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Unfamiliar faces engaged in non-rigid motion are processed holistically

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Abstract

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spatial cue. Participants classified each target as a word or a nonword by reaching either forwards or backwards from a central start position. A motion-capture system rapidly sampled the position of the participant's hand throughout this movement. Interestingly, results indicated that the LVF cueing effect emerged early and resolved quickly. These results suggest that the hemisphere's comparative word recognition abilities diverge during initial stages.

A bias-free measure of the tilt illusion

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The perceived orientation of a central test grating is influenced by the orientation structure of the surrounding image. Measurement of this "tilt illusion" traditionally requires subjects to report the orientation of the test relative to a cardinal reference (e.g., clockwise or anti-clockwise of vertical). Given that the test is presented within a surround that is itself oriented clockwise or anti-clockwise from vertical, there is obvious potential for the orientation of the surround to bias the subject's response irrespective of any perceptual effects. To avoid this bias, we ran a two temporal interval forced-choice experiment. Each interval contained opposite surround orientations (±15°) and we manipulated the orientation of the centre gratings. Participants (n=4) were asked to judge which of the test gratings was closer to vertical. We found no significant difference between measurements of the tilt illusion using the traditional and 2-interval procedures. We then examined inter-individual differences in a larger sample (n=20) and found a significant correlation between the magnitude of the tilt illusion measured using the two procedures. Our experiments demonstrate an unbiased method for measuring the tilt illusion and indicate that response biases are unlikely to factor significantly in prior tilt illusion experiments.

Cultivating resilience and willpower among university students: An experimental study

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University students experience higher levels of psychological distress compared to the general population due to the myriad of stressors faced at university, in particularly achieving the goal of high academic grades. Therefore, cultivating resilience and willpower among university students is important. Resilience is the ability to adapt successfully in the face of stress and adversity, while willpower is the ability to resist short-term temptations in order to meet long-term goals. This experimental study examined the efficacy of utilising brief innovative willpower strengthening exercises to enhance resilience, self-control, and reduce psychological distress among university students. Forty-six university students were randomly allocated to one of two groups: willpower strengthening exercise group or a control group. Results of a two-way repeated MANOVA revealed. University students in the willpower strengthening group reported significantly higher levels of resilience and self-control, and significantly lower levels of psychological distress. The positive feedback and compliance reported by participating students to complete the exercises as per instructions, i.e. every hour, for six hours per day, over seven days, supports the feasibility of using willpower strengthening exercises in programs aimed at increasing resilience

Unfamiliar Faces Engaged in Non-Rigid Motion are Processed Holistically

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Faces constitute a special type of stimulus in that they are perceived on the basis of their individual parts as well as more 'global' information derived from holistic processing. When we see faces in real life, they are usually engaged in motion, however there is a tendency to use static faces in face perception research. In the current experiment, the composite task was used to compare holistic processing for static and non-rigidly moving (feature shape variant) unfamiliar faces. A two-tailed 'configural variation hypothesis' predicted that changes in feature shape (a proposed marker for calculating configural information) during holistic integration would either strengthen or impair holistic processing for moving faces relative to static. However, similar sized composite effects were found for both moving

and static faces countering the proposed hypothesis. These results suggest that similar levels of holistic and part-based processing are used in the perception of identity from still and non-rigid moving unfamiliar faces, and support the use of feature centre-points as a marker for calculating configural information.

In vivo Gamma Aminobutyric Acid (GABA) concentration assessed using 1H Magnetic Resonance Spectroscopy (MRS) and its relationship with contrast suppression, motion suppression and binocular rivalry in young adults

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GABA is the principal inhibitory neurotransmitter in the brain. Despite the low concentration of cortical GABA, several studies using MRS techniques have reported in vivo GABA measurements in visual cortex and their relationship with visual function. We investigated the relationship between visual cortical GABA concentration and centre-surround contrast suppression (CSCS), suppression of high contrast motion (Tadin's task, Tadin et al, 2003) and binocular rivalry. These behavioural tasks are hypothesised to be mediated, at least in part, by GABAergic inhibitory connections. GABA level was estimated using MEGA PRESS sequence in a Siemens Skyra 3T scanner with 32-channel head coil, in fifteen participants (aged 18-35). Suppression indices from the CSCS (SIcscs) and Tadin's task (SItadin) and the binocular rivalry switch rate (SRBR) were estimated using standard procedures. Spearman correlation analyses revealed no significant relationship between the behavioural measures (SIcscsvsSItadin: r=-0.37, p=0.17, SIcscsvsSRBR: r=-0.19, p=0.52, SItadinvsSRBR: r=0.05, p=0.86) and no significant relationship between GABA and behavioural measures (SIcscs: r=0.18, p=0.52, SItadin: r=0.2, p=0.48, SRBR: r=-0.13, p=0.65). One interpretation of our data is that GABA levels and behavioural performance in young adults are relatively uniform, and that identifying a relationship between measures requires the study of individuals with a predicted GABAergic disorder.

Seeing a picture of a talker's face affects speech processing in noise

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In speech perception, familiarity with the talker helps (a talker familiarity effect). This effect suggests that listeners create a model of the talker's speech in memory and this can play a role in speech processing. The current study investigated whether a picture of a familiar talker's face can trigger access to a talker model and affect speech processing. In the experiment, participants were familiarized with the faces and voices of three talkers in a face-voice matching task until performance reached 85% accuracy or higher in the second half of the session. Participants were then given a speech in noise identification task that had four conditions: familiar voice with familiar or unfamiliar face; unfamiliar voice with a familiar or unfamiliar face. The results showed that compared to the unfamiliar voice (& face), the familiar voice led better speech perception but only when the familiar talker's picture was presented. Further, the intelligibility of unfamiliar speech was worse when presented with a familiar compared to an unfamiliar face. In short, a familiar talker's picture facilitated/interfered speech processing for the matched/mismatched voice. The results will be discussed in terms of how a talker model is accessed via memory cues.

Disentangling stimulus-driven and strategic effects in lexical decision

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Recent research has aimed to disentangle the cognitive mechanisms underlying lexical decision (LD) performance, rather than assuming it provides a veridical reflection of the ease of lexical access. In this study we simultaneously examine two manipulations widely used to probe lexical processing; namely using a masked repetition priming paradigm and varying (between-lists) the nature of the nonword distractors. In particular we use the Linear Ballistic Accumulator (LBA) model to tease apart whether these effects are stimulus-driven or mediated by strategic decisional