

GRAMMATICALIZATION AND THE SEMANTIC LANDSCAPE OF ENGLISH AND
GERMAN MODAL VERBS

by

RICHARD JASON WHITT

(Under the Direction of Jared S. Klein)

ABSTRACT

Modal verbs in English and German have two main uses. One of these uses, commonly known as deontic, concerns conditions of the subject. The other use, epistemic, focuses on the speaker's attitude towards the proposition. These disparate uses have not always existed in English and German; they are the result of an ages-long grammaticalization process, a process in which lexical items lose their semantic features and/or formal markings to serve grammatical functions. The beginnings of this process are found in Proto-Germanic, where fully lexical, stative verbs become partially grammaticalized (yet still lexical) deontic modals in Old English and Old High German. The more grammaticalized, epistemic modals generally do not appear until later in the Middle English and Middle High German periods. And finally, Modern English and New High German attest a rich semantic landscape that features a broad range of deontic and epistemic meanings. I argue that metaphor has been the driving cognitive motivation behind these changes.

INDEX WORDS: Grammaticalization, English Modal Verbs, German Modal Verbs, Deontic Modality, Epistemic Modality, Semantics, Metaphor, Proto-Germanic, Old English, Old High German, Middle English, Middle High German, Modern English, New High German

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ABBREVIATIONS

Languages:

ME	Middle English
MHG	Middle High German
ModE	Modern English
NHG	New High German
OE	Old English
OHG	Old High German

Other:

LOB	Lancaster-Oslo/Bergen Corpus
Luther Adel	Martin Luther, An den christlichen Adel deutscher Nation von des christlichen Standes Besserung (ed. Delius)

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1. Introduction¹

In both English and German, modal verbs have two main uses. One use of the modal verbs focuses on various conditions of the subject (e.g., desire, ability, obligation, etc.) in relation to the rest of the proposition. Thus, in English we find:

- (1) *Elisabeth can speak Russian.*
- (2) *Elisabeth may leave whenever she wants to.*
- (3) *Elisabeth must visit her grandmother this weekend.*
- (4) *Elisabeth shall repay the loan by the end of the week.*
- (5) *Elisabeth will sell her house to the highest bidder.*
- (6) *Elisabeth ought to drive more carefully.*

And in German we find:

- (7) *Elisabeth kann Bus fahren.*
'Elisabeth can drive a bus.'
- (8) *Elisabeth mag nicht reisen.*
'Elisabeth doesn't like to travel.'
- (9) *Elisabeth muss den Obstsalat machen.*
'Elisabeth must make the fruit salad.'
- (10) *Elisabeth soll öfters mit der Bahn fahren.*
'Elisabeth is supposed to travel with the train more often.'

¹The focus of this study will be on the core modal verbs: *can, may, must, ought, shall, and will* in English; *dürfen* 'may, to be allowed to,' *können* 'can, to be able to,' *mögen* 'to like, may,' *müssen* 'must, to have to,' *sollen* 'shall, to be supposed to,' and *wollen* 'to want' in German. Quasi-modals like *to have to, to need to, haben* 'to have to,' or *brauchen* 'to need to' fall outside the scope of this discussion.

(11) *Elisabeth will jonglieren lernen.*

‘Elisabeth wants to learn to juggle.’

(12) *Elisabeth darf nach Japan fahren.*

‘Elisabeth may/is allowed to travel to Japan.’

Various terms are used to classify this use of modals: “lexical” (Jäntti 1984), “objective” (Jäntti 1984), “non-deictic” (Diewald 1999b), “agent-oriented” (Bybee, Pagliuca, and Perkins 1991), and “deontic” (Traugott 1989; Fagan 1996).²

The other use of the modal verbs focuses more on the speaker’s (or writer’s) perception of or attitude towards the proposition. In English, for example, we find:

(13) *Elisabeth can’t be the one who made the bomb threat.*

(14) *Elisabeth may be coming over to visit us.*

(15) *Elisabeth must be sick.*

(16) *Elisabeth shall no doubt live to see stranger things.*

(17) *There’s someone following us--oh, that’ll be Elisabeth.*

(18) *Elisabeth ought to have been back by now.*

Similarly, in German we find:

(19) *Elisabeth kann in Berlin sein.*

‘Elisabeth may be in Berlin.’

(20) *Elisabeth mag den Film gesehen haben.*

²Technically, deontic modality only refers to permission, obligation, or (indirect) commands (as can be seen with *can* in some instances, *may*, certain cases of *must* and *ought*, *shall*, *dürfen*, some uses of *können*, and *sollen*). The subject’s intention or desire, however, falls within the realm of volitional modality (as signified by *will*, *mögen* in its preterite subjunctive form (*möchte*), and *wollen*). Dispositional modality covers ability, affinity, or a pressing (self-imposed) condition on the subject (e.g., necessity). *Can*, some instances of *must* and *ought*, *können*, *mögen*, and *müssen* express the subject’s disposition. Such a narrow classification is not necessary for the purposes of my study. Many have--with clarification--referred to all instances of non-epistemic modality as “deontic” (Traugott 1989; Fagan 1996; Diewald 1997), and I will do the same here.

‘Elisabeth may have seen the movie.’

(21) *Elisabeth muss verrückt sein.*

‘Elisabeth must be crazy.’

(22) *Elisabeth soll den ganzen Kuchen gegessen haben.*

‘Elisabeth supposedly ate the entire cake.’

(23) *Elisabeth will nicht am Tatort gewesen sein.*

‘Elisabeth claims not to have been at the scene of the crime.’

(24) *Elisabeth dürfte den Zug verpasst haben.*³

‘Elisabeth probably missed the train.’

This use of modal verbs is referred to as “grammatical” (Jäntti 1984), “subjective” (Jäntti 1984), “deictic” (Diewald 1999b), and “epistemic” (Traugott 1989; Fagan 1996).⁴

Such a disparity hasn’t always existed in English and German, and the modal verbs have not always served the function of modifying the subject’s or speaker’s relationship to the proposition. Instead, the current use of the modal verbs is the result of an ages-long process of grammaticalization that dates all the way back to Proto-Germanic times (Birkmann 1987; Diewald 1999b).

Grammaticalization is the employment of lexical items to serve grammatical functions, many times causing an item’s original lexical meaning to weaken or fade away completely

³*Dürfen* can only be read epistemically when it appears in its preterite subjunctive form, *dürfte*. See pp. 8-9 and 83-84 for more detailed discussions of this paradigmatic restriction.

⁴Not all occurrences of the modal verbs can be clearly categorized as “deontic” or “epistemic.” There are numerous instances in which the modal verbs are ambiguous (Coates 1983; Fagan 1996; Diewald 1999b). Examples include *The package may be picked up before noon* and *Die Verdächtigen können festgenommen werden* ‘The suspects can be apprehended.’ This phenomenon, however, does not affect the existence of deontic and epistemic meaning, and context can certainly help to disambiguate the modal meaning (Fagan 1996:16). And even where context is of no help, deontic and epistemic possibilities can still be seen (Coates 1983). Although not the thrust of my research, examples of ambiguity will be addressed when relevant, especially where narrow-scope versus wide-scope readings are involved.

(Hopper and Traugott 1993). This process can occur at all levels of a language: phonological, morphological, syntactic, semantic, and pragmatic. With the modal verbs, grammaticalization has primarily been a process of semantic change with syntactic implications. Several factors indicate that the modal verbs are grammaticalized items, or, to be more precise, that one use of the modal verbs is more grammaticalized than others (Diewald 1993, 1997:21-29, and 1999b:19-27; see also Lehmann 1985:305-310 for a more general discussion of grammaticalization parameters).⁵

For example, the semantic integrity (i.e., lexical content) of the deontic modals is bigger than that of the epistemic modals. Other lexical items can be used to directly paraphrase the deontic modal verbs, with little or no semantic change occurring:

(1) *Elisabeth can speak Russian.*

Elisabeth knows how/has the ability to speak Russian.

(9) *Elisabeth muss den Obstsalat machen.*

‘Elisabeth must make the fruit salad.’

Elisabeth hat eine Verpflichtung/ist unter Zwang, den Obstsalat zu machen.

‘Elisabeth has an obligation/is compelled to make the fruit salad.’

Although paraphrasing is also possible with epistemic modals, the words that paraphrase the modal verb would comment on the speaker’s attitude towards the proposition and not on the modal verb itself:

(15) *Elisabeth must be sick.*

Surely Elisabeth is sick.

(21) *Elisabeth muss verrückt sein.*

⁵Diewald’s discussion concerns only the German modal verbs; however, her findings are just as relevant to the English modals.

‘Elisabeth must be crazy.’

Sicherlich ist Elisabeth verrückt.

‘Surely Elisabeth is crazy.’

The scope, the degree to which an item syntagmatically affects the construction it occurs in, is narrower with the deontic modals than with the epistemic modals. Whereas deontic modals modify the agent’s relationship with the rest of the proposition (narrow scope), the epistemic modals modify the truth value and/or speaker’s attitude towards the entire proposition (wide scope):⁶

- (2) *Elisabeth may leave whenever she wants to.*

Deontic, Narrow Scope: *Elisabeth MAY(leave whenever she wants to).*

- (14) *Elisabeth may be coming over to visit us.*

Epistemic, Wide Scope: *MAY(Elisabeth, be coming over to visit us).*

- (7) *Elisabeth kann Bus fahren.*

‘Elisabeth can drive a bus.’

Deontic, Narrow Scope: *Elisabeth KANN(Bus fahren).*

- (19) *Elisabeth kann in Berlin sein.*

‘Elisabeth may be in Berlin.’

Epistemic, Wide Scope: *KANN(Elisabeth, in Berlin sein).*

⁶In her earlier writings, Diewald (1993; 1997:21-29) takes a different view of scope. She considers the deontic modals to have wide scope and epistemic modals to have narrow scope. That is, deontic modals can take a larger variety of complements--nominal and pronominal objects, infinitive constructions, etc.--than epistemic modals (e.g., *Elisabeth will Schokolade/das/tanzen/jonglieren lernen/das Zimmer streichen/dass Axel mit dem Rauchen aufhört*. ‘Elisabeth wants chocolate/that/to dance/to learn to juggle/to paint the room/that Axel quits smoking.’). However, given that my focus is primarily on semantics, I favor the analysis adopted by Diewald in 1999b and Sweetser (1988).

The paradigmaticity of the epistemic modals, the degree to which they are part of a paradigm, is larger than that of the deontic modals; for as Mustanoja (1960:453) and Diewald (1999a; 1999b:167ff) point out, the former constitute an example of “analytic verbal mood” whose deictic function of positioning the speaker--temporally and factually--in relation to the proposition is not so different than that of other verbal moods (i.e., Indicative and Subjunctive):

(15) *Elisabeth must be sick.*

Present Indicative: *Elisabeth is sick.*

Preterite Indicative: *Elisabeth was sick.*

Preterite Subjunctive: *If Elisabeth were sick, we'd have to take her to the doctor.*

(21) *Elisabeth muss verrückt sein.*

‘Elisabeth must be crazy.’

Present Indicative: *Elisabeth ist verrückt.*

‘Elisabeth is crazy.’

Preterite Indicative: *Elisabeth war verrückt.*

‘Elisabeth was crazy.’

Present Subjunctive: *In der ‘Bild’ steht, Elisabeth sei verrückt.*

‘In the ‘Bild’ it says that Elisabeth is crazy.’

Preterite Subjunctive: *Elisabeth wäre verrückt, wenn sie sowas tun würde.*

‘Elisabeth would be crazy if she would do such a thing.’

The deontic modals, on the other hand, semantically modify only the subject’s relationship with the proposition, and they are not constituents of some larger paradigm such as verbal mood:

(2) *Elisabeth may leave whenever she wants to.* (Permission)

(5) *Elisabeth will sell her house to the highest bidder.* (Volition)

(7) *Elisabeth kann Bus fahren.* (Ability)

‘Elisabeth can drive a bus.’

(9) *Elisabeth muss den Obstsalat machen.* (Obligation/Necessity)

‘Elisabeth must make the fruit salad.’

Deontic modals also have a higher degree of paradigmatic variability (i.e., they show a greater degree of interchangeability within their paradigm), for they can be used in all categories of tense and mood:

(1) *Elisabeth can speak Russian.*

Present Indicative: *Elisabeth can speak Russian.*

Preterite Indicative: *Elisabeth could speak Russian .*

Preterite Subjunctive: *Elisabeth could speak Russian if she wanted to.*

(9) *Elisabeth muss den Obstsalat machen.*

‘Elisabeth must make the fruit salad.’

Present Indicative: *Elisabeth muss den Obstsalat machen.*

Preterite Indicative: *Elisabeth musste den Obstsalat machen.*

‘Elisabeth had to make the fruit salad.’

Present Subjunctive: *Heike sagt, Elisabeth müsse den Obstsalat machen.*

‘Heike says that Elisabeth must make the fruit salad.’

Preterite Subjunctive: *Elisabeth müsste den Obstsalat machen.*

‘Elisabeth ought to make the fruit salad.’

The epistemic modal verbs, however, are restricted from appearing in at least one combination of tense and mood (usually the preterite indicative):

(17) *There’s someone following us--oh, that’ll be Elisabeth.*

Present Indicative: *There's someone following us--oh, that'll be Elisabeth.*

Preterite Indicative: **There's someone following us--oh, that would be Elisabeth.*

Preterite Subjunctive: *There's someone following us--oh, that would be Elisabeth.*

(21) *Elisabeth muss verrückt sein.*

‘Elisabeth must be crazy.’

Present Indicative: *Elisabeth muss verrückt sein.*

Preterite Indicative: **Elisabeth musste verrückt sein.*

Present Subjunctive: *Heike sagt, Elisabeth müsse verrückt sein.*

‘Heike says that Elisabeth must be crazy.’

Preterite Subjunctive: *Elisabeth müsste verrückt sein.*

‘Elisabeth might well be crazy.’

The English modals are somewhat more difficult to determine here, for many of their verbal forms are either polysemous (e.g., the preterite indicative and preterite subjunctive *could*, *might*, *should*, and *would*) or do not exist at all (e.g., preterite form of *must* or *ought*). In any case, it should be apparent that the epistemic modal verbs have a smaller paradigmatic variability than the deontic modal verbs. And sometimes, the variability of the epistemic modals is even smaller than in the examples given above. *Dürfen*, for example, can only be read as epistemic when it appears in its preterite subjunctive form; on the other hand, *mögen* can be read as epistemic in any tense and mood combination *except for* preterite subjunctive (Diewald 1999a:126-127):

(24) *Elisabeth dürfte den Zug verpasst haben.*

‘Elisabeth probably missed the train.’

Present Indicative: **Elisabeth darf den Zug verpasst haben.*

Preterite Indicative: **Elisabeth durfte den Zug verpasst haben.*

Present Subjunctive: **Heike sagt, Elisabeth dürfe den Zug verpasst haben.*

Preterite Subjunctive: *Elisabeth dürfte den Zug verpasst haben.*

(20) *Elisabeth mag den Film gesehen haben.*

‘Elisabeth may have seen the movie.’

Present Indicative: *Elisabeth mag den Film gesehen haben.*

Preterite Indicative: *Elisabeth mochte den Film gesehen haben.*

‘Elisabeth might have seen the movie.’

Present Subjunctive: *Heike sagt, Elisabeth möge den Film gesehen haben.*

‘Heike says that Elisabeth may have seen the movie.’

Preterite Subjunctive: *Elisabeth möchte den Film gesehen haben.*

‘Elisabeth would like to have seen the movie.’ (Deontic!)

Epistemic modals also show a smaller paradigmatic variability because of the limited types of verbs that their scope covers; that is, the scope of epistemic modals usually includes a past participle and a helping verb (*to be* and *to have* in English; *haben* ‘to have,’ *sein* ‘to be,’ *werden* ‘to become, will’ in German).⁷ Since the epistemic modals comment on the truth value of the entire proposition and/or link the speaker to the proposition, whereas the deontic modals lexically modify the subject’s relationship with the rest of the proposition, it is safe to say the epistemic modals are more grammaticalized than the deontic modals. Of course, deontic modals are not completely ungrammaticalized, for they most often occur with another verb in a clause, a syntactic constraint that does not apply to full verbs.

⁷See Diwald 2002 for a detailed account of the increasing syntactic restrictions that accompany the grammaticalization of the modal verbs.

1.1. Semantic Change and Metaphor

Like all other types of linguistic change, semantic change often occurs in a systematic fashion. Traugott (1989:34-35), among others, postulates three tendencies of semantic change. The first tendency is for meanings that describe external situations to begin describing internal (i.e., cognitive, evaluative, or perceptual) situations. In OE, for example, *felan* only meant 'to touch,' and it acquired its perceptual sense in the late OE period. Next, meanings that describe internal or external situations may become employed to describe things in the metalinguistic or textual arena. In the 1500s, *observe* merely meant 'to perceive (that),' but by the 1600s it had acquired a new meaning: 'to state that,' a speech-act verb that codes a metalinguistic situation. Finally, meanings can increasingly become based on the speaker's subjective attitude or belief regarding the proposition. The epistemic modal verbs fall into this category.

But what exactly motivates such semantic alternations? The aforementioned changes involve meaning passing from the concrete, tangible realm to the world of the abstract. And since much of human thought is abstract, metaphors are employed so the abstract and intangible can be described in terms of the concrete and tangible (Sweetser 1990). With regard to the modal verbs, the meanings of the concrete (i.e., deontic) modals carry over to the world of the abstract--the epistemic, the world of speaker-knowledge--via metaphors of force dynamics (Sweetser 1988:396-398, 1990:50ff.). In (3), for example, some external force imposes the modality of obligation/necessity onto the subject: *Elisabeth must visit her grandmother this weekend* implies that someone or something compels Elisabeth to visit her grandmother. In (9), such compulsion metaphorically appears as logic driving the speaker to a *necessary* conclusion. *Elisabeth must be sick* can be paraphrased as 'Based on the evidence at hand, I am driven to the logical (necessary) conclusion that Elisabeth is sick.' Real-world necessity or obligation appears

as logical necessity in the epistemic world (Sweetser 1990:52-53). The emergence of such a metaphor is in line with Traugott's postulation of semantic change, for here a meaning grounded in the concrete, real world transfers (via metaphor) over to the epistemic domain, the realm of subjective speaker knowledge. Such change goes hand-in-hand with grammaticalization because the emergent forms do not contribute to the meaning of the proposition (i.e., serve a lexical function), but rather comment on the relationship between the proposition and textual, metalinguistic, or logical factors. Their deictic function marks them as grammatical(ized) items.

