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A difficult to explain phenomenon: increasing complexity in the prenominal position

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In English, the position of the AP in the nominal phrase is determined by its form: only structurally simpler phrases are said to be licit in prenominal position, more complex ones have to follow the noun. Recent studies have reported an increasing use of nominal premodifiers in English, so the question arises whether this trend affects only simpler phrases or whether a new structural option emerges – complex APs in prenominal position. Drawing on data from COHA, this article investigates which types of AP occur prenominally. The data show that certain types of complex APs are gaining ground in the prenominal position. Most of these can be analyzed as complex words rather than complex phrases and hence do not indicate major syntactic changes in the English NP. However, some of the attestations, such as *easy*-predicates with a *to*-infinitival clause, are complex phrases. It is argued that it is the dependency relation between their rightmost element, a lexical verb, and the noun they modify which makes them occur in prenominal position.

Keywords: noun phrase, adjectives, complexity, word order variation, language change

1 Introduction

In the English language, there are two possible positions for dependents of the nominal head, prenominal and postnominal. Even though there are these two options, variation is far from free: whether a constituent of the NP occurs in pre- or in postnominal position is largely determined by its form. While structurally less complex APs occur as pre-head dependents, PPs, appositive NPs, clauses, as well as more complex APs follow the head noun. This is because English has VO order, i.e. it is a right-branching, head-left language where phrasal dependents follow their heads (e.g. Dryer 1992).

Even though word order is rather fixed in English, the English NP has undergone some recent changes. Biber *et al.* (2009) report on a corpus study of ARCHER which reveals a trend towards premodification over the past 300 years both in British and American English. There is an increase in the use of attribute adjectives and premodifying nouns and a decrease of post-nominal *of*-phrases. An additional newspaper sample from 2006 reveals a slight decrease of other post-nominal PPs compared to the 1950–90 span in ARCHER.

The authors also report an increase of NNN-sequences over the past 300 years, albeit a less sharp one. This growing preference for premodification over postmodification is related to a trend towards a more 'compressed' style in written English, which results from the need to condense information in an economic way. This trend is supported by further corpus studies. Biber & Gray (2016) show that there is a decreased use of clausal noun modifiers, while the use of attributive adjectives, nouns as nominal

premodifiers, N-particle combinations (N-xx*ing* and N-xx*ed*) as well as postnominal PPs (apart from *of*-phrases) increases from 1750 to 1990. Even though structural complexity decreases – clauses have more nodes than PPs or single-word modifiers and are thus more complex – Biber & Gray consider (cognitive) complexity to be increasing: since more condensed structures such as NN-combinations are less explicit, they often allow for many interpretations and are thus more difficult to process. This explains why the changes they find are most pronounced in academic writing.

Biber & Gray (2016) identify an increased use of prenominal material, i.e. an already existing grammatical option is becoming more prominent. The question arises whether this trend towards premodification also results in the emergence of *new* structural options. A recent change in compounding suggests that this might be the case. In addition to X-N compounds, where the non-head constituent is a word, we also find XP-N constructions, so-called 'phrasal compounds', where the left-hand member is a phrase (1) or even an entire clause (2).

(1) Det + DP + N a my-way-or-the-highway kind of guy (COHA, 2000)
(2) Det + CP + N a no-good-can-come-of-this expression (COHA, 1940)

Even though the non-head constituent is a phrasal element, this is commonly considered an instance of compounding, a word formation process that combines bases (Bauer *et al.* 2013: chapter 19). The product of this process is a word, a syntactic atom, a terminal node in the syntactic tree, albeit a more complex one.[1] The growing preference for prenominal material and this emergence of more complex words give rise to the question whether these changes allow for new structural options in the syntax of the NP as well, i.e. whether we also find more complex *phrasal* structures. Biber *et al.* (2009) and Biber & Gray (2016) only take into account NN-constructions, which are generally assumed to be compounds (see Bauer *et al.* 2013: chapter 19), and single prenominal adjectives. Their findings allow for important insights into changes in the use of prenominal material, but those changes in frequency are still in accordance with the structural properties of the English NP outlined above. It is thus worthwhile to investigate whether the trend towards premodification also includes syntactically more complex material.

To this end, a corpus study was conducted which examines the nature of the adjective phrases found in prenominal position in American English over the past two centuries. The focus is on adjective phrases because other phrase types in prenominal position, such as prepositional phrases or clauses, will necessarily be constituents of phrasal compounds, which in turn do not allow for insights into potential syntactic changes in the nominal domain.

The structure of the article is as follows: section 2 provides an overview of the different positions of APs in English, the rules that govern the distribution, exceptions

[1] For a detailed discussion of what counts as a word, see Plag 2003. I thank one of the anonymous reviewers for pointing out that the term 'word' as opposed to 'phrase' might need clarification.

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to the latter as well as explanations for these patterns from word ordering theories. Dryer's (1992) Branching Direction Theory and Hawkins' (2004, 2014) Minimize Domains principle are used to explain why AP-complexity plays a crucial role in the positioning of the phrase. Section 3 presents a study of the *Corpus of Historical American English*. The query is described in section 3.1; section 3.2 presents the data. It is shown that structurally complex prenominal APs have become more frequent, raising the question of whether these are really complex phrases. If the items under consideration are complex words, i.e. syntactic atoms, they are unproblematic from a word order perspective. Complex words here can be either the product of phrasal compounding or formed by the insertion of a fixed expression, a more complex lexical item that is stored as unit in the mental lexicon (see Bauer *et al.* 2013: 12). This is addressed in section 4. It is argued that some but not all APs can be considered fixed expressions and/or phrasal compounds. The analysis is backed up by data from follow-up studies of the *Corpus of Contemporary American English*. The question of whether the findings indicate major structural changes in the English NP is addressed in section 5. It is shown that the constructions found only seemingly violate word order principles and that they can well be accounted for in current word order theory. Section 6 summarizes the article.

2 Adjectival modification in English

2.1 Conditions on AP positions

The *Cambridge Grammar of the English Language* (*CGEL*; Huddleston & Pullum 2002) lists three main functions for APs: attributive (3), predicative (4), and postpositive (5) (Pullum & Huddleston 2002: 528f.).

(3) my new job
(4) This is new.
(5) a man full of his own importance

The *CGEL* mentions three structural restrictions on pre-nominal adjectives (Pullum & Huddleston 2002: 550ff.). First, there is a 'virtual exclusion of post-head dependents', i.e. the AP cannot contain modifiers or complements that follow the adjectival head, as illustrated below.

(6) She's very good at chess. *a very good at chess friend
(7) It's easy to find. *an easy to find place

Pullum & Huddleston mention a number of exceptions to this ban on post-heads:

(8) a better than average result
(9) the larger than expected profit
(10) his hard as nails attitude to workers
(11) a ready-to-eat TV-meal

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Although (11) looks very similar to the (allegedly) ungrammatical structure in (7), the former is claimed to be different in that 'it has something of the character of a fixed phrase', similar to '*some-easy-to-read children's books* or *hard-to-beat-prices*' (Pullum & Huddleston 2002: 551).

A second constraint presented in the *CGEL* relates to pre-head modification of the adjective. As the example below shows, full NPs are not licit in an attributive AP; only the non-number marked somewhat 'defective' NP can be used in such a context (see (12)), which is why the *CGEL* considers instances such as the one in (12b) compound adjectives rather than syntactic modifier-N constructions.

