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Polyfunctionality and the Ongoing History of English Modals

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Declaration of originality

I hereby declare that I have written this dissertation by myself, using only literature and sources cited below.

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Abstract

This dissertation aims to prove a link between the semantics of modal elements and formal properties. More precisely, it suggests the hypothesis that the polyfunctionality of a modal element, i.e. the ability of a modal to simultaneously express deontic and epistemic modalities, is in some languages reflected by morphosyntactic properties that cannot be observed with any other morphemes in the lexicon. The work focuses on English, and using a series of empirical evidence, it demonstates that polyfunctionality is linked to the absence of agreement *–s* and operator properties, i.e. the modal element inverts in questions, is followed by a clausal negation, etc. The work deals in detail with synchronic as well as with diachronic development of English modals, focusing both on central modals (*can, should, must*, etc.) as well as on marginal modal elements, such as *dare, need, ought* and on reduced modal expressions *gotta, gonna, wanna,* and *better*. As for German modals, the work proves that modal polyfunctionality in this language is related to the absence of agreement. The dissertation deals with central as well as marginal modals, such as *dürfen* 'may', *können* 'can', *mögen* 'may', *werden* 'be, become', *brauchen* 'need', showing how semantics impacts the morphosyntactic properties of these elements. The last section discusses polyfunctionality with Chinese modals and demonstrates how polyfunctionality can contribute to a more systematic analysis of Chinese modals.

Abstakt

Disertační práce prokazuje spojení mezi sémantikou modálů a jejich formálními vlastnostmi. Práce přichází s hypotézou, že modální polyfunkčnost, tj. schopnost modálu vyjadřovat současně deontickou a epistemickou modalitu, je v některých jazycích propojena s morfosyntaktickými vlastnostmi, které nelze pozorovat u jiných slov. Práce se zaměřuje zejména na anglické modály a za použití příkladů dokazuje, že polyfunkčnost anglických modálů je spojena s absencí morfému –*s* vyjadřující shodu a se syntaktickými vlastnostmi operátora, tj. morfému invertujícího v otázkách a předcházejícího větné negaci. Práce analyzuje modály jak ze synchronního, tak z diachronního pohledu se zaměřením na centrální modály (*can* 'moci', *should* 'mít povinnost', *must* 'muset'), marginální modály (*dare* 'odvážit se', *need* 'potřebovat', *ought* 'mít') a na redukované modální struktury *gotta* 'must', *gonna* 'hodlat', *wanna* 'chtít' a *better* 'raději'. Práce dále ukazuje, že polyfunkčnost v němčině je spojena s absencí shody. Disertace se zabývá centrálními i marginálními modály jako jsou *dürfen* 'smět', *können* 'moci', *mögen* 'chtít', *werden* 'stát se, být', *brauchen* 'potřebovat' a ukazuje, jak sémantika ovlivňuje jejich morfosyntaktické vlastnosti. Poslední část práce se zabývá polyfunkčností čínských modálů a ilustruje, jak lze čínské modály systematicky analyzovat právě na základě jejich sémantických vlastností.

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Introduction

Few areas in linguistic research enjoy such an attention of scholars as modality and the related phenomenon of modal elements (=modals), e.g. English *will*, *can*, or *must*, German *müssen* 'must', *können* 'can'. Modals are studied from various perspectives, ranging from a number of linguistic schools to philosophical and logical approaches. When focusing on linguistic studies only, modals are studied in grammatical as well as semantic approaches, and there are countless cross-linguistic as well as language-specific studies. While research is carried out in the framework of traditional (functional) schools, the phenomenon of modality has recently been of interest to scholars related to formal approaches to grammar as well. Besides that, there are many diachronic studies, as well as studies focusing on present-day behaviour of modal elements in a particular language.[1]

Despite such extensive research in the area, it is surprising that there are still issues which have not been satisfactorily addressed. These include the very definition of the term 'modal element' – its cross-linguistic definition is far from a trivial one. In many languages, as English, German, and French, modal elements are studied under the term modal verbs. However, as this work will demonstrate, the verbal category is only one of many possible categories that can express modal meanings, i.e. there can be modal adjectives, or modal auxiliaries. In this work the definition of a 'modal' will be based on the semantics of modal elements – more precisely, a modal element is defined as a morpheme with ability to express multiple modal meanings, i.e. it is polyfunctional. Another issue is the distinction between central vs. marginal modals. Whereas central modals in various languages are usually very well

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[1] Linguistic studies related to modals and modality in general have been recently carried out by Portner (2009), and Narrog (2012). Cross-linguistic studies on modality are represented by Van der Auwera, Ammann, and Kindt (2005), and de Haan and Hansen (2009). In terms of studies focusing only on English modals, among the representatives of a traditional approach are Warner (1993) and Palmer (2001). The studies of both semantic development and grammaticalization can be found in Traugott and Dasher (2003). Present-day changes in English grammar are discussed, among many others, by Krug (2000), Collins (2009), and Leech et al. (2009). The leading formal studies on grammaticalization of English modals have been carried out initially by Lightfoot (1979), and later by Roberts and Roussou (2003). Besides innumerate publications on modality and modals in English, there are many authors that focus on modals in other languages. Among German studies, there are Öhlschläger (1989), Diewald (1999), Reis (2001). Many of these I am going to use in my study.

mapped, the issue of marginal modals is not discussed in detail. Scholars hardly ever provide any consistent delimitation of central vs. marginal – the boundary between the two groups is frequently blurred and based on various (inconsistent) criteria. Third, there is hardly a universal explanation as to why modal elements in many languages (for example English modals) demonstrate behaviour distinct from other members of the same category, and why some modal elements behave in a way which cannot be observed with others.

This dissertation addresses and answers some of these issues. Firstly, it suggests a hypothesis, which explains the behaviour of every modal element in English and German, and the hypothesis claims to have a potential for universal validity. Secondly, the dissertation adopts a cross-linguistically applicable definition of a modal element, and uses it for the formal and semantic analysis of modal elements – this type of treatment has not been used by any other study dealing with modals in a particular language.

Contents of the dissertation are predominantly English and German modals; however, other languages are frequently discussed as well. It starts with a brief description of modality, and introduces the term 'factuality'. Then, it focuses on the status of modal elements in general. Chapter 2 introduces the key concept of the dissertation, namely modal polyfunctionality, as being the only cross-lingustically valid defining property of modals. In chapter 3, I deal with modal elements from a cross-linguistic perspective showing how various languages (Romance, Slavonic, Balto-Finnic, etc.) convey modal meanings and which linguistic means are used by these languages. In the following chapters, the dissertation demonstrates that polyfunctionality has a crucial impact on morphological and syntactic behaviour of modal elements in English and German. The main part of the dissertation focuses on English modals, which are discussed in chapters 4 to 8. In these chapters, I discuss the issue of central and marginal modals and demonstrate that their current treatments are unsystematic and that attempts at their classification are based on haphazard criteria. I also present how polyfunctionality impacts the morphology of modal elements, and I explain the idiosyncratic behaviour of every modal morpheme, be it a central modal (such as *can, must, should,* etc.), or a marginal one (such as *dare, need, ought,* etc.). At the same time, I systematically explain the rise of structures *gotta, gonna, wanna* and the structure *better*, showing that these forms are predictable and have other reasons than only a phonetic reduction. My conclusions are based on diachronic observations discussed in chapter 5, as well

as on the analysis of present-day behaviour of modals in British and American corpora, described in chapters 7 and 8.

Chapter 9 focuses on modal elements in German. First, I discuss the formal behaviour of central modals (*können* 'can', *müssen* 'must', etc.), and then I focus on *brauchen* 'need', *werden* 'become', *wissen* 'know', and *lassen* 'let', stating which elements qualify for the category of 'modals'. Then I analyse their semantic and formal properties and demonstrate that my hypothesis can also be applied to German modals. Finally, chapter 10 presents the situation of Chinese modals, where I point out the weaknesses of present-day research, and show how the hypothesis presented in this work could be applied for the analysis of such a linguistically and geographically distant language as Chinese.

The dissertation is based predominantly on empirical data; however, it also aims to outline theoretical representations of issues discussed here. In this respect, it studies the approaches of functional frameworks, but it predominantly works with premises used by formal approaches to grammar.[2]

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[2] Some ideas discussed in this dissertation have been published in form of papers: Machová (2012, 2013, 2014, 2015a, 2015b).

Modality and Modals in General

1 The Concept of Modality

Since modals in English, such as *will, can, must*, etc., *(*and in other languages) are interconnected with the notion of modality and thus are subject to many semantics-based studies, this chapter will discuss the concept of modality, as treated in philosophy and in the linguistic research. Initially, I will outline several different approaches to studies of modality from the historical perspective. Then, I will concentrate on the concept of modality in relation to counterfactual contexts. In the following step, I will briefly explain how counterfactuality is reflected in grammar systems of various languages, and finally, I will delimit the role of modals in a grammar system of a language.

1.1 Historical Overview of Modality Studies

The concept of modality was studied long before linguistics was established as a separate scientific discipline.[3] Modality was studied already in ancient times by **Aristotle**, who focused on concepts related to possibility and necessity, and noticed the mutual relationship between these two concepts. He also studied the validity of an argument as depending on premises. Additionally, **Stoics** also contributed to the studies on modal logic, focusing on propositional logic of words such as *not*, *and* or *or*.

Modality was also studied by medieval philosophers and scholars; however the beginnings of modern modal logic related to mathematical calculations were only established at the beginning of the 20th century by **C.I. Lewis**, and his contemporary **G. H. Von Wright**. The modern logic approaches were based on use of artificial languages – metalanguages, rather than natural languages, since they were regarded as more precise and unambiguous. Besides the analytical approach, since the middle of the 20th century, studies of modality have focused on the theory of **possible worlds.** Its central idea is that besides the actual world, there is also an infinite number of other possible worlds. In this approach, modal expressions are regarded as quantifiers over the possible worlds – more precisely, what is possible is true in *some* worlds, but what is necessary is true in *all* worlds. Among scholars associated with this approach

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[3] The section is based on Haaparanta (2009, 3ff) and Bull and Segerberg (1984, 4ff). For more details, refer to these works.

are **Saul Kripke, Jaakko Hintikka,** or **Rudolf Carnap**. The model of possible worlds' semantics is also applied in formal linguistic studies, e.g. by **Angelika Kratzer** or **Barbara Partee**.

1.2 Modality in Linguistics

In linguistic theory, modality is approached from two perspectives. The first one refers to "**speaker's attitude to the proposition**", whereas the second one is related to the concept of "**factuality**"[4]. The first approach to modality is frequently pursued in descriptive frameworks, and can be traced back to Kant's late 18th century perception of modality – see e.g. Kant (2008, 64):

> „The modality of judgements is a quite peculiar function, with this distinguishing characteristic, that it contributes nothing to the content of a judgement (for besides quantity, quality, and relation, there is nothing more that constitutes the content of a judgement), but concerns itself only with the value of the copula in relation to thought in general."

The attitudinal approach is often criticised for providing a definition related to a vague term "attitude", since there are many linguistic means (not only modal elements) that can contribute to the concept of "attitude". The second approach related to the **factuality** can be defined as follows, taken from Narrog (2012, 6):

> "Modality is a linguistic category referring to the **factual status** of a proposition. A proposition is modalized if it is marked for being undetermined with respect to its factual status, i.e. is neither positively nor negatively factual."

Similar definition of modality is offered by Portner (2009, 1), who claims that "modality is the linguistic phenomenon whereby grammar allows one to say things about, or on the basis of, situations which need not be real." He illustrates this concept using the sentence (1).

(1) *You should see a doctor.*

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[4] Classification based on Narrog (2012, 5ff) and von Fintel (2006, 8)

Sentence (1) refers to situations in which you see a doctor – it, however, does not have to take place – i.e. it does not have to be factual. Roberts (1990, 367) defines modality as connected to the notion of real and unreal words:

> "The notion of different possible words would seem to be a basic domain of human cognition such as time and space and therefore reflected in language. Also basic is the notion of 'real' world versus possible or 'unreal' world. While there can be many possible worlds there can only be one real world. The real world is one in which events can be actualized. Other non-real words are then related to the real world by modal concepts."

The approach related to the concept of factuality will also be pursued in this work – the following section will discuss what factuality vs. counterfactuality means and which contexts are factual and counterfactual.

1.3   Counterfactual Contexts[5]

In approaches focusing on grammar, the concept of modality is frequently thought to be related only to modal verbs and grammatical mood (i.e. indicative, subjunctive, etc.). However, in a wider sense there are other means on the levels of grammar and the lexical domain that belong to a sphere of counterfactuality – see the following list of modality means based on Portner's perception of sentential modality (2009, 4ff):

Table 1: Means of Sentential Modality

- Modal auxiliaries   *must, can, might,* and the like
- Modal verbs   English *need to,* German   *müssen* 'must', *sollen* 'should', etc.
- Modal adverbs   *maybe, probably,* etc.
- Generic predicates   *A dog is a wonderful animal.*

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[5] Counterfactuality is sometimes referred to as non-reality or irrealis. However, I do not consider these terms synonymous. More precisely, this dissertation will use the term counterfactuality in relation to a philosophical/logical concept, whereas non-reality or irrealis will be used in a linguistic sense – for a more detailed explanation with examples, see section 1.4.

- ▪ Habitual predicates[6]   *Ivan drinks chocolate milk.*

- ▪ Tense/aspect   Especially morphological future as the future tenses in French *elle parlera* – 'she will speak'.

- ▪ Conditional clauses   as in: *If I were you, I would not say that.*

- ▪ Sentence negation[7]   *John does not speak English.*

Notice that modality can be expressed on a lexical level (verb, adverb), as well as on a grammatical level (tense, aspect). Besides the modality expressions on the level of a sentence, Portner (2009, 4) outlines also further means of modality on sub-sentential level – see Table 2:

Table 2: Means of Sub-sentential Modality

- ▪ Modal adjectives and nouns   *possible, necessary, possibility*, etc.

- ▪ Attitude verbs   *believe, hope, know,* and the like

- ▪ Verbal mood   subjunctive mood as in *I wish you were here.*

- ▪ Infinitives[8]   They can express counterfactuality covertly, as in *He is to study more*. In that case, the predicate can be replaced by *must.*

- ▪ Negative polarity items   negative polarity items, such as *ever.*

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[6] Despite the fact that generic or habitual sentences are not frequently discussed in linguistic papers in relation to the concept of modality, they are undoubtedly related to the concept of counterfactuality. Portner (2009, 209ff) explains this using example given here in (i).

(i)   *A lion has a bushy tail.*

This generic sentence does not refer to the actual world, because an actual lion can look otherwise. Moreover, the speaker does not have a specific lion in mind. This topic is discussed in detail in Krifka et al. (1995), who describe in detail the difference between generic and non-generic references.

[7] Despite the fact that in relation to negation Portner (2009) mentions only negative polarity elements, I also add sentence negation, since obviously sentence negation is also related to counterfactuality, as will be shown in 1.4 with reference to Mithun (1995) or Elliott (2000).

[8] More about infinitives and modality in Bhatt (2006).

