phonological decisions (1/2 syllables) on written or spoken words. We used a fast sparse imaging design for runs using auditory stimuli (TR=2.5s, TA=1.1s) and continuous acquisition for visual runs (TR=TA=1.1s) with 20 second blocks of test trials alternating with rest and with non-language baseline tasks matched for stimulus/response characteristics. In line with previous observations for visual stimuli, we observed a network of inferior frontal, posterior middle temporal and anterior fusiform activity when participants made semantic decisions to spoken words. In contrast, phonological decision making evoked more distinct temporal lobe activity for spoken and written input, with overlapping activity only in inferior frontal and premotor regions. Consistent with these functional imaging observations, a second scanning phase during which some stimuli were repeated from the initial phase showed significant cross-modal behavioural priming for semantic decisions but not for phonological decisions. Univariate and multivariate analysis of fMRI data collected during this second phase will be used to assess neural correlates of cross-modal and cross-task transfer of repetition priming.

**B 102**

**PREVERBAL EFFECTS OF OBJECT MANIPULATION ON 11-13 MONTHS AGED CHILDREN**

Maurizio Gentilucci, Arianna Bello, Paola Pettenati, Silvia Stefani, Paolo Bernardis; Dipartimento di Neuroscienze, Parma, Italy — The execution of transitive actions, such as grasping and bringing-to-the-mouth affects mouth kinematics and voice spectra of syllables pronounced simultaneously with the action (Gentilucci et al. 2001, 2004). Consequently, it has been proposed that a dual motor command to the hand and mouth transfer features of the action to the mouth articulation postures in order to be used for verbal communication. The aim of the present experiment was to determine whether this dual command system is present in children. Eight 11-13 months children experiencing the preverbal phase participated in the experiment. The stimuli were colored wooden objects, which were either small (2.5 cm size) or large (4.5 cm size) geometrical and meaningful solids. They were presented and, when requested, given to the child who manipulated them, occasionally vocalizing. The child’s behavior was recorded by a video camera and successively analyzed. The periods of vocalization while manipulating and simultaneously fixating the object were selected for voice spectra analysis: mean values of the formant 1, formant 2, pitch and voice intensity were taken into account. In the ANOVA formant 1 was significantly affected by the size of the manipulated object. Specifically, it was higher when manipulating the large than the small object. The type of object did not induce any effect. Summing up, aspects of the object manipulation were transferred into mouth articulation postures. The data of the present experiment support the notion that a strict relationship exists between early speech development in children and several aspects of manual activity.

**B 103**

**CROSSLINGUISTIC SEMANTIC AND TRANSLATION PRIMING IN NORMAL BILINGUAL INDIVIDUALS AND BILINGUAL APHASIA**

Swathi Kiran, Keith Lebel; University of Texas at Austin — The present study examined lexical representation in early Spanish-English bilinguals using an unmasked semantic and translation priming paradigm. Stimuli included cross-language semantically related pairs (e.g., screw - clavo), cross-language semantically unrelated pairs (SU, e.g., screw - lagarto), translation pairs (TR, e.g., screw - tornillo), translation unrelated (TU, e.g., screw - jabón), unrelated fillers (UF, e.g., steak - lla-via), and word-nonsense pairs (NW, e.g., drawer - loleno). Within each of the above conditions, there were equal numbers of word pairs in each direction (English-Spanish and Spanish-English). In experiment 1, 24 normal participants were divided into two groups based on performance (more-balanced bilinguals, MB and less-balanced bilinguals, LB) on the experimental task. In experiment 2, four patients with bilingual aphasia (BA) performed the same experiment. Results from both experiments revealed that all groups were more accurate for English targets (S-E direction) than Spanish targets (S-E direction). In experiment 1, semantic priming was observed from English to Spanish in both the LB and MB groups although the effect was greater for the LB group. Further, only the LB group showed priming from Spanish – English. For both normal groups, there was no difference between translation and semantic prim- ing effects. In experiment 2, patients with bilingual aphasia demonstrated different patterns of activation with no clear trends. Two participants demonstrated greater priming from Spanish to English whereas two par- ticipants demonstrated the opposite effect. The results are discussed within the context of normal bilingual models of conceptual memory and processing impairments in patients with aphasia.

**B 104**

**BILINGUAL CONTROL IN LANGUAGE PRODUCTION: AN EVENT-RELATED BRAIN POTENTIAL STUDY**

Ingrid K. Christoffels 1,2, Christine Firk 2, Niels O. Schiller 1,2; Leiden Institute for Brain and Cognition & Cognitive Psychology Unit, Leiden University, The Netherlands, 2Maastricht University, The Netherlands, 3Brain and Cognition & Cognitive Psychology Unit, Leiden University — Using event-related brain potentials (ERPs) and naming latencies, this study addressed how bilingual speakers control their languages. We assessed sustained language control as evidenced by mixed language context effects and top-down trial-by-trial control induced by switching between languages. Unbalanced German (L1) – Dutch (L2) speakers named pictures either in their L1 or in their L2 (blocked language conditions), or switched between their first and second language unpredictably (mixed language condi- tion). Furthermore, form similarity between translation equivalents (cognate status) was manipulated to assess phonological activation of the non-response language. We found that cognates were responded to faster than non-cognates for L1 and L2 and cognate status influenced the ERPs. Language switching resulted in equal switch costs for both languages and was associated with a modulation in the ERP waveforms (time windows 275-375 ms and 375-475 ms). The effect of mixed language context was evident (blocked versus non-switch trials). Both the RT and the ERP data indicated a profound impact on L1 production but less clearly on L2 production. L1 latencies were slowed down, and the cognate facilitation effect for L1 is larger in the mixed compared to the blocked language con- text. Also, modulation of ERP components occurred mainly in the L1. Our data indicate that when speaking only in the L2 or in a mixed lan- guage context, both languages were relatively active. However, modula- tion of the relative activation of the languages appeared to take place mainly by adapting accessibility of the L1 rather than in both the L1 and L2.

**B 105**

**BANKS, ORGANS AND EVEN CHICKENS: THE ROLE OF THE LEFT INFERIOR FRONTAL GYRUS IN RESOLVING LEXICAL SEMANTIC AMBIGUITY**

Marina Bedny 1,2, Megan McGill 1, Sharon Thompson-Schill 2, 3Harvard Medical School, 2University of Pennsylvania — Although we perceive words as having a single meaning, most word forms have multiple interpretations. For example, “organ” can refer to a musical instrument or a body part, and “chicken” can refer to a food or a bird. During comprehension we rapidly settled on a particular meaning of a word based on the context. What neural systems support the meaning selection process? Prior neuroimaging and neuropsychological evidence suggest that the left inferior frontal gyrus (LIFG) resolves competition during language processing. We therefore hypothesized that the LIFG resolves meaning competition during word comprehension. According to his hypothesis, activation of the LIFG during word comprehension should increase when words are ambiguous. To test this hypothesis we performed an event-related fMRI study in which participants made relatedness judgments to word pairs. Pairs varied in the degree of lexical ambiguity and the amount of novel semantic information. Results showed that the LIFG is more active when ambiguity is high, irrespective of the amount of novel semantic information. This response profile of the LIFG differed from that of other regions such as the posterior superior temporal gyrus (STG), which did not respond to semantic competition,