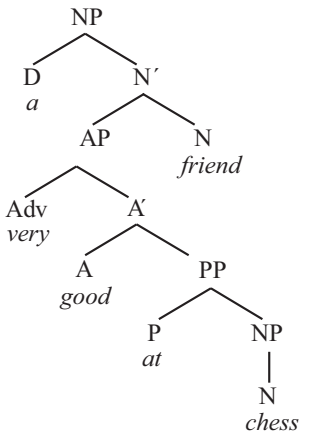
(12) (a) She is three years old. *a three years old child
(b) a three-year-old child

2.2 *Explanations*

The aforementioned ban on complex dependents of the attributive adjective is well accounted for in the major word order theories. For the purpose of this article, Dryer's (1992) Branching Direction Theory and Hawkins' (2004, 2014) Minimize Domains principle were chosen, because they explicitly address the variable position of the AP within the English noun phrase.

Dryer (1992) conducts a typological study of word order correlations on the basis of a 625-language sample. He distinguishes two categories: the phrasal and the non-phrasal. Non-phrasal categories are 'verb patterners' and phrasal categories are 'object patterners', which means that in a VO-language like English, non-phrasal categories tend to precede phrasal ones, as the verbal head precedes its phrasal object. This is because languages tend towards consistent branching directions. English as a right branching language allows for simpler APs in prenominal position only because a complex – 'recursive' in Dryer's terminology – AP that dominates another phrase would result in too much branching out to the left when preceding the noun. This is illustrated for **a very good at chess friend.*

(13)



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The adjectival head takes a PP dependent, which results in an inconsistently branching structure. If *at chess* were left out, the branching direction would still be inconsistent but to a much lesser degree.

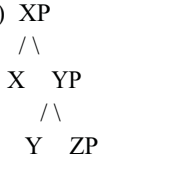
Hawkins (2014) puts forth a processing-based explanation for Dryer's theory. According to his Performance Grammar Correspondence Hypothesis (PCGH), grammatical variation is determined by processing efficiency – those structures that are easier to process will be preferred over the more difficult ones and will finally be grammaticalized. There are several principles of the PGCH, the most important for the present analysis being Minimize Domains, which says to keep the distance as short as possible between elements that are in combination relations and/or dependency relations. Phrasal combination domains (PCDs), for example, contain those elements that are required to construct the phrase and its immediate constituent structure. According to Minimize Domains (MiD), these domains should be as short as possible. The following example (from Hawkins 2014: 12) illustrates how the principle applies to word order. (14a) and (14b) show two possible orders in a VP with two prepositional phrases.

(14) (a) The man [VP looked [PP1 for his son][PP2 in the dark and quite derelict building]].
PCD-VP 1 2 3 4 5

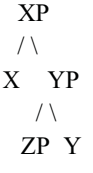
(b) The man [VP looked [PP2 in the dark and quite derelict building][PP1 for his son]].
PCD-VP 1 2 3 4 5 6 7 8 9

In the first example, the short phrase precedes the long. The structure of the VP can be determined on the basis of five words: the verbal head, the first three-word PP and the preposition of PP2, which signals the presence of a further PP-dependent of V. In the second example, the longer phrase precedes the shorter and hence increases the VP-PCD to a considerable extent: here, nine words are needed to recognize that there is a V plus two PP-dependents. This structure is dispreferred because it is more difficult to process than the first. This explains why harmonic word order patterns in the consistent head-left structure in (15a) are preferred over disharmonic as illustrated in (15b).

(15) (a) Head-initial



(b) Mixed (from Hawkins 2014: 90)



The ban on intervening material depends on the quality of the latter: if a lot of material is positioned between immediate constituents, i.e. the more complex ZP becomes, the less likely it is to occur in that position. Minimize Domains thus also makes predictions for the position of APs in English. According to Hawkins, 'a left-branching modifier of N is at variance with the general head-initial syntax of English' (Hawkins 2014: 82), which is why complex prenominal material is not permitted.

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(16) (a) *a yellow with age book
PCD-NP 1 2 3 4 5
(b) a book yellow with age
PCD-NP 1 2 3

In (16a) for example, five words are needed for the construction of the NP. When the complex AP follows the nominal head as in (16b), only three words are needed to recognize the constituent structure of the NP because the distance between the head, the adjective and the determiner is minimized. A simple pre-adjectival modifier as in [*very yellow*] is licit prenominally because it 'adds little to the inefficiency of phrasal combination domains' (Hawkins 2014: 82).

In the light of the above, only structurally simpler APs should be affected by the trend towards premodification. This hypothesis is tested against data from the *Corpus of Contemporary American English*, as reported in what follows.

3 The diachrony of prenominal phrases

3.1 Method

In order to analyze changes in the structure of the English NP, the *Corpus of Historical American English* (COHA; Davies 2010–) was chosen. COHA is a large 400 million-word balanced corpus comprising texts from 1810 to 2000, which makes it suitable for the analysis of recent developments. Unfortunately, COHA is not parsed, i.e. there is no way of searching for all prenominal APs that vary in structure and complexity. As a work-around, the first search string targeted hyphenated prenominal material *-*-* [nn*].[2] This search renders all nouns that are preceded by a string of signs/words that contains two or more hyphens. Of course, hyphenated data are only a subset of the data which are of interest here and the full set would certainly be desirable. However, hyphenated data are less problematic than it might seem. As will be shown in what follows, the hyphenated data allow for interesting insights into the phenomenon that cannot be gained otherwise. Second, a follow-up search for recurrent patterns in the data (section 4.2) shows that the APs under consideration also occur without hyphens. This even holds for lexicalized expressions such *as honest to goodness*, which demonstrates that hyphens do not necessarily indicate the status of the material. Since hyphenation is known to be variable in compounding, too – Bauer *et al.* (2013: 56) speak of an 'inauspicious lack of systematicity' – the variability here is not surprising. What is more, hyphens can have grammatical functions in that they signal constituency, as Bauer *et al.* (2013: 57) point out. Hence, hyphenation in the APs under consideration here might simply be a means to indicate that the material in prenominal position forms a unit.

[2] The corpus analysis was performed using Coquery (Kunter 2016).

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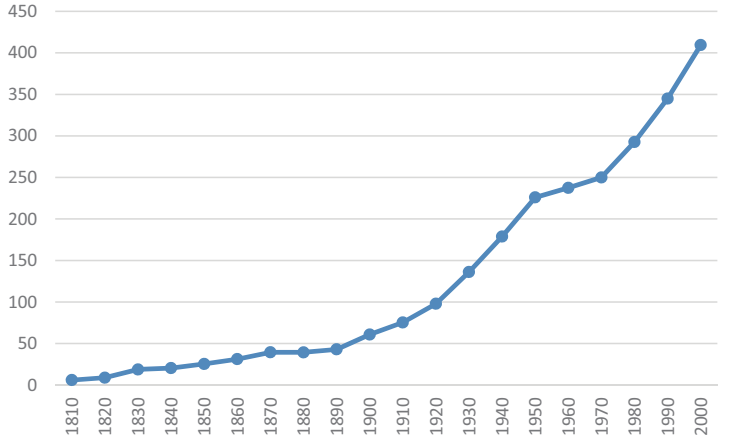

Figure 1. (Colour online) Prenominal material containing two or more hyphens (pmw) in the *Corpus of Historical American English*

3.2 Data

The search yields 74,612 hits. A total of 11,186 of these items were excluded because they contained non-phrasal prenominal material, such as phone numbers (*281-586-1100 www.springisd.org*) or hyphenated non-word material (*s-s-s-s-sweet s-s-s-s-s-spirits*). I also omitted those instances where a hyphenated affix results in a prenominal string containing fewer than three lexemes, as exemplified in (17).

