

Electrophysiological investigations at the semantics/pragmatics interface

The on-line temporal dynamics of language processing as revealed by electrophysiological measurement techniques (e.g., event related potentials/ERPs) is just beginning to be understood. Over the past three decades a growing library of patterns of ERP modulations have been discovered and (more-or-less) reliably connected with various different dimensions of linguistic representation and processing. In this talk we will discuss the connections between cognitive neuroscience and (psycho)linguistics in an attempt to understand what ERPs might teach us about logical-semantic/-pragmatic aspects of language processing and what linguistic theories in these domains might contribute to theory/model-construction in cognitive electrophysiology. Our point of departure is a brief discussion cataloguing prominent ERP-profiles which have been proposed to index processing at various different levels involving putatively distinct types of linguistic information (e.g., phrase-structural, morpho-syntactic, lexical/conceptual-semantic, etc.). We then will turn to what some recent ERP studies have found in connection with phenomena whose characterization is thought to require reference to the interfaces between syntax, logical-semantics, and pragmatics. There we focus largely on ERP studies investigating: (i) polarity sensitivity, and (ii) Definiteness Effects in existential constructions. An intriguing finding which emerges from this work is a common ERP-profile for unlicensed NPIs, strong nominals in existential constructions: a late positive-going shift in ERPs over posterior regions of the scalp which is followed (~150-250 ms later) by a negative going shift over left anterior regions. We refer to this as the "P600/L-LAN" pattern, and tentatively suggest some possible interpretations of these effects based in part on some early findings (Shao & Neville 1998) showing a similar pattern in connection with the processing of contradictions built around negation and hyponymy (category/exemplar) relations (e.g., "Sue doesn't eat any meat at all, she only eats #beef and vegetables"). However, there are a number of other inconsistent findings in this small but growing literature, and many important unanswered questions about the etiology of even the better studied types of ERP-effects seen in connection with language processing (e.g., LAN, N400, P600) which must be resolved. We conclude by suggesting some promising avenues for future research, highlighting along the way a number of theoretical and methodological issues which need to be kept in mind in the pursuit of this type of multi-disciplinary inquiry.