Yeh
National Taiwan University, Taiwan

Feature memory in color, orientation, shape, and texture was investigated. In Experiment 1, we verified that all features of an attended object was encoded and retained, but with different processing speeds depending on its salience. In Experiment 2 and 3, participants were required to attend to one dimension of the reference stimulus and ignore the others. The to-be-matched feature and the manner that targets and distractors differed from the reference stimulus were manipulated. Results showed that top-down attentional control could aid early visual processing. Yet, the benefit was constrained by the salience of low-level features.

(33) Top-down control in singleton detection mode: Distractor probability affects attentional and oculomotor capture

Jeff Moher, Jared Abrams, Howard Egeth, Veit Stuphorn, & Steven Yantis
Johns Hopkins University

It has been suggested that the most salient item in a display causes attentional (Theeuwes,

1991) and oculomotor (Theeuwes, Kramer, Hahn, & Irwin, 1998) capture in a purely bottom-up manner. Others have claimed that there is a top-down influence in capture (e.g., Bacon & Egeth, 1994). By measuring saccade latencies and tracking eye movements, we provide evidence that, across blocks, changing the probability that a singleton distractor will occur on a given trial markedly changes the degree to which that distractor will capture attention. This result reveals a clear top-down modulation of attentional and oculomotor capture.

(34) Simultaneous and sequential presentations for object selection and memory recall
Carlos Montemayor, Zenon Pylyshyn, H. Haroutioun Haladjian
Rutgers University
Previous results on Multiple Object Tracking show that the mechanism responsible for selecting and tracking objects does not encode properties of these objects (Pylyshyn, 2004). In contrast, VSTM's main function is to store information about visual percepts. However, in spite of their apparent functional disassociation, these mechanisms must interact at a fundamental level because selection and tracking involve updating some information in real time. In this experiment we show that the process of selecting objects operates with different spatio-temporal constraints than the process of memory encoding in VSTM. This suggests that VSTM does not determine object selection processes.

(35) Selective Attention Blues – A Sensory Origin for Stroop Effect and Aging: A Meta-Analysis
Boaz M. Ben-David & Bruce A. Schneider
University of Toronto, Mississauga, Canada
Stroop generally increases with age, often interpreted as reflecting an age- related reduction in selective attention. In a meta-analysis we link sensory losses with this Stroop decline. Latency advantage for reading over color-naming neutral words increases with age. This imbalance is correlated with Stroop. A model in which imbalance mediates the effect of age on Stroop is as predictive as the direct effect of age on Stroop. We suggest that the increase in imbalance with age -- generated by sensory losses -- accounts, in part, for age-

related changes in Stroop. Selective attention might not be severely impeded with age.

(36) Distractor proximity affects the magnitude of interference under high perceptual load
Adam Biggs & Brad Gibson
University of Notre Dame
The present study evaluated the perceptual load hypothesis by investigating whether the magnitude of distractor interference varied as a function of distractor proximity. Consistent with the perceptual load hypothesis, there was greater distractor interference observed in the low load condition than the high load condition. However, the magnitude of distractor interference was found to increase as distance between the target and distractor increased in the high load condition. In contrast, the magnitude of distractor interference remained constant in the low load condition. The present findings suggest that the perceptual load hypothesis does not provide a complete account of visual selection.

(37) Contingent capture of attention requires central resources: evidence from human electrophysiology and the psychological refractory period
Emilie Leblanc, Benoit Brisson, & Pierre Jolicoeur
Université de Montréal, Canada
It has recently been demonstrated that contingent capture has a visuospatial locus: lateralized distractors elicited an N2pc, an electrophysiological index of the focus of visuospatial attention, only when they matched top-down control settings. We investigated whether contingent capture required capacity-limited central resources by incorporating a contingent capture task as the second task of a psychological refractory period paradigm. The N2pc elicited by lateralized distractors matching top-down control settings was attenuated under high concurrent central load conditions, indicating that although involuntary, the deployment of visuospatial attention occurring during contingent capture depends on capacity-limited central resources.