(17) this strange un-cloud-like cloud

Figure 1 shows the relative frequencies of hyphenated phrasal prenominal material in COHA: there is an obvious increase over time.

In a next step, I filtered out cases of non-adjectival prenominal phrases, i.e. various types of phrasal compounds were excluded. Two examples of non-AP phrasal or clausal prenominal material are provided below.

(18) zeitung-and-slipper husbands
(19) a cursory you've-got-to-be-kidding look

The non-adjectival data were excluded because, as pointed out before, these well-attested structures are not of interest here.

Figure 2 indicates that the APs within the *-*-*-data have also become more frequent.

The remaining 20,694 items comprise nouns preceded by a hyphenated AP, as in (20)–(22), or participle phrase, as in (23) and (24).

(20) not-too-loyal citizens of the U.S.A.
(21) important-but-hard-to-remember details
(22) a twelve-year-old boy

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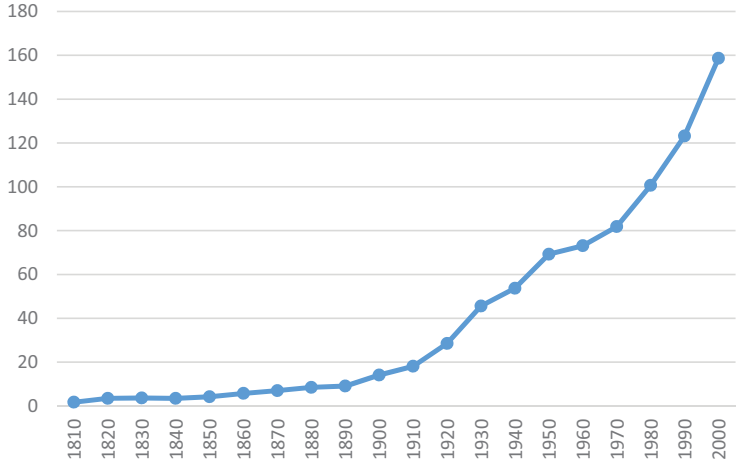

Figure 2. (Colour online) Hyphenated prenominal adjective phrases (pmw) in the *Corpus of Historical American English*

(23) wide-awake-looking butterflies and humming-birds
(24) natural-gas-fired utilities

These examples indicate that there is considerable variation within the prenominal hyphenated string. (20) shows a negated adverb modifying the adjectival head, which, given that adjectives readily occur prenominally when modified by an adverb, is a less interesting finding. (21), in contrast, displays a very complex AP comprising a *to*-infinitive clause. (22) is an instance of what Bauer & Huddleston (2002: 1660) consider a 'larger' compound adjective containing a measure expression. (23) and (24) are also categorized as compounds in the *CGEL*, the first having a gerund-participle as head, the second a past participle form.

This demonstrates that the APs first have to be distinguished in terms of their categorial status: 14,275 items that are commonly classified as words, such as the compound adjectives (22), (23) and (24), were excluded because the focus is on complex adjective phrases rather than on complex adjectives.

In order to account for the difference between instances such as (20) and (21), the remaining 6,419 APs are categorized in terms of their internal complexity. To this end, Dryer's (1992) threefold distinction between non-recursive, conjunction, and fully recursive was used. According to Dryer, in non-recursive adjective phrases the head may be preceded by an intensifying adverb (*very tall*) or an intensifying adverb phrase (*much more interesting*). This phrase type is the least complex and shows little branching. Conjunctions such as *tall and rather thin* are classified as recursive because there is an infinite number of them. Still, Dryer considers this type of recursion 'of a rather degenerate sort' because these phrases can never dominate PPs, NPs or clauses. These coordinated APs are hence of intermediate complexity. Fully recursive APs (*bigger than houses* or *eager to help others*), by contrast, dominate 'other major phrasal

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categories' (Dryer 1992: 111) and are complex branching structures. In English, these are said to follow the noun in order to keep branching directions consistent, as described in section 2.2.

The data set contains 1,341 non-recursive APs, adjectival heads which are modified by an adverb or an adverb phrase, as illustrated in (25a). There were 2,845 instances of coordination, either with or without an overt coordinator (25b); 2,233 APs were coded as recursive as they contained a phrasal dependent, as shown in (25c).[3]

(25) (a) **Non-recursive APs** (1,341 tokens)
the **all-too-human** attributes of all churches
a **carefully-worked-up** scene
no-longer-secret assistance from regular Honduran Army troops

(b) **Coordinated APs** (2,845 tokens)
an unfurling **starred-and-striped** banner
his own special **straight-and-narrow** path
the **purple-pink-red-black** rockets

(c) **Fully-recursive APs** (2,233 tokens)
higher-than-expected earnings
a **made-for-the-purpose** board of laminated junk mail
The **too-good-to-be-true** quality of real life

Interestingly, the use of fully recursive hyphenated APs also increases over time, as figure 3 shows.

To sum up: the hyphenated COHA data corroborate Biber *et al.*'s (2009) and Biber & Gray's (2016) findings that the prenominal position has become more prominent over the past centuries. The use of prenominal APs increases, too. Interestingly, the rise also comprises structurally more complex APs. From a syntactic perspective, this finding is unexpected because fully recursive, i.e. branching, adjective phrases should follow the noun to keep a consistent right-branching structure. Since the phenomenon of phrasal compounding indicates that words can be very complex, the question arises whether the constructions here are really complex APs or just complex adjectives. It could be that the apparently complex APs are lexicalized expressions and/or phrasal compounds. This matter will be addressed in the next section.

4 Syntax vs word-formation: complex adjectives vs complex adjective phrases

If we are dealing with complex words, the internal structure of the AP is unproblematic because the item is a lexical unit without internal structure in the syntax (see the definition of lexical items in Bauer *et al.* 2013: 12). There are three possible options:

[3] Some items proved more difficult to classify:

(i) all-but-unknown visits
(ii) anything-but-traditional buildings

All-but (i), for instance, has the character of a fixed expression, and hence might be treated as a complex adverbial expression. However, *anything-but* (ii) has a very similar function but *anything* is clearly a nominal element, which makes a classification as complex adverbial difficult. Since the *CGEL* considers *all-but* a degree adjunct that has idiomatic character (Mittwoch, Huddleston & Collins 2002: 723), *all-but*-Adj examples are coded as non-recursive. This analysis is extended to *anything-but*-Adj.

