Beatrix Busse, Kirsten Gather, Ingo Kleiber

Assessing the Connections between English Grammarians of the Nineteenth Century – A Corpus-Based Network Analysis

Abstract Linguistic studies of nineteenth-century British grammar books are still scarce despite essential changes in the genre during the nineteenth century, such as the decline of so-called prescriptive grammar writing. Since grammarians often use references to other authors to criticise the seemingly inadequate works of predecessors and contemporaries, our study investigates the scholarly network of grammarians' references in a corpus of nineteenth-century English grammars. We particularly focus on the transition from prescriptive to descriptive grammar writing, showing that this paradigmatic turn in the genre is reflected both in the network of grammarians' references and in the usage of terms like prescriptive and descriptive in the grammars.

Our study is part of the *HeidelGram* project, which combines methods from corpus-based diachronic linguistics and network analysis with the aims of offering new perspectives on (meta-)linguistic developments and to reassess well-established assumptions on the history of the genre *grammar*.

Keywords English grammar, corpus, nineteenth century, prescriptive, network analysis, references

1 Introduction

Systematic and comprehensive linguistic studies of nineteenth-century British grammar books are scarce[1] although the nineteenth century is often seen as a turning point in English grammar writing, in particular due to the assumed

---

1 Anderwald, who studied different aspects of verb morphology and syntax in nineteenth-century English and American grammars (e.g. Anderwald 2014, 2016), also considers this area of investigation "still a gap" (Anderwald 2016: 3).

paradigm shift from prescriptive to predominantly descriptive grammars (e.g. Finegan 1998: 559ff). In particular, authors' references to other grammarians show that new as well as outdated approaches to grammar writing were discussed extensively, often with the aim to justify one's own and better contribution.

„Onomastic" references, that is, references to authors' names, form an important indicator of how nineteenth-century grammarians interacted with each other. Therefore, it makes sense to examine the connection between these references and different linguistic approaches to grammar writing. In the present pilot study, which is part of the *HeidelGram* project[2], we focussed on the turn away from the prescriptive tradition towards a new, descriptive approach to grammar. We built and analysed a network of grammarians' references on the basis of a corpus of nineteenth-century British grammar books, thus combining methods from historical corpus linguistics and network analysis. Additionally, the frequency analysis of the terms *prescriptive/prescription* and *descriptive* is used to illustrate whether the lexico-grammatical inventories of the nineteenth-century grammars under investigation also point to the assumed changes in the genre.

2   Pilot Study

The pilot corpus of nineteenth-century grammar books compiled for this study contains 40 texts, which amount to ca. 2.6 million words. The choice of grammar books was guided by several criteria, such as the popularity and distribution of the grammars (see, for instance, Michael 1987, Görlach 1998), and their variety in function, audience, and text type.

2.1 Scholarly Network Studies

Most commonly, network-analytic approaches are used to examine the relations between people, groups, or organisations. In contrast to such social networks, scholarly networks can feature both social ties as well as cultural ties „beyond the boundaries of personal acquaintanceship" (White 2011: 271). This kind of non-social relationship can often be observed when scholars cite other scholars that are personally unknown to them.

In this study, the relationships between grammar books are assessed in the form of a network of grammar books and the authors that are referenced in them. The two kinds of nodes in this scholarly network are the nineteenth-century grammar books in which references to other grammarians are found, and

2   See http://heidelgram.uni-heidelberg.de for details.

authors' last names, which are used as search terms. The search terms were compiled by collecting the last names of those who are considered to be the most popular and influential grammarians of the sixteenth to nineteenth centuries (see, for instance, grammarians mentioned in Finegan 1998, Michael 1987).

2.2 Automated Network Generation

There are hardly any reliable, machine-readable versions of nineteenth-century grammar books available, and manually generating complex author-text networks of this size is not feasible. Therefore, an automated network-generation process based on threshold-based gestalt pattern matching[3] and manual elimination of false positives was developed.

First, the *pdf*-scans of grammar books were digitised using the *Google*-maintained *Tesseract* OCR software. Despite rather acceptable text recognition results, the OCR software is susceptible to producing output containing misreadings. Hence, the resulting text files were cleaned up using *HGAutoFix* by applying a pre-defined set of corrective rules, e.g. normalising punctuation and spelling, significantly enhancing the quality of the data.