The beginnings of such change can be seen, albeit in varying degrees, in the evolution of the English and German modal verb systems, which began with the split-off of the Preterite-Presents from Proto-Germanic into the Germanic dialects. Traugott (1989:43) provides us with a cline that shows the general syntactic-semantic direction the modal verbs have taken:

- (25) Main Verb > Pre-Modal > Deontic > Weak Epistemic/Habitual/Prophetic/Relative
Future > Strong Epistemic

This cline is not without its problems because it fails to show that multiple meanings can peacefully coexist at a single point in time. In ModE and NHG, for example, we find deontic modals polysemous with epistemic modals. That said, this cline still shows the direction of semantic change the modal verbs have taken throughout the ages.

1.2. Scope and Method

Although much scholarship on the semantics and/or history of the modal verbs exists, a comparative study of the semantic development of the modal verbs in English and German within the framework of grammaticalization has yet to be conducted. Diwald's study of the semantic development of the German modal verbs (1999b) is no doubt the most exhaustive study conducted to date; however, as already mentioned, her study focuses solely on the German

modals. Visser (1963-1973), in his historical treatment of English syntax, offers a detailed account of the development of the English modals. Even so, he never addresses the issue of grammaticalization. Others (Plank 1984; Aijmer 1985; Warner 1987; Traugott 1989) have conducted smaller-scale studies of the development of modals in English. In addition, the scholarship that attempts to explain the current system of modality in English or German with little or no attention paid to grammaticalization falls short of adequately explaining current disparities within the system of modal verbs in these languages (see Calbert 1975 and Palmer 1987). Even some who claim to analyze the modal verbs within the framework of grammaticalization err in their analysis because of little or no actual historical investigation. Langacker (1990:27), for example, goes so far as to say that, because the German modals can still occur as infinitives and possess inflectional endings in conjugation (whereas English modals cannot or do not), these modals are actually main verbs! A comparative study that begins at a common starting point (i.e., Proto-Germanic) would show that, although English modals may be more grammaticalized than German modals, it is quite an overstatement to claim that the latter are categorically main verbs (even when they appear to be so, i.e., when no other verb occurs in the same clause). Much work in linguistics has focused on comparing English and German, two widely-spoken and closely related West Germanic languages. However, no one has conducted a comparative study of the development of the modal verb systems in both languages. Such a study is indeed long overdue.

All of the modal verbs, with the exception of *will/wollen*, have evolved out of the small class of Proto-Germanic Preterite-Present Verbs (Meid 1983; Birkmann 1987; Diwald 1999b:302ff.). *Will/wollen* is unique in being an original optative verb that assumed indicative meaning (Hennings 2001:114-116). The Preterite-Presents are derived from Indo-European

perfect forms, and they were employed as stative verbs (subject-oriented verbs rather than eventive verbs, i.e., verbs that indicate a condition or state of the subject rather than describe some sort of action). Although it is commonly believed that the Preterite-Presents are verbs which lost an original present form and consequently adopted the preterite form for present meaning, thereby necessitating a second preterite form, it has been shown that this was not the case: ‘Die Aussage ist also völlig falsch, bei den Prät.präs. sei ein ursprüngliches Präs. verlorengegangen; allenfalls kann man konstatieren, dass zu den Prät.präs. ein ursprüngliches Handlungspräsens (wie im Präs. der starken Verben) nicht belegt ist, und die Verschiebung Perf. (Zustand) > Tempus (Vergangenheit) ausgeblieben ist’ (Birkmann 1987:64). That is, there was never semantically a present form--at least not in the sense of the strong (eventive) verbs--to begin with. The Proto-Germanic root forms of the relevant Preterite-Presents are: **aigan* ‘to possess, own’ for *ought* and *eigan*,⁸ **kunnan* ‘to know, recognize, understand’ for *can* and *können*, **magan/mugan* ‘to be able to’ for *may* and *mögen*, **motan* ‘to consider (for oneself)’ for *must* and *müssen*, **skulan* ‘to owe’ for *shall* and *sollen*, and **þurþan* ‘to take pleasure in, enjoy, fulfill (oneself)’ for *dürfen* and *þurfan*.⁹ The root forms of *will* and *wollen* is **waljan/weljan* ‘to wish, want, intend’ (Hennings 2001:114-116).

Naturally, these verbs have undergone many changes since Proto-Germanic times, and I will focus on the semantic developments that have occurred in English and German within the framework of grammaticalization and metaphor. I will survey the semantics of Proto-Germanic Preterite-Presents and then trace their development through all periods of the English and

⁸The OHG *eigan* never developed into a modal verb. Instead, it maintained its lexical meaning of ownership and still can be seen in German today (e.g., *Eigentum* ‘property,’ *aneignen* ‘to appropriate,’ etc.). See 8.4 for a discussion of *eigan*’s development.

⁹The English *þurfan* ‘to need’ died out towards the end of the Middle English period.

German languages. Semantic differences (thanks to grammaticalization) are already apparent in the Old English (ca. 700-1100) and Old High German (750-1050) periods (Traugott 1989; Diewald 1999b), even though the (pre)modals are not nearly as grammaticalized as their modern counterparts. Then, I will further follow their semantic development through the Middle English (1100-1500) and Middle High German (1050-1350) periods. Finally, I will conclude by (re)evaluating the use of modal verbs in Modern English (1500-Present) and New High German (1350-Present), paying special attention to the effects of grammaticalization, as well as changes that may have occurred during the Early Modern period. The effects of grammaticalization and metaphor, as well as the emergence of “true” modal verbs can be seen in all periods of the language, with the degree of grammaticalization steadily increasing in the course of time (Traugott 1989; Diewald 1999b).

My study is a combination of the methods of comparative-historical linguistics, grammaticalization theory, semantic theory, and corpus linguistics. I will compare the development of the English and German modal verbs using the framework provided by grammaticalization, specifically the notion of metaphorical extension (Lehmann 1985; Traugott 1988; Sweetser 1990; Hopper and Traugott 1993). I will focus on the semantic (and, to a lesser extent, syntactic and pragmatic) implications of the changes in the modal verb systems using up-to-date scholarship to measure and analyze the changes (Traugott 1989; Grice 1990; Sweetser 1990; Diewald 1999b and 2002). Finally, I will draw on large- and small-scale corpus studies that have been conducted on various periods of the English and German languages for data (Visser 1963-1973; Coates 1983; Aijmer 1985; Goossens 1987; Kytö 1987; Traugott 1989; Diewald 1999b; Mortelmans 2000; Van Herreweghe 2000).

2. *Can* and *können*

In Proto-Germanic, **kunnan* meant ‘to know, recognize, understand,’ and it originally involved only mental ability. As a stative verb, it probably meant something like ‘I have recognized and know’ (Birkmann 1987:70).

2.1. Old English

The Proto-Germanic stative meaning of **kunnan* is pretty well preserved with OE *cunnan*, which also means ‘can, know how to’ (Mitchell & Robinson 2001:52):

- (26) Beowulf 359: *Cuþe he duguðe þeaw* (Visser 1963:498).

‘He knows the practice of seasoned men.’

- (27) Christ & Satan 626: *Astigað nu, awyrgde, in þæt witehus ofostum miclum. Nu ic eow ne con* (Visser 1963:499).

‘Proceed now, cursed, into that house of torture with great haste. Now I know you not.’

Here, *cunnan* takes a direct object and does not appear with any other verb in the clause.

Although the semantics may have changed a bit since Proto-Germanic times, *cunnan* still functions here as a main verb with stative meaning.

A deontic meaning can be found when an infinitive complement appears with *cunnan*:

- (28) Ælfred, Solil. 165, 21: . . . *þæt ic þe cunne rihte & gescæadlice biddan* (Visser 1969:1734).

‘. . . that I know rightly and reasonably to ask thee.’

Cunnan has drifted away from its Proto-Germanic roots because it takes an infinitive complement; it has entered the deontic realm because the notions of knowledge and ability are now associated with another action altogether. Diwald (1999b:307-308) has noted that the taking of an infinitive complement is one of the first steps in grammaticalization. One more thing worth mentioning is that although *cunnan* generally signified mental ability (physical ability was left to *magan*, see 3.1), there are instances that are ambiguous and show *cunnan* possibly describing physical ability as well:

- (29) Ælfric, Colloq. (ed. Garmonsway) 61: *Ne canst þu huntian buton mid nettum?*
(Visser 1969:1734).

‘Do you not know how to hunt without nets?’

Canst could also be interpreted here in the ModE sense, that is, an alternate reading could be ‘Can you hunt without nets?’ Instead of focusing on the internal knowledge of the hunter, the alternative reading shifts the focus a bit more towards external ability (i.e., hunting). Although this interpretation is not mandatory (and may not have even been intended), it shows that the semantic confusion that exists between ModE *can* and *may* was already beginning to surface. No epistemic readings of *cunnan* are attested in OE.

2.2. Middle English

Unlike OE *cunnan*, which could only signify mental ability, ME *can* could readily be used to denote physical ability (Markus 1990:184):

- (30) Chaucer, C.T. C 438: *Lewed people louen tales olde; Swiche thynges kan they wel reporte and holde* (Visser 1969:1735).

‘Unlearned people love old tales; they can report and hold such things well.’

- (31) Prose tr. Vegetius De Re Militari 108 b: *Loke þou haue kene houndes þat konne wel berke & byte and smelle enemyes & straungers* (Visser 1969:1735).

‘Look that you have keen dogs that can bark well and bite and smell enemies and strangers.’

In addition to this deontic meaning, another sense of *can* emerged during the ME period, whereby the subject is permitted or enabled to perform some sort of action:

- (32) Arthur and Merlin (Kölbing) 1049: *For al þat euer kanestow do, Schaltow it never bring þer to* (Visser 1969:1739).

‘For all that you can ever do, you must never bring it to there.’

Although this emergence only attests an additional deontic meaning, it nonetheless shows one more step in semantic change, i.e., grammaticalization. After all, a meaning coupled to the metalinguistic situation emerges originally from a subject-centered meaning: the ability of the subject to perform the action arises not only from mental or physical capacity, but also from some other source (Bybee and Pagliuca 1985:68).

Finally, one more use of *can* in ME, albeit quite rare, deserves attention:

- (33) Gen. & Ex. 3872: *Ic am sonder man, Egipte folc me knowen can* (Visser 1969:1738).

‘I am a different kind of man, Egyptian people can know me.’

This use is what Visser (1969:1738) calls ‘possible contingency,’ and a ModE rendering would be something like ‘the Egyptian people may possibly know me’ or ‘It is possible that the Egyptian people know me.’ Although deontic, this use of *can* has wide scope: the modality of possibility covers the entire proposition, not just the subject. In other words, the metalinguistic

situation permits something to be the case. This more generalized, less specific use shows that *can* is just one step away from the epistemic domain.

2.3. Modern English

Not much has changed with *can*'s meaning since ME times, either in early ModE or in contemporary ModE. *Can* deontically functions as either a signifier of ability ((34) and (35)) or permission ((36) and (37)):

- (34) *They say he came from a trading howse which Plymmouth men haue at Qunnihticut, and can speake much Indian . . .* (Kytö 1987:156).
- (35) LOB 7-1491: *I can only type very slowly as I am quite a beginner* (Coates 1983:88).
- (36) *Mary was told that her fault was greatly agrauate, that she haveing beene tempted once or twice, yt she would neither tell her Master, nor locke ye doore, but he can come a first & a second time, & there's no resistance, but the doore stands open, as if she were a common Harlot* (Kytö 1987:157).
- (37) LOB 1-1563: *You can start the revels now* (Coates 1983:88).

Regarding epistemics, *can* is very rarely read as epistemic outside the scope of negation, wherein it denotes high probability/logical necessity and provides a negative counterpart to epistemic *must* (Coates 1983:101-102):

- (38) *You can't have just given up painting completely, not if you had that kind of talent* (Coates 1983:101).

A negated permission or a lack of someone's ability to perform an action in the deontic world constitutes little (if any) probability that the action will occur; a negated *can* in the epistemic world signifies little chance that a non-negated proposition would be true (conversely, this

negation signifies a high probability that the proposition isn't true). If epistemic *can* occurs outside of negation, it merely denotes possibility, much like in (33):

- (39) George Eliot, *Romola* III, LXVIII: *While we are in our youth, there can always come . . . moments when mere passive existence is itself a Lethe* (Visser 1969:1739).

The epistemic *can* takes its sense of possibility from the lexical use of ability or permission: if someone has the ability or has permission to do something, it is possible for a certain action to occur.

2.4. Old High German

The OHG *kunnan* is much like OE *cunnan* in its meaning, primarily signifying 'to know, understand, can' in relation to mental ability (Schützeichel 1995:186; Diewald 1999b:345-346). But unlike OE *cunnan*, OHG *kunnan* did not enjoy a high frequency of use, at least in written records (Diewald 1999b:345ff.). There are, nonetheless, attestations of pre-modal, stative meaning:

- (40) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) III 16,6f.: *hinterquámmum innan thes thes sines wísduames Joh sinero kúnsti, wio er thio búah konsti* (Diewald 1999b:345).

'They were astonished at his wisdom and knowledge, how he understood the books.'

There are also a few instances of *kunnan* taking an infinitive complement, thereby allowing for deontic meaning:

- (41) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) IV 5,9f.: *Iz mag ouh in wára búrdin dragen suára, mag scádon harto lídan, ni kánn inan bimídan* (Diewald 1999b:345).

‘He (the donkey) can also carry a really heavy load, is able to endure a severe punishment, does not understand to avoid it.’

And much as in OE, the denotation of physical ability was left to *mugan*, although this distinction changed in the course of time. Epistemic *kunnan* is not attested.

2.5. Middle High German

MHG *kunnen/können* pretty much preserves the meaning of OHG *kunnan*, signifying mental (and now physical) ability (Hennings 2001:127). The major change occurring between MHG and OHG is that many MHG attestations allow for wide-scope readings (Diewald 1999b:412ff.), even though they are not epistemic: the modality moves away from the sentential subject to the metalinguistic situation (similar to ME *can* in (33)). Consider:

- (42) Das Nibelungenlied (trans. Bartsch & de Boor), 2295, 3: *er kunde niht genesen* (Diewald 1999b:413).

‘He wasn’t able/in the position to come out [of that] alive.’

- (43) Das Nibelungenlied (trans. Bartsch & de Boor), 1958, 4: *den Kriemhilde degenen kunde leider nicht gesin* (Diewald 1999b:413).

‘Nothing worse could happen to Kriemhild’s knights.’

The alternate, wide-scope readings would be something like ‘It was not possible that he would come out of that alive’ for (42) and ‘It was not possible for something worse to happen to Kriemhild’s knights’ for (43). Although not epistemic, these alternate readings show that the

modality shifts away from the subject to a larger context--circumstances prevent events from happening.

An epistemic reading is the next logical step after the modal verb's scope has been expanded, for the association between a real-world possibility and a speaker-inferred possibility is a metaphorical one, and the latter is occasionally attested in MHG when a helping verb and a past participle appear with the modal verb *kunnen*:¹⁰

- (44) Kindheit Jesu (from Deeg 1948:70) 67,25: *nimmer menschen sin chunde wol errehet hân ez enhet dîn gotheit getan* (Diewald 1999b:414).

‘Human understanding never could have calculated that well, if your godliness had not done it.’

- (45) Von Eschenbach, Parzival (ed. Lachmann) 8, 404,30: *der kunde se baz gelobt hân* (Diewald 1999b:413).

‘He could have praised them better.’

Although the alternate, wide-scope reading of (44) does not render an epistemic meaning (‘It is not possible that human understanding ever has calculated that well . . .’, i.e., circumstances prevent this from happening), the wide-scope reading of (45) attests to the emergence of epistemic meaning in *kunnen*: ‘It is possible for him to have praised them better.’ Rather than focusing on external circumstances, this alternate reading provides us with the speaker’s/writer’s assessment of the situation. This reading is not mandatory, however, so the epistemic use of *kunnen* is still weak in MHD, but it nonetheless exists.

¹⁰The appearance of a modal verb in the helping verb + past participle environment is relevant to the emergence of epistemic meaning only when the modal verb itself is the conjugated element of the construction. If the helping verb is the conjugated element, a deontic reading is always mandated (e.g., *Elisabeth hat das Auto fahren können* ‘Elisabeth could/was able to drive the car.’).

2.6. New High German

In early NHG, *können*'s use drastically increased in frequency, and it has now become one of the most frequently used modal verbs (Diewald 1999b:348). A deontic *können* is readily available both in early NHG (46) and contemporary NHG (47):

- (46) Veit Dietrich, Etliche Schrifften für den gemeinen man (ed. Reichmann) 88,34: *So kannst du gewiß sein das Got vns lieb hat* (Diewald 1999b:349).

‘Thus you can be certain that God loves us.’

- (47) *Kann ich die Tür ein wenig offen lassen?* (Fagan 1996:23).

‘Can/May I leave the door open a bit?’

Occasionally, it can still appear without an infinitive complement with its pre-modal sense of mental ability intact:

- (48) *Elisabeth kann Russisch.*

‘Elisabeth knows Russian.’

And whereas MHG *kunnen* began slightly to take on epistemic possibilities, NHG *können* readily allows an epistemic reading when coupled with a helping verb and past participle:

- (49) Luther-Emser, Streitschriften 117,35 (from Duchâteau 1979:85): *Das kan nu wol geschehen seyn, das sant peter tzu der selben tzeyt von Rom oder Antiocha gen Jerusalem gewandert, uund yn sant Paul ungeferlich do gefunden hab* (Diewald 1999b:414).

