

Psycholinguistic aspects of complex words

Christina Gagné, Lívía Körtvélyessy, Thomas Spalding, Pavol Štekauer
(SLE workshop proposal)

Contact person: Pavol Stekauer

Contact email: pavel.stekauer@upjs.sk

Call deadline: 15 November

Keywords: *psycholinguistics, complex-word formation, complex-word-interpretation, complex-word processing, competition*

Complex words have been an object of intensive research within various theoretical frameworks since the 1960s, primarily in terms of their word-formation characteristics and also the interpretation facet (e.g., Lees 1960, Zimmer 1971, Downing 1977, Levi 1978). This latter area attracted the interest of psycholinguists who came up with various models mainly (but not exclusively) accounting for the interpretation of context-free N+N compounds.

First, an approach putting stress on the role of the *head noun* (head concept) functioning as a *schema* with a certain number of *slots* that are filled by the modifier values. This model is called a *feature model* or *schema model* (e.g., Allen 1978, Cohen & Murphy 1984, Murphy 1988, 1990, Smith & Osherson 1984, Smith, Osherson, Rips & Keane 1988), and is based on the *semantic representations* of the constituent nouns and associated *encyclopaedic knowledge*. According to this approach, differences in the interpretability of context-free primary compounds are related to the *relative salience* of particular meaning aspects (slots in a schema-based model, attributes in the feature-based model). Thus, ‘high-interpretable’ compounds are based on more salient meaning aspects of their motivating constituent and ‘low-interpretable’ compounds are based on less salient meaning aspects (Coolen, van Jaarsveld & Schreuder 1991).

Second, the *relation model* (Gagné & Shoben 1997, Gagné 2001) emphasizes the central role of *thematic relations* between compound constituents and the language speaker’s *linguistic knowledge* of the relative strength of the individual thematic relations bound to a particular *modifier concept*. This knowledge facilitates the interpretation of compounds by preferring the interpretation based on a thematic relation which is more readily available to the modifier concept.

Third, the *analogy-based model* (Derwing & Skousen, 1989, Skousen 1989, Ryder 1994, Wisniewski 1996, etc.) accounts for the interpretation of novel, context-free compounds primarily by lexicalized (i.e. established, institutionalized) compounds that serve as certain *interpretation patterns* or models).

Recent decades have witnessed an elaboration of these fundamental approaches and the introduction of new topics, such as the issue of *semantic transparency* (e.g., Libben 1998, Pollatsek and Hyönä 2005, Blais-Gonnerman 2012, El-Bialy, Gagné and Spalding 2013). In such an approach, it may be assumed that semantically transparent complex words are those whose constituents are used in one of their fundamental meanings and the extent to which the meanings of the constituents pattern semantically with other members of the positional families of words (Libben 2014). Gagné and Shoben (1997) relate semantic transparency of a

particular relation in conceptual combinations to the *frequency* of its occurrence with the *modifier concept*.

The definition of the notion of semantic transparency is accompanied with a number of related factors. Thus, it is assumed that the relative *modifier-head position* of the transparent-opaque constituents may also affect the interpretation of complex words (Libben et al. 2003, Marelli and Luzzatti 2012). Views also differ in assigning relative importance to complex word constituents for the process of interpretation. For example, while the CARIN model (Gagné and Shoben 1997, Gagné 2001, Spalding and Gagné 2008) attributes a crucial role to the modifier concept, its elaborated version, the RICE model (Spalding et al. 2010) assigns higher significance to the modifier only in suggesting potential relations, while both modifier and head are believed to be crucially involved in their evaluation. Tarasova (2013), too, assumes that both of them are important (even though with different roles) for the interpretation of compounds. Contrary to this, Körtvélyessy, Štekauer & Zimmermann (2015) maintain that semantic transparency cannot be restricted to semantic information provided by the complex word's constituents and that it depends on the presence/absence of morphological representation of the relational component in complex words.

