

Pascal Hohaus

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A Quantitative Analysis of Syntactically
Dependent Modal Verb Constructions



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1 Introduction

This study is concerned with the use of the English core modals (*may, might, can, could, shall, should, will, would* and *must*) in syntactically dependent co-texts (adverbial clauses, relative clauses and complement clauses). The study employs synchronic data from the British National Corpus (BNC, 100m) and quantitative corpus-based methods to investigate similarities and differences between the core modals, as well as modal-specific preferences with respect to form and meaning in subordinate clauses. The study proceeds from a monofactorial analysis (with modal verb and clause type being the two core variables) to a multifactorial analysis (with categories such as voice and grammatical aspect being investigated). The respective findings are replicated with a follow-up study. Finally, further corpus-based studies of selected micro-constructions in the realm of subordinated modalised clauses are carried out.

The main empirical finding is that modal verbs in adverbial clauses ('adverbial modalities'), relative clauses ('relative modalities') and complement clauses ('complement modalities') may be conceived of as meso-constructions and that they qualify as micro-constructions once further syntagmatic features are considered. The study will argue that the analysis of clause type as a cross-modal category allows for distinguishing modal verb phrases with different degrees of complexity, schematicity, productivity and subjectivity. In more theoretical terms, it provides further evidence for the constructional nature of the modal verb phrase, based upon the frequentist criterion and recent usage-based studies. Further applications of the concept reveal that an analysis of modal verbs in subordinate clauses gives us insights into (a) collocational preferences (with modal collocates in part being clause-dependent), (b) modal harmony (as not being limited to collocations of modal verb and modal adverb), (c) negative semantic preference, and (d) the attraction of dynamic modal meaning to relative clauses.

1.1 Scope of the Study

1.1.1 Modality and Modal Verbs

Modality is one of the major linguistic categories and “stands next to domains such as time and aspect [i.e. aspectuality, PH]” (Nuyts 2016: 32). Being a “category of meaning” (Hacquard 2011: 1485), it should not be confused with the grammatical notion of mood, which comprises verbal mood, i.e. the “grammatical coding of modal meaning” (Depraetere/Reed 2006: 270), and syntactic mood, i.e. the distinction between indicative, subjunctive and imperative (Hermerén 1978: 9). Not surprisingly, modality (and its corresponding linguistic manifestations) has been conceptualised in various ways. Two of these major conceptualisations that will prove central to subordination will be outlined here briefly, i.e. the factuality perspective and the speaker perspective.¹ The first two definitions (Frawley 1992, Narrog 2012) reflect the factuality perspective, and the latter two (Marino 1973, Peters 2013) the speaker perspective:

“The basic denotation of modality is the opposition of actual and nonactual worlds, or more technically, *realis/irrealis*.” (Frawley 1992: 387)

“Modality is a linguistic category referring to the factual status of a proposition.” (Narrog 2012: 6)

“[Modality] in its broadest sense is the speaker’s view of the potential involved in the predication” (Marino 1973: 312)

¹ Squartini (2016) distinguishes between a semantic notion (roughly corresponding to the factuality view) and a pragmatic notion (roughly corresponding to the speaker view), but, as a third concept, introduces a logical notion, with possibility and necessity being conceived of as binary and mutually exclusive categories (rather than as gradual phenomena). Kiefer (2009) also proposes distinguishing three perspectives on the notion of modality, i.e. modality being related to (a) necessity and possibility, (b) any modification of a proposition, and (c) “what the speaker is doing with a proposition”.

