9 Noun phrase modification

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1 Introduction

Written registers in English have undergone extensive stylistic change over the past four centuries, in response to changes in the purposes of communication, the demographics of the reading public, and attitudinal preferences of authors. For example, Biber and Finegan (1989, 1997) document the way in which written prose registers in the seventeenth century were already quite different from conversational registers, and how those registers evolved to become even more distinct from speech over the course of the eighteenth century.

Informational expository registers like medical prose and science prose have continued to develop more 'literate' styles over the last two centuries, including increasing use of passive verbs, relative clause constructions and elaborated noun phrases generally (see Atkinson 1992, 2001, Biber 1995: 280–313, Biber and Finegan 1997). These linguistic developments correspond to the development of a more specialized readership, more specialized purposes, and a fuller exploitation of the production possibilities of the written mode. That is, in marked contrast to the general societal trends towards a wider lay readership and the corresponding need for popular written registers, readers of medical research prose and science prose have become increasingly more specialized in their backgrounds and training, and correspondingly these registers have become more specialized in linguistic form. Surprisingly, even some more 'popular' registers, such as newspaper reportage, have followed a similar historical path (see Biber 2003).

One linguistic domain that reflects these historical developments is the choice among structural devices used to modify noun phrases. In English, noun phrase modifiers can occur before the head noun – 'pre-modifiers' – or after the head noun – 'post-modifiers'. Pre-modifiers in English are phrasal (rather than clausal); there are three major structural types of pre-modifier: attributive adjectives, participial adjectives, and nouns:

Pre-modifiers:
Attributive adjective: *a special project*
                            an internal memo

Participial adjective: *hidden variables*
                          detecting devices
Noun as pre-modifier: *the bus strike*
                          the police report

In contrast, post-modifiers can be clausal (finite relative clauses, non-finite participial clauses, *to*-clauses) or phrasal (prepositional phrases and appositive noun phrases):

Clausal post-modifiers:
Relative clause: *the penny-pinching circumstances that surrounded this inter-national event*
                     the unity of representation which we expect
Ing-clause: *the imperious man standing under the lamppost*
Ed-clause: *a stationary element held in position by the outer casting*
To-clause: *the person to see*

Phrasal post-modifiers:
Appositive noun phrase: *the Environment Secretary, Mr. Chris Patten*
Prepositional phrase: *compensation for emotional damage*
                            this list of requirements

In many cases, these devices can be considered as alternative forms of expression with roughly equivalent meanings; for example:

continuous-time feedback systems
        versus
systems which provide feedback continuously
systems with chaotic behavior
        versus
systems exhibiting chaotic bahviour

Noun modifiers are generally much more common in informational written registers (like academic prose or newspaper reportage) than in other registers (see de Haan 1989, Halliday 1988, Varantola 1984). Overall, pre-modifiers and post-modifiers are about equally common (see Biber *et al*. 1999: 578, Figure 8.4). However, there are strong preferences for the specific structural variants. Among pre-modifiers, participial adjectives are comparatively rare, while simple attributive adjectives are very frequent. Nouns as pre-modifiers are also very common, especially in newspaper language (Biber *et al*. 1999: 589, Figure 8.7). Among the post-modifiers, prepositional phrases are by far the most common variant (occurring about four times more frequently than all other types combined; see Biber *et al*. 1999: 606, Figure 8.12). Finite relative clauses account for about half of the remaining post-modifiers, while *ed*-clauses and appositive noun phrases are also moderately common (see Biber *et al*. 1999: 606, Figure 8.13).

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However, these synchronic patterns of use have not been constant over the past. Rather, since the eighteenth century, written prose in English has evolved, developing an increasing reliance on 'compressed', phrasal types of noun modification. Biber and Clark (2002) document this historical trend, ranking nominal modifiers along a cline of 'compression' as follows:

COMPRESSED –	pre-modifiers <	phrasal	< non-finite	< relative –	EXPANDED
(PHRASAL)		post-	clauses	clauses	(CLAUSAL)
EXPRESSION		modifiers			EXPRESSION

Over the past three centuries, nominal modifers have been used with increasing frequencies, with the largest expansion in use occurring at the 'compressed' end of this continuum (pre-modifiers and phrasal post-modifiers). Biber and Clark (2002) show how this trend progressed gradually over the eighteenth and nineteenth centuries, but then increased dramatically in the twentieth century (especially the past fifty years) (see also Biber 2003).