(38) Separate gradients of attention in early and late stages of spatial selection.
William Bush, Lisa Sanders, & Kyle Cave
University of Massachusetts, Amherst

We used event-related potentials (ERP) to examine the time course of selective spatial visual attention. By cuing multiple adjacent locations we found evidence of separate gradients of attention at different stages of processing. We found significant amplification in the N1 component for both cued and uncued locations on the attended side of fixation. In contrast to the N1, significant amplification of the N2 component was present only at the cued locations. This study supports a multi-stage filtering process for spatial attention, starting with a large area of attention, and focusing on the cued region at a later stage.

(39) Eyes off the prize: the effect of diverting spatial attention away from a goal-directed visuomotor task
John Dewey[1] & Adriane Seiffert[2]
[1]Michigan State University
[2]Vanderbilt University
Imagine driving an icy road while talking on a cell phone. We investigated how people determine when they are in control of objects and what happens when they were distracted by another task. Our participants moved virtual objects toward a goal, while monitoring a stream of letters presented at various locations. Goal acquisition was better and ratings of perceived control were higher when the letters were directly in front of the goal than when they distracted attention away. Participants also tended to veer the object toward the letters. Thus spatial attention affects perceived control, perhaps by biasing visuomotor coordination.

(40) Directional Conversation is Especially Adverse to the Functional Field of View
Jeff Dressel[1] , Paul Atchely[1], Todd Jones[2], & Rebecca Burson[2]
[1]University of Kansas
[2]Victoria University of Wellington, New Zealand
The current study investigates effects of three types of conversational demands on the ability to attend to information in a given region of space, or functional field of view. Results show a dramatic and potentially dangerous decrement in visual attention performance when concurrently carrying on a conversation. Results also suggest that this decrement may be especially large during directional conversations, consistent with the idea that attention is negatively impacted by processing common codes (e.g., Wickens, 2002).

(41) Statistical processing of correlations between visual features
Tatiana-Aloi Emmanouil & Anne Treisman
Princeton University
The visual system economically represents sets of similar objects by encoding statistical properties such as average size. We investigated whether the visual system also encodes correlations between separate features in a set. Participants searched for a conjunction of size and luminance. The features were either perfectly correlated in the distractors or uncorrelated and the target always broke the correlation. Participants were unaware of the correlation, but search times were faster in the correlated displays, suggesting that the visual system does compute statistical relationships between features and that items that disobey these relationships are likely to attract attention.

(42) Varying the rate of contraction and expansion of the attentional window
Lisa Jefferies & Vincent Di Lollo
Simon Fraser University, Canada
Findings by Jefferies & Di Lollo (2007) suggest that the window of attention contracts and expands in a linear manner over time. The authors proposed a model of the spatiotemporal dynamics of attention to account for these changes. The model can be tested by varying the speed at which the window of attention contracts and expands between two concurrent RSVP streams of targets and distractors in an AB paradigm. We induced a more rapid narrowing of the attentional window by increasing target brightness. The results closely matched the predictions, thus providing converging evidence in support of the model.

(43) Visual event is labile during an attentional blink period: Direct evidence from first target performance
Ken Kihara, Nobuyuki Hirose, & Naoyuki Osaka
Kyoto University
The Attentional blink (AB) reflects the temporal limitation of vision. Although the AB is traditionally believed to reflect the period of time during which T1 is undergoing consolidation, the state of T1 processing during the AB period remains unclear. To examine the possibility that the T1 is labile during the AB period, we

estimated T1 accuracy when T2 was correctly reported. The results of the two experiments demonstrated the dip of T1 accuracy function that synchronized with the AB deficit, suggesting that T1 is labile during the AB period. Two possible explanations for the T1 deficit are discussed.

(44) Contingent capture of attention requires central resources: evidence from human electrophysiology and the psychological refractory period

Emilie Leblanc, Benoit Brisson, & Pierre Jolicoeur
Université de Montréal

It has recently been demonstrated that contingent capture has a visuospatial locus: lateralized distractors elicited an N2pc, an electrophysiological index of the focus of visuospatial attention, only when they matched top-down control settings. We investigated whether contingent capture required capacity-limited central resources by incorporating a contingent capture task as the second task of a psychological refractory period paradigm. The N2pc elicited by lateralized distractors matching top-down control settings was attenuated under high concurrent central load conditions, indicating that although involuntary, the deployment of visuospatial attention occurring during contingent capture depends on capacity-limited central resources.

