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The decline of the DEONTIC NCI construction in Late Modern English: Towards a radically usage-based perspective on constructional attrition

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Starting from a traditional corpus-based investigation of an example of constructional attrition, i.e. of a sustained drop in the frequency of use of a construction in a language’s history, this paper argues that usage data which make abstraction from individual speakers can no more account for this kind of constructional change than they can for constructionalization, the creation of new constructions. A more ‘radically’ usage-based approach to diachronic construction grammar implements the cognitive commitment of this subdiscipline of cognitive linguistics and ultimately explains all constructional change with reference to individual speakers’ grammars. Since no two speakers’ experience-based constructions are identical, it is hypothesized that, very similar to constructionalization, constructional attrition starts from interpersonal variation and the paper encourages the use of idiolectal historical corpora to find corroboration for this. The case of constructional attrition presented in descriptive detail is that of the English DEONTIC NCI construction, which is instantiated by such forms as *be compelled to*, *be forbidden to*, *be obliged to* and *be permitted to*. Previous research established this schema to have grown in frequency and productivity from the 14th until the 18th century and the current paper documents the start of its subsequent decline with data from the Corpus of Late Modern English Texts. It goes on to ask whether a usage-based approach should stop at offering cultural explanations for such developments and proposes a more genuinely cognitive line of explanatory attack.

Keywords: diachronic construction grammar; usage-based model; constructional attrition; periphrastic modals; deontic modality

1. Introduction

This paper, which is framed within the emerging field of ‘diachronic construction grammar’ (cf. Barðdal *et al.* 2015), advocates a radically usage-based perspective on ‘constructional attrition’ (Colleman and Noël 2012), also termed ‘obsolescence’ (Traugott and Trousdale 2013), which I am provisionally defining here as a consistent and systemic decrease in the token frequency of a construction, possibly, in the case of (partially or fully) schematic constructions, leading to a decrease in productivity, i.e. in type frequency, and ultimately to the complete loss of the construction. A ‘radically usage-based’ approach to this is one that takes seriously the “cognitive commitment” of diachronic construction grammar (Hilpert 2018), as the historical morphosyntactic branch of “the cognitive linguistic enterprise” (Langacker 1999), i.e. one that does not take for granted, but carefully considers, the cognitive relevance of usage/corpus data and which looks for cognitively adequate explanations for constructional change. The paper thus continues the reflection on a radically

usage-based diachronic construction grammar that was started in Noël (2016, 2017, 2019), by taking it from thoughts on grammatical constructionalization, i.e. from how new grammar comes about, to consideration of the disappearance of grammatical constructions. The argumentative path taken will be to first present a detailed description of part of the history of a schematic construction expected to have suffered from attrition, based on an orthodox frequency analysis of data extracted from a corpus intended to be representative of a period in the history of English, and to then ask to what extent such a description meets the demands of a genuinely ‘cognitive’ diachronic construction grammar.

The descriptive focus of the paper will be the ‘language-level’ frequency development, within the Late Modern English period, of the so-called DEONTIC NCI construction (Noël 2008), exemplified in (1)–(5) with 19th-century examples.¹

- (1) They all know what I have said is true, but that will be nothing to the purpose if they **are desired to** consider it as false. (CLMET3_2_123, 1825–32, Walter Scott, *The journal of Sir Walter Scott*.)
- (2) Seeing all this, I **was obliged to** act with great caution. (CLMET3_2_126, 1820–2, Henry Hunt, *The memoirs of Henry Hunt*.)
- (3) Every step towards the Dead Sea had brought us into a country more and more dreary; and this sand-hill, which we **were forced to** choose for our resting-place, was dismal enough. (CLMET3_0_2_172, 1844, Alexander William Kinglake, *Eothen, or traces of travel brought home from the East*.)
- (4) We soon reached the quay, where my name was noted down by a person who demanded my passport, and I **was then permitted to** advance. (CLMET3_0_2_164, 1842, George Borrow, *The Bible in Spain*.)
- (5) “Lizzy,” cried her mother, “remember where you are, and do not run on in the wild manner that you **are suffered to** do at home.” (CLMET3_2_134, 1813, Jane Austen, *Pride and prejudice*.)

This (partially) schematic construction generalizes over pairings of the form [*BE Ven to INF*] with an assortment of meanings from the modal domain of obligation and permission. They are passives etymologically,² if not necessarily cognitively. Previous research suggests that the frequency of instantiation and the productivity of the schema has declined in the past couple of centuries, after roughly five centuries of growth. Noël (2017), a study on *be bound to*, which instantiates the deontic schema in one of its uses, looked for the earliest occurrences of similar micro-constructions³ in the *OED* quotation database and found that, after the first such constructions had cropped up in the 13th century, a schema started developing in the 14th century and considerably expanded until the 18th century, both with micro-constructions that have survived to this day (e.g. 15C *be required to*, 16C *be forced to*,

¹ The ‘NCI’, short for ‘nominativus cum infinitivo’, is traditionally conceived of as the passivization of the ‘accusative and infinitive’ or ‘ACI’. For the coverage of this term and an extensive summary of its treatment in traditional English historical grammars, see Fischer (1989). Noël (2008) describes the English NCI from a construction grammatical perspective, distinguishing between a ‘plain passive’ NCI, the EVIDENTIAL NCI construction, the DESCRIPTIVE NCI construction and the DEONTIC NCI construction.

² The reference here is to ‘structural etymology’ as opposed to lexical etymology (Mailhammer 2013).

³ The term ‘micro-construction’ was introduced in one of the pioneering contributions to diachronic construction grammar, Traugott (2008: 236), to refer to “individual construction-types”. They are there contrasted with ‘macro-constructions’, which are ((partially) schematic) “meaning-form pairings that are defined by structure and function”, and ‘meso-constructions’, which are “sets of similarly behaving specific constructions”. In Traugott and Trousdale (2013: 16–17) the latter two terms were replaced by ‘schema’ and ‘sub-schema’, while ‘micro-construction’ remained. ‘Constructs’, a term used below, was kept as well to refer to “empirically attested tokens” (Traugott 2008: 236).

17C *be ordered to*) and with some that did not become sufficiently entrenched and disappeared again (e.g. 15-16C *be excluded to, be stressed to, 17C be compelled to*). Disney (2016), a study which revisits the “grammaticalization” of *be supposed to* arguing that a “sanctioning/coercion effect” of a “passive deontic NCI construction” was an important factor in this, compares late 17th-century with late 18th-century frequency data, the results showing that the schema was (still) on the rise in terms of both token and type frequency during the 18th century. Disney (2016: 911) adds that late 20th-century “[d]ata from the B[ritish] N[ational] C[orpus] show that deontic examples in the BE **-ed to* form are now of much lower frequency”. At some point following the 18th century the DEONTIC NCI construction must therefore have started suffering from attrition and the descriptive aim of the present paper is to begin filling the research gap left by this previous research by addressing the question of whether this already started to happen in the 19th century. This will be done through a quantitative documentation of the constructs that realize the micro-constructions instantiating the schema in the Corpus of Late Modern English Texts (CLMET3.0), which should show up whether indeed the token frequency of the schema decreased and, if so, which micro-constructions contributed the most to this, possibly to the extent even that they completely disappeared.

The analytical part of the paper will be entirely contained in the second section. Section 2.1 puts the descriptive investigation reported on in the wider context of, on the one hand, previous diachronic research on developments in the expression of modal meanings in English, given that this research traditionally includes one or a few of the micro-constructions dealt with here, and, on the other, of the treatment such constructions have received both in recent comprehensive English grammar books and in dedicated synchronic studies on modality in English. Incorporating the two diachronic studies already referred to in the present section, this constitutes the background of the corpus investigation reported on, leading to the specific research questions it seeks to answer and a description of its methodology. Section 2.2 presents the results. Section 2.3 summarizes them and discusses them in the light of ‘cultural’ explanations that have been offered in the literature to account for the fall and rise of semantically related constructions. Section 3 then goes on to argue that a properly usage-based account should not stop there since it entails attention to individual cognition, which the traditional corpus analysis presented in section 2 can inform little about. Section 3.1 will first situate the call for a ‘radically’ usage-based approach in the still young history of the discipline of diachronic construction grammar. It characterizes this approach as one that takes a speaker-internal perspective and points out the limitations in this regard of ‘orthodox’ corpus-based research of the kind reported on in section 2. It draws attention to research on constructionalization employing a different kind of corpus analysis which is consistent with the objective of a radically usage-based diachronic construction grammar. Section 3.2 describes the scant and inadequate attention constructional attrition has so far received in cognitive historical linguistics and section 3.3 puts forward the argument for a genuinely cognitive, radically usage-based, treatment of the phenomenon. The concluding section 4 reiterates the theoretical-methodological point of the paper.

2. The DEONTIC NCI construction in Late Modern English

2.1. Background, problem and methodology

The descriptive area the paper covers ties in more broadly with previous research on a case of constructional attrition in the modal domain, viz. the work revolving around the hypothesis that the core English modal auxiliaries are disappearing, while ‘quasi-modals’ are on the rise, though this work is not framed in diachronic construction grammar terms. Representative

studies are Myhill (1995, 1996) on frequency and functional changes of the core modals and some quasi-modals in 19th- and 20th-century American English, Leech (2013) on the frequency development of the modals and a group of quasi-modals from the start of the 20th to the start of the 21st centuries in American and British English,⁴ Collins (2014) on the frequency development of a handful of quasi-modals and a group of semantically related modals in 19th- and 20th-century Australian fiction, and Collins *et al.* (2014) and van Rooy and Wasserman (2014) on similar developments in the second half of the 20th century in Philippine and South-African English respectively.