These linguistic developments seem to be a reflection of two major factors: the informational purposes of expository and descriptive registers, coupled with the influence of economy. That is, the 'informational explosion' has resulted in pressure to communicate information as efficiently and economically as possible, resulting in compressed styles that depend heavily on tightly integrated noun phrase constructions.

Against this background, it is interesting to compare the patterns of use in AmE and BrE: Did these historical developments occur at the same rate and to the same extents in both national varieties? The present chapter focuses on one register – newspaper reportage – and compares the preferred patterns of noun phrase modification across the two varieties. The analyses show that AmE and BrE underwent similar shifts in the preferred patterns of noun phrase modification over the past three centuries. However, AmE has generally been in the lead in the increasing reliance on compressed styles of noun phrase modification.

2 Overview of the corpus analyses

The patterns of variation described in the present study focus exclusively on newspaper reportage, based on an analysis of two major corpora. For the analyses of earlier historical periods, we used the ARCHER Corpus (see Biber and Finegan 1997). ARCHER was designed to represent a range of written and speech-based registers in English over the past four centuries, but to a lesser extent, the corpus also represents differences between AmE and BrE. The corpus is structured in terms of fifty-year periods, and the second period in each century includes parallel samples of AmE and BrE texts. The diachronic analysis here is based on the newspaper texts from these periods.

This sub-corpus is quite small by present-day standards, and it is therefore not suitable for the analysis of rare grammatical features or lexical patterns. However, these samples adequately represent the distribution of

Table 9.1 *Diachronic newspaper corpus*

	# of texts	
	AmE	BrE
1750–1799	10	10
1850–1899	10	10
1950–1990	10	10

Total: 60 texts; c. 120,000 words

Table 9.2 *Present-day newspaper corpus*

Newspaper	# of words
AmE:	
The Atlanta Journal-Constitution	65,888
The Arizona Republic (Phoenix)	64,933
Houston Chronicle	96,980
Los Angeles Daily News	66,529
The New York Times	92,745
The Philadelphia Inquirer	67,759
St. Louis Post-Dispatch	79,243
San Francisco Chronicle	78,142
The Seattle Times	69,447
The Washington Post	82,033
Subtotal:	763,699
BrE:	
Daily Mail (London)	80,707
Daily Telegraph (London)	81,455
Guardian (London)	91,581
The Observer	105,638
The Times (London)	81,254
Subtotal:	440,635

more common grammatical features, and ARCHER has been used for many previous studies of historical register variation.

For the present-day comparison of AmE and BrE newspaper reportage, we constructed a larger corpus of newspaper texts published in 2006. We selected only news articles (rather than editorials), and included mostly 'metro' news. All newspapers sampled for the 2006 corpus are formal newspapers with strong reputations, published in major cities (e.g., New York, Washington, London). The AmE sample, totalling c. 750,000 words, was collected from ten major newspapers, while the BrE sample, totalling c. 450,000 words, was collected from five major newspapers. (All 2006 newspaper articles were downloaded from *World News Access*.)

The linguistic analyses were based on 'tagged' texts. The 'tagger' used for the analyses was written in Delphi-Pascal; it has both probabilistic and

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rule-based components, uses multiple large-scale dictionaries and runs under Windows. This tagger has been developed with three primary considerations: achieving high accuracy levels; robustness across texts from different registers (with different processing options for 'oral' and 'literate' texts); and identification of a large set of linguistic characteristics (e.g., distinguishing simple past tense, perfect aspect, passive voice and postnominal modifier functions for past participle forms; identifying the gap position for WH relative clauses; identifying several different kinds of complement clause and the existence of *that*-complementizer deletion). The tagger has been used for numerous previous studies of linguistic variation, including 'multi-dimensional' studies (e.g., Biber 1995) and the *Longman Grammar of Spoken and Written English* (Biber *et al.* 1999).

