

generated, the number of clusters generated, the number of words within clusters and the number of switches. In three measures (all but 'number of switches'), we observed enhanced performance in the semantic fluency task following anterior temporal stimulation. There was no effect of temporo-parietal or control site stimulation. This site-specific effect was also limited to the semantic fluency tasks, as no observable effects occurred in letter fluency performance. Modulation of cortical excitability of the bilateral anterior temporal cortex impacts semantic VF. This is consistent with a role of this region in the representation of semantic category structure. Enhanced performance following tDCS could plausibly reflect induced facilitation of associative semantic processing. We observed no indication that neuromodulation of the temporo-parietal cortex can influence VF in line with prior data that suggests these tasks primarily engage an anterior fronto-temporal network. Further, these findings suggest that cathodal tDCS applied to specifically target the bilateral rostral temporal cortices has potential as an adjuvant for speech language therapy directed at recovery or maintenance of lexico-semantic abilities in the context of neurological injury or disease.

B21 Category-specific verb deficits in Alzheimer's: Thematic structure effects in naming and sentence production with dynamic scenes *Roberto G. de Almeida¹, Caitlyn Antal¹; ¹Concordia University*

Several studies have found category-specific semantic deficits in Alzheimer's disease (AD) (e.g., Silveri, Daniele, Giustolisi & Gainotti, 1991; Zannino, Perri, Carlesimo, Pasqualetti, & Caltagirone, 2002). However, the range of categories that might be selectively affected as well as the principles underlying the organization of semantic knowledge are still open questions—with most cases showing a classical superordinate living/nonliving dissociation (but see de Almeida, 1999; Laws et al., 2007). Thus far, relatively few studies have investigated verb semantic deficits in Alzheimer's, many of which differ considerably both in terms of verb classes investigated and methods employed. For instance, Kim and Thompson (2004) found that pAD patients had more difficulty naming and producing two-argument verbs (catch) than one-argument verbs (snore). However, this argument structure effect was not consistent, as patients had less difficulty with three-argument verbs (give) than with two-argument verbs. In their study, pAD patients also showed marked difficulty with verbs packing more semantic features, suggesting that verbs are represented in a decompositional form, akin to semantic templates or definitions. Other studies have found that pAD patients have greater difficulty with verbs that assign the Experiencer role—psychological verbs such as fear and frighten, in particular when the Experiencer role is assigned to the argument in the object position (Manouilidou, de Almeida, Schwartz, & Nair, 2009). In the present study, we investigated how different syntactic and semantic classes of verbs might be affected in individuals with pAD. We varied verb classes along three dimensions: argument structure (number of arguments), thematic roles (the roles assigned to the arguments) and internal semantic properties of verbs—so called semantic templates (Jackendoff, 1990; Levin & Rappaport-Hovav, 2005). Verbs belonging to the class of lexical causatives (peel), which is hypothesized to be semantically complex (multiple

internal predicates: [x CAUSE [y BECOME <peeled>]]) and structurally complex (two arguments) were contrasted with verbs of perception (hear), which are structurally complex (two arguments) but semantically simplex (one predicate: [x PERCEIVE y]), and with verbs of motion (walk) which are semantically and structurally simplex ([x MOVE]; one argument). These verbs also differ with regards to thematic roles assigned to arguments, with perception verbs having the least canonical thematic structure because they lack an Agent role (de Almeida & Manouilidou, 2015). Probable AD patients (N=13) and healthy controls (N=18) named events and states depicted in short video clips. In addition, they generated sentences related to the depicted events and states. Results indicate a category-specific deficit along two dimensions of verb knowledge: argument structure and thematic roles. Probable AD individuals show greater impairment for naming perception verbs, which arguably assign the Experiencer role to the subject position. In addition, patients show greater difficulty generating sentences for verbs classes with complex argument structures—causatives and perception, in contrast to movement verbs. We suggest that verbs are affected selectively in AD due argument structure and thematic assignment, not semantic-template complexity. Moreover, we suggest that verb meaning is represented in the brain by their argument structures together with their typical roles—not by semantic templates containing covert predicates.

B22 Semantic memory performance following left vs. right anterior temporal lobe resection *Grace E Rice¹, Helen Caswell², Perry Moore³, Paul Hoffman⁴, Matthew A Lambon Ralph¹; ¹Neuroscience and Aphasia Research Unit (NARU), School of Psychological Sciences, University of Manchester, UK, ²Department of Clinical Neuropsychology, Salford Royal Hospital, Salford, Manchester, UK, ³The Walton Centre NHS Foundation Trust, Liverpool, UK, ⁴Centre for Cognitive Ageing and Cognitive Epidemiology (CCACE), Department of Psychology, University of Edinburgh, UK*

Introduction Surgical resection of the anterior temporal lobes (ATL) is a well-recognised treatment for medically intractable temporal lobe epilepsy (TLE). Problems with episodic memory are often reported following surgery; with material specific memory impairments associated with the side of surgery (i.e., verbal memory is often more impaired following left ATL resection and non-verbal memory after right sided resection). ATL resection also produces mild semantic memory impairments; which follows from convergent evidence implicating the ATLs in the representation of multimodal semantic knowledge. The functions of left vs. right ATL in semantic memory is now becoming an area of intense debate and differences in left vs. right ATL resection on semantic memory have been reported. However, these reports are often in the context of single case-studies or small group comparisons; the aim of the present study, therefore, was to conduct a large scale case-series to explore the effects of left vs. right ATL resection on semantic memory. Method A neuropsychological battery to test semantic memory was developed. Based on predictions from the literature, tests were included which show relatively greater impairments following left ATL resection (e.g., picture naming, lexical decision), or right ATL resection (e.g., famous face recognition, emotion