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Radically usage-based diachronic construction grammar and the development of non-deontic *be bound to*.

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Even when both use and cognition are incorporated in its theorizing about grammatical change, research in the budding discipline of diachronic construction grammar which explicitly subscribes to a “usage-based” approach does not always distinguish between abstraction from the observed usage of a linguistic community and individual linguistic knowledge. Given that language change starts with innovations by individuals and that experientially constructed knowledge is necessarily diverse, such a distinction crucially needs to be made to arrive at a realistic usage-based account of grammatical change. This paper first assesses the extent to which the conflicting models of Elizabeth Traugott and Olga Fischer succeed in teasing apart internal and external systems, concluding that while the former’s reanalysis model results from an external semasiological perspective, the latter’s analogy model is more radically usage-based in that it does not inherently entangle intra- and extra-individual knowledge. By way of an illustration of a radically usage-based approach, the second part of the paper proposes an onomasiological account of how the pattern *be bound to* came to be used as a non-deontic/epistemic necessity marker, offering an alternative to viewing it as a development from the historically prior deontic *be bound to* construction.

Keywords: diachronic construction grammar; usage-based model; construction-alization; analogy; periphrastic modals; *be bound to*.

1. Less and more usage-based diachronic construction grammar

“Diachronic Construction Grammar” has been parsimoniously defined — in the introductory chapter to Barðdal *et al.* (2015), the edited volume so entitled — as “the historical study of constructions” (Barðdal & Gildea 2015: 42) and, somewhat more generously, as a field of work in linguistics that addresses linguistic change from the perspective of construction grammar (slightly adapted from Traugott & Trousdale 2013: 39). In other words, it can be taken to be a field of linguistics which looks at how constructions come into being as form-meaning pairings and how these form-meaning pairings might subsequently change, or more broadly at the evolution of the constructional resources of a language, i.e. of “constructicons”.¹

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¹ There is no agreement on whether the three words of the field name should be capitalized or not, with all three possibly meaningful variants occurring: “Diachronic Construction Grammar” (cf. Barðdal 2011; Barðdal & Gildea 2015; Hilpert 2015), with maximal capitalization, “diachronic Construction Grammar”

An important strand of work within diachronic construction grammar comprises research one could bring together under the heading of “constructionist grammaticalization theory”, which can be distinguished from “historical construction grammar” (Noël 2013, 2016). While the latter builds on synchronic construction grammatical work, the grammaticalization strand encompasses work in the grammaticalization theoretical tradition subsequent to the constructionist turn it witnessed around the start of the century. Two of its leading influencers are Elizabeth Traugott and Olga Fischer, who have both subscribed to an approach which is broadly constructionist, albeit to different degrees of engagement. The first’s affinity with construction grammar initially surfaced in Traugott (2003) and has so far culminated in Traugott (2015), a contribution to the edited collection already referred to that summarizes parts of a book she co-authored with Graeme Trousdale entitled “Constructionalization and constructional changes”. This “draw[s] opportunistically on a number of insights which have been proposed in [...] constructional accounts of language [...], without adhering to one particular type of construction grammar” (Traugott & Trousdale 2013: 3) so as to offer an “overarching view of constructional change” and to give an account of “the special kind of change of the sort [they] call constructionalization” (2013: 39). Olga Fischer, for her part, has repeatedly, though not very prominently, acknowledged that the approach to morphosyntactic change she proposes is congruent with construction grammar, both in the book in which the approach was first presented (cf. Fischer 2007: 78, 95, 142) and in subsequent work (cf. Fischer 2008: 341; 2010: 189).

Both Traugott and Fischer unequivocally underwrite what has come to be known as “the usage-based approach to language” after Ronald Langacker’s coinage of the term “usage-based model” for 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). In another single-authored summary of the Traugott and Trousdale book, Traugott (2014: 4) characterizes its take on language change as “a usage-based construction grammar perspective” and the second of the book’s two groundlaying chapters is entitled “A usage-based approach to sign change”. Similarly, as summarized by herself in its introduction, the first, theoretical, part of Fischer’s book concludes by “[s]tressing the binary nature of the linguistic sign (the importance of both form and function)” and suggesting that “a usage-based, analogical model may prove to be the most fertile model for understanding morphosyntactic change” (Fischer 2007: 4); and the book ends with a chapter entitled “Toward a usage-based theory of morphosyntactic change”.

While for many who espouse a usage-based approach to language change this first and foremost entails attention to evolutions in frequency of use (Hilpert 2013 being a case in point), both Traugott and Fischer focus more on the knowledge pole in the dyadic relationship between knowledge and use that is inherent to this theoretical stance. Traugott (2015: 54) mentions that “[c]onstructions are types, parts of a language-user’s knowledge system”, which are “gathered into a language-specific structured inventory, known as the ‘constructicon’” and “conceptualized as a network”. Language change is described in terms of “how a network grows and contracts” (Traugott & Trousdale 2013: 45). Fischer’s different emphasis is that grammar as knowledge is a determinant of

(cf. Trousdale 2012a; Jing-Schmidt & Peng 2016), which capitalizes only Construction Grammar, and “diachronic construction grammar”, without any capitalization (cf. Noël 2007; Trousdale 2012b; Traugott & Trousdale 2013; Traugott 2015; Peng 2013; David 2015). In my view, the characterization offered in this first paragraph does not warrant the use of capitals and I will therefore continue to use small letters only.

change and that we therefore “need to look at the process of grammaticalization [or morphosyntactic change, DN] from the point of view of the speaker, that is, we should consider how the structure that is said to grammaticalize is embedded in the synchronic system of grammar that is part of the speaker’s acquired knowledge” (Fischer 2008: 338).

It is interesting that both Traugott and Fischer refer in the same breath to the individual’s knowledge (“a language user’s knowledge system”/“the speaker’s acquired knowledge”) and the grammar of a language (“a language-specific structured inventory”/“the synchronic system of grammar”). Traugott explicitly talks about the latter in terms of knowledge, more specifically “community knowledge”, and about language change, by implication, as changes in community knowledge:

[...], we use networks as a way of talking about individual knowledge (i.e. the representation of an idiolect, the reflection of an individual mind), community knowledge (i.e. the representation of the structure of English at a given point in time), and language change (i.e. how the structure of English varies over time), [...]. Crucially, for our perspective, innovations are features of individual knowledge, and as such are manifest in the networks of individuals, while changes must be shared across individual networks in a population. [...] Changes in a ‘community’ network develop through cross-population sharing of tiny innovative steps that occur in individual instances of speaker-hearer interaction largely via a processes [sic] of neanalysis, including analogization [...]. (Traugott & Trousdale 2013: 46)

The suggestion appears to be that community knowledge is shared knowledge and that consequently community knowledge comprises, at the very least, a subset of every individual’s knowledge. Likewise, when Fischer calls for an approach to morphosyntactic change that does “not neglect the overall system of grammar (or more precisely, the conventional grammar acquired by each speaker-learner within a particular language community)” (Fischer 2008: 339), there is an implication that everyone who is considered to speak the same language shares the same, “conventional”, constructicon.

It seems, however, that such an assumption amounts to a failure to make the distinction pointed at by Kemmer and Barlow (2000: viii) — in their perceptive introduction to Barlow and Kemmer (2000) — between the “internal linguistic system” (“structures posited by the analyst as a claim about mental structure and operation”) and the “external linguistic system” (“hypothesized structures derived by the analyst from observation of linguistic data, with no expectation that such structures are cognitively instantiated”). Talking about “the representation of the structure of [a language] at a given point in time” in terms of knowledge, as do Traugott and Trousdale, or about “the conventional system of grammar” as something that is acquired by the language user, as does Fischer, in effect, if not intentionally, cognitively reifies “a kind of common denominator of individual grammars”, which Fischer (2007: 6) had stated in the introduction to her book to be a concept she did not work with. From what I would call a more radically usage-based perspective, however, it cannot be taken for granted that all speakers of the same (variety of a) language share any particular constructicon and many of the constructions which *are* shared are unlikely to be equally salient or entrenched in each individual’s constructicon (cf. Dąbrowska 2012; Barlow 2013; Schmid 2015). It is an empirical, but possibly unanswerable, question just how much of a hypothesized constructicon that we conveniently refer to as a language is

shared by everyone who is considered to be speaking it. Conversely, the constructions individuals work with may have content which is not yet, and may never become, massively shared or conventionalized. This comprises what is generally referred to as “innovations”, which Traugott and Trousdale stop short of calling “constructions” in the block quote above, for a reason I will come to shortly, though somewhat paradoxically they do recognize them to be “manifest in the networks of individuals”. From these individuals’ perspective, however, we cannot realistically assume that there are separate boxes for shared and unshared parts of their constructions or that parts of their networks are tagged as conventional and others as unconventional (barring conscious neologistic creations). Consequently, from a radically usage-based perspective there can only be individual knowledge and we should not confuse this with linguists’ descriptions of a synchronic system which make abstraction from individuals. These are descriptions of conventions and, as Schmid (2015: 18) has cogently argued, “conventions [...] must not simply be regarded as shared pieces of knowledge” but instead as collective “implicit agreement on how to solve communicative tasks”; that is, they result from “collective social processes” rather than “individual cognitive” ones (Schmid 2015: 22).

