What *can* can and can't do[*]

Bronwyn M. Bjorkman & Sali A. Tagliamonte

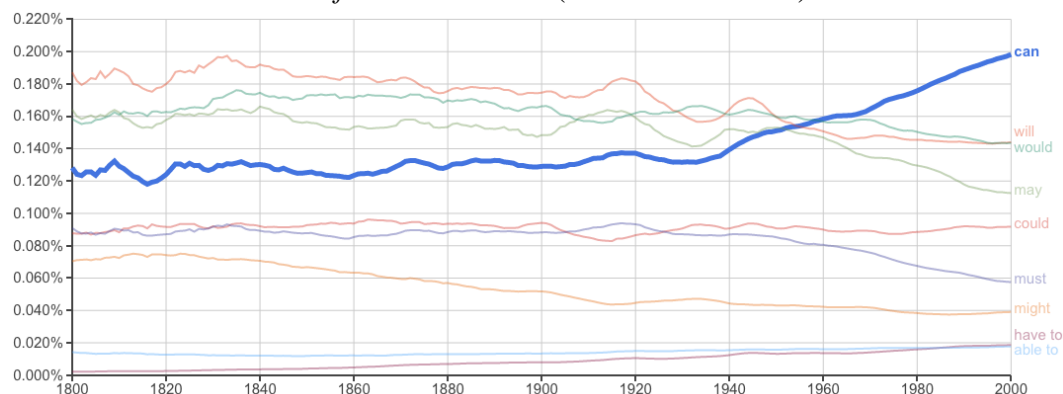Queen's University, University of Toronto

1. Introduction

Modal auxiliaries form a small and well-defined class in English, united by their syntax, morphology, and semantics. The core members are *must*, *may*, *might*, *shall*, *should*, *will*, *would*, *can*, and *could*, all united by their syntax, morphology, and semantics; peripheral members include *dare*, *need*, and *ought*.

Syntactically, the modals occupy a fixed position in the clausal hierarchy, above all other auxiliaries. Morphologically, they lack non-finite and agreeing forms, and either have irregular "past" forms (*would*, *could*, *should*) or else lack past tense counterparts altogether. Semantically, finally, all express modal meanings.

Modals have played a key role in work on English clausal syntax, and are often seen as the principle means of expressing propositional modality. Despite this prominence, however, there is evidence that their use may be declining in contemporary English, in some cases being replaced by corresponding semi-modals. Thus *must* appears to be undergoing replacement by *have to* and *(have) got to* in some varieties (Tagliamonte & Smith 2006, Tagliamonte & D'Arcy 2007), and *will* is similarly losing out to *going to* (Berglund 1997, Szmrecsanyi 2003, Tagliamonte 2002), or in some contexts by the simple present (Cowper et al. 2015, In press).

What has not yet been established is whether this change is affecting the modal system as a whole, with a general decline in modal auxiliaries accompanied by a systematic increase in the use of semi-modal equivalents. Relevant to that broader issue is a third modal with a plausible semi-modal replacement: *can*, which overlaps in meaning with the semi-modal *able to*. Interestingly preliminary evidence from the Google n-grams corpus of written English suggests that *can* is in fact increasing in frequency over time, while all other modals are declining.

(1)   *Modals and semi-modals from 1800–2000* (Michel et al. 2011)

This gives rise to at least two questions. First, is the trend for *can* suggested in (1) reflected in contemporary varieties of spoken English? And second, what does this change—and the grammatical factors that condition it—tell us about the organization of the modal system more generally, possibly accounting for the divergence between *can* and other modals?

We address these questions based on a study of the modal possibility system in the York English Corpus (YEC: Tagliamonte 1996-1998). By,ased on this stud we conclude that the frequency of *can* is indeed changing in spoken English, and that this change is conditioned by both social and grammatical factors. The corpus and study are described in section 2, and the results of the study appear in section 3. In section 4 we discuss the implications of our results, situating *can*'s divergence from other modals in relation to other ways in which it is syntactically and semantically exceptional. We propose that *can* is diverging from the rest of the modal system because it is structurally exceptional, being associated with a uniquely low position in comparison with other modal auxiliaries.

2.   The corpus and study

The York English Corpus (YEC: Tagliamonte 1996-1998) is a text corpus comprised of transcribed sociolinguistic interviews conducted in 1997 in York, UK. The speakers in the corpus were born between 1906 and 1982 (ages 15–91 at the time of interviews), and represent a variety of social, economic, and educational backgrounds.

