Conflict-Triggered Goal Shielding: Effects of Conflict on Cognitive Control and Background Monitoring. THOMAS GOSCHKE & GESINE DREISBACH, Technical University of Dresden—Action control in a changing environment requires that one shields current goals from distracting information (goal shielding) while at the same time monitoring the environment for potentially significant stimuli that may afford a goal switch (background monitoring). Response conflicts modulate the balance between goal shielding and background monitoring as indicated by reduced susceptibility to interference after response conflicts. Such conflict-adaptation effects have been attributed to common mechanisms or different processes. Here, we show that conflicts trigger increased goal shielding already on the current conflict trial. Participants performed a spatial compatibility task during which they had to notice rare prospective memory (PM) cues. PM cues were overlooked more often on trials involving response conflicts, indicating increased shielding of the current goal and inhibition of distractors on the current trial. Thus evidence for enhanced recruitment of control following conflict may partly reflect aftereffects of goal shielding on the current conflict trial.

9:20–9:35 (152)
Individual Differences in Executive Control Functions. OLGA CHUNTONOV & DANIEL GOPHER, Technion, Israel Institute of Technology (read by Daniel Gopher)—We studied individual differences in the control abilities to focus and mobilize attention within the task-switching paradigm. A digit or a letter classification task was performed in a 4-trial block. Tasks were switched with 10% or 50% probability. Performance in uniform blocks was compared with task-switching blocks. Additional manipulations were presentation of flankers of the same or other task, and use of two versus four response keys (bivalent vs. univalent conditions). Manipulations had strong influence on performance. Correlational analysis showed strong and reliable individual differences. However, the two response conditions had only a single factor accounting for both focusing and switching performance. In the four separate response condition trials, there were two correlated factors for switching and focusing performance. The requirement to change responses appears to involve a different control mechanism, which was not tapped when task probability, perceptual interference levels, stimulus type, or 5-R mapping rules change.

Word Recognition
Seaview, Saturday Morning, 8:00–9:40
Chair: Niels O. Schiller
Leiden Institute for Brain and Cognition

Type of Letter Effects in Reading Aloud: The Case of Vowels Versus Consonants. NIELS O. SCHILLER, Leiden Institute for Brain and Cognition—Readers need to extract meaningful information from orthographic representations in order to understand words and sentences. Recognition of printed words in alphabetic script during reading is mediated by some orthographic processing involving at least the word’s component letters or graphemes. However, there are suggestions in the literature that orthographic representations of words may include more than a flat string of graphemes. For instance, it has been proposed that they are hierarchically structured, with multiple tiers representing different aspects of orthographic representations such as the consonant–vowel (CV) status of graphemes or the grapho-syllabic structure of words. The present study supports this proposal through investigating the effect of type of grapheme (vowel vs. consonant) on the masked onset priming effect (MOPE). It was found that C-initial words show a standard MOPE, whereas V-initial words do not. The implications of this result for reading and reading disorders are discussed.

8:20–8:35 (154)
Masked Priming by Misspellings: When Is Near Enough Good Enough? JENNIFER S. BURT & BRIAN SHERMAN, University of Queensland—A masked prime consisting of a misspelling of an 8- to 9-letter target word may facilitate identification of the target. A series of masked priming experiments assessed the impact of misspelled primes in the lexical decision task as a function of target frequency, phonological similarity to the target, and prime–target SOA. Low-frequency targets showed facilitation at SOAs of 47 and 80 msec regardless of the phonological similarity of the prime and target. High- and medium-frequency targets showed equivalent facilitation by phonologically similar and dissimilar primes at the short SOA. At the long SOA, high-frequency targets failed to show priming and medium-frequency targets were facilitated by phonologically similar but not dissimilar primes. Priming by misspellings appears to depend upon the speed of target processing and the impacts of early orthographic and later phonological information from the prime.

8:40–8:55 (155)
Masked Priming Effects With Horizontal and Vertical Text. KENNETH I. FORSTER, XIAOMEI QIAO, & NAOKO WITZEL, University of Arizona—Strong masked priming effects are obtained despite changes in the absolute positions of letters (transposition priming), e.g., judged: JUDGE. A suggested explanation is that the relative positions of most of the letters are still preserved. This requires the existence of relative position detectors such as open bigrams, which represent words in terms of discontinuous elements (e.g., jd, fjc, ud, etc.). How such detectors are formed is open to question. One possibility is that these detectors code for spatial relations between letters (e.g., j is to the left of d). If so, then transposition priming should not be obtained when spatial relations are transformed, as in vertically displayed English text. However, this should not be the case for Japanese and Chinese readers.

9:20–9:35 (156)
Masked Priming of Orthographic Neighbors: An Examination of the Lexical Competition Assumption. STEPHEN J. LUPKER, University of Western Ontario, COLIN J. DAVIS, Royal Holloway University of London, & JASON R. PERRY, University of Western Ontario—The key assumption in McClelland and Rumelhart’s (1981) IA model is that lexical activation is a competitive process. Specifically, when a word is read, the word’s lexical unit and those of its orthographic neighbors become activated. The activated units then mutually inhibit one another until the activation of one unit reaches threshold. In the present experiments, different types of masked primes were used in a lexical decision task in order to control the initial pattern of lexical activation and, hence, the nature of the inhibition. Primes were either letters that distinguish between two neighbors (e.g., CHHH for the targets CLOUD or CLOUD) or nonwords (or partial words) with only one neighbor (e.g., digar or fegar for CIGAR) or many neighbors (e.g., beach or beach for BEACH or PEACH). The results indicate that primes that activate more potential competitors produce smaller priming effects, providing support for the lexical competition assumption.

9:20–9:35 (157)
Neighborhood Effects in Word Recognition: It’s Not Where You Live, It’s How You Get Home. JAMES S. MAGNUSON & DANIEL MIRMAN, University of Connecticut and Haskins Laboratories—Having more neighbors (similar sounding or looking words) speeds visual word recognition, but slows spoken word recognition. It is sometimes suggested that this may be because written words can be experienced in parallel, whereas spoken words are necessarily experienced serially. To our knowledge, this has neither been tested nor elaborated with a mechanistic explanation. We tested whether serial experience of visual words would reverse neighborhood effects by using low-contrast, high-pass filtered words that induce letter-by-letter reading (Fiset et al., 2006). One group performed lexical decision with unfiltered text, and another with filtered text. The unfiltered group showed the expected large neighborhood advantage, whereas the filtered group showed the opposite effect. Thus, mode of experi-