Quasi-modals dealt with in this research are *be able to*, *be about to*, *be bound to*, *be to*, *be going to*, *had better*, *(have) got to*, *have to*, *need to*, *be supposed to* and *want to*. Like the core modals, all of these forms are combined with a following infinitive and two of them, viz. *be bound to* and *be supposed to*, are etymological passives, or indeed NCIs. Grammars of English list more of them, though not always as members of a quasi-modal-like category. Quirk *et al.* (1985: 143, 236) also mention *be allowed to*, *be meant to*, *be obliged to* and *be permitted to*; Biber *et al.* (1999: 702–4, 718) include *be determined to*, *be disposed to*, *be doomed to*, *be enabled to*, *be inclined to*, *be made to*, *be prepared to* and *be required to*; and Huddleston and Pullum (2002: 207) also briefly discuss *be expected to*.

Grammars indeed differ widely on which, if any, of these modal etymological passives they admit to be auxiliary-like expressions and on how they categorize the others. Carter and McCarthy (2006: 672, 674–5) dedicate numbered subsections to *be bound to*, *be meant to*, *be obliged to* and *be supposed to* in a section of their chapter on modality entitled “other modal expressions with *be*” (i.e. in addition to *be to* and *be going to*) which also include *be able to*, *be certain to*, *be likely to* and *be sure to*. They do not specify a category status for the variant element. Expressions like *be allowed to* and *be permitted to* are not included, however, while the verbs *allow* and *permit* do feature among those included in an ensuing section on “other verbs with modal uses” (Carter and McCarthy 2006: 677). Of the verbs listed there it is only said about *force* and *make* that they “are often used in the passive, with meanings referring to actions made obligatory by external agents”.

Quirk *et al.* (1985) also do not specify a category for the variable in the *be X to* forms they list as ‘semi-auxiliaries’, but they do add a note saying that “[t]here is a gradience between a semi-auxiliary such as *be bound to* and an occurrence of the copula BE followed by an adjectival or participial construction such as *happy to* or *compelled to*”, a “criterion of importance” being “the ability of what follows BE to stand at the beginning of a supplementive clause: [1] *Compelled to* take stern measures, the administration lost popularity. / [2] *?Bound to* take stern measures, the administration lost popularity.” (Quirk *et al.* 1985: 144, note [a]).

Biber *et al.* (1999: 484) only list one etymological passive as, what they term, a ‘semi-modal’ in their chapter on the verb phrase, viz. *be supposed to*, and include others in the chapter on complement clauses as either combinations of passive “verbs of modality or causation” (1999: 703) and a *to*-infinitival complement (*be allowed to*, *be enabled to*, *be required to*, *be made to*) or as “adjectives taking post-predicate *to*-clauses” in a listed group of “adjectival predicates” expressing “ability or willingness” (1999: 718) (*be bound to*, *be determined to*, *be disposed to*, *be doomed to*, *be inclined to*, *be obliged to*, *be prepared to*). They comment that “relatively fixed expressions with meanings similar to the modal auxiliaries” like *be obliged to* “differ from other semi-modals [like *be supposed to*] in that the component parts contribute independently to the overall meaning of the phrase” (1999: 484).

⁴ Leech (2013) represents the culmination of a series of studies by this author and a number of associates, references to which can be found there.

Huddleston and Pullum (2002: 172–3) take this a step further in that they do not work with an auxiliary-like quasi-modal category, but instead contrast the modal auxiliaries with ‘lexical modals’, none of which are presented in the *be x to* pattern as such, but rather include “participial adjectives” (2002: 207) like *bound, meant, obliged* and *supposed*, and verbs like *expect, permit* and *require* (2002: 173, 207). Their reason for calling, for instance, *supposed* an adjective and *expected* a verb is found in the section on the passive voice of their chapter on “information packaging”, where they call participial adjectives “adjectival passives”, some of which, including *bound, meant* and *supposed*, have “specialised senses”. They emphasize that in such cases “their connection with passives proper is purely historical” (2002: 1440).

In sum, grammarians are not united on how to categorize modal etymological passives. Some do include a differing selection of them in a grammatical, auxiliary-like, quasi-modal category, but at the same time recognize that there are also verbs, and for some also deverbal, participial adjectives, which occur in the same surface pattern to do a similar modal job. One of the grammatical teams discussed only does the latter. Compositionality or semantic transparency seems to be a criterion to distinguish between grammatical and lexical strings, and between verbal and deverbal adjectival strings, but there is no agreement on which strings are transparent/compositional and which are not.

Beyond comprehensive grammar books, dedicated studies on modality in English are not very inclusive of quasi-modal NCI expressions either. Coates (1983) only includes discussion of *be bound to*, as does Palmer (1990). The latter does include *be allowed to, be obliged to, be permitted to* and *be supposed to* in the index but these are only brought in to clarify the semantics of specific core modal auxiliaries. Westney (1995) only discusses *be bound to* and *be supposed to*, and so does Collins (2009). Leech (2013: 95), already mentioned above, only admits *be supposed to* to the group of what he terms ‘emergent modals’, consistent with Biber *et al.* (1999), a grammar book he co-authored (but inconsistent with Quirk *et al.* 1985, which he co-authored as well). Different from the other authors mentioned in this paragraph he includes *be bound to* in a fairly long, but not intended to be exhaustive, list of what he calls ‘lexical expressions of modality’ (2013: 108), which also contains *be compelled to, be forced to, be obliged to* and *be required to*. He suggests that unlike the core and emergent auxiliaries these “lexical expressions” have not “undergone grammaticalization and auxiliatation in the history of English” (2013: 108), explicitly bringing in a diachronic argument. Similarly but differently, Palmer (2003: 12) makes mention of both *be supposed to* and *be expected to* but insists that the latter is not a ‘semi-modal’ but the passive of *expect*, bringing us back to the compositionality argument for exclusion from a quasi-modal category.

A huge exception to the minimal admittance of etymological passives into the discussion of modality in grammars and dedicated studies on the subject is Perkins’ (1983) all-inclusive approach in his monograph study on *Modal expressions in English*. “Expressions” in the title not only refers to the core modals and ‘quasi-auxiliaries’ like *have (got) to, need to* and *had better*, but also to ‘Adjectival, Participial, and Nominal Modal Expressions’. This is the title and topic of chapter 5, in whose section 5 on “Expressions incorporating verbally-derived adjectives and participles” the following ‘deontic past participles’ with ensuing infinitive are listed:⁵ *be advised to, be advocated to, be allowed to, be asked to, be authorized to, be begged to, be bidden to, be called on to, be commanded to, be compelled to, be constrained to, be directed to, be empowered to, be enabled to, be entitled to, be exhorted to, be expected to, be forbidden to, be forced to, be instructed to, be intended to, be invited to, be needed to, be obligated to, be obliged to, be ordered to, be permitted to, be petitioned to, be requested to,*

⁵ Epistemic past participles are covered as well but they fall outside of the scope of the present study.

be required to, be supplicated to, be supposed to, be urged to, and be warned to (1983: 83–5).

Transposed to a construction grammar approach, this list of Perkins' is of course suggestive of a schematic DEONTIC NCI construction. Very different from the other work reviewed in this section, Perkins does not concern himself with questions of degree of grammaticalization and/or compositionality, and I would like to propose that the radically usage-based construction grammarian should take a sceptical view of this as well and not assume that what is real for the grammarian or the historical linguist is also real for the language user. The average language user does not have any historical linguistic awareness (cf. Fischer 2009: 6), nor may whatever conscious analytical linguistic insight they have extracted from grammar books coincide with the linguistic knowledge they deploy in language production and reception. If speakers regularly use *be required to* in a very similar fashion to how they are using *be supposed to*, it is from a speaker perspective quite irrelevant that from a language perspective the second form can be argued to have become and be more grammatical than the analytically more obviously passive and consequently more lexical first form. Note that this is not intended to cast doubt on the relevance of compositionality for the question of what constitutes a construction (cf. Goldberg 2003: 219) but merely calling for caution in conflating linguists' and speakers' sense of it. For the speaker, modal *be required to* may have little to do with the verb *require*, and much more with *be supposed to*. The very fact that linguists, who are of course speakers themselves, draw in patterns which very much look like and express similar meanings to the ones they do accept to be fully grammatical modal expressions indeed seems to attest to a cognitively relevant grouping of such expressions, as much as the lack of agreement on where to draw the line between grammatical/non-compositional and lexical/compositional modal etymological passives could point to the cognitive irrelevance of such a distinction for the extension of the schema.

From a radically usage-based, non-reductionist perspective, speakers' constructions must be analogically organized since they are analogically acquired (cf. Tomasello 2003: 144–145; van Trijp 2016: 184–191), grouping pseudo-identical form-meaning pairings. This justifies positing a DEONTIC NCI construction, not just for present-day English speakers but also for historical, post-13th-century, speakers of the language. As pointed out already in Section 1, Noël (2017) established, on the basis of the occurrence of quotations exemplifying the [*BE Ven to INF*] pattern in *OED* entries whose definitions contained one or more of the obligative verbs *bind, compel, constrain, force, oblige, forbid* and *prohibit*, that a deontic NCI schema started developing in the 14th century and considerably expanded until the 18th century, after which fewer new verbs were entered into the pattern than in previous centuries. Disney's (2016) comparison of late 17th, late 18th and late 20th-century corpus frequency data confirm that the schema must have seen a height in productivity in the 18th century and that it subsequently contracted again. However, the productivity of the schema not being his main focus of interest, let alone its attrition, Disney remains vague about the 20th-century data and also provides frequency details for only a very limited number of micro-constructions in the 17th- and 18th-century corpora. It therefore remains to be documented which set of micro-constructions contributed to the productivity of the schema in its heyday and how their frequency developed after the 18th century, specifically whether a decreased token frequency resulted in a reduction in type frequency. With regard to the developments in frequency one can already expect, however, since some of these micro-constructions were in previous research included in a group of quasi-modals shown to be on the rise rather than the decline, that the answer will be more complex than the question suggests.