For this study we extracted from the YEC all tokens of those English modals that express modal possibility (*may*, *might*, *can*, *could*), as well as the semi-modal *able to*, which like *can* expresses ability. After discarding irrelevant tokens,[1] each token was coded for the demographic properties of the speaker, and for a range of syntactic and semantic properties: subject properties, question vs. statement, presence and type of negation, root vs. embedded vs. adjunct clause, presence of non-modal auxiliaries, and modal interpretation. Analysis was conducted via **GoldVarb** (Sankoff et al. 2005); the results reported here ex-

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[1]Irrelevant tokens included partial utterances or false starts, as well as the homographs *can* (noun) and *May* (proper noun).

clude tokens that occur in tag questions, as well as possibility modals that occur in fixed expressions, or a sufficiency use of *can just*.[2]

The results reported here focus on changes in the modal interpretations expressed by *can*, which are all flavours of modal possibility. The dominant approach to modal semantics frames modal meanings in terms of quantification over possible worlds, following Kratzer (1981a,b): for some set of worlds (worlds *accessible* via some relation), modal necessity requires that that a proposition hold in all the worlds in the set, while modal possibility requires only that a proposition hold in one or more of the worlds in the set.

A given modal auxiliary expresses either necessity or possibility, but not both. *Must*, for example, expresses only modal necessity—but can express several different "flavours" of necessity, determined by the accessibility relation that defines the set of worlds under consideration. Epistemic necessity, for example, expresses what must be true based on one's existing knowledge, while deontic necessity expresses requirements based on rules, laws, or obligations.

Can expresses modal possibility in a wide range of flavours. For the purposes of the results reported here, modal interpretations were grouped into the following sub-types (though tokens were initially coded for more distinctions).

(2) a. Ability: within an individual's physical or mental capacity
     b. Circumstantial: possible given facts about a circumstance or location
     c. Dispositional: expressing a tendency or disposition
     d. Deontic: permitted
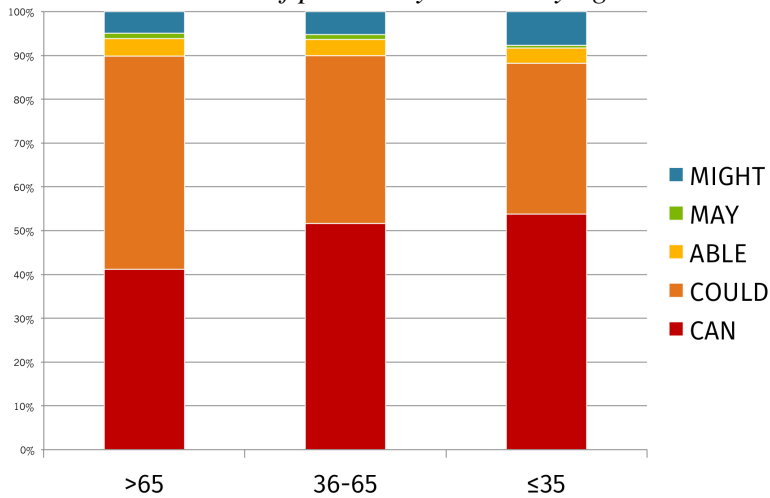   e. Epistemic: compatible with what is known

Ability, circumstantial, and dispositional interpretations are all subtypes of what is often termed *dynamic* modality, defined by accessibility relations based on the state of affairs in the actual world. Deontic and dynamic modality are often grouped together as *root* modality, contrasting with *epistemic* modality.

