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‘SO THAT IT MAY REACH TO THE JUGULAR’.

MODAL VERBS IN EARLY MODERN ENGLISH RECIPES

Abstract

The focus of this article is the use and function of modal verbs in early Modern English recipes (1475–1699). Modal verbs may show an array of modality meanings, such as the expression of epistemic and dynamic probability, and deontic permission, for example. In principle, both the formulaic nature of the recipe genre and its use for indicating procedure seem to suggest the existence of a primary modality layer of authorial deontic positioning in the sense of necessity. Indeed, recipes tend to represent a list of obligatory steps to be followed in the preparation of the remedy. Our research based on computer enquiries of a compilation of early Modern English recipes reveals that modal verbs appear to indicate some other recurrent modal scopes, namely possibility and prediction, as well as an array of pragmatic functions, viz. reliability, reinforcement and mitigation of claims. Our notion of modality mainly follows from Palmer (1986 and 2001), Hoye (2008), and van der Auwera and Plungian (1998). Conclusions will report on the frequency of modal verbs and modal meanings as well as their functions in discourse. These will also include an account on the relationship between modal verbs and modal meanings and certain formulaic patterns in the recipes compiled.

Keywords: modality, modal verbs, early Modern English, recipe genre.

1. Introduction

In this article, we focus on the analysis of modal verbs in early Modern English recipes (1475–1699). Recipes are made up of a list of steps that should be followed in the preparation of the remedy. We assume that the formulaic nature of the recipe genre and its use for indicating procedure suggest the use, at the very least, of deontic modality in the sense of
necessity. Other modal meanings may concern the evaluation of certain procedures, or even the assessment of the qualities of products. This means an evaluative dimension reporting on the author’s stance.

Our notion of modality mainly follows from Palmer (1986 and 2001), Hoye (2008), and especially van der Auwera and Plungian (1998). As we consider that some modal meanings are strongly associated with the genre itself, we also describe the structure of the recipe from a functional perspective (Martin 1984, Halliday and Hasan 1985, Halliday and Matthiessen 2004). This formalization of the recipe in different ages of English has been earlier studied in Taatvitsainen (1988 and 2001), Pahta (1998), Alonso-Almeida (1998–1999). These studies have all agreed that the recipe is a well-defined genre, and so information is distributed in purposeful stages developing the instructions to achieve a particular goal. Some stages also have a primary aim of assessing the quality and efficacy of the finalized product. The language associated to these stages have been long reviewed in the works of Stannard (1992), Görlach (1992), Carroll (1997), Jones (1998), Alonso-Almeida (2008), and Bator (2016), to mention a few. To our knowledge, modal verbs in recipes have not yet enjoyed the same scholarly attention, and so a study like the one presented here associating the use of modal meanings and the genre is in order.

Our research is based on computer enquiries made on a compilation of early Modern English recipes. These recipes have been excerpted from sixteenth-century and seventeenth-century books, as they appear in the Early English Books Online (EEBO) database we describe later in this paper. This compilation serves as our evidence for the analysis of modal verbs, and interrogation has been carried out using CasualConc (Yasu Imao1) corpus tools. The verbs returned in the computerized concordances are organized according to meanings, and statistical differences have been assessed in terms of their loglikelihood ratio.

This paper is organized, as follows. Section 2 includes information on modality, modal meanings and modal verbs. This is followed by a section on the recipe genre in order to define it. Section 4 offers a description of the corpus and the methodology of analysis. The following section gives the results of our enquiries, and section 6 is a discussion of findings. Section 7 presents the conclusions from the present study.

2. Modality, modal meanings and modal verbs

Modality is the term used in linguistics to refer to the expression of a speaker’s evaluation of an event in terms of such notions as probability,
possibility, obligation, permission and necessity, among other more fine-grained attitudes towards the propositional content framed by the modal particle. The ideas of stance and attitude concerning modal scopes are given in Palmer (1986: 2), as drawing from Lyon (1997: 452). These concepts inevitably raise related issues (a) concerning the (inter)subjective uses of modal particles and (b) concerning the association of modality with degrees of truth, i.e. the speaker’s commitment. One case in point is the function of modal particles to indicate conclusions as a result of an inferential process, as we shall explain later. There are some ways in which modality can be coded in the language, and these fall in the lexical or the grammatical domains. Palmer (1986: 33ff) describes modal verbs, mood, and particles and clitics as examples of grammatical marking of modality. The lexical marking includes adverbs and other related expressions that evince the speaker’s attitude towards the propositional content.

Modality is very differently categorized, as categories depend on the theoretical tenets followed each time. In our paper, we avoid all this terminological wealth to focus on the more agreed division of modal categories into (a) epistemic and (b) deontic modality. The former is “concerned with matters of knowledge or believe on which basis speakers express their judgements about state of affairs, events or actions” (Hoye 1997: 42). The latter refers to the “necessity of acts in terms of which the speaker gives permission or lays and obligation for the performance of actions at some time in the future” (Hoye 1997: 43). A similar twofold taxonomy is included in Biber et al.’s (1999: 485), if they use the terms intrinsic and extrinsic modality: “Intrinsic modality refers to actions and events that humans (or other agents) directly control: meanings relating to permission, obligation, and volition (or intention). Extrinsic modality refers to the logical status of events or states, usually relating to assessments of likelihood: possibility, necessity, or prediction.”