“Modality is the speaker/writer’s perspective on the verbal process, e.g. the likelihood or certainty of it happening, and whether there is some obligation or necessity tied up in it.” (Peters 2013: 210)

In a semiotic sense, it may be argued that the factuality perspective emphasises Bühler’s (1934, qtd. in Renkema 2004: 11ff.) symbolic aspect of language whereas the speaker perspective foregrounds its symptom aspect.² This semiotic understanding leads us to the assumption that the two perspectives are by no means mutually exclusive, as a linguistic sign (here: a modal expression) includes both components. The possibility to combine factuality and speaker attitude is also nicely illustrated at the end of the following statement:

“One feature that is common to all modal utterances is that they do not represent situations as straightforward facts (cf. e.g. Zandvoort 1964: 395; Bache and Davidsen-Nielsen 1997: 316). However, the wealth of literature on modality would seem to suggest that linguists intuitively feel that modality is something semantically far richer than ‘lack of factuality.’ We can get nearer to a positive characterization of modality if we say that modal meaning crucially involves the notions of

² Conceptually speaking, the notion of non-factuality resembles the concept of displacement, which describes the human ability “to talk about things that are remote in space or time (or both) from where the talking goes on.” (Hockett 1960: 90); some consider it a design feature of language and, in more historical and evolutionary terms, refer to it as “the real breakthrough into language” (Bickerton 2009: 160) (for a critical treatment of displacement as a design feature of language see also Dor 2015: 28). A similar understanding of modality is offered in those analyses that emphasise the deictic function of modal verbs: Frawley (1992: 387ff.) argues that “the notions underlying deixis provide an explanatory framework for the realis/irrealis opposition” and in favour of an analysis of modality as “epistemic deixis”. In the same vein, Traugott and Dasher (2002: 50) discuss the relation of deixis and modality, i.e. the deictic function of both epistemic modal verbs as well as modal adverbials, and the importance of modal expressions in politeness strategies (commonly referred to as ‘honorifics’).

necessity and possibility (Larreya 1984; Van der Auwera and Plungian 1998; Huddleston and Pullum et al. 2002: 173), or rather, involves a speaker's judgment that a proposition is possibly or necessarily true or that the actualization of a situation is necessary or possible." (Depraetere 2006: 269, emphasis added)

Regardless of the question whether the (non-)factuality perspective or the speaker perspective (or a combination thereof) is adopted, modal meanings are generally described along the lines of two semantic notions: modal strength and modal flavour. Pragmatic meaning, as Depraetere (2014) points out, may be added as a third layer. Modal strength relates to the notions of POSSIBILITY and NECESSITY, with the former constituting 'weak' meaning and the latter 'strong' meaning; modal flavour is usually defined as comprising epistemic or non-epistemic meaning; pragmatic modal meaning comprises notions such as 'politeness', 'hedging' and 'downtoning'.

In the last two decades or so, the scientific community has observed a "taxonomic exuberance" (von Stechow 2006: 2) of semantic research on modality, so there has been a proliferation of terms being applied to capture the slightest semantic differences between modal verbs as used in discourse (a very detailed overview of classifications and taxonomies in research on modality is offered in Nuyts 2016). This list gives a very broad overview of the various classification systems that have been proposed for modal meaning (more precisely, modal flavour and modal pragmatic meaning):

- Coates' (1983) binary classification into root (i.e. non-epistemic) meanings and epistemic meanings
- Bybee, Perkins, and Pagliuca's (1994) classification into agent-oriented modality, epistemic modality, speaker-oriented modality and subordinating moods

- Palmer's (1990, 2006) notions of propositional modality and event modality, with the former comprising epistemic modality as well as evidential modality³ and the latter covering dynamic and deontic meaning
- Mindt's (1995) concept of 17 modalities (with highly pragmatised notions such as politeness and downtoning)
- van der Auwera and Plungian's (1999) distinction between situational modality and epistemic modality
- Nuyts' (2001) threefold classification of modal meanings into epistemic meaning, dynamic meaning and deontic meaning

Despite the complexity of some of these classifications, it should be stated that so far research has largely neglected the importance of structural factors that (may) guide modal verb use, with the subordination cline being one of these factors. But before I turn to subordination and the syntactic integration of modal verbs, I will briefly describe the linguistic manifestations of modal meanings, and to do so, will first review the concept of modalisation:

“A binary opposition holds between non-modalized (factual) propositions and modalized (non-factual) propositions.”
(Narrog 2012: 6/7)