Another new area of psycholinguistic research into complex words is the issue of *competition*. This direction of research can be set into the broader problem of competition in biological and social systems (cf. MacWhinney, Malchukov & Moravcsik, 2014). In psycholinguistic research into complex words it is manifested as competition among various strategies of forming new complex words (Körtvélyessy & Štekauer 2014), on one hand, and competition among various possibilities of interpretation of novel complex words, on the other. This direction of research is captured in various models such as the *Competition-Among-Relations-In-Nominals* (CARIN) theory of conceptual combination (Gagné and Shoben 1997, Gagné 2001, Spalding and Gagné 2008), its updated version in the form of the *Relational-Interpretation-Competitive-Evaluation* (RICE) model (Spalding, Gagné, Mullaly and Ji 2010), and the competition-based *meaning predictability* theory (Štekauer 2005). Another aspect of competition concerns possible competition among representations of the complex word and its constituents (e.g., Gagné, Spalding, Nisbet & Armstrong, 2018).

Much attention has also been paid to a multiplicity of problems related to the processing and representation of complex words (for a representative overview see Baayen 2014).

Furthermore, considerable attention has been paid to the role of *metaphor and metonymy* in complex-word formation and complex-word interpretation (e.g., Benczes 2006) and the inter-relation between word-formation and word-interpretation (Štekauer 2017).

This brief outline of psycholinguistic research into complex words establishes a framework for the basic scope of topics to be discussed within the proposed workshop:

- The role and the relative significance of the head, the modifier and the thematic relations in interpretation of complex words.
- Competition among various strategies of complex-word formation and various interpretation possibilities of novel context-free complex-words.
- The role of metaphor and metonymy in complex-word formation and their influence upon complex-word interpretation.

- The interrelation between complex-word formation and complex-word interpretation.
- The concept of semantic transparency in relation to complex-word interpretation.
- The influence of psychological factors, such as creativity, upon complex-word formation and complex-word interpretation.
- The role of inference in complex-word interpretation.
- Processing and representation of complex words.
- Empirical and experimental methods of psycholinguistic research into complex-word formation and interpretation.

References

- Allen, Margaret R. 1978. *Morphological Investigations*. Doctoral dissertation, University of Connecticut, Storrs, CT.
- Baayen, Harald R. 2014. Experimental and psycholinguistic approaches to studying derivation. In: Rochelle Lieber & Pavol Štekauer (eds.), *The Oxford Handbook of Derivation*. Oxford: Oxford University Press.
- Benczes, Réka. 2006. *Creative Compounding in English: The Semantics of Metaphorical and Metonymical Noun-noun Combinations*. Amsterdam: John Benjamins.
- Blais, Mary-Jane and Laura M. Gonnerman. 2012. The Role of Semantic Transparency in the Processing of Verb-particle Constructions by French-English Bilinguals. In: Naomi Miyake, David Peebles and Richard P. Cooper (eds.), *Building Bridges Across Cognitive Sciences Around the World*, 1338-1343. *CogSci 2012 Proceedings*.
- Cohen, Benjamin and Gregory L. Murphy, 1984. Models of Concepts. *Cognitive Science* 8: 27-58.
- Coolen, Riet, Henk van Jaarsveld and Robert Schreuder. 1993. Processing Novel Compounds: Evidence for Interactive Meaning Activation of Ambiguous Nouns. *Memory and Cognition* 21: 235-246.
- Derwing, Bruce L. and Royal Skousen. 1989. Morphology in the mental lexicon: A new look at analogy. In Geert Booij and Jaap van Marle (eds.), *Yearbook of Morphology* 2, 55-71. Dordrecht: Foris.
- Downing, Pamela. 1977. On the Creation and Use of English Compound Nouns. *Language* 4: 810-842.
- El-Bialy, Rowan, Christina L. Gagné and Thomas L. Spalding. 2013. Processing of English compounds is sensitive to the constituents' semantic transparency. *Mental Lexicon*, Vol. 8/1: 75-95.
- Gagné, Christina L. 2001. Relation and Lexical Priming During the Interpretation of Noun-Noun Combinations. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 1: 236-254.
- Gagné, Christina L. and Edward J. Shoben, 1997. Influence of Thematic Relations on the Comprehension of Modifier-Noun Combinations. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 1: 71-87.
- Gagné, Christina L., Thomas L. Spalding, Kelly A. Nisbet and Caitlin Armstrong. 2018. Pseudo-morphemic structure inhibits, but morphemic structure facilitates, processing of a repeated free morpheme. *Language, Cognition, and Neuroscience (online first)*.