Although the distinction epistemic and deontic works well for an important quantity of modal devices, another category is, at least, in order. This third is known as dynamic modality, a subcategory of Palmer’s event modality (2001). Palmer’s classification distinguishes between propositional modality and event modality. The first type reports on epistemic modal uses, and it is further subdivided into epistemic modality and evidentiality (i.e. evidence given for the status of the proposition; cf. Willet 1988). The second type refers to attitudes towards events in the future, and it is subdivided into deontic modality and dynamic modality. In deontic modality, senses of obligation and permission hang on external

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rather than internal factors. In dynamic modality, conditions are external, and it involves senses of willingness and ability on the part of the speaker or writer. Dynamic modality is, we argue, an important language feature in technical texts, as uses of modals can be only justified according to the notions of disposition and potentiality, as we shall see in due course. These notions have been the matter of extensive discussion in the domain of logics.

Modality can be realized by means of modal verbs, adverbs and clitics. In this paper, we focus on modal verbs, and so we keep to their description in what follows. As pointed out in Biber et al. (1999: 483), there are nine central modal verbs in present-day English, namely can, could, may, might, shall, should, will, would, and must. There is yet another group of modals called the peripheral modals or marginal modals, or more widely semi-modals: need (to), ought to, dare (to), used to. This group of modals tend to take to-infinitive rather than the bare infinitive. They share, however, some features with central modals: (a) direct negation with not (also as a contracted form), and (b) inversion in questions, even if such forms as dare and need may take the periphrastic do. The expressions have to, had better and be supposed to are regarded as idiomatic expressions with modal nuances (Biber et al. 1999: 484).

Denison (1993: 292ff) classifies modal verbs from a morphological, syntactic, and semantic perspective. The criteria for the identification of modal verbs are the following: (1) modal verbs do not present non-finite forms, (2) tense-distinction takes place in the majority of these verbs, (3) modal verbs do not show third person singular present indicative suffixes, (4) most modals can show their contracted version to form the negative, e.g. can’t, won’t, and shan’t, and a number of these modal verbs can also appear as a clitic form, e.g. ’ll (will), ’d (would), (5) modal verbs do not have imperative forms, (6) they are followed by the bare infinitive, (7) modal verbs have a scope over the propositional content, (8) more than one modal verb can co-occur in some dialects, and (9) as operators, they may share a same set of NICE properties: 

3. The recipe as a genre

Our notion of genre follows the framework of functional grammar, as in in Halliday and Matthiessen (2004). Genre should be distinguished from text
type because genre is defined according to external features, and text type is characterised as to its internal linguistic criteria. In addition to these, register is also an important feature to be considered in the analysis of texts. Martin (1984), Halliday and Hasan (1985), and Biber (1988) have studied these concepts in detail and applied them to several concerns of textual analysis (cf. Moessner 2001). A representation of textual studies from a historical analysis are Taavitsainen (1988 and 2001a), Pahta (1998), Alonso-Almeida (1998-1999), and Carroll (1999), among many others. Research performed on present-day English specimens includes the works by Swales (1987 and 1990), Biber (1988), Bex (1996) and Bhatia (1993), among others.

From a functional perspective, Martin (1984: 25) defines genres as “a staged, goal-oriented, purposeful activity in which speakers engage as members of our culture”. This is in line with Biber's definition of genre in which he understands that “genre categories are... assigned on the basis of use rather than on the basis of form” (1998: 170). The notion of functional stages in Martin’s description is developed in Hasan (1985: 63–64) and Eggins (1994: 41), and they see two ways in which stages may associate. One is generic structure potential, i.e. all the possible stages in a given genre, and the other is actual generic potential, i.e. the result of applying the generic structure potential to a given text.

The notion of text type is defined according to the language used, and Werlich (1976) divides text types into description, narration, exposition, argumentation, and instruction. For Biber (1988: 70), the term text type is used to “refer to groupings of texts that are similar with respect to their linguistic form, irrespective of genre categories.” That means that different text types may co-occur in one single genre, e.g. an academic article may show cases of the narrative, the expositive and the descriptive text types. Topic could be also considered as a feature pertaining to text types, but it is, in our view, more apt as a register characteristic (Halliday and Matthiessen 2004: 29, fn. 8). Thus, a recipe as a genre may be developed mainly as an expositive text, but, from a register perspective, recipes can be for cooking, for planting and grafting, for medical and veterinary purposes, among others. In short, text types are characterized according to morphological, syntactic and lexical features, this last one being a debatable aspect, as pointed out.

