

The *need* modals and their polarity¹

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1. Introduction

The expression of modality in English has attracted a large amount of scholarly attention, both from a language-specific point of view (e.g. Aijmer 2004 on *be able to*) or a contrastive one (e.g. Aijmer 1999 on English and Swedish possibility modals). This paper focusses on the *need* modals and more specifically on their polarity. The study is diachronic and corpus-based. It is restricted to British English: so when we write “English”, we mean “British English”. We study four corpora, covering the language from 1150 to 1991 and we essentially count occurrences. We realize that the numbers are often small and that some findings may reflect the register or the subject matter of the corpus materials more than the state of the language, yet we hypothesize that the findings do indicate general tendencies.²

2. Present-day English

In Present-day English (1920 to the present) the modal verb *need* followed by an infinitive basically comes in two versions. One will henceforth be referred as “*need*”. *Need* is an auxiliary: (i) the infinitive it combines with is the bare infinitive, (ii) the present tense third person singular does not have an *-s*, and (iii) the negation is without *do*. The other *need* verb, henceforth called “*need to*”, behaves like a lexical verb in that (iv) it takes the *to* infinitive; (v) the present tense third person singular takes the *-s*, and (vi) negation is with *do*.

- (1) a. He *needn't* do that. [illustrates (i), (ii), and (iii)]
b. He *needs to* do that. [illustrates (iv) and (v)]
c. He *doesn't need to* do that. [illustrates (iv) and (vi)]

One property of *need* that does not follow from the fact that *need* is an auxiliary is its negative polarity, as illustrated in (1a) and (1d).

- (1) d. *He *need* do that.

In what could be called “late Present-day English”³, the period from 1961 onwards, the negative polarity feature is very strong. In the LOB and the FLOB corpora (both 1 million), the first documenting the year 1961 and the second 1991, we did not find a single occurrence of *need* outside of a negative polarity context. This is indicated in Table 1. For the sake of simplicity, Table 1 does not include the infrequent uses of an impersonal *need (to)*, as illustrated in (2). (The same goes for the tables for the earlier periods, though for Middle English the impersonal constructions will demand some attention.)

(2) There *need* be no doubt about that.

		late Present-day 1 (1961) (LOB)	late Present-day 2 (1991) (FLOB)
<i>need</i>	+ polarity context	0 (0 %)	0 (0 %)
	- polarity context	74 (100 %)	40 (100 %)
	total	74 (100 %)	40 (100 %)
<i>need to</i>	+ polarity context	40 (71,42 %)	173 (89,18 %)
	- polarity context	16 (28,58 %)	21 (10,82 %)
	total	56 (100 %)	194 (100 %)

Table 1: Late Present-day *need* and *need to* in positively and negatively polar contexts

As examples (1a) and (1b) indicate, *need to* occurs both in positive and negative polarity contexts. Since one may assume that on the average positive sentences occur more often than negative ones, one would expect there to be more positive *need to* uses than negative ones. This expectation is borne out: for both LOB and FLOB there is a clear majority of positive polarity uses: 40 on 56 or 71,42 % for LOB, and 173 on 194 or 89,18 % for FLOB. This is compatible with the claim that *need to* is polarity neutral. But interestingly, the amount of negative uses has very significantly dropped from 28,58 % (in LOB) to 10,82 % (in FLOB) (Yates $X^2=9.49$ (df=1), $p=0.0021$). This difference could be due to the subject matter of the chosen sentences, but it could also be indicative of an increased preference of *need to* for positive polarity, thus paving the way for a division of labor, with *need to* for positive polarity, and *need* for negative polarity. From what we will find about the earlier periods of English, to be documented below, this hypothesis is indeed a sensible one.