For the most part, we used automatic techniques to identify and count the linguistic features described below. The major exception, though, is for the use of prepositional phrases as noun modifiers, because there are no automatic methods that reliably and accurately distinguish between prepositional phrases functioning as adverbials and those functioning as noun modifiers. Thus, for this feature, we carried out hand-analyses on a sample of prepositional phrases immediately following a noun (i.e., in the context where the prepositional phrase could be functioning as a nominal post-modifier). Approximately 2,000 prepositonal phrases were coded by hand: 1,000 sampled from each variety. Prepositional phrases were chosen using random selection techniques, so that the sample included the full range of prepositions (excluding *of*; i.e., *about, after, as, at, before, between, by, for, from, in, into, on, over, to, with*. *Of*-phrases were treated separately, because they can be automatically identified with a high degree of accuracy: an *of*-phrase following a noun is almost always a post–nominal modifier.) Different prepositions were more or less common overall, and more or less likely to occur as a post–nominal modifier. For example, the preposition *in* is frequent (c. 400–500 per million words) and often occurs as a post–nominal modifier (c. 65 per cent of the time). *Between* is much less frequent overall (occurring only c. twenty to thirty times per million words), but it usually occurs as a post–nominal modifier (c. 85 per cent of the time). *By* is also not particularly frequent (c. forty to fifty times per million words) but it rarely occurs as a post–nominal modifier (only about 10 per cent of the time). Overall, prepositional phrases occurred as post–nominal modifiers c. 54 per cent of the time, accounting for both the overall frequency of the individual preposition and the likelihood that the individual preposition will be used in a post–nominal function. Although this rate can serve as only an approximate estimation, we used it to adjust the automatic frequencies of Noun + Preposition phrase sequences across the various sub-corpora.

3 Variation in the choice of noun-modifiers

Figure 9.1 plots the historical change in the use of attributive adjectives and nouns as pre-modifiers in newspaper reportage, showing that AmE and BrE
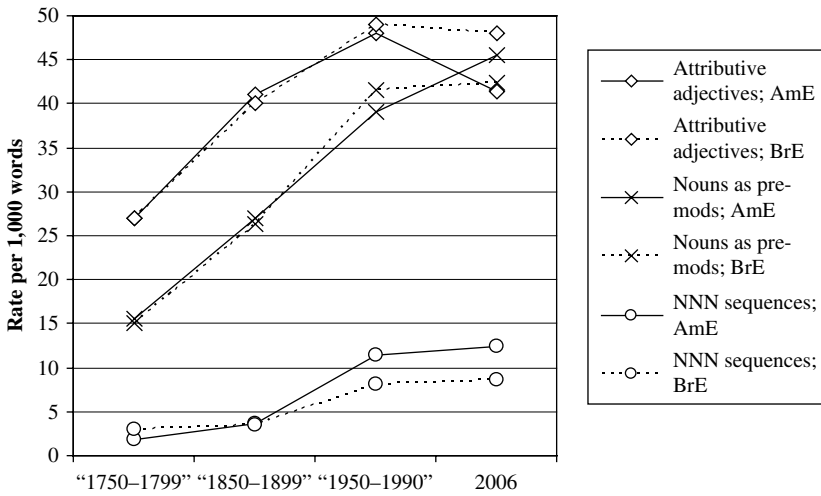
Figure 9.1 Pre-modifiers across historical periods: AmE vs. BrE

are generally similar in their increasing use of these features. Attributive adjectives are generally more frequent than pre-modifying nouns until the most recent period, but both features have increased dramatically in use over the past three centuries.

The historical patterns of use are strikingly similar in AmE and BrE until the most recent periods. However, the two varieties have departed to some extent over the past 50 years: Attributive adjectives have become somewhat less common in AmE, while BrE has maintained the extremely frequent use of this feature (mean difference $= 6.54$; $t = 5.36$; $p < 0.001$). In contrast, AmE has continued to increase its use of pre-modifying nouns, while the reliance on that feature has leveled out in BrE (mean difference $= 3.16$; $t = 1.88$; n.s.). As a result, even non-technical news stories in AmE have frequent pre-modifying nouns; for example:

Text Sample 1: *The Washington Post (AmE)*
What's up with the cop in Silver Spring who's ratting out colleagues? That was the question raised by a *police officer* who started a thread on the online *message board* of the *Montgomery County police union* on July 15, 2004.

[. . .]

The *message board* was designed as a forum where officers could trade tips, complaints and light banter. But several officers say it has become an outlet for personal attacks – often laced with racist language, sexual harassment and disparaging remarks about *police supervisors*, *county leaders*, immigrants and residents.

Copies of the messages from the password–protected *Web site* provided to The Post provide a rare glimpse of some officers talking among themselves.

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The authenticity of the messages, posted from 2004 to this year, was verified by officers with access to the site.

The officer attacked in July 2004 was Cpl. Sonia Pruitt, identified on the site not only by her name but also her professional particulars: badge No. 1134, _Silver Spring station_, central _business district_. She said the attack stemmed from a misunderstanding of an innocuous episode involving an officer she believed did not follow proper procedure during an arrest.

