An Ontology-based Cognitive Model of the Mental Lexicon

Cheng Qian Université Paris Nanterre - UMR 7114 - (MoDyCo) Head: Prof. Frédéric Isel cheng.qian0712@gmail.com

Keywords: Cognitive Linguistics, Mental Lexicon, Cognitive Grammar, Cognitive Semantics, Classifiers

Negative transfer of classifiers has been witnessed in discourse production of sinophone *early* French learners. Examples of such mistakes, drawn from tests designed to elicit French discourse via pictographic stimuli, show that classifier values are often transferred literally onto French expressions: upon exposure to a pictogram representing the concept of « walking » enhanced by an action property marker standing for « a low unspecified quantity », 50% of the testees wrongly included a translated classifier of « \pm , zǒu » in the French rendering (%, cì « Marcher une fois », \pm , bù « Marcher un pas », etc.). A plausible explanation of such mistakes could be that early learners access meaning of lexical items in L2 via the conceptual and semantic representation of their equivalents in L1 *and* that classifiers are strongly bound to action and object concepts in the Mental Lexicon.

One of the general frameworks modelling the bilingual Mental Lexicon's structure, the « Revised Hierarchical Model » (see Pavlenko [2009], Kroll & Steward [1994]), places « concept sharing » at an *early* stage of second language learning. « Concept sharing » being a nebulous notion within bilingual Mental Lexicon theory, my approach reinstates the borders between « semantic » and « conceptual » structure (see Evans [2009]) as a means to identify possible links of classifiers to both linguistic meaning and language-independent knowledge. As mandarin classifiers specify inherent meaning features of objects, such as « \Re , flat », « \oiint , squared », etc. but also define the countable partition units of actions, such as « \square , mouthful », for « eat » or « \oiint , step » for « walk » (see Jin [2013]), they can be thought to affect both the conceptual *and* the semantic level of lexical entry representations.

Beyond the overall structure of the Mental Lexicon, as proposed by existing models (Concept level, Lexical level, Concept Features, links), an explicit representation of what these structural units contain appears to be crucial to the understanding of the knowledge cluster termed « Mental Lexicon ». Poldrack and Yarkony [2015] stress that ontologies are currently the best solution to perform adequate knowledge representation, not only from a formal- and computational-, but also from a cognition-centred perspective. In accordance with this view, my work promotes modelling of the Mental Lexicon by ways of a formal ontology using Cypher rather than other popular encoding solutions (OWL,Topic Maps), because of the graph visualisation facilities provided by the Neo4j platform. The model I have implemented underlines the linkage of words (yellow) to semantic structure (green) and conceptual knowledge (rose) in the range of the « Action » and « Object » (concept) types, classifiers appearing as tokens materialising language-dependent (semantic) values of type feature instances.



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