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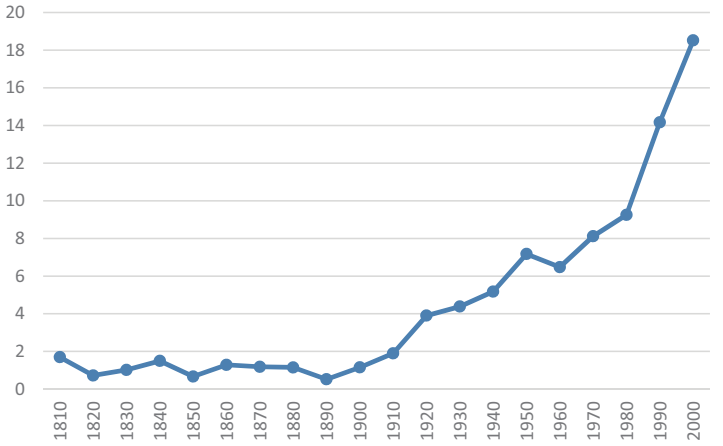

Figure 3. (Colour online) Hyphenated fully-recursive prenominal adjective phrases (pmw) in the *Corpus of Historical American English*

the prenominal material is a fixed expression, i.e. a complex A rather than a complex AP, that modifies the noun, the XP + N combination is a phrasal compound, or both.

4.1 Fixed expressions

As pointed out in section 2, the *CGEL* states that some of the exceptions to the 'virtual ban on post-head dependents' within prenominal phrases have 'the character of a fixed phrase' (Pullum & Huddleston 2002: 551), which is why this option will be discussed first.

Fixed expressions are a matter of degree. The first end of the continuum, fully lexicalized expressions, contains items that are listed in the *OED*. The adjective (or participle) phrase has a fixed form and meaning. A non-exhaustive list of examples is given below.

(26) a self-described 'dyed-in-the-wool conservative'
(27) Vanguard's steady-as-she-goes approach
(28) a free-for-all fight
(29) the gone-to-seed lettuce
(30) the good-for-nothing fellow
(31) a real, honest-to-God guy
(32) a very much holier-than-thou attitude
(33) a true-to-life television show
(34) a larger-than-life image

The prenominal elements in these examples are complex words, i.e. syntactic atoms, and therefore entirely unproblematic from a word order perspective.

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The next group of items contains slight variation on the above patterns, such as *dyed-in-the-N* (35), comparative-*than*-pronoun (36), or *honest-to*-N (37).

(35) (a) a dyed-in-the-cotton dimmocrat
(b) a dyed-in-the-polyester cook
(c) a dyed-in-the-woods bird hunter
(36) (a) this hierophantic, better-than-thou attitude
(b) Another one of those damn holier-than-us boys
(c) The more-primitive-than-thou accessories
(d) more-radical-than-thou tones of voice
(37) (a) one honest-to-codfish sailor
(b) your honest-to-gosh uncle
(c) an honest-to-gotham hit

Since these are analogies to the lexicalized phrases in (26) to (34), they still fall into the group of (more-or-less) fixed expressions.

Further, there are instances of recurrent syntactic patterns such as *fresh/warm-out/off/from-the*-N that indicate freshness of food, as illustrated below.

(38) (a) warm-from-the-oven cobblers
(b) fresh-out-of-the-oven pizza pies
(c) those fresh-from-the-stream sizzlers
(d) fresh-from-the-oven goods
(e) fresh-off-the-farm salads

Note that the modified nouns in these examples stem from one lexical field, edibles. The items are thus also analyzed as (more-or-less) fixed expressions. A similar case can be witnessed in the examples below:

(39) (a) The schlocky made-for-cable drama
(b) one of his first made-for-film romances
(c) made-for-mall movies
(d) first-run made-for-television movies

Here, the string *made-for*-N is followed by a noun denoting a medium, the noun within the AP denotes a location in relation to the medium.

A further step towards the syntactic end on the continuum is seen in constructions with form–meaning pairings. In examples such as (40), there is more variation in terms of lexical material but still there is a rather fixed form and function.

(40) (a) the heavy-as-lead suitcase
(b) all the blasted hot-as-hell sun
(c) soft-as-smoke ads
(d) that hard-as-nails son
(e) flat-as-a-pancake topography

In the above examples, which are one of the exception types listed in the *CGEL*, an A-*as-(a/an)*-N phrase has an intensifying function: an adjective denotes a property which is linked to an entity that is prototypically associated with that property. Since the complement of *as* is non-referential and has a mere intensifying meaning, these items

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can be considered fixed expressions. The same holds for the comparative equivalents, which are listed below.

(41) (a) his cuter-than-a-button son Theo
(b) the harder-than-jade residents of Pig Sty Alley
(c) a hotter-than-the-devil day like today
(d) the development of an inexpensive, stronger-than-steel plastic

There are further types of comparatives, which fall into three categories. The first group contains items in which *than* is followed by an adjective denoting normality, such as *normal*, *usual*, *ordinary* or *average*:

(42) (a) better-than-average health
(b) various types of bigger-than-usual loads
(c) warmer-than-normal weather
(d) a milder-than-ordinary sense

In the second group, *than* is followed by a participle denoting anticipation.

(43) (a) bigger-than-predicted audiences
(b) greater-than-expected threats
(c) worse-than-projected budget numbers
(d) your slower-than-desired metabolism

The first two types are among the exceptions mentioned in the *CGEL*: 'Comparative complements are permitted provided that they are very short, usually *than* or *as* + a single word, which cannot be a referential NP' (Pullum & Huddleston 2002: 551). The form of these elements is somewhat restricted, yet there are 90 types in 394 tokens, which shows that the construction is quite variable. It is debatable whether these are fixed expressions. The third type, illustrated in (44), differs from the previous in two respects. In the 16 tokens of this class, *than* is followed by a noun or adjective, i.e. the form is more variable.

(44) (a) forecasts of colder-than-seasonable weather
(b) international policy coordination on the greater-than-national problems
(c) objects at lower-than-body temperature
(d) lower-than-domestic prices
(e) worse-than-dvd quality

The meaning is more flexible, too – the final element in the phrase denotes very different concepts/properties in each instance. Hence, this third group probably cannot be considered true fixed expressions. I will come back to comparatives in section 5.

The final type of item to be discussed here is an adjective followed by a *to*-infinitive. This adjective phrase is among the exceptions mentioned in the *CGEL*. According to the latter, '*ready-to-eat*, has a hollow infinitival clause, but it has something of the character of a fixed phrase. We might also find *some easy-to-read children's books* or *hard-to-beat prices*, but not *the *ready-to-paint surface* or a **hard-to-clean oven* etc.' (Pullum & Huddleston 2002: 551). This claim requires further examination.

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As (45) illustrates, *easy-to*-V occurs with a number of different verbs.

(45) (a) attacks against 'soft', easy-to-find cities
(b) easy-to-clean surfaces
(c) easier-to-spot objects
(d) a few easy-to-answer questions

There are 177 *easy-to*-V tokens and 79 types in the COHA data. The second example provided by the *CGEL*, *hard-to*-V, shows a very similar type-token ratio. There are 178 tokens with 90 different verbs following *to*, some of which are displayed in (46).

(46) (a) hard-to-detect drugs
(b) harder-to-copy $ 100 bills
(c) harder-to-conquer diseases
(d) this hard-to-impress crowd

What is more, we find a range of different heads in this AP construction, as indicated in (47a–f).