‘That may well have happened that St. Peter at the same time traveled from Rome or Antioch to Jerusalem, and there found St. Paul safe.’

- (50) Radio: *Ich kann mich getäuscht haben* (Diewald 1999a:124).

‘I may have been mistaken.’

2.7. Summary

The Preterite-Present sense of **kunnan* ‘to know, recognize, understand’ is well-preserved in OE and OHG, where it signifies primarily mental ability. During this period, however, this sense became associated with the sentential subject’s knowledge or understanding of other actions, thereby beginning its process of grammaticalization into a deontic modal verb. Then, during the ME and MHG periods, *can* and *kunnen* began assuming other meanings (e.g., physical ability, permission) whose scope expanded to include the metalinguistic situation within the modality. Out of this expansion arose the epistemic meaning, whereby speakers metaphorically associated real-world possibilities with their own inferences. Now, ModE and NHG attest fully-developed deontic and epistemic uses of *can* and *können*.

3. *May* and *mögen*

Proto-Germanic **magan/mugan* was quite similar to **kunnan* in its denotation of ability, except that it referred to physical, not mental, capacity (Birkmann 1987:74).

3.1. Old English

Like Proto-Germanic **magan/mugan* and **kunnan*, OE *magan* contrasted with *cunnan* because it, too, described physical ability (Mitchell & Robinson 2001:52):

(51) Beowulf 930: . . . *a mæg god wyrcean wunder æfter wunder* (Visser 1969:1755).

‘. . . forever can God make miracle after miracle.’

(52) Gifts of Men (Ex. Bk., ed. Krapp/Dobbie) 41: *Sum mid hondum mæg hearpan gretan* (Visser 1969:1755).

‘Some can touch the harp with hands.’

Here, *magan* is already in the deontic realm because it modifies the subject’s relationship with the remainder of the proposition. There are, however, some later instances where *magan* appears to be the only verb in the clause with a meaning that is a bit more lexical:

(53) Ælfred, Bede (S.) 474, 36: *Wið ælcum attre magon* (Visser 1963:163).

‘Against each venom to be sufficient.’

(53) could be interpreted deontically because, as the translation implies, it contains a copular value that is not syntactically marked, but is carried by *magan*. This association with another verbal concept (i.e., be-ing) reflects a deontic value. Another deontic function of *magan* was to signify ‘objective possibility, opportunity, or absence of prohibitive conditions’ (Visser 1969:1756):

- (54) Solomon & Saturn (Ags. Minor P., ed. Dobbie) 7: *Ic næfre on eallum þam
fryngewrytum findan ne mihte soðe samnode* (Visser 1969:1758).

‘I never in all the originals was able to find the truth gathered together.’

Rather than focusing solely on the abilities of the subject, the focus here is also on the metalinguistic conditions that prevent the subject from performing the action. Although still in the deontic realm, *magan* no longer focuses solely on the subject, but also on the enabling of the subject.

There are arguably a few instances of epistemic *magan* in OE. Instead of focusing on only the subject’s relationship to the rest of the proposition, the truth value of the entire proposition is brought into question.

- (55) Apollonius of Tyre (ed. P. Goolden) 21.10: *Eaðe mæg gewurðan þat þu wite þat
ic nat, ðu þeþar andweard wære* (Warner 1987:546).

‘It easily may be that you know what I do-not-know, you who were present there.’

Warner (1987:545-546) argues that this is not clearly epistemic, for it is an impersonal construction. And impersonal constructions, claims Diewald (1999b:257), tend to favor non-epistemic readings. Instead, (55) may be similar to (54), insofar as objective possibility or lack of barriers is being indicated. ‘There is nothing barring you from knowing/There is a possibility that you know what I do not know’ would be the alternate, wide-scope deontic paraphrase for (55), while ‘You may know what I do not know’ would be epistemic. As both Warner and Diewald explain, however, a statement such as (55) *could* be epistemic, depending on context. In any case, the simple presence of such ambiguity illustrates that epistemic *magan* is beginning to make its entrance. The metaphorization of real-world abilities or barriers to describe logical

possibilities or barriers characterizes the history of **magan/mugan* (Sweetser 1990:59), and the beginning of this process is attested in OE.

3.2. Middle English

May in ME, when signifying ability, still only includes physical capabilities:

- (56) Gen. & Ex. 1126: *þat water is so deades driuen, Non ðing ne mai ðor-inne liuen* (Visser 1969:1755).

‘That water is so deadly driven, nothing can live therein.’

- (57) þe Pater Noster of Richard Ermyte (ed. Aarts) 14, 39: *Men preue hemself what þei mai don, how fer þei may keste þe stoon, how fer þei may renne* (Visser 1969:1755).

‘Men test themselves as to what they can do, how far they can throw the stone, how far they can run.’

This deontic employment was by far the most common use of *may* in ME. A much rarer deontic value was that of indicating permission. Just as with *can*, the subject is enabled to do something by someone other than himself:

- (58) Vices & V. 73, 25: *Munec mai ut-faren mid ileaue in to hermitorie, oðer in to onnesse te wunien* (Visser 1969:1766).

‘A monk may travel out with leave to the hermitory, or to dwell in solitude.’

- (59) Scrope, Epistle of Othea to Hector (ed. Warner) 111: *He sent to the qwene . . . To wete wheythir he myght swrely taken hauen in her lond or noon* (Visser 1969:1767).

‘He sent to the queen . . . to know whether he might surely take haven in her land or not.’

Another instance where the metalinguistic context, rather than the subject, contributes to deontic modality is the following, which indicates objective possibility (the situation, rather than a person, allows the action to be possible; cf. also (33) and (55) above):

- (60) Cristes Milde Modor (in: Brown, Eng. Lyr. 13th c.) 66: *We ne muwen neuer hebben fulle gledschipe er we . . . kumen to pine heie wurschipe* (Visser 1969:1756).

‘We may never have full joy before we . . . come to your high worship.’

An epistemic use of *may* is attested in ME; however, it first appears in the late ME period and is restricted to use with the verb *to be*:

- (61) Gower, Conf. Am. I, 48: *Ther is manye of yow Faitours, and so may be that thou Art right such on* (Visser 1969:1770).

‘There are many of you imposters, and so it may be that you are right such a one.’

Once again, the similarity between the development of *may* and *can* is apparent: physical or mental ability, as well as permission, signify the possibility of an action being performed. In the epistemic domain, possibility of action has transferred into the possibility of a positive (or negative) truth value.

3.3. Modern English

In early ModE, *may* still signifies physical ability. This use, however, steadily declined after Shakespeare’s time, even though it is attested as late as the nineteenth century (Visser 1969:1754-1756):

- (62) Shakespeare, L.L.L. V, ii, 342: *Construe my speeches better, if you may* (Visser 1969:1756).

- (63) *What shall I do, that what is yet Lacking in the Image of God upon me, may be Perfected? What shall I do, that I may Live more Perfectly, more Watchfully, more Fruitfully before the Glorious Lord?* (Kytö 1987:154).

On the other hand, the use of *may* as an indicator of permission drastically increases in ModE:

- (64) *My service to your self and Mrs. Richardson: To Mr. Woodbrigg, with whome if you see caus you may Comunicatte the busines of this Letter* (Kytö 1987:156).
- (65) *A court within its discretion may impose a judicial beating for a second offence or over* (Coates 1983:140).

In ModE, we therefore find that both *can* and *may* are used to signify permission:

- (66) *Can I have my money back?*
- (67) *May I have my money back?*

Both Coates (1983:103) and Kytö (1987:108) have shown that these uses are dependent on the context in which the discourse occurs: *can* (and *could*) are marked for informal and colloquial settings, whereas *may* (and *might*) are marked for formal and literary situations.

The epistemic use of *may* indicating possibility flourishes in ModE, and it is one of the only uses where it occurs more frequently than (epistemic) *can*:

- (68) *I may have put them [keys] down on the table—they're not in the door* (Coates 1983:133).
- (69) *They may or may not come and connect the television on Saturday* (Coates 1983:134).

This is also another use of *may* in ModE, which is neither deontic nor epistemic. The concessive use of *may*, which relates to the conversational world, is used when speakers are willing to concede some aspect of what is being said without committing to the entire utterance:

- (70) LOB 6-171: *A much better solution exists in the scheme drawn up by the London County Council's architects. It may not be perfect, but at least it has some of the qualities . . . that one looks for in a modern city center* (Coates 1983:135).

Sweetser (1990:71) aptly summarizes the metaphorical nature of this use: “. . . *may* does not indicate the absence of a real (content)-world barrier, nor of an epistemic barrier, but rather the absence of a barrier in the *conversational* world. The interlocutor is being *allowed* by the speaker to treat a certain statement as appropriate or reasonable, or to present an offer.” Because this use of *may* conveys no lexical information and deictically relates speakers to propositions, it is nonetheless more similar to epistemic modality because of its high degree of grammaticalization.

3.4. Old High German

In OHG, *mugan/magan* was the highest frequency modal verb, and it could signify a broad range of meaning: ‘can, may, must, to like’ (Schützeichel 1995:215; Diewald 1999b:309). Just like its OE counterpart *magan*, it could deontically express physical ability:

- (71) Tatian (ed. Sievers) 2,9: *Inti nu uuirdist thû suîgênti inti ni maht sprehhan unzan then tag, in themo thisu uuerdent* (Diewald 1999b:310).

‘And now you will be silenced and cannot speak until the day in which these things happen.’

- (72) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) III 20,86: *thaz ér no mag giscówon so lúteren óugon* (Axel 2001:47).

‘. . . that he can now see with such clear eyes.’

Mugan could also signify permission or obligation imposed on the subject:

- (73) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) I 18,11: *Wir éigun iz firlázan; thaz mugan wir ío riazan* (Diewald 1999b:311).

‘We have lost it (Paradise); we always have cause to/must cry over that.’

Much as with English *may*, the subject’s ability to perform an action is coupled with an external circumstance that allows (or in the case of (73), dictates) the action to be performed. The notion of physical ability also broadened to include physical desire, and *mugan* therefore began to slowly acquire its sense of affinity and volition:

- (74) Tatian (ed. Sievers) 82,11: *Managê gihôrentê fon sînên iungirôn quâdun: hart ist thiz uuort, uuer mag thaz gihôren* (Diewald 1999b:316).

‘Many of his followers who heard that said: this speech is hard, who can/wants to/likes to hear it?’

Interestingly, this use--which is assumed to have evolved out of the designation of physical ability--occasionally appears without an infinitive complement (i.e., it moves out of the deontic realm back to the domain of a main verb/pre-modal):¹¹

- (75) Notker II, 599, 5ff: *Der stárchemo féhe gíbet sîne fûora. Er uuêiz die starchen die das heuue múgen* (Diewald 1999b:316).

‘The one who gives the strong cattle its nourishment. He knows the strong ones who like hay.’

Here, *mugan*’s sense of personal desire/affinity is linked to a direct object and means ‘to like.’

This use increases in frequency throughout MHG and NHG.

¹¹If this is indeed the case, it is a rare example of the workings of grammaticalization being reversed. Items usually move from less grammaticalized (e.g., stative preterite-presents) to more grammaticalized (e.g., deontic, and later, epistemic modals), although the opposite is known to happen. See Hopper and Traugott 1993:94ff. for an in-depth discussion of the hypothesis of unidirectionality.

Epistemic *mugan* is not attested; however, instances allowing for wide-scope readings of possibility exist:

- (76) Tatian (ed. Sievers) 21,5: *ni mág ther man iouuiht intphâhén, noba imo íz gígeban uuerde fon himile* (Diewald 1999b:386).

‘Man cannot/is not able/is not in the position to receive something if it is not given to him by heaven.’

The wide-scope reading here would render ‘It is not possible that man receives something not given to him by heaven.’ Sometimes nonliving subjects occur with *mugan*, and the wide-scope reading becomes mandatory:

- (77) Tatian (ed. Sievers) 3,6: *Quad thô Maria zi themo engile: vvuo mag thaz sîn?* (Diewald 1999b:387).

‘Then said Mary to the angel: ‘how can that be?’”

- (78) Tatian (ed. Sievers) 17,3: *Thô quad imo Nathanahêl: fón Nazarêth mág sihuuaz guotes uuesen?* (Diewald 1999b:387).

‘Then Nathaniel said to him: ‘Can anything good come from/be of Nazareth?’”

Not only has physical or circumstantial possibility been expanded beyond the subject (narrow scope), it has now been unambiguously applied to nonliving subjects, thereby allowing for more abstract, grammaticalized uses to emerge.

3.5. Middle High German

The MHG *mugen/mügen/magen/megen*, like OHG *mugan/magan*, referred to physical ability (Hennings 2001:128), as well as personal affinity (Diewald 1999b:315, 319). An infinitive complement was often absent:

- (79) Reinecke Fuchs 823, from DWB 12,2463: *machstu solke spîse nicht?* (Diewald 1999b:315)

‘Don’t you like such dishes?’

The preterite subjunctive *möchte* increasingly moves away from signaling ability (disposition) towards indicating volition, a function that steadily increases in use:

- (80) Das Nibelungenlied (trans. Bartsch & de Boor) 2112,2: *wir möhten michel gerner sîn in sturme tôt* (Diewald 1999b:318).

‘We would much rather have fallen in battle.’

- (81) Von Eschenbach, Parzival (ed. Lachmann) I,2,5ff.: *ouch erkante ich nie sô wîsen man, / ern möchte gerne künde hân / welher stiure disiu mære gernt* (Diewald 1999b:319).

‘And yet: I don’t know any wise man who would not gladly know which contribution spices up these tales.’

Although the sense of volition is weak or indirect, it nonetheless has emerged from a verb originally referring to physical ability. This progression is the next natural step from personal liking: one yearns for what one likes.

There are also instances where *mugan* requires a wide-scope reading because it takes a nonliving subject:

- (82) Das Nibelungenlied (trans. Bartsch & de Boor) 1528, 1f.: “*Leide*”, *sô sprach Hagene*, “*mac dir wol hie geschehen, voget von dem Rîne*” (Diewald 1999b:389).

“Suffering,” so said Hagen, “can happen to you here, Steward of the Rhine.”

The most interesting development regarding wide-scope readings is that *mugan*--usually in its preterite form--begins to be used in clauses with a helping verb and a past participle (Diewald 1999b:389-390):

- (83) Morungen, MF S. 269, 3,3f.: *dâ mehte ichs ir minne wol mit fuoge hân gepfant*
(Diewald 1999b:390).

‘... there I could have secured her love with my propriety.’

- (84) Vorauer Sündenklage 823, from Deeg 1948:70: *wie mohte wir daz verdienet haben, daz du dich lieze an slahen?* (Diewald 1999b:390).

‘How could we have deserved that you let yourself be attacked?’

There are a very few instances where an epistemic reading may be possible, but it is certainly not the only option:

- (85) Das Nibelungenlied (trans. Bartsch & de Boor) 1928, 1: *Man mac si morgen mehelen einem andern man* (Diewald 2002:107).

‘One is able/has the opportunity to marry her to another man tomorrow.’

The epistemic reading here would be ‘One may [perhaps] marry her to another man tomorrow,’ but again, this reading is a choice among several. There is also a wide-scope reading here: ‘It is possible/there is an opportunity that one will marry her to another man tomorrow.’ Although an epistemic reading is not the only option, the addition of the helping verb and past participle signal that epistemic meaning is about to enter the picture because they associate present modality with past time, something now only possible with epistemics (Diewald 2002:109-114; see also Fagan 1996). There is also a rare instance of the concessive *mugen*, occurring only in subordinate clauses, that falls into the epistemic realm:

- (86) Das Nibelungenlied (trans. Bartsch & de Boor) 1415, 1ff.: *Unde swaz ir mîner vriunde immer muget gesehen / ze Wormez bî dem Rîne, den sult ir niht verjehen . . .* (Diewald 1999b:394).

‘If you may see my relatives in Worms on the Rhine, you should not say . . .’

The concessive aspect here is that the speaker is acknowledging that the audience may indeed see his relatives, but if they do, they are to tell them nothing.

3.6. New High German

NHG *mögen*’s use decreased sharply during the early NHG period because of *können*’s increasing flexibility to indicate mental *and* physical ability (Peilicke 1997:214). The sense of physical ability is nonetheless still attested in early NHG:

- (87) Vehe Errettung 1535 GIIa: *Der Dichter meint auch ehr habe uns schon im garn / das wir nicht mögen entrinnen / da ehr spricht / vnser Pfaffen / wollen sie mit dem Sacrament thun wie Christus im abentmal gethan . . .* (Peilicke 1997:220).

‘The poet thinks he already has us in his web from which we cannot/are not able to get out. That’s how the cleric spoke. They want to take the Sacrament just like Christ did at the Last Supper.’

The use of *möchte* to indicate volition, on the other hand, increased during the early NHG period (Peilicke 1997:239):

- (88) Christian Weise, Die drei ärgsten Erznarren in der ganzen Welt, 1672, from Klarén 1913:35: *mit diesem frauenzimmer möchte ich selbst brieffe wechseln* (Diewald 1999b:320).

‘I myself would like to exchange letters with this wench.’

- (89) Goethe 2, 280, from DWB 12, 2463: *der teufel hol das menschengeschlecht! / man möchte rasend werden!* (Diewald 1999b:320).

‘The devil tries to capture mankind! One would like to become furious!’

For *mögen* to deontically signify affinity, it now is restricted to negative environments (Diewald 1999b:228):

- (90) Spiegel (no. 11, 11, March 1996) 222: *Andrea Nasser, die das Lotus-Marketing für Zentraleuropa leitet, mag über diese Art von Sicherheitsfragen nicht diskutieren* (Diewald 1999b:288).

‘Andrea Nasser, who leads the Lotus Marketing for Central Europe, does not like to discuss this manner of security questions.’

It is free, however, to occur outside of negation when it occurs as a stative verb and takes a direct object:

- (91) *Elisabeth mag Kaiserschmarren.*

‘Elisabeth likes Kaiserschmarren.’