Note that also that the relative frequencies of *need* (both positive and negative uses) vs. *need to* (again both positive and negative uses) have reversed in the 30 year time span between 1961 and 1991 (Yates $X^2=59.8$ (df=1), $p<0.0001$)—see Table 2. The present

dominance of *need to* over *need* is known from other studies as well (e.g. Taeymans 2004 on the BNC) and has been explained convincingly by Krug (2000: 167, 200, 216) and Taeymans (2006: esp. 298-302) in terms of its paradigmaticization into the class of Krug’s “emerging modals”, in which *need to* joins *have to*, *want to*, *got to*, *going to*, *ought to*, *dare to*, and even *get to* (van der Auwera et al. In print), and the concurrent decrease in frequency of the “core modals” (see also Leech 2003 and Smith 2003).

	late Present-day 1 (1961) (LOB)	late Present-day 2 (1991) (FLOB)
<i>need</i>	74 (56,92 %)	40 (17,09 %)
<i>need to</i>	56 (43,08 %)	194 (82,91 %)
total	130 (100 %)	234 (100 %)

Table 2: Frequency of late Present-day English *need* and *need to*

The increased use of *need to* has boosted both the positive and the negative uses. Table 3 shows that between 1961 and 1991 speakers facing the choice between *need* and *need to* in a negatively polar context increasingly choose *need to* (Yates $X^2=4.58$ (df=1), $p=0.0323$), despite the latter’s increased predilection for positive contexts. A scenario, different from the one sketched, with *need* specializing in negative polarity and *need to* in positive polarity, is therefore that *need to* will take over entirely. We are by no means that far yet: in negative polarity contexts *need* is still the preferred option, and, of course, a more sophisticated prognosis needs to consider the negative uses of other necessity modals, most importantly, *must* and *have to*; see Taeymans (2006: 295-298) for suggestions and references.

- polarity context	late Present-day 1 (1961) (LOB)	late Present-day 2 (1991) (FLOB)
<i>need</i>	74 (82,22 %)	40 (65,57 %)
<i>need to</i>	16 (17,78 %)	21 (34,43 %)
total	90 (100 %)	61 (100 %)

Table 3: Frequency of negatively polar late Present-day English *need* and *need to*

3. Modern English

We now turn to Modern English, taken to stretch from 1710 to 1920. For *need*, the difference is not really different or at most just a little bit: *need* is simply a strong negative polarity item. Yet we do have attestations of positive polarity uses. In an exhaustive perusal of the Corpus of

Late Modern English Texts (CLMET, nearly 10 million), we found 7 occurrences of a positively polar *need*. An example is shown in (3).

- (3) What a pretty fellow he is when he's asleep!" said Berry, stopping to look at Paul in bed, one night when she took up Mrs. Wickham's supper.

"Ah!" sighed Mrs. Wickham. "He *need* be."

(CLMET IMODE2, Dickens, Dombey and Son 1848)

As can be seen in Table 4, the CLMET is split up in late Modern 1 (1710-1780, 2 million), late Modern 2 (1780-1850, ± 4 million) and late Modern 3 (1850-1920, ± 4 million). In each subperiod, positive *need* does occur; but it is very rare. In the Present-day corpora positive *need* was not attested, but the corpora used in this paper are smaller. It is not excluded that positive *need* would make a rare appearance in a bigger Present-day corpus as well.

CLMET		late Modern 1 (1710-1780)	late Modern 2 (1780-1850)	late Modern 3 (1850-1920)
<i>need</i>	+ polarity context	1 (0,69 %)	3 (0,99 %)	3 (0,86 %)
	- polarity context	144 (99,31%)	301 (99,01 %)	346 (99,14 %)
	total	145 (100 %)	304 (100 %)	349 (100 %)
<i>need to</i>	+ polarity context	1 (9,09 %)	9 (32,14 %)	23 (41,07 %)
	- polarity context	10 (90,91 %)°	19 (67,86 %)	33 (58,93 %)
	total	11 (100 %)	28 (100 %)	56 (100 %)

Table 4: Late Modern *need* and *need to* in positively and negatively polar contexts

With respect to *need to*, the breakdown of late Modern into the three subperiods shows a drop of negatively polar uses: from 90,91 % to 67,86 % (chi-square test impossible) and from 67,86 % to 58,93 % (not significant). Like for the interpretation of the same kinds of numbers in Table 1, we don't know to what extent the three sets of speakers were generally discussing matters in negative terms or not. However, from what we know about both earlier periods (see below) and about the later period (Table 1), the plausible conclusion is that eighteenth century *need to* exhibited a strong preference for negative contexts, much like *need*, yet not quite that strong, and that it then became a polarity neutral item, with the percentage of *need to* in negative polarity contexts dropping from 58,93% for late Modern 3 to 28,58% for late Present-day 1 (Yates $X^2=9.29$ (df=1), $p=0.0023$).