The corpus study reported on below will start this documentation by tracing the relevant developments in the course of the long 19th century, the limited time-frame being imposed by the corpus used, the Corpus of Late Modern English Texts, version 3.0 (CLMET3.0). This

corpus consists of three components, each covering a 70-year period: I. 1710-1780, II. 1780-1850, and III. 1850-1920.⁶ A coarse-grained, three-stage comparison of figures extracted from the first component with those from the second and third components will allow us to make observations about frequency changes between the end of the 18th century, the first corpus component providing the 18th-century starting data point, and the second half of the 19th/start of the 20th centuries. The investigation addresses the triple question of the developments, as observable from the three corpus components, in a) the token frequency of the patterns/micro-constructions instantiating the DEONTIC NCI construction, b) the cumulative token frequency of the schema, and c) the type frequency of the schema. To identify constructs/tokens of the construction types the POS-tagged version of the corpus was queried with MonoConc Pro (Version 2.2) for the patterns [**_VBN to_TO *_VB*] and [**_JJ to_TO *_VB*], i.e. for “past” participles and adjectives immediately followed by the infinitival particle *to* and a verb in the base form. The query results were subsequently semantically filtered manually for instances expressing deontic meanings. The tokens of the micro-constructions thus identified were then tallied and the totals were normalized to frequencies per million words. The statistical significance of the frequency differences between the three corpus components was determined through a log-likelihood test, making use of Paul Rayson’s online log-likelihood calculator (<http://ucrel.lancs.ac.uk/llwizard.html>). A minimum significance level of $p < 0.01$ was used in the interpretation of the results (the critical log-likelihood value is 6.63).

2.2. Results

2.2.1. Overall frequency development

The query and sifting strategy described in the previous paragraph produced a list of 88 [*BE Ven to INF*] patterns occurring at least once in one of the three corpus components. They are listed alphabetically with details of absolute and normalized frequencies in the table in the Appendix. Table 1 here presents the totals for each sub-corpus extracted from that master table. It consequently represents the token frequency of the DEONTIC NCI construction in each of these sub-corpora.

	1710-1780		1780-1850		1850-1920	
	n	n/million	n	n/million	n	n/million
[<i>BE Ven to INF</i>]	4,073	392.2	3,747	334.34	3,359	268.07

-14.75% -19.82%
 -31.65%

Table 1. Token frequency of the DEONTIC NCI construction in the three sub-corpora of the CLMET.

⁶ For a more detailed but still concise description of CLMET3.0, see https://perswww.kuleuven.be/~u0044428/clmet3_0.htm (last accessed on 21 July 2018).

Comparing the normalized frequencies, we can immediately observe a steep 32% drop from the first period to the last, and we can also see that there is a sharper drop from the second period to the third (20%) than from the first to the second (15%). We can already conclude, therefore, that the schema suffered from attrition in terms of the frequency of its instantiation in the course of the 19th century, and that the rate of attrition increased in the second half of that century. We will now need to take a more detailed look at the frequencies of the substantive patterns to determine which micro-constructions this drop can mainly be attributed to, as well as to establish whether the decrease in token frequency also led to a reduced type frequency.

The juxtaposition in Table 2 of the most frequent patterns in each of the three corpus components instantly reveals, however, that we are not dealing with a simple, across-the-board decrease. While *be obliged to* remains at the top of the list, in spite of its frequency being more than halved, *be forced to* first makes a sharp drop from second to sixth place, almost halving its frequency, and then moves up one place again, without a significant frequency change. *Be permitted to* first drops two places, losing more than a third of its frequency, and then falls another four places, shedding a further two-thirds of its occurrence, but *be allowed to* significantly increases its frequency and rises two places in the ranking. *Be compelled to* first climbs three places and then falls again by two, paralleled by a significant rise-and-fall frequency change. In other words, though there is a significant overall frequency decrease in the incidence of the schema, there is no even change in the occurrence of the substantive micro-constructions.

rank	I. 1710-1780			II. 1780-1850			III. 1850-1920		
	cxn	n/m	%	cxn	n/m	%	cxn	n/m	%
1.	<i>obliged</i>	124.80	31.82	<i>obliged</i>	75.58	22.60	<i>obliged</i>	52.35	19.53
2.	<i>forced</i>	40.73	10.39	<i>compelled</i>	29.98	8.97	<i>allowed</i>	37.35	13.93
3.	<i>permitted</i>	36.40	9.28	<i>allowed</i>	29.18	8.73	<i>bound</i>	32.64	12.18
4.	<i>allowed</i>	20.41	5.21	<i>permitted</i>	22.84	6.83	<i>compelled</i>	19.15	7.14
5.	<i>compelled</i>	18.30	4.66	<i>bound</i>	22.31	6.67	<i>forced</i>	18.75	7.00
6.	<i>enabled</i>	12.71	3.24	<i>forced</i>	21.50	6.43	<i>expected</i>	10.53	3.93
7.	<i>bound</i>	12.23	3.12	<i>enabled</i>	13.21	3.95	<i>intended</i>	7.50	2.80
8.	<i>ordered</i>	11.94	3.04	<i>intended</i>	10.08	3.02	<i>permitted</i>	7.26	2.71
9.	<i>suffered</i>	11.36	2.90	<i>expected</i>	8.48	2.54	<i>enabled</i>	6.78	2.53
10.	<i>intended</i>	9.15	2.33	<i>suffered</i>	8.12	2.43	<i>entitled</i>	6.15	2.29
11.	<i>sent</i>	8.09	2.06	<i>ordered</i>	6.51	1.95	<i>asked</i>	5.19	1.94
12.	<i>reduced</i>	7.03	1.79	<i>sent</i>	5.8	1.73	<i>sent</i>	5.03	1.88
13.	<i>appointed</i>	6.36	1.62	<i>appointed</i>	5.71	1.71	<i>required</i>	4.23	1.58
14.	<i>desired</i>	5.78	1.47	<i>entitled</i>	5.71	1.71	<i>ordered</i>	3.91	1.46
15.	<i>directed</i>	4.14	1.06	<i>invited</i>	5.62	1.68	<i>told</i>	3.83	1.43
16.	<i>commanded</i>	3.95	1.01	<i>required</i>	4.82	1.44	<i>invited</i>	3.43	1.28
17.	<i>required</i>	3.95	1.01	<i>requested</i>	3.57	1.07	<i>made</i>	3.43	1.28
18.	<i>condemn</i>	3.66	0.93	<i>called</i>	3.21	0.96	<i>driven</i>	3.27	1.22
19.	<i>instructed</i>	3.18	0.81	<i>constrained</i>	3.12	0.93	<i>forbidden</i>	3.11	1.16
20.	<i>summoned</i>	3.18	0.81	<i>desired</i>	3.03	0.91	<i>suppose</i>	2.95	1.10
21.	<i>invited</i>	2.99	0.76	<i>made</i>	2.94	0.88	<i>condemn</i>	2.07	0.77
22.	<i>entitled</i>	2.79	0.71	<i>condemn</i>	2.77	0.83	<i>constrained</i>	2	0.74
23.	<i>empowered</i>	2.70	0.69	<i>obligated</i>	2.68	0.80	<i>appointed</i>	1.92	0.71
24.	<i>constrained</i>	2.31	0.59	<i>asked</i>	2.32	0.69	<i>called</i>	1.84	0.68
25.	<i>admitted</i>	2.21	0.56	<i>impelled</i>	2.32	0.69	<i>privileged</i>	1.84	0.68
26.	<i>advised</i>	2.12	0.54	<i>summoned</i>	2.23	0.67	<i>suffered</i>	1.6	0.60
27.	<i>expected</i>	2.12	0.54	<i>sentenced</i>	2.14	0.64	<i>requested</i>	1.6	0.60
28.	<i>authorised</i>	1.73	0.44	<i>advised</i>	2.05	0.61	<i>instructed</i>	1.28	0.48
29.	<i>forbidden</i>	1.73	0.44	<i>instructed</i>	1.96	0.59	<i>advised</i>	1.2	0.45
30.	<i>called</i>	1.64	0.42	<i>driven</i>	1.96	0.59	<i>directed</i>	1.12	0.42
31.	<i>made</i>	1.54	0.39	<i>privileged</i>	1.61	0.48	<i>summoned</i>	1.04	0.39
32.	<i>dispatch</i>	1.44	0.37	<i>pressed</i>	1.52	0.45	<i>commanded</i>	1.04	0.39
33.	<i>pressed</i>	1.44	0.37	<i>told</i>	1.34	0.40			
34.	<i>solicited</i>	1.44	0.37	<i>authorised</i>	1.25	0.37			
35.	<i>prohibited</i>	1.06	0.27	<i>empowered</i>	1.16	0.35			
36.				<i>ordained</i>	1.16	0.35			
37.				<i>reduced</i>	1.07	0.32			
38.				<i>directed</i>	1.07	0.32			
39.				<i>forbidden</i>	1.07	0.32			

Table 2. Deontic NCI patterns occurring with a frequency of at least once per million words, ranked according to their frequency in each of the three components of the CLMET, specifying frequencies per million words (n/m) and the share of each pattern in the total (%).

