

Quantitative approaches to the classification of complex prepositions
Cross-linguistic multivariate analyses for English, Dutch, and French
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In an in-depth qualitative study on a small set of complex prepositions (Béchet 2014), it has been shown that some complex prepositions in English and Dutch came into being and developed through language contact with French, a phenomenon termed contact-induced constructional change by Béchet (*ibid.*). As a matter of fact, when looking at their formal, syntactic and semantic features, the complex prepositions under scrutiny, namely the ones which denote substitution (En. *in place of*, Du. *in plaats van*) and concession (En. *in spite of*, Du. *ten spijt (van)*), showed constructional similarity with their French counterparts in the early stages of their development. Furthermore, Hüning (2014) draws attention to the fact that the *PREPOSITION NP PREPOSITION* pattern is shared among many European languages, so much so that the general term ‘convergence’ has been proposed. However, the latter still needs to be assessed in that the most significant parameters leading to cross-linguistic diffusion of complex prepositions are yet to be identified (Hüning 2014: 443). The question then arises as to how we can classify complex prepositions from different languages on the basis of shared formal and semantic features.

As far as the classification of complex prepositions is concerned, an attempt will be made to put forward an approach that can bridge the gap between language-specific and cross-linguistic analysis on the one hand, and qualitative and quantitative practice on the other, in a diachronic study. Relying on Hoffman (2005) and Vranjes (2012), among others, who propose language-specific criteria, I will determine which ones can be operationalized cross-linguistically and propose additional criteria which could be relevant. Secondly, attempts at grouping complex prepositions so far being exclusively qualitative in nature, a multivariate, exploratory and hypothesis-generating (Gries 2013: 337) quantitative approach is adopted here as a follow-up. More specifically, I will use both hierarchical clustering and correspondence analysis as unsupervised techniques for finding areas of convergence among complex prepositions from different languages. The present approach being essentially empirical, the outcome is a variable-based clustering of complex prepositions, a classification which has not yet been proposed. The diachronic dimension playing a major role, the changes in the syntactic and semantic ecology of the different complex prepositions will be visualized in sequence thanks to motion charts (Hilpert 2011, 2013).

The data for this study were retrieved from a corpus of English, Dutch and French texts representative of modern usage and culled from Project Gutenberg and CLMET (De Smet 2005), which ensures homogeneity in terms of type and coding of the texts. The corpus was searched for a sample of complex prepositions that show formal and/or semantic similarities across English, Dutch and French. This sample includes *in place of*, *instead of*, *in lieu of*, *in spite of*, *in terms of*, *in line with*, *to the detriment of*, *on the basis of*, and their Dutch and French cognates. This pilot study will pave the way for further research in complex prepositions and their cross-linguistic categorization.

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