As to the relative frequencies of *need* vs. *need to*, Table 5 shows that *need* is more frequent than *need to*. Table 5 furthermore shows that the higher frequency of *need* relative to *need to* decreases, significantly ($X^2=8.14$ (df=2), $p=0.0171$), not much, but it does connect nicely with the further decrease in Present-day English (Table 2), with a highly significant (Yates $X^2=49.16$ (df=1), $p<0.0001$) fall from the late Modern 3 percentage of 86,17% to the late Present-day 1 percentage of 56,92 % (Table 2).

CLMET	late Modern 1 (1710-1780)	late Modern 2 (1780-1850)	late Modern 3 (1850-1920)
<i>need</i>	145 (92,94 %)	304 (91,56 %)	349 (86,17 %)
<i>need to</i>	11 (7,06 %)	28 (8,44 %)	56 (13,83 %)
total	156 (100 %)	332 (100 %)	405 (100 %)

Table 5: Frequency of late Modern English *need* and *need to*

Table 6, finally, documents the relative frequencies of the negative uses of *need* and *need to*. It shows that through the late Modern period, the preferred choice for negative polarity is *need* (the slight differences are statistically not significant), a preference which will remain but drop significantly from the late Modern 3 percentage of 91,29 % to the late Present-day 1 percentage of 82,22 % (Table 3) (Yates $X^2=5.46$ (df=1), $p=0.0195$).

- polarity context CLMET	late Modern 1 (1710-1780)	late Modern 2 (1780-1850)	late Modern 3 (1850-1920)
<i>need</i>	144 (93,5 %)	301 (94,06 %)	346 (91,29 %)
<i>need to</i>	10 (6,5 %)	19 (5,94 %)	33 (8,71 %)
total	154 (100 %)	320 (100 %)	379 (100 %)

Table 6: Frequency of negatively polar late Modern English *need* and *need to*

We now come to early Modern English, stretching from 1500 to 1710. We use the Helsinki Corpus (HC, half a million words), subdivided in three subperiods, each having roughly the same amount of words. What we have already hinted at before can now be shown with numbers: *need to* was once a negative polarity item, just like *need*. Very nearly all occurrences of *need to* were negatively polar. (Note that compared with earlier tables, the absolute numbers are low now, but this is a function of the modest size of the corpora used.)

HC		early Modern 1 (1500-1570)	early Modern 2 (1570-1640)	early Modern 3 (1640-1710)
<i>need</i>	+ polarity context	0 (0 %)	0 (0 %)	0 (0 %)
	- polarity context	7 (100 %)	10 (100 %)	9 (100 %)
	total	7 (100 %)	10 (100 %)	9 (100%)
<i>need to</i>	+ polarity context	1 (14,29 %)	0 (0 %)	0 (0 %)
	- polarity context	6 (85,71 %)	6 (100 %)	4 (100 %)
	total	7 (100 %)	6 (100 %)	4 (100 %)

Table 7: Early Modern *need* and *need to* in positively and negatively polar contexts

Table 8 focusses on the relative frequencies of negative *need* vs. negative *need to*. In the earliest subperiod *need* and *need to* occurred with equal frequency, while in the last subperiod *need* is more frequent than *need to*.