“A modalized sentence locates an underlying or preajacent proposition in the space of possibilities.” (von Stechow 2006: 1)

The notion of ‘modalisation’ leads us to those expressions that encode modal meanings, i.e. modal expressions (‘modal words’ in Hacquard 2011:

³ Palmer's (1990, 2006) concept of evidential modality may be considered the most controversial in his classification of epistemic meanings. Indeed, the relation of evidentiality and epistemicity (and, more generally, modality) has been discussed extensively in the literature, and there have been various proposals as to how these two categories should be conceived of. The most exhaustive and detailed discussion of the relation between epistemic modality and evidentiality is offered in Boye (2012).

1485 and ‘modalized expressions’ in Simpson 1993: 62). According to Aarts, Chalker and Weiner (2014: 243) one can distinguish a narrow concept from a wide concept of modal expressions. The wide concept assumes that modalisation is achieved by means of modal auxiliary verbs only, whereas the narrow concept assumes that modal meaning can emerge in the use of any linguistic means available. In English, the core modal expressions are the support verbs *may, might, can, could, shall, should, will, would* and *must*; certain non-auxiliary verbs are also commonly treated as modal verbs, such as *think, believe* and *hope* (so-called lexical modals). In addition, the English language has a wide array of modal expressions other than auxiliary or non-auxiliary verbs, i.e. modal adjectives, modal adverbs, and modal nouns.⁴ In this study the focus is entirely on those expressions that have become known as the above mentioned “core modals” (Collins 2009).

Linguistic research on modality was long concerned with verbal expressions only. Nuyts (2001: 29) argues that “[s]ometimes one even discerns a tendency to simply equate the study of (epistemic) modality with an analysis of the modals [i.e. modal auxiliaries, PH].” This becomes evident especially in the seminal work of Joos (1964), Hermerén (1978), Coates (1983, 1987) and Palmer (1986, 1990). It was much later that research turned towards the analysis of “modal carriers” (Hoye 2005a) other than auxiliary verbs.⁵ I argue that at least three strands may be distinguished among those researchers that analyse the use of modal expressions and

⁴ It has been subject to debate where to draw the line between ‘modal’ expressions and ‘non-modal’ expressions. The fact that seemingly non-modal expressions (especially lexical verbs) can adopt a modal-like status has been referred to as “covert modality” (Portner 2018: 5).

⁵ The first one to argue explicitly for broadening the concept of modality to include the analysis of expressions other than modal verbs was Stubbs (1986). Rather than analysing any modal expression in detail, he argues for a broad category of interpersonal meaning that comprises modal meanings. This corresponds to the notion of engagement in appraisal theory and has more recently been revived in Hunston’s (2011a) work on evaluation.

each of these strands is relevant to this study as will become evident in chapter 2 and chapter 3:

The first group of studies follows lexicalist assumptions as a selected modal expression is classified (in semantic terms) into a “pre-defined category” (de Haan 2009: 260). These pre-defined categories are usually the above described semantic notions ‘modal strength’ and ‘modal flavour’ as well as related notions such as permission, obligation and prediction (Collins 2009). These concepts have been studied from both a cognitivist perspective (Talmy 1985, Sweetser 1990) and non-cognitivist perspective (Coates 1983, Palmer 1990) and have proved highly relevant in the last three decades: They have been applied in numerous corpus-based studies to shed light on distributional aspects of modal verb use (such as register differences and dialectal differences).