Mögen could occasionally still signify deontic possibility when it occurred with a helping verb and past participle in early NHG, but this is no longer possible. This environment now demands an epistemic reading of possibility:

- (92) Cochlaeus 22, 17, from Duchâteau 1979:68: *Herr Doktor, es mag der Huß auß forcht also geredt haben* (Diewald 1999b:390).

‘Mister Doctor, the cough may therefore have spoken out in fear.’

- (93) *Er mag damit glücklich sein* (Diewald 1999b:289).

‘He may be happy with that.’

The concessive use of *mögen* has also increased in NHG. It is now no longer restricted to subordinate clauses, and this is the one use where *mögen* enjoys a primary position (rather than *können* or the subjunctive *möchte*):

- (94) Weise Erznarren 188, from Klarén 1913:32: *Der gute mensch mag seine lateinische autores wohl gelesen haben* (Diewald 1999b:395).

‘The good person may well have read his Latin authors.’

- (95) Spiegel (no. 11, 11, March 1996) 29: *Die Leute mögen das so empfinden, richtig ist es dennoch nicht* (Diewald 1999a:127).

‘People may feel that way; it is not right, though.’

One more issue deserves attention here: the paradigmatic restrictions surrounding *möchte*. On the one hand, *möchte* is the only form of *mögen* in contemporary NHG capable of expressing volition; on the other hand, it is the only form of *mögen* incapable of signifying epistemic possibility or concession. These restrictions make perfect sense when one considers the semantic nature of *möchte* and how it contrasts with *mögen*. The sense of volition found in *möchte* is due no doubt to the irreal nature of the preterite subjunctive (see Diewald 1999a:122-124, 126-127), which indicates that the speaker regards the truth value of a certain proposition as contrary-to-fact or unfulfilled. Therefore, *möchte* indicates that there is an absence of something someone likes to have or do; and since they do not have or are not doing what they like, they would like what they lack. On the other hand, the epistemic uses of *mögen* indicate that a proposition may indeed be true, even if the speaker does not necessarily agree with or like what the truth is. But it is exactly the preterite subjunctive that lacks this truth value, so it is semantically impossible to extract epistemic readings from *möchte*.

3.7. Summary

OE *mugan* primarily indicated physical ability. While OHG *mugan* shared this function, it had a much wider semantic range: it could also indicate permission, volition, and affinity. These other uses, with the exception of ‘to like,’ became more common with ME *may*, and they continued to be frequent with MHG *mugen*. In addition, epistemic readings of possibility and concession entered the scene due in part to increasing use of nonliving subjects and sentential environment (the presence of helping verbs and past participles). In ModE and NHG, *can* and *können* primarily indicate ability (both mental and physical), and *may* now only signifies permission (in formal contexts in ModE) and epistemic possibility and concession. NHG *mögen* can also indicate affinity, and its preterite subjunctive form, *möchte*, is used to express volition. Similar to *can* and *können*, the changes undergone by *may* and *mögen* result primarily from cognitive associations of real-world barriers with barriers of factual probability (or lack thereof).

4. *Must* and *müssen*

Birkmann (1987:84) postulates an interesting semantic development for the Proto-Germanic **motan*: originally, **motan* meant ‘to measure, estimate,’ then broadened to ‘to consider, evaluate,’ then--as a stative verb--took on an even more subject-oriented meaning like ‘I have estimated for myself’ or ‘to me is certain.’ Then, ‘I have intent on doing (something),’ and by focusing on the aspect of no barriers preventing an action, assumed an ‘I have space to do (something)’ sense, which conveyed the sense of being allowed to do something. After all, if no one prevents an action from being done, the subject/agent ‘has room’ (is allowed, has permission, etc.) to perform the action.

4.1. Old English

OE **motan* signified mainly permission (Mitchell & Robinson 2001:114), but implications of obligation/necessity are also attested.¹² Attestations of **motan* indicating permission are not in short supply:

- (96) Genesis 2252: . . . *þæt Agar sceal ongielðan, gif ic mot for þe mine wealdan, Abraham leofa* (Visser 1969:1791).

‘. . . that Hagar has to suffer, if I am to have authority over mine for thee, dear Abraham.’

- (97) Christ & Satan (ed. Krapp) 294: *Beorhte scinað gesaðige sawle, sorgum bedædde, þær heo æfre forð wunian moten cestre and cynestol* (Visser 1969:1791).

¹²OE **motan* is preceded by an asterisk because an infinitive form is not attested.

‘Bright shine the blessed souls, of sorrows deprived, where they may forever forth
dwell in cities and a kingly throne.’

Although there may not seem to be a difference as to whether **motan* or *magan* is used to grant permission, Goossens (1987:218) points out that, while *magan* deals primarily with permission related to something internal to the subject (i.e., something the subject is able to do), **motan* focuses more on the subject being able to do something related to external circumstances. In (96), the case is a bit different because God falls within the scope of the modality. Since no one can grant God permission to do something, the Proto-Germanic sense to ‘to have room’ appears here (i.e., Hagar must suffer so God ‘has room’ (trans. ‘is to’) to have authority over Abraham and his descendants). Like the other modal verbs, the deontic meaning is fully developed in OE.

ModE *must* implies necessity or obligation on the part of the subject, and OE **motan* could also be used to convey this. Exactly how **motan* shifted its sense of permission to that of necessity or obligation is not totally clear, but Visser (1969:1797) believes that perhaps the sense of being allowed to do something came to imply a sense of necessity or obligation to perform the action in question. In other words, if one was allowed to perform the action, then ‘under certain conditions . . . [**motan* was] apprehended as imposing a kind of task . . .’ If the subject is in the position to do something, they may indeed have to do it in some cases. Similarly, if surrounding conditions allow an event to occur, then the sense of these conditions obligating action to be taken could be construed (Diewald 1999b:340-342). In addition, the fact that both meanings relate external conditions to the subject conduces such a semantic shift. This meaning was still peripheral in OE (Van Herreweghe 2000:211), but it existed nonetheless:

- (98) Ancient Laws (Thorpe) i, 348, 25: *Gif man eard wille rihtlice clansian, þonne
mot man spyrian hwar þa manfullan wununge habbaþ* (Visser 1969:1797).

‘If one wants correctly to cleanse his homeland, then one must search out where the wicked have their dwellings.’

- (99) Beowulf 2886-2890: . . . *londrihtes mot / þære mægburge monna æghwylc / idel hweorfan, syððan æðelingas / feorran gefricgean fleam eowerne, / domleasan dæd* (Van Herreweghe 2000:220-221).

‘Each and every person in the nation must wander about devoid of his land-right, once princes from afar learn of your flight and inglorious deed.’

And it is no doubt out of this sense of obligation that the epistemic meaning arose. However, epistemic use of **motan* is not attested until the ME period (see 4.2).

4.2. Middle English

ME *mote* is still capable of signifying permission (Markus 1990:184-185), but this use gradually gives way to *may* during the ME period (Visser 1969:1791):

- (100) Liflade St. Juliene (ed. D’Ardenne) 25, 244: *lef me þt ich mote þe treowliche luuien* (Visser 1969:1792).

‘Allow me that I may truly love thee.’

- (101) Gower, Conf. Am. I, 6: *God grante I mot it wel achieve* (Visser 1969:1792).

‘God grant that I may achieve it well.’

- (102) The Chastising of God’s Children (ed. Bazire/Colledge) 186, 17: *desiryng . . . þat it mote be turned and spendid to his worship* (Visser 1969:1795).

‘Desiring . . . that it could be turned and spent for his worship.’

The use of *mote* to indicate obligation or necessity, however, increased during the ME period.

This use could also be applied to nonliving subjects (see (104)), thereby allowing for wide-scope, deontic readings:

- (103) Soþe Luue (Morris, O. E. Misc.) 92: *Wraððe and hatynge . . . We mote for-sake*
(Visser 1969:1798).

‘Wrath and hating . . . we must forsake.’

- (104) Rom. Rose 3777: *The see may never be so stille . . . Aftir the calm, the trouble sone mot folowe* (Visser 1969:1798).

‘The sea may never be so still . . . after the calm, the trouble soon must follow.’

- (105) St. Mary Oign. (in: Prosalegenden, ed. Horstmann) 144, 38: *He was coact & moste do what so-euere she enioyned hym* (Visser 1969:1801).

‘He was coerced and had to do whatever she commanded him (to do).’

Moste, the preterite form of *mote* (as in (105)), increasingly became used to indicate present obligation during the ME period, and Visser (1969:1805) ascribes this to two possibilities: one, this use arose from the literary use “the modal preterite . . . [the] preterite of imagination” to indicate present obligation; two, Scandinavian influence, which is not unknown to English, could have also played a role, for Swedish *måste* can be used to indicate both present and preterite meaning.¹³ The change could of course have been a combination of these factors. Whatever the reason, the preterite form took over and eventually became the sole form of **motan* used in ModE. A present reading of the preterite *moste*, however, is already attested in ME:

- (106) Malory, Wks. (Vinaver) 1215, 24: *He chargith me with a grete charge . . . I muste nedys deffende me* (Visser 1969:1805).

‘He charges me with a great charge . . . I must of necessity defend myself.’

¹³Visser’s example from Swedish is somewhat peculiar, for Danish historically exhibits a greater influence on English than Swedish. And in Danish, an <s> is absent from all forms of *must*: *måtte* (infinitive and preterite) and *må* (present).

Epistemic *mote*, although infrequent, begins to emerge during the late ME period. A weak epistemic use--in this case, an indication of ‘fixed or certain futurity’ (Visser 1969:1806)--is attested:

- (107) Earl Rivers, *The Cordyal* (ed. Mulders) 112, 17: *The playsirs passe lightly away, and the paynes must remaygne euerlestingly* (Visser 1969:1806).

‘The pleasures pass lightly away, and the pains must remain everlastingly.’

A strong epistemic reading, where *moot* indicates a high probability or near certainty, is much rarer and is only possible when the adverb *needs* also appears in the clause (Visser 1969:1810; Traugott 1989:42):

- (108) Usk, *Testament of Love* (Skeat) 109, 90: *He that doth good and doth nat goodly . . . must nedes be badde* (Visser 1969:1810).

‘He who does good for the wrong reason . . . must necessarily be bad.’

Both of these uses no doubt evolve from the deontic obligation/necessity reading of *mote*. In the deontic world, someone or something compels an action to occur; in the epistemic world, logical necessity drives the speaker (or writer) to arrive at a certain conclusion with near certainty (see Sweetser 1990:58-65). With the weak epistemic reading, a high probability that the event will continue into the future is concluded. Likewise, the strong epistemic reading results from the speaker’s inclination that there is a high probability that *p* (proposition) is true.

4.3. Modern English

Must’s deontic sense of permission died out in early ModE, even though a few attestations remain:

- (109) Spenser, *F. Q.* Vi, viii, 46: *Now mote ye understand that . . .* (Visser 1969:1792).
(‘Now you may/are allowed to understand that.’)

ModE *must* has primarily become an indication of obligation or necessity:

- (110) Spenser, Shep. Calendar vii, 154: *But shepheard mought be meeke and mylde, Well eyed, as Argus was* (Visser 1969:1798).
- (111) LOB 1-G332: *'You must play this ten times over,' Miss Jarrova would say, pointing with relentless fingers to a jumble of crotchets and quavers* (Coates 1983:31).
- (112) LOB Corp. 1-403: *Clay pots . . . must have some protection from severe weather* (Coates 1983:31).

The weak epistemic *must* is still used (albeit infrequently) in ModE, and it can be difficult to distinguish from the deontic use:

- (113) Lady Mary Wortley Montagu, Letter 1 October, 3: *If I should undertake to tell you all the particulars . . . I must write a whole quire of the dullest stuff that ever was read* (Visser 1969:1806).
- (114) Fr. Swinnerton, Nocturne III, Ch. XII, VI: *What must be, must be* (Visser 1969:1807).

The strong epistemic *must*, on the other hand, flourishes in ModE, and its use has drastically increased since ME times:

- (115) Smollett, Peregr. Pickle II, I: *My lady duchess concluded that she must be a creature void of all feeling and reflection* (Visser 1969:1810).
- (116) *That place must make quite a profit for it was packed out and has been all week* (Coates 1983:31).

One notable event in the rise of strong epistemic *must* in ModE, which seems to occur with all the modal verbs, is the increasing frequency with which the modal verb is coupled with a helping

verb and a past participle (Visser 1969:1811). When *must* occurs in this environment, an epistemic reading is mandatory:

(117) Goldsmith, *Citizen of the World* LXXXI: *This must have been a sad shock to the poor disconsolate parent* (Visser 1969:1811).

(118) *She must have been such a pain in the neck to her Mum and vice versa* (Coates 1983:44).

4.4. Old High German

OHG **muozan* could signify a broad range of semantic categories like ability, permission, obligation, and necessity (Schützeichel 1995:217; Diewald 1999b:336).¹⁴ It never occurred alone in a clause, but rather always took an infinitive complement. One of its most common meanings was ‘to have space (to do something),’ and the sense of physical room signified ability or possibility. After all, if someone has room to do something, there is nothing barring them from completing the action. Sometimes, **muozan* can literally be translated ‘to have space,’ with the modal meaning remaining intact:

(119) Otfrids *Evangelienbuch* (ed. Erdmann, 6th ed.) IV 5,13f.: *Joh wárun wir gespánnan, mit séru bifángen, / mit úbilu gibúntan, ni múasun unser wáltan* (Diewald 1999b:335).

‘We were also confined, surrounded by suffering, bound by evil, we had no room/possibility to prevail over ourselves.’

(120) Otfrids *Evangelienbuch* (ed. Erdmann, 6th ed.) V 14,17f: *Thia zessa drát ih unter fúaz, si furdir dáron mir ni múaz, / joh stán nu mit gilústi in éwinigeru fésti!* (Diewald 1999b:336).

¹⁴As with OE **motan*, an infinitive form of OHG **muozan* is not attested.

‘I stepped on the flood, from now on it has no room/is not able to hurt me, and now I stand forever with joy on eternal solid ground.’

A more abstract sense of **muozan* is attested, whereby a sense of permission is indicated:

- (121) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) III 9,9f.: *Sie wúnsgtun, muasin rínan thoh sinan trádon einan / in sínen giwátin; thaz méra sie ni bátin* (Diewald 1999b:337).

‘They wished that they could touch even his hem alone on his garment; they wouldn’t ask for more.’

- (122) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) V 7,37f.: *Joh, so íh iu hiar nu zéllu, wárd mir wé mit mínnu, / theih sino líubi in mih gilíaz, ob ih sia níazan ni muaz!* (Diewald 1999b:337).

‘And as I tell you here now, suffering through love happened to me, that I let his love into me, even though I may not enjoy it!’

And just as in OE, the senses of permission/possibility/ability gave rise to the employment of **muozan* to indicate obligation or necessity, even though this use was less frequent in OHG than it is today:

- (123) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) V 17,35f.: *Thoh nist nihéin sterro ni er úberfuari ferror; / quédan man iz wóla muoz: alle drát er se untar fuaz!* (Diewald 1999b:342).

‘But there is not one star over which he would not have lifted himself; one must speak it clearly: he stepped on them all with his feet!’

- (124) Notker I 67,2ff.: . . . *úbe dánne héiz chúmet tér uuólchenônto súnt-uuínt / sô mûozen die blûomen / rîsen ába dîen dornen* (Lühr 1997:166).

‘If then the cloud-bringing south wind hotly comes, the flowers must fall off the thorns.’

An epistemic OHG **muozan* is not attested, even though--as with many of the other modal verbs--it sometimes allows a wide-scope reading:

- (125) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) IV 4,73f.: *‘Nist únser rach’, quadun, ‘wíht, si frámmort wiht ni thíhit; / ni múaz si thihan wánne fora thémo selben mánne* (Diewald 1999b:396).

“Our case is nothing,” they said, “it thrives no longer; it never had space to thrive before this very man.”

This “space” is not necessarily the literal space implied in (119) or (120), but rather a metaphorical indication of possibility: that this, the case does not have a possibility of thriving before the man. The alternative wide-scope reading would be ‘There is no space/possibility for our case . . .’ The space/possibility is no longer ascribed directly to the subject (i.e., the case), but rather to the metalinguistic situation. As has been mentioned before, these wide-scope readings pave the way for epistemic modality.

4.5. Middle High German

MHG *müezen* also enjoyed a wide variety of semantic possibilities ranging from ability, obligation, necessity, permission, and futurity (Hennings 2001:128). The use of *müezen* to indicate obligation or necessity increased during the MHG period, and attestations of this value can easily be found:

- (126) Von Eschenbach, Parzival (ed. Lachmann) 6, 302,24: *doch muoz ich iwer spotten tragen* (Diewald 1999b:342).

‘But I must bear your mockery.’

- (127) Von Eschenbach, Parzival (ed. Lachmann) 9, 497,17: *ich muose al eine komen dar* (Diewald 1999b:343).

‘I had to go there alone.’

Müezen, much like its ME counterpart *mote*, took on weak epistemic meaning by signaling futurity (Diewald 1999b:344, 397):

- (128) Hartman von Aue, Iwein (ed. Schwarz) 4236f.: *wand ez muoz doch mîn senediu nôt / mit dem tôde ein ende hân* (Diewald 1999b:397).

‘For my longing pain must have an end with death.’

- (129) Das Nibelungenlied (ed. Bartsch) 1248, 3: *want uns dâ sehen müezen vil minneclîchiu wîp* (Paul 1982:370).

‘For many lovely women must see us there.’

- (130) Das Nibelungenlied (ed. Bartsch) 506, 3: *mir muoz der iemer lieber sîn der mir ist guot* (Paul 1982:370).

‘He who is good to me must/will always be dearer to me.’

Paul (1982:370) believes this use to be ‘rein futurisch,’ i.e., pure futurity. However, given the uncertain nature of the future (no one knows *exactly* what will happen; one can only, at best, make a prediction with a high degree of certainty), it is unlikely that any indication of future time is free of modal meaning (see Bybee, Pagliuca, and Perkins 1991). Finally, a strong epistemic use of *müezen* signifying logical necessity also is attested:

- (131) Von Eschenbach, Parzival (ed. Lachmann) 5, 237,1f.: *der taveln muosen hundern sîn, / die man dâ truoc zer tür dar in* (Diewald 1999b:399).