The threat about her husband would have been jarring in any context, Pruitt said. But coming from one of her colleagues – only _Montgomery County police officers_ have access to the forum – it was downright bloodcurdling.

"Who's to say a guy with a gun wouldn't hurt my husband on a _traffic stop_?" she asked.

Officers concerned about what they describe as a spate of increasingly odious exchanges say _union leaders_ and _police supervisors_ have largely ignored their complaints. The _union president_ said the site is deliberately uncensored, but he said he discourages its use as an outlet for personal attacks, harassment and racist language.

Noun–noun sequences are especially common, but Figure 9.1 also shows that AmE more commonly uses longer sequences of pre-modifying nouns than in BrE (mean difference $= 3.88$; $t = 3.89$; $p < 0.001$); for example:

> co–occupant consent rule
> hurricane protection system
> school security guard
> aviation security official
> convenience store owner
> Family Research Council
> company payroll costs
> law enforcement communities

Figure 9.2 plots the historical patterns for post-modifiers, again showing that AmE and BrE have changed in generally similar ways. The most noticeable change has been the marked decrease in _of_-phrases. In earlier historical periods of English, _of_-phrases were much more common than other prepositional phrases as noun post-modifiers. For example, Raumolin-Brunberg (1991: 308, Table 9.C) describes how _of_-phrases comprised c. 70 per cent of all post-modifying prepositional phrases in the sixteenth century prose of Sir Thomas More. Figure 9.2 shows that _of_-phrases continued to be extremely common in eighteenth century newspaper prose, in both AmE and BrE, and this frequency of use was maintained in the nineteenth century. Thus, it is common to find noun phrases like the following in eighteenth century newspapers (taken from ARCHER):

the Custody of the Seals of the Dutchy and County Palatine of Lancaster
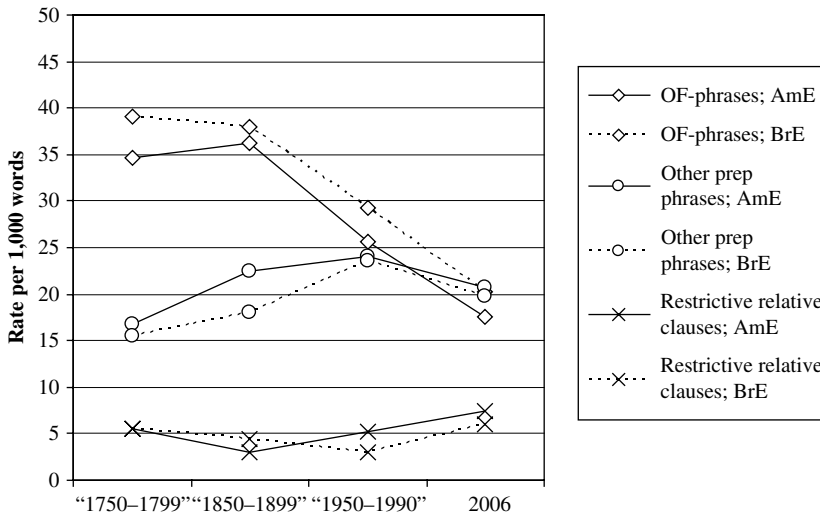_the Manner of raising the extraordinary Contribution of a Million of Ducats_

Figure 9.2 Post-modifiers across historical periods: AmE vs. BrE

However, *of*-phrases have dramatically decreased in use during the past century in both varieties. AmE has taken the lead in this regard, using consistently fewer *of*-phrases than BrE (mean difference for 2006 sub-corpora $= 2.59$; $t = 4.95$; $p < 0.001$).

Over the same period, there was a strong increase in the use of other prepositional phrases as post-modifiers. This increase results in noun phrases such as the following:

the Institute <u>on</u> Religion and Public Life <u>in</u> New York
the first difficulties <u>in</u> her relationship <u>with</u> the new President
a motion <u>for</u> a new trial <u>by</u> Philadelphia Newspapers, Inc.

AmE also led this innovation, shifting in the nineteenth century to an increased use of other prepositional phrases as post-modifiers. However, by the late twentieth century, AmE and BrE news reportage were similar in their frequent reliance on other prepositional phrases as noun post-modifiers (mean difference $= 2.0$; $t = 2.39$; $p < 0.05$).