3. Results: a dynamic increase in *can*

The overall distribution of possibility modals in the YEC is shown in (3), which illustrates the change in the use of *can* in apparent time, with significantly more use by speakers under 65 than by speakers over 65. Other significant predictors for increased *can* include subject type (with generic and third-person subjects favouring *can*), the status of a clause as a question, and the presence of negation.
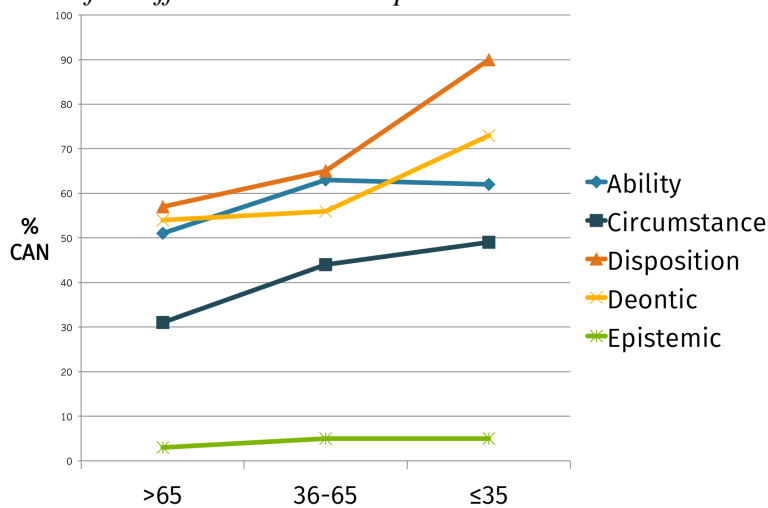
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[2]The term *sufficiency modal construction* is introduced by von Fintel & Iatridou (2007) for expressions such as *only have to* and *only need to*; they propose a semantics based on the presence of a necessity modal. The sufficiency use of *can just* is thus an interesting finding in the present study, given that *can* expresses modal possibility rather than modal necessity. There is not space here to discuss these examples in detail; their analysis remains for future work.

(3)   *Overall distribution of possibility modals by age*

The increase for *can* is strongly predicted by the flavour of modal interpretation, as shown in (4). There is no overall increase in epistemic uses of *can*, and only a weak effect of ability, circumstantial, and deontic meanings. There is a sharp rise, by contrast, in the *dispositional* use of *can*.

(4)   % can *for different modal interpretations*

Dispositional interpretations are comparatively little discussed in the literature on modality. As noted above, they constitute a subtype of dynamic modality, sometimes referred to as "event-oriented" modality. These uses of *can* express a tendency of the subject, and are often paraphrasable by 'sometimes' (cf. quantificational modals: Carlson 1977, Brennan 1997). Examples from the YEC of tokens of *can* coded as dispositional appear in (5):

(5)   a.   the North-Sea [. . .] it can be so rough it sort-of goes along sideways. (Spkr 30; Age 20)

      b.   They can be quite expensive, can't they?
            (Spkr 64; Age 46)
      c.   So that can be really tedious, marking. I don't like marking. (Spkr 34; Age 24)

What we see in the YEC, then, is that *can* is indeed increasing in spoken English, and that this increase is tied to specific interpretations. It is striking not only that the most marked increase for *can* is found with dispositional interpretations, but also that there is no evidence that *can* is expanding into epistemic uses, as would be predicted if it were following known paths of grammaticalization from deontic to epistemic uses (Traugott 1989, 2006).

The fact that *can* is increasing in frequency makes it exceptional among modal auxiliaries, which (as noted in the introduction) appear otherwise to be declining in use in contemporary English. This adds to several other ways in which *can* is independently known to be exceptional among modals, in particular its lack of epistemic interpretations and its transparent past tense form *could*.

As noted above, English modals generally express a fixed modal *force* (existential or universal), but are flexible in their modal *flavour*, with most modals being able to express either epistemic or root meanings. *Can* is the exception: it does not easily allow epistemic interpretations. By itself this is not surprising: work on diachronic change in modal systems has established that epistemic uses are often the last to develop for a given modal item (Traugott 1989, 2006). What is surprising, though, is that *can* does allow epistemic interpretations when negative (*can't/cannot*), above the perfect auxiliary *have*; its past tense counterpart *could* also has robuse epistemic uses. This limitation on the epistemic uses of *can* is confirmed in the YEC, where all 15 epistemic tokens of *can* occur in negative clauses. Representative examples appear in (6):

(6)   a.   . . . we thought "This **can't** be it, this **can't** be it." (Speaker 4; Age: 20)
        b.   No, I never queued up all night for a ticket to go and see The Beatles, I **can't** have been such a big fan, can I? There's girls I knew that have done it, but I never did it. (Speaker 23; Age 48)
        c.   So having seen what it 's like to be on the receiving end of that, you know, it **can't** be comfortable for them at all. (Speaker 90; Age: 40)
        d.   . . . I can remember when this raid took place it mus– we **can't** have had this shelter then because in those days we just sat under the dining room table and I can remember watching the carpet go up and down in waves. . . (Speaker 68; Age: 60)

Can is also exceptional in that its preterite counterpart *could* retains a transparent past tense interpretation, i.e. meaning *was able to*. While all modals historically had past counterparts, in contemporary use these are for the most part no longer semantically transparent. *Ought* and *must* were both originally past tense forms, for example, but now lack a tense distinction entirely. *Might* was originally the past tense of *may*, but no longer occurs in that sense for most speakers (i.e. meaning *was possible that* or *was allowed to*).