‘The boards that were carried through the door must be one-hundred.’

- (132) Von Eschenbach, *Parzival* (ed. Lachmann) 15, 767,20ff.: *hât dich friwendîn ûz gesant, / diu muoz sîn vil gehiure, / op du durh âventiure / alsus verre bist gestrichen* (Diewald 1999b:399).

‘If the girlfriend sent you out, she must be very lovely because you have wandered so far because of adventure.’

And much like in ME, deontic *müezen* indicating obligation/necessity grammaticalizes via metaphorical extension to strongly epistemic *müezen*, which signifies logical necessity. In both (131) and (132), the writer indicates that there is a very high probability that *p* is true.

4.6. New High German

Ability or permission can no longer be signified by *müssen*, for its deontic value can only denote obligation or necessity in NHG:

- (133) Veit Dietrich, *Etliche Schrifften . . .* (ed. Reichmann) 74,26f.: *Was Gott / sein nam / wesen / hertz / vnnd wille sey / das kan kein mensch / von jhm selb wissen / alle müssen wirs auß seinem wort lernen* (Diewald 1999b:343).

‘Whatever God’s name, nature, heart, and will are, no person can know that from himself, we must learn it all from his word.’

- (134) Luther Adel 97, 35f.: *Sie haben sich villeicht vorlassen auff yhre macht / mehr dan auff got, drumb habe(n) sie müssen fallen* (Diewald 1999b:401).

‘Maybe they depended more on their power than on God, therefore they must fall.’

- (135) *Du mußt es mir ganz genau und wahrhaftig erzählen, Karl* (Fagan 1996:16).

‘You must tell it to me accurately and truthfully, Karl.’

- (136) *Wir müssen auf eine Lösung zustreben* (Diewald 1999b:267).

‘We must strive for a solution.’

The weak epistemic indication of futurity still exists as stylistically marked, and it is used far less than other means signaling futurity (e.g., the helping verb *werden*, adverbs, etc.):

- (137) Viet Dietrich, *Etliche Schrifften . . .* (ed. Reichmann) 129, 21f.: *da muß ein ellendes leben folgen / Wo zwey sollen bey einander sein / vnd können doch nit bey einander sein* (Diewald 1999b:344).

‘A miserable life must/will follow there where two should be with one another but cannot be with one another.’

- (138) Song Lyric (‘Die Schatten werden länger’): *Was geschehen muss, das muss jetzt geschehen.*

‘What must/will happen, that must/will happen now.’

Strong epistemic *müssen* developed a sense of possibility/probability in early NHG (Diewald 1999b:400-402). This occurred when *müssen* began appearing with a helping verb and past participle:

- (139) Luther Adel 103,17: *Drumb musz das der heubt teuffel selb gesagt haben* (Diewald 1999b:401).

‘Therefore the main devil himself has probably said that.’

- (140) Anthologie Gravier 224,107 (from Duchâteau 1979:32): *Er muß freylich helfer darzu gehabt haben* (Diewald 1999b:401).

‘In addition, he probably had helpers.’

The modal meaning here, which is a bit out of character for *müssen*, stems from this type of construction--which is a significant step in the grammaticalization process--first occurring with the preterite forms of *müssen* (both indicative and subjunctive), thereby signifying an ‘irrealis of

the past” (Diewald 1999b:400). In other words, it would be necessary for a certain event to have occurred in the past before another event could occur. And since irrealis means a condition which has yet to be fulfilled, signifying something of near certainty would seem a bit unlikely. However, given that the epistemic *mögen* and *dürfte* serve the exact same function of signifying possibility/probability, the strong epistemic *müssen* gradually assumed the expected function of indicating logical necessity by the seventeenth century (Diewald 1999b:402). So today, strong epistemic *müssen*’s sole function is to signify logical necessity:

- (141) *Er muß mächtige . . . Freunde gehabt haben, die es ihm ermöglichten, . . .
zweiundzwanzigjährig zum Doktor des Kirchenrechts promoviert zu werden in
Padua . . .* (Mortelmans 2000:141).

‘He must have had powerful friends who made it possible for him to be appointed doctor in canon law at the age of twenty-two in Padua.’

- (142) *Aber sie sagt sich, daß dies wohl so was Ähnliches wie Plattdeutsch sein muß*
(Mortelmans 2000:144).

‘But she tells herself that this must be something like Low German.’

4.7. Summary

The English *must* and German *müssen* attest a remarkably similar development. OE **motan* and OHG **muozan* were employed primarily to indicate permission or possibility (real-world possibility, not logical possibility). The modern sense of obligation/necessity is attested, but it is not as common. An epistemic use of either **motan* or **muozan* is not attested. During the middle periods, the obligation/necessity use increased, the permission/ability/possibility use decreased (probably due to the developments of *can/können* and *may/mögen*), and both weak and strong epistemic meanings began to emerge. The weak epistemic use of indicating futurity is not

and never was a frequent phenomenon. The strong epistemic use of signaling logical necessity, on the other hand, is both English and German's primary way of indicating the logical necessity of assessing a proposition's truth value.

5. *Shall and sollen*

The Proto-Germanic **skulan* signified a sense of making a decision for oneself, which gradually evolved into the sense of indebtedness and obligation (Birkmann 1987:85): ‘I have decided for myself’ to ‘I have allotted for myself’ to ‘It is allotted to me, it is my part/share’ to ‘I am obligated to do (something)’ to ‘I shall, must, will.’

5.1. Old English

In OE, **sculan* frequently signified indebtedness or obligation on the part of the subject (Mitchell & Robinson 2001:114),¹⁵ and an infinitive complement was absent:

(143) Laws Ine 76: *swa sio manbot deð þe þam hlaforde sceal* (Traugott 1989:37).

‘As does [increase] the ransom that must go to the lord.’

(144) O. E. Gosp., Mt. XVIII, 24, 28: *An him sceolde tyn þusend pundan* (Visser 1963:497).

‘Someone owed him ten thousand pounds.’

Here, **sculan* appears in its pre-modal form: it no longer signifies its Proto-Germanic meaning, but it is not yet deontic because it does not modify the subject’s relationship to the rest of the proposition—it is itself a part of the proposition. Of course, a deontic **sculan* with the sense of necessity or obligation is also attested in OE:

(145) Or. 84.31: . . . *Uton nu brucan pisses undernmetes swa þa sculan þe hiora afengifl on helle gefeccean sculan* (Traugott 1989:39).

¹⁵An infinitive form of OE **sculan* is not attested.

‘Let us now enjoy this breakfast as befits those who have to eat their supper in hell.’

(146) Menologium 229: *haligra tid, þe man healdan sceal* (Visser 1969:1585).

‘A holy time that one has to observe.’

The modal meaning is linked to the proposition by the infinitive complement, and although some lexical meaning is lost, the sense of obligation or necessity--which is derived from the original sense of indebtedness--is clearly present. And such a connection should come as no surprise, for to be indebted to someone implies an obligation on the one who is in debt to pay what is necessary.

**Sculan* is one of the only OE modal verbs to have epistemic meaning, although primarily in a weak sense. Indicating future meaning was one function of **sculan*, even though this use was limited to expectation (strong prediction) or customary actions that one would expect to happen (Mustanoja 1960:599; Traugott 1989:39):

(147) Or. 20.24: *ealle þa hwile þe þæt lic bið inne þær sceal beon gedrync & plega oð ðone dæg þe hi hine forbærnað* (Traugott 1989:39).

‘All the time that the body is inside there shall be drinking and playing until the day that they cremate him.’

The customary action here is what occurs between the time a nobleman dies and his funeral upon the pyre. This use is, of course, not totally unrelated to the notion of obligation or necessity.

After all, customary actions are required to be carried out in a certain way, and, as Visser (1969:1582) points out, ‘since . . . *present* obligation or volition automatically implies *future* action, there was in the majority of cases in which *sceal* (*shall*) was collocated with an infinitive notion of futurity in the collocation as a whole.’ Finally, we find a rare strong epistemic **sculan*

in OE: the quotative--the speaker/writer does not reflect on the truth value of the proposition (e.g., likelihood, possibility, logical necessity), but rather only claims that someone else asserted a truth (Traugott 1989:41-42; see also Diewald 1999b:418ff. and Mortelmans 2000):

(148) ChronE (Plummer) 1100.4: *& to þam pentecosten . . . wæs gesewen blod weallan of eorþan. swa swa mænige sæden þe hit geseon sceolden* (Traugott 1989:41).

‘and at the Pentecost . . . blood was seen welling up from the ground, as many said who supposedly saw it.’

(149) Bo. 35.98.25: *ic wat þæt ðu geherdest oft reccan on leasum spellum þætte Job Saturnes sunu sceolde bion se hehsta god ofer ealle opre godu & he sceolde bion þæs heofenes sunu & sceolde ricsian on heofenum* (Traugott 1989:41-42).

‘I know that you often heard false stories that claimed that Jove, Saturn’s son, was the supreme God, the son of heaven, and ruler of the firmaments.’

Here, the deontic sense of obligation or necessity becomes associated with the “obligation” to consider an assertion as true: i.e., we are (deontically?) “supposed to” believe *p* is true because someone has claimed that *p* is true (hence the modal adverb *supposedly*), but since the speaker merely reports the assertion and personally distances herself from whether or not *p* is true,¹⁶ this use of **sculan* is epistemic because it signifies truth value and not some condition, volition, or disposition of the sentential subject.

¹⁶Of course, people report untruths, but I approach the quotative use of **sculan* solely from the theoretical perspective of Gricean conversational implicatures, specifically the supermaxim of Quality: “Try to make your contribution one that is true” (Grice 1989:27). When someone uses the quotative **sculan*, then, they basically report on something that is supposed to be true (‘The speaker claims that *x* claims that *p* is true’).

5.2. Middle English

The pre-modal sense of obligation related to **skulan* is not foreign to the ME *s(c)hal* (Markus 1990:185), but its use decreased over time and eventually became obsolete at the beginning of the early ModE period (Visser 1963:497):

- (150) Chaucer, Troil. 3, 1649: *And by that feyth I shal to god and yow* (Visser 1963:498).

‘And by that faith I owe to God and to you.’

The deontic use of *s(c)hal*, on the other hand, remains constant during the ME period. Obligation is the primary semantic notion conveyed by *s(c)hal*:

- (151) Chaucer, The Merchant’s Tale, 59f.: *Thanne sholde he take a young wif and a feir, / On which he mighte engendren him an heir . . .*

‘Then should he take a young and fair wife, on which he would be able to engender himself an heir.’

- (152) Mirk, Festial Suppl. 290, 14: *A man schal takon a wyf lyke of age, lyk of condicions, and lyk of burth* (Visser 1969:1587).

‘A man has to take a wife of like age, of like conditions, and of like birth.’

The use of *s(c)hal* to express futurity tremendously increased during the ME period because this use was no longer confined to the iterative (Visser 1969:1590ff.). *S(c)hal* could be used to express all sorts of future actions, not just those confined to custom:

- (153) Chaucer, The Merchant’s Tale, 191f.: *I have my body folily despended; / Blessed be God that it shal been amended.*

‘I have treated my body foolishly; blessed be God that it shall be amended.’

- (154) Mandeville XX, 221: *He schalle not trowe it lightly; and treuly, no more did I myself, till I saughe it* (Visser 1969:1592).

‘He shall not trust it lightly; and truly, no more did I myself until I saw it.’

- (155) Pecock, Reule (EETS) 291: *oure bodily lijf, which schal not dure here but a while* (Visser 1969:1591).

‘Our bodily life, which shall not last here but a while.’

But even so, no indication of future time is completely free of modal meaning (see 4.5). ME *s(c)hal*, like OE **sculan*, can also be used to indirectly report speech. However, there are two constraints on the ME use: the indirect speech must be explicitly introduced; and the direct speech would, more than likely, also have contained *s(c)hal* (Visser 1969:1631):

- (156) Fable of Fox and Wolf (in Mossé, Manuel II) 229: *sei me wat I shal do* (Visser 1969:1632).

‘Say to me what I should do.’

- (157) Fastolf, in Paston Lett. (Gairdner) I, 130: *And sey hem on my half that they shall be qwyte* (Visser 1969:1632).

‘And say to them on my behalf that they shall be repaid.’

Here, the reported speech is overtly indicated as reported (via the use of the verb *sei/sey*), and the use of *s(c)hal* within the clause would probably have nonetheless been used if the statement had been direct, and not reported, speech. This is different than the OE quotative use since *s(c)hal* would be used anyway, even though mostly as an indicator of futurity (and in some of these cases, a deontic reading could still be extracted). The strong epistemic, quotative use of OE **sculan* discussed by Traugott (1989:41-42) is not attested in any other periods in the language,

and Visser (1963-1973) overlooks this use altogether, so whether it continued into ME (or even early ModE) or didn't carry over at all into ME remains to be seen.

5.3. Modern English

The oldest deontic connotation of *shall*, obligation, is still attested in early ModE, but its use was steadily declining:

- (158) Deloney, Wks. (ed. Mann) 291, 43: *in the day of iudgment we shall yeeld accompt* (Visser 1969:1586).

(‘In the day of judgement we have to yield account.’)

- (159) Shakespeare, Merchant IV, i, 149: *Your Grace shall understand, that (at the receipt of your Letter) I am very sick* (Visser 1969:1589).

(‘Your Grace has to understand . . .’)

In contemporary ModE, the obligation sense of *shall* is limited to legal and quasi-legal language (Coates 1983:185) and the subjunctive form *should*, in which case it only signifies a weakened sense of obligation, i.e., a suggestion (Coates 1983:58):

- (160) LOB 8-747: *Before passing a sentence of Borstal training in the case of an offender of any age, the court shall consider any report made in respect of him by or on behalf of the Prison Commissioners* (Coates 1983:186).

- (161) *I think husbands really should be made to do the moving actually* (Coates 1983:59).

- (162) *I can't see why I should finish the mince pies* (Coates 1983:60).

Because the subjunctive indicates irrealis, the strong sense of obligation found in the indicative necessarily becomes weakened. *Shall* can signify obligation when used in the second person, but this use also involves direct-speech acts and conversational implicatures (in this case, an indirect

command), and there is the added presence of speaker threats. These combined factors make for usage that is contextually quite restricted (Visser 1969:1585).

ModE *shall* supposedly can also signify intention or volition (Coates 1983:186ff.), although it becomes increasingly difficult to exclude epistemic readings of futurity in these instances:

- (163) *I shall of course take account of all relevant factors in seeking to make what I hope will be the correct decisions* (Coates 1983:187).

The indication of intention/volition is due no doubt to *shall*'s shared role with *will* of becoming primarily an indicator of futurity (Coates 1983:195), and *shall* has assumed some of *will*'s features when indicating future time. Even so, ModE *will* is used far more frequently when indicating futurity (Coates 1983:197). *Shall* primarily signifies prediction when referring to future events:

- (164) Dryden, Spanish Friar (Mermaid) III,iii: *Oh, never, never shall it be forgotten . . . ; after ages Shall with a fearful curse remember ours; And blood shall never leave the nation more!* (Visser 1969:1591).

- (165) *I shall have to sort of see what Jim says when I see him* (Coates 1983:192).

In early ModE, *shall* was still used to indicate indirect speech. But here again, *shall* would probably have been used in direct speech as well, and deontic meaning is no doubt involved:

- (166) Steele, Spectator no. 268: *Madam, said I, you shall forbear that Part of your Dress, it may be well in others; but you cannot place a Patch where it does not hide a Beauty* (Visser 1969:1587).

ModE *shall* is one of the least frequently used modal verbs because all of its meanings--from obligation to futurity--are most frequently signified either by the subjunctive *should* or other modal verbs (see Coates 1983:58-84, 185-204).

5.4. Old High German

Just like OE **sculan*, OHG *sculan* signified obligation or necessity, and it was used quite frequently (Schützeichel 1995:259; Diewald 1999b:321-322). And *sculan* also appeared in its pre-modal form, whereby it signified indebtedness on the part of the subject:

- (167) Tatian (ed. Sievers) 108,3: *uuio filu scalttû mînemo hêrren?* (Diewald 1999b:322).

‘How much do you owe to my lord?’

As with other pre-modals, *sculan* is allowed to be the only verb appearing within a clause with its stative meaning intact. Deontic *sculan* is also attested, and it mostly conveys a sense of obligation:

- (168) Tatian (ed. Sievers) 156,2: *Ob ih vvuosc fuuuere fuozzî hêrro inti meistar, inti ir sulut ander anderes fuozzî uuasgan* (Lühr 1997:170).

‘If I now, your Lord and Master, have washed your feet, so you also have to wash each other’s feet.’

- (169) Tatian (ed. Sievers) 197,6: *uuir habêmês êuua, inti after êuu sal her sterban, uuanta her sih gotes sun teta* (Diewald 1999b:323).

‘We have a law and by the law he has to die, for he has made himself to be God’s son.’

Although an epistemic *sculan* is not attested in any form, wide-scope readings of deontic *sculan* are sometimes possible. Here, the sense of obligation may not solely be limited to the subject:

- (170) Tatian (ed. Sievers) 14,2: *ih scal fon thir gitoufit uuerdan inti thû quimist zi mir*
(Diewald 1999b:420).

‘I have to be baptized by you, and you come to me.’

- (171) Tatian (ed. Sievers) 4,11: *Antlingôta thô sîn muoter inti quad: nio in altare, ûzar sîn nam scal sîn Jôhannes* (Diewald 1999b:420).

‘There answered his mother and said: never, rather his name has to be John.’

The alternate wide-scope readings are ‘it is necessary that I be baptized by you’ for (170) and ‘It is necessary/must be that he be called John’ for (171). Of course, the wide-scope readings are neither clear-cut, nor obligatory, and they may not have even been intended. However, the fact that such readings are possible, as well as the appearance of *sculan* with a nonliving subject (171), show that the earlier stages of grammaticalization are indeed at work (Diewald 1999b:420).

