POSTER SESSION II
French Market Exhibit Hall, Friday Evening, 5:30–7:00

• PSYCHOPHYSICS •

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Human Perception During Performance. ANDREAS WOHLSCHLÄGER, *Max Planck Institute for Psychological Research, Munich*—In ideomotor theories of action the anticipatory representation of the action's goal (1) is causal for the execution of the action and (2) is represented in a distal code, because action goals are typically the most distal effect of the action. Therefore, the perception of distal events that are similar to the action's goal should be affected by planning and/or executing that action. We measured the detection and identification of briefly presented bars during the performance of an everyday action: moving and reorienting an object (a block) from one place to another. It turned out that both, detection and identification of the bar is impaired during the performance of the transport action. For both perceptual measures, the impairment depends on two factors: (1) on the difference between the bar's orientation and the block's goal orientation and (2) on the point in time the bar was presented during the movement.

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Confidence in Word Detection Predicts Exclusion-Task Performance in an Unconscious Perception Paradigm. STEVEN J. HAASE, *University of Wisconsin-Madison,* & GARY FISK, *Georgia Southwestern State University*—Haase and Fisk (in press) showed that confidence in word detection predicts word identification, arguing against unconscious perception in the yes–no task (e.g., Merikle & Reingold, 1990). The results from an exclusion-task experiment bolster our conclusion. In a concurrent word detection–identification paradigm, observers were instructed to: (1) rate their confidence that a word had been presented; (2) select from a choice of two possible words which word was *not* presented (i.e., an exclusion task; Jacoby, Toth, & Yonelinas, 1993). Words were briefly presented (33 msec) on half of the trials followed by a backward mask. Exclusion performance increased with detection confidence from chance levels up to 90% correct, consistent with signal detection theory. Exclusion performance was not below chance on trials with a low confidence rating, which would be predicted if stimulus identification were mediated by unconscious processes (e.g., Merikle, Joordens, & Stolz, 1995).

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Expanding Cross-Modal Research Using Auditory Glides and Stereoscopic Depth. AMY D. WILKERSON & LAUREN F. V. SCHARFF, *Stephen F. Austin State University*—The current work introduced auditory glides and stereoscopic depth to cross-modal research and replicated conditions using tones and vertical position (Ben-Artzi & Marks, 1995). Participants selectively classified all combinations of the auditory/visual stimuli. As predicted, positively correlated conditions (e.g., high visual or near depth paired with high tone or ascending glide), most notably those using glides, speeded reaction times compared to negatively correlated conditions. Trends of asymmetrical influence support those found by Ben-Artzi and Marks, in that neither tones nor glides affected visual classification accuracy, and visual stimuli had a cross-modal effect on auditory processing. As predicted, accuracy was greater on vertical than on depth conditions. Compared to accuracy data, reaction time data show more dependence on prior experience with stimulus modality. More specifically, the comparatively complex (glide and depth) stimuli showed greater individual differences, with experience speeding responses.

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The Structure of Sensory Events and the Accuracy of Judgments About Time. SIMON GRONDIN, MÉLANIE LAPOINTE, & ISABELLE GUAY, *Université Laval*—The study examines how non-temporal effects on interval discrimination vary as a function of the range of duration under investigation (standards = .2, .6, 1, or 1.4 sec). The intervals to be discriminated were the silent duration marked by two sensory signals, both lasting 10 or 500 msec. These signals were two identical flashes (intramodal), or one flash followed by an auditory tone (intermodal). The results indicate how critical the structure of events in judging time is: (1) with briefer intervals, errors of discrimination are mainly caused by the intra- versus inter-modality conditions; and (2) with longer intervals, such errors are mainly due to marker length. Moreover, the Weber fraction is higher at 1.4 than at 1 sec, which shows to what extent the validity of Weber's law for time is restricted; however, because this applies to all marker-type conditions, it is argued that, beyond performance variations, judgments on time are based on a common temporal mechanism.

• TOUCH •

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What Determines Dominance of Vision Over Haptics? MARC O. ERNST & MARTIN S. BANKS, *University of California, Berkeley*—Most research on visual-haptic interaction has reported that vision dominates haptic perception (*visual capture*). However, a few studies have shown a clear influence of haptics on vision, which means that vision does not always capture haptics. We hypothesized that the amount of dominance is determined by the statistical reliability of the available sensory information. To test this hypothesis, we separately measured visual and haptic size discrimination thresholds, while manipulating the reliability of the visual size information. To determine the relative influence of vision and haptics, we presented the same stimuli in combination but with different visually and haptically specified sizes. Perceived size of this cross-modal stimulus was always in-between the visually and haptically specified sizes. Furthermore, subjects' crossmodal settings could be predicted from the visual and haptic size discrimination thresholds. We conclude that this form of cross-modal perception can be described by a linear weighting scheme.

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Dynamic Spatial Mapping Between Vision and Touch. ROB GRAY, *Nissan Cambridge Basic Research,* & HONG Z. TAN, *Purdue University*—We investigated the integration of visual and tactile information about moving objects. In Experiment 1, observers discriminated visual targets presented randomly at one of 5 locations on their forearm. Tactile pulses simulating motion along the forearm preceded visual targets. At short SOAs, discriminations were better (i.e., more rapid and accurate) when the final tactile pulse and visual target were at the same location. At longer SOAs, discriminations were better when the visual target was offset in the motion direction and were worse for offsets opposite to the motion direction. In Experiment 2, speeded tactile discriminations at one of three random locations on the forearm were preceded by a visually simulated approaching object. Discriminations were better when the object approached the location of the tactile stimulation and discrimination performance was dependent on the approaching object's time to contact. These results demonstrate dynamic links in the spatial mapping between vision and touch.

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"What" Versus "Where" in Touch: An fMRI Study. CATHERINE L. REED, *University of Denver,* ERIC HALGREN, *Harvard Medical School,* ROBERTA L. KLATZKY, *Carnegie Mellon University,* & SHY SHOHAM, JEREMY JORDIN, & SHARELLE BALDWIN, *University of Utah*—We investigated functional divisions in somatosensory cortex using fMRI. Can cortical areas activated for tactile object recognition be distinguished from those activated for tactile object localization? Brain activation was compared for haptic tasks requiring either object recognition or localization for the same stimuli. Control tasks were rest and matched movement. Results confirm contralateral SM1 activation for both recognition and localiza-