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This paper examines the speech act of apologizing in Lombok, Indonesia, based on discourse completion task (DCT) data. In particular, it looks at the type of apology term used, and at the types of upgrading used, in different situations. Comparisons are made with published results of choice of apology term and use of upgrading in other cultures. Some findings include: Lombok Indonesians are shown to prefer requests for forgiveness, and not to use other apology terms. Use of upgrading varies both with nature of offense and with nature of relationship, but little difference is seen between genders. Where difference does occur, males proved more likely than females to use solidarity oriented upgrading. Patterns in the use of upgrading sometimes paralleled those found in other studies: deference strategies were used with higher status addressees, while solidarity strategies were used with social intimates. However, often usage reflected particular conventions of Lombok Indonesian society, and could not be explained in terms of the same factors as had proved relevant in other studies.

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Neurolinguistics

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07–165 CRINION, J., R. TURNER, A. GROGAN, T. HANAKAWA, U. NOPPENY, J. T. DEVLIN, T. ASO, S. URAYAMA, H. FUKUYAMA, K. STOCKTON, K. USUI, D. W. GREEN & C. J. PRICE (U College, London, UK; c.price@fil.ion.ucl.ac.uk), **Language control in the bilingual brain.** *Science* (American Association for the Advancement of Science) 312.5779 (2006), 1537–1540.

How does the bilingual brain distinguish and control which language is in use? Previous functional imaging experiments have not been able to answer this question because proficient bilinguals activate the same brain regions irrespective of the language being tested. Here, we reveal that neuronal responses within the left caudate are sensitive to changes in the language or the meaning of words. By demonstrating this effect in populations of German–English and Japanese–English bilinguals, we suggest that the left caudate plays a universal role in monitoring and controlling the language in use.

<http://www.sciencemag.org>

07–166 DESAI, RUTVIK (U Trier, Germany), **LISA L. CONANT, ERIC WALDRON & JEFFREY R. BINDER**, **fMRI of past tense processing: The effects of phonological complexity and task difficulty.** *Journal of Cognitive Neuroscience* (MIT Press) 18.2 (2006), 278–297.

The generation of regular and irregular past tense verbs has been an important issue in cognitive science and has been used to advance different models of the organization of language in the brain. The dual-system view holds that the regular past tense forms are generated by a rule while irregular forms are retrieved from memory. The single-system view, on the other hand, holds that both forms are generated by a single integrated system and differ only in their reliance on factors such as phonology and semantics. We conducted an event related fMRI study to examine the activation patterns associated with the generation and reading of regular and irregular past tense forms, in addition to the reading of their stems. Regular and irregular past tense generation activated similar brain regions compared to the reading of their respective stems. The areas activated more for irregular generation compared to regular generation included inferior frontal, precentral, and parietal regions bilaterally. This activation can be interpreted as reflecting the greater attentional and response selection demands of irregular generation. Compared to irregular generation, regular generation activated a small region in the left superior temporal gyrus when the regular and irregular past tense forms were mismatched on phonological complexity. No areas were more activated for regulars than irregulars when the past tense forms were matched on this variable. This suggests that the activation specific to regulars was related to the higher phonological complexity of their past tense forms rather than to their generation. A contrast of the reading of regular and irregular past tense forms was consistent with this hypothesis. These results support a single-system account of past tense generation.

<http://www.mitpressjournals.org>

07–167 KERKHOFS, ROEL (Radboud U, the Netherlands; roel.kerkhofs@mpi.nl), **TON DIJKSTRA, DOROTHEE J. CHWILLA & ELLEN R.A. DE BRUIJN**, **Testing a model for bilingual semantic priming with interlingual homographs: RT and N400 effects.** *Brain Research* (Elsevier) 1068. 1 (2006), 170–183.

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Using a semantic priming paradigm, this study examines the effects of semantic and lexical–orthographic context on reaction times (RTs) and event-related potentials (ERPs) for interlingual homographs. Dutch–English bilinguals performed an English lexical decision task in which homographs like STEM (meaning ‘voice’ in Dutch) were preceded by primes like ROOT or FOOL that were semantically related or unrelated to the English reading of the target word. Homographs were responded to faster following semantically related primes than following unrelated primes. The responses in both conditions were modulated by the relative frequencies of the two readings of the homographs: responses were faster when their English word frequency was high or when their Dutch word frequency was low. In the ERPs, N400 effects, taken to reflect processes of semantic

integration, were found for homographs preceded by related primes. Remarkably, the amplitude of the N400 effect was also modulated by word frequency in both the first (Dutch, L1) and the second (English, L2) language. The observed relationship between lexical and semantic variables supports a model for bilingual semantic priming that extends the language nonselective BIA+ model for bilingual word recognition.

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07-168 KYUNG HWAN, KIM & KIM JA HYUN (U Yonsei, South Korea), **Comparison of spatiotemporal cortical activation pattern during visual perception of Korean, English, Chinese words: An event-related potential study.** *Neuroscience Letters* (Elsevier) 394.3 (2006), 227-232.
doi:10.1016/j.neulet.2005.10.101

The aim of this study was to compare spatiotemporal cortical activation patterns during the visual perception of Korean, English, and Chinese words. The comparison of these three languages offers an opportunity to study the effect of written forms on cortical processing of visually presented words, because of partial similarity/difference among words of these languages, and the familiarity of native Koreans with these three languages at the word level. Single-character words and pictograms were excluded from the stimuli in order to activate neuronal circuitries that are involved only in word perception. Since a variety of cerebral processes are sequentially evoked during visual word perception, a high-temporal resolution is required and thus we utilized event-related potential (ERP) obtained from high-density electroencephalograms. The differences and similarities observed from statistical analyses of ERP amplitudes, the correlation between ERP amplitudes and response times, and the patterns of current source density, appear to be in line with demands of visual and semantic analysis resulting from the characteristics of each language, and the expected task difficulties for native Korean subjects.

