

SLE workshop proposal:
The semantic transparency of morphologically complex words

57th Annual Meeting of the Societas Linguistica Europaea
University of Helsinki
21-24 August 2024

Convenors: Richard Huyghe, Justine Salvadori, Rossella Varvara (University of Fribourg)
richard.huyghe@unifr.ch
justine.salvadori@unifr.ch
rossella.varvara@unifr.ch

Keywords: morphology, psycholinguistics, semantic transparency, compositionality, distributional semantics

Semantic transparency has long been a central topic in psycholinguistic studies focused on the representation and processing of morphologically complex words (Marslen-Wilson et al. 1994, Schreuder and Baayen 1995, Rastle et al. 2000, a.o.). The transparency of compound words, in particular, has attracted a lot of attention and has been investigated as a factor possibly influencing their semantic processing (Sandra 1990, Zwitserlood 1994, Libben et al. 2003, Juhasz 2007, Frisson et al. 2008, Ji et al. 2011, a.o.). In recent years, research has evolved to encompass more theoretical aspects, raising new issues about the determinants of transparency and the interplay of linguistic and psychological factors in the form-meaning mapping of complex words (Marelli and Baroni 2015, Bell and Schäfer 2016, Günther et al. 2020, Varvara et al. 2021, Stupak and Baayen 2022, a.o.). Computational methods have provided new ways to assess transparency and allowed for a comparison of human judgements and corpus-based measures of transparency, while studies on compounding and affixation in various languages have expanded the scope of research on the transparency of complex words. In this workshop, we want to further explore the fundamental characteristics and the effects of semantic transparency in word-formation, through a variety of theoretical and methodological approaches to transparency.

Defining semantic transparency

It is generally agreed that semantic transparency, as the extent to which the lexical meaning of a complex word can be inferred from its structure and components, is a matter of degree. Complex words can go from fully transparent (e.g. *rename*, *mountaintop*) to fully opaque (e.g. *release*, *ladybird*), with variable loss of morphological motivation in case of opacity. Detailed descriptions of the scalar nature of transparency suggest the existence of different dimensions of transparency. As noted by e.g. Gagné et al. (2016) and Libben et al. (2021), relatedness, i.e. the degree to which the meaning of lexical components is retained in that of a complex word, should be distinguished from predictability, i.e. the degree to which the meaning of a complex word can be predicted from its structure and from the meaning of its components. These dimensions are partially dependent (full predictability unilaterally entails full relatedness), but their respective contribution to semantic transparency and the way they interact to determine degrees of transparency call for further investigation.

Determinants of transparency

The transparency of both word-formation processes and complex words can be influenced by various factors, including the frequency and ambiguity of lexical components and the productivity and polyfunctionality of processes. The existence of a negative correlation between frequency and transparency has been previously discussed (Bybee 1985, Hay 2001, Johnson et al. 2023), and the relationship between productivity and transparency has been investigated in both affixation and compounding (Tian and Baayen 2022). Generally speaking, semantic transparency can be affected by lexicalization and semantic change, as well as by lexical innovation and language contact (Ronneberger-Sibold 2003). Onomasiological needs, lexical competition and diachronic evolution can cause variation between compositional and lexical meaning. Semantic extension through metaphor or metonymy can also impact the transparency of a complex word with respect to its original components, and the degree of transparency varies depending on how much of the ambiguity of the components is preserved in word-formation. The combined effects of such factors on semantic transparency and their relative importance remain largely unexplored in the current state of research.

Psychological effects of transparency

Semantic transparency has been much studied to investigate compositional representations of complex words and their processing through decomposition (as opposed to whole-word access). Although the main assumption is that transparency facilitates the processing of complex words, some inconsistent results have been observed in semantic priming and lexical decision tasks (see e.g. Dohmes 2004 and El-Bialy et al. 2013 for compound words, Feldman et al. 2004 and Creemers et al. 2020 for derived words). Discrepancies may be due to differences in experimental designs and materials, as well as in the conceptualization and operationalization of transparency (Günther and Marelli 2019, Auch et al. 2020). Additional variation is observed across languages (Smolka et al. 2019) and for the time course over which transparency influences word recognition (Feldman et al. 2015). These findings support discussions on the notion of morpheme and on the independence of form and meaning in lexical processing. In this context, much is left to learn about the effects of transparency and what they reveal about the representation and relatedness of complex words in the mind.

Research questions

The workshop will gather researchers interested in the linguistic and psycholinguistic aspects of semantic transparency in word-formation. Research questions include, but are not limited to, the following:

- How transparent are the different word-formation processes, and how do affixation, compounding, conversion, or other processes (e.g. blending and clipping) compare in terms of transparency? Can variation in transparency distinguish between competing processes?
- Which linguistic factors influence transparency and how? To what extent is transparency affected by the productivity and polyfunctionality of word-formation processes, as well as by lexicalization, polysemy, and diachronic change?
- How can we accurately measure the different aspects of transparency (i.e. relatedness and predictability) based on human judgements and distributional data, and can the same measurement methods be used for compounds and derived words?

- How can theoretical models of the mental lexicon account for variation in semantic transparency? How do degrees of transparency affect the lexical processing, storage and representation of complex words? What role does transparency play in the organization of morphosemantic networks in the mental lexicon?
- How is semantic transparency described in morphological theory and how is it connected to the basic concepts of morphology? How do morpheme-, lexeme- and paradigm-based theories of word-formation deal with variation in transparency of complex words?
- How can graded conceptions of lexical meaning account for the semantic transparency of complex words? To what extent do contextual flexibility and semantic adjustments to context affect the transparency of compounds and derived words?

We invite submissions for 20-minute talks. Preliminary abstracts of 300 words (excluding references) should be sent to the workshop organizers by **13 November 2023** to be included in the workshop proposal. If the workshop proposal is accepted, presenters will be asked to submit a 500-word abstract by 15 January 2024.