To what extent does the blending of internal and external systems do damage to Traugott’s and Fischer’s proposals for a usage-based account of change? Of course, the mere reference to conventionalization, or to a conventional language system even, is unproblematic as long as we are clear about what is meant by the latter. Indeed, for a historical linguist “innovations made by individual users do not count as changes; only those that are replicated, transmitted to other users, and therefore conventionalized, do so” (Traugott 2015: 53). Conventionalization is consequently an integral part of Traugott’s (2015: 56) definition of constructionalization, the creation of a new construction: “When there have been morphosyntactic and semantic reanalyses that are shared across speakers and hearers in a social network, a new micro-construction or schema is added to the network, because a new conventional symbolic unit, and hence a new type node, has been created.” As a statement about the evolution of *the* network, i.e. the construction of a language resulting from conventionalization, this works (at least as long as one does not take issue with its reification). In Traugott’s model constructionalization is preceded by “pre-constructionalization constructional changes”, however, whose description makes use of the concept of “mismatch”, first invoked in Traugott (2007), and from a radically usage-based perspective this is a problematical concept, given that it amounts to a disparity between internal and external systems. As described in Traugott (2015: 55-6), pre-constructionalization constructional changes

typically involve language-users loosely associating an implicature or “invited inference” from a construct with the semantics of an existing construction in the constructional network, preferring to use parts of the construct in a particular distributional niche, or repeating part of a construct as a chunk. As a result of repeated associations, groups of language-users come to tacitly agree on a conventional relationship between the original form and a newly analyzed meaning. This leads to mismatch [...] between the morphosyntax of the original construction and the new constructs.

This can hardly be interpreted to mean that there is some kind of conflict between what speakers do and what they know, and one would expect the mismatch referred to to reside in a difference between certain speakers’ individual knowledge and most other speakers’ knowledge. This is indeed why Andersen’s (2001: 231) term “neanalysis”

is adopted in favour of reanalysis: “If a language user who has not yet internalized the construction in question, interprets the construction in a different way from the speaker, ‘re’-analysis has not occurred, only ‘different’ analysis; strictly speaking, one cannot ‘re’-analyze a structure one does not ‘have’” (Traugott and Trousdale 2013: 36). The appeal to mismatch in the Traugottian account of constructionalization consequently amounts to a muddling up of speaker-internal and speaker-external systems. For the individual speaker there is no mismatch. Therefore, when Traugott (2015: 51, 65) insists that reanalysis is the primary “mechanism” of change, and that “analogization” is a kind of reanalysis, she is really talking about developments in an external system, while the reference to language users and speakers imply internal systems.

Such a “blurring” of “the distinction between speaker level and language level” was already remarked upon by Fischer (2007: 117), as a criticism directed at grammaticalization theory. She poses the question “is there an actual reanalysis in psycho-/neurolinguistic terms?” (Fischer 2009: 7), and answers it in the negative, arguing instead that “[i]t is only from the point of view of the abstract system of grammar that one can speak of reanalysis” but that in terms of language processing “[t]he language user **replaces** one pattern with another one through analogy; in other words, (s)he does not actually reanalyse anything” (Fischer 2010: 192, original emphasis). Without completely denying any role for pragmatic inferencing (cf. Fischer 2010: 204), Fischer proposes an alternative model which she characterizes herself as “replacement induced by analogy” (Fischer 2007: 48).

What is replaced with what? Fischer is less explicit about this than is desirable, but from the examples she regularly returns to it is obvious that replacement — a notion she borrowed from Deutscher (2000) — can refer both to innovative ways of expressing certain meanings and to new meanings for old surface patterns. One of her favourite examples of the former kind is the creation of the epistemic modal auxiliary *may*, i.e. epistemic *may* + infinitive, as a replacement for the biclausal pattern *it may be that* (Fischer 2007: 266; 2008: 367; 2013: 524), “due to a formal analogy with the personal construction containing dynamic/deontic modals (the type ‘He can/is able to swim’) and due to analogy with Subject-raising structures with verbs like *seem*” (Fischer 2007: 267). The other kind of replacement is illustrated with the benchmark example *be going to* (Fischer 2008: 354; 2010: 192), the discussion of which in Fischer (2009: 7) being the most explicit explication of how replacement should be understood in this case. It may be helpful to quote from it extensively:

The ‘grammaticalization’ of constructions, or the way (diachronically connected) forms are stored in our brains could be said to resemble the process of conversion, and their storage. When a noun like *table* is used as a verb, the two items are stored in different paradigms or categories, both formally and semantically, and, once there, they may drift further apart. There is no question of reanalysis here for the speaker-listener; he [sic] is simply making use of the (abstract) grammar system of English that allows such an option [...]. Since there are many such hybrid items in the language, he analogizes, on the basis of an existing pattern, that *table* belongs to this pattern too. [...]

In a similar way, with the construction *going-to*+infinitive, a present-day speaker-listener identifies it in any actual speech situation as either a full lexical verb followed by a purposive *to*-infinitive, or an auxiliary (with *to* incorporated) followed by a bare infinitive, according to the patterns of the full verb and the auxiliary paradigms that he has mastered in the course of language acquisition. As with conversion, the speaker-listener doesn’t reanalyse, he categorizes holistically,

whereby he may apply the ‘wrong’ rule. How he categorizes in each case depends on the present state of his grammar as well as the context, just as he can recognize whether *table* is a noun or a verb from the (syntagmatic) context and the paradigmatic inventory of patterns present in his grammar. The context is characterized by formal [...] as well as semantic-pragmatic information. The very first time a historical speaker-listener identified *going-to* as auxiliary, therefore, did not constitute an actual reanalysis of *going*(full verb)+*to*-infinitive but a category mistake, a mistake that he could make because the *going-to* form fitted both the V-*to*-V as well as the Aux-V pattern.

The answer to the question of what is replaced with what, therefore, can in this case only be: different analyses of a surface pattern.² The difference with Traugott’s concept of neoanalysis, however, is that for Fischer the two analyses can exist side by side in a speaker’s internal system, without the speaker connecting them. In other words, unlike Traugott, Fischer does not switch between internal and external systems and her model of change does not appeal to a mismatch between systems.

Her repeated reference to “the” conventional synchronic system as a source for analogy is infelicitous but should in fact not be understood to imply a reference to an external system since in Fischer’s model a conventional synchronic system is only relevant to the extent that it is acquired by the individual language user and used to produce or interpret utterances (see, e.g., Fischer 2007: 117; 2008: 339; 2009: 6; 2010: 182). We should conclude no more than that she pays no explicit attention to differences between individual internal systems. The propagation of an innovation depends on its “acceptability” to other speakers: “It is only when an analogy is fairly obvious and straightforward that it may be accepted by many individuals and cause a change rather than some individual innovation” (Fischer 2008: 370). In more recent work, however, she also recognizes the possibility that “the analogies of one speaker need not necessarily be the same as the analogies of another” (Fischer 2013: 528), i.e. innovations may pass muster for different reasons with different individuals.

I wish to conclude that Fischer is more radical in her usage-based approach to grammatical change than Traugott. She stresses that “[t]he analogical process [...] can only be explained from the forms and the meanings that analogous structures have for

² It should be pointed out that while Fischer attributes the notion of replacement to Deutscher (2000), their outlooks are different and Deutscher would in this case not talk of replacement but of “structural change”. Deutscher is only concerned with external change and distinguishes between two perspectives on it, “structural change” and “functional replacement”:

The first perspective from which one can view diachronic change is local and structural. We can follow a certain construction through time, and observe the change in its form or its meaning. For example, we can follow the history of the phrase ‘going to’, on the path from the verbal phrase meaning ‘walk (in order) to’, to the reduced future marker ‘gonna’. In this case, we follow the *structural change* of the phrase ‘going to’.