Besides the counterfactuals mentioned above, the author adds that counterfactuality can also be expressed on the discourse level, for example in connection with clause types. More precisely, interrogative and imperative sentences do not refer to the factual situation.

The lists above outline the logical (or semantic) contexts that are related to the concept of counterfactuality. As has been shown, counterfactuality is related to a wide variety of contexts, ranging from individual words to discourse factors.

1.4 Reflection of Counterfactuality in Grammar

The previous section presented contexts related to the status of counterfactuality. Whereas the above mentioned contexts are counterfactual from the perspective of logic, the counterfactuality status does not necessarily have to be reflected in a grammar of a particular language, i.e. the grammatical representation of factuality status varies arbitrarily. In other words, whereas the counterfactuality contexts are universal, their marking of modality is language-specific.[9]

Elliott (2000) uses a grammatical term **irrealis**[10] reflecting whether the proposition is marked as factual or counterfactual, but she adds that not every language marks counterfactuality status. Consistently, Van Gijn and Gipper (2009, 173) claim that there is no clear equivalence between factual (logical concept) and realis (grammatical concept), or counterfactual (logical concept) and irrealis (grammatical concept), but there is rather a scale – see Figure 1.

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[9] The same discrepancy can be seen with time and tense. Time is a universal concept, which is reflected differently in various languages. Some languages, for example Chinese, do not grammaticalize the notion of time, i.e. they may not have a tense category. Moreover, the universal concept does not have to be in agreement with the grammatical marking – see the sentence in (i).

(i)   *The train leaves at 10 a.m*.

In this sentence, the time category is future, whereas the tense category is present.

[10] Studies of modality are inconsistent in terms of the terminology used. In some studies, counter/factuality is used as a synonym of ir/realis. However, as mentioned above, this dissertation uses the term counterfactuality as a universal (philosophical) concept, whereas irrealis labels its grammatical representation.

Figure 1: Grammatical vs. Logical Concept

COUNTERFACTUAL	POSSIBLE	FACTUAL	*logic*

IRREALIS   REALIS   *grammar*
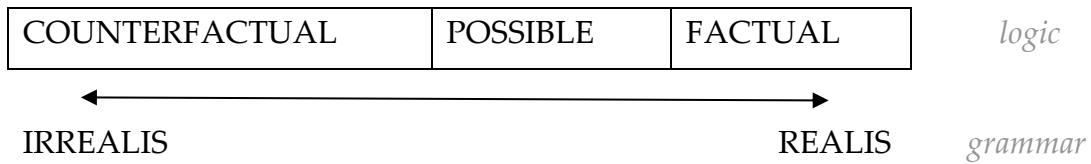
Whereas the upper part of the figure labels the factuality contexts (i.e. logically factual propositions), the lower part of the figure demonstrates its reflection in grammar, and as the figure shows, the two concepts cannot be merged into one.

Elliott (2000, 71ff) claims that the grammatical distinctions of realis vs. irrealis are based on cultural concepts of real and unreal worlds. Several examples follow to illustrate the cross-linguistic distinctions. As for negation, some languages may grammatically mark negative sentences as realis, whereas in other languages negative sentences may be regarded as irrealis. Similar situations can be seen with the future. In Central Pomo (a language formerly spoken in Northern California), future may be classified either as irrealis or realis, depending on the speaker's attitude towards the proposition – i.e. how probable the event is, as Mithun (1995, 385) claims. In some languages, realis vs. irrealis distinction can thus substitute for the category of tense; in Manam (a language spoken on Manam and Boesa Islands, New Guinea), realis and irrealis replaces the future vs. non-future distinction. As for interrogative sentences, Caddo (an Indian language spoken in the southern parts of the United States) marks yes-no questions as irrealis, whereas these contexts are not marked as irrealis in other languages, such as English. Lichtenberg (1983, 190) shows that in Manam habitual constructions and customary activities are marked as irrealis, whereas in other languages they are unmarked, for example in English. Mithun (1995, 376) shows that in Jamul Diegueño (a language of southern California), polite imperatives are marked as irrealis, whereas strong imperative is regarded as realis.

As has been demonstrated, despite the fact that counterfactuality contexts are universal, their representation in grammar is rather arbitrary and demonstrates a vast variety.

1.5 Status of Modal Verbs in the System of Grammar

As has been shown in the previous section, in some languages, modality is marked as a binary system (realis vs. irrealis). Elliott (2000, 60) illustrates the use of realis vs. irrealis – taken from Roberts (1990, 371ff).

(2) a. **Present: Realis**

Ho	*bu-busal-**en***	*age*	*qo-igi-na*
pig	SIM-run.out-3sg.REAL	3pl	hit-3pl-PRES

‘They are killing the pig as it runs out.’

b. **Counterfactual: Irrealis**

Ho	*bu-busal-**eb***	*age*	*qo-u-b*
pig	SIM-run.out-3sg-IRR	3pl	hit-CONTR-pl

‘They would/should have killed the pig as it ran out.’

As is obvious from the examples, realis and irrealis differ morphologically. Palmer (2003, 2) explains that the realis vs. irrealis dichotomy is very similar to the concept of mood (for the purposes of this work, it will be regarded as identical phenomenon), used for the description of languages in Europe – see the following example taken from French.

(3) a. **Indicative mood (i.e. Realis)**

Nous	*part**ons***	*demain.*
We	leave-3pl-IND	tomorrow.

‘We depart tomorrow.’

b. **Subjunctive mood (i.e. Irrealis)**

Il faut	*que*	*nous*	*part**ions***	*demain.*
it must-3sg	that	we	leave-3pl-SUBJ	tomorrow

‘It is necessary that we leave tomorrow.’

However, there may be other grammatical means besides ir/realis (i.e. mood) that refer to factuality status. Palmer (2001, 19) suggests the following classification:

- individual suffixes, clitics and particles
- inflection

- modal verbs

Palmer (2001, 19) distinguishes between individual suffixes and inflections. Whereas individual suffixes mark the factuality status only, inflectional morphemes also incorporate additional grammatical features, such as person or number. Therefore, in Palmer's perception modal verbs are one of the means for expressing factuality status, i.e. modality. Languages may differ in terms of preferences as to which form is used – whereas Central Pomo and Amele use individual suffixes (see above), French exploits inflectional suffix in terms of subjunctive mood, and English favours analytic modal elements. The means for expressing modality can even compete within a single language – see the following example from English.

(4)   a. *We recommend that he **be** consulted concerning this matter.*
       b. *We recommend that he **should** be consulted concerning this matter.*
       c. *We recommend **him being** consulted concerning this matter.*

In this case, the same proposition can be expressed using verbal inflection, the modal *should*, or infinitive verbal form. The various grammatical means for expressing modality will be discussed in detail in section 3.

2   Polyfunctionality and Modal Semantics

Whereas the previous chapter provided a rather general view of the concept of modality, this section will focus on the modal meanings. First, I will discuss two most important dichotomies in terms of modal meanings – possibility vs. necessity and root vs. epistemic meaning. Second, I will discuss how possibility and necessity are interconnected as logical operators. Then, I will discuss the relation between the root and epistemic meaning, which will leads us to the central topic of this dissertation – namely modal polyfunctionality. I will clarify the issue of accessibility of various modal readings, and finally, I will approach polyfunctionality from a cross-linguistic perspective.

2.1   Possibility vs. Necessity

The notions of possibility and necessity are the key concepts of modal logic. The dichotomy in the meaning of modals was already first recognized by ancient philosophers, as mentioned in 1.1.

- **Possibility** (a ◊ symbol is frequently used in works focusing on modal logic) can be paraphrased as "it is possible that";
- **Necessity** (a □ symbol) can be paraphrased by "it is necessary that".

These two logical operators can be defined as negating each other, as Tugendhat (1997, 202) shows. The meanings of the following propositions is same: *It is possible that p* (proposition) = *It is not necessary that not-p*. Moreover, if something is necessary it follows that it is true, and at the same time if the proposition is true it follows that it is also possible – see the following formal notations:

a.   □ p $\rightarrow$ p
b.   p $\rightarrow$ ◊ p

These operators can also be viewed as modifying the *p* – more precisely, the function of "it is necessary that *p*" emphasises *p*, whereas "it is possible that *p*" weakens *p*. Based on this dichotomy, the meanings of modal elements in

languages can be divided into two groups – I will use modal elements in English as examples.

a.   Possibility modals (◊): *may, might, can, could*
b.   Necessity modals (□): *must, should, will*

2.2   Root vs. Epistemic Modality

Besides classifying the meanings of modal elements based on the logical dichotomy of possible vs. necessary, the meaning can be further viewed from the perspective of root and epistemic modality.

   Root/deontic modality[11] expresses obligation, permission, and ability. Kolman (2005, 47) defines deontic modality as a logic of norms, which is based on orders, permissions and prohibitions. Lyons (1977, 823) claims that "deontic modality is concerned with the necessity or possibility of the acts performed by morally responsible agents." Consistently, Narrog (2012, 8) states that "deontic modality marks a proposition as necessary or possible within the framework of a particular system of social rules." Portner's (2009, 2) definition is very similar – deontic modality is related to what is right or wrong according to rules. The following sentences in (5) are thus examples of deontic modal meaning:

(5)   a. *John must apologize.*   Order
      b. *John may go now.*   Permission
      c. *John mustn't say anything*   Prohibition

On the other hand, **epistemic modality** is related to speaker's knowledge, as Kolman (2005, 21) claims. He further claims that epistemic modality occurs in situations where the speaker does not have sufficient information related to the statement, typically in historic discourse (6a), in detective stories (6b) or in future predictions (6c).

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[11] Root and deontic modality frequently refer to the same concepts; the term deontic modality is used in philosophical studies – e.g. Haaparanta (2009), whereas the term root modality is preferred in some linguistic works – e.g. Portner (2009). Thus in most cases, these two terms will be used as synonyms in this work. Still, strictly speaking, there is a difference between these two terms. Deontic modality is related to the notion of obligation or permission, and it is a subset of root modality. Root modality encompasses deontic meanings plus some other meanings, such as willingness or ability.

(6)   a. *Mozart may have been killed*.

       b. *The thief might have escaped through the window.*

       c. *There might be an earthquake.*

Other scholars define epistemic modality very similarly; Narrog (2012, 8) states that epistemic modality "refers to someone's world knowledge, typically that of the speaker." For a more detailed analysis of the relation between root and epistemic modality, see Coates (1995, 55ff) and also below.

2.3   More Detailed Classifications

Whereas the logical concepts of possibility and necessity remain valid, scholars frequently propose a more detailed analysis than only root vs. epistemic modality. As an example of such classification, see Palmer (2001, 7ff), who divides modality meanings into event and propositional modality – see the table below.

Table 3: Modal Meanings - Palmer (2001)

	Event modality		Propositional modality	
Possibility ◊	DYNAMIC	DEONTIC	EVIDENTIAL	EPISTEMIC
	He can speak English.	*Kate may come in now.*	*Er soll reich sein. /He is alleged to be rich/*	*Kate may be at home now.*
Necessity □		DEONTIC		EPISTEMIC[12]
		Kate must come in now.		*Kate must be at home now.*

Palmer states that **event** modalities refer to potential events, i.e. those that have not taken place. He claims that the difference between *dynamic* and *deontic* modality is the conditioning factor – more precisely with deontic modality (related to obligation or permission) the factors are external, with dynamic modality (ability, disposition and willingness) they are internal.

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[12] Besides the basic types of modality as listed here, Palmer (2001, 10ff) describes other types of modality related to questions, negatives, wishes and fears. However, in my view, these are in fact counterfactual contexts, rather than types of modal meanings, as discussed above.

On the other hand, **propositional modality**, which is based on speaker's attitude about factual status of the proposition, can be subdivided into *evidential* and *epistemic* modalities. Whereas epistemic modality deals with the speaker's judgement about the factual status of the proposition, evidential modality describes the evidence that speaker has for the factual status (frequently related to indicating reported speech). [13]

Across linguistic research, terminology and subdivisions vary considerably. To see the diversity of terminology, refer to Table 4 by Depraetere and Reed (2006, 280), comparing the terminology as used by Coates (1983), Quirk et al. (1985), Bybee and Fleischman (1995), Palmer (2001), Huddleston and Pullum et al. (2002), and Van der Auwera and Plungian (1998).

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[13] Palmer further recognizes subcategories of each modality – e.g. evidentials can be reported or sensory: visual, non-visual, auditory – such extensive division will, however, not be followed in this dissertation. Palmer was probably motivated to provide such subdivisions by the fact that some languages actually do use a variety of different suffixes for each subfunction.

Table 4: Various Classifications of Modal Meanings - Depraetere and Reed (2006, 280)

Epistemic meaning | Non-epistemic meanings

epistemic modality	*root necessity*	*root possibility*	*ability*	*obligation*	*permission*	*willingness or volition*	Source
epistemic	root modality						Coates (1983)
extrinsic				intrinsic			Quirk et al. (1985)
epistemic	n/a	agent-oriented					Bybee and Fleischman (1985)
propositional modality (evidential | epistemic)	n/a	n/a	event modality — dynamic	deontic		dynamic	Palmer (2001)
epistemic	dynamic			deontic		dynamic	Huddleston and Pullum et al. (2002)
epistemic (non-epistemic)	participant-internal	participant-external / non-deontic	participant-internal	participant-external / deontic		n/a	Van der Auwera and Plungian (1998)

As is clear from Table 4, there is agreement concerning the delimitation of the concept of epistemic modality. On the other hand, the area complementing the epistemic modality demonstrates various subdivisions and terminological variety. Despite the fact that scholars aim to devise precise classifications reflecting all nuances in the modal meanings, for the hypothesis I provide in this work, the basic distinction root vs. epistemic will be sufficient. Only in few sections, I will further distinguish between dynamic (ability or willingness) and deontic modality (obligation) as subtypes of root modality.

2.4 Definition of Polyfunctionality

When referring to the root vs. epistemic distinction, in many languages, these two distinct meanings are frequently expressed by the very same modal element – see the following examples from English in (7).

(7)   a. *You can't be serious*.   Epistemic modality
      b. *You can't go there*.   Root/deontic modality

The examples thus illustrate that the morpheme *can* (more precisely *can't*) demonstrates a certain polysemy, as mentioned for example by Bybee and Fleischman (1995, 1ff), Heine (1995), or Traugott and Dasher (2003). This phenomenon is known as **modal polyfunctionality**, as used among others by Diewald (1999), Auwera, Amman and Kindt (2005), de Haan and Hansen (2009), and Narrog (2012). According to Palmer (2001, 89), the explanation for the polyfunctionality lies in semantics, more precisely in modal logic. He attributes this to the dichotomy of possibility vs. necessity, as shown in Table 5.

Table 5: Modal Polyfunctionality

	ROOT	EPISTEMIC
Possibility ◊	*Kate may come in now.*	*Kate may be at home now.*
Necessity □	*Kate must come in now.*	*Kate must be at home now.*

Both root and epistemic meanings can be interpreted in terms of possibility or necessity – see the following examples, where the term 'deontically' refers to the possibility/necessity given by a set of rules. On the other hand,

'epistemically' refers to the possibility/necessity as it concerns the speaker's judgement about the situation.