Görlach (1992) is one the first studies dealing with the recipe genre from a diachronic perspective, and he uses sections to divide internally the structure of the recipes. His research reveals that this genre exemplifies common morphological and syntactic features along with a specific organization of the contents and vocabulary related to the field each recipe represents. Other studies dealing with earlier recipes in English are

The generic structure potential of sixteenth and seventeenth centuries can be outlined thus:

\[(\text{Title}) ^ \text{Ingredients} ^ (\text{Preparation}) * (\text{Application}) * (\text{Storage}) * (\text{Efficacy}) *\]

(Reference to source) * (Further additional information)

In this formalization of the generic structure potential, the parentheses mean an optional stage, the circumflex suggests fixed order, and the asterisk implies variable order within the scheme. This formula indicates that only the ingredients section is necessary for a recipe to be qualified as such in this period, the rest of stages are optional. This generic structure potential works well for medical and culinary recipes. Using the following sixteenth-century recipe as an example, we shall describe the majority of the above sections:

(1) **[Title]** A verie rare remedie for to take the kernels out of a mannes throte, in fiftie daies at the frthest. **[Ingredients and Preparation]** Take the rootes of Walwort, well washed, and boyled in white wine, and take also, these thinges folowying: Sponge burned half a pound, & two hundred cornes of Peper. Al these thynges beyng well beaten into pouder, boyle them, in the saied wine, with the Walwort rootes: and hauinge sodden them wel, poure out the wine. **[Storage]** and kepe it in a viol wel stopped in some moyst place, **[Application]** than giue the patient of this wine to drinke, three times a day, at euerie time a glasseful, that is to say, mornyng, noone, and night. **[Further Additional Information]** And while he vseth this, he must eate no other breade but Barley breade, and drinke his wyne without water. He must also abstayne from eatyng any maner herbes, Fysh, Garlick, Beetes, or other such like. Thys maner of regiment, ought a man to begyn, at the full moone, continuuyng vntill the ende of the same, and after vntill the quarter encreasynge, of the nexte Moone: that is to saie .xlv. daies, and without doubt the patient shal be healed (Ruscelli 1558).

The actual generic structure of this recipe is Title ^ Ingredients & Preparation ^ Storage ^ Application ^ Further additional information ^ Efficacy. The title gives the contents of the text, and it visually indicates the new recipe. In the case of the ingredients stage, this one appears together with the preparation stage. Besides vocabulary related to herbs and fresh produce preceded by the verb *take* characterizing this stage, the use of cooking verbs and action verbs, namely *boyle* and *poure*, in the imperative
are indicative of the application stage of the recipe. The storage stage presents also a verb in the imperative followed by a noun indicating a recipient, i.e. *violar*. The application stage offers clear information as to the frequency, three times a day, the dosage, *euerie time a glasseful*, and the time, *mornyng, noone, and night*, the remedy should be taken. This is followed by the further additional information and this contains information regarding dieting while the medicine is being used. Finally, efficacy is expressed by using and *without doubt the patient shal be healed* by using the inferential *no doubt* and the modal verb *shal*.

Reference to source, i.e. indication of basis of information, is shown in the example below from *A Thousand Notable Things* by Thomas Lupton (1579). The function of this stage pursues to suggest reliability concerning the remedy recommended, even if source is generic and imprecise, as in this example, i.e. *This I had out of a verie olde booke*.

(2) This following is a notable tryed medicine for the gowte, and for the swelling of ioynts, & for knobs or knots comming of the French pocks. Take May butter a quarter of a pound, halfe a pound of coomyn seede, beaten in fyne powder, a quarter of a pound of blacke Sope, one handfull of Hearbe grace, halfe a handfull of clarifyed sheepe suet: stampe all these together in a morter, then take the gall of an Oxe, and a spoonefull of bay Salt, and frye them all together, tyl it be thycye: then laye it on a woollen cloath, and so apply it to the ache, as hotte as it maye be suffred, and let it lye vnremoued a whole wekke: and then laye another plaster thereof to it, and let it lye vnremoued as long: then lay the thyrd plaster thereto, and let it lye thereto as long, as the other, (which wyll be in the whole three weekes:) and without doubt it wyll helpe him. I haue seene it proue d.

As we shall show below, the instructive nature of the recipes will determine the type of modal meanings to appear in the course of the recipe description. This text is for giving instructions to develop a series of actions in order to get a final product. This also implies the consideration of the qualities of people and things in which certain phases of the recipe making depend on in order to accomplish a satisfactory product. In addition, the functions of the recipe, e.g. healing and cooking solutions, necessarily involve an evaluative dimension assessing for the benefits of the recipe along with the suitability of certain products or procedures involved in its making. This may be well expressed by means of epistemic and deontic modal verbs, as these consider possible future scenarios accounting for states and chances of achievability.

4. **Corpus description and methodology**

The corpus is a compilation of English recipes of the sixteenth and the seventeenth centuries. From a formal point of view, the recipes fit well
within the definition and description of the genre, as described in section 3, above. The texts have been grouped per century and have been excerpted from facsimiles downloaded from the Early English Books Online (EEBO) database through a subscription held by the University of Las Palmas de Gran Canaria. This database contains more than 100,000 titles in photographic format, and some of these have been transcribed and they are therefore searchable. The date span of this collection is 1473–1700. In the table 1, we include information concerning the number of words and the number of texts analysed per century; the number of words corresponds only to all the recipes within these texts, excluding any other genre type.