The data then was passed into *HGSimpleCorpusNetwork*[4], which created a document-term matrix, a list of concordances, and the respective network graph in GraphML format from the given set of text files and the list of search terms. To account for OCR-corrupted data, the search algorithm supports approximate string matching utilising Levenshtein distances and gestalt pattern matching with user-defined thresholds (0.8). Due to this error-tolerant, but approximate approach, the resulting data needed to be manually reviewed and false positives had to be removed.

Gephi was then used for exploratory data analyses. The network was visualised as a circular graph utilising the *layout_in_circle* graph layout of the *igraph*[5] network-analysis package in R. The size of the *grammar* nodes was derived from the number of tokens divided by 10,000. The thickness of the edges was kept proportionate to the number of references.

---

3   Our software *HGSimpleCorpusNetwork* utilises the Python *difflib* implementation of the Ratcliff/Obershelp pattern-recognition algorithm (cf. https://docs.python.org/3/library/difflib.html).

4   The software is freely available on GitHub: https://github.com/heidelgram/HGSimpleCorpusNetwork.

5   See http://igraph.org.

2.3 Results

This section sums up main results of network and frequency analyses, focussing on the temporal distribution of the references and testing established knowledge about the transition from prescriptive to descriptive grammar writing in the nineteenth-century.

The search for grammarians' last names in the 40 grammar books led to a list of 1,518 references to other grammarians. Although search terms comprised the allegedly most popular and influential grammarians of their time, many earlier grammarians did not play a role in nineteenth-century grammar writing any more, apart from Ben Jonson's grammar (1640), which was still considered a valuable source with regard to Early Modern English pronunciation. Robert Lowth and Lindley Murray, who are usually considered the major and most popular presciptivists (e.g. Beal 2004: 89f, Auer 2008: 58), are among the most frequently referenced grammarians in the corpus (see Busse, Gather, Kleiber: forthcoming). References to them, however, did not necessarily imply agreement, but are rather a means of expressing criticism.

Figure 1 illustrates the references to grammarians from 1800 to 1900 as a network. This visualisation, resembling small-world networks, was chosen because it is particularly well-suited to show the temporal distribution of references, and the most often referenced as well as referencing authors in one graph. The circles in the upper half of the network are the referenced search terms, i.e. those last names of grammarians that were referred to in at least one nineteenth-century grammar book. The squares below represent the nineteenth-century grammars. References to the search terms are visualised by edges of different sizes, the size corresponding to the number of references made.

Figure 1 shows that most of the citations refer to eighteenth- and nineteenth-century grammarians, in particular to Lowth, L. Murray, and Tooke. Most of the references stem from the grammars by Crombie (1802), Cramp (1838) and Gerald Murray (1847). The network graph indicates a break in dealing with other grammarians around 1850. While before authors often referred to 18th- and early nineteenth-century grammarians, similar references become very rare in the second half of the nineteenth century and authors often focus on their contemporaries. Considering which authors were referenced by grammarians of the first half of the nineteenth century, there is a turn away from the occupation with prescriptive grammar authors like Lowth and Lindley Murray.

With regard to the change in focus of grammar writing around 1850 that can be assumed from Table 1, the question arose whether this transition from prescriptive to descriptive grammar writing co-occurs with lexemes which refer to the respective concepts, i.e. *prescriptive*/*prescription* and *descriptive*, in the nineteenth-century grammars. According to historical linguists, prescriptive
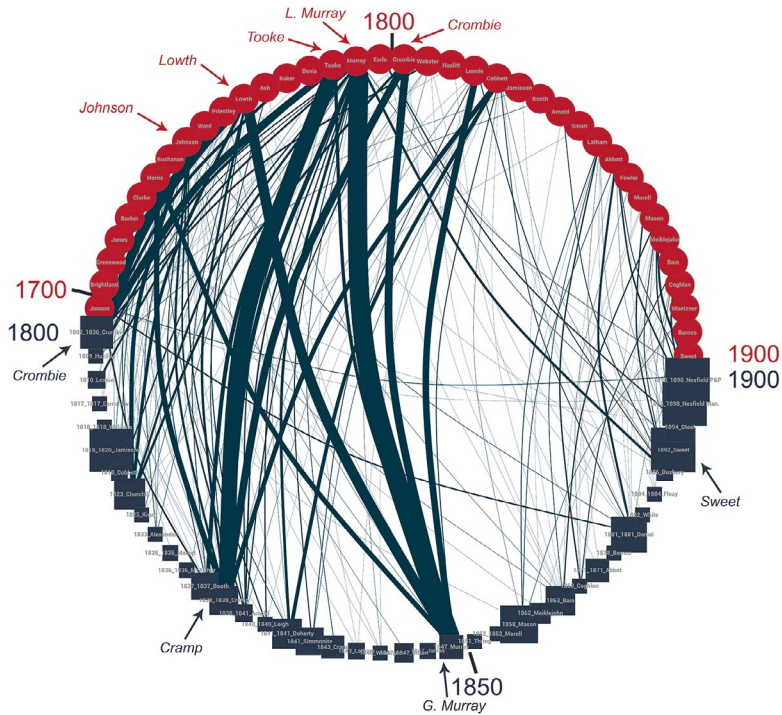
Figure 1: Grammarians' references to other grammarians in the corpus (red circles = referenced authors; blue squares = nineteenth-century grammars).

