distractors enter an articulatory buffer as phonologically well-formed responses, and a decision mechanism (most likely the verbal self-monitor) excludes the HF distractor representations more quickly (e.g., [2]). Using high density (128 channel) electroencephalography (EEG), we tested hypotheses from these rival lexical and post-lexical selection accounts. In addition to conducting stimulus- and response-locked whole-brain corrected analyses, we targeted the correct-related negativity (CRN), an event-related potential (ERP) observed on correct trials at fronto-central electrodes that has been associated with response monitoring. Analysis of naming latencies revealed pictures were named significantly slower with LF than HF distractor words. The whole-brain ERP analysis of the 500 ms following stimulus onset revealed a significant effect of distractor frequency at two right inferior frontal (C6 and C7) and one right temporal site (B25). The Laplacian-transformed ERPs started to diverge at around 100 ms post-stimulus onset and the difference remained until around 300 ms post-stimulus. Although the topographies of the difference-wave showed earlier left frontal and temporal foci, no significant differences were found at those sites. Response-locked region of interest (ROI) analyses of fronto-central electrodes revealed a component starting 121 ms before and peaking 125 ms after vocal onset on the grand averages. Irrespective of distractor frequency condition, its slope was significantly different from zero on the 200 ms time-window centered on vocal onset. The slope analysis also revealed a significant difference between HF and LF distractor words, with the former associated with a steeper slope than LF distractor words on the time-window spanning from 100 before to 100 ms after vocal onset. The relatively late time-window for these results is consistent with a post-lexical account of the distractor frequency effect. However, the presence of early ERP effects spanning the time-window typically attributed to lexical selection processes suggests the distractor frequency effect is most likely associated with more than one physiological mechanism. The right frontotopography of these effects may be in agreement with an early inhibition mechanism of the distractor words [3]. [1] Roelofs, A., Piai, V., & Schriefers, H. (2011). Selective attention and distractor frequency in naming performance: Comment on Dhooge and Hartsuiker (2010). Journal of Experimental Psychology: Learning, Memory, and Cognition, 37, 1032-1038. [2] Dhooge, E., & Hartsuiker, R. J. (2010). The distractor frequency effect in picture-word interference: Evidence for response exclusion. Journal of Experimental Psychology: Learning, Memory, and Cognition, 36, 878-891. [3] Xue, G., Aron, A. R., & Poldrack, R. A. (2008). Common Neural Substrates for Inhibition of Spoken and Manual Responses. Cerebral Cortex, 18, 1923-1932.

A42 Investigating the processing of conceptual components in language production  
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According to frame-theory, concepts can be represented as structured frames that contain conceptual attributes (e.g., ‘color’) and their values (e.g., ‘red’). A particular color value can be seen as a core conceptual component for high color-diagnostic (HCD) objects (e.g., bananas or tennis balls) which are strongly associated with a typical color, but less so for low color-diagnostic (LCD) objects (e.g., bicycles or tulips) that exist in many different colors. Theories of language production differ with respect to whether conceptual components or attributes can affect lexical access. To investigate whether the availability of a core conceptual component (color) affects lexical access in language production, we conducted two experiments on the naming of visually presented HCD and LCD objects. Confirming previous findings in the literature, Experiment 1 showed that, when naming latencies were matched for color versions of HCD and LCD objects, achromatic versions of HCD objects were named more slowly than achromatic versions of LCD objects. In Experiment 2 we recorded ERPs from 32 participants while they performed a picture-naming task, in which achromatic target pictures were either preceded by an appropriately colored box (primed condition) or a black and white checkerboard (unprimed condition). We focused on the P2 component, which has been shown to reflect difficulty of lexical access in language production. Results showed that color priming and high color-diagnosticity resulted in slower object-naming and a more pronounced P2. ERP waveforms on the P1, P2 and N300 components showed a priming by color-diagnosticity interaction, the effect of color priming being stronger for HCD objects than for LCD objects. The effect of color-diagnosticity on the P2 component suggests that the slower naming of achromatic HCD objects is (at least in part) due to more difficult lexical retrieval. Hence, the color attribute seems to affect lexical retrieval in HCD words. The interaction between priming and color-diagnosticity indicates that priming with an attribute hinders lexical access, especially if the attribute is a core attribute of the target object.