Table 1. Number of words and texts in our compilation of recipes

<table>
<thead>
<tr>
<th>Century</th>
<th>Number of texts</th>
<th>Number of words</th>
</tr>
</thead>
<tbody>
<tr>
<td>c16th</td>
<td>10</td>
<td>121,789</td>
</tr>
<tr>
<td>c17th</td>
<td>7</td>
<td>121,929</td>
</tr>
</tbody>
</table>

The number of words represents exclusively recipe texts, and this means that careful reading has been made in order to isolate recipes upon the consideration of the description put forward in section 3 concerning this genre. The contents of the texts are varied, namely cooking, medicine, grafting, planting, hunting, surgery, pediatric medicine, and anatomy. These are literally unimportant from a genre perspective, although, obviously, they do matter from a register perspective. Our analysis of the texts will show, however, that register is essential in order to hypothesize about, and account for, the presence of modal verbs, as we shall show later on in this paper.

Our analysis of the texts has been carried out using computer tools using CasualConc (Yasu Imao), and examples of modal verbs have been excerpted. Avoidance of spelling variation in our retrieval has been done by using wildcards, and so interrogation of the database for cases of, say, ‘will’ returns such examples as wil, will, wyl, wyll, and woll. Concordance lines have been copied onto an Excel spreadsheet to tag samples according to meaning following our description of modality in section 2, above. This procedure allows us to obtain statistics concerning the frequency of modal verbs and modality types in recipes per century. Significance variation has also been calculated using the loglikelihood ratio. For the sake of comparison, we have normalized data to 10,000.

5. Results

The analysis of the texts reveals that the most common modal meaning registered in our corpus is deontic, as shown in Figure 1, below. The
difference in the frequency of deontic modals per century is evident and will be discussed later in due course in this paper. The second more frequent modal meaning is dynamic and the sixteenth-century subcorpus presents almost four more occurrences every 10,000 words than the seventeenth-century subcorpus. The reverse happens in the case of the epistemic modals. The seventeenth-century recipes present more cases of epistemic modality.

Figure 1. Modal values in early Modern English recipes

Figure 1 also includes information concerning the presence of lexical variants of what we now identify as central modals. Obviously, these cases are beyond the scope of this article, but we want to offer hereby some examples of these modal forms to exemplify these uses and for the sake of research transparency. The verb *will* is the form presenting lexical nuances in both subcorpora, as seen in (3), (4), (5) and (6):

3. To take Fleas. ANoynt a potte with the Greace of a Bucke, and set it on your Bed, and all the Fleas will goe to it. Or els take the Greace of a Goupill, and annoynt a place of the house where ye wil haue them come and thei will goe thether. Or els take leaues of Dan, and lay them vnder your Couerlet or where ye will, and when they be among the leaues thei cannot come away (Hill, 1528).

4. How ye maye cause your hawke to fle wyth a courage in the mornynge. ¶Yf ye woll that your hawke fle in the morough tyde: fede her the nyght before wyth hote meete. And wasshe the same meete in vryne: and wrynge oute the water clene. And that shall make her to haue luste and courage to fle in the mornynge in the beste manere (Berners, 1496).

5. A Menstruum of Citron-Pills to dissolve Bodies of Metal and Coral… You may reiterate this course with new chips, as often as you please, during the season of the Dew; so to have what quantity you will of this Spirit (Digby, 1675).

6. An excellent Remedy for the Dropsie… at dinner eat what you will of wholesom diet, but at night sup not, or but very little, and at going to bed, take the Cloves of Garlick and Wormwood Ale as in the morning (Digby, 1675).
In all the examples given above, the sense of volition is clear. The use of *will*, therefore, is equivalent to the lexical verb *to wish*. This meaning is recorded in the MED for the entry *willen v. (1)* 1f, with the following piece of evidence supporting this use: *sey by þe þat...willest of briddes and of bestes and of hire bredyng to knowe* (Skeat 1869: 205 in MED). Example (4) presents the most evident case of lexical *will* complemented by the noun clause *that your hawke fle in the morough tyde*. This structure is also registered in MED (*willen v. (1)*), as shown in *They...willen that folk hem loute...whanne that they passen thurgh the strete, And wolen be cleped maister also; But they ne shulde not willen so* (Kaluza 1891: 397, in MED).

Statistically, the loglikelihood ratio (31.94) indicates that difference between the two subcorpora is very significant in this respect with overuse in the case of the sixteenth-century recipes. Evidence from these two subcorpora suggests the gradual loss of this lexical meaning of *will*, as evinced in later instances from the sixteenth-century subcorpus along with all the examples of the seventeenth-century. These cases reveal a tendency to use this lexical form in the quasi-fossilized template *as/when/what (noun)/if + you will* with the same person marking, i.e. 2nd person singular, clearly indicating optionality. Its parenthetical nature is felt in many cases, and this may also support the idea that lexical *will* might have been perceived as idiomatic. Examples in (7) taken from these subcorpora illustrate our view; note that our last instance with a subject pronoun other than *you* is found as far as 1565.