grammar writing emerges in the second half of the 18th century (e.g. Tieken-Boon van Ostade 2008: 6) and was at its height in the first half of the nineteenth century (Dekeyser 1975: 266). Frequency analyses of the grammars' lexical inventories show that indeed the terms *prescriptive* or *prescription* are used sporadically by three authors in the first half of the nineteenth century, but not after 1850. This corresponds to the findings in Figure 1, which contains hardly any references back to prescriptivists like Lowth and Murray after 1850. Henry Sweet coins the term *descriptive grammar* in his grammar (1892/98), which is usually considered the first important descriptive and historical grammar (e.g. Beal 2004: 115).

It should, however, be noted that these findings only indicate the first occurrences of certain terms, but not of their concepts, and that prescriptive aspects are likely to manifest not necessarily in the terms *prescriptive* or *prescription*, but in expressions such as *bad English*, *improper grammar*, and *solecism*. The diachronic analysis of changing terms and related concepts in historical grammar books (i.e. form to function and function to form) is a future task of the *HeidelGram* project.

Table 1: Corpus of Nineteenth-century Grammar Books

Author	Year	Title
Abbott, Edwin A.	1871	*English Lessons for English People*
Alexander, Levy	1833	*The Young Lady and Gentleman's Guide to the Grammar of the English Language in Verse*
Arnold, Thomas K.	1838	*An English Grammar for Classical Schools*
Bain, Alexander	1863	*An English Grammar*
Barnes, William	1878	*An Outline of English Speech-Craft*
Booth, David	1837	*The Principles of English Grammar*
Churchill, T.O.	1823	*A New Grammar of the English Language*
Cobbett, William	1818	*Grammar of the English Language, in a Series of Letters*
Coghlan, John	1868	*Reformed English Grammar*
Cramp, William	1838	*The Philosophy of Language*
Crane, George	1843	*The Principles of Language; Exemplified in a Practical English Grammar*
Crombie, Alexander	1802	*The Etymology and Syntax of the English Language, Explained and Illustrated*
Daniel, Rev. Evan	1881	*The Grammar, History and Derivation of the English Language*
Doherty, Hugh	1841	*An Introduction to English Grammar, on Universal Principles*
Duxbury, C.	1886	*A New English Grammar of School Grammars*
Earnshaw, Christopher	1817	*The Grammatical Remembrancer*
Fleay, Frederick G.	1884	*The logical English grammar*
Hazlitt, William	1809	*A New and Improved Grammar of the English Tongue*
James, J.H.	1847	*The Elements of Grammar, according to Dr. Becker's System*
Jamieson, Alexander	1818	*A grammar of rhetoric and polite literature*
Kigan, John	1825	*A Practical English Grammar, agreeably to a new System*
Latham, Robert G.	1843	*An Elementary English Grammar*
Leigh, Percival	1840	*The Comic English Grammar*
Lennie, William	1810	*The principles of English grammar briefly defined, and neatly arranged*
Marcet, Jane	1835	*Mary's Grammar*
Mason, C. P.	1858	*English Grammar; including the Principles of Grammatical Analysis*
McArthur, Alexander	1836	*An outline of English grammar for the use of schools*
Meiklejohn, John	1862–66	*An Easy English Grammar for Beginners*
Morell, John D.	1852	*The analysis of sentences explained and systematised*
Murray, Gerald	1847	*The Reformed Grammar, or Philosophical Test of English Composition*
Nesfield, John C.	1898a	*English Grammar Past and Present*

Table 1: Corpus of Nineteenth-century Grammar Books (continued).