The second strand goes beyond the level of modal verbs and focuses more on “how words mean” (Evans 2009) rather than on “what words mean”; accordingly, they adopt a lexico-syntactic approach (rather than a lexicalist one) and argue for a broader concept of ‘modal grammar’ (Stubbs 1986), according to which the modal meaning resides in phrases, collocations, and multi-word units.⁶ Accordingly, it is assumed that the non-factual events or situations become instantiated on the syntagmatic axis through a “local grammar” (Warren/Leung 2016). This local grammar may be described as consisting of various factors including the integration of a modal verb in a specific type of clause. In functional terms, the analysis of

⁶ Still today, the corpus-based analysis of the use of modal verbs is very much an undertaking of semantics. In the 1970s and 1980s, the main question addressed in works on the English modals was whether modal verbs are best described as monosemous or polysemous. Pragmatic (and discourse-oriented) aspects of modal verb use were first analysed by Holmes (1984). Therein, the question of how modal expressions modify illocutionary force is investigated. For example, she argues that epistemic expressions such as *certainly* or *it is certain that* are boosters, whereas epistemic expressions such as *might* and *possibly* serve the function of downtoners. Genuinely pragmatic accounts of modality are relatively rare. An exception to that is work that has been done in relevance theory (as in Papafragou 1998a).

these “patterns” sheds light on evaluation in language (Hunston 2011a, summarised in Hunston 2011b) and emotion in language (Bednarek 2008a, 2008b).

The most recent strand in corpus-based linguistics argues for a constructionist modeling of modal verbs. They will be described in more detail in chapter 3.1.4. However, to offer a short summary, their focus is especially on frequency effects, such as diachronic changes of collocates of modal verbs (Hilpert 2016) and on idiosyncratic aspects of modal meaning (Cappelle/Depraetere 2016a, 2016b). Similarly, there have been some attempts to analyse modality in a frame-semantic framework wherein the emergence of modal meanings in discourse is thought of as being derived from highly abstract schemas.⁷

1.1.2 Subordination and Subordinate Clauses

For semantic aspects of subordination, at least two paradigms need to be distinguished, i.e. the cognitive-linguistic paradigm and the interactionist paradigm (Laury/Suzuki 2011: 2). For the cognitivist paradigm, the distinction between figure and ground has been made, with the figure relating to independent (or matrix clauses) and the ground relating to subordinated structures. For Langacker (2008: 414), one of the main dimensions for the

⁷ To the best of my knowledge, only Furmaniak (2010, 2011) has attempted to explore modal expressions from a frame-semantic perspective in more detail. In his view, “any given modal meaning (such as —obligation) is underpinned by a much more complex conceptual structure or frame” (Furmaniak 2011: 48) in the Fillmorean sense. He denies that there is a semantic core of modality, i.e. any sort of root modality. Applying frame semantics to epistemicity, Furmaniak argues that even “root *must* refers to a complex conceptual frame which, from the start, contained an epistemic judgement concerning the occurrence of the modalised state of affairs and that, in certain contexts, this backgrounded epistemic position became foregrounded and conventionalised into a separate sense of the modal”. (Furmaniak 2011: 42) As such, he goes far beyond the physical readings of epistemic modality as they can be found in Talmy’s (1985) force dynamics and hence argues against Sweetser’s (1990) metaphorical extension account of the emergence of epistemic modality out of root modality.

subordination cline is ‘profiling’; the assumption is that subordination concerns the question “whether a clause’s profile prevails or is overridden at higher levels of organization”. In non-cognitivist interactionist approaches, by contrast, it is assumed that each clause represents an action and that subordinate clauses represent actions that are integrated into another action; this phenomenon is referred to as “inclusion” (Laury/Suzuki 2011: 2/3). This goes hand in hand with the assumption that main clauses (or independent clauses and matrix clauses) encode actions that are more “central”, while subordinate clauses refer to less “central” actions (Auer 2005: 9). It is generally assumed that “matrix clauses code foreground information, [whereas] subordinate clauses function as backgrounded clauses that support, enrich, or comment on the events of the main narrative (cf. Tomlin 1985; Thompson 1987; Matthiessen and Thompson 1988)” (Diessel 2004: 45).