(8) **Root meaning**
    a. *John may be in his office.*
      (= it is deontically **possible that John is in his office**)
    b. *John must be in his office.*
      (=It is deontically **necessary that John is in of**fice)

(9) **Epistemic meaning**
    a. *John may be in his office*
      (= it is epistemically **possible that John is in his office**)
    b. *John must be in his office*
      (= it is epistemically **necessary that John is in his office**)

As can be seen the meanings in (8a) and (9a) as well as in (8b) and (9b) can be decomposed in exactly the same way. Polyfunctionality, more precisely modal polyfunctionality, is thus understood as an ability of a modal element to express a very specific type of multiple meanings – epistemic and root readings.

Whereas the examples given above demonstrate polyfunctionality of modals, grammatical means expressing polyfunctionality can be very varied. As Van der Auwera, Amman and Kindt (2005, 253ff) stress, polyfunctionality can be also expressed by suffixes or particles – see the following example from West Greenlandic, taken from Fortescue (1984, 292ff).

(10) **West Greenlandic**
    a. *Inna-jaa-**saa**-atit.*   deontic
      go.to.bed-early-NEC-ind.2sg
      'You must go to bed early. '

    b. *Københavni-mii-**saa**-aq.*   epistemic
      Copenhagen-be. in-NEC-ind.3sg
      'She must be in Copenhagen.'

Van der Auwera, Amman and Kindt (2005, 253ff) add that in some languages a polyfunctional element may demonstrate different syntactic patterns when used deontically and epistemically. In Irish a modal verb *caith* 'must' subcategorizes for a verbal noun *imeacht* 'leave-VN' when used deontically,

whereas with epistemic reading, it combines with a finite complement, i.e. a clause. An example follows, taken from McQuillan (2009, 75).

(11) **Irish**

    a. *Caith-fidh   mé   imeacht   anois.*   root
      must-FUT   I   leave-VN   now
      'I must leave now.'

    b. *Caith-fidh   (sé)   go   bhfuil   an   cluiche thart.* epistemic
      must-FUT   it   that   be-PRES   the   gave over
      'The game must be over.'

Despite the fact that the root and epistemic meanings combine with a different subcategorization, the morpheme *caith* is still regarded as polyfunctional.

2.5 Accessibility of Modal Readings

A modal element may be inherently polyfunctional, i.e. expressing both deontic and epistemic reading; however, the two readings are not always accessible in every sentence. For example, when referring to the English sentence in (12), we can conclude that *may* complies with our definition of polyfunctionality.

(12) *John may be in his office.*

The root reading of (12) is related to permission, whereas the epistemic meaning is connected with epistemic probability. This does not, however, mean that *may* has got two readings in every single sentence – see the following sentences.

(13)   a. *You may not go there.*
      b. *The painting may be worth a lot of money.*

Whereas a reader is likely to interpret (13a) as deontic, (13b) will have epistemic reading. The same holds for other modals in English as well; see the example of *must* below.

(14)   a. *He must be at home.*   both readings
      b. *He must leave the premises immediately.* deontic
      c. *You must be joking.*   epistemic

Sentence (14a) has both readings, whereas (14b) and (14c) will normally be interpreted as having deontic or epistemic readings, respectively. Still, *may* and *must* are regarded as polyfunctional, regardless of the fact that a particular sentence can be interpreted as having one meaning only. What makes the sentence unambiguous is not the modal element, but the **sentence context**.

Heine (1995, 17ff) studies factors influencing the interpretation of a modalized sentence, which include tense/aspect combinations, person, sentence type (interrogative, negative), a wider linguistic context, and contextual frames based on speaker's experience. To exemplify these, Heine claims that e.g. interrogative sentences are likely to be interpreted as being deontic, rather than epistemic, giving a German example:

(15) *Muss   er   komm-en?*
      must-3sg   he   come-INF
      'Must he come?'

He further adds that the first person subject correlates most frequently with deontic modality, whereas the third person subject is likely to be interpreted deontically or epistemically – as in the example below.

(16) a. *I must be in my office.*
      b. *He must be in his office.*

Whereas (16a) will be interpreted deontically, since it is unlikely to make guesses about one's presence in the office, its counterpart in (16b) is prone to both deontic and epistemic interpretation. Heine (1995, 17ff) stresses the importance of contextual frames (i.e. speaker's knowledge of the world), the situational context and the ability to construct relevant scenarios – see the following sentence.

(17) *Das Bier   sollte   kalt   sein.*
      the beer   should-3sg.SBJV   cold   be-INF
      'The beer should be cold.'

The interpretation of this sentence is likely to be deontic – i.e. it is necessary that the beer be cold to enjoy it. However, there might be a (situational) context, where the reading is epistemic; someone put the beer in a fridge some time ago, and as a result, it is likely to be cold now (epistemic interpretation). Another

example Heine (1995, 28) provides is in (18), where he illustrates how the knowledge of the world impacts modal verb interpretation.

(18) *Es muss   drei   Uhr   sein.*
  it must-3sg.PRES   three o'clock   be-INF
  'It must be 3 o'clock'

In this case, the interpretation of the sentence is purely epistemic, as one cannot manipulate time.[14] To conclude, if a morpheme is polyfunctional at least in one context, it is regarded as polyfunctional generally.

2.6 Polyfunctionality Cross-Linguistically

It has been shown above that English modals are polyfunctional, i.e. they express both deontic and epistemic modality. However, modal polyfunctionality is not exclusively the property of English modals. As Van der Auwera, Ammann and Kindt (2005) claim, polyfunctionality is a typical average European feature – more precisely it can be found in e.g. Slavonic, Romance and Germanic languages. The following Czech example demonstrates that modal verb *moci* 'may' can have both readings.

(19) **Czech**

  Petr   může   být   na zahradě.   deontic/epistemic
  Peter   may-3sg.PRES   be-INF   on garden-LOC
  'Peter may be in the garden.'

Van der Auwera, Ammann and Kindt (2005, 250) provide a Norwegian example of sentence, which has ambiguous readings.

(20) **Norwegian (Bokmål)**

  Joh   kan   være på kontoret.   deontic/epistemic
  John   may   be   on office[15]
  'Jon may be in his office.'

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[14] The issue of accessibility of modal meanings and the factors which influence it constitute a very complex area, and for further information Heine (1995, 17ff) is recommended.
[15] The degree of detail provided in glosses depends on the source.

An example from German has already been mentioned in (17). For an example from the Romance language group, see the following sentences with the French verb *devoir* 'must' given by Cornillie (2009, 109), taken from Huot (1974, 41).

(21) **French**

a. *On   doit   attendre.*   deontic modality

   one   must-3sg.PRES   wait-INF

   'We must wait.'

b. *On   doit   être   venu.*   epistemic modality

   one   must-3sg.PRES   be-INF come-PP

   'Someone must have come.'

The examples above are taken from European languages; nonetheless, Van der Auwera, Ammann and Kindt (2005) conducted a study of modal polyfunctionality in more than 200 languages. They concluded that modal polyfunctionality (for possibility or necessity) occurs on all continents, i.e. it is not only a phenomenon of Indo-European languages. However, they also add that polyfunctionality for both necessity and possibility appears predominantly among European languages. Languages with full polyfunctionality include the following – a more extensive list may be found in Van der Auwera and Ammann (2013).

Table 6: Languages with Full Modality – Adapted from Van der Auwera and Ammann (2013)

	Family	Genus	Language
▪	Indo-European	Baltic	*Latvian, Lithuanian*
		Celtic	*Irish*
		Germanic	*German, Dutch, Swedish, English*
		Greek	*Modern Greek*
		Indic	*Kashmiri*
		Romance	*French, Italian*
		Slavic	*Polish, Czech, Russian*
▪	Eskimo-Aleut	Eskimo	*West-Greenlandic*
▪	Uralic	Finnic	*Finnish*
▪	Afro-Asiatic	Semitic	*Egyptian Arabic, Hebrew*
▪	Altaic	Turkic	*Turkish*
▪	Sino-Tibetan	Chinese	*Mandarin*

	Family	Genus	Language
▪	Tai-Kadai	Kam-Ta	*Thai*
▪	Austronesian	Greater Centr. Philippine	*Tagalog*
▪	Niger-Congo	Defoid	*Yoruba*
▪	Basque	Basque	*Basque*

The authors also provide a list of languages with no attested polyfunctionality, see Table 7:

Table 7: Languages with No Attested Polyfunctionality – Adapted from Van der Auwera, Ammann and Kindt (2005)

	Family	Genus	Language
▪	Afro-Asiatic	Lowland East Cushitic	*Somali*
▪	Austronesian	Oceanic	*Fijian, Maori*
		Malayo-Sumbawan	*Indonesian*
▪	Chikotko-Kamchatkan	Northern Chukotko-Kamchatkan	*Chukchi*
▪	Indo-European	Indic	*Punjabi*
▪	Mayan	Mayan	*Maya*
▪	Siouan	Siouan	*Lakota*

The third group are languages with partial polyfunctionality, i.e. modal elements are polyfunctional only for possibility but not for necessity, or vice-versa – refer to Table 8 for a more detailed list.

Table 8: Languages with Partial Polyfunctionality – Adapted from Van der Auwera, Ammann and Kindt (2005)

	Family	Genus	Language
▪	Afro-Asiatic	Berber	*Berber*
		Semitic	*Arabic*
		Southern Cushitic	*Iraqw*
▪	Austronesian	Oceanic	*Hawaiian*
▪	Austro-Asiatic	Viet-Muong	*Vietnamese*
▪	Indo-European	Romance	*Catalan*
		Indic	*Hindi*
		Germanic	*Icelandic*
		Celtic	*Welsh*

▪ Uralic	Urgic	*Hungarian*
▪ Korean	Korean	*Korean*
▪ Japanese	Japanese	*Japanese*
▪ Mayan	Mayan	*Jakaltek*
▪ Sino-Tibetan	Chinese	*Chinese (Yue)*

As is visible from the tables above, the presence or absence of modal polyfunctionality cannot be related to a specific language group – for example within the Indic group *Kashmiri* is polyfunctional, whereas *Punjabi* has no polyfunctionality, and *Hindi* is partially polyfunctional. What seems to play a role here is the geographical distribution – see the map on the following page. As Van der Auwera and Ammann (2013) claim, polyfunctionality is a European phenomenon, and outside this area, it appears sporadically, though it is not non-existent. At the other extreme, South-American languages demonstrate nearly zero modal polyfunctionality.

Figure 2: Modal Polyfunctionality – From Van der Auwera and Ammann (2013)

Values

● Overlap for both possibility and necessity	36
● Overlap for either possibility or necessity	66
○ No overlap	105
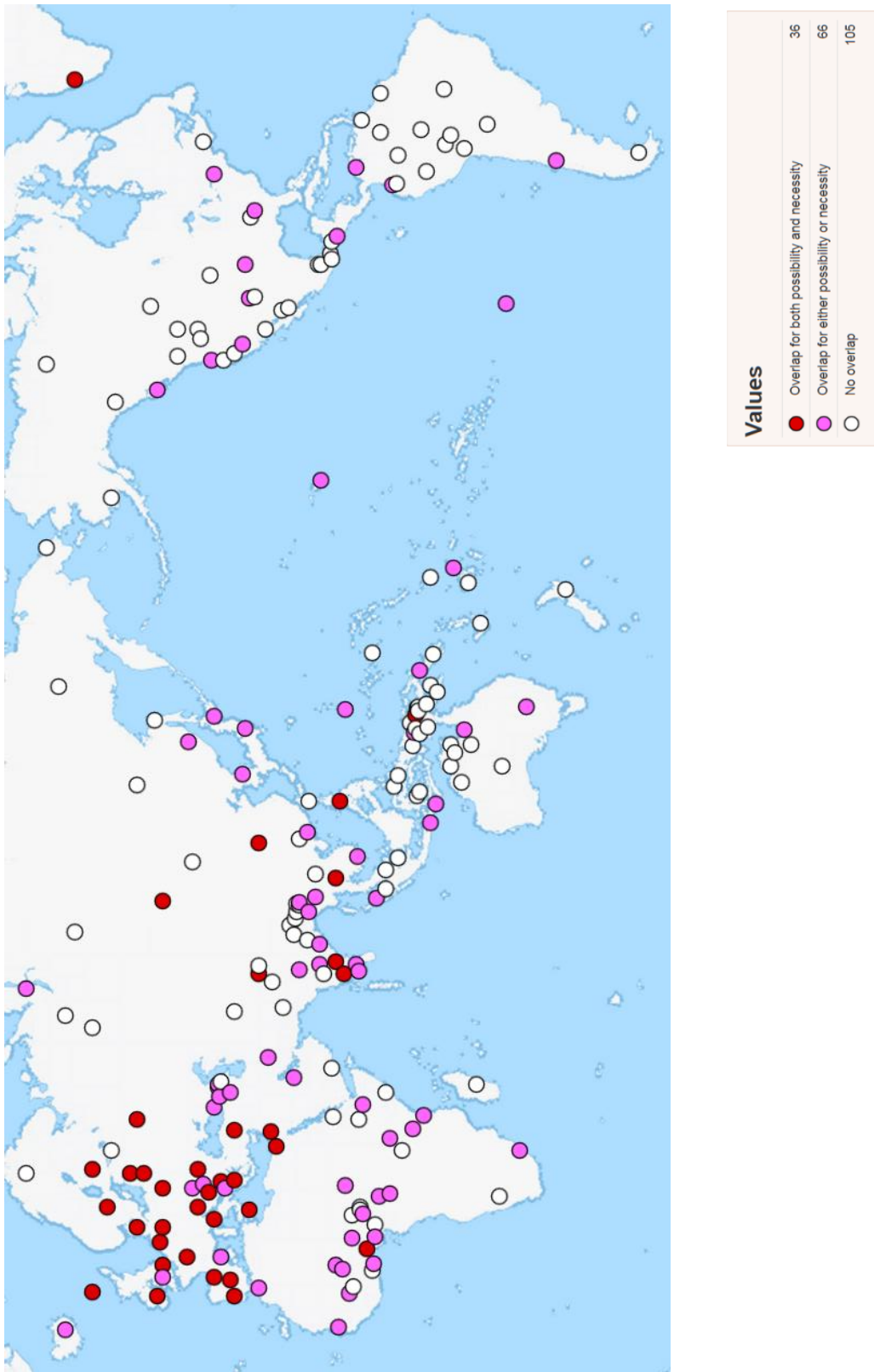
3 Modals Cross-Linguistically

Whereas the previous chapter focused predominantly on the semantics of modality, this chapter aims to analyse formal properties of modal elements as they appear in various languages. In particular, it will outline which grammatical means (i.e. what types of morphemes) can be used for expressing modal meanings in general. In this respect I will briefly discuss grammatical mood and modal affixes. Then I will focus on the notion of 'modals', demonstrating that its definition and delimitation is far from trivial or intuitive. I will provide a definition of the term 'modal' based on polyfunctionality. Finally, I will outline how modality is expressed in several selected language groups – namely Germanic, Slavonic, Romance, Balto-Finnic, Turkic families and in Hungarian and Mandarin Chinese.

