

## What CAN can and can't do

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**Overview:** In the small syntactic class of English modal auxiliaries, the ability modal CAN is exceptional in a number of respects: most prominently its resistance to epistemic interpretations (except when negative) and its transparent semantic relationship with its past tense counterpart COULD. But though well established, this exceptional behaviour has not received any principled account, instead being treated as due to unrelated arbitrary lexical properties.

We bring novel quantitative evidence to bear on the status of CAN, and its relationship to the rest of the modal system. This evidence comes from a study of possibility modals in the York English Corpus (YEC: Tagliamonte, 1996-1998), which reveals two further exceptional properties of CAN: first, it is diverging in frequency from all other modals, and second, it is unexpectedly incompatible with so-called “British-*do*” (Schütze, 2004; Haddican, 2007; Thoms, 2011). We argue that all these exceptional properties of CAN receive a unified explanation via an extension of the proposal, advanced by Hacquard (2009) for epistemic and root modals, that the position of modals correlates with their interpretation. Specifically, we argue that the locus of dynamic modal interpretations is *v*P internal; because CAN (and COULD in its guise as the past tense counterpart of CAN) is the sole dynamic modal in English, it thus patterns against all other modal auxiliaries.

**A changing modal system:** Across different varieties of English, modal auxiliaries appear to be declining in use, being replaced by corresponding semi-modals. Recent studies have shown specifically that MUST is declining in favour of the semi-modal HAVE (GOT) TO (Tagliamonte and Smith, 2006; Tagliamonte and D’Arcy, 2007), and WILL similarly declining in favour of the semi-modal BE GOING TO (Berglund, 1997; Szmrecsanyi, 2003; Tagliamonte, 2002).

Based on this, we might expect to find the same change with a third modal/semi-modal pair, CAN and BE ABLE TO, which stand in much the same relation as MUST/HAVE (GOT) TO and WILL/BE GOING TO. But instead we find CAN charting a radically different path from the rest of the English modal system. Data from Google n-grams shows that rather than declining, CAN has steadily risen in frequency since at least the 1930s; this is corroborated by the present study of the YEC, which compares CAN (and its past counterpart COULD) to the semi-modal BE ABLE TO, as well as to the other modal auxiliaries expressing possibility, MAY and MIGHT. We find a change in apparent time that confirms the initial observation that the use of CAN is increasing: across all clauses expressing modal possibility, the youngest speakers (<35) used CAN 53.5% of the time, but the oldest (>65) used it only 42.4% of the time. The use of CAN to express circumstantial ability is also rising among younger speakers.

In another sense, however, CAN is following the path of other modals: it is well established that modals tend to extend from purely deontic uses into epistemic domains (Traugott 1989, Hopper and Traugott 1993, Bybee et al. 1994, a.o.). Interestingly, we do find CAN into epistemic uses, though of an unusual kind. As noted above, CAN differs from all other modal auxiliaries in resisting epistemic interpretations (except when negative or in some aspectual contexts). The YEC bears this out, with comparatively few pure epistemic uses of CAN overall (only 13 total), all of which are negative, as in (1). Despite the absence of pure epistemic uses, however, CAN does frequently exhibit quantificational uses (Brennan, 1997), illustrated in (2); while these are not classic epistemic interpretations, neither are they classic dynamic interpretations relating to physical, mental, or circumstantial ability.

- (1) a. ... we thought “This can ’t be it, this can’t be it.” (Speaker: 4; Age: 20)  
b. ...to be on the receiving end of that, you-know, it can’t be comfortable for them at all. (Speaker: 90; Age: 40)
- (2) a. the North-Sea [...] it can be so rough it sort-of goes along sideways (Speaker 30; Age: 20)  
b. some of the service can be a big dodgy sometimes (Speaker 90; Age: 40)  
c. They can be quite expensive, can’t they? (Speaker 64; Age: 46)

The circumstantial and the epistemic increases for CAN are interesting in two respects. First, this extension of CAN mirrors the well-known trajectory grammaticalization language change, whereby deontic modals develop into epistemic modals over time. Nonetheless, we see an important difference in the result—impersonal uses, rather than classic epistemic interpretations.