(47) (a) the very expensive and difficult-to-build items Maulbow had brought out from the Hub difficult-to-build items
(b) the sweet-to-remember story of a distant and dear delight
(c) tough-to-staff districts
(d) the impossible-to-get interview
(e) a list of hard-to-wait-for things
(f) cheaper-to-operate coal

The corpus data show 400 tokens with 200 different types of this kind of AP and thus suggest that an AP such as *hard-to-clean* might not be as unacceptable as claimed in the *CGEL*.

Please note that the *ready-to*-V construction is not included in this group. There are two reasons for this. First, even if it does allow for various verbs in the *to*-complement (48), there are only 31 types in 118 tokens.

(48) (a) ordinary ready-to-wear shoes
(b) the ready-to-drink teas
(c) 10-pound ready-to-cook turkey
(d) bagged, ready-to-eat salads

Many of the types belong to particular lexical fields, such as *ready-to-wear* clothing (48a) and products that are ready for consumption (48b–d), and should hence be analyzed as semi-fixed expressions. Second, there is a structural difference: *ready to* can be both a tough and a control predicate, as shown below.

(49) (a) [The chicken]AGT is ready to eat.
(b) [The chicken]PAT is ready to eat. (Höglund 2014: 86)

In (49a), *the chicken* is the notional subject of the verb *eat*. This is the control construction. In the *tough*-construction in (49b), *the chicken* is the notional object of

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the verb *eat*, i.e. it is ready to be eaten. The so-called '*easy*-predicates' (Nanni 1980) are *tough*-movement predicates, they cannot occur in control constructions. Thus, there are major structural differences between *ready to* and adjectives of the *easy*-type. The structural properties will be discussed in detail in section 5, at this point it suffices to note that *easy*-predicates in prenominal position are not fixed expressions, and that *ready* cannot be considered an *easy*-predicate.

To sum up, most fully recursive prenominal APs in the COHA data can be considered fixed expressions, even though some of them allow for variation. Comparatives of the third group, such as *lower-than-body temperature*, as well as *easy*-predicates followed by an infinitival clause, however, are not. They are complex APs rather than complex adjectives, i.e. they are phrases and not word-level phenomena.

4.2 Hyphenation

The two cases that have been identified as phrases rather than words, certain comparative-*than* constructions and *easy-to*-V APs, require closer scrutiny. A potential argument against their phrasal status could of course be the fact that they are hyphenated: all different types of adjectival compounds are hyphenated, be it N-A compounds such as *bone-dry* or more complex measure terms as *two-year-old*. Furthermore, the phrasal non-head in a phrasal compound is often hyphenated. Hence, a further corpus search was conducted in order to check whether prenominal *than*-comparatives and A-*to*-V constructions only occur as hyphenated strings of words. Since, as demonstrated above, the sharp increase in hyphenated prenominal APs is found in the past decades, the *Corpus of Contemporary American English* (COCA; Davies 2008–) was used. COCA is a 520 million-word corpus that covers the years from 1990 to 2015 and thus provides much more data for that time span than COHA does (57,356,791 words for 1990–2010).

First a list of *easy*-predicates in sentence-final position following the lemma BE was compiled (*ready* was excluded again for the reasons given above). In a second step, all those different *easy*-predicates were subject to a separate query as e.g. '*easy/easier/easiest to* V N/ *difficult to* V N/ …'. This rendered 186 tokens and 102 types. Examples are given in (50a–c), (51) contains a list of the adjectives found in the prenominal 'A *to* V' phrases.

(50) (a) the seemingly impossible to control U.S. border with Mexico
(b) a very nice to drive car
(c) a tiny, hard to pronounce molecule found in red wine

(51) bad, cheaper, difficult, easier, easiest, easy, good, great, hard, hardest, impossible, nice, safe, tough, toughest

In section 4.1, certain comparative APs were analyzed as phrasal, i.e. non-lexicalized, structures as well. Even though some were arguably more on the lexical than the syntactic side, they were all included in the search for non-hyphenated equivalents

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in COCA. The query rendered 311 hits of this type (see 52a). For the group of comparatives, where *than* is followed by a participle denoting anticipation, the COCA query returned 206 unhyphenated tokens in prenominal position (see (52b) for an example).

(52) (a) a larger than average bonus
(b) their lower than expected representation among music participants

The third group is the most interesting one as the different elements following *than* do not show any patterns. The COCA query returned 42 unhyphenated 'comparative *than* adjective/participle' phrases, as illustrated in (53a–f), and 35 unhyphenated 'comparative *than* noun' phrases in which the final element denotes a concept/property other than normality, as shown in (53a–b).

(53) (a) Remove any skin and bones and break cooked fish into **slightly larger than bite-sized portions**.
(b) we can't test it on **smaller than planetary scales**, …
(c) 10 states whose laws prohibit nontherapeutic research that poses **greater than minimal risk** on minors and incompetent adults
(d) To share her Rapture passion – some need in **her greater than sexual desire**?
(e) to ban bug sprays with **higher than 30% concentrations of the chemical DEET**
(f) drink a couple of unlicensed beers at **lower than barroom prices**

It needs mentioning, though, that even if this group is rather hetereogenous, some patterns do emerge after all. There is a recurrent use of 'numeral + %' (22 tokens) in the 'comparative *than* noun' phrases as shown in (53e), and out of 42 the 'comparative *than* adjective/participle' phrases, five are headed by *higher*, display a '*than recommended/suggested*'-posthead, modify the nouns *dose* and *exposure* (examples are given below), and hence are fixed expressions from the field of medicine.

(54) (a) a higher than suggested dose
(b) higher than recommended doses

Further, there are six tokens of comparative-*than-necessary* among the comparative-*than*-adjective/participle phrases. Since the non-hyphenated comparatives comprise instances of those forms that were argued to be on the lexical rather than the syntactic side, it is doubtful whether the question of hyphenation plays such a great role for the present discussion. What is more, lexicalized expressions also occur without hyphens in prenominal position. In COCA, there are, for instance, 26 tokens of '*honest to god/goodness* N' and 46 tokens of '*larger than life* N'. This shows that hyphenation does not necessarily indicate wordhood status of a multi-word string and hence cannot be used as a distinguishing criterion to shed light on the syntax-or-word-formation question. It also shows that hyphenated data as used in this article do not pose a problem for the line of argument, given that we do find numerous instances of non-hyphenated prenominal *easy*-predicates with clausal complements. As pointed out in section 3.1, hyphens might be used as a means to signal constituency.

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4.3 Phrasal compounds

The final question to be addressed in the context of syntax vs complex word is whether the items under consideration qualify as phrasal compounds. Phrasal compounds ('PCs' for short), i.e. nominal compounds with a phrasal non-head, have been subject to controversial discussion, mostly because they seemingly blur the syntax–lexicon divide and thus pose problems for certain formal concepts such as the Lexical Integrity Hypothesis (see e.g. Trips & Kornfilt 2015 for an overview). Since the internal structure of PCs is a matter of much debate, there will only be a brief overview of their main properties and the implications for the current topic.