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07-169 PARADIS, MICHEL (McGill U, Canada; michel.paradis@mcgill.ca), **More belles infidels – or why do so many bilingual studies speak with forked tongue?** *Journal of Neurolinguistics* (Elsevier) 19. 3 (2006), 195-208.
doi:10.1016/j.jneuroling.2005.11.002

This paper reports misquotations, misinterpretations, misrepresentations, inaccuracies and plain falsehoods found in the literature on the neuroscience of bilingualism. They are astounding in both number and kind. Authors cite papers that do not exist, or that exist but are absolutely irrelevant to, or even occasionally argue against, the point they are cited to support; or they attribute a statement to the wrong source, sometimes to a person who has vehemently and persistently argued against it. Obvious errors are quoted for years

by numerous authors who have not read the original paper, until somebody blows the whistle – and even then, some persevere.

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07-170 POLDRACK, RUSSELL, A. (U California, Los Angeles, USA; poldrack@ucla.edu), **Can cognitive processes be inferred from neuroimaging data?** *Trends in Cognitive Science* (Elsevier) 10.2 (2006), 59-63.
doi:10.1016/j.tics.2005.12.004

There is much interest currently in using functional neuroimaging techniques to understand better the nature of cognition. One particular practice that has become common is 'reverse inference', by which the engagement of a particular cognitive process is inferred from the activation of a particular brain region. Such inferences are not deductively valid, but can still provide some information. Using a Bayesian analysis of the BrainMap neuroimaging database, I characterize the amount of additional evidence in favour of the engagement of a cognitive process that can be offered by a reverse inference. Its usefulness is particularly limited by the selectivity of activation in the region of interest. I argue that cognitive neuroscientists should be circumspect in the use of reverse inference, particularly when selectivity of the region in question cannot be established or is known to be weak.

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07-171 YLINEN, SARI (U Helsinki, Finland; sari.ylinen@helsinki.fi), **ANNA SHESTAKOVA, MINNA HUOTILAINEN, PAAVO ALKU & RISTO NÄÄTÄNEN, Mismatch negativity (MMN) elicited by changes in phoneme length: A cross-linguistic study.** *Brain Research* (Elsevier) 1072.1 (2006), 175-185.
doi:10.1016/j.brainres.2005.12.004

Speech sounds representing different phonetic categories are typically easier to discriminate than sounds belonging to the same category. This phenomenon is referred to as the phoneme boundary effect. We aimed to determine whether, at neural level, this effect is indeed due to crossing the phoneme boundary. The mismatch negativity (MMN) brain response was measured for across- and within-category changes in Finnish phoneme length in native speakers and second-language users of Finnish as well as non-Finnish-speaking subjects. The results showed that the MMN amplitude was enhanced in the native speakers in comparison with the two non-native groups which, in turn, did not differ from each other in MMN amplitude. The response pattern to across- and within-category changes, however, was the same in all groups regardless of whether or not they had the phoneme categories. Thus, the responses could not be determined by crossing the phoneme boundary. Rather, the enhancement of MMN amplitude in the native speakers is likely to be due to the activation of native-language phonetic



prototypes. The second-language users, however, did not seem to have automatic access to Finnish prototypes.

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07–172 YOKOYAMA SATORU (U Tohoku, Japan),
HIDEYUKI OKAMOTO, TADAO MIYAMOTO, KEI
YOSHIMOTO, JUNGHO KIM, KAZUKI IWATA,
HYEONJEONG JEONG, SHINYA UCHIDA, NAHO IKUTA,
YUKO SASSA, WATARU NAKAMURA, KAORU HORIE,
SHIGERU SATO & RYUTA KAWASHIMA, Cortical
activation in the processing of passive
sentences in L1 and L2: An fMRI study.

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The question of whether the bilingual brain processes an L1 and L2 differently is a central issue in many psycholinguistic and neurolinguistic studies. This study used functional magnetic resonance imaging (fMRI) to investigate whether late bilinguals process structurally complex sentences in L1 and L2 in different cortical networks. For this purpose, we directly compared brain activity during the processing of active and passive

sentences in both L1 and L2. We asked 36 healthy subjects to judge whether or not a presented sentence was semantically plausible. Both L1 and L2 activated the left hemispheric language-related regions such as the left inferior frontal, superior/middle temporal, and parietal cortices. However, we found different activation patterns between L1 and L2 in the processing of passive sentences. Passive sentences elicited greater activation than their active counterparts in the left pars triangularis, the premotor area, and the superior parietal lobule in Japanese, but not in English. Furthermore, there was a significant interaction between sentence type (active versus passive) and language (Japanese versus English) in the left pars orbitalis. The results of this study indicate that late bilinguals use similar cortical regions to comprehend both L1 and L2. However, when late bilinguals are presented with structurally complex sentences, the involvement of these regions differs between L1 and L2. These results suggest that, in addition to age of L2 acquisition and L2 proficiency, differences in grammatical construction affect cortical representation during the comprehension of L1 and L2.

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