2.2.2. Patterns diminishing in frequency

Table 3 lists and provides the frequency details of all the patterns, 29 in total, which display a statistically significant drop either between the first and the second *and* the second and the

third periods, or between two periods only, either the first and the second, the second and the third, or the first and the third. All of these bar two reach a frequency of more than 1 per million words in at least one of the three sub-corpora, the two exceptions being *be necessitated to* and *be warranted to*. Seven patterns exhibit a sustained decrease from the first to the third period, three of them only gently in that there is no significant decrease between the first and the second, nor between the second and the third periods, but only when comparing the first and the third one, viz. *be instructed to*, *be sent to* and *be summoned to*, and the other four showing a steeper decline, with a significant difference between the three periods, viz. *be desired to*, *be obliged to*, *be ordered to* and *be permitted to*. As can be seen in Table 2, nothing much happens to *be sent to* in terms of rank position or percentage share, but the two other gentle frequency movers, *be instructed to* and *be summoned to*, drop about ten places and lose a bigger portion of their share. *Be obliged to* remained the most frequent construction throughout the observed time span despite a very substantial frequency loss. It accounts for almost a third (31.82%) of all instantiations of the schema in period I and for close to one fifth (19.52%) in period III. *Be permitted to*, in third place with a share of just over 9% in period I, dropped in rank position but stayed in the Top Ten with a diminished share of just under 3%. *Be ordered to*, initially in eighth position with a share of 3%, left the Top Ten in period II, ending up in 14th position with a 1.5% share. The pattern that ends up with the lowest frequency of less than one occurrence per million words in period III is the only one mentioned in this paragraph which definitely sounds archaic today, viz. *be desired to*, illustrated in (1) above with an example from period II, and here in (6) with one from period III.

- (6) Ernest particularly admired the book he **was desired to** condemn, and feeling how hopeless it was for him to do anything like justice to the books submitted to him, returned them to the editor. (CLMET3_3_228, 1903, Samuel Butler, *Way of all flesh*.)

variable substantive element	token frequencies						log-likelihood scores		
	I. 1710-1780		II. 1780-1850		III. 1850-1920		I-II	II-III	I-III
	n	n/m	n	n/m	n	n/m			
admitted	23	2.21	8	0.71	2	0.16	8.76	4.56	24.88
appointed	66	6.36	64	5.71	24	1.92	0.37	23.6	29.06
commanded	41	3.95	11	0.98	13	1.04	20.79	0.02	20.98
compelled	190	18.3	336	29.98	240	19.15	30.7	28.58	0.22
desired	60	5.78	34	3.03	10	0.8	9.4	16.65	49.63
dispatch	15	1.44	4	0.36	3	0.24	7.65	0.28	11.14
directed	43	4.14	12	1.07	14	1.12	20.98	0.01	21.42
empowered	28	2.7	13	1.16	10	0.8	6.82	0.8	12.59
enabled	132	12.71	148	13.21	85	6.78	0.1	25	21
forced	423	40.73	241	21.5	235	18.75	65.36	2.23	95.56
impelled	3	0.29	26	2.32	11	0.88	19.2	8.05	3.48
instructed	33	3.18	22	1.96	16	1.28	3.13	1.74	9.65
invited	31	2.99	63	5.62	43	3.43	8.81	6.36	0.35
necessitated	10	0.96	8	0.71	1	0.08	0.4	7.01	10.33
obligated	1	0.1	30	2.68	0	0	31.98	45.03	1.58
obliged	1296	124.8	847	75.58	656	52.35	132.09	50.33	351.13
ordained	8	0.77	13	1.16	1	0.08	0.85	13.59	7.59
ordered	124	11.94	73	6.51	49	3.91	17.53	7.81	49.22
permitted	378	36.4	256	22.84	91	7.26	33.84	101.21	246.68
pressed	15	1.44	17	1.52	5	0.4	0.02	8.32	7.29
prohibited	11	1.06	0	0	0	0	16.1	0	17.41
reduced	73	7.03	12	1.07	7	0.56	53.4	1.95	76.53
requested	9	0.87	40	3.57	20	1.6	18.9	9.21	2.47
sent	84	8.09	65	5.8	63	5.03	4.09	0.65	8.25
sentenced	8	0.77	24	2.14	5	0.4	7.2	15.75	1.38
solicited	15	1.44	4	0.36	1	0.08	7.65	2.28	17.47
suffered	118	11.36	91	8.12	20	1.6	5.86	57.44	96.71
summoned	33	3.18	25	2.23	13	1.04	1.8	5.31	13.15
warranted	7	0.67	0	0	0	0	10.25	0	11.08

Table 3. Deontic NCI patterns/micro-constructions displaying diminishing frequency.

Eight patterns show a significant drop between the first and the second period but then stabilize, viz. *be admitted to*, *be commanded to*, *be dispatched to*, *be directed to*, *be empowered to*, *be forced to*, *be reduced to* and *be solicited to*, two patterns dropping to the extent even of being completely absent from the second corpus component without returning in the (larger) third one, viz. *be prohibited to* and *be warranted to*. (7)–(12) provide examples of the patterns that might be most in need of illustration for the modern reader.

- (7) Tea over and the tray removed, she again summoned us to the fire; we sat one on each side of her, and now a conversation followed between her and Helen, which it was indeed a privilege to **be admitted to** hear. (CLMET3_2_178, 1847, Charlotte Brontë, *Jane Eyre*.)
- (8) Some who thought upon the subject appear to have conceived that the Church **was empowered to** grant one, and one only, reconciliation after grievous offences. (CLMET3_2_159, 1845, John Henry Newman, *Essay on the development of Christian doctrine*.)

- (9) Wickham of course wanted more than he could get; but at length **was reduced to** be reasonable. (CLMET3_2_134, 1813, Jane Austen, *Pride and prejudice*.)
- (10) Delighted by a reception so kind, Miss Belfield remained with her all the morning; and when at last she was obliged to leave her, she was but too happy in **being solicited to** repeat her visit. (CLMET3_2_96, 1782, Frances Burney, *Cecilia*.)
- (11) Watch-cases, clock-cases, and dial-plates for clocks and watches, have **been prohibited to** be exported. (CLMET3_1_51, 1766, Adam Smith, *An inquiry into the nature and causes of the wealth of nations*.)
- (12) And I shall threaten, ‘that if, after a certain period given for her voluntary return, she be not heard of, I will prosecute any person who presumes to entertain, harbour, abet, or encourage her, with all the vengeance that an injured gentleman and husband may **be warranted to** take by law, or otherwise.’ (CLMET3_1_9, 1748, Samuel Richardson, *Clarissa*.)

Six of the patterns showing a significant decrease only do so between the second and third period, the difference between the first and the second not indicating a significant change. These are *be appointed to*, *be enabled to*, *be necessitated to*, *be ordained to*, *be pressed to* and *be suffered to*. (13)–(15) illustrate the last three, which might be judged to be the least semantically transparent ones of this set.

- (13) If, by any act of the Government paper **is ordained to** be a legal tender for debts, and, at the same time, ceases to be exchangeable for coin, those who have occasion to purchase of foreigners, who are not compelled to take the notes, will make some of their payments in gold; and if the issue of paper, unchecked by the power of demanding the gold it represents, be continued, the whole of the coin will soon disappear. (CLMET3_2_147, 1832, Charles Babbage, *On the economy of machinery and manufactures*.)
- (14) I did not covet the noise of a dinner of from 200 to 300 persons, and I did not intend to go to it; but, **being pressed to** go, I finally went. (CLMET3_2_114, 1822–6, William Cobbett, *Rural rides*.)
- (15) New Brunswick has considerable mineral wealth; coal and iron are abundant, and the climate is less foggy than that of Nova Scotia; but these great natural advantages **are suffered to** lie nearly dormant. (CLMET3_3_218, 1856, Isabella Lucy Bird, *The Englishwoman in America*.)

There is another set of patterns which displays a significant decrease between the second and third period but in this case following a significant *increase* between the first and the second, the decrease cancelling out the preceding increase, with no significant change between the first and third periods. This is what happens with *be compelled to*, *be impelled to*, *be obligated to*, *be requested to* and *be sentenced to*.⁷ In the case of *be obligated to* a sharp frequency rise followed by a sharp fall meant a return to virtual non-occurrence.

- (16) By a law of nature, he, who labours under a strong feeling, **is impelled to** seek for sympathy; but a poet’s feelings are all strong. (CLMET3_2_142, 1838, James Gillman, *The life of Samuel Taylor Coleridge*.)
- (17) But the payment of the interest on the public debt, with which the town was burdened, began soon after to press heavily on us, and we **were obligated to** take on more

⁷ *Be invited to* follows this rise-fall pattern as well, but the difference between periods II and III falls just short of meeting the 6.63 critical value for the 1% significance level. It was nevertheless included in Table 3 to avoid having to create a one-member set.

borrowed money, in order to keep our credit, and likewise to devise ways and means, in the shape of public improvements, to raise an income to make up what was required. (CLMET3_2_140, 1822, John Galt, *The Provost*.)

- (18) [...] Smollett **was sentenced to** pay a penalty of one hundred pounds, and to be confined for three months in the prison of the King’s Bench. (CLMET3_2_125, 1846, Henry Francis Cary, *Lives of English poets*.)

2.2.3. Stable patterns

The vast majority of the 88 identified patterns do not display a decrease at all during the observed time span. A little over half of them, 48 patterns, do not exhibit any significant downward or upward change. These are listed in Table 4. They are mostly low-frequency patterns, whose occurrence does not reach the level of 1 per million words. Most of those occurring with some frequency, of close to or above 1 per million words, in all three corpus components, will still sound familiar to present-day speakers of English: *be advised to*, *be authorised to*, *be called to*, *be condemned to*, *be constrained to*, *be intended to* and *be required to*. Examples (19)–(23), on the other hand, provide illustration of some of the lower-frequency ones which most people will now probably either be unfamiliar with or judge to be archaic.