3.1 Means for Expressing Modality Cross-linguistically

Without a doubt, languages in their variety have many grammatical means that can express a range of modal meanings. As mentioned in 1.5, Palmer (2001, 19) distinguishes the following types of modal grammatical means:

- Inflection,
- individual suffixes, clitics and particles,
- modal verbs.

De Haan (2006, 32ff) also provides a very similar, yet slightly expanded, classification. He recognizes the following means:

- Mood,
- modal affixes,
- modal case[16],
- modal auxiliary verbs,
- modal adverbs and adjectives,
- modal tags,

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[16] De Haan states that this is an unusual means of expressing modality typical for languages of Northern Australia (e.g. Kayardild), where the modal meaning can be marked (besides being marked by a verb) as a case on a noun.

▪ modal particles .

Whereas the first four items in de Haan's classification are clearly grammatical (i.e. grammaticalized) means, de Haan also includes modal adverbs and adjectives (*probably, possibly, necessary*), modal tags (*I think, I guess*) and modal particles (German *denn, doch*), which are frequently lexical means. However, de Haan (2006, 38) points out that modal adjectives and adverbs are grammaticalized in some languages, such as Russian *dolžen* or *nado*, as in the following sentence:

(22) *Mne   nado   idti   v   voksal.*
     I-DAT   must   go-INF   to   station-ACC
     'I must go to the station'.

I will discuss these examples later in this chapter, since they demonstrate that even originally lexical elements can demonstrate a certain degree of grammaticalization.

3.1.1 *Mood*

In terms of grammatical means, both Palmer (2001) and de Haan (2006) list verbal mood (verbal inflection in Palmer's classification) in their classifications. As de Haan (2006, 33ff) claims, mood is an obligatory part of a predicate – i.e. a finite verb must be specified for a mood. The main distinction applied in many languages is indicative and subjunctive – see the following contrast from Spanish:

(23) a. *Victoria   estudia   español.*
        Victoria   study-3sg.PRES   Spanish
        'Victoria studies Spanish.'

     b. *Dudo   que   Victoria   estudie   español.*
        doubt-1sg.PRES   that Victoria   study-3sg.SBVJ   Spanish
        'I doubt that Victoria studies Spanish.'

Since (23a) is factual, Spanish uses indicative here, i.e. the morpheme *-a*. On the other hand, (23b) is counterfactual (introduced by a verb of doubting), and thus Spanish marks it by the subjunctive mood – i.e. the verbal suffixes are distinct

from each other *estudia-estudie.* Despite its marginal use, subjunctive mood also appears in present-day English – see the following examples.

(24) a. *He **is** fully vaccinated.*
    b. *They demand that he **be** fully vaccinated.*

The first sentence is in indicative – see the agreeing verb form *he is*, whereas the second one uses non-agreeing subjunctive mood *he be* to refer to the counterfactual context. Other languages may possess additional moods, such as imperative – see the Czech examples.

(25) a. *Ty   pracuj**eš**   dobře.*
       you   work-2sg.PRES   well
       'You work well.'

    b. *(Ty) pracuj   dobře!*
       you work-2sg.IMP   well
       '(You) work well!'

Here the first example (25a) is a statement, whereas (25b) is an imperative – notice that verb morphology is again distinct *pracuj**eš** – pracujØ*, despite the fact that the subject is identical in both cases – i.e. the 2nd person singular.[17]

3.1.2 *Modal Affixes*

Apart from mood, languages may express modality by adding an affix to a verb. According to de Haan (2006, 36), this is typical of Turkic languages, Greenlandic Eskimo, Dravian languages and many Native American languages – see the following example from Tamil (a Dravian language), taken from Asher (1979, 170). The suffix *–laam* here is a morpheme for permission (PERM).

(26) *Avan   peeca-**laam***
    he   speak-PERM
    'He is allowed to speak.'

---

[17] As mentioned previously, what is labelled as mood in Indo-European languages is very similar to the concept of irrealis marking in other languages. Palmer (2001, 5) points out both systems have the same role, but there are some syntactic differences between them (e.g. subjunctive tends to appear in subordinate clauses, which is not the case of irrealis).

De Haan further explains that unlike mood, modal affixes are not an obligatory category, i.e. they can but do not have to be used. With mood, on the other hand, certain languages mark every sentence for this category.

3.1.3 *Modals*

Despite the fact that on the first sight the notion of a modal (verb) seems to be easy to define, nothing could be further from the truth. Whereas books offer very detailed definitions of the concept of mood, there are few definitions of modal verbs from a cross-linguistic perspective. De Haan and Hansen (2009, 3 and 512) define a modal as "word-like elements which are polyfunctional in the sense that they express no less than two types of modality." They add that a modal is "a syntactically autonomous expression of modality which shows a certain degree of grammaticalization." In the same vein, Thráinsson and Vikner (1995, 53) define modal verbs in a very similar way, namely that "modal verbs are verbs that can have both epistemic and a root modal sense." As can be seen, a category of **a modal element (=modal)** is thus cross-linguistically defined on semantic grounds, i.e. **it is a free morpheme that is polyfunctional** (expressing root and epistemic modality at the same time).

Very frequently, the term 'modal verbs' is used when speaking about modality. However, when dealing with modality in wider cross-linguistic contexts, the term modal 'verbs' will not be sufficient to describe the variety of elements that appear cross-linguistically, since as I will show, modals can belong to other than verbal categories. A perfect match for the term 'modal verb' are German modal verbs, such as *müssen* 'must', *können* 'can' etc. These elements are polyfunctional and demonstrate verbal properties, as will be shown in 9. However, the term 'modal verbs' does not apply to their polyfunctional English counterparts, such as *must* or *can*, as these are not verbs at all, as will be shown later. They constitute a separate part of speech, or sometimes, there are added to auxiliaries and thus, in some grammar manuals, they are referred to as *modal auxiliaries* – a detailed analysis of their morphosyntactic properties is provided in 4.4.2.

But even the categories of auxiliaries and verbs do not encompass the variety of elements that can be polyfunctional. As Besters-Dilger, Drobnjaković and Hansen (2009, 170) point out, Slavonic languages possess polyfunctional elements that are neither verbs nor auxiliaries, but belong to other categories,

such as adjectives - an example is Russian *dolžen* 'should'. *Dolžen* is polyfunctional, see the following examples taken from Padučeva (2008, 197ff).

(27) a. *Avtobus **dolžen***   *otpraviťsja*   *noč´ju*.
     bus   must-3sg.PRES   leave.PFV.INF   at night
     'The bus is to leave at night.'

    b. *On **dolžen***   *byl*   *uspet´*   *na poezd*.
     he   must-3sg.PRES be-PAST   catch.PFV.INF   for train
     'He was sure to catch the train.'

Whereas the first sentence has root modality reading, the second sentence expresses epistemic meaning. This means that *dolžen* is polyfunctional in the same way as German *müssen* or English *must.* It only differs in part of speech – but so does German *müssen* and English *must* (!)*.*

Therefore, it is clear that cross-linguistically, modal meanings (and polyfunctionality) in general are not exclusively related to the category of verbs, but their scope can be much wider. I will use the term 'modal' to refer to polyfunctional morphemes such as *must, sollen* or *dolžen,* as exemplified in (16), (17), and (27) respectively, and I will reserve the term 'modal verb' only to those polyfunctional morphemes that are morphosyntactically of a verbal category – *sollen,* but not for example *must*.

Finally, there are a huge number of morphemes that need to be distinguished from modals and labelled accordingly. These are elements of any parts of speech that have a modal meaning, but are not polyfunctional (a typical English example is *be able* or an adverbial *possibly*). Besters-Dilger, Drobnjaković and Hansen (2009, 169) use the term '**modal content words'**, giving an example of verbs *môcť* 'can' and *vládať* 'to be capable of' from the Slovak language – as in the following set:

(28) **Slovak**
    a. *Nevidel*   *som*   *ťa*   *3 dni,*
     not-see-1sg.PAST   BE-1sg   you   3 day.pl
     nemôžem/nevládzem   *to*   *vydržať.*
     not-can-sg.PRES   that   stand
     'I have not seen you for three days, I can't stand that any longer.'

b. *Naši   priatelia   **nemohli/?nevládali** postaviť   stan.*
   our   friend-pl   not-can-3pl.PAST   put up-INF   tent-ACC
   'Our friends couldn't put up the tent.'

c. *V Tatrách   **môže/*vládze**   dnes   pršať.*
   in Tatra-pl.LOC   can-3sg.PRES   today rain-INF
   'In might rain in the Tatra today.'

The sentences (28a) and (28b) are examples of a root modality (i.e. the dynamic or deontic modality), and sentence (28c) is an example of epistemic reading. As can be seen, whereas *môcť* 'can' can be used in all translations of the meaning 'can', the use of *vládať* 'to be capable of' is restricted, i.e. it is not a polyfunctional element, and therefore not a modal. To visualize the possible combinations and terminology, see Table 9.

Table 9: Types of Modal Structures

Term	Definition	Category examples	Examples
▪ **Modals**	**+POLYF**	+ verbs	German *müssen, sollen,* etc.
		+ separate category (frequently auxiliary)	English *must, may, can,* Chinese *neng*
		+ adjective	Russian *dolžen*
▪ **modal content words**	**-POLYF**	+ verbs	Slovak *vládať*
		+ adjectives	English *be able*

As can be seen from Table 9, what is traditionally called a modal verb, which are, for example, in Palmer's (2001) categorization central elements, is in fact only a fraction of polyfunctional means. Also the major extensive reference work *Modals in the Languages of Europe* by Hansen and de Haan is not entitled ‚modal verbs', but ‚modals', since the authors are probably aware of the limitations of the term ‚verb'.

Moreover, from the perspective of diachronic approach to grammar, it would be too restrictive and short-sighted to limit the category of modals to verbs, because categories in general are diachronically unstable – see the

development of English modals from verbs into auxiliaries in Early Modern English in chapter 5 below.

3.2 Modals Cross-Linguistically

Having discussed the grammatical means for expressing modal meanings, this section will focus in detail on modals, i.e. free modal elements that are polyfunctional, irrespective of their category. It aims to ascertain in which languages they appear and by which categories they are frequently represented. Secondly, this section studies morphological and syntactic properties of modals in those languages where they appear. More precisely, it tries to find out whether there are any unique formal features related to modality, i.e. if modality triggers any specific set of morphosyntactic properties. Finally, my aim is also to ascertain how homogeneous these elements are in terms of their morphosyntax in particular languages.

3.2.1 *Modals in Germanic Languages*

Modals in Germanic languages descend from the group of Proto-Germanic preterite-presents verbs. Therefore, the cognates in respective languages can be easily recognized – compare the following examples of some modals in various languages; adapted from Mortelmans, Boye, and Van der Auwera (2009, 13).

Table 10: Examples of Germanic Modals

English	Dutch	German	Danish	Icelandic
can	*kunnen*	*können*	*kunne*	*kunna*
shall	*zullen*	*sollen*	*skulle*	*skulu*
may	*mogen*	*mögen*	*måtte*	*mega*

These elements share some of the properties, for example the missing 3rd person agreement – see the following examples:

(29) **English**   **Dutch**   **German**

 a. *I make*   *ik maak*   *ich mache*   lexical Vs
   he makes   *hij maakt*   *er macht*

 b. *I must*   *ik moet*   *ich muss*   modals

He mustØ   *hij moetØ*   *er mussØ*

Whereas in (29) lexical verbs demonstrate agreement in the 3ʳᵈ person, this property does not hold for modals. Modals in Germanic (with the exception of English) demonstrate verbal morphology, i.e. they can exist in infinitive form *müssen* 'must' (German), present participle form *kunnende* 'can' (Danish), or past participle *gemoeten* 'must' (Dutch). In terms of their syntactic behaviour, they are compatible with a wide variety of complementation (with the exception of English). More precisely, they can be followed by NPs, PPs, APs as well as clauses – see the following examples; (30a) and (30b) are taken from Mortelmans, Boye, and Van der Auwera (2009).

(30) a. **Dutch**

Hij moet   ₙₚ*[haar]*   *niet.*
he must-3sg.PRES   she.ACC   not
'He doesn't like her.'

b. **Danish**

Kongen   *vil*   clause*[at*   *den sorte*   *prins*
king.DEF   will-3sg.PRES COMP   the black   prince
forlader   *landet].*
leave-3sg.PRES   country.DEF
'The king wants that the black prince leaves the country.'

c. **German**

Ich muss   ₚₚ*[ins*   *Stadtzentrum].*
I   must-1sg.PRES   in.DEF   city centre.DAT
'I must (go) to the city centre.'

However, each language may demonstrate a different degree of tolerance in terms of the type of phrases – see the following examples, (31a) taken from Mortelmans, Boye, and Van der Auwera (2009).

(31) a. **Dutch**

Deze   *fles*   *moet*   ₐₚ*[vol].*
this   bottle must-3sg.PRES   full
'This bottle must (be) filled.'

b. **German**

  **Die Flasche   muss   _AP_[voll].*
  the bottle.NOM   must.3sg.PRES   full
  'This bottle must (be) filled.'

As can be seen from the Dutch sentence, a modal *moeten* subcategorizes for an AP, whereas German *müssen* does not allow for such a complement. In terms of their syntactic properties, modal verbs in Germanic combine with bare infinitive. The exception are some Icelandic modals such as *kunna* 'can' or *Þurfa* 'need', which subcategorize for *að*-infinitive (a cognate of the *to*-infinitive). Other Icelandic modal verbs, such as *skulu* 'shall' or *vilja* 'will' are followed by a bare infinitive.

To conclude, modals in Germanic share the following properties:

- zero agreement in the 3rd person
- a prevalent subcategorization for a bare infinitive.

Unlike modals in other Germanic languages, which are verbal elements, modals in English do not exhibit any morpho-syntactic characteristics of the category of verb. Therefore, I will treat them as a separate category.[18]

3.2.2 *Modals in Slavonic Languages*

Modality in Slavonic languages may be expressed by a variety of modal content words (i.e. those that express modal meanings, but are not polyfunctional), as Besters-Dilger, Drobnjaković and Hansen (2009, 168) claim. These include:

- nouns, such as Polish *konieczność* 'necesity',
- adjectives, such as Serbian *dužan* 'obliged',
- sentence adverbs, such as Russian *navernoe* 'probably'.

Hladký (1983, 87) and Čechová (2000) among others, mention that whereas English uses modals for expressing modality, Czech frequently exploits other parts of speech for the same purpose – namely the particles *asi, snad* 'probably'

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[18] For example, they do not have non-finite forms, their subcategorization is limited to a VP and their syntax is different from that of lexical verbs. I will focus on this topic in detail in chapter 4.4.1.

or *jistě*, *určitě* 'certainly'. These are, however, monofunctional in most cases, and therefore will not be discussed here in detail.

Among polyfunctional elements, Slavonic languages use verbs as Slovak *mať* 'must', and *môcť* 'can' exemplified in (28), or *muset* 'must', *mít* 'must' in Czech, *móc* 'can', *musieć* 'must' in Polish, or *musyty* 'must' or *mohty* 'can' in Ukrainian. Besides that, Slavonic languages use polyfunctional elements of adjectival origin, such as Russian *dolžen*, mentioned in (27).