But we can also look at diachronic change from a global functional perspective. We can observe that at one point in time, one structure X performs a certain function in the language, whereas at a later point, a different structure Y may replace X in that function. For example, suppose that at some future stage, the modal verb ‘will’ will fall into disuse, and futurity in English will be marked exclusively by ‘going to’ or ‘gonna’. If this change occurs in the future (whether or not it does is irrelevant), we will then be able to say that although ‘going to’ did not develop from ‘will’, ‘going to’ nevertheless replaced ‘will’ as the future marker. We can call this type of change *functional replacement*. (The term ‘renewal’ is also sometimes used in this context.) (Deutscher 2000: 14-15)

One could also distinguish the two perspectives as semasiological and onomasiological, respectively.

speakers within **their** synchronic system and within their communicative situation” (Fischer 2008: 369, emphasis added). The mismatch which is at the centre of Traugott’s proposal, however, can hardly operate within an individual’s internal system — performance-related slips notwithstanding, speakers’ utterances will not conflict with their own grammars — and consequently the recourse to mismatch entails an entanglement of internal and external systems, which a usage-based approach should really disentangle.

Traugott has been less successful than Fischer, therefore, in divorcing herself from the external vantage point that comes most naturally to everyone reflecting on language change, be they folk etymologists or historical linguists. Unavoidably, an external outlook predisposes one to constructing and accounting for semasiological paths, while a fundamentally internal perspective leads one to question such ostensible developmental lines for the simple reason that they do not exist internally. A radically usage-based diachronic construction grammarian will consequently be more amenable to considering homonymy in favour of polysemy and to looking for onomasiological explanations as an alternative to semasiological ones. Complementing the examples in Fischer’s work, the second half of this article will flesh this out with an account of how the pattern *be bound to* came to be used with a non-deontic/epistemic necessity meaning in addition to a deontic necessity one.

2. The development of non-deontic *be bound to* in a radically usage-based perspective

2.1. *Be bound to* in grammars and studies on modality

It has long been recognized by grammarians that English has two modal *be bound to* constructions, the most common one what is sometimes called an “epistemic” one, illustrated in (1), and a less frequent deontic one, illustrated in (2).

- (1) “Maybe Manchester United will at some point try to make an approach to Martin – could anyone blame them?” says Quinn. “It’s the nature of the business. It might not be a question of if they do so much as when they do. The point is, if we are approached, as I think we **are bound to** be, then what should our response be?” (WordbanksOnline)
- (2) No butts about it – the United Nations has decided to ban smoking. The U.N., one of the last bastions for smokers in New York, will follow the Big Apple’s tough anti-smoking law beginning Monday, officials said yesterday. “Because of the agreement with the host country, we **are bound to** follow the local laws,” said U.N. spokeswoman Hua Jiang. (WordbanksOnline)

Quirk *et al.* (1985: 143) list *BE bound to* as a “semi-auxiliary”, together with *be able to*, *be about to*, *be apt to*, *be due to*, *be going to*, *be likely to*, *be meant to*, *be obliged to*, *be supposed to*, *be willing to* and *have to*, i.e. as a member of “a set of verb idioms which express modal or aspectual meaning and which are introduced by one of the primary verbs HAVE and BE”. They point out that it has a “necessity” and an “obligation” meaning, “[j]ust as *must* and *should*” (Quirk *et al.* 1985: 237). Biber *et al.* (1999: 718) list *bound* among a group of “adjectives taking post-predicate *to*-clauses” under the semantic label “ability or willingness”, together with (*un*)*able*, *anxious*, *careful*, *determined*, *keen*, *obliged* and *prepared*, amongst others, but — strangely, and

interestingly, in view of what others I am mentioning in this little survey are saying — they do not also list it in their sub-group labelled “degree of certainty”, together with *apt, certain, due, guaranteed, liable, (un)likely, prone* and *sure*. More important for the argumentation presented below, however, is to note that they classify *bound* as an adjective. Huddleston and Pullum (2002: 173) do so as well in the section on “Mood and modality” of their chapter on “The verb”, listing *bound* together with adjectives like *possible, necessary, likely, probable* and *supposed*, as well as adverbs like *perhaps, possibly, necessarily, probably, certainly* and *surely*, verbs like *insist, permit* and *require*, and nouns like *possibility, necessity, permission*, and “similar derivatives”, as “lexical modals” which express “the same kind of meaning as the modal auxiliaries”. Elsewhere, in the section on the “Passive voice” of the chapter on “Information packaging”, they mention that adjectives like *bound* “are morphologically related to the past participles of verbs but [their] meaning has changed, so that they are no longer comparable to verbal passives with the same forms, and their connection with passives proper is purely historical” (Huddleston & Pullum 2002: 1440). Of relevance again for what will follow is that they group *bound* with *sure* and *certain* as adjectives which, when combined with an “infinitival” are used “epistemically, often (unlike *must*) with a future situation”. They also point out that “[m]ore rarely, *bound* is used deontically” (Huddleston & Pullum 2002: 207). Carter and McCarthy (2006: 670), finally, to end this short survey of recent comprehensive grammars, list patterns, as Quirk et al. (1985) do, without specifying lexical categories, mentioning *be bound to* under the heading of “other modal expressions with *be*” (i.e. in addition to *be to* and *be going to*), together with *be about to, be able to, be certain to, be due to, be likely to/that, be meant to, be obliged to, be supposed to* and *be sure to*. They point out that “[*b*]e bound to means ‘be very certain to’, and expresses strong predictions or inevitability” and that it “also less frequently has a meaning of ‘be obliged to’” (Carter & McCarthy 2006: 672).

Beyond grammar books *be bound to* has also received mention in monographs on the English modal auxiliaries. Palmer (1990[1979]: 25) lists *be bound to* together with *be able to, have to/have got to* and *be going to* as “semi-modals”. He points out that “[i]n most of its occurrences it has an epistemic sense” and that it “can almost be paraphrased by ‘It is certain that...’” (1990: 55), while when it is used with future time reference, the meaning is sometimes nearer to ‘It is inevitable that...’ (which may not be wholly epistemic but partly dynamic)” (1990: 56). Coats (1983: 5) mentions *be bound to* as one of the “quasi-modals” discussed in her study, together with *have to, be going to* and *be able to*. She emphasizes the rarity of the pattern and draws attention to it being more frequent in writing than in speech (1983: 43). She only makes mention of the epistemic use. Westney (1995: 149) also found this “periphrastic” to be rare and explicitly distinguishes two uses: “epistemic *be bound to* makes a strong claim that seems to rule out the possibility that the proposition may not occur, and is closely paraphrasable by *be sure/certain to*, while the deontic use [...] makes an explicit statement of a moral requirement” (1995: 150). Collins (2009: 86-7) calls it a “lexico-modal” and confirms that it is “a very minor item in frequency terms” which “expresses strong deontic and epistemic necessity”, the latter being “considerably more common”.

Not everyone agrees, however, that “epistemic” is an appropriate label for all non-deontic occurrences. First, recall Palmer’s undecidedness with regard to instances with future time reference, whose “meaning is sometimes nearer to ‘It is inevitable that...’”. While he unhesitatingly assigns an epistemic meaning to an example similar to (3) and (4) (1990: 55), he is not so sure about two examples similar to (5) and (6), “which may not be wholly epistemic but partly dynamic” (1990: 56).

- (3) “He’s **bound to be** in by now — he’s always early.” (BNC)
- (4) “Let’s go back down.” Pet’s voice held a note of panic. “You’re not opening that door,” said Batista, blocking his way. “They’re **bound to be** in the lab by now... and on the stairs. Give me the keys.” (COCA)
- (5) But while recommending such long-term plans, I must stress the need for flexibility. No two years are alike, and what succeeds this year may fail next: further, your early plans will be made without complete knowledge of all the factors, and modifications are **bound to be** necessary. (BNC)
- (6) “It is with a feeling of humbleness that I come to this moment of announcing the birth in this country of a new art so important in its implications that it is **bound to affect** all society.” (COCA)

Palmer (1990: 37) distinguishes between two “sub-classes” of “dynamic modality”: “subject-oriented modality”, which “is concerned with the ability or volition of the subject of the sentence” (1990: 36), and “neutral (or circumstantial) modality”, used “to indicate what is possible or necessary in the circumstances” (1990: 37). Obviously, the latter should then apply here. The difference with epistemic modality resides in the degree of subjectivity. Epistemic modality expresses an opinion of the speaker, while for Palmer expressions of inevitability are not purely a matter of opinion.