- (19) Being therefore an idle man, living on his money, and of a soft and quiet nature, he was for the reason aforesaid chosen into the council, where he always voted on the provost’s side; for in controverted questions every one **is beholden to** take a part, and he thought it was his duty to side with the chief magistrate. (CLMET3_2_140, 1822, John Galt, *The Provost*.)
- (20) By what has been already said of the extreme liking which the first fight of this young gentleman inspired Louisa with, it may easily be supposed she could not hear his complaints, and be witness of the anxieties she **was enforced to** inflict on him, without feeling at least an equal share [...]. (CLMET3_1_13, 1744, Eliza Fowler Haywood, *The fortunate foundlings*.)
- (21) The princess **was enjoined to** remain at Tarlenheim, and there await her cousin’s coming or his further injunctions. (CLMET3_3_291, 1894, Anthony Hope, *The Prisoner of Zenda*.)
- (22) When he **was importuned to** declare when he intended to sail, he chose to be silent; and when the men wanted to know upon what enterprize they were next to be employed, he reproached them with their eagerness for piracy. (CLMET3_1_29, 1773–4, Henry David, *An historical account of all the voyages round the world, performed by English navigators*.)
- (23) She says what I have done so far isn’t in the least what I **was wanted to** do. I am asked to tell the story of the Diamond and, instead of that, I have been telling the story of my own self. (CLMET3_3_209, 1868, Wilkie Collins, *The Moonstone*.)

variable substantive element	token frequencies						log-likelihood scores		
	I. 1710-1780		II. 1780-1850		III. 1850-1920		I–II	II–III	I–III
	n	n/m	n	n/m	n	n/m			
advised	22	2.12	23	2.05	15	1.2	0.01	2.71	2.97
admonished	1	0.1	2	0.18	0	0	0.27	3	1.58
arranged	0	0	0	0	4	0.32	0	5.11	4.83
authorised	18	1.73	14	1.25	11	0.88	0.85	1.5	0
beckoned	0	0	1	0.09	0	0	1.31	2.56	2.41

begged	0	0	0	0	2	0.16	0	3	0
beholden	0	0	2	0.18	0	0	2.62	3	0
called	17	1.64	36	3.21	23	1.84	5.59	4.52	0.13
charged	1	0.1	8	0.71	5	0.4	5.68	1.07	2.21
chosen	9	0.87	5	0.45	6	0.48	1.48	0.01	1.3
commissioned	8	0.77	11	0.98	7	0.56	0.27	1.4	0.39
condemn	38	3.66	31	2.77	26	2.07	1.34	1.17	5.08
consigned	0	0	1	0.09	0	0	1.31	1.5	0
constrained	24	2.31	35	3.12	25	2	1.31	2.98	0.26
counselled	1	0.1	0	0	0	0	1.46	0	1.58
courted	3	0.29	0	0	0	0	4.39	0	4.75
demanded	1	0.1	0	0	0	0	1.46	0	1.58
denied	3	0.29	0	0	0	0	4.39	0	4.75
deputed	3	0.29	3	0.27	4	0.32	0.01	0.05	0.02
detached	0	0	0	0	1	0.08	0	1.28	1.21
disentitled	0	0	1	0.09	0	0	1.31	1.5	0
elected	0	0	1	0.09	3	0.24	1.31	0.84	3.62
enforced	2	0.19	0	0	0	0	2.93	0	3.17
enjoined	9	0.87	2	0.18	3	0.24	5.37	0.11	4.37
entreated	5	0.48	3	0.27	4	0.32	0.67	0.05	0.38
entrusted	3	0.29	0	0	0	0	4.39	0	4.75
exhorted	3	0.29	4	0.36	3	0.24	0.08	0.28	0.05
held	0	0	0	0	1	0.08	0	1.28	1.21
implored	0	0	0	0	2	0.16	0	2.56	2.41
importuned	4	0.39	1	0.09	0	0	2.16	1.5	6.33
incited	3	0.29	7	0.62	2	0.16	1.36	3.53	0.43
indulged	1	0.1	0	0	0	0	1.46	0	1.58
intended	95	9.15	113	10.08	94	7.5	0.49	4.51	1.86
licensed	1	0.1	1	0.09	0	0	0	1.5	1.58
meant	0	0	0	0	3	0.24	0	3.83	3.62
pledged	0	0	1	0.09	2	0.16	1.31	0.24	2.41
put	5	0.48	5	0.45	4	0.32	0.01	0.25	0.38
refused	0	0	2	0.18	0	0	2.62	3	0
required	41	3.95	54	4.82	53	4.23	0.93	0.45	0.11
set	2	0.19	3	0.27	12	0.96	0.13	4.82	6.17
sworn	3	0.29	4	0.36	4	0.32	0.08	0.02	0.02
tied	0	0	0	0	1	0.08	0	1.28	1.21
unentitled	0	0	1	0.09	0	0	1.31	1.5	0
urged	8	0.77	4	0.36	4	0.32	1.68	0.02	2.22
vowed	0	0	1	0.09	1	0.08	1.31	0.01	1.21
wanted	1	0.1	3	0.27	8	0.64	0.9	1.83	4.96
warned	1	0.1	2	0.18	6	0.48	0.27	1.67	3.09
wished	3	0.29	2	0.18	0	0	0.28	3	4.75

Table 4. Deontic NCI patterns/micro-constructions not displaying a significant change in frequency.

2.2.4. Patterns augmenting in frequency

Finally, there is a last set of patterns which compared to period I end up with a significantly increased frequency in period III, either as a result of two consecutive significant rises, or as a consequence of an earlier one, from the first to the second period, or a later one, from the second to the third period, alternatively as the cumulative result of two gentle increases, the difference between periods I and III being the only significant one. These patterns are listed in Table 5. It is immediately clear that this set of rising frequency patterns has considerably fewer members than the set of falling frequency ones contained in Table 3. All of them end up occurring more than once per million words in the third period, however, and all of them are therefore included in Table 2. None of them will look unfamiliar to present-day English speakers.

Two of these rising patterns end up in the Top Three in the third period, viz. *be allowed to* and *be bound to*. In fact, they were already in the Top Ten in period I and still saw a steep increase from the first to the second and from the second to the third periods. Other sustained significant climbers are *be asked to* and *be told to*. *Be entitled to*, *be expected to* and *be privileged to* only rise from period I to period II and then stop climbing, while *be forbidden to* and *be supposed to* only rise between period II and period III. *Be driven to* and *be made to* display a gentler increase across the observed time span.

The sharp rise of patterns that were already among the most frequent ones did not prevent the overall decrease of the schema, however, and the highest-frequency climber, *be allowed to*, still ends up with a lower frequency than the pattern that took a deep fall but remained in top position regardless, *be obliged to*. The latter is visualized in Figure 1.

variable substantive element	token frequencies						log-likelihood scores		
	I. 1710-1780		II. 1780-1850		III. 1850-1920		I-II	II-III	I-III
	n	n/m	n	n/m	n	n/m			
allowed	212	20.41	327	29.18	468	37.35	16.75	11.88	56.71
asked	9	0.87	26	2.32	65	5.19	7.37	13.2	37.94
bound	127	12.23	250	22.31	409	32.64	32.05	23.05	107.87
driven	10	0.96	22	1.96	41	3.27	3.74	3.9	14.85
entitled	29	2.79	64	5.71	77	6.15	10.97	0.19	14.47
expected	22	2.12	95	8.48	132	10.53	43.7	2.64	67.87
forbidden ⁸	18	1.73	12	1.07	39	3.11	1.71	12.2	4.48
made	16	1.54	33	2.94	43	3.43	4.8	0.44	8.28
privileged	1	0.1	18	1.61	23	1.84	17.24	0.18	21.04
suppose	9	0.87	11	0.98	37	2.95	0.08	12.12	13.44
told	3	0.29	15	1.34	48	3.83	7.84	14.69	39.88

Table 5. Deontic NCI patterns/micro-constructions displaying increasing frequency.

⁸ Though *be forbidden to* rises significantly between periods II and III, the frequency increase from the first to the third period does not quite meet the critical value for the stipulated significance level. It was included here regardless, again to avoid having to create a one-member set.

