Complex Noun Phrases in English Scientific Writing: Towards Different Notions of Complexity

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Résumé

Complex noun phrases (NPs) in English scientific writing, typically used for encoding technical and highly specialized concepts, are a characteristic feature of this register (Halliday 1988; Banks 2008). Previous diachronic studies have, for instance, shown an increased use of complex NPs over time (Biber & Gray 2011, Hundt et al. 2012) and have highlighted how they have contributed to shaping scientific English as an optimized code for expert-to-expert communication (Degaetano-Ortlieb 2021, Degaetano-Ortlieb & Teich 2022). Others have investigated the reading difficulties of students of English for Academic Purposes when confronted with complex NPs (Priven 2020).

However, the notions of complexity used in the literature often vary a lot since it is not trivial to define linguistic complexity (for a discussion, see e.g. Karlsson et al. 2008, Çöltekin & Rama 2023 or Ehret et al. 2023). Rescher's (1998) "Modes of Complexity" have been suggested as a theoretical framework for classifying different types of complexity (Karlsson et al. 2008). In this paper, we are applying Rescher's framework to NPs in English scientific writing, exploring how different types of NP complexity have developed over time and how they interact.

Our dataset is the Royal Society Corpus (Fischer et al. 2020; Menzel et al. 2021), a diachronic corpus of scientific writing. It is enriched with linguistic annotation (e.g. for part of speech) and metadata (e.g. author, year of publication, topic). We focus on the articles in the *Series A* and *Series B* journals of the corpus, which contain texts from biology, physics and mathematics and span the time from 1887 to 1990. After extracting all top-level NPs from the articles (i.e. NPs not embedded in another NP), we classify them according to Rescher's modes of complexity. Using mixed-effects regression modeling, we analyze the evolution of different complexity modes over time and their possible interactions. We expect our results to provide a more nuanced view of complexity in the noun phrase.

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