Along similar lines, and without the future time reference restriction even, Jan Nuyts (pers. com.) has commented that (7) is a case of what he terms “situational dynamic modality” because it describes a “necessity/inevitability inherent in the situation described in the clause as a whole” (Nuyts 2006: 4), while epistemic modality “concerns an indication of the estimation, typically, but not necessarily, by the speaker, of the chances that the state of affairs expressed in the clause applies in the world” (2006: 6).

- (7) Anybody with strong convictions that what he is doing is right **is bound to** stir up controversy. (BNC)

In other words, ‘inevitability’ should not be confused with ‘probability’.

I do not here wish to definitively decide whether non-deontic *be bound to* can be properly called epistemic, however. My interest lies in the diachronic relationship between, on the one hand, the construction illustrated by the present-day examples (2), (8) and (9), which can be characterized as expressing deontic necessity in that it is concerned with obligation (cf. Palmer 1990: 6), and, on the other, the construction illustrated by (1), (10) and (11), which has a non-deontic necessity meaning.

- (8) The Home Secretary **is not bound to** act on the advice of the inspectorate of constabulary, but he must take into account a large number of other factors. (BNC)
- (9) She signed a contract with Dad about all this, and she knows if you sign your name, then you **are bound to** keep your word. (COCA)
- (10) Mistakes **are bound to** happen sometimes. (BNC)
- (11) Any real revival of organizing, in his view, **is bound to** require a jettisoning of older models. (COCA)

Specifically with reference to English, but also within a typological framework, deontic constructions have been linked to formally congruent non-deontic ones as their

sources. Traugott (1989) argues that modal forms that can express both deontic and epistemic meanings developed the latter as polysemies resulting from the conventionalization of pragmatic inferences, and the “semantic map” of modality proposed by van der Auwera and Plungian (1998) contains a “cross-linguistically relevant” “diachronic connection” (1998: 79) between “deontic necessity” and “participant-external necessity”, the latter being a concept that takes in Palmer’s “neutral modality” and Nuyts’s “situational dynamic modality”, with deontic necessity diachronically preceding participant-external necessity (and the latter preceding epistemic necessity) (1998: 95).

One may expect non-deontic *be bound to* to have come about later than deontic *be bound to*, therefore. In the next section we will see whether there is any support to be found for such a hypothesis in the (online) *Oxford English Dictionary (OED)*. We will also try to glean from the *OED* whether there was similar grammar to *be bound to* about at various stages in time.

2.2. *Be bound to* in the *OED*

2.2.1. Deontic *be bound to*

The *OED* makes explicit mention of the deontic construction in the entry for the verb *bind*,³ listing it as its 18th use like this: “18. **to be bound**: to be under obligation, to have it as a duty, moral or legal, *to do* something.” The first example listed dates from the middle of the 14th century (12), as does the, slightly earlier, earliest example found in the dictionary’s quotation database (13).⁴

(12) To þonke and blesse hym we be bounde. (c1360)

(13) I am not bonden to mak deliuerance. (c1330)

By that time, according to Los (2005: 252), the *to*-infinitival pattern which is often referred to with the Government and Binding term “Exceptional Case-Marking” (ECM) “was already established” after “verbs of commanding and permitting”. Deontic *be bound to* consequently was not unique as a form-meaning combination, though, as we will see presently, it was not a hugely productive pattern yet. A search for passive ECM examples in verbal *OED* entries whose definitions contain an obligative verb⁵ produced eight patterns that have attestations dating from before or around the time *be bound to*

³ “bind, v.”. *OED Online*. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/19117> (accessed July 25, 2016).

⁴ Additional quotations for *be bound to* were collected by searching the quotation database for the different “past participle” forms listed at the start of the entry for *bind* immediately followed by *to*. Example (13) was found s.v. *deliverance* (“deliverance, n.”. *OED Online*. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/49473> (accessed August 23, 2016)).

⁵ The verbs searched for were *bind*, *compel*, *constrain*, *force*, *oblige*, *forbid* and *prohibit*, which are recursively used in each other’s definitions.

started occurring: *be tied to* (14),⁶ *be needed to* (15),⁷ *be charged to* (16),⁸ *be sworn to* (17),⁹ *be compelled to* (18),¹⁰ *be forbidden to* (19),¹¹ *be holden to* (20)¹² and *be commanded to* (21).¹³

- (14) On þe helde laze, het ure drihten þat me ne sholde none man bitechen bute he **were teid to** menden chirche. (a1225)
 ‘With regard to the duty of allegiance, our Lord commands that no one shall put himself in my charge, unless he were bound to repair the church.’
- (15) Penne is hit **inedd** azein **forte** climben uppart. (c1230 (?a1200))
 ‘From there you are required to climb up again.’
- (16) [...] he **was chargede** þe soþe **to** seye. (1303)
 ‘He was ordered to tell the truth.’

⁶ Example (14) is not listed s.v. *tie*, sense 5b, “To bind, oblige; usually in *pass.* to be bound or obliged (to do something). Now only *dial.*”, but is included in the Forms section of the entry in a shortened version (“tie, v.”. OED Online. June 2016. Oxford University Press.

<http://www.oed.com/view/Entry/201844> (accessed August 24, 2016)), as well as s.v. *mend*, where this longer version was found (“mend, v.”. OED Online. June 2016. Oxford University Press.

<http://www.oed.com/view/Entry/116389> (accessed August 24, 2016)). It is also included in the *Middle English Dictionary* s.v. *teien*, as the first example of sense 2(c) “to constrain (sb.), compel; also, oblige (sb. to do sth.)” (“teien (v.)”. Electronic MED. 2001-2014. The Regents of the University of Michigan. <http://quod.lib.umich.edu/cgi/m/mec/med-idx?type=id&id=MED44656> (accessed August 24, 2016)).

⁷ There are two *need*, v. entries in the *OED*. The first kind of *need*, which is marked as obsolete, has an obligative meaning, i.e. it expressed participant-internal necessity. The first sense of the second one is given as “To be necessary” and therefore expresses participant-external necessity (“need, v.2”. OED Online. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/125754> (accessed August 24, 2016)). (15) is listed in the first entry under sense 3 “To require or constrain (a person) to do something” (“† need, v.1”. OED Online. June 2016. Oxford University Press.

<http://www.oed.com/view/Entry/125753> (accessed August 24, 2016)).

⁸ (16) is the first quotation listed s.v. *charge*, sense 14(a) “To lay a command or injunction upon; to command, order, enjoin; to exhort authoritatively; to give charge” (“charge, v.”. OED Online. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/30688> (accessed August 24, 2016)).

⁹ (17) is the first quotation with an infinitive listed s.v. *swear*, sense 10(d) “Orig. *pass.* To be bound by oath” (“swear, v.”. OED Online. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/195608> (accessed August 24, 2016)).

¹⁰ This example with *for to* is the second quotation listed s.v. *compel*, sense 1(a) “To urge irresistibly, to constrain, oblige, force a person to do a thing” (“compel, v.”. OED Online. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/37514> (accessed August 24, 2016)). The first example, dating from the 1380s as well, uses *to* instead of *for to* but it is preceded by a long *by*-phrase.

¹¹ This is the second quotation of a passive combined with a (*for*) *to*-infinitive s.v. *forbid*, sense 1 “To command (a person or persons) not to do, have, use, or indulge (in something), or not to enter (a place); to prohibit”, under b “with personal object (in Old English either *dat.* or *acc.*) and an infinitive (formerly with *for to*; rarely without *to*) as second object” (“forbid, v.”. OED Online. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/72814> (accessed August 24, 2016)). In the much older first example, the “accusative” object of the active is the passive subject:

(i) Þe appel þet ich loki on is for bode me to eoten. naut to bi halden. (?c1225 (?a1200))

‘The apple that I am holding is forbidden for me to eat but I can look at it.’

¹² (20) is listed s.v. *hold*, sense 10 “To oblige, bind, constrain; in later use, chiefly in *pa. pple.* holden. *Obs.* or *arch.*” (“hold, v.”. OED Online. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/87689> (accessed August 24, 2016)). The last quotation listed dates from the end of the 18th century.

¹³ (21) is listed s.v. *command*, sense 1 “To order, enjoin, bid with authority or influence. Properly said of persons, but also *fig.* of things”, under (c) “with direct object represented by an infinitive (formerly with *for to*; also often, as in Shakespeare, without *to*: cf. *bid them go*” (“command, v.”. OED Online. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/36949> (accessed August 24, 2016)).

