

## Lexical polysemy across registers and time: A computational study of Ancient Greek

Barbara McGillivray – Alessandro Vatri

Synchronic polysemy plays a significant role in language variation. Polysemous words may select different meanings in different registers (e.g. AGr. *mus* 'mouse' means 'muscle' in medical discourse), and the distribution of their meanings may vary greatly across registers. For example, *charis* may be used in the same text with the senses of 'grace' or '(concrete) favour', but the former meaning is more likely than the latter to occur in poetry, whereas the opposite applies to oratory. At the same time, polysemy is both a product and a precondition of language change (cf. e.g. Leiwo et al. 2012). Synchronic semantic variation in the same lexical item reflects diachronic semantic change that can ideally be traced to a prototypical meaning (cf. Clarke 2010). Words designating concrete entities may acquire abstract meanings through associative logical steps; they may enter specialized vocabularies and be re-introduced into non-technical registers through metaphorical and metonymical extensions. Diachronic corpora allow us to trace the synchronic distributions of meanings of polysemous words across linguistic varieties as they change over time, thus measuring how meanings emerge, gain prominence, and fade. We present a project aiming to model such patterns of diachronic and synchronic semantic variation through the analysis of a digital corpus of Ancient Greek texts. The corpus includes a wide selection of texts from Homer to the 5th century AD and an array of literary and technical genres (epic poetry, drama, historiography, oratory, biography, novel, geography, philosophy, medicine, rhetoric, mathematics, plus the Septuaginta and the New Testament). We develop a statistical model of semantic change based on Bayesian statistics (Frermann and Lapata 2016). This model allows us to conduct a large-scale corpus analysis to measure the relationship between semantic change and semantic variation, and to quantify the role played by linguistic and non-linguistic factors such as genre.

### References

- Michael Clarke. 2010. 'Register Variation'. In *A Companion to the Ancient Greek Language*, ed. by E. Bakker, 120–33, Chichester/Malden, Mass.: Wiley-Blackwell.
- Lea Frermann and Mirella Lapata. 2016. 'Bayesian Model of Diachronic Meaning Change'. In *Transactions of the Association for Computational Linguistics* 4: 31–4.
- Martti Leiwo, Hilla Halla-aho, Marja Vierros (eds.). 2012. *Variation and Change in Greek and Latin*. Papers and monographs of the Finnish Institute at Athens, 17. Helsinki: Foundation of the Finnish Institute at Athens.