(7)

1496: therin / and lete her ete as moche *as she woll*. And that meete shall mewe her at your owne.
  ... *who soo woll* that an hawke mewe not nor fall none of
1528:  ...*what letters you will*, lettyng the same drye, and after rubbe a gol
1562:  ... a thycyte oynment of ye which take *when you will* the quantyte of a lytle Beane, and anoynt th
1565:  ... the eight parte (*or as litle as you will*) of an vnce of Muske.
  ... let the patient slepe as moche *as he will*, who, in the mornyng shall finde hym self as
1587  ... faire water, or Rosewater, and Spices (*if you will*) and make your paste and beate it.
1588  ... Prunes, and Barberries about the Platter, *if you wilk* strawe a little Suger and Sinamon about it.
1633  Also *if you will*, after the said ingredients are boyled and strained.
  ... and *if you will* you may mixe with it an ounce of honey.
1658  ... and so anoynt your face as long *as you will*.
1659  Take Citrons, or Lemons, as many *as you will*.
  ... and drink this second liquour at meals as often *as you will*.
1675  new Spirit of Urin; and so you may make it as strong *as you will*.
1675  ... morning, evening, night, or *when you will.*
  ... so to have *what quantity you will* of this Spirit.
  ... at dinner eat *what you will* of wholesom diet.

Arguably, these cases of *will* might represent the code property of this modal verb, as exemplified in Gotti (2003: 284). However, we do believe there are such cases of *will* in (7) as *and so anoint your face as long as you will* and *a thycke ointment of ye which take when you will the quantytye of a lytle Beane,* whose lexical meanings are beyond doubt. Some examples might be less clear, and that could happen in *at dinner eat what you will of wholesome diet,* which could be paraphrased as *at dinner eat what you will eat of wholesom diet.* Even so, the lexical nuance is strong: ‘eat what you *want to* eat of wholesome diet’. In all the occasions in which *will* appears in the protasis of the conditional clause, the meaning seems necessarily to be lexical, and this sense is certainly closer to *want to* and *like.* Thus, in the instance *and if you will you may mixe with it an ounce of honey,* the interpretation of *will* in terms of its code property is likely, albeit awkward.

6. Discussion of findings

Table 2 presents the number of modal occurrences per meaning and per century:

<table>
<thead>
<tr>
<th></th>
<th>Epistemic</th>
<th>Deontic</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>c16th</td>
<td>c17th</td>
<td>c16th</td>
</tr>
<tr>
<td>can</td>
<td>0,08</td>
<td>0,33</td>
<td>10,51</td>
</tr>
<tr>
<td>could</td>
<td>0,16</td>
<td>0,49</td>
<td></td>
</tr>
<tr>
<td>may</td>
<td>8,62</td>
<td>10,58</td>
<td>2,46</td>
</tr>
<tr>
<td>might</td>
<td>0,33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>must</td>
<td>0,08</td>
<td>0,16</td>
<td>30,05</td>
</tr>
<tr>
<td>will</td>
<td>0,08</td>
<td>39,00</td>
<td>45,68</td>
</tr>
<tr>
<td>would</td>
<td>2,55</td>
<td>2,54</td>
<td>44,50</td>
</tr>
<tr>
<td>shall</td>
<td></td>
<td>0,16</td>
<td>0,90</td>
</tr>
<tr>
<td>should</td>
<td>0,74</td>
<td>0,16</td>
<td>44,50</td>
</tr>
</tbody>
</table>

This table shows that *will* and *shall* are the preferred forms in the recipes, and both score very highly for deontic meaning in both centuries. Dynamic modals appear quite frequently in our recipes. The presence of deontic and dynamic modals seems to be strongly connected to the instructive nature of the recipe genre, as giving instructions in English are
traditionally expressed through root modals. Epistemic modal verbs are the least frequent type in recipes. In what follows, we describe the use and function of modals in our corpus by order of frequency.

a) Deontic modality

The following graph exhibits the normalized figures for the deontic modals in the corpus. Considering the overall numbers, the difference in the use of these modals per century is very significant scoring a loglikelihood ratio of 88.54 with overuse of cases in the sixteenth-century sample. The modal verbs entailing deontic modality are *will, shall, must, may, should,* and *can,* in this order, as exhibited in Figure 2. This figure also shows that the modal verbs *shall* and *must* with a deontic nuance are more frequent in the sixteenth than in the seventeenth century.

![Figure 2. Deontic modals in recipes](image)

Deontic modal verbs are used to indicate procedure. In this sense, the examples of deontic modals in the context of recipes show what steps should be taken in order to prepare the product. The meaning of these forms here is similar to ‘is’ or ‘are’. The instances (8) to (11) illustrate this point. It is interesting to see that the collocation *you/ye + shall + infinitive* is functionally equivalent to the imperative mood, which is traditionally used in recipes

(8) A medycyne for the Frounce in the mouthe... And yf the Frounce be wexid as grete as a notte Thenne there is a grubbe therin. whyche ye shall kytte wyth a rasure in this manere (Berners, 1496).
(9) Remedye for the same yf it be curable. YE must giue hym a purgacion, as is said in ye paine of the head, commyng of cholere: then dippe lynnen clothes in alume water, which shall be made thus (Goeurot, 1550).

(10) To heale an excrescens or growyng vp of the fleshe, within the yarde of a man, albeit it were rooted in of a long tyme... you shall take firste of all a Squirte, and fill it with white wine, wherein drie Roses, and Plantaine leaues have been sodden and boiled, wherewith also ye shall mix a little womans milke, or the milke of a Gote: then washe well the mannes yarde within, with this Squirte (Ruscelli, 1558).

