Grammatical resolution of ambiguity in scientific and academic writing

International Congress on English Grammar (ICEG-2016)
Guru Nanak Dev University Amritsar, Punjab, India
February 8-12, 2016

John Blake
Japan Advanced Institute of Science and Technology
johnb@jaist.ac.jp

Abstract

This paper investigates the grammatical structures that frequently result in ambiguity in scientific and academic writing.

A characteristic of scientific and academic writing is the high frequency of nominalization (Biber & Gray, 2013). Halliday (1994) coined the term "grammatical metaphor" to explain the abstraction or thematization of verbal processes. Scientific writing, in particular, is marked by the use of long noun phrases as grammatical subjects (Gopen & Swan, 1990; Vande Kopple, 1994). Ambiguity may occur when the grammatical relation in compressed phrases needs to be deduced (Biber & Gray, 2010). The rankshifting of sentences to clauses, clauses to phrases, and phrases or groups to words increases concision, but potentially at the expense of clarity. Ambiguity resolution is an unsolved problem that is central to increasing parsing accuracy in natural language processing. However, from the standpoint of increasing clarity in scientific and academic writing, ambiguity is also a central concern. This paper focuses on ways of avoiding or resolving ambiguity, primarily by lexico-grammatical manipulation.

A specialist corpus of 200 draft research articles from the the fields of information, materials and knowledge science was compiled from online submissions to a university writing center. Most papers were jointly authored, with the main author being a postgraduate student in either a master's or doctoral program. Instances of ambiguity were manually identified, classified and annotated as syntactic, referential or lexical using the UAM Corpus Tool (O′Donnell, 2008). Statistical analysis revealed numerous instances of referential, syntactic and lexical ambiguity. Three frequent causes of ambiguity were found to be:

(1) alternative candidates for antecedents or modifiers;
(2) disjunctive and conjunctive confusion; and
(3) lexical ambiguity, e.g. *or* (inclusive or exclusive) and *if* (conditional or biconditional).

This paper concludes by sharing corpus-informed didactic materials to address the most frequent common causes of ambiguity. Practical advice will be given for teachers of academic or scientific writing on how grammar can be used to resolve ambiguity.

References

Biber, D. & Gray, B. (2010). Challenging stereotypes about academic writing: Complexity, elaboration , explicitness. *Journal of English for Academic Purposes, 9* (1), 2-20.

Biber, D. & Gray, B. (2013). Nominalizing the verb phrase in scientific writing. In B. Aarts, J. Close, G. Leech & S. Wallis (Eds). *The verb phrase in English: Investigating recent language change with corpora, (pp.99-132).* Cambridge: Cambridge University.

Gopen, G. & Swan, J. (Nov-Dec 1990). The science of scientific writing. *American Scientist.* http://www.americanscientist.org/issues/pub/the-science-of-scientific-writing

Halliday, M.A.K. (1994). *An Introduction to Functional Grammar (2nd ed).* London: Edward Arnold.

O'Donnell, M. (2008, June). Demonstration of the UAM CorpusTool for text and image annotation. *Proceedings of the ACL-08: HLT demo session (Companion volume)* (pp.13-16). Columbus, Ohio: Association for Computational Linguistics.

Vande Koppel, W.J. (1994). Some characteristics and functions of grammatical subjects in scientific discourse. *Written Communication, 11* (4), 534-564.