- (17) The erchedeknes that **beth sworn To** visite holy cherche. (c1325)
 ‘The archdeacons who are sworn to investigate parishes.’
- (18) Nether Tyte..**was compellid for to** be circumsidid. (1382)
 ‘Yet not even Titus... was compelled to be circumcised.’
- (19) Thei..**weren forbodyn** of the Hooly Gost **for to** speke the word of God in Asya. (1382)
 ‘They were forbidden by the Holy Spirit to preach the Word in Asia.’
- (20) Thanne **were I holde to** quyte thy labour. (c1385)
 ‘In that case I would be obliged to recompense your labour.’
- (21) This child **I am comanded for to** take. (c1386)
 ‘I am ordered to take this child.’

Interestingly, like *be bound to*, two of the other eight early deontic *be Ved to* patterns contain verbs which cannot be said to be “commanding” verbs in a literal sense, viz. *be tied to* and *be holden to*. These are semantically connected with each other, as well as with the patterns with commanding verbs, through a metaphor that can be represented as AN OBLIGATION IS A TIE.¹⁴ Note, however, that *be tied to* has the oldest attestation of all and that *be bound to* is one of the earliest attested patterns. There is consequently no ground to assume a metaphorical extension of an originally more literal schematic deontic construction. Judging by the *OED* entries for *tie* and *bind*, the “obligation” metaphor seems to have surfaced first in the 13th century in patterns with a prepositional phrase introduced by *to*, as in (22)¹⁵ and (23).¹⁶

- (22) Ilch man of his wise noted his swinhc swilch se he is **to iteied**. Clerc on his wise. Cniht on his wise... And ilches craftes þeau swo he beð **to iteied**. (c1200)
 ‘Everyone applies himself to his task in the way that he is bound to. The cleric in his way. The knight in his way. And of the tradition of each guild to which they are obliged.’
- (23) Hwase..hit bihat god ase heste to donne ha **bint** hire þer **to**. (?c1225 (?a1200))
 ‘Whoever promises good as a promise to do something, he assumes an obligation to it.’

Specifically with relation to *be bound to*, this also means that the obligative meaning of *bind* is not restricted to the passive ECM pattern and that consequently deontic *be bound to* should not be hypothesized to have developed in the pragmatics-based way suggested for *be going to* in the traditional grammaticalization account which survives in Traugott’s model of constructionalization.

Though Los (2005: 237) has noted that, unlike thinking and declaring ECM verbs, which are usually passive, the commanding and permitting ones “generally appear in the active form”, it is also interesting that in the case of almost all of the verbs in the obligative group identified above the dates of the first *OED* quotations for passive ECM patterns are much older than those for the active patterns. This is true for *bind* and all of the other verbs except *compel* and *forbid*. In the case of *bind* the first quotation for

¹⁴ The metaphor may be less obvious in the case of *be holden to* but some sort of tie is suggested by sense 2.a. in the *OED* entry for the verb *hold*: ‘to keep from getting away; to keep fast, grasp’ (see note 12 for reference).

¹⁵ (22) is the first quotation s.v. *tie* under sense 5(a) “To bind, oblige, restrain, constrain *to* (also *from*) some course of action, etc.” (see note 6 for reference).

¹⁶ (23) is the first quotation s.v. *bind* under sense 15(a) “To tie (a person, oneself) up in respect to action; to oblige by a covenant, oath, promise or vow” (see note 3 for reference).

the active ECM pattern (24)¹⁷ is around a century younger than the oldest quotations for the passive pattern (12-13). Likewise for *charge* and *swear*.

- (24) I will me bynde to be your man. (c1440 *York Myst.* xxxii. 217)
 ‘I will bind myself to be your retainer.’

In the case of *tie* and obligative *need* the *OED* mentions explicitly that the ECM pattern is “usually in *pass.*” and “chiefly in *pass.*”, respectively. Given this precedence and dominance of the passive ECM pattern, a conclusion could be that for (some or many) 14th-century speakers of English this pattern may have been more than, or something else than, a combination of the ECM and the Passive construction. In other words, there may have been a schematic deontic *be Ved to* construction in their constructions, deontic *be bound to* being one of several of its possible instantiations.

In subsequent centuries speakers started using the construction with other verbs, i.e., from an external perspective, the construction became more productive. Table 1 lists its attested instantiations as per the date of the oldest passive ECM example in the relevant *OED* entries. We can conclude from it that following the 14th century the construction expanded considerably until the 18th century, since when fewer new verbs were used in the construction than in previous centuries.

13C be forbidden to	be needed to	be tied to
14C be bound to be charged to	be commanded to be compelled to	be holden to be sworn to
15C be arted to be bidden to (‘forbid’) be coerced to be constrained to be distressed to	be excluded to be made to be obliged to be prohibited to	be put to be required to be strained to be stressed to
16C be coacted to be conjured to be countermanded to be denied to be driven to be enchanted to	be enforced to be exhorted to be forced to be foreclosed to be led to be perforced to	be predestined to be pressed to be reinforced to be restrained to (‘prohibit’) be urged to
17C be adjured to be bidden to be compelled to be distrained to be encharged to	be necessitated to be ordained to be ordered to be predestinated to	be reduced to be refused to be restrained to (‘compel’) be violenced to

¹⁷ (24) is the only ECM example s.v. *bind* under sense 15(a) “To tie (a person, oneself) up in respect to action; to oblige by a covenant, oath, promise or vow” (see note 3 for reference). Recall that the passive ECM pattern is listed separately as sense 18.

18C be confined to be discharged to	be necessiated to be obligated to	be pre-engaged to be preobliged to
19C be disallowed to be impelled to	be recommanded to	be told to
20C be objured to	be pushed to	

Table 1. Deontic *be Ved to* patterns listed according to the date of their earliest *OED* quotation in the respective verbal entries.

A quick glance at the patterns listed in Table 1 immediately makes clear, however, that the construction did not merely expand; it also contracted again, since quite a few of the listed patterns are no longer in use today. This can most often be attributed to the fact that the verb in the pattern stopped being used to signal obligation. Cases in point are *coact*, *compulse*, *confine*, *conjure*, *countermand*, *distrain*, *enchant*, *encharge*, *reinforce*, *strain*, *stress* and *violence*. In one case the verb disappeared altogether, viz. *art*, and in another the *OED* mentions explicitly that the obligative meaning is no longer expressed with an ECM pattern, viz. *exclude* ('prohibit'). Almost one in five of the patterns listed in Table 1 stopped being used sometime before now. That still leaves the vast majority of them, however, and speakers who use deontic *be bound to* will likely have several of the others in their repertoire as well, if not all.

This begs the question of why *be bound to* turned up as a non-deontic pattern at some point, unlike any of the others, with one exception.

2.1.2. Non-deontic *be bound to*

Somewhat puzzlingly, there is nothing on non-deontic *be bound to* in the *OED* entry for the verb *bind* and we need to turn to the second of two adjectival entries for the form *bound* for an indication of when it may have started to appear, specifically to its sense 7(c) "With *inf.*: Compelled, obliged; under necessity (esp. logical or moral); fated, certain; also in *U.S.* determined, resolved (sc. to go, etc.)".¹⁸ The descriptors in this definition are a semantic mix of deontic ('compelled', 'obliged', 'moral necessity') and non-deontic necessity expressions ('logical necessity', 'fated', 'certain'), and even volitional ones ('determined', 'resolved'). The *OED* user is left to figure out which of the listed quotations illustrates which of the descriptors, but there are only two that can be neither deontic nor volitional, given that they do not have human subjects:

- (25) The lioness was bound to bring forth only a single cub. (1868 E. A. Freeman *Hist. Norman Conquest* II. App. 587)
- (26) Life is a waiting race, in which the best horse is bound to win. (1883 M. E. Braddon *Ishmael* v)

¹⁸ "bound, adj.2". *OED Online*. June 2016. Oxford University Press. <http://www.oed.com/view/Entry/22039> (accessed August 25, 2016).

Both examples date from the second half of the 19th century and we could therefore hypothesize that the (non-volitional) non-deontic use of the form *be bound to* came about in that period.¹⁹ This will be tested against diachronic corpus data below.

The exception referred to in the previous paragraph turns up in this entry under sense 7(c) as well, between brackets and in small print: “(In dialects *tied* is used in the same sense, as ‘That horse is tied to win’.)” Given the mixed bag of descriptors in sense 7(c) there is a lack of precision here regarding the meaning of the unsourced example, but as it seems to be a paraphrase of part of (26) and because of its non-human subject, non-deontic necessity is the likely meaning. Strangely again there is no mention of this meaning in the entry for the verb *tie*, nor in this case in the entry for the adjective *tied*, while the former entry does mention, under sense 5(b) that deontic *be tied to* is “Now only *dial.*” The last quotation there is interesting both because of its meta-nature and because of its source:

- (27) We do not reckon *obliged* in the sense of forced as part of our vocabulary; instead we make use of *tied*. (1892 M. C. F. Morris *Yorks. Folk-talk* 259)

The book this is a quotation from, *Yorkshire Folk-talk*, contains a glossary which lists the verb *tie* as an entry, quoted here as (28), where mention is made of a non-deontic necessity meaning as well.