For the linguistic manifestations of the subordination cline, it needs to be stressed that a specific clause is to be analysed not only as representing a proposition (i.e. the events being encoded), but also forming a unit with its surrounding clauses. This idea has also been established in adaptive approaches to grammar (Givón 1992, 1995) and is referred to as the ‘device of co-relevance’. This phenomenon may be defined as follows:

“once within the membership of a clause relation, a clause must be co-relevant; that is, it must make sense as a second member within the scope of the semantics of lexical and grammatical choice of the first member” (Winter 1994: 67/68)

There are various proposals as to how a clause relation should best be classified in syntactic terms; it has been common to argue for a continuum

approach to subordination.⁸ There also seems to be a consensus on the fact that clauses may be classified as ‘independent clauses’ if they can stand on their own in syntactic terms and as ‘subordinate clauses’ if they depend upon another clause. This terminology is applied in this study as well; the term matrix clause will be applied only to complex sentences that contain a complement clause that is governed by a ‘matrix’ verb. In addition to this well-established classification of clauses into independent and subordinate clauses, it is commonly assumed that the latter category may be further differentiated based upon (a) whether the subordinate clause modifies a noun or not and (b) whether the clause is obligatory or optional (Gast and Diessel 2012). While both the binary classification into independent and subordinate clauses and the more elaborate classification into three types of subordinate clauses such as adverbial clauses, relative clauses and complement clauses have been subject of criticism, they still prove as useful tools in the analysis of authentic language.⁹

⁸ Lehmann (1988) argues that six aspects need to be distinguished regarding the subordination cline: The first criterion relates to the place of a subordinated clause with respect to the complex (paratactic clause combining vs. embedded combining) (Lehmann 1988: 4). The second criterion relates to the three levels that are commonly distinguished in the analysis of sentences: core (verb level), nucleus (clause level), and periphery (above the clause). The third criterion is deserialisation and concerns the structural properties of the subordinate clause; the subordinate clause may either be sentence-like or may become an embedded part of the matrix clause. The fourth criterion relates to the grammaticalisation of the main verb. The two final criteria concern the question whether there is explicit/syndetic or implicit/asyndetic linking between two clauses and whether the linked clauses represent two propositions similar in meaning.

⁹ The definition of subordinate clauses as clauses that cannot stand on their own has raised some criticism in the cognitivist literature. Langacker (2008: 413), for example, gives the example of the utterances *She claims [she has swallowed a spider]* and *She claims [to have swallowed a spider]*. The bracketed units are traditionally considered verb-complement clauses (the first one being a finite complement clause and the second one being a non-finite clause). In principle, the bracketed unit in the first utterance can stand alone, while this is not the case for the second utterance. Such an analysis, however, would run against the very basic idea of complementation, and hence, Langacker (2008: 413) concludes, the formal, binary distinction between independent clauses and subordinate clauses seems problematic.

1.1.3 The Syntactic Integration of Modal Verbs

In accordance with the semantic notions of modality and subordination as well as their respective linguistic manifestations, this subsection elaborates on the relation of modal verbs and their syntactic surroundings. Following the two previous subchapters, this concept will be explored regarding both its conceptual foundation and the respective linguistic manifestations. Specific attention will also be drawn to Roberts' (1989) and Verstraete's (2007) notions of modal subordination and to the notion of subordinating moods/modalities as put forth in Bybee/Perkins/Pagliuca (1994).

In conceptual terms, syntactically dependent modal verb phrases encode possible or necessary actions, events or states that 'comment' on a foregrounded situation, which itself may be factual or non-factual. For linguistic manifestations, each modalised clause may be classified as an 'independent modalised clause' or 'subordinate modalised clause'. Following the ideas presented in the previous subchapter, with the concept of subordinate clauses being far too vague to cover both formal and semantic differences between instantiations of subordinate clauses, it is useful to apply a fourfold distinction instead, i.e. independent modalities (example (1)), adverbial modalities (example (2)), relative modalities (example (3)) and complement modalities (example (4)), with each of the example above being a prototypical member of the respective category.