HC	early Modern 1 (1500-1570)	early Modern 2 (1570-1640)	early Modern 3 (1640-1710)
<i>need</i>	7 (50 %)	10 (62,5 %)	9 (69,23 %)
<i>need to</i>	7 (50 %)	6 (37,5 %)	4 (30,77 %)
total	14 (100 %)	16 (100 %)	13 (100 %)

Table 8: Frequency of *need* and *need to* in early Modern English

This increase, though statistically not significant, can be seen as a paradigmatic effect. The class of the core verbs was being established in this period (see e.g. Görlach 1990: 114 or Loureiro Porto 2005, section 5.2.2.) and one of their features is that they take bare infinitives. The *need* verb, which originally took the *to* infinitive, had been recruited into this class and developed a use without the *to* particle—see section 4. The consolidation of the class of core modals is arguably responsible for making *need* more frequent than *need to*, an effect which lasted until the late Modern 1 peak of 92,94 % (Table 5), from the early Modern 3 percentage of 69,23% (a transition for which a chi-square test is impossible).

For this period there is no need for a table that compares the relative frequencies of just the negative uses on *need* and *need to*, the reason being that both *need* and *need to* are strongly negatively polar, which is sufficiently clear in Table 7.

4. Middle English

For Middle English we studied the second version of Penn-Helsinki Parsed Corpus of English

Texts (PPCME2, a bit more than one million words). We split the corpus into two parts: early Middle English (1150-1350, 350.000 words) and late Middle English (1350-1500, 800.000 words). The results, shown in Table 9, make clear that *need to* is older than *need* and they suggest that *need to* was polarity neutral (72,73% positive polarity, 27,27% negative polarity).

(4) is a late Middle English example.

- (4) Lufe *nedis* to be nureschede.
 ‘Love needs to be nourished.’
 (PPCME2 CMROLLTR, 33.702)

PPCME2		early Middle English (1150-1350)	late Middle English (1350-1500)
<i>need</i>	+ polarity context	0 (0 %)	0 (0 %)
	- polarity context	0 (0 %)	0 (0 %)
	total	0 (0 %)	0 (0 %)
<i>need to</i>	+ polarity context	0 (0 %)	8 (72,73 %)
	- polarity context	0 (0 %)	3 (27,27 %)
	total	0 (0 %)	11 (100%)

Table 9: Middle English *need* and *need to* in positively and negatively polar contexts

The results should not be taken to imply that *need* with a bare infinitive was totally impossible. Both the OED and the MED contain one example. (5) is the MED example.

- (5) *Nede* nat thei putte away their felliship to live sengelly for their profight.
 ‘Needn’t they put away their fellowship to live solely for their profit.’
 (MED *neden* v.2, Charthier Quad (2) 236/20)

Interestingly, both of the dictionary examples are negative. The PPCME2 also contains two late Middle English impersonal examples, both also negative. One is given in (6).

- (6) ... but hym *nedip* not go to Rome to parfome þis medful dede
 ‘... but it is not necessary to go to Rome to perform this rewardful deed’
 (PPCME2 CMWYCSE, 352.2236)

This impersonal bare *need* was a minor pattern, for the 2 bare infinitive uses alternate with 19 impersonal *need to* examples; 12 positive and 7 negative ones, and all also late Middle English.

The origin of the construction with the *to* infinitive need not concern us too much in this context. The following will suffice: the personal construction in (4) goes back to the impersonal one in (6) and the latter goes back to a personal one meaning ‘compel’, illustrated with (7); the latter was also the main use in Old English. All of these are polarity neutral.

- (7) For þeh þe deuel muge man bi-charre; he ne mai no man *neden*.
 ‘For though the devil may betray man; he may not compel any man.’
 (PPCME2 CMTRINIT, 105.1423)

The construction with the bare infinitive has a double origin. The history of the lexical element itself is the same as that of the *need* verb that takes *to* infinitive. Its combinability with the bare infinitive, however, is due to the fact that it came to replace the modal and earlier preterite present *thurfen*, which disappeared from the language (see van der Auwera & Taeymans 2006). In Middle English *thurfen* was exclusively negatively polar (all 34 examples in the PPCME2), and in Old English it was at least predominantly negatively polar (82 out of the 86 attestations in the relevant part of the HC). The negative polarity of the bare infinitival *need* was thus due to another verb. Ultimately, the fact that a language would have a construction dedicated to the expression of the absence of necessity has a functional explanation: it is useful to distinguish between the absence of necessity, as with *need*, and the necessity of something negative, as with *must* (see van der Auwera 2001).