Author	Year	Title
Nesfield, John C.	1898b	*Manual on English Grammar and Composition*
Simmonite, Wiliam J.	1841	*The Practical Self-teaching Grammar of the English Language*
Smart, Benjamin H.	1847	*Grammar on its True Basis*
Steel, G.	1894	*An English grammar and analysis for students and young teachers*
Sweet, Henry	1892/98	*A New English Grammar: logical and historical*
Thring, Rev. Edward	1851	*The Elements of Grammar Taught in English*
White, Frederick Averne	1882	*English Grammar*
Williams, David	1818	*The catechism of English grammar*
Wiseman, Thomas J.	1846	*A School Grammar of the English Language*

Table 2: Other grammar books

Author	Year	Title
Jonson, Ben	1640	*The English Grammar*
Lowth, Robert	1762	*A Short Introduction to English Grammar with Critical Notes*
Murray, Lindley	1795	*English Grammar Adapted to the Different Classes of Learners*

3   Summary and Conclusion

In British grammar writing, the nineteenth century is usually considered as a transition period from the prescriptive tradition to a new, descriptive approach to grammar.

The present pilot study investigated the scholarly network of nineteenth-century grammarians, as manifested by their references to other grammarians, focussing on the move away from the occupation with so-called prescriptive grammar writing. The network revealed a substantial change around 1850, indicating that grammars after 1850 seem to become more and more independent from the prescriptive tradition, and from the prescriptivists Lowth and L. Murray in particular. Frequency analyses showed that the terms *prescriptive* or *prescription* are indeed used sporadically in the first half of the nineteenth century, usually combined with a critical remark on the rigidity of prescriptive grammar writing, and that *descriptive* in connection with grammar writing was coined by Henry Sweet in the 1890s.

For two reasons, however, results should be treated with caution. As mentioned in 2.3., the findings only give evidence about first occurrences of linguistic terms, not about their underlying concepts. Follow-up studies within the

HeidelGram project will examine the development of linguistic terminology and concepts in 16th-to nineteenth-century grammars.

The other reason relates to the quality of the corpus data. To account for OCR-corrupted data, it makes sense to work with a low pattern-matching threshold, despite the higher effort of manual correction, in order not to miss results. The present pilot study shows that although the data have not yet been revised manually, significant results could nevertheless be obtained, but caution is advised.

References

Anderwald, Lieselotte. 2014. The decline of the BE-perfect, linguistic relativity, and grammar writing in the 19th century. In Marianne Hundt (ed.), *Late Modern English Syntax*, 13–37. Cambridge: Cambridge University Press.

Anderwald, Lieselotte. 2016. *Language Between Description and Prescription: Verbs and Verb Categories in Nineteenth-Century Grammars of English.* Oxford: Oxford University Press.

Auer, Anita. 2008. Eighteenth-century grammars and book catalogues. In Ingrid Tieken-Boon van Ostade (ed.), *Grammars, Grammarians and Grammar Writing in Eighteenth-Century England*, 57–75. Berlin and New York: Mouton de Gruyter.

Beal, Joan C. 2004. *English in Modern Times. 1700–1945.* London: Arnold.

Busse, Beatrix, Kirsten Gather and Ingo Kleiber. forthcoming. Paradigm Shifts in 19th-Century British Grammar Writing – a Network of Texts and Authors. In Claudia Claridge and Birte Bös (eds.), *Norms and Conventions.* Amsterdam/Philadelphia: John Benjamins.

Dekeyser, Xavier. 1975. *Number and Case Relations in 19th Century British English: A Comparative Study of Grammar and Usage.* Bibliotheca Linguistica. Antwerpen et al.: De Nederlandsche Boekhandel.

Finegan, Edward. 1998. English Grammar and Usage. In Suzanne Romaine (ed.), *The Cambridge History of the English Language Vol. IV: 1776–1997*, 536–588. Cambridge: Cambridge University Press.

Görlach, Manfred. 1998. *An Annotated Bibliography of Nineteenth-Century Grammars of English.* Amsterdam/Philadelphia: John Benjamins.

Michael, Ian. 1987. *The Teaching of English.* Cambridge: Cambridge University Press.

Tieken-Boon van Ostade, Ingrid (ed.), 2008. *Grammars, Grammarians and Grammar-Writing in Eighteenth-century England.* Berlin/New York: Mouton de Gruyter.

White, Howard D. 2011. Scientific and Scholarly Networks. In John Scott and Peter J. Carrington (eds.), *The SAGE Handbook of Social Network Analysis*, 271–285. London: SAGE Publications Ltd.