- (1) 'It **will** be the end of family life as I know it (B1Y 634)
- (2) As Teddy **will** be back at six, she takes the other rooms by storm (HH0 3620)
- (3) extravagantly foolish predictions and claims within the educational technology literature, which **will** be a considerable embarrassment to the many sensible and imaginative teachers who (EW7 232)
- (4) Harbour Commissioners are confident that during the 1990's the Port of Belfast **will** remain Ireland's premier port, largely due to its ability to (AMH 489)

These four *will* clauses reflect the most basic types of my classification and may be instantiated in various ways. For independent modalities, one may follow basic syntactic terminology and distinguish ‘simple sentence modalities’, ‘compound sentence modalities’ and ‘complex sentence modalities’ depending on whether a further (modalised or non-modalised) clause is attached to the respective modalised clause and, in case of a bi-clausal sentence, the type of that conjoined clause. For subordinated modalised clauses, various combinations of the subordinated clauses are possible: A modalised relative clause, for example, may be part of a (modalised or non-modalised) adverbial clause. Furthermore, the concept is also not specified as to whether the conjoined clause (adverbial clauses) or the matrix clause (complement clauses) is modalised or non-modalised.

Even though the term may indicate otherwise, the concept of subordinating modalities (as conceptualised in this study) is not related in any way to Roberts’ (1989) notion of modal subordination, which has also been discussed under the term of anaphora resolution. Let me cite the following examples to illustrate the difference (example and description of the problem taken from McCready 2015: 162):

- (5) A wolf **might** come in. # It is very big.
- (6) A wolf **might** come in. It **would/might** eat you first.

A wolf is in the scope of *might* and so anaphoric reference in example (5) is infelicitous, whereas it is possible in example (6) as the second sentence is modalised. The reason for that is that in both utterances the first sentence creates a modal context, with the following sentences being subordinated to that modal context (Ehrich 1992: 56). This notion of subordination here is not a syntactic notion, but one relating to the semantics of modal expressions and to their (incremental) processing. As pointed out before, the study is concerned with the use of modal verbs in subordinate clauses and so it addresses the question of whether a specific modal auxiliary in a subordinate clause is needed for anaphoric resolution or not.

Second, the linguistic forms investigated in this analysis are likewise unrelated to Verstraete's (2007) notion of modal subordination. Verstraete (2007) argues along the line of what he refers to as the 'interpersonal' system of language. This supercategory of 'interpersonal grammar' comprises three parameters, i.e. modality, speech function, and scope:

“modality encodes a position towards the propositional content of the clause, speech function assigns responsibility for this position in speaker-interlocutor interaction, and scope delineates the domain over which this position operates.” (Verstraete 2007: 7)

These three functions become instantiated on the syntactic axis in different ways. For modality, Verstraete (2007) examines the notion of subjective modality and objective modality. Central to the parameter of speech function are notions relating to sentence mood, i.e. declarative and interrogative mood. Finally, scope refers to whether the second proposition in a complex sentence is in the scope of the first one. Accordingly, he proposes a typology of four constructions based upon the presence (or absence) of the marked realisations of speech act function, modality and scope: 'coordination', 'modal subordination', 'free subordination' and 'bound subordination'. As the title of his monograph indicates, these terms are not equivalent to the way they are commonly used in syntactic research. For the construction type of modal subordination, Verstraete (2007: 133) argues that the two conjoined clauses have a “modal value of their own”, but the second utterance in the clause complex has no active speech function (no illocutionary force); also, the second proposition is not in the scope of the first one; it is most commonly realised by conjunctions such as *whereas*, *as*, *although* etc.

As Verstraete (2007) focuses on structural aspects of subordination, his concept of modal subordination resembles the notion of subordinated modalised clauses as understood in this study (unlike Robert's (1989)

notion of the term). Nonetheless, there are two important differences: First, Verstraete (2007) concentrates on adverbial subordination, i.e. on biclausal relations. Relative clauses are not part of his investigation (Verstraete 2007: 299, end note 57) and he also explicitly excludes complement clauses from the analysis (Verstraete 2007: 102). Second, Verstraete (2007) defines clause type as a linguistic category against which the three parameters of interpersonal grammar are interpreted. Put another way, even though Verstraete (2007) sheds light on issues relating to modality and even though my study sheds light on issues relating to subordination, the ultimate aims of our studies are different. Verstraete (2007) is mainly interested in redefining the category of subordination (through the notions of modality, speech function, and scope), while my study is concerned with redefining the notion of modality (through the notion of clause type). Therefore, his work has rarely been cited in recent analyses of modality but has received much more attention in typology.