- (8) a. You *needn't* do that. [absence of necessity]
 b. You *mustn't* do that. [necessity of something negative]

5. Conclusion

On the subject of polarity, *need* is easy: throughout its history *need* has always been a strong negative polarity item, and it calqued this property from the verb *thurfen*. The more interesting construction is *need to*. As shown in Table 10, *need to* seems to have oscillated between neutrality and negative polarity and it may now aim for positive polarity. In late Middle English it was neutral, just like its origin, a lexical verb meaning ‘compel’. After it

had spawned the bare infinitival and uniquely negative *need*, it aligned itself with this construction and it showed a preference for negative contexts. In the course of late Modern English, however, *need to* developed towards neutrality and right now *need to* is attracted by the paradigm of the “emerging modals”, giving it a frequency boost (see Table 11). If the frequency boost primarily benefits positive uses, it could lead to a split between a positively polar *need to* and a negatively polar *need*, yet if it continues to benefit the negative uses too (see Table 3), the frequency change could even lead the disappearance of *need* altogether.

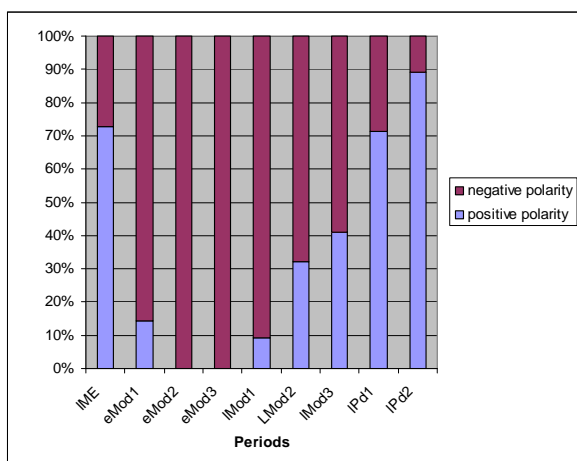


Table 10: *need to* in positively and negatively polar contexts: an overview

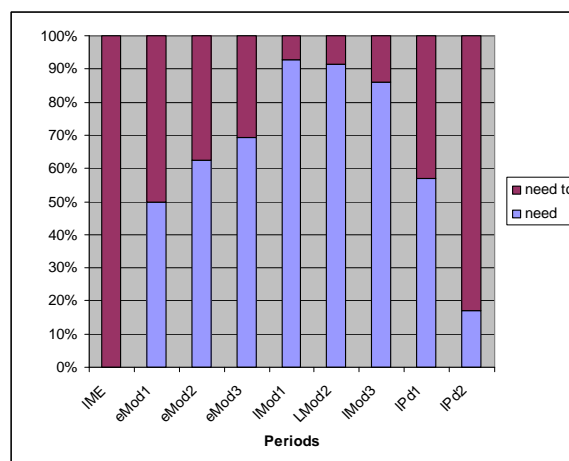


Table 11: Frequency of *need* and *need to*: an overview

Let us end with the methodological caveat already mentioned in the introduction: while we do believe that the differences shown in Tables 10 and 11 are indicative of diachronic change, we do not exclude the relevance of register: informal vs. formal (of possible relevance for the choice between *need* vs. *need to*) or argumentative vs. narrative (of possible relevance for the percentages of negative vs. positive polarity, assuming that argumentation may trigger more negative sentences than narration). This remains to be investigated.

Notes

1 This paper relies on Taeymans (2006). It differs in that it adds some new hypotheses and calculations, and that it lacks the detailed description of phenomena other than polarity. The first author is grateful to the University of Antwerp and the Flemish Science Foundation for funding a sabbatical, to Princeton University for hosting him, and to the Belgian Federal Government

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2. We supply raw numbers, percentages, and chi-square tests (when relevant and doable).
3. We have no data for "early Present-day English", the language from 1920 to 1961.

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