PCs (in English) have the following properties (Trips 2016: 153): They are right-head determinative nominal compounds with 'the structure YP + X where YP semantically determines the head'. Furthermore, they show a phrasal intonation pattern in the non-head, anaphoric binding into the non-head seems possible (see also Meibauer 2003: 166f.), and the phrasal non-head can be lexicalized (see fn. 3). Unfortunately, these criteria are not too helpful in determining whether the APs under scrutiny are syntactic noun modifiers or non-head constituents of PCs. Distinguishing compounds from phrases, in general, is very difficult (see e.g. Payne & Huddleston 2002: 448ff.; Bauer *et al*. 2013: 432ff.) and a matter of much debate. PCs usually are quite easy to identify, since they allow for material in prenominal position that is not licit through a syntactic process – clauses, VPs, PPs and the like cannot occur as pre-head dependents of N. Needless to say, with prenominal APs the identification problem persists, which is probably why APs are rarely mentioned in the literature. Trips, for instance, analyses the inventory of English PCs using *British National Corpus* (BNC) data, but the only AP-N PC she mentions is '*kind to hair*' *curlers* (Trips 2014: 44). Solving these issues is beyond the scope of this article, so only two relevant aspects of PCs will be discussed, their quotative character and their modifier–head relation.

There are different ways to classify PCs, one distinguishing criterion being a potential quotative character of the non-head. There are instances of quotative APs in the COHA data. Consider the following examples:

(55) He nods, takes down **the closed-for-lunch sign**, sails it to the counter, opens door, goes out into the street.
(56) Don't assume that **a made-in-the-U.S.A. label** means a product is necessarily made under ideal conditions.
(57) But don't buy into **the good-for-you claims** if you also find a laundry list of potential irritants.

A *closed-for-lunch* sign states that a shop is closed for lunch, i.e. the hyphenated AP denotes the text that is conveyed via a certain medium, the sign in this case. Similarly, *made-in-the-U.S.A.* is what the label says and *good-for-you* is the content of the claim that is made. These three examples can thus be assumed to display phrasal compounds rather than AP-N modification. They also show the semantic differences between syntactic AP-N modification and AP-N compounds: the sign is not closed for lunch, the label itself has not necessarily been produced in the USA, and the claim

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does nothing good for you, which shows that the APs do not denote properties of the Ns they precede. This parallels A-N compounding:

> The great majority of adjective + noun compounds involve quite a high degree of semantic specialisation and lexicalisation: the compound differs significantly, therefore, from a construction consisting of an attributive adjective + head noun. *Blackbird*, for example, is quite different in meaning from *black bird*: it denotes a species of bird, not a bird of a certain colour, so that *white blackbird* is not contradictory. (Bauer & Huddleston 2002: 1650)

The same effect can be witnessed in some AP-N constructions in which the AP is certainly not quotative in the strict sense of the term. The NP in (58), for instance, refers to adrenaline released in dangerous and potentially life-threatening situations, i.e. reference is made to a particular type of adrenaline. A *caught-in-the-act situation*, as in (59), is a type of a situation; the AP + N combination in (60) also denotes a subkind of the kind denoted by the head noun; the same applies to (61).

(58) **Happy-to-be-alive adrenaline** is a powerful and addicting substance, and I've had a lifetime's worth of it, in less than half a lifetime's years.
(59) He was kicking up a fuss about letting you and Weingrass out of his area, thinking the Company had gone nuts and was plowing right into one of those **caught-in-the-act situations**.
(60) Her cheeks tightened in satisfaction when Mom shot her **a stabbed-in-the-heart glance**.
(61) There were those in the audience who sniffed **at the separated-at-birth symmetry** between what he was doing for Gucci and what he was doing at Saint Laurent.

The following examples are noticeably different:

(62) In my opinion, Mr. Wyndham is **a good-for-nothing fellow**.
(63) I have rotated **the gone-to-seed lettuce** off, and expect to rotate the turnips in;
(64) It's **a free-for-all debate** with all rules in the discard.

In (62), the fellow is good for nothing, the lettuce in (63) has gone to seed, and the debate (64) is free for everyone. Hence, these are instances of regular AP-N modification, although the line may be hard to draw in some cases, especially since these are fixed phrases. Among the not fully lexicalized and the non-lexicalized examples presented above, we also find instances of syntactic AP-N modification:

(65) We really want to record another one soon, do a really great psychedelic, **cool-as-shit album** that grooves.
(66) The population of Boston and other Northeastern cities registered **a sharper-than-anticipated drop** in 10 years,
(67) Life in the Rodham household resembled a kind of boot camp, presided over by **a belittling, impossible-to-satisfy drill instructor**.

Thus, these AP + N constructions are not phrasal compounds, which is not meant to say that non-lexicalized APs are ruled out in phrasal compounding. The example below illustrates the use of an *easy*-predicate in a PC:

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(68) Carol had either given up or simply been unable to follow, and had moved on further and further into **her lazy, easy-topretend-to-study mysticism**. [typo in original]

In this case, it is a particular kind of mysticism, we cannot paraphrase the NP as *Her mysticism is easy to pretend to study*.

In the majority of cases, a line can be drawn between subtype-denoting AP + N compounds and syntactic AP + N combinations, but for some items this is impossible. Therefore, no figures for the COHA AP-N data are provided here. Suffice it to conclude at this point that in many cases we are dealing with complex adjectives rather than complex adjective phrases: many examples are instances of more or less fixed expressions; those which are not can still be the non-head of PC, i.e. a complex word. Yet, there are AP constructions that can neither be considered a form–meaning pair nor attributed to phrasal compounding. *Easy*-predicates + *to*-infinitival complements are certainly instances of complex APs; some of the comparative constructions might qualify as complex APs, too. The next section will examine the development of the *easy*-predicates and will offer explanations for why that particular type of AP is an exception.

5 Increasing structural complexity

As laid out above, some of the fully recursive adjective phrases in prenominal position cannot be accounted for by resorting to word formation. Interestingly, it is one of the most complex phrase types that seems to pose an exception to NP order rules – *easy*-predicates take a clausal complement, which comes with additional argument structure; in other words, what we find in prenominal position is the *least expected* AP type. What is even more puzzling is that this construction has become more frequent over time. As can be seen in figure 4, *easy*-to-V constructions have increased both in token and in type frequency.

Clausal modifiers are on the upper end of the complexity scale, therefore, this type of AP should not occur in prenominal position.[4] So why is it that it is this AP which is becoming more frequent and not a less complex A + PP construction such as **the yellow with age book* or **the very good at chess friend*? Biber & Gray (2016) find that the changes originate in written academic English, but this genre does not seem to play a major role for the data here.[5] The answer lies in the structure of *easy*-constructions, as will be shown in what follows.

[4] It is generally assumed that clausal modifiers are more complex than phrasal because a verb comes with argument structure. For a classification of (nominal) modifiers with regard to complexity, see Berlage (2014).

[5] In COHA, this type of prenominal AP is most prominent in popular magazines and news (fiction: 0.24 instances pmw, popular magazines: 2.43 pmw, news: 1.72 pmw, and non-fiction books: 0.73 pmw). In COCA, a similar pattern displays for hyphenated plus unhyphenated A-*to*-V-constructions (fiction: 118 instances, academic texts: 605, magazines: 1700, news: 643, and spoken: 133). Interestingly, the construction is found in spoken English, too.