5.5. Middle High German

By the time we get to MHG, the pre-modal meaning has passed away, and *suln/sûln* deontically conveys not only obligation/necessity, but also permission. *Suln*, like ME *s(c)hal*, could epistemically be used to indicate the future and also reported speech (Diewald 1999b:420-422; Hennings 2001:128). When signifying permission, *suln* was employed in the same way as NHG *dürfen*:

- (172) Von Eschenbach, Parzival (ed. Lachmann) 12, 620,1ff.: *dô sprach er frouwe, tuot sô wol, / ob ich iuch des biten sol, / lât mînen namen unrekant* (Diewald 1999b:323).

‘He said: ‘Lady, be so good, in case I therefore may ask you--do not reveal my name.’”

- (173) Das Nibelungenlied (trans. Bartsch & de Boor) 878,1: *Urloup si gewonnen, daz si für solden gân* (Diewald 1999b:324).

‘They received permission that they might step up.’

This sense of permission probably also derives from the Preterite-Present meaning: ‘it is allotted to me, it is my part/share’ (Birkmann 1987:85) most likely could be interpreted as permission because what is allotted is what you are able to work with. And given the increasing influence of metalinguistic contexts in semantic change, the source of allotment could have been viewed as external, and therefore as a permission-giver.

MHD *suln* also could serve epistemic functions, most notably signaling the prophetic future (Paul 1982:369-370):

- (174) Das Nibelungenlied (ed. Bartsch) 1452,4: *ir sult ir willekommen sîn* (Paul 1982:369).

‘You shall be welcome to her.’

- (175) Die Gedichte Walthers von der Vogelweide (ed. Lachmann) 77,1: *got sol uns helfe erzeugen* (Paul 1982:369).

‘God shall show us help.’

Although some other (deontic) modal meaning may still be present (i.e., volition in (175)), the focus on future action is apparent. A stronger use of epistemic *suln*, the quotative, begins to appear in MHG, but only in specified contexts:

- (176) Von Eschenbach, Parzival (ed. Lachmann) 4, 197,17f.: *sölch ellen was ûf in gezalt: / sehs ritter solter hân gevalt* (Diewald 1999b:420).

‘Such eagerness in battle was written about him: he supposedly killed six knights.’

(177) Von Straßburg, Tristan (ed. Weber) 18833ff.: *dannoch vor naht do wart der schal/ in dem lande vliiegend über al, / daz der stolze Kaedin / uz geriten solte sin/ in offener reise* (Diewald 1999b:421).

‘For before night the news spread throughout the land that the proud Kadin in an open rebellion supposedly had ridden out.’

Here, the use of *suln* to indicate reported speech is already implied elsewhere in the construction (Diewald 1999b:420-421). This employment is not as developed as the quotative use of NHG *sollen*, but it generally becomes more widely used and less contextually restricted as time progresses.

5.6. New High German

Sollen’s NHG deontic function is primarily to indicate obligation or necessity on the part of the subject:

(178) Veit Dietrich, Etliche Schriften . . . (ed. Reichmann) 97,23: *Aber du solt jm nicht folgen* (Diewald 1999b:324).

‘But you are not supposed to follow him.’

(179) *Hunde sollen an der Leine geführt werden* (Duden 1998:98).

‘Dogs are supposed to be lead on the leash.’

In early NHG, however, *sollen* could still occasionally signify permission. Even so, such attestations are ambiguous because the sense of obligation can also be understood. Once *dürfen* assumed the role of signifying permission during the sixteenth century, *sollen* then could only be understood as connoting obligation/necessity (Diewald 1999b:324-325):

(180) Veit Dietrich, Etliche Schriften . . . (ed. Reichmann) 95,8ff.: *Förchten sollen wir jn / vnd vns für jm demütigen / darumb das wir arme sündler sind / Widerumb*

sollen wir vns frewen / Denn Got hat vnsere sünde von vns genommen (Diewald 1999b:325).

‘We are supposed to fear him and humble ourselves before him because we are poor sinners. On the other hand, we may/are supposed to be happy, for God has taken our sins from us.’

Sollen still has an epistemic function of signifying prophetic futurity, even though this use is relatively infrequent. The helping verb *werden* ‘will, to become’ is the primary way of indicating future time in NHG (see Kudo 2001:118ff.). In addition, only the preterite form of *sollen*, *sollte*, may be used to indicate futurity (Duden 1998:101):

(181) *Wir sollten nichts mehr von ihm hören oder sehen* (Duden 1998:101).

‘We should hear or see nothing more of him.’

Finally, the quotative use of *sollen* has increased tremendously since MHG times, due no doubt to the increased grammaticalization that occurred during the early NHG period: *sollen* needed no longer to be directly linked to reported speech, and contextual restrictions faded away, thereby allowing its epistemic value to strengthen. Words such as *sagen* ‘to say,’ *behaupten* ‘to claim,’ or *berichten* ‘to report,’ which were necessary in MHG (see (176) and (177)), are no longer obligatory when signaling indirect discourse. And as with many other of the modal verbs, the coupling of *sollen* with a helping verb and past participle guarantee a quotative, epistemic reading (Diewald 1999b:421-423):

(182) Veit Dietrich, *Etliche Schriften . . .* (ed. Reichmann) 85,21: *Da sol Benedictus gesagt haben . . .* (Diewald 1999b:423).

‘There Benedictus supposedly said . . .’

(183) Fürther Nachrichten (Jan. 21&22, 1995): *Der Arzt und die Kosmetikerin sollen 1993 noch zwei Morde geplant haben* (Diewald 1999b:282).

‘The doctor and the beautician supposedly planned two additional murders in 1993.’

(184) *Es soll ja sogar Leute geben, die das Fernsehen am Wahltag überhaupt nicht benötigen . . .* (Mortelmans 2000:138).

‘There are supposedly even people who don’t need the television at all on election day.’

As we already saw in 5.1, this epistemic use is slightly different from other epistemic uses because the speaker does not comment on the likelihood of the proposition’s being true, but rather just reports that someone else claims that *p* is true.

5.7. Summary

Both OE **sculan* and OHG *sculan* attest pre-modal meaning: a state of obligation on the part of the subject. The deontic meaning of obligation/necessity is also attested in both cases, with some OHG attestations allowing for wide-scope readings. But whereas OHG *sculan* does not show any epistemic uses, OE **sculan* had already become grammaticalized to the point of allowing habitual futurity and quotative uses. By the time we get to ME *s(c)hal* and MHG *suln*, the pre-modal meaning has virtually faded away, and the deontic sense of obligation is prominent. In MHG, the added sense of permission--no doubt deriving from **skulan*’s sense of allotment--has become associated with *suln*, as has the indication of futurity and indirect speech. ME *s(c)hal*, in addition, was no longer confined to indicating only habitual future action; it could also convey other types of future events. Thanks to the development of *dürfen*, NHG *sollen* now expresses only deontic obligation; ModE *shall* can do so as well, but it is used only in legal or

quasi-legal language. Futurity can also be expressed by *shall* and *sollen*, although neither of these modals serves the primary function of signaling future action or events. *Sollen* also flourishes in its quotative function of marking indirect discourse, but *shall* appears never to have retained this ability after OE.

6. *Will* and *wollen*

**Waljan/weljan* is the only verb not of Preterite-Present origin that joined the core modal verb system. It is an old optative verb that became used in the indicative, and it signified ‘to wish, want, desire’ (Hennings 2001:114-116). But like the other core modals, it displays a similar development in its history, in that deontic and epistemic meanings evolved from its primary meaning via grammaticalization.

6.1. Old English

OE *willan* (<**weljan*) pretty much keeps its pre-modal meaning intact, meaning ‘to wish, will’ (Mitchell & Robinson 2001:51, 115):

(185) Vesp. Ps. 67, 31: *Tostenc ðiode ða gefeht willað* (Visser 1969:1677).

‘Scatter the people who wish for war.’

(186) Or. 96.17: . . . *þæt he geornor wolde sibbe wið hiene þonne gewinn* (Traugott 1989:37).

‘. . . that he wanted peace with him rather than conflict.’

Here, *willan* appears as the only verb in the clause with its original sense of wish or desire well-intact (Aijmer 1985:12). Except for these instances, *willan* shows three main categories of employment (Visser 1969:1676ff.), and these show that the boundary between deontic and epistemic meaning can be quite fluid: volition with no future meaning, volition and future meaning, and future meaning with no volition (but not free of other modal meanings). In its ‘pure’ deontic value, *willan* signified volition in the sense of ‘to desire to,’ ‘to wish to,’ or ‘to have a mind to’ (Visser 1969:1677):

(187) Beowulf 343: *Beowulf is min nama. Wille ic asecgan sunu Healfdene, . . . gif he us geunnan wile, þæt we hine . . . gretan moton* (Visser 1969:1677).

‘Beowulf is my name. I want to tell Healfden, . . . if he will grant to us that we may greet him.’

(188) Ælfric, Colloq. (ed. Garmonsway) 134: *Hwilcne hafoc wilt þu habban, þone maran hwaþer þe þæne læssan?* (Visser 1969:1677).

‘Which hawk do you want to have, the larger or the smaller?’

The notion of desire is not directed at an object, but rather at an action (via the infinitive complement). And since any desired action would necessarily have to occur in the future, there are some instances where volition becomes directly associated with future action:

(189) Ælfred, Oros. (Sw.) 10, 4: *ac ic wille nu, swa ic ær gehet, þara þreora landrica gemære gereccan* (Visser 1969:1686).

‘But I will now, as I previously promised, extend the boundary of those three kingdoms.’

Sometimes, *willan* could imply futurity without volition. This use, however, was usually confined to nonliving subjects (Visser 1969:1692-1693):

(190) Ælfred, C.P. 257, 18: *Se wisdom wille sona fleon ðone ðe hine fliehð* (Visser 1969:1693).

‘Wisdom will immediately flee from the one who flees it.’

But even here, metaphor would allow for volition to be present. After all, the personification of Wisdom would allow the sentential subject to have its own desire, and the notion of futurity would spring from this desire. On the other hand, exactly how much speaker/writer assessment of the proposition (i.e., prediction of the future) there is in cases like (190) continues to be

debated (see Visser 1969:1692; Traugott 1989:40; Bybee, Pagliuca, and Perkins 1991:24ff.). Of all the modal verbs, the boundary separating deontic meaning and epistemic meaning is probably least clear with *willan*.

6.2. Middle English

ME *wille* also conveyed the volitional notions of willingness, desire, and want in its deontic use (Markus 1990:185):

- (191) Hoccleve, De Reg. Princ. 195: *sa þat he . . . be repentaunt and will to synne no more and to live after þi lawe* (Visser 1969:1676).

‘So that he . . . be repentant and want to sin no more and to live by the law.’

- (192) Chaucer, C. T. B 2116: *Why so? quod I, why wiltow lette me Moore of my tale than another man?* (Visser 1969:1679).

“‘Why so?’” said I, ‘why do you want to prevent me more from my tale than another man?’”

- (193) Knight La Tour-Landry 21, 26: *Whanne thei will speke highly, let hem be* (Visser 1969:1684).

‘When they want to speak highly, let them be.’

But as in OE, the line between deontic and epistemic value is a thin one, and even when future time is indicated, other modal meanings are never absent:

- (194) Eng. Metric. Hom. (ed. Small) 243, 32: *What so þou wolt ask me, full bleþeliche wol I graunte þe* (Visser 1969:1686).

‘Whatever you want to ask me, happily will I grant it to you.’

- (195) A Lover's Plea, Abuse of Women (in Robbins, *Secul. Lyr. XIVth & XVth c. no. 38*) 5: *The stedfastness of women will never be don, So Ientyll they be euery-chon* (Visser 1969:1694).

'The steadfastness of women will never come to an end, so gentle are they, every one.'

Although future action is certainly implied here, it is impossible to claim that some willingness or desire on the part of the subject--or, in the case of nonliving subjects like in (195), prediction on the part of the speaker--is not also being signified. There is also a rare instance of strong epistemic meaning, whereby *wille* signifies a high degree of probability:

- (196) Coventry Myst.; Assumption 349: *I am aferd there wille be something amyss* (Visser 1969:1701).

'I am afraid there will be something amiss.'

This use, however, was very rare and usually confined to northern and Scottish dialects, and it did not become widely used until the nineteenth century (Visser 1969:1700; Aijmer 1985:17; Traugott 1989:43). I will deal with this employment more extensively in 6.3.

6.3. Modern English

In ModE, *will* functions, as in OE and ME, to signify volition on the part of the subject, whether it be willingness, intention, or desire:

- (197) Lyly, *Compaspe* (in: Manly, *Spec. II*) IV, i, 6: *What, Psyllus, will the beast wag his wings to-day?* (Visser 1969:1682).
- (198) Wycherly, *Love in a Wood III*, iii: *I will swear you did ravish me* (Visser 1969:1680).

(199) *Give them the name of someone who will sign for it and take it in if you are not at home* (Coates 1983:171).¹⁷

(200) LOB 15-1595: *Any more of that talk and I'll be down among you* (Coates 1983:174).

But here again, future time is not excluded, and the fact that the “deontic” *will* cliticizes in (200) is another indication that the more grammaticalized epistemic meaning is not absent.¹⁸ After all, future meaning is weakly epistemic, which is--from the perspective of grammaticalization--the next step up from deontic meaning (see Traugott’s cline in (25)); and there is no reason why shades of both spheres may not be simultaneously present. On the other hand, the strong epistemic use of *will* to indicate a high degree of certainty in the mind of the speaker (as in (196)) is obviously free of deontic meaning because it is more grammaticalized. When used in this way, *will* signifies that something ‘will prove or turn out to be’ or ‘probably is or does’ (Visser 1969:1700). This employment, however, did not become regular until the nineteenth century:

(201) Addison, Spect., no. 440: *This you will say is a strange Character, but what makes it stranger yet, is a very true one* (Visser 1969:1701).

(202) George Eliot, Silas Marner XVIII: *Father'll be waiting for me* (Visser 1969:1701).

(203) LOB 15-531: *It is a fairly safe bet that one of the guests will want to take the empty flask home; they make delightful lamp bases* (Coates 1983:178).

¹⁷Although this example may seem almost devoid of volitional meaning, Coates reports this to be an example of *will* signifying volition. She offers ‘is willing/prepared to’ as a paraphrase to *will*. Future time is nevertheless implied alongside this volition.

¹⁸Since words that cliticize tend to serve grammatical functions rather than lexical purposes (Hopper and Traugott 1993:4-6, 132-141; Diewald 1997:12-14), a cliticized *will* more than likely is grammaticalized enough to have some shade of epistemic meaning.

(17) *Someone's following us--oh, that'll be Elisabeth.*

Whereas the speaker assumes or predicts something about the future with the weak epistemic *will*, the strong epistemic use of *will* signifies that the speaker concludes--with a high degree of certainty--that a certain state exists or that some event in the immediate future, which is already on the verge of occurring, will transpire in a certain way.

6.4. Old High German

OHG *wellen* (<**waljan*) signified 'to wish, want, intend' (Schützeichel 1995:314), and as in English, its meaning has not altered a great deal through the centuries. The pre-modal meaning of *wellen* is attested when a direct object, rather than an infinitive complement, is taken:

(204) Tatian (ed. Sievers) 56,4: *ih úuili miltida, nalles bluostar* (Diewald 1999b:328).

'I want/wish for compassion, not sacrifice.'

The subject wishes for something other than another action to occur, and this use is therefore not yet deontic. Of course, deontic uses of *wellen* are also quite frequent in OHG:

(205) Tatian (ed. Sievers) 154,1: *uuaz uuollet ir mir geban?* (Diewald 1999b:327).

'What do you want to give to me?'

(206) Tatian (ed. Sievers) 128,6: *Her uuolta thô rehtfestiûgôn sih selbon . . .* (Diewald 1999b:327).

'He wanted to justify himself then . . .'

The only other use of OHG *wellen* worth mentioning is its weak epistemic function of indicating futurity. But unlike NHG *werden*, which serves this function, the epistemic *wellen* was one of the primary ways to signify futurity in OHG (Braune 1959:251; Diewald 1999b:329). Yet as in OE, separating the sense of volition from future time is impossible (Krooks 1975:41):

- (207) Williram von Ebersberg, *Exposito in Cantica Canticorum* (Breslau Manuscript, Bartelmez' Critical Ed.) 60G1: *Ích uuíl uáran ze démo mírre bérge. unte ze démo uuîrôuch búhele. Ích uuíl mîh dén nâhan. qui terrena despiciunt. unte dîe der carnem suam cum uitiis et concupiscentiis mortificant. unte dîe der ôuh mîr ópfer bringent des dîemûotigen únte des rêinen gébetes* (Krooks 1975:36-37).
 'Now I want to/will(?) go to the myrrh mountain and to the incense hill. I want to/will(?) draw near to those who despise earthly things and who mortify their flesh against vices and carnal desires and who also bring to me the sacrifice of humble and pure prayer.'

6.5. Middle High German

MHG *wellen* is not too different from OHG *wellen*: both signify the subject's volition, and both can epistemically indicate future time (Hennings 2001:114-116). Deontically, *wellen* conveys a wish or desire on the part of the subject:

- (208) Des Minnesangs Frühling (ed. Moser & Tervooren, 36th ed.) 6,26.30: . . . *swie du wilt sô wil ich sîn* (Paul 1982:370).

'As you wish, so will I be.'

- (209) Das Nibelungenlied (trans. Bartsch & de Boor) 1893,3: *si wolden Volkêren ze tôde erslagen hân* (Diewald 1999b:425).

'They wanted to have Volker dead.'

And epistemically, *wellen* continues to signify future time. As with all indications of future time, though, a sense of prediction or volition cannot be excluded (Paul 1982:370):

- (210) Kaiserchronik (ed. Schröder) 12320: *dû wilt von ir grôzen scaden gewinnen* (Paul 1982:370).

‘You will gain from her great harm.’

- (211) Deutsche Predigten des XIII. Jahrhunderts (ed. Grieshaber) I S. 8 (6a): *gelicher wîse als got ershain dem herren Moyse do er in der aino^ede waz . . . also wil er dir och ershinen* (Paul 1982:370)

‘In the same way that God appeared to the lord Moses when he was in the desert, thus he will also appear to you.’