- (28) **Tie**, v. C.^[20] Used in the passive voice only with the signification ‘to be obliged,’ ‘to be compelled,’ but without any idea of physical force. Also used impersonally with the sense, ‘it must,’ ‘it is sure to be so,’ ‘it is certain to happen.’ Ex.—*Ah’s tied ti leek efter t’ meer.* [‘I have to look after the horse.’ DN] —*He’s tied ti loss hissen ; he dizn’t knaw t’ rooad.* [‘He’s likely to get lost; he doesn’t know the way.’ DN] —*It’s tied:* i.e. It’s sure to be so.—Q. *Is ’t boun ti rain?* A. *It isn’t tied.* (Morris 1892: 389)

Though the *OED* does not date non-deontic *be tied to*, we can learn from this glossary that in some places or districts in Yorkshire at least it was in common use near the end of the 19th century. Also note from the examples in this glossary entry that *tied* does not need the infinitival complement, which makes its syntax very similar to that of the adjectives *certain* and *sure* in their predicative use.

The glossary also has an entry for *bound*, pronounced “‘bun’ approximately”, which it classifies as a “participle” and glosses as “compelled, whether morally or physically”

¹⁹ The quotation s.v. *bound*, adj.², sense 7(c) which is likely to be intended as an illustration of volitional *bound to* is (i). The wider context of the example which I have added between square brackets makes a volitional interpretation plausible.

- (i) [I always feel, before setting out on a long *land* journey, something approaching to depression of spirits; but on this occasion the entire novelty of the expedition prevented the attack, and my pleasurable anticipations were almost unalloyed. It was a voyage undertaken principally in search of health for me and] I was bound to be pleased with the arrangements [made for my comfort.] (1844 Mrs. Houstoun *Texas & Gulf of Mexico* I. 2)

It is strange that *bound to* meaning ‘determined, resolved’ is mentioned in this entry and not in the first adjectival *bound* entry, which I will make reference to below. However, since my focus is on the development of participant-external necessity/epistemic *be bound to*, I will say no more on the volitional expression.

²⁰ “C. after a word signifies that it is in common use in some place or district in the North or East Riding.” (Morris 1892: 265)

(Morris 1892: 281). This is obviously not specific to Yorkshire English but may have been included for the contrast with the entry following (though alphabetically preceding) it for an adjective *boun*, which I am presenting here as (29).

(29) **Boun**, adj. C. (pr. bun approximately). Ready, going, or on the point of doing anything. O.N. Buinn (made ready). There are few words more common, and at the same time more characteristic of the dialect, than this; it is distinct from the preceding word, though pronounced the same, only that in this word the emphasis is always, by the sense, less than in the preceding one, and thus may be distinguished from it.

Ex.—*Ah doot t'au'd meer's boun ti dee ; sha diz leek badly.* ['I'm afraid the old horse is going to die; she does look poorly.' DN] —*Sha's boun ti git wed.* ['She's going to get married.' DN]

The last example in the entry for *tie* in (28) should therefore not be glossed as 'Is it likely to rain?' but as 'Is it going to rain? – It's not certain'.

In the *OED* this *boun* turns up as the other adjectival entry for the form *bound*,²¹ where it is specified that “the added *d* in the modern form may be due in part to its being regarded as the past participle of the derived verb BOUN *v.*, and in part to confusion with BOUND *adj.*² = obliged”. Its first, obsolete, sense is given as “ready, prepared”, and the second as “prepared or purposing to go, starting, directing one's course, destined”, as in the expressions *homeward bound* and *outward bound*. The third sense is qualified as “only *dial.*” and reads: “With infinitive, = about (to), going (to), in a fair way (to).” It is added that it is “to be distinguished from the similar use of BOUND *adj.*², though the latter construction was perhaps suggested by this”. The “similar use of BOUND *adj.*²” very likely refers sense 7(c) in that entry, already presented above, and specifically the part of it which I have qualified as non-deontic necessity, in view of the clarification offered in smaller print that “[t]he phrase *He is bound to win* would, in northern dial., mean merely ‘He is going to win’; in literary English it means ‘He must necessarily win’, the word here being BOUND *adj.*²”.

The *OED* is therefore implicitly ambiguous about the development of non-deontic *be bound to*. On the one hand, by combining deontic and non-deontic descriptors in a single definition of a specific adjective *bound*, it seems to subscribe to a Traugottian view of change through a tacit suggestion that the non-deontic use is a development of the deontic one. On the other hand, it also appears to hold with a more Fischerian change conception by hinting that what it presents separately in two homomorphous entries may in the mind of some speakers in fact not have been kept separate. There is indeed very little practical difference between ‘going to win’ and ‘being very likely to win’. However, if “predictive” *be bound to* is restricted to the North, and if this were the sole source of non-deontic *be bound to*, then the latter should have started there and spread to the South to become part of “literary English”. Moreover, going by *The English Dialect Dictionary* (Wright 1898-1905), there seems to have been very little geographical overlap between the predictive and the non-deontic necessity construction. Of the ten quotations listed s.v. *boun*, sense 4 “With infinitive: about to, going to, on the point of”, eight are from Yorkshire, one from Lancashire and one which is located in both Lancashire and north Lincolnshire, while none of the quotations s.v. *bound*, sense 3 “Sure, certain”, are from Yorkshire and the only overlap is with north

²¹ “bound, adj.1”. *OED Online*. June 2016. Oxford University Press.
<http://www.oed.com/view/Entry/22038> (accessed August 25, 2016).

Lincolnshire, two of the six quotations with infinitival complements being located there. The preferred non-deontic construction in the Yorkshire dialect appears to be *be tied to*, since, while listing deontic *be bound to*, Morris (1892) does not make mention of the cognate non-deontic construction. The predictive construction may therefore only have been a factor in the adoption of non-deontic *be bound to* in the case of a limited set of speakers.

In the next section a different hypothesis will be explored with regard to its possible analogical sources.

2.2. *Be bound to* in the CLMET

First, let us test the hypothesis deriving from the quotations for sense 7(c) in the *OED* entry for *BOUND adj.*² that non-deontic necessity *be bound to* only started proliferating towards the end of the 19th century. A good place to look for confirmation of this should be the Corpus of Late Modern English Texts (CLMET), which spans the period 1710-1920 with three sub-corpora which each cover 70 years.²² I searched the three sub-corpora for the form *bound*, manually sifted all the hits, identifying instances of deontic and non-deontic necessity *be bound to*, counted them and normalized the totals to frequency per million words. The results can be found in Table 2.

	deontic		non-deontic	
	absolute frequency	frequency/ million words	absolute frequency	frequency/ million words
1710-1780 (10,385,017 words)	127	12.23	1	0.10
1780-1850 (11,207,191 words)	250	22.31	1	0.09
1850-1920 (12,530,220 words)	409	32.64	112	8.94

Table 2: Absolute and normalized frequencies of deontic and non-deontic necessity *be bound to* in CLMET3.

With almost 9 non-deontic instances per million words in the third period and only around 0.1 in both the first and second we can at least conclude that, while there may have occurred innovative instances before then, the non-deontic construction did not start spreading until the second half of the 19th century.

We will try to make this more precise below, but let us first have a look at the two examples from the first two periods, (30) and (31) respectively, which display an interesting similarity.

- (30) If ever that man rises into a good or a noble action, I would **be bound to** be considered as a retailer of scandal, and an ill-natured man, as long as I live, and as long as my memory lives; but no more of him I beseech you—[...] (CLMET3_1_37, 1760-7, Laurence Sterne, *Letters of the late Rev. Mr. Laurence Sterne, to his most intimate friends.*)

²² For a concise description of CLMET version 3.0, see https://perswww.kuleuven.be/~u0044428/clmet3_0.htm (last accessed on 5 July 2016).

- (31) “To my thinking now,” said the Jester, who was frequently wont to act as peace-maker in the family, “our master did not propose to hurt Fangs, but only to affright him. For, if you observed, he rose in his stirrups, as thereby meaning to overcast the mark; and so he would have done, but Fangs happening to bound up at the very moment, received a scratch, which I will **be bound to** heal with a penny's breadth of tar. (CLMET3_2_122, 1819, Walter Scott, *Ivanhoe*.)