Concerning the verbs, Besters-Dilger, Drobnjaković and Hansen (2009, 172ff) claim that modals in Slavonic enter various morphosyntactic patterns that differ in three ways:

- argument case assignment,
- agreement marked on the modal,
- agreement marked on the full verb.

They furthermore observe that morphosyntactic properties can combine into six types of constructions – see Table 11 below:

Table 11: Slavonic Modal Constructions

Type	Argument/Subject	Modal	Verb
I	nominative	+ agreement	- agreement
II	nominative	+ agreement	+ agreement
III	dative	- agreement	- agreement
IV	dative	- agreement	+ agreement
V	Ø	- agreement	- agreement
VI	nominative	- agreement	+ agreement

Some examples of the variety of combinations are mentioned below (all modal elements are polyfunctional), taken from Besters-Dilger, Drobnjaković and Hansen (2009, 172ff):

(32) a. **Russian – Type I**

My možem   rabotat'.
we can-1pl.PRES   work-INF
'We can work.'

b. **Serbian – Type II**
Ivan   mora   da   radi.

36

| Ivan | must-3sg.PRES | COMP | work-3sg.PRES |

'Ivan can work.'

c. **Russian – Type III**

Ivanu   nado   bylo   rabotať.
Ivan-DAT   must   be-3sg.PAST work-INF
'Ivan had to work.'

d. **Polish – Type V**

Trzeba   było   pracować.
must   be-3sg.PAST work-INF
'One had to work.'

Modals in a particular language may follow multiple patterns – for example Czech modals are of type I, III and V, as defined in Table 11. Other languages may subscribe only to one type – for example Upper and Lower Sorbian, which unanimously take type I. As can be seen above, unlike in Germanic languages, where the modals are homogenous to a certain extent, the Slavonic group demonstrates a considerable morpho-syntactic variety.

3.2.3   *Modals in Romance Languages*

As for Romance languages, Cornillie et al (2009, 118ff) claim that it is difficult to define modals based on morphological and syntactic criteria, since there are several sources of their origin. They include Latin stative verbs (e.g. Italian *dovere* and French *devoir* 'must' from the Latin verb *debere* 'owe'), verbs of movement (e.g. Italian *andare* 'must', which was originally a verb of movement), or Slavic source (Romanian *a trebui* 'need' from Slavic *trebovati*) and others. As one of the results, subcategorization can be varied. Some modals can be followed by a non-finite form of a verb, see French *devoir*:

(33) a. *On   doit   attendre.*
      one   must-3sg.PRES   wait-INF
      'We must wait.'

b. *On   doit   être   venu.*
      one   must-3sg.PRES   be-INF   come-PP
      'Someone must have come.'

The same holds for the cognates of *dovoir* 'must' in other languages, namely Italian *dovere* and Spanish *deber*. On the other hand, Romanian polyfunctional *a trebui* 'need' is followed by a clause in the subjunctive, as in the following example:

(34) *Danărea   trebuie   să   fie   aproape.*
     Danube   must-3sg.PRES.IND that be-3sg.PRES.SBJV   near
     'The Danube must be near.'

Alternatively *a trebui* can also be followed by a past participle. Thus, modals in Romance do not share a common morphosyntactic property, and demonstrate quite a heterogeneous class from a formal perspective.

In the following section, modals from non-Indo-European languages will be briefly analysed to show to what extent and in what variety these appear in other languages. I will discuss monofunctional elements, however, the focus will lie on polyfunctional morphemes. The languages that will be analysed include Hungarian, the Balto-Finnic group, the Turkic group and Chinese.

3.2.4   *Modals in Hungarian*

Körtvély (2009, 403ff) claims that being an agglutinative language, Hungarian uses predominantly suffixation in its grammar system. Modality can be expressed by a wide range of means, such as modal tags – for example *elképzelhető, hogy* 'it is concievable', *véleményem szerint* 'in my opinion'. Körtvély claims that such tags are "usually epistemic in nature," therefore, it can be concluded that they are probably not polyfunctional. Besides tags, there are a number of adverbs expressing modal meanings, such as *valószínűleg* or *feltehetőleg* 'probably'. Despite the fact that Körtvély does not discuss their meaning in detail, these members are most probably monofunctional, and therefore not of much interest for this work.

On the other hand, Hungarian also possesses a wide range of means that are polyfunctional. One of them is modal affix *–hAt*, the polyfunctionality of which is shown in the example below.

(35) a. **Root**

     Ebbe   a   házba   akárki
     this.ILLAT   the   house-ILLAT   anybody
     bejöhet.

come.in.MOD.AFF.3sg

'Anybody is allowed to come into this house.'

b. **Epistemic**

*Megint dugóba kerül**het**ett.*

again jam.ILLAT get-MOD.AFF.PAST.3sg

'She possibly got into a traffic jam again.'

Besides modal affixes, Körtvély (2009, 409ff) also provides a list of modal verbs, commenting on their meanings:

Table 12: List of Modals in Hungarian

Modal verb	Meaning
kell 'must'	dynamic and epistemic
lehet 'be possible'	dynamic and epistemic
szabad 'can'	dynamic (and epistemic)[19]
talál 'might'	epistemic
tud 'can'	dynamic
bír 'can'	dynamic
akar 'want'	dynamic
szeretne 'would like'	dynamic

As the table shows, only some of them are polyfunctional. In terms of the formal properties, Körtvély states that these elements are not consistent in terms of their phonological shape, morphology or syntactic properties. She claims that in terms of their subcategorization, they are compatible with non-finitival complements, with the exception of *lehet* 'be possible' and *talál* 'might' – see the following set:

(36) a. *Az kell, hogy hazamenjek.*

    that must that home.go.SBJV.1sg

  'It is necessary that I go home.'

  b. *Innen jól lehet látni a hegyeket.*

    from here well is possible see.INF the hill-pl.ACC

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[19] According to Körtvély, *szabad* is only dynamic; however, Kiss and van Riemsdijk (2004, 25) point out that it conveys also epistemic meaning.

'From here the hills can be seen well.'

Furthermore Körtvély (2009, 420) claims that *kell* and *talál* cannot be separated from the main verb and they cannot bear stress in neutral sentences, unlike other verbs. She also adds that *talál* is syntactically an auxiliary, followed by *kell*, which is less grammaticalized. Other elements are considered to be verbs. At the same time, the two polyfunctional elements *kell* and *lehet* seem to be morphosyntactically distinct from other monofunctional elements, and their morphology and syntax is rather restricted. Therefore in Hungarian there may be a link between the poly/monofunctionality of modal verbs and their syntactic behaviour. This would be consistent with my findings below (chapters 6, 7, 8 and 9), but establishing it would require further research, which is outside the scope of this work.

3.2.5 *Modals in Balto-Finnic*

Kehayov and Torn-Leesik (2009, 343ff) provide an analysis of modal elements in languages of the Balto-Finnic group, which include for example Estonian, Livonian, Votic, Veps and Finnish. These authors (2009, 365) point out that the languages may use modal adverbs to express modality (especially in the eastern branch), as in the following example of a modal adverb *tariž* 'must' from Veps:

(37) **Tariž**   *kodi-he.*
    must.ADV   home-ILLAT
    'One needs to go home.'

As can be seen, the modal adverb *tariž* 'must' is used without a verbal complement; however a verbal complementation is not excluded. The authors do not provide any extensive analysis of meaning, but since only deontic modality is mentioned in relation with this adverb, it is likely to be monofunctional.

Keyahov and Torn-Leesik (2009, 365ff) analyse modals in Finnish. They argue that for example Finnish has a specific morphological category expressing epistemic probability or possibility – namely potential mood, signalled by the mood marker *–ne-*. As Forsberg (2003, 145) stresses, it is used mainly in formal registers, whereas its use in colloquial speech is limited.

(38) *Sähköveturiasian   käsittelyä*
electric-locomotive-thing-GEN   discussion-PART
*jatketta**neen**   lähiaikoina.*
continue-PASS.POT   near-time-pl
'The question of electric locomotives will probably be discussed further in the near future.'

Forsberg (2003, 147) also points out that there are significant differences between standard speech and dialectal use of this mood in Finnish. In standard Finnish, it conveys epistemic meanings; however, he argues that diachronically, it also had a root reading, which apparently survived in dialectal use.

(39) *Mitä   teh**nen**?*
what-PART   do-POT-1sg
'What should I do?'

Thus, apart from standard Finnish, potential mood is obviously polyfunctional.

Besides this synthetic means, Balto-Finnic languages also have analytic polyfunctional modal verbs to express modalities; these include *pitää* 'must', *saada* 'can', *voida* 'can', *tulla* 'will', or *täytyä* 'must' among others. According to Keyahov and Torn-Leesik (2009, 366), Balto-Finnic modals can follow two morphosyntactic patterns – personal and impersonal, as seen in the following example:

(40) a. *Sinä   **voit**   nukkua.*
    you.NOM   can-2sg   sleep-INF
    'You can sleep.'

    b. *Sinun   **täytyy**   nukkua.*
    you.GEN   must-3sg   sleep-INF
    'You must sleep.'

In the first case, the argument is in nominative case and the modal verb demonstrates an agreement. On the other hand, in the second example, the argument can be in genitive, dative or local case, and the modal element is invariably in the 3rd person singular. This phenomenon is thus similar to the situation in the Slavonic group, as discussed above in 3.2.2.

A modal can favour the personal or impersonal pattern in different languages, however, a single modal can demonstrate both patterns in the same language, see examples (41).

(41) a. **Estonian**

Mina **pidin** *varem* *minema.*
I must.PAST.1sg earlier go-INF
'I have to leave earlier.'

b. **Livonian**

Mina *varim* **pid´** *läem.*
I earlier must.PAST.1sg go-INF
'I had to leave earlier.'

c. **Livonian**

Minnən varald **pidiks** *läem.*
I.DAT early must-COND.3sg go-INF
'I would have to leave earlier.'

Whereas (41a) demonstrates a personal pattern in Estonian, the two other examples demonstrate dialectal differences in Livonian – the first being personal and the second being impersonal pattern.[20]

To conclude, whereas Balto-Finnic languages do have polyfunctional morphemes expressing modality, modal elements in Balto-Finnic do not form a homogeneous class morphosyntactically. More interestingly, the example of particle –*ne*– demonstrates that polyfunctionality is related not only to free morphemes, but that also some bound morphemes are polyfunctional.

3.2.6 *Modals in Turkic*

Johanson (2009, 488) claims that Turkic languages use both synthetic and analytic devices to convey modal meanings. In terms of analytic means, Modern Turkish uses for example the adjectives *gerek* or *lazim* 'necessary', followed by infinitive, as in the following example:

(42) *Bilmek* **gerek/lazim.**

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[20] Example (41a) is taken from Keyhov and Torn-Leesik (2009, 367), examples (41b-c) are originally from Saukkonen (1965, 123).

know.INF   necessary

'It is necessary to know.'

As Johanson adds (2009, 496) *gerek* can also be used as a verb 'to be necessary', that is used with a verbal morphology - see the following example.

(43) *Gitmem   gerekiyor*.
       go.VN.POSS.1sg   be.necessary.PRES
       'I must go.'

Whereas *gerek* as a necessity marker is frequently analysed as a deontic adjective, Kerimoğlu (2010, 449) shows that it can also be used in epistemic meaning:

(44) *Bu kalemi Ali alsa gerek.*[21]
      'The person who takes this pencil must be Ali.'

Considering this, we could claim that this adjective is polyfunctional, similarly to Russian *dolžen,* as discussed in section 3.2.2.

      Concerning synthetic means, Johanson (2009, 488ff) argues that Turkic languages widely use bound inflectional suffixes. This is exemplified by the Turkish marker *–malI* or *–(y)Abil-*, which expresses both epistemic and deontic readings. Kornfilt (1997, 374ff) provides an example both readings – see the following:

(45) a. *Okuyabilirim*
       read-ABIL-AOR-1sg
     'I can/am permitted to read.'

    b. *Hasan orada olabilir.*
     Hasan there be-ABIL-AOR
     'Hasan may be there.'

We can see here that Turkic languages exemplify a group of languages where modal polyfunctionality is expressed synthetically, rather than analytically.

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[21] Glossing is not available

3.2.7 Modals in Mandarin Chinese

To study modal expressions geographically as well as genetically distant from English, the last section of this chapter will be devoted to the Chinese modals. Mandarin modals include expressions such as *nenggou* 'can', *hui* 'can', *yao* 'must', and others, and they are known for being polyfunctional, as exemplified below by *yao*, taken from Ren (2008, 17 and 63).

(46) a. *Tamende huor* **yao** *bi* *women de* *zhong.*
   their work   must than ours   heavy
   'Their work must be heavier than ours.'

   b. *Ni* *yiding* **yao** *jinkuai* *wancheng zhe ge xiangmu.*
   you definitely must as soon as possible finish   this CL project
   'You must finish this project as soon as possible.'

Li and Thompson (1989, 172ff) point out that modal elements in Chinese are not verbs syntactically, but constitute a separate category (they label them 'auxiliaries'). The authors demonstrate that the only feature that Chinese modals share with verbs is their negative structure. More precisely, Mandarin modals can be negated exactly as lexical verbs by "V not V" structure, see the following example:

(47) *Ta* **neng** *bu* *neng* *chang* *ge?*
   s/he can   not can   sing   song
   'Can she sing the song?'

However, except for negation, modals in Mandarin do not exhibit any morpho-syntactic verbal properties; for example they are not compatible with aspect markers *-le, -gue* or *-zhe.*

(48) **Ta* **neng** *le* *chang* *ge.*
   s/he can PERF sing song
   'She could sing a song.'

Since Chinese modals seem to demonstrate a similar behaviour as English modals, i.e. according to the literature, we can analyze modal elements as a separate part of speech; Mandarin Chinese will be discussed in more detail later in chapter 10.

3.2.8 *Summary*

This section discussed modals from a cross-linguistic perspective. Together with mood and modal affixes, modals constitute one of the grammatical means for expressing modal meanings. Modals in this dissertation will be understood as free morphemes expressing both root and epistemic modality, i.e. they are polyfunctional by definition. Using data from various languages, I demonstrated that despite the prima facie impression, modals can be disguised as various parts of speech. In German, they are morphosyntactically verbs, but in Slavonic group, modals can be of adjectival origin, such as Russian *dolžen*, or they behave as auxiliaries, such as Chinese *yao* or English modals *can, must*, etc.

After showing the variety of grammatical means that exist in various languages, it is clear the modals cannot have any common morphosyntactic means that could be found in all languages – in other words, there is no universal morphosyntactic property that would be common for all modals. I have also aimed to show that in various languages, the degree of homogenity of the 'modal' group is different. Whereas in some languages (such as English), modals form a rather homogeneous group distinct from other morphemes in the language, Hungarian modals, on the other hand, demonstrate each a slightly different degree of grammaticalization.