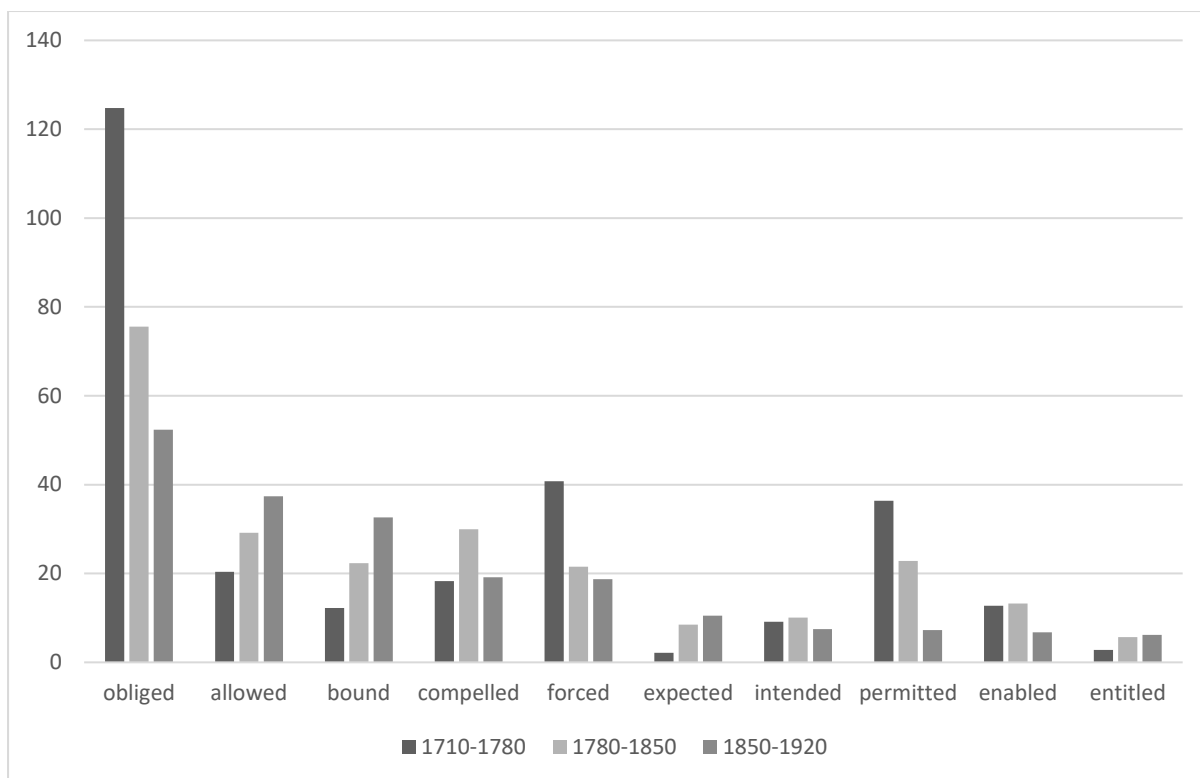


Figure 1. Token-frequency development of the ten most frequent deontic NCI patterns/micro-constructions in the third CLMET component.

2.3. Summary and discussion

By way of summary, then, it is clear that, in the course of the long 19th century, the schematic DEONTIC NCI construction has severely suffered from attrition in regard of its overall token frequency, but this did not entail an across-the-board decline in the individual token frequencies of the types/micro-constructions instantiating it, nor did it lead to a drastic reduction in type frequency. A third of the patterns does diminish in frequency, either continually across the time span considered, and in that case either firmly or more gently, or quite steeply in the first half or in the second half of the observed period only. Barely a few of the diminishing patterns completely disappear in the second and/or third sub-corpora, however. The ones that do were not very frequent to start with and their disappearance from the corpus may just be attributable to its size. Most of the more frequent patterns that took a fall stay among the more frequent ones. Very strikingly, the most frequent pattern of all initially, *be obliged to*, remained in that position in spite of a steep frequency drop. More than half of the identified patterns do not display any significant frequency changes, however. The vast majority of these are among the lowest-frequency patterns. A relatively small group, on the other hand, some of them already among the higher-frequency ones initially, significantly increase their frequency over the course of the observed time span.

There is little evidence of a reduction in type frequency, therefore. On the contrary, the continued occurrence of quite a few low-frequency types, like the ones illustrated in (24) and (25), is evidence of the persistent productivity of the schema, since these are less likely to be entrenched micro-constructions themselves.

- (24) He **was begged to** repeat one of the poems — the one which had most moved his audience and himself; and I was rather amused to note how his voice broke on exactly

the same words, how he wept at exactly the same passages, and how the whole of the second reading was the precise echo of the first. (CLMET3_3_195, 1885, Eliza Lynn Linton, *The autobiography of Christopher Kirkland*.)

- (25) Moreover his mind was engaged in insisting that the Evening Star is not to be called Venus, because of certain stories; and he **was vowed to** defend his lady from any allusion to them. (CLMET3_3_214, 1895, George Meredith, *The amazing marriage*.)

By contrast, the drastic fall in the overall token frequency of the schema, which is mainly attributable to sharp drops in the occurrence of many of the highest frequency micro-constructions, does constitute overwhelming evidence of the constructional attrition claim. The questions then rise of why this should have happened and of why only a certain group of micro-constructions contributes to this development, while another, smaller, group of them develops in the opposite direction.

To try and account for why the rise of a small group of quasi-modals does not completely compensate for the attrition of the modals, in the research on 20th-century developments already referred to above, Leech (2013: 108) considers the possibility of a ‘modal deficit’, i.e. the possibility that “English writers have somehow been finding fewer opportunities to express modality”, and suggests that an investigation into social or psychological factors causing this would then be of great interest. Myhill’s research (1995, 1996), also already referred to above, goes back further in time, to the first half of the 19th century, and points instead to “a general pattern of change in frequencies with which different meanings are expressed in the language”, i.e. “what has really changed has been that users of American English have, over the course of time, come to express some types of modality meaning more often and others less often” (Myhill 1996: 339, 342). More particularly, he describes how in American English, around the time of the Civil War, i.e. in the third quarter of the 19th century, there was a drastic drop in the frequency of the modals *must*, *should*, *may* and *shall* and at the same time a sharp increase in the frequency of *got to*, *have to*, *ought*, *better*, *can* and *gonna*, which he relates to “social/psychological factors” (Myhill 1995: 206). Specifically, he explains that “the ‘old’ modals had usages associated with hierarchical social relationships, with people controlling the actions of other people, and with absolute judgements based on social decorum, principle, and rules about societal expectations of certain types of people”, whereas the “new” modals “are more personal, being used to, for example, give advice to an equal, make an emotional request, offer help, or criticize one’s interlocutor” (Myhill 1995: 157). Fearful of “going too far”, of “being fanciful and speculative”, he tentatively suggests that the frequency changes he has observed can be related to “changes in the world view of the speakers”, in short to “cultural” changes (Myhill 1995: 206-7). Wierzbicka (2006: Chapter 6) is less hesitant in this regard when she connects the wealth of ‘causative constructions’ existing in English with the development of democracy in modern society, arguing that ‘grammatical’ causatives with *get*, *have*, *let* and *make* are all about getting another person to do something that one wants them to do, but not against that other person’s wishes, unlike in the case of the ‘lexical’ verb *force*. Pointing to the importance of “personal autonomy” in “modern Anglo society”, Wierzbicka (2006: 172-3) reasons that for democracies to work smoothly and efficiently, many people need to be told what to do but they are no longer prepared to obey ‘orders’ or ‘commands’, while they might still be willing to take ‘directions’ or to follow ‘instructions’.

Today, Myhill might not feel he was going too far twenty odd years ago. As we will see below, present-day usage-based theorizing about language and language change does take psychosocial/sociocultural factors into account. Many of the micro-constructions instantiating the DEONTIC NCI construction could well be argued to be semantically related to his ‘old modals’ and to pragmatically involve an infringement of personal autonomy, the concept

invoked by Wierzbicka. Therefore, if we accept Myhill's and Wierzbicka's semantico-cultural explications, the fact that the meanings of these micro-constructions became less culturally salient likely explains why the schema suffered from attrition, and why certain micro-constructions dropped drastically in frequency (e.g. *be commanded to, be forced to, be obliged to, be ordered to, be summoned to*) while others developed in the other direction and became more frequent (e.g. *be asked to, be expected to, be told to*). Careful semantic analysis will need to reveal the extent to which developments in the frequency of specific micro-constructions are amenable to such an explanation and it remains to be seen whether this can then account for why a greater number of them is decreasing rather than increasing in frequency. To fully answer these questions is beyond the scope of the present study. Instead, the aim of the remainder of this article will be to consider whether a positive and comprehensive answer to them would complete a usage-based account of this case of constructional attrition. My argument will be that it would only scratch the surface of what such an account should do.

3. Towards a radically usage-based approach to constructional attrition

3.1. Radically usage-based diachronic construction grammar

Over the past decade, 'diachronic construction grammar' has been rapidly establishing itself as the morphosyntactic branch of 'cognitive historical linguistics', which, like cognitive linguistics overall, had initially been more concerned with semantic questions (Winters 2010, 2017). It is a field of research that grew out of a combination of 'historical construction grammar', which developed from 'synchronic' construction grammar, and 'constructionist grammaticalization theory', by far the biggest strand, which ensued from a constructionist turn in work on grammaticalization in the first decade of the current century (Noël 2013). The field has also connected with work on language evolution within 'computational construction grammar' (Beuls & van Trijp 2016a) and has sparked a sub-discipline in the form of 'diachronic construction morphology' (see the title of a section in Booij 2018, as well as Norde in preparation). Bearing witness to the consolidation of diachronic construction grammar as a discipline, the past five years have seen the publication of dedicated monographs (Hilpert 2013; Traugott & Trousdale 2013) and edited collections (Barðdal et al. 2015; Beuls & van Trijp 2016b; Coussé et al. 2018; Van Goethem et al. 2018), as well as focused workshops and thematic sessions at construction grammar conferences. It now unavoidably features in theoretically eclectic volumes on research in the area of grammaticalization (e.g., Davidse et al. 2012; Norde & Van de Velde 2016; Hancil et al. 2018) and also receives attention in collections of cognitive and constructionist work in the field of contact linguistics (e.g., Boas & Höder 2018; Zenner et al. 2019).

The growth of the field has also brought disciplinary self-reflection, however. In a recent contribution entitled "Three open questions in Diachronic Construction Grammar", Hilpert (2018: 21) points out that "many of its aspects are still not clarified explicitly". The first of the three questions he raises, and the one which is most central to the concerns of this paper, is whether diachronic construction grammarians should fully subscribe to the "cognitive commitment" to psychological reality of cognitive linguistics (Evans 2016). While Dąbrowska (2016: 481) has listed "not treating the Cognitive Commitment seriously" as one of "Cognitive Linguistics' seven deadly sins" generally, Hilpert (2018: 23, 25) suggests that diachronic constructionist work does not require this commitment a) when it concerns itself with certain questions it inherited from grammaticalization theory "which can be fruitfully investigated without placing cognition at the center of the discussion" and b) because it could be argued that "any claims about the linguistic knowledge of earlier generations of speakers stands on rather

shaky ground, given the limited representativeness of historical corpora”. He insists, though, that researchers who are committed to investigating cognition should state this goal explicitly and warns, in part slightly contradictorily in view of the previous quote, that any claims about cognition should be made plausible with evidence from historical corpora or from experiments with present-day speakers.