References

- Auch, L., Gagné, C. L., & Spalding, T. L. (2020). Conceptualizing semantic transparency: A systematic analysis of semantic transparency measures in English Compound words. *Methods in Psychology*, 3, 100030.
- Bell, M. J., & Schäfer, M. (2016). Modelling semantic transparency. *Morphology*, 26, 157-199.
- Bybee, J. L. (1985). *Morphology: a study of the relation between meaning and sound*. Amsterdam: John Benjamins.
- Creemers, A., Davies, A. G., Wilder, R. J., Tamminga, M., & Embick, D. (2020). Opacity, transparency, and morphological priming: A study of prefixed verbs in Dutch. *Journal of Memory and Language*, 110, 104055.
- Dohmes, P., Zwitserlood, P., & Bölte, J. (2004). The impact of semantic transparency of morphologically complex words on picture naming. *Brain and language*, 90(1-3), 203-212.
- El-Bialy, R., Gagné, C. L., & Spalding, T. L. (2013). Processing of English compounds is sensitive to the constituents' semantic transparency. *The Mental Lexicon*, 8(1), 75-95.
- Feldman, L. B., Soltano, E. G., Pastizzo, M. J., & Francis, S. E. (2004). What do graded effects of semantic transparency reveal about morphological processing?. *Brain and Language*, 90(1-3), 17-30.
- Feldman, L. B., Milin, P., Cho, K. W., Moscoso del Prado Martín, F., & O'Connor, P. A. (2015). Must analysis of meaning follow analysis of form? A time course analysis. *Frontiers in human neuroscience*, 9, 111.
- Frisson, S., Niswander-Klement, E., & Pollatsek, A. (2008). The role of semantic transparency in the processing of English compound words. *British journal of psychology*, 99(1), 87-107.
- Gagné, C. L., Spalding, T. L., & Nisbet, K. A. (2016). Processing English compounds: Investigating semantic transparency. *SKASE Journal of Theoretical Linguistics*, 13(2).
- Günther, F., & Marelli, M. (2019). Enter sandman: Compound processing and semantic transparency in a compositional perspective. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 45(10), 1872.
- Günther, F., Petilli, M. A., & Marelli, M. (2020). Semantic transparency is not invisibility: A computational model of perceptually-grounded conceptual combination in word processing. *Journal of Memory and Language*, 112, 104104.
- Hay, J. (2001). Lexical frequency in morphology: is everything relative?. *Linguistics*, 39(6), 1041-1070.

- Johnson, M. B., Elsner, M., & Sims, A. D. (2023). High frequency derived words have low semantic transparency mostly only if they are polysemous. Paper presented at *International Symposium of Morphology*, Nancy, September 2023.
- Juhasz, B. J. (2007). The influence of semantic transparency on eye movements during English compound word recognition. In: Van Gompel, Roger, P.G., Fischer, M.H., Murray, W.S., Hill, R.L. (Eds.), *Eye Movements*. Elsevier Ltd, pp. 373–389.
- Ji, H., Gagné, C. L., & Spalding, T. L. (2011). Benefits and costs of lexical decomposition and semantic integration during the processing of transparent and opaque English compounds. *Journal of Memory and Language*, 65(4), 406-430.
- Libben, G., Gibson, M., Yoon, Y. B., & Sandra, D. (2003). Compound fracture: The role of semantic transparency and morphological headedness. *Brain and language*, 84(1), 50-64.
- Libben, G., Gagné, C. L., & Dressler, W. U. (2020). The representation and processing of compounds words. *Word knowledge and word usage*, 336.
- Marelli, M., & Baroni, M. (2015). Affixation in semantic space: Modeling morpheme meanings with compositional distributional semantics. *Psychological review*, 122(3), 485.
- Marslen-Wilson, W., Tyler, L. K., Waksler, R., & Older, L. (1994). Morphology and meaning in the English mental lexicon. *Psychological review*, 101(1), 3.
- Rastle, K., Davis, M. H., Marslen-Wilson, W. D., & Tyler, L. K. (2000). Morphological and semantic effects in visual word recognition: A time-course study. *Language and cognitive processes*, 15(4-5), 507-537.
- Ronneberger-Sibold, E. (1999). On useful darkness: loss and destruction of transparency by linguistic change, borrowing, and word creation. In *Yearbook of Morphology 1999* (pp. 97-120). Dordrecht: Springer Netherlands.
- Sandra, D. (1990). On the representation and processing of compound words: Automatic access to constituent morphemes does not occur. *The quarterly journal of Experimental Psychology*, 42(3), 529-567.
- Schreuder, R., & Baayen, R. H. (1995). Modeling morphological processing. *Morphological aspects of language processing*, 2, 257-294.
- Smolka, E., Libben, G., & Dressler, W. U. (2019). When morphological structure overrides meaning: Evidence from German prefix and particle verbs. *Language, Cognition and Neuroscience*, 34(5), 599-614.
- Stupak, I. V., & Baayen, R. H. (2022). An inquiry into the semantic transparency and productivity of German particle verbs and derivational affixation. *The Mental Lexicon*, 17(3), 421-456.
- Tian, S., & Baayen, H. (2022). Productivity and semantic transparency: An exploration of word formation in Mandarin Chinese. *The Mental Lexicon*, 17(3), 457-478.
- Varvara, R., Lapesa, G., & Padó, S. (2021). Grounding semantic transparency in context: A distributional semantic study on German event nominalizations. *Morphology*, 31, 409-446.
- Zwitzerlood, P. (1994). Processing and representation of Dutch compounds: Effects of semantic transparency. *Language and Cognitive Processes*, 9(3), 341-368.