Interestingly, this trend seems to have levelled off, and perhaps even begun to reverse course, so that the 2006 sample shows a slight decrease in the use of other prepositional phrases as post-modifiers. As a result, *of*-phrases and other prepositional phrases have nearly the same frequency of use in present-day newspaper reportage. One explanation for this recent develop-ment might be the increasing emphasis on reader-friendliness, as news-papers compete with the world wide web and other news sources to retain their readerships. But this decrease could also relate to the general increasing
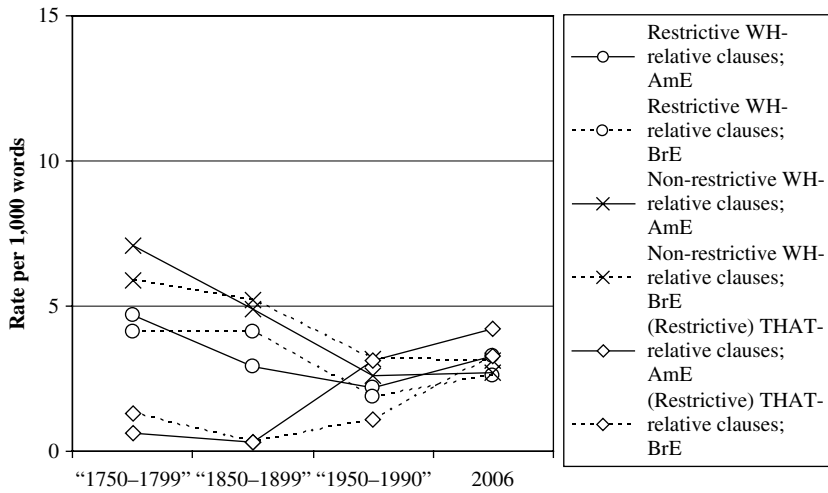
Figure 9.3 Relative clause types across historical periods: AmE vs. BrE

reliance on nominal pre-modifiers, reflecting an overall shift in preference from post-modifiers to pre-modifiers.

Restrictive relative clauses – the major clausal type of noun post-modifier – have remained relatively constant in use across the last three centuries. Surprisingly, the frequency of restrictive relative clauses has increased in the most recent period, representing a counter-trend to the overall greater reliance on non-clausal types of modification. Here again we see AmE taking the lead in this development.

Figure 9.3 breaks out the historical patterns for the different types of finite relative clauses, distinguishing among (restrictive) *that*-relative clauses, restrictive WH-relative clauses, and non-restrictive WH-relative clauses. As Figure 9.3 shows, the recent overall increase in the use of relative clauses is due almost entirely to an increase in *that*-relative clauses, especially in AmE (mean difference $= 0.93$; $t = 4.25$; $p < 0.001$). In contrast, WH-relative clauses have decreased in use over the past three centuries, in both varieties. Interestingly, *that*-relative clauses are coming to be used with both animate and inanimate head nouns. The following examples are all taken from the same news story as Text Sample 1 above:

online *forums* [that have changed the way police gripe]
A January *thread* [that started with a message about a sign at a district station]
employees [that would write some of the *things* [that are written in this forum]]
a good *painter* [that would be cheap]
an anti-illegal immigration *group* [that recently started scouting day laborer
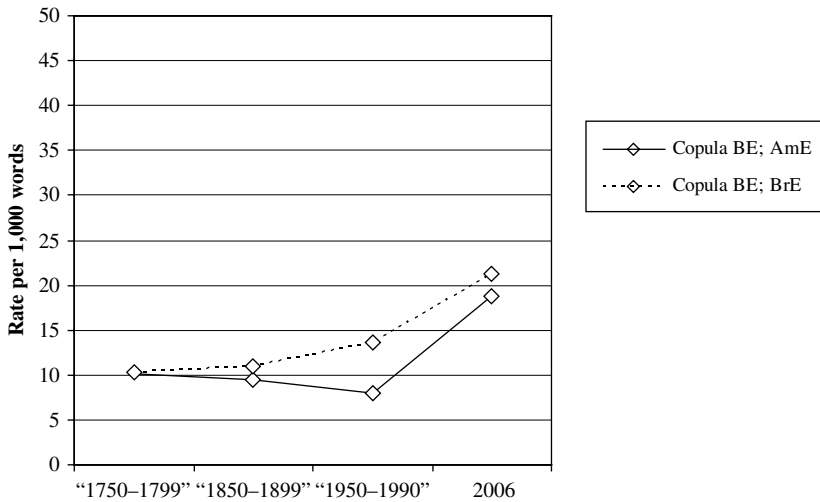   sites in the county]