In (30) a deontic interpretation is precluded by the passive infinitive *be considered*, while in (31) it is made very unlikely by what is depicted: a jester is trying to defuse a situation by saying that an injury someone incurred is merely a scratch which he is likely to be able to heal very easily. Both examples have in common that *be bound to* is preceded by *will*, which in (30) became *would* as a result of the hypothetical condition. My suspicion is that both are instances of a blend (cf. De Smet 2013) between the by this time highly productive ECM pattern and a construction which the *OED* lists as sense 17(d) s.v. *bind* (v.): “colloq. **I dare, or will be bound**: I undertake the responsibility of the statement, I feel certain.” The first quotation for it with *will* dates from the late 16th century (32) and the last one is an American one from the middle of the 19th century (33).

- (32) Ile bee bounde hee shall not loose his labour. (1589 ‘M. Marprelate’ *Theses Martinianæ*)
(33) You 've been stealing something, I'll be bound. (1852 H. B. Stowe *Uncle Tom's Cabin*)

(30) and (31) are obviously isolated examples. No further instances like them return in the third CLMET sub-corpus. I will not go on to argue, therefore, that non-deontic *be bound to* as we know it today is the sole result of such a blend. It is very important to note, however, that the word *bound* formed part of a construction that signalled epistemic commitment long before non-deontic *be bound to* started surfacing. Though the *OED* does not mark this construction as obsolete, it has an archaic ring to it today, but (33) suggests that it was still quite common in the middle of the 19th century. We will investigate below to what extent it overlapped in time with non-deontic *be bound to*.

Returning to the timing question first, let's see if we can date the manifestation of the non-deontic construction more accurately. To this end I have grouped and counted the instances of *be bound to* in the third sub-corpus per decade by publication date. The results are presented in Table 3.

	deontic		non-deontic	
	absolute frequency	frequency/ million words	absolute frequency	frequency/ million words
1850-1859 (1,745,085 words)	41	23.49	0	0
1860-1869 (1,679,731 words)	75	44.65	2	1.19
1870-1879 (1,333,011 words)	51	38.26	0	0
1880-1889 (1,599,266 words)	85	53.15	8	5
1890-1899 (2,824,180 words)	73	25.85	24	8.5
1900-1909 (1,908,155 words)	60	31.44	44	23.06
1910-1920 (1,410,367 words)	26	18.43	35	24.82

Table 3: Absolute and normalized frequencies of deontic and non-deontic necessity *be bound to* by decade in the third sub-corpus of CLMET3.

It can be gleaned from the figures in the last column of this table that the promulgation of non-deontic *be bound to* only got under way in the last two decades of the 19th century and that there was quite a drastic increase in its frequency at the start of the 20th century. A comparison of the normalized frequencies of the deontic and non-deontic constructions shows that the start of the rise of the latter in the penultimate decade of the 19th century coincided with a frequency peak of the former. Subsequently the frequency of the deontic construction went down, the non-deontic construction becoming the more frequent one in the second decade of the 20th century. We can assume that its advantage gradually increased in the course of the 20th century. Recall that previous research has reported that *be bound to* is now predominantly an “epistemic” construction. In the data Collins (2009: 87) collected from the one-million-word British and Australian components of the late-20th-century International Corpus of English (ICE) the epistemic construction is about three times more frequent than the deontic one.

Is there necessarily a relationship between the frequency evolutions of both constructions? Did non-deontic *be bound to* come about as a result of the frequency of the deontic construction; that is to say, did an increase in the use of the latter lead speakers to use the same form with a different meaning? And did the frequency of the deontic construction later drop as a result of the rise in frequency of the non-deontic one; that is, did speakers refrain from using *be bound to* deontically once they had started using it in a non-deontic way? If at all, these questions cannot both at the same time be answered in the affirmative. One could argue that the more the non-deontic construction became conventionalized the less the deontic one came to be used by invoking a principle of either polysemy or homonymy avoidance, but an already conventionalized deontic construction should by the same token have prevented the development of the non-deontic one perhaps. To avoid concluding too much from Table 3 it is important to keep in mind that frequency data are external data (cf. Schmid 2015), which as such can only point at what may have been a relevant linguistic environment for what happened at the level of the individual language user, and that frequency

fluctuations first and foremost indicate shifts in social usage patterns, which might be better explained with reference to cultural/societal developments than by cognitive factors. Myhill (1995), for instance, has linked a decrease in the use of certain modal auxiliaries in American English — *must, should, may* and *shall* — and an increase in the use of others — *got to, have to, ought, better, can* and *gonna* — to societal changes which started in the 19th century: “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”, while “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” (1995: 157). Leech (2003: 237) coined the term “democratization” to refer to this evolution and suggests there are grounds for thinking that it continued all along the 20th century. With regard to epistemic modal expressions, Wierzbicka (2006) has attributed a huge increase, in the 18th and subsequent centuries, in the range of available epistemic phrases like *I think* and adverbs expressing probability like *probably*, i.e. in the range of expressions that can be used to signal a lack of absolute certainty, to the influence of the philosophers of the Enlightenment on modern ways of thinking and writing, and specifically to the impact of the publication of John Locke’s *Essay Concerning Human Understanding*. The frequency evolutions of deontic and non-deontic *be bound to* may very well be independently connected with the developments pointed at by Myhill and Wierzbicka.

The juxtaposition of the two frequency evolutions in Tables 2 and 3 should therefore not be taken to suggest a causal relation between them. If we can free ourselves from a myopically semasiological perspective, it does not follow from the fact that the deontic construction was around when the non-deontic one started surfacing that the latter came into being as a reinterpretation of the former. In what follows I will explore a different scenario which takes off from the observation already introduced above that the form *bound* had been part of a construction associated with the concept of ‘certainty’ long before non-deontic *be bound to* started to appear.

The *OED* informs us, through the quotation replicated above as (33), that the construction in question, *I dare/will be bound*, was still in use around the middle of the 19th century. The CLMET data summarized in Table 4 confirm, moreover, that it continued to be used after that and that it was still around by the turn of the 20th century, i.e. the time of the start of the proliferation of non-deontic *be bound to*. Two of the later examples from the third sub-corpus are (34) and (35).

	absolute frequency	frequency/ million words
1710-1780 (10,385,017 words)	3	0.29
1780-1850 (11,207,191 words)	30	2.68
1850-1920 (12,530,220 words)	14	1.12

Table 4: Absolute and normalized frequencies of *I dare/will be bound* in CLMET3.

- (34) There came a moment when, dropping his quasi-official and high political tone, he said suddenly with another voice and emphasis: “Well now, my men, **I’ll be**

- bound** you're thinking, 'That's all pretty enough!'" (CLMET3_3_253, 1894, Mary Augusta Ward, *Marcella*.)
- (35) "Pictures!" the clergyman continued, scrambling about the room. "Giotto—they got that at Florence, **I'll be bound**." (CLMET3_3_319, 1908, E.M. Forster, *A room with a view*.)

I'll be bound is paraphrasable by *I'm sure* or *I'm certain*, two epistemic phrases which were readily available in the 19th century, the first being the more frequent one. (36) illustrates both forms.

- (36) "You wouldn't hurt a bird, **I'm sure**. You're a brave soldier, sir, and wouldn't harm a woman or a child—no, no, nor a poor bird, **I'm certain**." (CLMET3_2_176, 1839, Charles Dickens, *Barnaby Rudge*.)

Like *I'm sure* and *I'm certain*, *I'll be bound* could not only be used clause-finally, in true epistemic phrase fashion, as in (35), but also in a more matrix clause way, not just without a subordinator, as in (34), but also with, as in (37). Compare with the similar use of *I'm sure* and *I'm certain* in (38) and (39).

- (37) People of fashion hear so much scandal daily, that one's own particular lye is frequently huddled in the crowd, and perhaps totally forgotten; but tell a fine lady a scandalous anecdote under a promise of secrecy, and **I'll be bound that** she pops it out within five minutes after. (CLMET3_2_131, 1800, Matthew Lewis, *The East Indian*.)
- (38) "Leonora gave me this box, and it is a keepsake. However, we have now quarrelled, and I daresay that she would not mind my parting with it. **I'm sure that** I should not care if she was to give away my keepsake, the smelling-bottle, or the ring which I gave her." (CLMET3_2_117, 1796-1801, Maria Edgeworth, *The Parent's Assistant, or Stories for Children*.)
- (39) One of the causes, I understand from different quarters, of the unpopularity of this new book, is the offence the ladies take at me. On thinking that matter over, **I am certain that** I have said nothing in a spirit to displease any woman I would care to please; but still there is a tendency to class women in my books with roses and sweetmeats,—they never see themselves dominant. (CLMET3_2_154, 1820, John Keats, *Letters of John Keats to his family and friends*.)