English Modals

4 Modals in Present-Day English

Whereas the previous part has aimed to analyse modals in a cross-linguistical perspective, this chapter will provide a detailed analysis of morphological, syntactic and semantic properties of English modals. Chapter 4 will predominantly focus on central modals, since the marginal elements, such as *dare, need, ought* or complex expressions such as *be able, be going, have to* will be analysed in chapters 7 and 8 in detail.[22] First, I will discuss the semantic properties of English modals, showing that they are polyfunctional, and thus eligible members of the group of modals. Then, I will focus on their formal properties, and finally, I will also argue that modals in English do not belong to the category of verbs, but that they constitute a separate part of speech, as has been first argued in Lightfoot (1979).

4.1 The Notion of Central vs. Marginal Modals

Central modals constitute a homogeneous group in English. By a central modal, I mean elements which are polyfunctional, and at the same time demonstrate the properties typical for that class. Therefore, *can* will be regarded as a central modal, whereas *dare* is considered to be a marginal modal, because it demonstrates exceptional semantic, morphological and syntactic properties. Quirk et. al (1985, 137) provide the following list of central modals: *can, could, may, might, shall, should, will, would, must*.[23]

4.2 Semantics of Central Modals

As already mentioned in chapter 3.1.3, the definition of modals I adopt is based on modal polyfunctionality – in particular on the fact that elements express both root and epistemic meanings. Therefore, this section will examine the

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[22] The terms central vs. marginal modal elements do not have a fixed definition. In this work, 'central' will be used to label a modal element demonstrating all prototypical properties. The term 'marginal modal' will be used to label elements that demonstate certain deviations from a standard modal behaviour in the sphere of morphology, syntax, or semantics.

[23] Not all authors, apparently, propose the same list of central modals. Leech (2004, 72) also includes *have to* in this group (using the term primary auxiliaries instead of central modals). The motivation for this is, however, not clear, as *have to* does not show many properties typical of central modals. The structure *have to* will be analysed in detail in chapter 8.

polyfunctionality of central modals. As for the pairs *can – could, will – would,* etc., despite the fact that many authors regard *can* and *could* as the same element distinguished by tense, in this analysis the pair will be analysed as two separate elements. A reason for that is the fact that the polyfunctionality status of the present-past counterparts differs significantly (see for *shall* vs. *should*), as well as their formal properties do (compare *shouldn't* vs. *??shan't*), as will be shown below. Moreover, the suffix *–ed* originally expressing tense does not necessarily refer to the past time (see for *could*, which can be used for present or future reference).[24]

4.2.1 *Central Modal* Can

The root meaning of *can* is most frequently associated with ability – i.e., dynamic possibility[25] – see example (1a). Besides that, however, *can* is also used to express purely deontic meanings of permission – see (1b).

(1) a. *I can speak Chinese.*
  b. *You can't park here.*
  c. *He can't be so rich.*

On the other hand, *can* expresses epistemic possibility, especially in the negative sentences, as exemplified in (1c). Therefore, it can be concluded that *can* is polyfunctional.

4.2.2 *Central Modal* Could

A very similar situation can be seen with *could*. When expressing dynamic modality, it denotes general past ability – see (2a). Besides that it has deontic meaning for the past, as shown in (2b). Interestingly, *could* can also express deontic permission related to the present time, as shown in (2c). Finally, *could* is frequently used for expressing epistemic possibility, as illustrated in (2d).

(2) a. *He could sing when I was a child.*
  b. *We could stay as long as we wanted.*
  c. *Could I open the window?*
  d. *She could be in the garden*.

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[24] For more about modals and temporality, refer to Newson (2008, 11ff).
[25] Dynamic modality was discussed in detail in 2.3.

As is now obvious, *could* also demonstrates both root and epistemic readings, and is therefore polyfunctional.

4.2.3   *Central Modal* May

The deontic meaning of *may* is related to permission, as shown below in (3a). On the other hand, the epistemic meaning is used more often, see (3b).[26]

(3)   a. *Passengers may not smoke here.*
      b. *He may be in his office right now.*

Leech et al (2009, 83) point out that the deontic meaning is weakening, most probably because of being replaced by *can* in its function. On the other hand, epistemic *may* is gaining ground. Leech et al even state that "there is […] a noticeable tendency towards monosemy: *may* is becoming predominantly an epistemic modal." Therefore, we may conclude that *may* is polyfunctional, even though its polyfunctionality is probably weakening.

4.2.4   *Central Modal* Might

Concerning the meaning of *might,* it is associated predominantly with epistemic meanings (which is weaker than *may*), as illustrated in example (4a). Non-epistemic (dynamic) meaning can be observed in (4b) below. A clearly deontic meaning of *might* is used in sentence (4c), taken from Quirk et al (1985, 223).

(4)   a. *He might be in his office.*
      b. *We might say that such meanings are non-existent.*
      c. *Might I ask whether you are using the typewriter?*

However, as Quirk et al (1985, 223) claim, the usage of *might* as in (4c) is rare and some speakers consider it obsolete. Similarly to *may, might* expresses both types of meanings; however, it may be heading towards monofunctionality.

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[26] Leech et al (2009, 83) propose a more fine-grained analysis of *may* (epistemic, root, permission, quasi-subjunctive). However, since I focus predominantly on basic division into root and epistemic modality, a detailed classification of its functions is not essential for this work.

4.2.5 *Central Modal* Shall

As Quirk et al (1985, 229) claim, *shall* is rather rare in present-day English. Still, it is marginally used to express future predictions (alongside with *will*), i.e. we may conclude that *shall* is epistemic – see example in (5a), taken from Quirk et al (1985, 230). The current use of *shall* is limited rather to first person questions and requests for opinions or suggestions (dynamic modality) or wishes close to the obligational meaning – see examples (5b) and (5c) as exemplified by Quirk et al (1985, 230). With the 3rd person subject, clearly deontic *shall* occurs predominantly in legal texts – see (5d).

(5)   a. *According to the opinion polls, I shall win quite easily.*
      b. *What shall we do tonight?*
      c. *Shall I deliver the goods to your home address?*
      d. *The buyer shall pay the price immediately*.

To conclude, *shall* is potentially polyfunctional – it expresses both meanings. However, it must be stated that its epistemic meaning (i.e. future reference) is very weak and non-productive.

4.2.6 *Central Modal* Should

Whereas the polyfunctionality of *shall* is debatable in present-day English, *should* is an exemplary representative of polyfunctional modals. It clearly shows deontic meaning of advice – as in example (6a). Besides that *should* also functions as a modal of epistemic probability (6b).

(6)   a. *You should study more.*
      b. *The church should be near.*

Both meanings are very frequent, and therefore, *should* is polyfunctional.

4.2.7 *Central Modal* Will

The modal *will* is primarily used to express epistemic future, as shown in (7a). Besides that, *will* also expresses epistemic certainty also with reference to present time, as shown in (7b). Furthermore, *will* is a representative of root modality, more precisely of a volitional meaning, as shown in (7c). Collins (2009,

134) shows that *will* is occasionally used in purely deontic sense, especially with the 2nd person subject, providing an example in (7d).

(7)   a. *He will be thirty this year.*
       b. *He will be in his room now.*
       c. *I won't do it.*
       d. *You'll clear the bikes.*

Hence, it can be concluded that *will* is polyfunctional, though epistemic modality is more prominent than the deontic one.

4.2.8   *Central Modal* Would

As Collins (2009, 139ff) claims, *would* is used epistemically as a future in the past, as in (8a),[27] and adds that *would* does not demonstrate deontic meaning. However, *would not,* similarly to *will not*, expresses the meaning of volition, or rather refusal, as in (8b). And as shown in section 2.3 on classification of modality, volitional modality is a part of root modality, as used by Palmer (2001), Quirk et al (1985).

(8)   a. *He said he would do that.*
       b. *He just would not help her, though she asked repeatedly.*

To conclude, *would* is polyfunctional as well, as it expresses both epistemic and root modality – in particular volitional meaning.

4.2.9   *Central Modal* Must

The last element to be analysed is *must.* It is clearly polyfunctional, having both deontic and epistemic meaning, as shown in (9a) and (9b).

(9)   a. *You must work harder.*
       b. *She must be really tired after the walk.*

---

[27] *Would* is frequently used for expressing habitual meanings, as in (i).

(i)   *He would visit his grandmother every weekend.*

Since this meaning is, however, not primarily modal but aspectual, I will not discuss it in detail in my study.

In case of *must*, both meanings are frequently used and are fully productive.

4.2.10 *Summary*

The polyfunctionality of modals presented above is summarized in the following table.

Table 13: Polyfunctionality of Central Modals

Modal	Deontic	Epistemic
can	yes	yes
could	yes	yes
may	**yes (weakening)**	**yes**
might	**yes (rare)**	**yes**
shall	**yes**	**yes (weak)**
should	yes	yes
will	yes	yes
would	yes	yes
must	yes	yes

This illustrates that a strong majority of central modals indeed demonstrate polyfunctionality, although one meaning may be more prominent than the other. A low degree of polyfunctionality can be traced with *may, might* and *shall*. As has been shown, they are polyfunctional; therefore they qualify for membership in the category of modals; however, one type of meaning is significantly backgrounded. Interestingly, exactly these modals demonstrate some gaps in their modal status from the morphosyntactic perspective as well – for example marginality of negatives *mayn't, mightn't* or *shan't*. Therefore, I will examine them again in detail in chapter 7 on marginal modals.

4.3   Morphosyntax of Central English Modals

Whereas the previous section studied the semantics of modals, this part will focus on their morphological and syntactic properties. As in the previous section, I will focus on central elements only – namely *can, could, may, might, shall, should, will, would, must*.

4.3.1   *Morphological Properties*

Probably the most distinguishing property of English central modals is the morphological absence of agreement, in English visible only in the 3rd person singular, as in the following example.

(10)   *He must/*musts study harder.*

Hence, central modals are invariable for all persons. There are several perspectives for an explanation of such a gap. Traditionally, the lack of agreement is explained by diachronic reasons – more precisely by their preterite-present origin (the history of English modals will be discussed in detail in chapter 5). However, I must insist that empirical evidence cannot support such explanation, as there are modals that do not have the preterite-present origin, and still they exhibit lack of agreement (such as *will*), and on the other hand, there are elements of preterite-present origin that do agree in the 3rd person singular (such as *dare*). Therefore, I rather subscribe to a syntactic explanation. One possible explanation of this phenomenon may be Pollock's (1989) Split-INFL hypothesis. The traditional INFL (IP) node is divided into T and AGR. Since modals are base-generated under the T node, they do not rise through AGR (unlike lexical verbs) to gain an agreement, and therefore, they are non-agreeing – see Figure 3.[28]

---

[28] This theory has been questioned, especially in terms of the order of nodes T-AGR – see Haegeman (1994, 598).

Figure: Split-INFL hypothesis; based on Pollock's 1989

Wurmbrand (2003, 140), on the other hand, proposes the explanation that modals and inflectional suffixes compete for the T/I position, and that they are mutually exclusive. Therefore, elements such as *can, must, should* etc., are not eligible for agreement or tense suffixes – see the Figure 4.

Figure 4: TP; Based on Wurmbrand (2003)
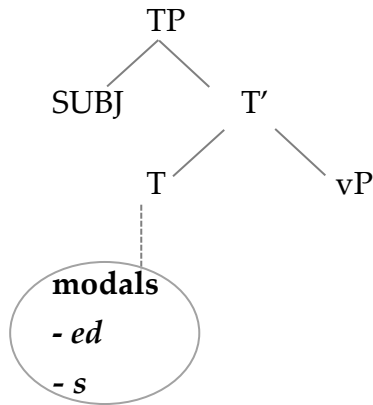
Despite the fact that *could* is sometimes regarded as a past tense of *can* (the same holds for *may/might, shall/should, will/would*) and could prima facie contradict Wurmbrand's model, this view cannot be sustained, as I already mentioned in 4.2. First, the dental stop is not productive since it is does not apply to *must - *musted*. The suffix *–d* in for example *could* cannot be regarded as an independent suffix, as it cannot be separated from *can* by decomposing *could* into **did you can*, as can be observed with lexical verbs *took/did you take*.

Moreover, it is highly questionable whether the pair *can – could* represents the difference in tense – see the following examples.

(11) a. *Can I open the window soon?*
      b. *Could I open the window soon?*

The distinction between (11a) and (11b) is not a temporal one, but rather stylistic. Moreover, the alleged past forms with some modals are not compatible with past at all – see the following ungrammatical example.

(12) **I should study more yesterday*.

Finally, the analysis of semantics of modals in section 4.2 clearly showed that pairs *can-could, may-might,* etc., do differ in their meanings and their polyfunctionality status, i.e. we cannot reanalyse the meaning of these verbs as *could = can* + PAST. Despite the fact that diachronically, these forms might have been related, they must be regarded as two separate lexemes in present-day English, and as a result, the *-ed* suffix (in *should, could, might, would*) cannot be regarded as a past tense morpheme. In line with what Wurmbrand (2003) asserts, the modals do not carry any tense morphology, i.e. neither *–s* nor *–ed*.

4.3.2   *Syntactic Properties*

Besides **the absence of agreement** and **tense** morphology, central modals in English demonstrate a set of syntactic properties that are typical only of this class and the auxiliary verbs *do, be* and *have.* These properties are frequently labelled as operator properties or NICE properties [29] . They include the placement of **sentence negation** right after the modal and formation of phonetically reduced structure modal+*n't*, as exemplified in (13)*.*

(13) *He must not/mustn't/doesn't work so hard.*

Another property typical for modals is inversion in questions, reserved again only for central modals and auxiliaries (14).

(14) *Does/Must he work so hard?*

---

[29] The term 'operator' is used by Quirk et al (1985), whereas the term NICE properties by Huddleston and Pullum (2002)

Next, modals appear in question tags or short answers, as exemplified below in (15a) and (15b), respectively.

(15)   a. *He must study hard, mustn't he?*
       b. *Can I use your book? - Yes, you can.*

These properties can be explained by the underlying sentence structure. For negative sentences, as exemplified in (13), the modal is placed in the T slot, which is followed by NegP – see the following figure.

Figure 5: Negation and Inversion
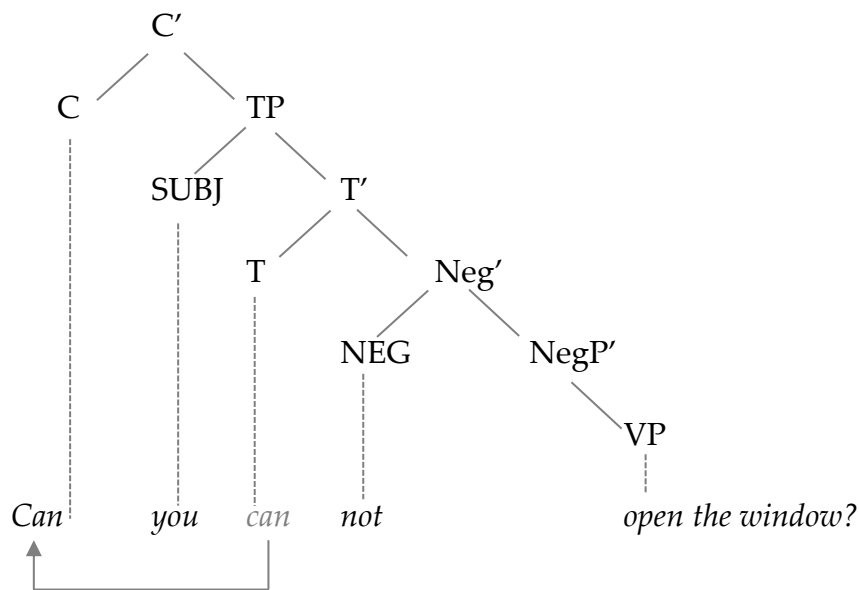
The inversion in questions can be explained as T-to-C movement, as exemplified in (14), and illustrated in the figure above.

