

Academy of Aphasia 2010

## SYMPOSIUM: Neuropsychology, Neuroimaging and Neurophysiology of Compound Processing

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How does the brain combine two or more words in order to obtain another word? It is only in the past two decades that systematic investigations of this fundamental cognitive ability have begun to appear in neuroscience. Several studies arose in a psycholinguistic framework but only a few studies have concerned experimental work in aphasia and in other deficits resulting from brain damage. Only in a minority of cases research has been conducted with neurophysiological methods, and even less with neuroimaging. All these studies have provided notions that are believed to usefully integrate what is known from theoretical linguistics.

The main contributions from neuropsychology to the understanding of the processing and representation of compounds in the brain can be summarized as follows:

- (i) the knowledge of compound status, compound structure and compounding rules is represented independently from knowledge of the phonological word form;
- (ii) even opaque compounds undergo decomposition;
- (iii) all meaningful representations (of the whole word and of its components) seem to be activated in retrieval, possibly based upon what Libben (2006) calls “maximization of opportunity”;
- (iv) convincing evidence for the psychological and neural reality of headedness has been collected; a compound’s head plays a special role in the processing of a compound word, the neural underpinnings of which are beginning to be understood.

The goal of the present symposium is a multidisciplinary update about the state of the art on the mental processing of compound nouns based on evidence from neuropsychology, neurophysiology and neuroimaging studies. Neuropsychological studies will include data from aphasia, deep dyslexia and neglect dyslexia. They will answer several different questions about decomposition, headedness and its relation with the position of the constituents. Electrophysiological studies will concern composition processes and the relation between the serial order of the constituents and the semantic category of the whole compound. Neuroimaging studies will provide new data about the neural instantiation of compositional and decompositional processing. All these data will be finally discussed in terms of psycholinguistic theories.

### Reference

Libben, G. (2006). Why study compound processing? An overview of the issues. In G. Libben and G. Jarema (eds.) *The Representation and Processing of Compound Words*. Oxford: Oxford University Press, pp. 71-95.

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