Figure 9.4 Copula BE across historical periods: AmE vs. BrE

a *group* [that assists immigrants in the county]
a *site* [that hosts more than 150 message boards for law enforcement
    communities]
online message *boards* [that got out of hand]

The only other structural device that occurs frequently as a noun modifier
in newspaper reportage is appositive noun phrases, such as:

Sir Terry Leahy, Tesco's chief executive
Bryan Whitman, a Pentagon spokesman
Fortress Investment Group LLC, a New York-based asset management firm

Appositive noun phrases are about as common as prepositional phrases as
noun modifiers in the present-day sub-corpora (c. fifteen occurrences per
1,000 words), occurring with equal frequency in both AmE and BrE.
    Finally, we investigated the use of alternative forms of expression used to
describe a noun, focusing on the copula *BE*. In this clausal structure, the
subject predicative (following the copula *BE*) functions to provide descrip-
tive information about the noun in subject position; for example:

the law is unclear
the Wright Amendment was a fair compromise

As Figure 9.4 shows, these structures have also increased strongly in
recent historical periods, but in this case, BrE has been in the lead (mean
difference for 2006 sub-corpora $= 2.41$; $t = 2.74$; $p < 0.01$).

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There are several functions of copula *BE*, including extraposed construc-
tions (*it is unlikely that . . .*), and existential *there* constructions (*There is also
concern about*). However, one major pattern that has contributed to the
increased use of copula *BE* is in predicative constructions that contain a
syntactically complex subject predicative. For example:

Britain *is* [the only Western democracy where clerics sit in the legislature by
   right]
Genus *is* [the level of classification above species]
Cooper *is* [the father of Yvette Cooper, the Housing Minister]
The BBC *is* [liable for a fine of up to € 20,000]
He *is* [due to appear at Sevenoaks Magistrates' Court on Wednesday]
All human life *is* [sacred and Godgiven with a value that is inherent, not
   conditional]

In many cases, both the subject and the subject predicative are syntactically
complex:

[Operation Ore, started in 2002], *is* [Britain's biggest inquiry into the internet
   abuse of children]
[The next big issue on which they are likely to agree] *is* [the building of nuclear
   power stations]
[The hearing of the test cases against the Home Office] *is* [due to start on
   November 13]
[A monkey with a mohican hairstyle discovered in Tanzania last year] *is*
[not only a new species but also in an evolutionary league of its own]

These are clausal rather than nominal constructions; however, they incor-
porate complex noun phrases and adjective phrases as the subject and subject
predicative constituents. Thus, the recent increase in the use of copula *BE*
can be seen as yet another manifestation of the shift towards more densely
informational styles. These structures are minimally clausal, with only
the semantically empty linking verb *BE* connecting two structures that are
syntactically and informationally complex. These clauses can therefore be
regarded in part as an alternative strategy to complex noun phrase structures –
a strategy which is utilized to a greater extent in BrE than AmE.[1]

4 Conclusion

Newspaper reportage in AmE and BrE has been subjected to the same
functional forces over the past three centuries: On the one hand, authors

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[1] In future research, it would be interesting to track the use of a wider range of verbs, to
investigate whether there has been a general shift away from the use of verbs with specific
semantic content towards an increased use of semantically 'light' linking verbs (e.g., *be, have,
become, seem, include, involve*).

and editors have become increasingly aware of the production possibilities of the written mode, offering almost unlimited opportunities for crafting and revising the final text. The availability of typewriters, and more recently word processors, have been technological developments that facilitate authors' abilities to manipulate the language of written texts. At the same time, we have witnessed an 'informational explosion', resulting in pressure to communicate information as efficiently and economically as possible. Taken together, these two factors help to explain the rapid increase in the use of syntactically complex and 'compressed' noun modification devices over the past 100 years.

In general, AmE has been somewhat more innovative in using these devices earlier and to greater extents than BrE. However, newspaper report-age in both varieties has generally followed the same historical course, and present day newspapers in the two varieties are strikingly similar in their reliance on these patterns of nominal modification. Thus, while we see the influence of diatopic variation here, the stronger influences are functional, associated with the technology of literacy and the communicative demands of the 'informational age'.