Diachronic construction grammarians who explicitly take a ‘usage-based’ approach may, I would contend, be held to be making such a cognitive commitment, given that this approach implies a conception of language in which “[s]ubstantial importance is given to the actual use of the linguistic system and a speaker’s *knowledge* of this use” (Langacker 1987: 494; my italics). However, in previous work (Noël 2016, 2017), I have argued there to be a gradation in the cognitive adequacy of models of morphosyntactic change that make reference to knowledge. Comparing two avowedly usage-based models, an overtly constructionist one (Traugott and Trousdale 2013) and the other one constructionist in spirit at least (Fischer 2007), I contended that the former model is the least cognitively adequate one because of its failure to disentangle individual linguistic knowledge and a conventionalized system which is referred to as ‘community knowledge’ but which cannot have a cognitive ontological status. As a successor to the Traugottian ‘reanalysis’ account of grammaticalization, the model explains the creation of new constructions, or ‘constructionalization’, as resulting from a ‘mismatch’ between what speaker/hearers do (produce/interpret) and *the* conventionalized system. Cognitively there can be no mismatch, however, a) because speaker/hearers’ linguistic behaviour cannot possibly be at odds with their own linguistic knowledge, and b) because they cannot be assumed to access two distinct linguistic knowledge sets, their own individual one and a conventional one. In Fischer’s model, on the other hand, there is no such confusion of internal and external systems. It is founded on match rather than mismatch, in that speakers’ innovations are analogically motivated by their own grammars. In other words, notwithstanding the reference to speakers’ knowledge, Traugott/Trousdale is very much a language-centred account, while Fischer’s proposal is more firmly speaker-based. I concluded that since speakers are confined by their own experientially compiled grammars/constructionizations, which because they are based on speakers’ experience of usage cannot be completely identical across individuals (see also Dąbrowska 2012; Barlow 2013; Schmid 2015), a realistic usage-based account of how grammar changes requires an internal approach. This is what I have called a ‘radically usage-based’ approach (Noël 2016). For the study of grammatical innovation/constructionalization, i.e. of how new grammar comes into being, it entails a methodology which is open to considering homonymy in favour of polysemy and to looking for onomasiological explanations as an alternative to semasiological ones. This was illustrated in Noël (2017) with an account of how the form *be bound to*, which suffered from attrition as a deontic construction, came to be used as a non-deontic/epistemic necessity marker, not as a result of a grammaticalization/reanalysis of the deontic construction, but because there already was a deverbal adjective *bound* which was very close in meaning to *sure* and *certain* and had been used in similar syntactic contexts, which came to include the pattern [BE + ADJ + *to* + INF] when *be sure to* and *be certain to* were becoming more frequent and consequently were likely to serve as a model.

A radically usage-based approach also requires a kind of evidence gathering which is drastically different from what one has grown accustomed to in historical linguistics. The widely used corpora which are intended to be representative of earlier stages of a language can inform us about the past constructional resources of a language but not about individual historical speakers’ knowledge of them; that is, they can offer a picture of an external, ‘conventionalized’, system but not of any particular internal system/construction; cf. Schmid’s (2015: 14) aphorism that “corpus frequencies are a proxy for operationalizing conventionalization rather than entrenchment”. Indeed, another of cognitive linguistics’ deadly sins pointed

at by Dąbrowska (2016: 484) is what she formulated as “ignoring individual differences”, while such differences are predicted by the usage-based model and provide support for it. Hilpert (2017), for instance, does not address the issue of interindividual variation in his discussion of “frequencies in diachronic corpora and knowledge of language”. However, there is already pioneering diachronic research which is very much radically usage-based in its outlook and which makes use of a different kind of historical data: historical idiolectal corpora which are representative of the linguistic output of individual speakers/authors belonging to the same or consecutive generations, possibly, in the case of written output, covering the authors’ entire writing careers. I will list three examples of such work. Schmid and Mantlik (2015) look at both the individual entrenchment and the conventionalization of the [N *BE that*] construction in a data collection that differentiates between 139 historical authors. Petré (2016) investigates the competition between [*GO to INF*] and [*BE going to INF*] in the works of nineteen 17th- and early 18th-century writers to find evidence that the latter construction was an “extravagant” innovation. De Smet (2016) analyses data for 169 different speakers collected from the Hansard Corpus, covering the three final decades of the 20th century, to study the recent development of the noun *key* into an adjective, connecting individual speakers’ use of the innovative construction with their use of more conventional constructions that provide “analogical support”. All of this is research on grammatical innovations, however; historical idiolectal corpora have so far not been deployed in the investigation of constructional attrition. The next section but one will address the question of whether it would be desirable to do so, following a brief survey and discussion in the immediately ensuing section of the extent to which constructional attrition has so far been covered in usage-based theorizing on language change.

3.2. The (non-)treatment of constructional attrition in usage-based historical linguistics

To date, constructional attrition has received little, and only inadequate, treatment in historical linguistic theorizing that connects language change and cognition. There is no discussion of it in Coussé and von Mengden’s (2014) edited volume on *Usage-based approaches to language change*, nor is it dealt with in any of the contributions to a collection edited by Hundt et al. (2017) which offers “psycholinguistic perspectives” on “the changing English language”, or in any of the contributions to a special issue of *English Language and Linguistics* on “cognitive approaches to the history of English” (Bergs and Hoffmann 2017). It is given some attention in the Traugott/Trousdale model of ‘constructionalization and constructional change’, as a phenomenon of the latter kind, where it is called ‘obsolescence’ and characterized as the decline, marginalization and loss of (sub)schemas and micro-constructions (Traugott and Trousdale 2013: 62–71). One of the examples they present is very relevant to the case study presented in section 2, viz. Leech et al.’s (2009) work on the decline during the 20th century of the core English modal auxiliaries, which indeed was already made mention of in section 2.1 above, where I referred to Leech’s (2013) revisitation of it. Traugott and Trousdale’s discussion of this and other examples of constructional obsolescence/attrition only scratches the surface, however, with a mere reference to a “falling out of use”: “while members of the schema (nodes in the network) may be in decline, they are not equally so: just as we witness individual micro-constructions coming to be added to a schema over time, so we may witness individual micro-constructions falling out of use, one by one” (Traugott and Trousdale 2013: 66). This is hardly an adequate account for a purportedly usage-based model. While in their account of constructionalization there was at least an attempt to separate individual knowledge from ‘community knowledge’ (cf. the discussion of the model in Noël 2017), here there is no attempt even to distinguish between knowledge and use in a speech community.

There is already a panchronic usage-based model of language which does very explicitly discriminate between language use and internal and external linguistic systems, viz. Schmid’s

(2015) ‘Entrenchment-and-Conventionalization Model’. This model, in the broad sense of a “theoretical framework” (Schmid 2015: 21), distinguishes between (individual) *cognitive* ‘entrenchment’ processes (association, routinization, schematization), which lead to unavoidably diverse internal systems, and (superindividual) *sociopragmatic* ‘conventionalization’ processes (innovation, co-adaptation, diffusion, normation), which lead to the external system which laypeople and linguists alike call ‘a language’. In connection with entrenchment, Schmid only discusses “emergence”, however, not disappearance, and he only talks about “increased” conventionalization, which can hardly cover constructional attrition either. So where would constructional attrition belong in this model, only under conventionalization as a sociopragmatic process, or also under entrenchment as a cognitive process that comes first?

3.3. Incorporating constructional attrition in a radically usage-based approach

Notice that Schmid also puts innovation under conventionalization, which seems odd in view of his insistence that conventionalization is not a cognitive but a social process. Schmid (2015: 19) argues that “innovations are only innovative before the backdrop of what is regarded as conventional in a speech community, not before the backdrop of the mind of an individual speaker”. This I agree with entirely. In fact, it is perfectly consistent with Fischer’s (2007) model of morphosyntactic innovation which I have argued in Noël (2016, 2017) to be consistent with a radically usage-based approach to constructionalization. In her perspective, speakers do not realize they are being innovative against any backdrop, whether social or individual. When they use grammar no-one has ever used before, however, they are doing so in a manner that is consistent with their own grammars, and that very much makes innovation a cognitive affair.

But what about constructional attrition? Can it be reduced to a change in linguistic convention? Schmid (2015: 8) defines linguistic conventions as “the tacit mutual agreement among the members of a speech community that similar communicative tasks are solved in similar ways with similar effects”. Do constructions disappear, or are they used less, because certain communicative tasks no longer need to be performed, or because there is tacit mutual agreement to perform them in a different way? If, for the sake of simplicity and in the vein of Wierzbicka, we say that the DEONTIC NCI schema is a construction that is put to use to get people to do something, did the construction suffer from attrition because speakers of English are not trying to get other people to do something as much as they used to, or because they started to do this in a different way? The former would be consistent with Leech’s (2013) modal deficit hypothesis and the latter would be supported by Myhill’s and Wierzbicka’s suggestions. However, if we are not happy to stop at a “tacit agreement” explanation in the case of constructionalization, we should not leave it at this in the case of constructional attrition either.