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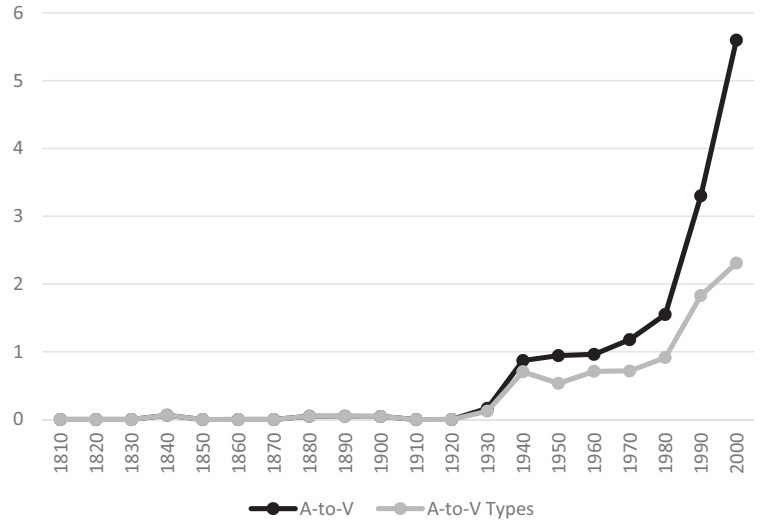


Figure 4. Relative type and token frequency of prenominal 'adjective to verb' constructions (pmw) in the *Corpus of Historical American English*

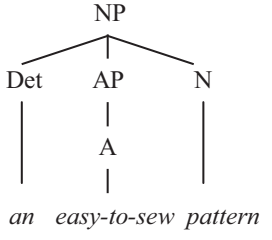
Easy-predicates have been recognized as an exception to English NP ordering rules. Nanni (1980) points out that these adjectives are *tough*-movement predicates. *Tough*-movement refers to cases such as the following:

(69) John is easy to please.

In (69), there are two clauses semantically corresponding to 'to please John is easy'. The subject of the matrix clause (*John*) is the notional object of the subclause. Since the first transformational analyses of *tough*-constructions assumed that the structure is derived by a movement process (*Johni is easy to please* t*i*), this phenomenon has been labeled '*tough*-movement' (see Postal & Ross 1971).

Nanni argues that there are two types of A-*to*-V constructions. The one in (69) is *syntactically* derived whereas the A-*to*-V construction in prenominal position is *lexically* derived. *Easy*-predicates which are realized as nominal attributes are considered complex words rather than complex phrases, as illustrated below:

(70)



(from Nanni 1980: 574)

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For a number of reasons, the prenominal *easy*-constructions are considered flat structures without subcategorization, the first being that 'an AP may appear prenominally only if no complement follows the head adjective' (Nanni 1980: 574). Second, there are several restrictions on the *easy*-predicates in prenominal position: only A + *to* + V is allowed, additional AdvP-modifiers (71a) or PP-modifiers (71b) are not permitted, and the verb cannot license a further infinitival clause (71c).

(71) (a) *an easy to quickly clean room
(b) *an easy for Bill to finish problem
(c) *an easy to expect to finish problem

A complex-A approach as proposed here (for a similar proposal see Sadler & Arnold 1994) is problematic as it does not explain why only particular types of complex A are licit in prenominal position. If the string of elements is an A rather than an AP, the question remains why only this type of adjective is prone to form complex words. The line of reasoning that these must be words because phrases are ruled out in that position is not too convincing. The counterexamples to a productive syntactic mechanism in (71) do seem dispreferred in English, as a COCA search reveals: *easy-to*-V constructions with an additional adverbial, PP or infinitive in prenominal position are not attested. However, a search for the same constructions with *easy* in postnominal position shows that this is marginal, too. There is only one attestation of 'N *easy for* X *to* V':[6]

(72) the idea of having technology for the TV easy for parents to use

Overall, there are few instances of '*easy to ly*-Adv V' and '*easy to V to V*' in the corpus. The version containing a *ly*-adverb occurs three times as a predicate of a noun following a form of copula *be*.[7] Neither construction occurs in a postnominal relative construction of the form 'N + Rel + *be*'. '*Easy for* X *to* V' is somewhat more frequent, with eleven instances in a postnominal relative clause and 103 as predicate to an NP, out of which 60 tokens include *say* as a verb. In most cases these have the form '*that's easy for* pronoun *to say*', as in (73), and hence have the character of a fixed expression:

(73) That's easy for you to say.

Why constructions *easy-to-quickly-clean*, *easy-for-Bill-to-finish* and *easy-to-expect-to-finish* are marginal remains to be shown, but since they are very rare, it doesn't come as a surprise that they do not occur prenominally in the corpus. I assume that this is a usage-related condition rather than a grammatical restriction, but I agree that the line is hard to draw, as pointed out by an anonymous reviewer. However, the important insight for this article is that those constructions are hardly to be found in *any* kind of syntactic position. I will come back to this in section 6. In what follows, I will provide an explanation for why *easy*-predicates and their complements can precede nouns.

[6] Please note that this query targets the lexeme *easy* only, other *tough*-adjectives are excluded.
[7] I excluded those structures where an expletive is in subject position of the matrix clause.

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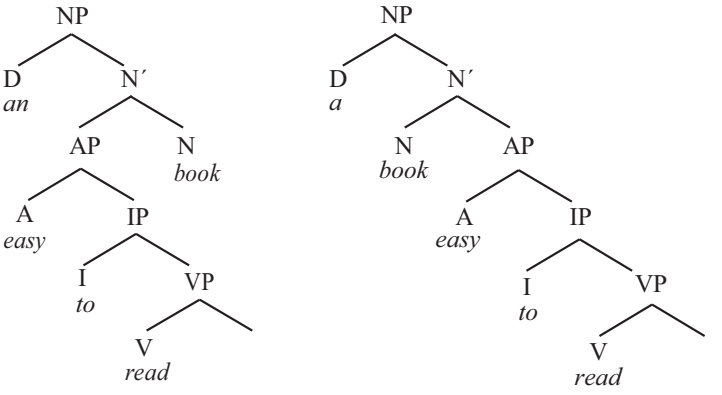
In terms of branching direction, the prenominal variant should be dispreferred because it shows an inconsistent structure (74a), while the postnominal variant is consistently right-branching (74b).[8]

(74) (a) Prenominal variant (b) Postnominal variant



Before examining the structure in detail, a number of observations have to be made. First, the two variants under scrutiny, i.e. the pre- and the postnominal position, are not the only ones. APs headed by *easy*-predicates allow for a third option: a split construction where the adjective precedes the noun and the infinitival clause follows:

(75) an easy book to read

Second, all the verbs attested following infinitival *to* in A-*to*-V constructions are transitive, i.e. two-place predicates. This relates to the third and most crucial point: the head noun of the NP which the AP is embedded in is a notional object of the transitive verb. In (75) *book* is an argument of *read*.

Hence, the first thing to note is that the A-*to*-V construction results in VO order, the basic word order of English, when positioned prenominally, so there is a dependency relation between the head noun and the element that is immediately preceding it. It is this property that allows for prenominal positioning, as will be shown below.

As laid out in section 2, Hawkins (2004, 2014) assumes that processing preferences are determinants of grammatical variation. He identifies several efficiency principles, the most important for the present article being Minimize Domains.