The most notable development of *wellen* in MHG is the emergence of a strong epistemic use.

When coupled with a helping verb and past participle, *wellen* assumes quotative function, much like *suln* (Diewald 1999b:424-426). The key difference here is that, whereas *suln* indicates that the proposition is reported to be true by a third party, quotative *wellen* signifies that the sentential subject himself claims the proposition to be true:

- (212) Kaiserchronik (trans. Vollmann-Profe) 16995ff.: *si wolten dar in sîn geslichen: / dô was der snê sô michel, / si nehêten wek noch phat* (Diewald 1999b:426).

‘They claimed to have crept there, yet the snow was so high that they had neither way nor path.’

This development makes perfect sense when one considers the semantic similarities between *suln* and *wellen*. When *suln* functions deontically to signify obligation on the part of the subject, the source imposing the modality (i.e., obligation) is *external* to the subject. The volition signified by *wellen*, on the other hand, is *internal* to the subject (see Diewald 1999b:165 for the semantic features of deontic *sollen* and *wollen*). This distinction then transfers into the epistemic realm: quotative *suln* points to someone external to the subject as the source of *p* (‘The speaker claims that *x* claims that *p* is true’), whereas quotative *wellen* indicates the sentential subject to be the source of *p* (‘The sentential subject claims that *p* is true’). Metaphorically, instead of a sense of

obligation to believe the proposition (*supposed to/supposedly*), the sentential subjects wants everyone to believe that *p* is true ('The sentential subject wills *p* to be true'). The quotative use of MHG *wellen*, however, had not yet completely taken hold in the helping verb + past participle environment, for deontic meaning could still sometimes occur in these instances:

- (213) Hartmann von Aue, Iwein (ed. Schwarz) 4998ff.: *und swer iu daz gerâten hât, / dem ist iuwer leben leit, / und wil sich mit der wârheit / vil wol an iu gerochen hân* (Diewald 1999b:426).

'And whoever has advised you that, to him are your lives grief, and he truthfully wants to have avenged himself on you.'

But even here, the reading is limited to the 'irrealis of the past' (Diewald 1999b:426-428), i.e., a description of past events that includes unfulfilled conditions or events, so the deontic meaning is losing ground in this syntactic environment.

6.6. New High German

NHG *wollen* can still be used in its premodal sense with a nominal rather than an infinitival complement:

- (214) *Elisabeth will Schokolade.*

'Elisabeth wants chocolate.'

When used deontically, *wollen* indicates volition on the part of the subject:

- (215) Veit Dietrich, Etliche Schrifften . . . (ed. Reichmann) 100,13ff.: *So gehen aber die feynde deines worts damit vmb / das sie vns in Abgötterey / vnd finsternuß führen / vnnd das wort vns gar entziehen wöllen* (Diewald 1999b:329).

'Therefore the enemies of your word go around, that they lead us into idolatry and darkness and even want to take the word away from us.'

- (216) Veit Dietrich, *Etliche Schrifften . . .* (ed. Reichmann) 90,22ff.: *Aber er antwortet jr kein wort / das ist / er wil sie nicht hören* (Diewald 1999b:329).

‘But he answered her no word, that is, he does not want to hear her.’

- (217) *Der Spiegel* (no. 11, 11, March 1996) 262: *Ich will nicht abhängig sein, weder von einem Mann noch vom Zwang, Zigaretten holen zu gehen . . .* (Diewald 1999b:284).

‘I do not want to be dependent, neither on a man nor on the compulsion to go pick up cigarettes.’

- (218) *Hanna will Peter ein Buch schenken* (Duden 1998:101).

‘Hanna wants to give Peter a book.’

In early NHG, *wollen* could still signify futurity. If the subject was living, a sense of volition would also be present; if the subject was nonliving, a sense of prediction would be apparent:

- (219) Lutherbibel, Matt. 4-19: *Ich wil euch zu den Menschen fischern machen* (Kudo 1993:113).

‘I will make you fishers of men.’

- (220) Veit Dietrich, *Etliche Schrifften . . .* (ed. Reichmann) 107,23ff.: *Vnd weyl wir alle gebrechlich sind / vnd sehr vil in vns finden / das sünd / vnd strefflich ist / so will von nōtē sein / das wir alle tag solche gebrechen in vns fein erkennē* (Diewald 1999b:332).

‘And because we are all infirm and find much in ourselves that is sinful and punishable, so it will be necessary, that we always recognize clearly such infirmities in ourselves.’

The use of *wollen* to signify futurity died out during the seventeenth century because *werden* took over this role (Diewald 1999b:329). Some traces of *wollen* in future value still exist, however:

- (221) *Wir wollen uns Mühe geben, damit wir das gesteckte Ziel erreichen* (Duden 1998:102).

‘We will take great pains so we reach the arranged goal.’

The strong epistemic, quotative use of *wollen*, however, has increased in usage since the fifteenth century, because now the helping verb + past participle environment mandates this reading (Diewald 1999b:427-428):

- (222) Veit Dietrich, *Etliche Schrifften . . .* (ed. Reichmann) 114,28f.: *Das dritte ist die verantwortung / das er nit wil vnrecht gethan haben* (Diewald 1999b:427).

‘The third is the excuse that he claims not to have done wrong.’

- (223) *Die Zeit* (no. 5, 27, January 1995) 74: *Er will damals gehört haben, daß Ausländer bis zu 6000 Mark für einen ‘Umverteilungsantrag’ zahlen würden* (Diewald 1999a:125).

‘He claims to have heard at that time that foreigners would pay up to 6,000 marks for an ‘application for redistribution.’

- (224) *Sie will schon dreimal in Amerika gewesen sein* (Duden 1998:102).

‘She claims to have already been in America three times.’

Occasionally, a quotative *wollen* can appear outside of the helping verb + past participle environment:

- (225) *Mein Freund Ewald will schneller laufen können als der Landesmeister* (Duden 1998:102).

‘My friend Ewald claims to be able to run faster than the state champion.’

(226) *Elisabeth will 30 Jahre alt sein.*

‘Elisabeth claims to be thirty years old.’

But even here, the strong epistemic *wollen* is paradigmatically confined to co-occurring with either another modal verb (*können* in (225)) or a helping verb (*sein* in (226)).

6.7. Summary

Will and *wollen* are perhaps the most diachronically static of the modal verbs, for their meanings have changed very little, and their grammaticalized uses have been around almost as long as their nongrammaticalized ones. In OE and OHG, *willan* and *wellen* conveyed pre-modal and deontic meanings of desire and volition, and these meanings have remained intact through the ME, MHG, ModE, and NHG periods. The weakly epistemic use, which signifies the future, has been around nearly as long. The main difference between *will* and *wollen* concerns its strong epistemic uses in English and German. In English, strong epistemic *will* is used when the speaker wishes to draw a conclusion--usually about an event in the immediate future--with a high degree of certainty. This is different from weak epistemic futurity, which conveys only volition or prediction about the future. In German, the strong epistemic, quotative *wollen* provides a counterpart to the strong epistemic, quotative *sollen*: instead of claiming that some third-person party claims *p* to be true, the sentential subject is cited as claiming *p* to be true. The listener is “supposed to” believe that *p* is true with the quotative *sollen*, whereas with the quotative *wollen*, the sentential subject himself wants the listener to believe that *p* is true (‘The sentential subject wills *p* to be true’). Perhaps English *will* never assumed this meaning because the quotative *shall* never seems to have carried on into ME.

7. *Dürfen* and *þurfan*

Until now, we have witnessed the comparative development of modal verbs that have been and are frequently used in both English and German. We now shift our focus to a modal verb that has fully developed in German, but has died out in English: *dürfen* and *þurfan*, from the Proto-Germanic **þurban*. Then, in Chapter 8, we will examine the history of English *ought*, and show how its German counterpart, *eigan*, never developed into a modal verb at all.

Determining the meaning of Preterite-Present **þurban* is quite problematic (Birkmann 1987:80-81), but the semantic shift in OHG and OE can best be described as ‘I fulfill myself, I am pleased (with)’ to ‘I require or need (something).’ In other words, the need implied by **þurban* can be attributed to the association of self-fulfillment with the notion of longing for that which fulfills, i.e., one needs what one longs for.

7.1. Old High German

In OHG, *thurfan* meant ‘to require, need’ (Schützeichel 1995:116; Diewald 1999b:350). Its Proto-Germanic meaning is still very much apparent because *thurfan* can appear as the only verb in its clause:

- (227) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) V 12,51f.: *Nóh ist ouh hiar méra
thera frónisgun léra, / thero drúhtines dáto, / thes wir bitúrfun thrato* (Diewald
1999b:350).

‘Even here is more of the holy teaching as well, of the acts of the Lord, which we greatly need.’

This form is obviously cognate to NHG *bedürfen* ‘to require, need,’ but the un-prefixed *thurfan* could be used in the same way and in the same sense. Deontically, *thurfan* could appear with an infinitive complement to signify necessity:

- (228) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) IV 11,37f.: *Quad tho zi ímo druhtin Kríst: ‘thér man ther githuágan ist, / thie fúazi reino in wára, ni thárf er wasgan méra’* (Diewald 1999b:350).

‘Then Christ the Lord spoke to him: “The man, who is washed, his feet truly clean, he doesn’t need to wash anymore.”’

As opposed to *sculan* or even some uses of **muozan*, the source necessitating the action is the subject himself, rather than some external source. *Thurfan* can also signify the sense of permission, which is common in NHG, but only if it occurs within the scope of negation:

- (229) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) IV 1,59f.: *Sie sint so sáma chuani, sélb so thie Románi; / ni thárf man thaz ouh rédinon, thaz Kríchi in thes giwídaron* (Diewald 1999b:354).

‘They are just as bold as the Romans; one need/can/may not assert that the Greeks measure up to them in this regard.’

This was nevertheless a secondary use, for in (229), *thárf* may still be read as indicating necessity; and conversational implicature, in addition to the modal verb itself, influences the interpretation of *thárf* as signaling prohibition, i.e., negated permission (Diewald 1999b:354).

OHG *thurfan* could not be used in epistemic value; it could, however, occasionally allow for wide-scope readings, where the sense of necessity is not limited to the subject itself, but rather to the entire metalinguistic situation (Diewald 1999b:404-405):

(230) Otfrids Evangelienbuch (ed. Erdmann, 6th ed.) IV 5,42: *then weg man fórahten ni thárf!* (Diewald 1999b:405).

‘One need not fear the way [of the martyrs]!’

The alternate wide-scope reading would be ‘It is not necessary to fear the way [of the martyrs]!’ And as we already have seen, such wide-scope possibilities pave the way for epistemic value to enter the scene.

7.2. Middle High German

Durfen/dürfen still signified ‘to need’ (Hennings 2001:127), but phonetic and morphological similarities with the sister Preterite-Present *turren/türren* ‘to risk, dare’ caused *durfen* to assume some of the latter’s meaning (Diewald 1999b:356):

(231) Das Nibelungenlied (trans. Bartsch & de Boor) 342,2: *uns endürfen ander tûsent mit strîte nimmer bestân* (Diewald 1999b:356).

‘Another thousand adversaries need/dare not place themselves against us.’

This association with risking or daring to do an action then began to coexist with being allowed or having permission to engage in an action: ‘I dare to do (something)’/‘I may/have permission to do (something)’ (Diewald 1999b:356). There appears to be some modal tension here, for daring or risking something implies an internal decision, whereas having permission to do something results from an external source/giver of permission. Even so, both these meanings occupied *durfen*’s semantic space in MHG. No epistemic readings of *durfen* are attested, but an increasing number of wide-scope possibilities are attested, and the permission/possibility sense becomes more apparent (Diewald 1999b:405):

(232) Das Nibelungenlied (trans. Bartsch & de Boor) 918,4: *done dórftē Kriemhilde nimmer léider gesîn* (Diewald 1999b:405).

‘Then it could not have been worse for Kriemhild.’

- (233) Das Nibelungenlied (trans. Bartsch & de Boor) 2295,4: *ez endórfte küneec sô junger nimmer küenér gewesen* (Diewald 1999b:405).

‘Such a young king needed/could not ever be bolder.’

- (234) Hartman von Aue, Erec (ed. Schwarz) 2901f.: *ez endorfte vrouwen lîbe / baz erboten werden nie* (Diewald 1999b:405).

‘There needed/could never be a lady waited upon better.’

The alternate wide-scope readings are: ‘It was not necessary/possible for something to be worse for Kriemhild’ (232), ‘There needed/could never be such a young king who was bolder’ (233), and ‘It was not necessary/possible that a lady was ever waited upon better’ (234). Not only do these attestations show the increasing tendency of *durfen* to signal possibility/ permission, but the wide-scope readings point to a soon-to-emerge epistemic use because of the increasing frequency with which *durfen* can comment on the metalinguistic situation.

7.3. New High German

Dürfen could actually still signify necessity until the nineteenth century, but this use declined because during the fifteenth and sixteenth centuries, the permission sense of *dürfen* increased in usage and eventually took over (Diewald 1999b:352), no doubt because of simultaneous developments occurring with *müssen* and *sollen*. The sense of necessity is still apparent in early NHG, but the emergence of the permission function is also clear:

- (235) Veit Dietrich, Etliche Schrifften . . . (ed. Reichmann) 105,3ff.: *Aber der Herr Christus darff Vater vnsers nit. Wir dürffens vñ sollens darumb betē, das wir solchen glauben / vnd trost in vnser hertzen wol bilden* (Diewald 1999b:357).

‘But the Lord Christ does not need our Lord’s Prayer. We need it and must therefore pray it, so that we imprint well such faith and consolation into our hearts.’

- (236) Veit Dietrich, *Etliche Schrifften . . .* (ed. Reichmann) 67,34f.: *Darumb ob der gedanck dir wolt einfallen / Ich bin ein sünder / vnd darff nicht betten . . .* (Diewald 1999b:358).

‘Therefore, when the thought “I am a sinner and need/may not pray” comes to you . . .’

- (237) Kirchenlied (1576) 4,834 W., from DWB Neubearb. 6, 1800: *der ewig berg des herren: / wer wird auf den wol dürfen gan / vnd an seiner hailgen stätt stahn?* (Diewald 1999b:358).

‘The eternal mountain of the Lord: who will be allowed to go on it and on his holy place stand?’

In contemporary NHG, deontic *dürfen* unambiguously signals permission:

- (238) *In einem freien Staat dürfen die Bürger offen ihre Meinung sagen* (Duden 1998:94).

‘In a free state the citizens may openly voice their opinion.’

During the second half of the sixteenth century, an epistemic *dürfen* begins to emerge, and it is often coupled with a helping verb and past participle (Diewald 1999b:406-407):

- (239) Grimmelshausen, *Lebensbeschreibung der Ertzbetrügerin und Landstörtzerin Courasche* (ed. Bender) 26,27: . . . *du dörfdest dir hiebevör im Saurbrunnen vielleicht eingebildet haben* (Diewald 1999b:407).

‘. . . you probably imagined yourself here in the acidic spring.’

Much as with *können* and *mögen*, or English *can* and *may*, real-world possibility metaphorically transfers into the epistemic world as logical possibility (or probability, for the possibility signified by *dürfte* is stronger than the possibility indicated by *können* or *mögen*). During the seventeenth century, the helping verb + past participle environment began to mandate an epistemic reading, and this use increases during the nineteenth century (Diewald 1999b:407):

- (240) Aler dict. 1,497a ‘non abest ille a suspicione’ (1727), from DWB Neubearb. 6, 1800: *er darff es wol gethan haben* (Diewald 1999b:408).

‘He may well have done it.’

In contemporary NHG, the epistemic use of *dürfen* is paradigmatically restricted to the preterite subjunctive *dürfte*:

- (241) Fürther Nachrichten (21 & 22 January 1995): *In den Wintermonaten Januar/Februar allerdings dürfte die Kurve—wie immer in der kalten Jahreszeit—einmal noch weiter nach oben gehen* (Diewald 1999a:126).

‘In the winter months January/February, though, the graph probably will—as always in the cold season—go up even higher once again.’

- (242) *Ihre Hoffnungen dürften in die angedeutete Richtung gegangen sein* (Duden 1998:95).

‘Their hopes probably went in the indicated direction.’

That *dürfen* can only be interpreted epistemically when it appears in its preterite subjunctive form makes perfect sense when one considers the “functional specialization” (Diewald 1999a:126) of this verb. Epistemic *dürfte* usually serves as a tentative conclusion to something explicitly mentioned in the preceding discourse: it is, in a sense, anaphoric. Moreover, the preterite subjunctive is itself phoric because, unlike the indicative, it points to irreal or unfulfilled

conditions in the surrounding discourse. Consequently, it is natural for a modal verb that is both epistemic (deictic) and anaphoric to appear only in its preterite subjunctive form (Diewald 1999a:126-127, 1999b:409-412).

7.4. Old English

OE *þurfan* meant ‘to need’ (Mitchell & Robinson 2001:52), and it is the only modal verb not to survive into ModE. It is not attested very frequently, but when it is, it falls within the deontic realm--indicating necessity on the part of the subject:

(243) *Æfric*, Exod. 9, 28: *ge ne þurfon her leng wunian* (Visser 1969:1423).

‘You need not dwell here long.’

(244) *Guthlac* 1356: *ic swiðe ne þearf hinsið behlehhan* (Visser 1969:1423).

‘I very much need not deride death.’

Þurfan appears not to have had any function other than that of signifying deontic modality or necessity.

7.5. Middle English and Modern English

Much like OE *þurfan*, ME *thurfen* signifies deontic need or obligation:

(245) *S. Legendary, Passion* (MS Pep.) 1905: *We ne dorre beo in no wanhope* (Visser 1969:1423).

‘We need not be in despair.’

(246) *Sir Beues* (MS M.) 4219: *Thurfte he never after to aske leche, That sir Mylis myght ouer-reche* (Visser 1969b:1423).

‘He never after needed to ask the physician whether Sir Mylis might overextend (himself).’

(247) *Paston Lett.* (Gairdner) II, 187: *ye ther not feer* (Visser 1969:1423).