The final respect in which CAN diverges from other modal auxiliaries is in being unable to combine with so-called British-*do*, which occurs below modals in contexts like those in (3):

- (3) a. But if I wanted to come home in the evening I **could do**. (Speaker 69; Age: 54)  
b. I don't think we would. We **might do**. (Speaker 73; Age: 34)

There are few instances of British-*do* with possibility modals in the YEC, only 11 in total. But though CAN is by far the most frequent modal auxiliary in the corpus, there are no instances of British-*do* under CAN in these data, and consultation with British English speakers confirms that it is comparatively degraded. And though British-*do* has been linked to epistemic interpretations (e.g. by Thoms 2011), this cannot explain its incompatibility with CAN because COULD in (3a) clearly expresses (past) ability. **A structural explanation:** The four exceptional properties identified above—CAN's resistance to epistemic interpretations, its transparent past tense form COULD, its preservation (indeed, increase) while other modals appear to be in decline, and its incompatibility with British-*do*—are mysterious on standard analyses, which view the English modals as a syntactically homogenous class of elements, all originating in a high clausal position. They suggest instead that CAN differs syntactically from other modals—its incompatibility with British-*do*, in particular, suggests that CAN may originate low in the clause, following Thoms' proposal that British-*do* realizes an instance of  $v^0$  stranded by VP ellipsis.

We argue that all the exceptional properties of CAN receive a unified explanation if CAN originates lower in the clause than any other modal auxiliary, not only below  $T^0$  and all aspectual projections, but also below  $v^0$ . This extends the proposal initiated by Hacquard (2006, 2009), linking the interpretation of modals to their position either above (for epistemic) or below (for root) temporal aspect. Here we propose a further division, with the dynamic modal CAN located yet lower, within the argument structural domain of the clause.

As noted above, this accounts for the inability of CAN to license *do* beneath it, assuming that *do* realizes  $v^0$ . But why then is COULD able to license *do* even when it receives an ability interpretation? And why do both COULD and CAN'T allow true epistemic interpretations, where CAN does not? We argue that this is due to the morphosyntactic status of modals as *finite tantum* elements in English: they cannot freely combine with inflectional features, but instead occur only in finite forms. This is generally implemented by having modals merge directly in  $T^0$ , or some other high finite head. We suggest instead that modal functional heads enter the derivation with fixed *and interpretable* inflectional features: COULD, for example, bears an interpretable PAST feature, while CAN'T bears an interpretable NEG feature. While a modal can maintain its interpretation despite being displaced, by binding a variable in a lower position (Hacquard, 2009), these inflectional features must be interpreted in the higher heads with which they are associated. Consequently, COULD and CAN'T are syntactically tied to positions outside the  $vP$ , accounting for their differences from CAN simpliciter.

Finally, the uniquely low structural position for CAN brings us towards an explanation for its split from the rest of the modal system. CAN lags behind the other modals in terms of grammaticalization (if we regard dynamic modals as the first step on the typical grammaticalization path), but to the extent that the system of modal auxiliaries in English is undergoing replacement by semi-modals, CAN is not only exempt from any functional pressure to restore tense distinctions to the modal system, it also occurs in a structurally distinct position.

**Conclusions:** Modals have played a central role in the development of theories of clause structure, and studies of syntactic change in English (Lightfoot 1979; Roberts 1985; Pollock 1989. among many others), in which the identification of modals as a unified class, and their association with a fixed position relatively high in the clause, has been key. This perspective leaves the exceptionality of CAN unexplained, however, and renders surprising the ongoing change whereby CAN is diverging dramatically in frequency from all other possibility modals. Our alternative heterogeneous analysis of modals, by contrast, sheds light on the structural correlates of modal interpretations, extending previous analyses of epistemic and deontic interpretations into the much-less-studied domain of dynamic modal interpretations. This study also highlights the role of quantitative corpus data in informing theoretical analysis, as examination of its use in the YEC reveals patterns that have otherwise gone unreported in the formal literature.