(45) Feature-based attention alleviates the attentional blink for a popout target

Carly Leonard[1], Howard Egeth[1], & Palomires Melanie[2]
[1]*Johns Hopkins University*
[2]*Smith-Kettlewell Eye Research Institute*

When two tasks are carried out in close temporal proximity, performance on the latter task sometimes suffers. This phenomenon is known as the attentional blink. Joseph, Chun, and Nakayama (1997) found that the attentional blink drastically impaired search for a popout target, despite its bottom-up salience. However, Egeth, Leonard, and Palomares (submitted) and Olivers and Watson (in press) recently found conflicting results. In the current study, we investigated whether the availability of top down guidance could account for this discrepancy. The results suggest that feature-based attention to a singleton target alleviates the attentional blink for a popout target.

(46) Self-construal priming modulates the scope of visual attention

Zhicheng Lin[1] & Shihui Han[2]
[1]*University of Minnesota*
[2]*Peking University, China*

East Asians and Westerners are characterized with a context-dependent and context-independent processing style, respectively. The current study investigated whether the scope of visual attention can be modulated by self-construal priming. After priming, subjects discriminated a central target letter flanked by compatible or incompatible stimuli or global/local letters in a compound stimulus. Both experiments showed that the interdependent self-construal priming would increase the scope of visual attention whereas the independent self-construal priming would produce opposite effects. The results provide evidence for dynamics of the scope of visual attention as a function of self-construal priming.

(47) The relationship between two types of working memory and spatial cueing tasks

Yukihisa Matsuda & Syoichi Iwasaki
Tohoku University

In this study, the relationship between two types of working memory and two types of spatial control of attention was explored with using verbal and visual WMC test, and two types of Posner-type spatial cueing task. The results suggest that visual WMC is not related to any capability of both endogenous and exogenous spatial control of attention, however, it may be related to the endogenous shifting of attention. Surprisingly, the highest quartile verbal WMC individuals were lower in the endogenous control of attention than the lowest quartile verbal WMC individuals (attentional gain score: 6ms vs 30ms).

(48) The effects of limiting cognitive resources on interhemispheric interaction

Urvi Patel & Joseph Hellige
University of Southern California

The present research was designed to examine whether a secondary, independent task introduces sufficient interference so that it is advantageous to share processing between the hemispheres. A divided visual field paradigm was utilized to present three conditions: (1) three-item comparison task (single primary), (2) two-item comparison task (single secondary), and (3) three- or two-item comparison task

(dual-task). Observers were asked to indicate whether two letters projected to the same/opposite/both hemisphere matched. Overload caused by increased processing of two independent tasks that are simultaneously presented in the same format lead to an advantage.

(49) Task Co-representation improves Memory

Natalie Sebanz[1] & Adam Doerrfeld[2]
[1]*University of Birmingham, United Kingdom*
[2]*RutgersUniversity*

It has been shown that individuals have a tendency to take into account others' tasks, even if it is not required of them. The present study investigated whether such "task sharing" also leads to improved memory for information relevant to another person. Our results demonstrate that when people perform a task next to another person performing a different task, they recall more of the items relevant to the other's task in a subsequent surprise memory task, compared to being exposed to the same information while acting on their own. These findings suggest that acting together can improve memory performance.

(50) Masking and decay in the attentional blink

Bradley Wolfgang & Philip Smith
University of Melbourne, Australia

The attentional blink (AB) is mediated by second target backward masking, or by task-switching in unmasked displays (Kawahara, Zuvic, Enns, & Di Lollo, 2003). We measured masking-induced and decay-based AB functions in the absence of task-switching. In masked displays, an AB was obtained for detection and discrimination tasks. In unmasked displays, a decay-based AB was found for discrimination, but only for low spatial frequency stimuli. We suggest that the attentional demands of perceptual processing interact with masking and stimulus decay to determine the strength of stimulus representations in visual short-term memory.

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