From an individual cognitive perspective constructional attrition should in fact not be treated differently from constructional innovation. Simply put, just as some people will always have led the way in expressing certain meanings in novel ways, it should be the case as well that everyone will not have stopped expressing certain meanings and/or expressing them in certain ways all at the same time. In a radically usage-based approach to constructional attrition such intragenerational interpersonal differences will first need to be established empirically, before the even more interesting question can be tackled of whether constructional attrition can also be observed to take place on an intraindividual level, within the human lifespan. Just as much as it is necessary to situate new grammar in the context of the individual’s old grammar in the case of constructionalization, it will in both cases be interesting to determine how old grammar that is or becomes absent in an individual speaker is similar to grammar that is still present. A key question in this regard is whether any attritional developments which have been observed from data which make abstraction from individual speakers, like the attrition of the

DEONTIC NCI schema observed in the CLMET, can simply be transposed to a speaker-internal level, in terms of interpersonal consistency both in intragenerational and intraindividual developments. To get to the bottom of the question of whether constructional attrition is merely a phylogenetic phenomenon or also a fundamentally cognitive one we need empirical research which consistently implements a radically usage-based perspective in its data collection methodology, similar to what is already happening in the investigation of constructionalization. In other words, constructional attrition needs to be looked at in idiolectal historical corpora as well.

4. Conclusion

Taking off from a traditional corpus investigation using a historical corpus intended to be representative of Late Modern English “as a whole”, which established that a DEONTIC NCI schema was on the decline during that period, this paper has presented initial reflections on the question of whether constructional attrition is (also) a cognitive phenomenon. Obviously, since the average language user does not have any historical linguistic awareness, this question is not about whether speakers of English are aware of particular attritional developments that might be going on in their language. A radically usage-based historical linguist does need to ask, however, whether this is merely a phylogenetic change in language as an external system (the construction of a language) or whether it can also be observed to take place ontogenetically, within internal systems (the constructions of individual speakers). If only the former is the case, i.e. if it is simply a frequency difference that linguists can observe between a series of consecutive historical snapshots of a language, then its cognitive relevance purely resides in a likely diminished salience of the construction for later generations of speakers. In other words, in this case we are talking about intergenerational differences in cognitive content. On the other hand, if, as expected, there are intragenerational interpersonal differences in the progress of attritional developments and if attrition is also a development that takes place within individual constructions in the course of a speaker’s lifespan, this needs to be factored in in one’s explanatory model of constructional attrition. There should not simply be reversed diffusion in that case but also what one could antithetically call attritional innovation, or innovative attrition. Following the lead of consistently radically usage-based research into constructionalization, the investigation of constructional attrition should therefore turn to data resources that allow differentiation between individual speakers.

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Appendix

variable substantive element	token frequencies						log-likelihood scores		
	I. 1710-1780		II. 1780-1850		III. 1850-1920		I-II	II-III	I-III
	n	n/m	n	n/m	n	n/m			
admitted	23	2.21	8	0.71	2	0.16	8.76	4.56	24.88
advised	22	2.12	23	2.05	15	1.2	0.01	2.71	2.97
admonished	1	0.1	2	0.18	0	0	0.27	3	1.58
allowed	212	20.41	327	29.18	468	37.35	16.75	11.88	56.71
appointed	66	6.36	64	5.71	24	1.92	0.37	23.6	29.06
arranged	0	0	0	0	4	0.32	0	5.11	4.83
asked	9	0.87	26	2.32	65	5.19	7.37	13.2	37.94
authorised	18	1.73	14	1.25	11	0.88	0.85	0.77	3.28
beckoned	0	0	1	0.09	0	0	1.31	1.5	0
begged	0	0	0	0	2	0.16	0	2.56	2.41
beholden	0	0	2	0.18	0	0	2.62	3	0
bound	127	12.23	250	22.31	409	32.64	32.05	23.05	107.87
called	17	1.64	36	3.21	23	1.84	5.59	4.52	0.13
charged	1	0.1	8	0.71	5	0.4	5.68	1.07	2.21
chosen	9	0.87	5	0.45	6	0.48	1.48	0.01	1.3
commanded	41	3.95	11	0.98	13	1.04	20.79	0.02	20.98
commissioned	8	0.77	11	0.98	7	0.56	0.27	1.4	0.39
compelled	190	18.3	336	29.98	240	19.15	30.7	28.58	0.22
condemn	38	3.66	31	2.77	26	2.07	1.34	1.17	5.08
consigned	0	0	1	0.09	0	0	1.31	1.5	0
constrained	24	2.31	35	3.12	25	2	1.31	2.98	0.26
counselled	1	0.1	0	0	0	0	1.46	0	1.58
courted	3	0.29	0	0	0	0	4.39	0	4.75
demanded	1	0.1	0	0	0	0	1.46	0	1.58
denied	3	0.29	0	0	0	0	4.39	0	4.75
deputed	3	0.29	3	0.27	4	0.32	0.01	0.05	0.02
desired	60	5.78	34	3.03	10	0.8	9.4	16.65	49.63
detached	0	0	0	0	1	0.08	0	1.28	1.21
dispatch	15	1.44	4	0.36	3	0.24	7.65	0.28	11.14
directed	43	4.14	12	1.07	14	1.12	20.98	0.01	21.42
disentitled	0	0	1	0.09	0	0	1.31	1.5	0
driven	10	0.96	22	1.96	41	3.27	3.74	3.9	14.85
elected	0	0	1	0.09	3	0.24	1.31	0.84	3.62
empowered	28	2.7	13	1.16	10	0.8	6.82	0.8	12.59
enabled	132	12.71	148	13.21	85	6.78	0.1	25	21
enforced	2	0.19	0	0	0	0	2.93	0	3.17
enjoined	9	0.87	2	0.18	3	0.24	5.37	0.11	4.37
entitled	29	2.79	64	5.71	77	6.15	10.97	0.19	14.47
entreated	5	0.48	3	0.27	4	0.32	0.67	0.05	0.38
entrusted	3	0.29	0	0	0	0	4.39	0	4.75
exhorted	3	0.29	4	0.36	3	0.24	0.08	0.28	0.05
expected	22	2.12	95	8.48	132	10.53	43.7	2.64	67.87
forbidden	18	1.73	12	1.07	39	3.11	1.71	12.2	4.48
forced	423	40.73	241	21.5	235	18.75	65.36	2.23	95.56
held	0	0	0	0	1	0.08	0	1.28	1.21

impelled	3	0.29	26	2.32	11	0.88	19.2	8.05	3.48
implored	0	0	0	0	2	0.16	0	2.56	2.41
importuned	4	0.39	1	0.09	0	0	2.16	1.5	6.33
incited	3	0.29	7	0.62	2	0.16	1.36	3.53	0.43
indulged	1	0.1	0	0	0	0	1.46	0	1.58
instructed	33	3.18	22	1.96	16	1.28	3.13	1.74	9.65
intended	95	9.15	113	10.08	94	7.5	0.49	4.51	1.86
invited	31	2.99	63	5.62	43	3.43	8.81	6.36	0.35
licensed	1	0.1	1	0.09	0	0	0	1.5	1.58
made	16	1.54	33	2.94	43	3.43	4.8	0.44	8.28
meant	0	0	0	0	3	0.24	0	3.83	3.62
necessitated	10	0.96	8	0.71	1	0.08	0.4	7.01	10.33
obligated	1	0.1	30	2.68	0	0	31.98	45.03	1.58
obliged	1296	124.8	847	75.58	656	52.35	132.09	50.33	351.13
ordained	8	0.77	13	1.16	1	0.08	0.85	13.59	7.59
ordered	124	11.94	73	6.51	49	3.91	17.53	7.81	49.22
permitted	378	36.4	256	22.84	91	7.26	33.84	101.21	246.68
pledged	0	0	1	0.09	2	0.16	1.31	0.24	2.41
pressed	15	1.44	17	1.52	5	0.4	0.02	8.32	7.29
privileged	1	0.1	18	1.61	23	1.84	17.24	0.18	21.04
prohibited	11	1.06	0	0	0	0	16.1	0	17.41
put	5	0.48	5	0.45	4	0.32	0.01	0.25	0.38
reduced	73	7.03	12	1.07	7	0.56	53.4	1.95	76.53
refused	0	0	2	0.18	0	0	2.62	3	0
requested	9	0.87	40	3.57	20	1.6	18.9	9.21	2.47
required	41	3.95	54	4.82	53	4.23	0.93	0.45	0.11
sent	84	8.09	65	5.8	63	5.03	4.09	0.65	8.25
sentenced	8	0.77	24	2.14	5	0.4	7.2	15.75	1.38
set	2	0.19	3	0.27	12	0.96	0.13	4.82	6.17
solicited	15	1.44	4	0.36	1	0.08	7.65	2.28	17.47
suffered	118	11.36	91	8.12	20	1.6	5.86	57.44	96.71
summoned	33	3.18	25	2.23	13	1.04	1.8	5.31	13.15
suppose	9	0.87	11	0.98	37	2.95	0.08	12.12	13.44
sworn	3	0.29	4	0.36	4	0.32	0.08	0.02	0.02
tied	0	0	0	0	1	0.08	0	1.28	1.21
told	3	0.29	15	1.34	48	3.83	7.84	14.69	39.88
unentitled	0	0	1	0.09	0	0	1.31	1.5	0
urged	8	0.77	4	0.36	4	0.32	1.68	0.02	2.22
vowed	0	0	1	0.09	1	0.08	1.31	0.01	1.21
wanted	1	0.1	3	0.27	8	0.64	0.9	1.83	4.96
warned	1	0.1	2	0.18	6	0.48	0.27	1.67	3.09
warranted	7	0.67	0	0	0	0	10.25	0	11.08
wished	3	0.29	2	0.18	0	0	0.28	3	4.75
TOTAL	4073	392.2	3747	334.34	3359	268.07	49.78	86.6	268.19