It is highly plausible, therefore, not only that the phrase *I'll be bound* was considered by some to be synonymous with *I'm sure* and *I'm certain*, but also that, as a result, the form *bound* was considered to overlap in meaning with *sure* and *certain*. Independent evidence that there were in fact speakers for whom this was the case is the one-off example (40), which dates from the middle of the 19th century.

- (40) We scrambled to our legs, and the next minute were down in fo'castle, rousing the men. They were sleepy enough, you may be **bound**; but we almost lugged them out of the hammocks. (CLMET3_3_332, 1852, *Chambers's Edinburgh journal*, n°418-462)

As (41) and (42) show, *sure* and *certain* were used in the same way.

- (41) [...] and Miss Osborne came. Emmy, **you may be sure**, was very glad to see her, and so be brought nearer to George. (CLMET3_2_174, 1843, William Thackeray, *Vanity fair*.)
- (42) “[...] I cannot imagine that her ladyship would at all disapprove of you. And **you may be certain** when I have the honour of seeing her again, I shall speak in the very highest terms of your modesty, economy, and other amiable qualification.” (CLMET3_2_134, 1813, Jane Austin, *Pride and prejudice*.)

Coming to the crux of the argument now, the adjectives *sure* and *certain*, with which, for some speakers at least, *bound* will have shared a meaning, were also used in a *be-Adj-to* pattern, as illustrated by (43) and (44), and their use in this pattern is likely to have served as a model for non-deontic *be bound to*.

- (43) He confessed, however, that he had seldom continued more than three days in the same service, on account of the disputes which **were sure to** arise in the house almost immediately after his admission, and for which he could assign no other reason than his being a Greek, and having principles of honour. (CLMET3_2_164, 1842, George Borrow, *The Bible in Spain*.)
- (44) Justice is slow, very slow, in reaching the minions of power; but she **is certain to** prevail at last. (CLMET3_2_126, 1820-2, Henry Hunt, *Memoirs of Henry Hunt*.)

The frequency data for *be sure to* and *be certain to* in Table 5 show not only that both patterns were around when non-deontic *be bound to* started to appear, but also that they were both on the increase at the time, and that consequently they would have become more salient as a potential analogical source for many a speaker of English. In view of its frequency, the main model must have been *be sure to*, with *be certain to* having only a small frequency edge over non-deontic *be bound to* before the latter’s proliferation. From an external perspective, the rise of all three of these patterns is possibly part of a wave of similar patterns conventionalizing within the protracted development pointed at by Wierzbicka (2006).

	<i>be sure to</i>		<i>be certain to</i>	
	absolute frequency	frequency/ million words	absolute frequency	frequency/ million words
1710-1780 (10,385,017 words)	147	14.15	9	0.87
1780-1850 (11,207,191 words)	269	24.00	48	4.28
1850-1920 (12,530,220 words)	499	39.82	80	6.38

Table 5: Absolute and normalized frequencies of *be sure to* and *be certain to* in CLMET3.

Therefore, given that *bound* (‘certain’) was used in morphosyntactic configurations different from *be bound to* before the latter came to be used as a non-deontic necessity construction and given that these morphosyntactic configurations were very similar to ones which the semantically equivalent words *sure* and *certain* could be entered into, it seems reasonable to assume that speakers also started to use *bound* (‘certain’) in the *be-*

Adj-*to* pattern because that was how *sure* and *certain* were used as well. Taking in a broader view of likely relevant content of the innovators' constructions consequently obviates an explanation in terms of the semanticization of pragmatic implicatures of the deontic construction.

What happened in Yorkshire in the meantime? Could a similar explanation be offered for why speakers of the Yorkshire dialect started using (*be*) *tied (to)* in a non-deontic/epistemic way? Probably not, because to my knowledge there was no Yorkshire equivalent with *tied* for the epistemic phrase *I'll be bound*. Does this pose a problem for the proposal laid out above? Only if one insists that speakers of Yorkshire developed their dialects in complete isolation from speakers of other dialects. Working from the opposite assumption, however, I would like to propose "polysemy copying" in a dialect contact situation as a possible explanation (cf. Heine & Kuteva 2003: 555-561, 2005: 100-103; Gast & van der Auwera 2012: 392-393; Coleman & Noël 2014). Yorkshire speakers may have identified the form *tied* with what for convenience we could call "standard English" *bound*, since both were used for the expression of deontic necessity, and in consequence also started using *tied* for non-deontic necessity/epistemic purposes, "copying" the non-deontic necessity/epistemic use of standard *bound*. The listing of deontic *bound* in Morris's glossary, referred to above, is in fact proof of Yorkshire speakers' likely awareness of it, but since I have no historical Yorkshire data at my disposal beyond what was already presented above, this polysemy copying explanation will here need to remain a mere hypothesis.

3. Conclusion

Diachronic construction grammarians are as much interested in describing the evolution of a language (e.g. English) as any other historical linguist. When it comes to accounting for this evolution, however, they should take a radically usage-based approach and not only distinguish between the construction of a language, which linguists abstract from the grammatical usage of a community of speakers, and the internal constructions of individual speakers, but also disentangle them in their models of constructional change. While ostensibly doing the former, Traugott's model is inadequate in the latter regard in that it accounts for innovation in terms of a mismatch between individual speakers' novel grammatical behaviour and the construction of a language, which would amount to a mismatch between their internal systems and an external system. From the speaker's angle, however, such a mismatch is impossible, since for each individual language user there can only be one system, their own internal one, with which their own grammatical usage can hardly be at odds. Fischer's model, on the other hand, is more adequate from a usage-based perspective in that it is based on match rather than mismatch. This is a match between novel grammar and old grammar. Not completely succeeding in divorcing herself from an external standpoint, Fischer, understandably though somewhat misleadingly, terms the latter "conventional" but, consistent with her fundamentally internal perspective, she also explicitly refers to it as the speakers' grammar.

Given that speakers are confined, also in their innovations, by their own experientially compiled grammars/constructions, a realistic usage-based account of how grammar changes requires a radically internal approach. Historical linguists traditionally trace the development of morphosyntactic configurations and their meanings, but while the diachronic semasiological paths of forms are valid explananda from an external perspective, they should not be mistaken to be cognitively realistic narratives of what happened to specific constructions or of how specific constructions

came about in the minds of speakers. What from a synchronic perspective may look to be a polysemous form, might for reasons of how the polysemy came about better be treated as two (or more) homonyms. To allow for such an account we need to trade in a purely semasiological outlook for a broadly onomasiological one that takes in constructions which, at certain points in time, did similar things to the ones we are investigating (cf. also Croft 2010 and Van de Velde 2011). This is what Fischer has advocated and what I have further illustrated with an account of how the form *be bound to* came to be used as a non-deontic necessity/epistemic marker near the end of the 19th century after having been used as a deontic necessity marker for five centuries. The ensuing paragraph summarizes this account.

Ever since deontic *be bound to* manifested itself in the 14th century there has been similar grammar around and today we still have *be compelled to*, *be forced to*, *be obliged to* and *be required to*, for instance, as well as *be tied to* in Northern English dialects. Why should only *be bound to*, and in Northern dialects *be tied to*, have turned up as non-deontic markers at some point? If the explanation for their appearance were that hearers started interpreting these forms differently from the way speakers intended them (i.e., reanalysis/neoanalysis), a reason will need to be found for why this happened to these forms only. Widening one's angle even more to include other constructions that are likely to have been part of the innovators' constructions, an altogether different scenario readily presents itself, however. Before *be bound to* started to be used non-deontically, the form *bound* was already part of a construction expressing speaker certainty which had been in use since the second half of the 16th century: *I dare/will be bound*. This now archaic construction was still around when non-deontic *be bound to* started proliferating. It is not only paraphrasable by *I'm sure* and *I'm certain* but also occurs in the same syntactic environments. There is other syntactic evidence as well that some speakers must have taken *bound* to be synonymous with *sure* and *certain*. Given this semantic and syntactic overlap it is hardly surprising that non-deontic *be bound to* started to be used when there was a proliferation in the use of *be sure to* and *be certain to*, i.e. the latter are likely to have served as an analogical model. In sum, from an internal perspective, speakers did not start to use *be bound to* differently, but began to use *bound* in a way *sure* and *certain* were increasingly used. Deontic *be bound to* → non-deontic *be bound to* represents an external diachronic reality, in that the use of the former historically precedes that of the latter, but it does not summarize an internal development.

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