Besides the above, an English central modal is also characterised by its **subcategorization**. More precisely, it can be followed solely by a VP – no other subcategorization is allowed – see the following example:

(16)   *She must study/*to the city centre/*tired.*

This property can also be explained by the underlying structure, as in for example Figure 4. Modals are placed in T, and therefore they can be followed either by zero (as in the examples of ellipses in short answers), or by a VP.

4.4 Categorial Status of English Modals

The previous part outlined the prototypical morphosyntactic properties of central modals, and with reference to them, I will discuss the categorial status of modals in English. More precisely, in line with Lightfoot (1979) and others, I will argue that modals in present-day English are not verbs, as is usually claimed, but that they form a separate part of speech.

4.4.1 *The Notion of Parts of Speech*

Words in languages are divided into parts of speech (i.e. categories) based on similarity of features shared by the members of that category. These features may include morphological and syntactic, and (marginally for English) also phonological and semantic properties.[30] In terms of **morphology**, members of one part of speech can be modified by the same subcategory, and thus combined with the same set of inflectional morphemes – see the following examples.

(17) a. VERBS: *to work – work**s** – work**ing** – work**ed***
                         to child – *childs** – * child**ing** – *child**ed***
     b. NOUNS: *boy – boy'**s** – boy**s***
                         *interesting – *interesting'**s** – * interesting**s***

As is shown in (17a), verbs can be modified by the verbal suffixes *–s, –ing,* and *–ed*. These combinations, however, do not work for the noun *child*. Similarly in (17b), nouns can be modified by case and plural; such morphology is not compatible with the adjective *interesting*.

As far as syntactic properties are concerned, words can be divided into parts of speech based on their **distribution**, i.e. their position in a sentence and the syntactic environment. This is exemplified in (18).

(18) NOUN: ***The** book is on sale.*
      ADJECTIVE: ** That book is **the** interesting.*
      VERB: ** I **the** like the book*.

---

[30] Phonological criteria in English involve for example stress-placement. However, it can be applied only to a handful of words, such as *'import* (N) vs. *im'port* (V). Semantic criteria are the least reliable ones, consider the pair *courage* vs. *brave* or *love* vs. *fond.* Despite the fact that both words denote very similar meanings, they belong to different parts of speech, namely to nouns and adjectives.

In the first case, a noun is premodified by the definite article. The two following sentences, however, demonstrate that such premodification cannot be used with adjectives or verbs. Syntactic diagnostics are also based on paradigmatic replacement. More precisely, a particular slot in a sentence can be replaced by a word of the same category – see the following example.

(19) *The* | *cat* | *has been* | *sleeping* | *on the floor.*
	dog		*lying*
	child		*sitting*
	*these		**these*

The first slot after the definite article is reserved for an N, and thus the determiner *these* is excluded. In the same vein, the predicate requires a VP, and therefore *these* is not grammatical in this structure. Therefore, it can be concluded that words within the same part of speech will have the same distribution within sentences.

4.4.2 *Comparison of Modals, Verbs, and Auxiliaries*

This section will compare the morphosyntactic properties of the central modals *can, could, may, might, shall, should, will, would, must* with those of lexical verbs. The first obvious difference between the two groups is the incompatible morphology. Besides the absence of agreement discussed above, modals in English do not possess any verbal inflectional forms – see (20).

(20) *to speak – speaks – spoke – spoken – speaking*
    *to can – *cans – *canned[31]– *canned – *canning

As far as the subcategorization of modals is concerned, modals do not demonstrate any overlap with lexical verbs, either. Whereas lexical verbs permit a wide range of subcategorizations (21a), modals subcategorize exclusively for a bare VP – see below.

(21) a. **Lexical Verbs**
       NP: *I want NP[a chocolate].*
       VP: *I want VP[to be at home].*
       PP: *He went PP[to school].*

---

[31] The case of *could* was discussed in the previous section 4.3.1.

| AP: | *He looks AP[tired].* |
| Clause: | *I think CL[that this is difficult].* |

b. **Modals**

NP:	**I can NP[the song] by heart.*
VP:	**I must VP[to be at home].*
VP bare:	*I must VP[be at home].*
PP:	**He must PP[to school].*
AP:	**He might AP[tired].*
Clause:	**It may CL[that he will like it].*

Modals systematically refuse to tolerate any other type of phrase than a bare VP. The reasons for that cannot be semantic, as the meaning of the majority of the sentences is clear. Moreover, many of word-for-word translations in (21b) are actually grammatical in other languages (see for example the section on Germanic modals in 3.2.1.)[32]

As far as the distribution of English modals is concerned, there is **no** syntactic environment where modals could be systematically replaced by a full verb or vice versa. As mentioned above, modal elements demonstrate operator properties incompatible with the syntax of lexical verbs, as seen in the examples below.

(22) a. **Questions**

i. ***Can** he speak English?*
ii. ***Speaks** he English?*

b. **Negation**

i. *He **can't** speak Chinese.*
ii.**He **speaksn't** Chinese.*

c. **Question Tags**

i. *He can speak English, **can't he**?*
ii. **He speaks English, **speaksn't he**?*

---

[32] There are some verbs in English with bare VP complementation, such as *help, let, make, hear, see*, etc. These, however, to my knowledge, permit also other subcategorization [*to*-VP, *-ing* VP], or permit for a following NP, which is not the case with any central modal. On the other hand, no morphologically intransitive verb (with the exception of *help*) takes bare VPs.

d. **Short Answers**
i. *Yes, **he can**.*
ii. **Yes, **he speaks**.*

This section demonstrated that modals do not have the properties of lexical verbs in present-day English, neither in terms of morphology nor syntax. Therefore, we must conclude that **modals are not verbs** in English, but constitute a separate category.

Concerning the status of modals with respect to the auxiliary verbs *be, do* and *have,* they apparently share some properties, such as their distribution. Auxiliaries also demonstrate operator properties, as exemplified in the following examples.

(23) a. **Questions**
i. ***Can** he speak English?*
ii. ***Do** you speak English?*

b. **Negation**
i. *He **can't** speak Chinese.*
ii. *He **doesn't** speak Chinese.*

c. **Question Tags**
i. *He can speak English, **can't** he?*
ii. *He speaks English, **doesn't** he?*

d. **Short Answers**
i. *Yes, he **can**.*
ii. *Yes, he **does**.*

However, in contrast to modals, the auxiliaries *do, be* and *have* do demonstrate agreement and tense morphology – *does/did, is/was, has/had.* Moreover, auxiliary *be* and *have* also demonstrate full verbal morphology – see (24).

(24) *to break – breaks – broke – broken – breaking*
***to be** stolen – **is** stolen – **was** stolen – has **been** stolen – is **being** stolen*
***to have** done – **has** done – **had** done – ? – **having** done*

Concerning subcategorization, with the exception of the auxiliary *do*, the subcategorization of which is identical to that of modals, *be* and *have* demonstrate a variety of complementations – see (25).

(25) a. *I have [done that].*
      b. *I am [studying hard now].*
      c. *The car was [stolen].*

As has been demonstrated, *have* can subcategorize for VP [*-en*], and *be* can subcategorize for VP [*-ing*] for progressive and VP [*-en*] for passive.
As can be seen from above, modals and auxiliaries are not identical. Concerning grammar manuals, Quirk et al (1985, 73) distinguish three separate categories:

- modals,
- primary verbs (= auxiliaries),
- full verbs.

They conclude that such a division is "well motivated from Modern English." In terms of my own analysis discussed above, I came to the same conclusion. From now on, English modals will be regarded as a separate part of speech, demonstrating specific combination of morphological and syntactic properties.

5　Diachrony of English Modals

So far I have focused on the situation of modals in present-day English, however a short excursion into their diachronic development may in fact help to clarify their present-day behaviour. More precisely, in this chapter I will discuss the possible reasons for the absence of agreement visible with contemporary modals, and outline how modals developed their syntactic properties, which differ considerably from those of lexical verbs. At the same time, the diachronic analysis also explains why English modals differ from modals in some other languages – for example German.

5.1　Proto-Indo-European and Proto-Germanic Periods

The history of English modals is traceable in Proto-Indo-European (PIE) and Proto-Germanic (PG) periods, which date back to around 5000 BC-3000 BC and 100 BC, respectively[33]. In those times, English did not exist as a separate language, as its history starts far later. In these periods, we can find a group of verbs, so called preterite-present verbs, which later gave rise to modals. In the PIE period, the verbal system was based on the aspect system, rather than on tense distinctions, distinguishing the following aspects, as exemplified by Ringe (2006, 34):

(26)　Perfect　　　Aorist　　　Present/Imperfect
　　　ste-stóh-e　　*stéh-t*　　　*stí-steh-ti*
　　　'is standing'　'stood up'　'is getting up'

As shown, the verb root had forms for the three aspects, the forms of which were realized by reduplication, suffixes or ablaut, as is the case of the perfect. In the PG period, the morphological form of the perfect gave rise to two different classes of stems:

- past stems of strong verbs,
- present forms of preterite-presents.

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[33] Dates taken from Millward and Hayes (2012)

Therefore, preterite-presents demonstrated the absence of the agreement and ablaut changes in the singular present tense paradigm.[34] The group of preterite-presents contained approximately fifteen members. All these verbs had stative meanings, such as *dugan* 'be useful', *kunnan* 'to know, to understand', *ganah* 'to be sufficient'.

5.2 The Old English Period

Old English (OE) period dates back to 450CE-1150CE. Preterite-presents formed a distinct group in this period, though not all PG members survived from the PG period, such as *ganah* 'to be sufficient', which was preserved only in Gothic. The list of OE preterite-presents follows, adapted from Birkmann (1987, 342):

Table 14: List of Old English Preterite-Presents

Infinitive	1st/3rd SG. PRES	Meaning	Present-day modal
witan	*wat*	'to know'	---
dugan	*deag*	'to be useful'	---
cunnan	*cann*	'understand, can'	*can/could*
unnan	*ann*	'to grant'	---
Þurfan	*Þearf*	'to need'	---
durran	*dearr*	'to dare'	*(dare)*
sculan	*sceal*	'should'	*shall, should*
munan	*man*	'to commemorate'	---
magan	*mæg*	'can'	*may, might*
agan	*ah*	'to possess, must'	*(ought)*
motan	*mot*	'must, can'	*must*

---

[34] The ablaut changes are not visible with English modals, but they can be illustrated using German modals; compare the following singular paradigms of the present-day German modal *dürfen* 'may' and a strong verb *brechen* 'break'.

dürfen (present sg.)	*brechen* (present sg.)	*brechen* (past sg)
ich d*a*rfØ	ich breche	ich br*a*chØ
du d*a*rfst	du brichst	du br*a*chst
er d*a*rfØ	er bricht	er br*a*chØ

These examples demonstrate that the ablaut changes of *dürfen* copy the past singular paradigm of *brauchen*. The plural paradigms are both fully agreeing, but whereas *brechen* maintains the ablaut for plural as well, the plural paradigm of *dürfen* demonstrates root vowel.

63

Table 14 presents several interesting facts and I will refer to it later in this work. First, it is obvious that present-day *will* does not originate from the group of preterite-presents – its OE predecessor *willan* 'wish' was a morphologically anomalous verb, yet not a preterite-present, as Millward and Hayes (2012, 109) explain. A similar situation can be observed with *need.* As one can see, it does not have any predecessor among preterite-presents. Still, both these verbs demonstrate the absence of the agreement in English – *he will* and *he needn't.* On the other hand, the verb *dare*, which is a preterite-present, can behave in terms of the agreement as a lexical verb in present-day English – *he dares.*

The reason why I stress these facts is that according to a frequently held view, English modals lack agreement due to their preterite-present origin. This conclusion seems prima facie logical, especially when we refer to the paradigm of strong verbs vs. modals, as given in footnote 34. Although the diachronic reasons may have impacted the absence of the agreement in the earlier periods (OE, ME), the empirical evidence from present-day language clearly contradicts such conclusions. More precisely it is obvious from cases of *will, need* and *dare* that the absence of agreement is not related to the etymological origins of a verb, but to other reasons (structural reasons), which I will discuss in chapter 6.

In terms of other morphological properties, preterite-presents in OE period were similar to lexical verbs. Unlike present-day modals, OE modals existed in infinitives (*cunnan, magan*) and in participles (*magende, gemunen*). However, many predecessors of present-day modals are not attested for non-finite forms, such as **durran, *sculan, *motan,* as Romero (2005, 227) shows.

Concerning the syntactic properties of Old English modals, they were not different from the lexical verbs. As Lightfoot points out (1979, 99), "there would be no justification for setting up a syntactic category 'modal'. What we translate with modals in NE[35], all behave exactly like ordinary, complement-taking verbs in OE." The subcategorization of modals in OE period was thus very varied, i.e. not restricted to a VP, as in contemporary English, as Warner (1993, 98ff) and Traugott (1992, 194ff) illustrate, respectively:

(27) *Ðas VIIII magon ₚₚ[wið nygon attrum].*
    'These 9 are powerful against nine poisons.'[36]

---

[35] i.e. present-day English
[36] A detailed glossing for this example is not available

(28) *[…] þæt he geornor **wolde** NP[sibbe wið hiene]*
[…] that they rather wanted piece with him
þonne gewinn.
than conflict
'[…] that they wanted peace with him rather than conflict.'

In terms of the sentence structure, Old English premodals and lexical verbs had the same distribution – for example they inverted in questions – see sentences in (29) from Millward and Hayes (2012, 115).

(29) a. ***Canst** ou temman hafocas?*
know-2sg how you to tame hawks
'Can you tame hawks?'

b. *Hwæt **secge** we be þæm coce?*
what say we about the cook
'What do we say about the cook?'

In terms of their semantics, premodals already demonstrated modal meanings in this period, usually alongside with other (non-modal) meanings. Additionally, some of these elements were already polyfunctional. As Traugott (1992, 193ff) claims, the verb *sculan* was used for moral and financial obligation (i.e. deontic modality), as well as for the meaning of 'supposedly' (i.e. epistemic modality). *Magan* had the deontic meaning of ability and epistemic possibility. The verb *willan* expresses volitional (i.e. root) modality, as well as epistemic future, and thus was also polyfunctional. On the other hand, as Traugott (1992, 193ff) demonstrate, *cunnan, motan* and *agan* were not polyfunctional; they lacked epistemic meaning. They, however, expressed root modality, i.e. *motan* expressed the meaning of 'be allowed to', *cunnan* had the meaning of 'be able', and *agan,* besides having a possessive meaning, started to express the deontic modality of 'be obliged to' towards the end of the period.