(11) Then take a little kettle or an earthen pot, in the which you shall put three pints of water or a little more, then you shall boyle in it three or foure walmes the barly (Guybert, 1633).

Another use of deontic modality in recipes is to indicate a necessary outcome after following a previous indication in the text, as shown in examples (12), (13) and (14):

(12) For him that maye not hold his water... Take goates talow, and bren it, and make therof powder, and put it into the Patients Potage, and let him vse this, and he shall pisse measurabley ynough (Moulton, 1580).

(13) Hack it with a knife, and it will be ribb'd; then fry it almost browne with Butter, then take (Cooper, 1654).

(14) Boile them together, and you shall have a very good Salve (Philiatros, 1655).

In these instances, the verbs shall and will are used to show either the consequence of taking the medicine, as in (12) or the result of performing the activity previously described, as in (13) and (14). In fact, all these are examples of conditional sentences. This use of the modals has a clear evaluative dimension, as evinced in the following examples:

(15) Take an hearbe called Serpentine, and thei shall not barke at you (Hill, 1528).

(16) Eate all this, and you shall be safe (Ruscelli, 1558).

(17) Take dragons and drynke it, also stampe Dragons, and laye it to the place there the stinging is, and that shall suck out the venime, and ease the smarting (Moulton, 1580).

(18) ...you may fry them without Butter as well as with it, and will be better (Cooper, 1654).

(19) A Plaister for aking of Bones. Take a pint of white Wine, and the gall of an Ox, boil them well, scum them clean, and then take crums of white bread and put thereto, make a Plaister hereof, and lay to the place two or three times, and by the permission of God it will be whole (Philiatros, 1655).

Deontic meaning in the sense of personal intention to carry out an activity is also present in our corpus of texts. One instance is given in (20):

(20) Now I shall tell you very true medycynes to mewe an hawke hastely that ye shall byleue for trouth & ye woll asaye them (Berners, 1496).

The author uses shall in (20) to represent his aim to provide information regarding medical recipes. In other word, this use of modal is used to report on some kind of programmatic appreciation. This function of shall with
a deontic meaning is somehow on a par with what we call *expository shall/will*, which are deployed to draw the reader’s attention towards specific information, hence the presence of the second person singular *you/ye*, as in the examples in (21) and (22). No instance of *expository shall/will* has been detected in the seventeenth-century subcorpus.

(21) Now ye **shall** vnderstonde yf a man woll make an hawke to the querre: in this manere he must doo. ¶Take a tame malarde and sette hym in a fayr playne: and lete hym goo where he woll (Berners, 1496).

(22) For to set sowre Cheries which doe grow commonplace in Gardem, ye **shall** vnderstannde they may well growe of stones, but better it shall be to take of the small cions which doe come from the great roote (Mascall, 1572).

Another deontic modal meaning identified in our corpus is advisability, especially with *should* and *must*, as in the examples in (23)–(27). In these cases, all are medical instances, and the modal verbs are a means to frame some therapeutic recommendations. Person marking refers either to the person in charge of the preparation of the recipe, as in (27) you **should so proportion your substances or Nuts**, or to the patient he **should drink nothing but Tisanne**.

(23) For the same. Ye **must** vse every daye to eate nutmyggges, and to take ones in a weke a mirabolane condyte (Goeurot, 1550).

(24) A glystre for the same. And here ye **muste** note, that in all vomiting, yf the pacient be harde bellied, it is good to take a lenitiue glistre made of the decoccion of marche mallowes, mallowes, violettes, and, barly wyth oile of violettes, home of roses, and a little cassia (Goeurot, 1550).

(25) The Patient **must** take every morning fasting, and not sleep after it (R.W., 1659).

(26) During this course the Patient is to eat no salt meat nor fish; besides he **should** drink nothing but Tisanne or Small-Beer that day he taketh the Liquor or Tincture (Digby, 1675).

(27) You **should** so proportion your substances or Nuts, as to have about a like quantity of juysce of each; as also so much of the Flowers as to have as much distilled water as out of either of the Juyces (Digby, 1675).

The use of *may* with a sense of permission has been registered in the seventeenth-century subcorpus. This deontic sense is clear in (27) and (29), below. The first example indicates deontic possibility in the sense that one ingredient is functionally identical for the purposes of the recipe. This same sense appears in (28), and the author offers indications for the intake of the product, and what is permissible to do and what it is not, i.e. *you may drink eat not till two or three hours*.

(28) Mixe all these well together with a little Creame, but do not make them too soft: instead of Bread you **may** take Almonds (if you will goe to the cost) which are much better (Cooper, 1654).

(29) Take of this one ounce or five drams, dissolved in a little warm Posset-drink; or take it with a little Virgin Honey in the Bed, and sleep after it. You **may** drink
now and then some warm Posset drink; but eat not till two or three hours, after it hath don working (Digby, 1675).

Deontic modality also suggests some kind of personal obligation (or sense of responsibility). This sense is clearly identified in *I muste aduertise you*. Authority is also perceived in this case, as the use of this modal meaning seems to emerge from the author’s own experience and expertise.