Finally, my notion of subordinating modalities also differs from Bybee, Perkins and Pagliuca's (1994) use of the term (sometimes also referred to as subordinating moods). Therein, these are defined as one of four types of modality, with the other three categories being agent-oriented modality, speaker-oriented modality and epistemic modality; in other words, they argue that subordinating modalities/moods convey a specific type of modal meaning rather than that these subordinating modalities are just specific instantiations of modalised clauses (as I argue). More precisely, they define subordinating moods as follows:

“The same forms that are used to express the speaker-oriented and epistemic modalities are often also used to mark the verbs in certain types of subordinate clauses. In this chapter we discuss complement clauses (17), concessives (18), and purpose clauses (19).

(17) I suggested that he should call you immediately.

- (18) Although he may be a wise man, he has made some mistakes in the past.
- (19) We are working now so that we can take the summer off.

The reader should note, however, that our treatment of subordinate clauses is restricted to those containing special finite verb forms. Complementizers and non-finite verb forms were not within the scope of our study, although they surely constitute interesting objects of study. Our focus is simply on understanding how special verb forms become associated with certain types of subordinate clauses.” (Bybee/Perkins/Pagliuca 1994: 180)

Their classification of modalities into speaker-oriented modality, agent-oriented modality, epistemic modality and subordinating mood suggests that one is dealing here with a distinct type of meaning (focus on the mood component of the notion), while their definition of the term offers a more distributional perspective as the occurrence of modal verbs in subordinate clauses seems to matter (focus on the subordinating component of the notion). However, the latter sense does not seem to be of utmost importance in their analysis, for they identify subordinating moods with subjunctives at a later stage in their analysis (Bybee/Perkins/Pagliuca 1994: 212ff.). Studies that apply their notion of subordinating moods are ambiguous concerning the question of whether the notion relates to the subjunctive (and similar categories) as it occurs in subordinate clauses or to the use of modal verbs in subordinate clauses per se. De Haan (2006: 30) defines subordinating moods as the “use of modality in subordinate clauses” and the subjunctive as “one exponent of subordinating moods”; this, I argue, leaves space for the analysis of the usage of ‘non-subjunctive’ subordinating modalities in my sense. Squartini (2018: 277), by contrast, argues that “mood has strict correlations to syntax (‘subordinating moods’)” and so he locates the concept in the field of mood. In a similar way, Downing (2015: 132)

argues that “[i]n English, mood has to do with clause types rather than verb inflection”.¹⁰

In this sense, Bybee, Perkins and Pagliuca’s (1994) notion of subordinating moods still deviates from what I understand as subordinated modalised clauses in this study. I treat the criterion subordination as the main, defining criterion of the concept and thus, as previously mentioned, analyse it as a structural, cross-semantic category rather than as a type of modal meaning with a similar status as epistemic and root modality; in my understanding, the use of modal verbs in syntactically dependent contexts concerns instantiations of any modal verb pattern, and hence they are applicable to (a) modal expression with any semantic modal meaning and pragmatic modal meaning and to (b) any formal type of modal expression (modal adjective patterns, modal adverb pattern etc.). So, the issue of whether the respective complement clause may be marked for ‘subjunctive’ may but need not necessarily be tackled in a corpus-linguistic analysis. So, agent-oriented, speaker-oriented and epistemic modalities then have independent realisations and subordinated realisations. This study aims to answer the question whether corpus data provides evidence for a classification of the respective subordinated realisations into complement