[8] It is doubtful whether the derivation could be depicted as in (74). There have been several different approaches to *tough*-movement (for an overview see Hicks 2009) over the past fifty years, each reflecting the theoretical syntactic assumptions of their time. A formal syntactic analysis is not what this article is aiming at, suffice it to point out here that DP-internal *tough*-predicates could possibly be integrated into one of the current A-Ā-A-movement approaches (cf. Brody 1993; Hornstein 2001; Hicks 2009), where the argument of V is generated within the VP and moved to Spec,CP of the subclause before it is moved to the subject position of the matrix clause. Under a similar analysis for DP-internal *tough*-movement, the AP in prenominal position, which would be the basic order then, would result in a more consistently right-branching tree. An analysis involving two movement operations could also account for the intermediate construction, the split AP.

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> The human processor prefers to minimize the connected sequences of linguistic forms and their conventionally associated syntactic and semantic properties in which relations of combination and/or dependency are processed. The degree of this preference is proportional to the number of relations whose domains can be minimized in competing sequences or structures, and to the extent of the minimization difference in each domain. (Hawkins 2004: 103)

There are several domains which are relevant here: first, there are two phrasal combination domains, the PCD of the NP and the AP. The PCD-NP contains the article, the head noun and the adjectival head of AP, which are the NP's immediate constituents. The PCD-AP contains the adjective and the infinitival marker, which introduces the clausal dependent. Since the AP contains a lexical verb, which has a subcategorization frame, there is also a lexical dependency domain (LDD), which includes the verb and the noun it subcategorizes for. The domains for each variant are illustrated in (76):

(76) (a) **Postnominal**

	a	book	easy	to	read
PCD-NP	1	2	3		
PCD-AP			1	2	
LDD-V-N		1	2	3	4

(b) **Split**

	an	easy	book	to	read
PCD-NP	1	2	3		
PCD-AP		1	2	3	
LDD-V-N			1	2	3

(c) **Prenominal**

	an	easy	to	read	book
PCD-NP	1	2	3	4	5
PCD-AP		1	2		
LDD-V-N				1	2

This shows that the PCD-NP is increased to its maximum in the prenominal variant, but that this disadvantage is cancelled out by the minimal LDD for the verb and the noun. In the postnominal variant, the LDD-V-N is increased by two words, which in turn cancels out the advantage of a shorter PCD-NP. The PCD-AP is the same for the prenominal and the postnominal variant but increased by one word in the split order.

The domains add up to nine words across all three variants, so the question is which variant is the most efficient. Hawkins does not rank the domains but a corpus study on postverbal PP-orderings by Wiechmann & Lohmann (2013) shows that an LDD is stronger than a PCD. In the light of this, the split or the prenominal variant should be the preferred option. A COCA query reveals that there are 22 instances of '*easy to* V' in postnominal position plus the one instance of '*easy for* X *to* V' mentioned above. The split variant of the form '*an easy* N *to* V' occurs 657 times. It needs to be pointed out that the split is ambiguous. In (77), for example, the IP can modify the adjective or the head noun.

(77) It's an easy phrase to remember.

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Hence, the 657 attestations might include other readings than the intended one. The split data reveal another interesting aspect – the use of multiple verb dependents as in (78):

(78) an easy bird to see in the dark foliage

This would block the adjacency of noun and verb and hence increase the LDD-V-N when positioned prenominally and is thus an advantage of the split order. Yet the prenominal variant is by far the most frequent one. The search for unhyphenated material reported in section 3 rendered 83 attestations of '*easy* to V' in prenominal position. Further, there are 1,365 hyphenated instances. To sum up: the prenominal variant is the most frequent, the postnominal the least frequent, and the split is in between. This indicates that for the present phenomenon, too, the LDD has a stronger effect than phrasal combination domains.

A similar dependency relation between the head noun and the element preceding it can be witnessed in comparative constructions of type three, two examples of which are repeated here for convenience.

(79) lower-than-body temperature
(80) slightly larger than bite-sized portions

In examples of this kind, there are two the modification relations: it is not just the AP that modifies the head noun, but there is an additional dependency relation between the noun and the rightmost element of the AP. The two elements form either a compound (*body temperature*) or a syntactic A-N construction (*bite-sized portions*). A corresponding postnominal variant is odd, if not ungrammatical, at least for the compound relation (**temperature lower-than-body*), so the prenominal variant is the only option. What exactly makes the postnominal constructions worse remains to be shown, but the crucial point is that in the prenominal variant the head noun is adjacent to a modifier.[9]

This analysis explains why certain types of complex APs are used in prenominal position while others are not. In the aforementioned ungrammatical cases of post-adjectival PPs, **a very good at chess friend* and **a yellow with age book*, the PCD-NP is maximal and no relation obtains between the noun and the element preceding it. The PP here truly intervenes and thereby increases the distance between dependent elements without bringing in the processing advantages of minimal lexical and syntactic dependency domains and of keeping the language's VO order.

To sum up: even if branching is inconsistent, the prenominal placement of A-*to*-V does not pose problems for efficiency principles such as Minimize Domains. Due to a dependency relation between the verb and the modified noun, the prenominal variant is advantageous from a MiD-perspective, which explains why this construction is dragged along by the shift towards premodification. In addition to a minimal

[9] Presumably, they contain an elliptical construction which sounds odd since *one*-insertion fails due to *body temperature* being a compound. For the present purposes, it is important to note that in these cases there is no variant available, which makes the prenominal position the only option.

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LDD-V-N, the adjacency of V and N adheres to the VO order of English, which is why word order patterns are only seemingly violated.

6 Summary

This article has presented data that indicate a structural change in the nominal domain in English: counter to the predictions by the major word order theories, there is an increasing use of phrasal material in prenominal position. It was argued that a great deal of the data can be analyzed as word-level phenomena, because the APs under consideration are fixed or semi-fixed expressions, and/or form a phrasal compound with the nominal head they modify. Some cases, however, could not be attributed to the lexical domain. The A-*to*-V construction containing *tough*-predicates and some instances of comparative-*than*-constructions were identified as complex APs modifying the head noun. It was shown that these APs can more readily occur prenominally because of their syntactic properties, the crucial aspect being a dependency relation between the modified N and the element of the AP that is adjacent to it. Since their seemingly peculiar behavior follows from their syntactic properties, the increasing use of these phrases as attributive N-modifiers is not an indication of a greater structural change in the English nominal domain and is likely to be triggered by the general trend towards premodification reported by Biber *et al.* (2009) and Biber & Gray (2016). It remains to be shown what sets off the very sharp increase starting in the 1980s, as can be witnessed in figure 4, but this certainly indicates that the phenomenon is a very recent one, which probably explains why (even descriptive) grammars are still somewhat sceptical towards prenominal *tough*-constructions. As demonstrated in section 4, Nanni's (1980) claim that prenominal *tough*-constructions hardly allow for additional adverbials, a *for*-PP or a second infinitival clause is corroborated by corpus data. This shows that there *are* restrictions on the prenominal use. These, however, are likely to be performance or processing-related rather than hard-and-fast grammatical rules.

NP-internal *tough*-constructions certainly are an interesting phenomenon meriting further scrutiny. Aspects that still need to be addressed include the syntax of its different variants. The follow-up corpus study on the adjective *easy* indicated that the prenominal is the preferred variant, but this requires a more fine-grained corpus study including all *tough*-adjectives. The processing advantages of one variant over the other as well as the effects of the different domains involved require testing on an experimental basis.

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