(30) Then braye agayne, with the sayed water, that whiche shall remaine in the poke, and presse it a newe, vntill there issue no moore milke. But here I *muste* aduertise you, that this milke continueth not aboue two or three dayes (Ruscelli, 1558).

b) **Dynamic modality**

Dynamic modality is second in frequency. The loglikelihood ratio is 3.79, and so the difference between the use of dynamic modality in the sixteenth century and the seventeenth century is significant with overuse in the case of the former. The modal verbs used to entail dynamic meaning are *may, can, should* and *will* in order of frequency in the sixteenth century, and *can, may, could* and *would* in order of frequency in the seventeenth century, as shown in Figure 3. Dynamic *may* is more frequent in the sixteenth century, while more cases of dynamic *will* have been identified in the seventeenth century.

![Figure 3. Dynamic modals in recipes](chart)

The presence of dynamic modals comes as no surprise in our corpus, as these modals may convey meanings involving the inherent, or even the circumstantial, qualities or capacities of people and things. This is important
in the case of recipes, as a description of the finalized product’s potentialities is in order, as seen in (31). Another important use is related to aspects pertaining the states of products in the elaboration of a recipe, as in (32).

(31) A Menstruum to open any Body, but chiefly the Body of Gold... Then you will have a mighty subtil Spirit, which will dissolve almost any metal, and it will draw a Tincture out of Calx of Gold. It hath a pleasant smell and tast. All the Salt of Tartar will come over with the Salt peter (Digby, 1675).

(32) Take a quarte and a halfe of common oyle, and sette it on the fyre in some vessell, then putte to it foure vnces of Ceruse or white leade well stampet, litarge of siluer verie fine and thinn, three vnces, common Waxe, four vnces, and leаue it so long vpоn the fyre, vntill you maye spreaде it with voure finger vpon a marble stone (Ruscelli, 1565).

Modals showing dynamic possibility are also identified in our corpus, and these represent the disposition of people to endure one condition, or to achieve a particular goal. The string noun/pronoun + can/may + infinitive is a very frequent structure indicating this dynamic meaning, as in examples (32) and (33):

(33) Poulde of Cypres. This is the most excellent poulde that a man can make. It is very true that out of Cipres and the east partes men bringe to Venise certaine rounce balles of a yelowe colour (Ruscelli, 1558).

(34) For the toothach. Cap. xi. Take Betany and wylde gordes, and seth them in wyne, or else in Vyneger, and then put it in thy mouth as hote as thou mayst suffer, & holde it a good whyle in thy mouth, and it will take away thy payne (Moulton, 1580).

(35) To make Cheese-loaves. Take the Curds of a tender new milk Cheese, and let them be well pressed from the Whay, and then break them as small as you can possible, then take Crums of Manchet, 13 and yolkes of Eggs, with half the whites, and some sweet Cream, and a little fine flower, mingle all these together, and make a paste of it (Kent, 1653).

A variant of this formulaic template involves a comparative structure, thus highlighting the dynamic possibility sense of the modal verbs: as + adjective (of +noun) + as + noun + can/may/will + infinitive. Examples are the following:

(36) ...then warme them again as hote as you maye endure, rubbing them well a pretie space (Ruscelli, 1565)

(37) ...gather your roses as drye as you can and put them into the styll (Anon, 1588).

(38) ...and so lay it to the Patients stomach, as hot as he may endure (Philiatros, 1655).

(39) ...three mornings together as much of this Powder as will lie on six pence, with two spoonfuls of each water (W. M., 1659).

c) Epistemic modality

Epistemic modality as realized by modals is more common in the seventeenth-century texts in our corpus than in the sixteenth-century texts
with loglikelihood ratio of 1.75. The modal verbs entailing epistemic meaning are *may, would, should,* and *could.* Instances of epistemic *will* and *can* have been found in sixteenth-century recipes, as shown in Figure 4. Overall, epistemic modality is the least frequent modal meaning in the recipes analysed.

![Epistemic modals in recipes](chart)

**Figure 4.** Epistemic modals in recipes

Epistemic modality is used in the recipes to indicate tentative probability and the authors therefore show their lack of commitment towards the contents of their texts (Coates 2003: 334). The following examples with *may* and *might* are illustrative:

(40) Remedy for the tothe ache. Payne of the tethe (as Galene sayth) amongeste other paines that are not mortall is ye most cruel and grieuous of them al. It *maye* come diuers wayes, of a cold or hote cause. If it come of a hote cause hys gomes are redde, and verye hote, wherfore it is very good to hold in his mouthe water of camphore or to seeth a lytle camphore in vinegre, and holde it in his mouth (Goeurot, 1550).

(41) Of this Liquor when ‘tis ripe, let the Patient make use for his ordinary Drink; only having a Care, that if by Age or Accident it be perceived to grow sour, that Vessel then be left off, for fear, least the Acidity of the Liquor, corroding the Antimony, *might* make it vomitive (Boyle, 1692).