Would and *should* remain past tense forms of *will* and *shall* (for speakers who retain *shall*), but only in "sequence of tense" contexts in clauses embedded under a matrix past tense.[3] Neither occurs any longer in main clauses in the sense of *was going to*.

In contrast to all of these, *could* still occurs in main clauses as the past tense of *can*, expressing past ability (*was able to*), as in the examples in (7).

(7) a. . . . they were stacked six high, and then seventeen of them had either a- um like a- a shot glass, or a half pint glass in of- in them. It was like hun– I- I **couldn't** lift it any higher than my shoulder. It was that heavy. (Speaker 25; Age: 23)

   b. Yeah, I mean if you heard my grandfather speak, well you **couldn't** always understand him could you? (Speaker 82; Age: 64)

   c. This time last year I **could** walk into town and do my shopping and walk back. Now I can't. (Speaker 24; Age: 75)

In addition to these well-established ways in which *can* is exceptional within the class of modals, our study of the YEC reveals a third exceptional property of *can*: it occurs with so-called "British *do*" much less than would be expected. British *do* is the appearance of *Do*-support below another auxiliary in ellipsis contexts, as in (8). North American varieties of English uniformly disallow *do* in this context, but it is possible in varieties of English spoken in the UK.

(8) a. No I don 't think so. I don 't think we would. We might do. (Speaker 73; Age: 34)

   b. No, they didnt do anything and they didn't have any repercussions, the police didn't get involved, they didn't press charges or anything, they could have done. (Speaker 40; Age 29)

But though *can* occurs more often than any other possibility modal in the YEC, including many contexts where the main predicate undergoes ellipsis, it occurs above ellipsis *do* only once, in the context in (9):

(9) If someone wanted to nick your bike they **can do**. (Spkr 57, Age 17)

The absence of *do* under *can* is not because this use of *do* requires an epistemic modal. Ellipsis *do* occurs several times below dynamic *could* in the YEC, in contexts like those in (10):

(10) a. You had your own room. Just the basics and bin which you made as friendly as you could do. (Speaker 69; Age 54)

    b. But if I wanted to come home in the evening I could do. (Speaker 69; Age 54)

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[3]The notable exception is *would* in the sense of *used to*, which is a transparent past of *will* in its dispositional use.

The example in (9) demonstrates that the ban on British *do* with *can* is not absolute in the YEC, but nonetheless its infrequency is striking. The rate of British *do* with each possibility modal in the YEC is summarized in (11): we see that the rates are highest for *may* and *might* (strikingly high for *may*, which occurs only 36 times in the YEC overall), and still 0.53% for *could*, but only 0.051% for *can*.

(11)   *Rates of British do with possibility modals*

	# of *do*	(# overall)	%
can	1	(1819)	0.051
could	8	(1513)	0.53
may	2	(36)	5.6
might	7	(218)	3.2
total	*18*	*(3727)*	*0.48*

In summary, our study of the YEC confirms that *can* is indeed increasing in spoken English, and moreover that its increase has an interesting profile: *can* is not increasing in epistemic or deontic uses, but instead in *dispositional* uses, a type of dynamic modality. In this respect *can* appears to be quantitatively diverging from the rest of the modal system. The study also reveals a further exceptional syntactic property of *can*: its non-occurrence with British *do*. This joins its resistance to epistemic interpretations, and its retention of a transparent past tense form *could*, as ways in which *can* differs from other modal auxiliaries.

4.   Discussion: towards a low position for *can*

The exceptional properties of *can* receive no explanation on standard approaches to moral morphosyntax, which associate English modal auxiliaries with a single functional projection high in the clausal spine, generally either T or a dedicated modal head Mod. This puzzle is deepened by the fact that neither *could* nor *can't* shares *can*'s exceptional properties: on many reasonable approaches to morphosyntax, these are both nothing more than *can* with the addition of further functional information, past tense for *could* and negation for *can't*.[4] Given this, we would expect that they would inherit any idiosyncratic properties of *can*.
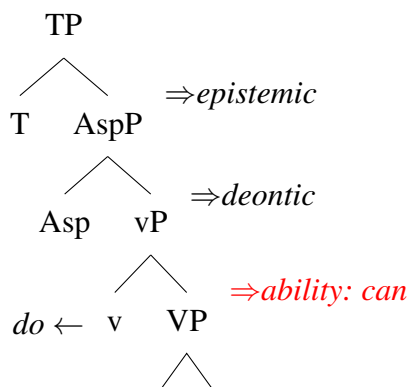
We propose that *can* is distinguished from all other modal auxiliaries—including *can't* and *could*—by being associated with a uniquely low syntactic position, below not only T and Asp, but also below *v*. This is suggested in particular by its incompatibility with British *do*, on the view that *do* is an instance of *v* that has been stranded by ellipsis (Thoms 2010).