- Körtvélyessy, Lívía and Pavol Štekauer 2014. Derivation in a social context. In: Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Derivational Morphology*. Oxford: Oxford University Press, 407-423.
- Körtvélyessy, Lívía, Pavol Štekauer and Július Zimmermann. 2015. Word-formation strategies: semantic transparency vs. formal economy. In: Laurie Bauer, Lívía Körtvélyessy and Pavol Štekauer (eds.), 2015. *Semantics of Complex Words*. Dordrecht: Springer, 85-114.
- Lees, Robert B. 1960. *The Grammar of English Nominalizations*. Bloomington, IN: Indiana University Press.
- Levi, Judith N. 1974. On the alleged idiosyncrasy of non-predicate NP's. *Papers from the 10th Regional Meeting, Chicago Linguistic Society*, 402-415. Chicago: Chicago University Press.
- Libben, Gary. 1998. Semantic Transparency in the Processing of Compounds: Consequence for Representation, Processing and Impairment." *Brain and Language* 61: 30-44.
- Libben, Gary. 2014. The nature of compounds: a psychocentric perspective. *Cognitive Neuropsychology* 31/1-2: 8-25.
- Libben, Gary, Martha Gibson, Yeo-Bom Yoon and Dominiek Sandra. 2003. Compound fracture: The role of semantic transparency and morphological headedness. *Brain and Language* 84/1: 50-64.
- Marelli, Marco and Claudio Luzzatti. 2012. Frequency effects in the processing of Italian nominal compounds: modulation of headedness and semantic transparency. *Journal of memory and language* 66: 644-664.
- MacWhinney, Brian, Andrej Malchukov and Edith Moravcsik (eds.). 2014. *Competing Motivations in Grammar and Usage*. Oxford: Oxford University Press.
- Murphy, Gregory L. 1988. Comprehending Complex Concepts. *Cognitive Science* 12: 529-562.
- Murphy, Gregory L. 1990. Noun phrase interpretation and conceptual combination. *Journal of Memory and Language* 29: 259-288.
- Pollatsek, Alexander and Jukka Hyönä. 2005. The role of semantic transparency in the processing of Finnish compound words. *Language and Cognitive Processes* 20: 261-290.
- Ryder, Mary Ellen. 1994. *Ordered Chaos: The Interpretation of English Noun-Noun Compounds*. Berkeley: University of California Press.
- Skousen, Royal. 1989. *Analogical modelling of language*. Dordrecht: Kluwer.
- Smith, Edward E. and Daniel N. Osherson. 1984. Conceptual combination with prototype concepts. *Cognitive Science* 8: 337-361.
- Smith, Edward E., Daniel N. Osherson, Lance J. Rips and Margaret Keane. 1988. Combining prototypes: A selective modification model. *Cognitive Science* 12: 485-527.
- Spalding, Thomas L. and Christina L. Gagné. 2008. CARIN theory reanalysis reanalyzed: a comment on Maguire, Devereaux, Costello, and Cater (2007). *Journal of Experimental Psychology, learning, Memory and Cognition* 34: 1573-1578.
- Spalding, Thomas L., Christina L. Gagné, Alison C. Mullaly and Hongbo Ji. 2010. Relation-based interpretations of noun-noun phrases: a new theoretical approach. In: Susan

- Olsen (ed.), *New impulses in word-formation (Linguistische Berichte Sonderheft 17)*, 283-315. Hamburg: Buske.
- Štekauer, Pavol. 2005. *Meaning Predictability in Word-Formation*. Amsterdam-Philadelphia: John Benjamins.
- Štekauer, Pavol. 2017. Competition in natural languages. In: Juan Santana-Lario and Salvador Valera (eds.), *Competing Patterns in English Affixation*, 15-32. Bern: Peter Lang.
- Tarasova, Elizaveta. 2013. *Some new insights into the semantics of English N+N compounds*. Unpublished PhD thesis. Victoria University of Wellington.
- Wisniewski, Edward J. 1996. Construal and similarity in conceptual combination. *Journal of Memory and Language* 35: 424-453.
- Zimmer, Karl E. 1971. Some General Observations about Nominal Compounds. *Working Papers on Language Universals*. Stanford University 5: 1-21.