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Untypical animacy: a historical study of subjects in science writing

Subjects of the type exemplified in the following examples are a pervasive feature of contemporary English science writing:

- (1) Three factors explain the under-representation of women in editorial boards
- (2) The data show nearly all the features observed
- (3) PC1 mostly explains differences in the NIR spectra related to O–H vibrations (water content).
- (4) The tangential contact force considers additionally the friction at the contact between the particles.

The choice of subject in these sentences breaches with conventional expectations concerning the subject of verbs of saying and cognition in the active voice which are commonly expected to occur with an animate agent as subject. This violation of semantic constraints on the type of subject expected by default with certain semantic verb classes (e.g. *verba dicendi*, *verba cogitandi*) suggests an interpretation as instances of the phenomenon Margret Berry (1975) has termed „untypical animacy“. Master (1991) describes this phenomenon as a “subject-verb mismatch” and Banks (1996) discusses it as a case of metaphor. The use of inanimate subjects with verbs regularly requiring animate agent subjects is a frequent feature of contemporary science writing and is hypothesized to be associated with the avoidance of an overt mentioning of the human scientist as agent which is also associated with a preference for other features such as the use of agentless passives. This contributes to conveying a stance of scientific detachment in the interest of scientific objectivity.

In contrast to this feature of contemporary science writing, science writing in the 17th and 18th century is found to display a much lower frequency of this phenomenon but displays a comparatively higher frequency of first person subjects as has been shown in previous studies (e.g. Banks 2008). This is commonly associated with the different standing of the individual natural philosopher as a trusted authority in scientific investigation as well as with the epistolary style of a substantial proportion of early science writing (cf. Atkinson 1999). These observations raise the issue of tracing changing argument structure patterns in the history of modern science writing.

This paper presents a corpus study of semantic roles realizing the subject in active voice uses of verbs of saying and verbs of cognition in science writing. The study is based on a small corpus of scientific articles from different disciplines since the late 17th century. The paper presents results of a qualitative and quantitative analysis of the distribution of different semantic realizations of subject role of these classes of verbs and seeks to interpret its observations in the light of the development of science writing to-date.

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