It is commonly proposed that epistemic and root modals occur at different structural heights, accounting for their different scope with respect to operators such as viewpoint

[4]The details of what *could* and *can't* share with *can* differ somewhat across various approaches to morphosyntax. In the realizational theory of Distributed Morphology one might view what they share as a *root*, were it not that English modals are functional heads (assumed to lack a lexical root). We set this issue aside here, as it is orthogonal to the analysis of *can*.

aspect (Jackendoff 1972; Zubizarreta 1982; Butler 2003; Hacquard 2006). We extend this to ability modals, locating these yet lower in the clause structure, structurally encoding their status as event-oriented modals. This is in line with the proposed position of Mod$_{Ability/Permission}$ in Cinque 1999.

(12)   *Structural division in modal auxiliaries, based on interpretation*

This low position for *can* is linked to its dynamic interpretations: ability, circumstantial, and dispositional meanings, which are all event-oriented. But in this low position, *can* is also in a position to compose transparently with *could*. Notably, the only other modal with a transparent main-clause past tense use is *will* in its dispositional sense expressing a tendency of the subject, for which the past tense is *would* (sometimes described as "habitual" would).

Why is *can* increasing in frequency, while other modals are decreasing? A functional explanation can be given for the fact that *able to* is not increasing in frequency: because *can* retains a transparent past tense, there is no functional pressure in favour of *able to* in order to express past ability. But this functional motivation does not explain why *can* is not merely holding steady but actually increasing. A structural explanation, by contrast, cannot explain why the change is occurring, but it can potentially explain why *can* has split from the rest of the modal system: if *can* is lower than all other modals, then it may be not be susceptible to the change leading to the decline in their use.

Returning to *could* and *can't*, if these were simply the result of *can* with the addition of past or negative features, we would have no explanation of why circumstantial *could* can license *do*, or why both allow epistemic readings. To account for the differences between *can* on the one hand and *could* and *can't* on the other, we propose that their additional functional information—past tense and negation, respectively—allow these elements to take wider scope than is possible for *can* alone.

We propose to link this to the *finite tantum* status of modals, i.e. their lack of non-finite forms. The traditional view is that the *finite tantum* status of modals reflects their syntactic position: they occur in T, so are in complementary distribution with non-finite features. We minimally revise this to propose that their *finite tantum* status does not necessarily reflect the position of interpretation for modals, but merely the fact that they must be syntactically

realized as the highest auxiliary in a clause. In the case of *could* and *can't*, however, the modal realizes additional interpretable functional features: *could* bears a feature [PAST], while *can't* bears [NEG], both features that are interpreted with higher scope than viewpoint aspect, and thus in the domain of the clause associated with epistemic modality. *Could* and *can't* are consequently syntactically tied to positions outside the *v*P in a way that *can* is not, and we propose that this is what allows them to be used to express epistemic modality, as well as to occur high enough in a clause to be compatible with British *do*.

5.   Conclusions

In this paper we have reported on a study of the English modal system that draws on both variationist and formal perspectives. From the variationist tradition we draw the methods of using quantitative evidence, based on naturally-occurring speech, to show evidence of changes in progress in the English modal system—changes that are not visible at the level of individual speakers, and thus not open to investigation via individual judgements of grammaticality or semantic meaning. From formal traditions we draw on analyses of the structural organization of the modal system, accounting both for *can*'s exceptionality and also why it resists the general pattern of modal decline.

In future work we plan to extend this investigation to other varieties of English. In terms of the formal analysis, a number of aspects remain to be worked out, including whether the *finite tantum* status of modals can be accommodated in a realizational model of morphology, and whether the account of epistemic readings for *could* and *can't* can be extended to *can* when it occurs above perfect *have*, something not found in the YEC but previously reported in the formal literature.

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Bronwyn M. Bjorkman, Sali A. Tagliamonte
bronwyn.bjorkman@queensu.ca, sali.tagliamonte@utoronto.ca