A43 Classifier Information Affects Speech Production: Electrophysiological Evidence from Overt Speech in Mandarin Chinese  
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The current study investigated the role of classifier selection in speech production in Mandarin Chinese, i.e. how is a nominal classifier retrieved and encoded in speech production? does it behave as a functional or semantic element? This study asked native Mandarin speakers to name pictures using the picture-word interference paradigm in bare noun naming and noun phrase naming tasks while measuring their reaction times and electroencephalogram. Semantic category congruency and classifier congruency between distractor words and target pictures were manipulated. Reaction time results of bare noun naming yielded the semantic interference effect, i.e. longer naming latencies were observed when the distractor word was from the same
semantic category as the target picture, compared to the unrelated condition; no classifier effect was observed in the first task. Participants also named the same pictures in a noun phrase consisting of the elements “one + classifier + noun”. In this task, the distractor words that had the same classifiers as those of the target pictures facilitated picture naming, showing a classifier congruency effect. Bare naming showed stronger N400 effects when the distractor (e.g. duck) and the picture name (e.g. hand) belonged to different semantic categories, compared to when the distractor (e.g. foot) was from the same category as the picture name. Furthermore, stronger N400 effects, starting slightly later than the semantic category effects, were also observed when the classifier of the distractor was incongruent (e.g. classifier-ge4, head) with the picture name (e.g. classifier-zh1, hand), compared to the congruent condition (e.g. classifier-zh1, duck). These results provide evidence supporting a semantic account for nominal classifiers in Mandarin Chinese and the hypothesis that our brain retrieves and encodes linguistic information in a sequential manner – semantic congruency occurs at an earlier stage whereas classifier congruency affects a later stage in speech production.

**A44 Visually perceived spatial distance modulates an early neural response to different semantic relations**  
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Evidence from recent behavioral studies suggests that visually perceived distance can modulate how people process conceptual similarity. For instance, written words presented farther apart were rated as less similar compared to those presented closer together (Casasanto, 2008). More recently, an eye-tracking study showed that first-pass reading times for sentences expressing similarity between two abstract nouns were faster when preceded by two objects presented close together (vs. farther apart), and the opposite pattern was observed for sentences expressing dissimilarity (Guerra & Knoeferle, 2012). These behavioral data suggest a link between spatial distance and conceptual similarity, which can affect offline and online conceptual processing. However, the nature of these perceptual effects on conceptual processing remains unclear. We capitalized on the temporal precision of event-related brain potentials (ERPs) to examine how and when perception of spatial distance modulates online processing of conceptual similarity. Specifically, we evaluated the electrophysiological response to word pairs with different semantic relations (SYNONYMS, ANTONYMS, or UNRELATED) preceded by objects moving apart vs. closer together. Studies have shown that compared to unrelated word pairs, opposites and related words exhibit reduced amplitudes at the N400, a component sensitive to the semantic fit of words with their contexts (Federmeyer, Kutas, & Schu, 2010; Kutas & Hillyard, 1989). Thus, we predicted an overall reduction in N400 amplitude for OPPOSITES relative to all other conditions and for SYNONYMS relative to the UNRELATED condition. Additionally, we expected modulations of electrophysiological responses to word pairs based on the spatial distance manipulation. To the extent that these effects are driven more by differences in perceptual and/or attentional processing, we would expect an interaction of card and word type in an early ERP component, sensitive to perceptual/attentional processes (e.g., P2); if effects are driven largely by differences in conceptual processing, we would expect this interaction to occur somewhat later (e.g., at the N400). We recorded the electroencephalogram at 26 scalp locations as participants (N=25) viewed probe-target word pairs from three experimental conditions, (SYNONYMS, ANTONYMS, or UNRELATED target words relative to a common probe word) and decided whether or not they were antonyms. Each word pair was preceded by two playing cards moving from a fixed starting point either apart or closer together. ERPs time-locked to target words were analyzed using a repeated-measures ANOVA with card type, word-pair type, and channel (26 leads) as factors in critical time windows: P2 (150-250 ms) and N400 (300-500 ms). We replicated the expected main effect of word-pair type on N400 amplitude but observed no reliable effect of spatial distance or interactions between word-pair type and distance in this time window. However, the spatial distance manipulation did modulate the amplitude of the P2 component, an earlier, visually-evoked component sensitive to attention to (as well as predictability of) visual word form features. The spatial distance effect on P2 amplitude differed between word-pair types, but only when the cards moved closer together. These preliminary results suggest that attention to spatial distance might affect early brain responses to words, depending on the semantic relationship between them.

**A45 Interference from related actions in spoken word production: an fMRI study**  
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The majority of behavioural and neuroimaging investigations of lexical access in spoken word production have employed object naming paradigms. Relatively few have investigated the processes and neural mechanisms involved in action naming. These latter processes are likely to be more complex, due to the ways in which the conceptual features and grammatical properties of action words are represented. In the present study, we employed the blocked cyclic naming paradigm to determine whether action naming would demonstrate a semantic interference effect similar to that observed for categorically-related context objects. In order to avoid a potential confound with transitive actions and related object categories, we employed pictures of intransitive actions involving the face, arm, leg or whole-body (e.g., shouting, running, waving, resting). Our results show intransitive actions were named significantly slower in homogenous vs. heterogeneous contexts from the second cycle onward. We replicated this interference