In these instances, *may* and *might* are hedges (Hyland 1998), and these are used to “present a proposition as an opinion rather than a fact” (1998: 5). In (40), *may* expresses an evaluation of the different possible causes resulting in toothache, i.e. *of a cold or hote cause.* In this sense, the didactic
target prevails over an hypothetical intention of avoiding imposition on the
reader. This means that the author does not really seek to exclusively
attenuate the propositional content in (40), but he rather wants to present
two likely causes, and one of them is necessarily correct each time a patient
with toothache requires attention. The use of might in (41) certainly shows
the author’s estimation of the truth of the propositional content, and so
might refers to an hypothetical situation in which the liqueur may turn sour
and so may produce an undesired effect. The mitigating purpose is sounder
in this case.

Epistemic necessity modal verbs are also used in the corpus, but they
only appear in the texts written by the last quarter of the seventeenth
century. The forms entailing this meaning are exclusively must and may in
even proportion. The following are examples excerpted from our corpus:

(42) To make Polonia Sausages... first season your meat with the salt, kneading it in
very well, and so let it lye one day and one night; 48 then put in your spices and
knead them in very well with a little Muscadine, kneading it morning and
evening with a little more Muscadine two dayes together; your guts must now
be ready, having before lyen in salt and water two days (Woolley, 1670).

(43) Another Remedy for the Dropsie. Take three or four pound or thereabouts, of
Mountain-Sage, (a bagful above a foot, or fourteen or fifteen inches high, and
eight or nine, or ten overthwart) bruise it in a Mortar, and put it into a Bag of
Boulters-cloth, and put it into a Kilderkin of middling Ale as soon as it is tunned,
putting into the Ale the Juice that may have run out of the Herb upon beating it
(Digby, 1675).

In the first example, must seems to indicate inferential reasoning (cf. van
der Auwera and Plungian 1998), and so the writer presupposes that the guts
to prepare the sausages are ready. This inferential process is the result of
experience, and so the proposition contained in “your guts must now be
ready” appears to be more factual than hypothetical. This is the voice of
authority. In (43), inferential meaning results from the use of may followed
by the perfective, and that shows the writer’s deduction that juice should be
obtained from the action of scraping herbs. Boye and Harder (2009) have
described this type of structure as evidential substance, and is of frequent
use in the language of science (Alonso-Almeida and Carrió-Pastor (2017)).
This is not the case in the recipe genre in our corpus. The reason for this very
low frequency might be found in the fact that recipes contain practical
information (rather than the presentation of theoretical argumentation),
and therefore, there is not much room for logical deductions. Furthermore,
our compilation encompasses recipes written before the scientific period,
and there is the additional reason that recipes are very traditional in nature
(Alonso-Almeida 2013), as they are unashamedly copied from one earlier
compilation to another. In this context, it is obvious that the language
exhibited still retains some of its medieval flavour.
7. Conclusion

This paper has presented information concerning the use and meanings of modal verbs in a corpus of early Modern English recipes. The results have turned as expected considering the genre under focus, i.e. recipes. The didactic nature of the recipes is reflected in the use of an expository text-type (Werlich 1976) in order to develop the description of a procedure to achieve a desired goal. That explains the important amount of deontic modals identified. Variation between the two centuries analyzed is also very meaningful with overuse of this type of modality in the sixteenth-century. Interestingly, the use of epistemic modality, frequently associated with the manifestation of authorial politeness to avoid imposition on third parties, occurs occasionally in the two subcorpora. Variation is significant with overuse in the case of the seventeenth-century, which seems to be a timid indication of the turning point in the way science was looked at. The second most frequent modality type in our recipes is dynamic modality, as it may convey meanings pertaining the qualities, capacities and properties of people and things.

The use of modality in recipes is varied depending on the type. Deontic modality is convenient in order to show the procedure to prepare or follow a particular recipe. To some extent, deontic modality combines with the imperative mood in order to present indications. The benefits of deploying modals in this sense is the possibility to convey different shades of necessary actions. Advisability concerning therapeutic information is also expressed through the use of deontic modals. That is also the case of permission as to the actions that are allowed to be taken either with the handling of ingredients or the finalized product intake. Finally, there is a specific use of deontic modals to emphasize some particular information, and they therefore draw the readers’ attention towards that specific information.

In short, deontic modality reveals the authors’ expertise. This intention to exhibit some kind of authority is also perceived in the use of dynamic modality, as authors may thus show their knowledge of ingredients and expected results concerning procedures described in the recipe. This information seemingly follows from the authors’ own experience on the topic dealt with in the recipes, even if part of the information provided in these texts should not be taken at face value. These dynamic modals express meaning as fact rather than anticipation. Epistemic modality is deployed both to indicate degrees of tentativeness in the case of epistemic probability modals and to indicate inferential logic in the case of epistemic necessity modals. While probability modal verbs seek to attenuate assertiveness, the second type reflects the author’s good command of the topic.
This research represents a first step in the study of modal verbs in English recipes over time, as we have seen that some variation in language seems to be also taking place in this genre. This appears to be contrary to expectation. Because recipe collections are the result of copying and excerpting from earlier collections or even loose recipes, we may consequently assume some resistance to change. This needs further exploration on Middle English material and late Modern English recipes to evaluate variation tendencies in the use of modal verbs in this genre.

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