‘You need not fear.’

During the ME period, *thurfen* often dropped its <f> (like in (245) and (247)) and became-- much like in MHG--associated with the word *dare*. But in English, this is what led to *thurfen*’s demise. After this happened, the confusion between *thuren* and *dare* led to the emergence of the quasi-modal *to need to* for signifying necessity. *Thurfen/thuren* consequently fell out of usage by the end of the fifteenth century (Visser 1969:1423). So in ModE, we find *to need to* signifying what *thurfen* used to mean:

(248) St. Th. More, Wks. (1557) 117 E15: *we nede to talk to theim* (Visser 1969:1426).

(249) LOB 12-6299: *The basic questions for the new American administration are two: need the quarrel with Cuba ever have happened, and, can it be put into reverse?*
(Coates 1983:51).

Neither the sense of permission seen in German *dürfen* nor an epistemic value ever became a characteristic of *thurfen*.

7.6. Summary

Both OHG *thurfan* and OE *þurfan* deontically preserve their Proto-Germanic meaning ‘to need’ by signifying the carrying out of an action as necessary. OHG *thurfan* could also signify permission, but only in negative contexts. In MHG and ME, *durfen* and *thurfen* maintained this meaning, but *durfen* came to designate permission. In addition, it allowed for wide-scope readings more often than OHG *thurfan*. In ME, on the other hand, *thurfen* died out by the end of the fifteenth century and the quasi-modal *to need to* replaced it in signaling necessity or obligation. In NHG, *dürfen*’s sole function is to signify permission. Epistemically, *dürfen* may indicate probability; but this value is confined to the preterite subjunctive form *dürfte*, which

links a supposition with previously uttered discourse based on of the phoric nature of the preterite subjunctive.

8. *Ought* and *eigan*

The Proto-Germanic **aigan* meant either ‘to possess’ or ‘to owe, have to pay’ (Visser 1969:1814). It has become one of the core modals in English, but it never assumed this role in German.

8.1. Old English

The OE *ágan* does not maintain its Proto-Germanic use because it never occurs without an infinitive complement. Its lexical meaning ‘to owe’ (Mitchell & Robinson 2001:52) is vaguely attested in its deontic use of ‘to need’:

(250) Trin. Coll. Hom. 75, 19: *and we agan to dai understanden þese þine* (Visser 1969:1814).

‘And we need to understand these things today.’

(251) Peterb. Chron. An. 1140: *þe eorl heold Lincol agænes þe king & benam him al ðæt he ahte to hauen* (Visser 1969:1818).

‘The nobleman observed/held/kept Lincol against the king and deprived him of all that he needed to have’

Just as with **sculan*, the sense of indebtedness appears deontically as obligation or necessity to perform an action. ModE *to owe* is cognate with *ágan*, and the meaning ‘to owe’ is quite apparent in OE as well. However, the preterite form attested above, *ahte* (>*ought*), has broken away from this meaning and has become grammaticalized as a modal verb. In OE, this form on rare occasions conveys present deontic modality:

(252) Lamb. Hom. 5: *þes we ahte(n) to beon þe edmoddre* (Visser 1969:1819).

‘To this we ought to be more obedient.’

This is the only form that has survived, no doubt due to its increased usage in ME (see 8.2).

Ágan is not used epistemically in OE.

8.2. Middle English

Owe in ME was also capable of signifying deontic modality:

(253) Wyclif (Purvey) Acts Apostl. 21, 21: *thei owen not circumcide her sones, nether owen to entre by custom* (Visser 1969:1814).

‘They must not circumcise their sons, neither must they obey their [the Jews] customs.’

(254) Chaucer, C.T. B 2691: *Also ye owen to enclyne and bowe your herte to take the patience of our lord Iesu Crist* (Visser 1969:1815).

‘Also you must agree and bow your heart to take the suffering of our Lord Jesus Christ.’

The preterite form *ought* signaled past obligation:

(255) Malory, Wks. (ed. Vinaver) I, 5: *and soo I went into bed with hym as I ought to do with my lord* (Visser 1969:1818-1819).

‘And so I went to bed with him as I had to do with my lord.’

The use of the preterite to indicate present obligation--albeit a weakened obligation that is more like a suggestion--arose during the ME period (Visser 1969:1819ff.):

(256) Pilgrimage Lyf Manhode IV, xxx (1869) 192: *þe vengeaunce of god . . . of whiche alle aughten haue drede* (Visser 1969:1820).

‘The vengeance of God . . . of which all ought to have dread.’

(257) Bokenham, Legendys of Hooly Wummen (Roxb.) 70: *O doughter Cristyn . . .
wych awtyst to be The light of myn eyn* (Visser 1969:1819).

‘O daughter Christian . . . who ought to be the light of my eyes.’

We see that no major changes in the development of *owe/ought* occur during the ME period, except that the use of *ought* to indicate a (weakened) present obligation becomes more frequent.

8.3. Modern English

In early ModE, *owe* could still signify deontic modality:

(258) tr. De Imitatione Christi (EETSES) 113, 31: *þow owist diligently intende herto*
(Visser 1969:1815).

‘You must diligently intend hereto.’

This use died out by the end of the sixteenth century, probably due in part to semantic rivalries with *must* and especially *s(c)hal* (see Visser 1969:1826-1827 and Coates 1983:77-84 for a discussion of the similarity between *ought* and *should*). *Ought* can indicate past obligation in ModE, but this occurs far less frequently than the weakened obligation/suggestion use (Visser 1969:1819):

(259) E. Walker, tr. Epicteti Enchiridion (1737) To Mr. Walker 61: *Till you . . . did
kindly teach Apollo, what he out to preach* (OED) (Visser 1969:1819).

(260) F. Tennyson Jesse, Pin to See Peepshow (Penguin) 44: *She knew she ought to help
her mother lay the table* (Visser 1969:1819).

Early ModE and contemporary ModE attest *ought* as primarily signifying a weakened obligation/suggestion in relation to present time; and the occurrence of *ought* with a plain infinitive (i.e., an infinitive not preceded by *to*) faded away during the sixteenth century (Visser 1969:1820):

(261) St. Th. More (Wks. 1557) 96 F4: *the misery of this . . . world, well ought we to hate & abhorre it* (Visser 1969:1819).

(262) *There's a new book you ought to see* (Coates 1983:71).

(263) *I think people ought to be better informed about what marriage entails. I don't think they are actually* (Coates 1983:72).

An epistemic reading of *ought* is not attested until contemporary ModE, and much like epistemic *can* or *should*, it signifies possibility:

(264) LOB 3-596: *The job here ought to be finished in a matter of days* (Coates 1983:73).

(265) LOB 3-256: *Surely it ought to have been obvious to Tony that nobody in authority there was going to have a person with my sort of reputation writing articles . . . in their paper* (Coates 1983:75).

Deontic *ought* signifies a weak obligation approaching a suggestion; epistemic *ought* indicates a suggestion that *p* is true. The speaker points out that *p* may be possible, but the lack of force attached to deontic *ought* has carried over to epistemic *ought*, which therefore also lacks the force of logical certainty.

8.4. *Eigan* in German

Eigan never developed into a modal verb in German. It did, however, assume several different functions, which we will only briefly discuss here. In English, it is the sense of indebtedness that governed the meanings of **aigan*; but in German, its original sense of possession has been maintained. OHG *eigan* did not escape the workings of grammaticalization, even though it did not develop into a modal verb. In some instances, it could be used to

analytically express past time, i.e., it served as a helping verb to express the perfect (Braune 1959:251):

- (266) Ludwigslied 23-24: *Hluduīg, kuning m̄n, hilph m̄nan liutin! / Heigun sa Northman harto biduuungan* (Braune 1979:137).

‘Ludwig, my king, help my people! The North-Men have pressed them so hard.’

Such a development, even though already occurring in OHG, should not be unexpected. The sense of possession signified by *eigan* is not too different from that signified by *haben* or *to have*, which also became grammaticalized to serve the same purpose of expressing the perfect (see Visser 1969:1474ff. and Diwald 1997:4-7). This use, however, did not survive the OHG period, perhaps because other verbs like *habēn* or *wēsan* could also serve the exact same function (Braune 1959:251).

In some instances, MHG *eigen* was relexicalized and could be used to refer to a person who ‘belonged’ to someone else (e.g., a vassal or servant):

- (267) Das Nibelungenlied 756,8: *ir man, derst unser eigen* (Grimm 1862:92).

‘Her husband, he is our vassal.’

In early NHG, *eigen* occasionally appears as a main verb and expresses its Proto-Germanic meaning of ownership:

- (268) Ayrer 202^a: *der uns nichts gibet grosz noch klein / weder zu lehen oder zu eigen* (Grimm 1862:96).

‘He who gives us nothing big nor small, neither to borrow nor to own.’

In contemporary NHG, *eigen* appears mainly as a possessive adjective and declines according to case and number:

(269) Goethe 40,318: *denn der mutter sinn ist wie mein eigenes wesen* (Grimm 1862:95).

‘For the mother instinct is like my own nature.’

(270) *Endlich habe ich mein eigenes Auto.*

‘Finally I have my own car.’

Other relics of the Proto-Germanic **aigan* that signifying a sense of possession or ownership in some way exist in NHG: the derived verbs *aneignen* ‘to acquire, appropriate’ and *enteignen* ‘to disown, expropriate,’ the nouns *Eigentum* ‘property’ and *Eigentümer* ‘owner,’ etc. The aforementioned attestations are just a sampling of some of the developments of *eigan* (for a more comprehensive treatment, see Grimm 1862:92-96).

8.5. Summary

OE *ágan* maintained **aigan*’s sense of indebtedness, and it was used deontically to signify necessity of action. Its preterite form could be used not only to indicate past obligation, but also present suggestion (weakened obligation). This use increased during the ME period, and by the end of early ModE, *owe* ceased to be used modally and *ought* was the only remaining form that expressed modality. It also developed epistemic meaning in ModE, indicating possibility. In German, on the other hand, *eigan* never developed into a modal verb, and instead of carrying on **aigan*’s sense of indebtedness, it maintained the notion of possession, which formed the core of the original semantics of this verb. This notion has subsequently been manifested in a variety of ways: verbally, nominally, and adjectivally.

9. Conclusion

We have seen that all the modal verbs were grammaticalized in a similar fashion: they began as stative Preterite-Present verbs (with the exception of **waljan/weljan*) in Proto-Germanic and assumed deontic meaning in the oldest attested forms of English and German, thereby linking the subject to the remainder of the proposition. Instead of merely indicating a state of the subject, the deontic modals--with the help of an infinitive complement--modify the subject's relation to another state or action. Later, after the modal verbs were grammaticalized a bit more, epistemic meaning emerged towards the end of the Middle periods of each language. The epistemic modals allow speakers to express their judgments about a proposition's truth value. Widening scope and the helping verb + past participle environment signaled the emergence of epistemic meaning. So now in ModE and NHG, we find the modal verbs used regularly in deontic and epistemic--and sometimes even pre-modal--values.

Such changes did not occur at random or without motivation, though. Metaphor has been the primary cognitive motivation behind the grammaticalization of the modal verbs. Real-world conditions such as ability, permission, volition, necessity, and obligation were metaphorically mapped onto the epistemic domain to indicate logical possibility and necessity, various aspects of futurity (habitual, prophetic, certain), and indirect discourse.

Can, *können*, *may*, and *mögen* lexically signify ability or permission in one form or another, and *mögen* has even come to signal affinity or volition in some instances. This is no doubt the reason why all four of these verbs convey logical (epistemic) possibility today:

- (39) George Eliot, *Romola* III, LXVIII: *While we are in our youth, there can always come . . . moments when mere passive existence is itself a Lethe* (Visser 1969:1739).
- (50) Radio: *Ich kann mich getäuscht haben* (Diewald 1999a:124).
 ‘I may have been mistaken.’
- (69) *They may or may not come and connect the television on Saturday* (Coates 1983:134).
- (93) *Er mag damit glücklich sein* (Diewald 1999b:289).
 ‘He may be happy with that.’

In all four instances, the speakers/writers do not assert the proposition to be true or false, but only comment on the possibility that the proposition is factually sound. Furthermore, the German *dürfen*, which also signifies permission, epistemically denotes probability, even though this use is more specialized:

- (241) Fürther Nachrichten (21 & 22 January 1995): *In den Wintermonaten Januar/Februar allerdings dürfte die Kurve—wie immer in der kalten Jahreszeit—einmal noch weiter nach oben gehen* (Diewald 1999a:126).
 ‘In the winter months January/February, though, the graph probably will—as always in the cold season—go up even higher once again.’

When used deontically, all of these verbs indicate that the subject is free to engage in the action in question, whether by their own internal or external abilities, the permission of someone else, or possibilities allowed by circumstances. Of course, the subject may or may not decide to engage in the action. So in the epistemic world, it only makes sense that these modals indicate

possibility: there is no logical barrier preventing the proposition from being true, yet the proposition need not be so.

Regarding obligation and necessity, two tendencies seem to arise: one, the epistemic indication of logical necessity, and two, the signaling of future time. English *must* and German *müssen* both signify logical necessity when used epistemically:

(116) *That place must make quite a profit for it was packed out and has been all week*
(Coates 1983:31).

(141) *Er muß mächtige . . . Freunde gehabt haben, die es ihm ermöglichten, . . .
zweiundzwanzigjährig zum Doktor des Kirchenrechts promoviert zu werden in
Padua . . .* (Mortelmans 2000:141).

‘He must have had powerful friends who made it possible for him to be appointed
doctor in canon law at the age of twenty-two in Padua.’

Real-world obligation or necessity drives one to perform what is required, and in the same vein, logical necessity drives one to arrive at a certain conclusion about a particular uncertainty. When obligation or necessity appears in a weakened form and only conveys advice or suggestion, as it does with English *ought*, only possibility is indicated. Consequently, epistemic *ought* signals only logical possibility:

(265) LOB 3-256: *Surely it ought to have been obvious to Tony that nobody in authority
there was going to have a person with my sort of reputation writing articles . . . in
their paper* (Coates 1983:75).

After all, a suggestion to perform an action rather than an obligation means that there is only a possibility that the one being advised will indeed perform the action, not a necessity. And in the epistemic domain, this real-world possibility appears as logical possibility. One other epistemic

use that appears to emerge from the notions of obligation and necessity is that of indicating futurity. *Must, müssen, shall, and sollen* have been--and sometimes still are--used to indicate future time:

- (107) Earl Rivers, *The Cordyal* (ed. Mulders) 112, 17: *The playsirs passe lightly away, and the paynes must remayne euerlestingly* (Visser 1969:1806).

‘The pleasures pass lightly away, and the pains must remain everlastingly.’

- (130) *Das Nibelungenlied* (ed. Bartsch) 506, 3: *mir muoz der iemer lieber sîn der mir ist guot* (Paul 1982:370).

‘He who is good to me must/will always be dearer to me.’

- (165) *I shall have to sort of see what Jim says when I see him* (Coates 1983:192).

- (175) *Die Gedichte Walthers von der Vogelweide* (ed. Lachmann) 77,1: *got sol uns helpe erzeugen* (Paul 1982:369).

‘God shall show us help.’

Obligation or necessity dictates that an action be done; and since present obligation implies future action, it only makes sense that these modals be used to indicate future time. Granted, there is no guarantee that the action will be performed, so all indications of futurity are tentative and colored with other modal features (e.g., prediction, near certainty, etc.).

Volition also appears in the epistemic world as an indication of future time. *Will* and *wollen* have been and still are markers of futurity:

- (199) *Give them the name of someone who will sign for it and take it in if you are not at home* (Coates 1983:171).

- (210) *Kaiserchronik* (ed. Schröder) 12320: *dû wilt von ir grôzen scaden gewinnen* (Paul 1982:370).

‘You will gain from her great harm.’

If someone desires to do something or has strong intentions of doing so, it more than likely will occur. Therefore, *will* and *wollen* were always likely candidates for epistemically marking future time. But here again, there is no guarantee that the action will occur, so all references to future time are assertions of near certainty at best.

Finally, certain semantic similarities relating *sollen* and *wollen* led to the emergence in these forms of another epistemic use: the quotative. *Sollen* signifies an obligation placed on the subject by someone else, whereas *wollen* indicates a strong desire on the part of the subject himself. This distinction quotatively manifests itself as an indication of a difference in the source of a proposition. Quotative *sollen* points to someone other than the speaker as the source of information:

(183) Fürther Nachrichten (Jan. 21&22, 1995): *Der Arzt und die Kosmetikerin sollen 1993 noch zwei Morde geplant haben* (Diewald 1999b:282).

‘The doctor and the beautician supposedly planned two additional murders in 1993.’

Here, the speaker indicates some unnamed third party as the source of the assertion. Hence, this source ‘wants’ the listeners to believe that *p* is true; the listeners are ‘supposed to’ believe that *p* is true. With quotative *wollen*, on the other hand, the sentential subject himself asserts that the proposition is true, and the speaker merely reports this assertion:

(224) *Sie will schon dreimal in Amerika gewesen sein* (Duden 1998:102).

‘She claims to have already been in America three times.’

In other words, the sentential subject wants *p* to be believed to be true. Whether it is or not, however, is another issue. In English, the quotative epistemic use of modals is limited to a few instances of quotative **sculan* in OE.

This study has been a survey of the semantics of the core modal verbs in English and German, and how grammaticalization--primarily via metaphorical extension--has been responsible for the wide variety of deontic and epistemic meanings found in today's systems. I hope to have shown how and why certain epistemic meanings arose from particular deontic meanings, and that metaphor has played a significant role in these semantic changes. Of course, I have left several issues related to grammaticalization and modal verbs relatively unaddressed: the complex syntactic alternations coinciding with developing modal verb systems (see Visser 1969; Plank 1984; Hopper and Traugott 1993:45-48; Axel 2001); the role of illocutionary force and conversational implicature (minimally addressed here); regional variation; negation; double modals; and quasi-modals, which are also the result of grammaticalization. In any case, I hope my study has filled a gap in the scholarship dealing with the comparative development of modal verbs in the Germanic languages and may pave the way for more in-depth, larger-scale studies.

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