¹⁰ The delimitation of mood and modality is by no means trivial. Palmer (2003: 2) assumes that modality is a super-category, which consist of two subcategories, i.e. mood and modal system. For mood, he claims, one finds a binary system, i.e. a distinction between an indicative realisation and a subjunctive realisation of a specific utterance; he goes on to argue that the ‘modal system’ (i.e. the use of modal expressions, such as modal auxiliaries or modal adjectives) is best described as a continuum, so it consists of strong modal expressions (*must*), intermediate modal expressions (*should*) and weak modal expressions (*may*). Following this classification, it may be argued that each language in fact either goes along the path of “modal system” [here, this refers to modality] or the path of “mood” (Palmer 2003: 3), with verbal mood hardly being relevant to English anymore since the subjunctive form has basically gone extinct. In opposition to Palmer (2003), de Groot (2010: 551), by contrast, treats mood as a (morphological) supercategory, which comprises the subcategory illocution (speech act realisations) and modality (as a concept relating to the modification of the speech act content).

clause modalities, adverbial clause modalities and relative clause modalities, which leads me to the research aims of the study (Table 1).

1.2 Research Aims

As mentioned in the previous subsections, while both the notion of modalised clauses and the notion of subordinate clauses are well-established in corpus-based research, their relation has not been extensively studied in a systematic way. On the contrary, there seems to be a bias towards a restricted number of special cases, where the importance of the syntactic integration of a modalised verb phrase can hardly be denied. Among these are the use of the subjunctive (as described before), the distribution of conditional clauses and the notion of backshifting. These studies may provide us with valuable insights into semantic aspects of modal verb use, but these phenomena are relevant to specific modal verbs rather than the modal verb paradigm as a whole: the periphrastic subjunctive is attested to occur especially for *should* (Davies 2015), conditional clauses are a main syntactic preference of the modal verb *would* (Declerck/Reed 2001) and backshifting is discussed in relation to conditional clauses (Dancygier 1999: 43) as well as complement clauses (Leech 2014: 108).

The first group of research questions addressed in this study relates to how clause type and modal verbs are related and how usage features are distributed among modal verbs in syntactically dependent co-texts. Both the lexicalist strand (Coates 1983, 1987, 1990; Palmer 1990) and the lexico-grammatical strand (Stubbs 1986, Hunston 2011a, 2011b) have focused mainly on semantic and pragmatics questions. For the former strand, researchers have argued for refining the traditional root-epistemic distinction, which has led to a high number of semantic labels to analyse modal meaning; this has had a positive impact as the analysis of modal verb use has become highly detailed in the last two decades. Questions of the relation of modal verb and structure (such as clause type), however, have been neglected and the same applies to the lexico-grammatical strand. While, by

definition, their focus is more on structure and co-text, they have emphasised mainly the importance of pragmatic meaning and have thus not considered the relation between modal verb paradigm and syntactic structure.

For the more analytical perspective that construction grammar provides, constructionist studies have gone far beyond the lexicalist works of Coates (1983), Palmer (1990) and Collins (2009) and the lexico-grammatical analyses of Stubbs (1986) and Hunston (2007, 2011a). They have shown that the modal verb phrase may be modeled along the lines of constructionhood. Accordingly, the second group of questions addressed in this study relates to the theoretical modeling of modal verb phrases and modal verb phrases in syntactically dependent co-texts. As will be described in chapter 3.1.4, there have recently been various attempts to conceptualise modal verb phrases as constructions, with the focus being on the frequentist criterion, and this study tries to elaborate on this in relation to the subordination cline. The question to be addressed here is then whether it is legitimate to incorporate clause type (as a syntactic variable) into a constructional account of modal verbs and whether the data provides any evidence that (a) there are over-representations of clause types for particular modal verbs and that (b) modal verbs in syntactically dependent clauses differ concerning their collocational preferences (collocation here understood in a very broad sense to include semantic preference and colligation). A related question that may be addressed is whether the high frequency of certain constructs is due to psychological phenomena (entrenchment).