5.3 The Middle English Period

The Middle English period (ME) stretches between 1150CE-1500CE. The group of premodals suffered many losses in this period; consult the situation as presented in Birkmann (1987, 344ff):

Table 15: Middle English Premodals

1st/3rd SG. PRES/PL	History	PDE modal
wot/witen	In EME replaced by *know*	---
deah/dugen	transformed into a weak verb and later dies out	---
can/cunnen		*can/could*
on,an/unnen	dies out in ME	---
Þarf/Þurfen	dies out in ME, replaced by *need*	---
dar/durren	In EME becomes a weak verb	*(dare)*
schal/schullen		*shall, should*
?munen (inf.)	only some forms preserved to ME, later dies out	---
may/mugen		*may, might*
owe/oweÞ/aught (Pret.)	Two past forms appeared in EME – *owed* and *ought.* The form *owe* continues as a regular verb	*(ought)* *owe*
mote/mooten		*must*

Concerning their morphosyntactic development, predecessors of present-day modals still demonstrated some of the verb-like properties, but as Fischer (1992, 262ff) points out, several formal changes started in this period. First, premodals lost some of their non-finite forms, and thus proceeded towards their present-day invariable form. Second, the tense distinctions (i.e. *can/could*) did not have temporal reference anymore.[37]

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[37] Another syntactic change that appeared in this period is the rise of *to-* infinitive. Lightfoot (1979) maintains that this feature significantly contributed to the separation of modals from the group of lexical verbs. Lightfoot explains that *to* was originally a directional preposition, and since premodals (preterite-presents) were stative verbs, they could never be combined with *to.* Once the directional meaning of *to* disappeared, English modals were already a distinct idiosyncratic class, and hence, never subcategorized for a *to-* infinitive, unlike lexical verbs. However, based on the empirical evidence, I cannot agree with his account. If this was a

As far as semantics is concerned, Warner (1993, 174ff) explains that *moten* gains epistemic meaning in this period, see the following example:

(30) *He   moste kunne muchel   of   art, […]*
     he   must know much   of   art
     'He would have to know much art, […]'

This means that a strong majority of premodals enter the following Early Modern English period as being polyfunctional. The two exceptions are *cunnen*, which gains the epistemic meaning far later, in Modern English, and *aught* (i.e. OE *agan*), whose epistemic meaning is marginal even in the present-day language.

     In OE, as well as in ME, premodals were gradually deprived of their typical verb-like properties, and these step-by-step changes resulted in a structural change in EME.

5.4   Early Modern English

The period of Early Modern English (EME) is frequently delimited by the years 1500CE-1800CE, and in this period, premodals experienced significant changes that distinguish them from lexical verbs in present-day English. These fall predominantly into the domain of syntax and include operator properties; i.e. the inversion in questions or compatibility with a clausal negation, which are not typical for lexical verbs – as detailed in 4.3.2. Whereas Lightfoot (1979) maintains that the syntactic change was abrupt, taking place in EME, many other scholars consider the change a gradual process, resulting from continuing transformation of premodals in the earlier periods. For this view, see for example Rissanen (1999, 232), and Warner (1993, 219), who states that "there is no 'cataclysmic' change or radical restructuring in the sixteenth century but a culmination of earlier developments, which come to a head."

     The structural description of this change is proposed by Roberts and Roussou (2003, 36ff). They state that both premodals as well as lexical verbs demonstrated V-to-T movement in finite clauses. Therefore, their syntactic distribution was identical, as has been demonstrated in (29). In EME, the V-to-T movement was also lost, and modals started to be associated with T, whereas

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universal phenomenon, modals in other languages (for example German) would appear with the *to-* infinitive, as they never formed a distinct idiosyncratic class from lexical verbs.

lexical verbs remained in the VP, resulting in their distinct syntactic distribution in questions, negatives or elliptical contexts. Roberts and Roussou (2003, 36ff) attribute this change to a loss of infinitival ending *–en* in the system of English grammar. [38] Roberts and Roussou (2003, 42) state that "NE [39] is the only Germanic language with such a syntactically defined class, and it is the only Germanic language lacking an infinitival ending." For a more detailed analysis, see Roberts and Roussou (2003, 36ff).

Although this chapter aimed to outline only the most significant changes that took place in the history of modals, it clearly showed that despite originating as non-modal verbs, premodals gained modal meaning already in OE. Moreover, I have shown that the absence of agreement in present-day English does not have diachronic reasons. Finally, I showed how the syntax of modals developed, so that they exhibit a unique syntactic behaviour in present-day English grammar.

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[38] This fact may also explain why English modals differ from Germanic ones, more precisely, why English modals constitute a separate category from verbs, whereas this is not the case of for example German modals – a detailed morphosyntactic analysis of German modals can be found in chapter 9.

[39] i.e. Modern English

6   Polyfunctionality and English Modals

Having discussed the semantics and formal properties of modals, this chapter presents the central hypothesis of this study, which claims that there is **link between semantic and formal properties of English modals**. Using evidence from present-day English, I will show that the modal polyfunctionality triggers both the absence of agreement and operator properties. In structural terms, the presence of modal polyfunctionality forces a modal element into a T; and as a result, the element acquires NICE (i.e. operator) properties. This is preceded by the loss of tense inflection –*s* of an element, if there is any[40] – to illustrate the **process**, see Figure 6.

Figure 6: Process of Grammaticalization with English Modals

polyfunctionality > (loss of agreement) > operator properties

The process that modals undergo may also be described as grammaticalization. In the following section, I will describe theories that deal with grammaticalization of modal elements both from the perspective of semantics and form, and I will situate the above proposed hypothesis within the current frameworks.   Finally, I will point out how my proposal differs from other authors' concepts, and defend my model using empirical evidence.

6.1   Grammaticalization of Modals

According to Hopper and Traugott (2003, 2), grammaticalization "refers most especially to the steps whereby particular items become more grammatical through time." A more specific definition of grammaticalization is provided by Roberts and Roussou (2003, 2ff). They regard it as "a categorial re-analysis, creating new functional material." In terms of approaches to grammaticalization, there are many perspectives from which the phenomenon of grammaticalization can be related to broader linguistic framework. First, I

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[40] As I argued in 5.2, the absence of the inflection –*s* with modal elements is thus not caused by historical development, as frequently thought.

will describe the process from the semantic perspective and then I will move on to its structural description.

6.1.1 *Semantic Change*

What is frequently described as a semantic change with respect to modals is described in Narrog (2012, 61ff). The author states that modal elements do not start as polyfunctional elements, but that they gain their modal meanings through historical development. The new modal meanings are claimed to rise from ambiguous contexts. Traugott and Dasher (2003, 11ff) describe the change more generally; they claim that semantic change is usually related to the concept of polysemy, more precisely, one meaning does not immediately change into another, as A > B. The process is more complex, as they illustrate.

Figure 7: Semantic Change

$$A > \begin{bmatrix} A \\ \\ B \end{bmatrix} \; (> B)$$

Generally, they claim that the new meaning B arises and both meanings coexist for some time, i.e. the element is polysemous. Then, the original meaning A can, but does not have to be lost, or it remains restricted only for particular contexts.

At this point, I would remind the reader that in relation to modals, one does not talk about any two random meanings, but precisely about a root and epistemic meaning; i.e. root meanings are A and epistemic modality stands for B here. The close relation between a root and an epistemic meaning is not surprising. As I already mentioned in one of the introductory chapters 2.4, polyfunctionality is based on modal logic – more precisely both deontic and epistemic readings can be decomposed into possibility and necessity – therefore they share a part of their meaning.

Traugott and Dasher (2003, 118ff) claim that root modality arises from lexical sources, in particular, from the verbs of knowing (e.g. *can* derived from *cunnan* 'understand, know'), possession (e.g. OE *agan*), or being (*bpe:n* 'be' in Lao spoken in Thailand). Consequently, epistemic modals further develop frequently from root meanings. To provide an example, Traugott and Dasher (2003, 120ff) illustrate such a semantic development using the verb *must* – see the following table:

Table 16: Meanings of *Must*

must	OE	ME	EME	PDE
root: ability/permission	X			
root/deontic: obligation	X	X	X	X
epistemic		X	X	X

Since the topic of this dissertation is polyfunctionality, I will focus primarily on the change from deontic into epistemic meaning. Traugott and Dasher (2003, 127ff) state that a few possible epistemic interpretations of *must* appeared already in OE. Usually, the first instances of such readings are in impersonal constructions and general deontic statements, which can, however be interpreted as epistemic; as in the following sentence taken from Warner (1993, 162).

(31) *Ealle   we   moton sweltan.*
     all   we   must die
     'We must all die.'

Warner (1993, 162) claims that based on the context, the inevitable epistemic future reference is a possible interpretation of the sentence. The semantic changes which modal elements undergo are studied by various authors, who observed that the changes are cross-linguistically regular and predictable. Bybee et al (1994, 240) propose the existence of the following semantic paths for ability and obligation, respectively.

Figure 8: Semantic Paths for Ability and Obligation by Bybee et al (1994)
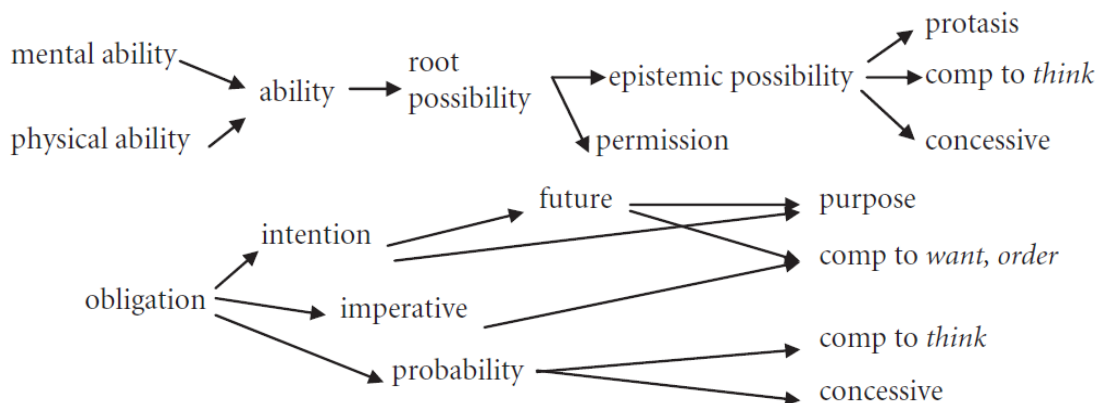
Van der Auwera and Plungian (1998) propose a universal semantic map of modality for possibility and necessity – see below.

Figure 9: Semantic Map of Modality for Possibility and Necessity by Van der Auwera and Plungian (1998)
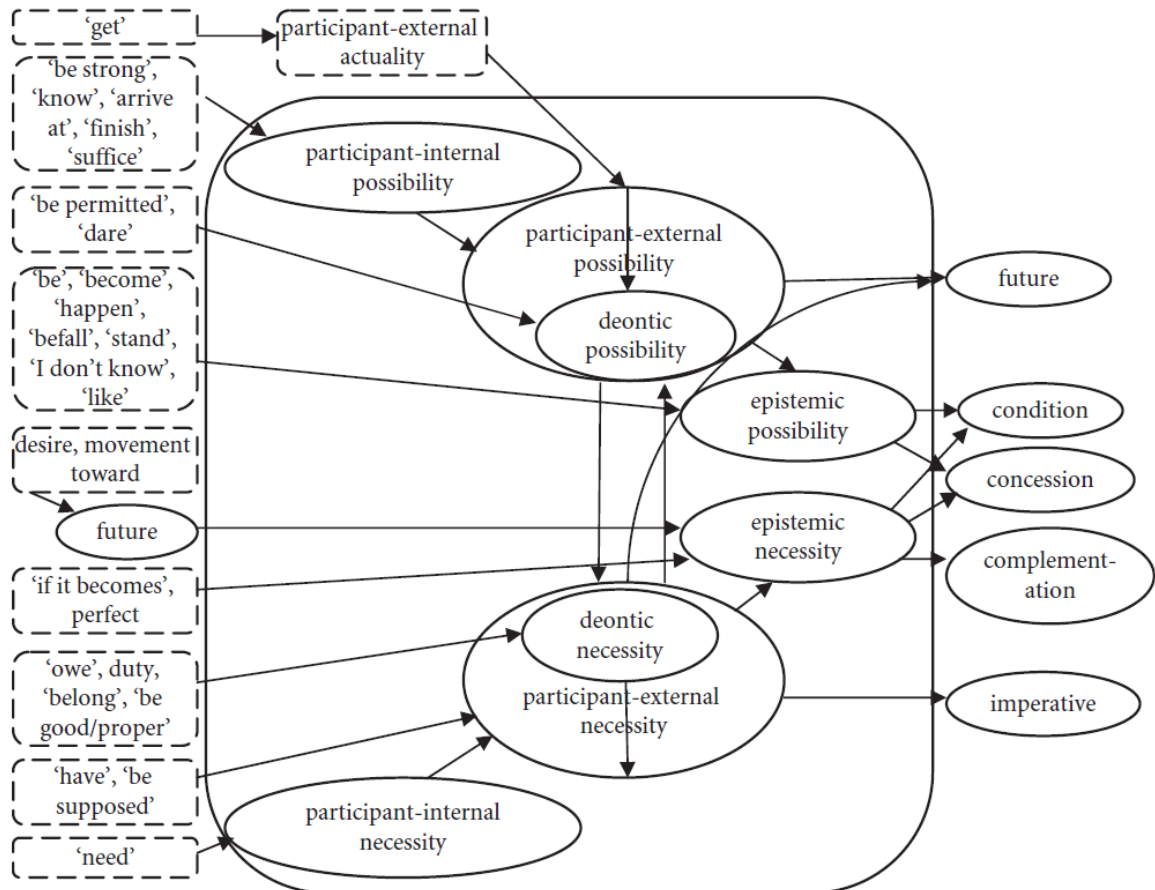
The left margin of the scheme in Figure 9 lists so-called premodal meanings, whereas on the right are so called post-modal meanings. Despite the fact that such studies may be useful to describe the universal paths of changes with modals, this work will not benefit from such neat distinctions. As I have mentioned, I will primarily focus on the opposition root vs. epistemic, as being the key concepts of polyfunctionality.

6.1.2 *Grammaticalization as a Syntactic Change*

While the previous part has focused on grammaticalization of modals from the perspective of a semantic change, this part will describe the same process structurally. Formal approaches to grammaticalization are followed frequently

by generative scholars, for whom grammaticalization represents a kind of a syntactic change.

A well-known formal treatment of grammaticalization of modal elements is proposed by Roberts and Roussou (2003, 36ff and 194ff), who focus on grammaticalization of English modals in EME, as mentioned in the previous chapter 5.4. For the authors, the grammaticalization is perceived as a **reanalysis upwards** in the syntactic tree. They also add that grammaticalization is a structural change, which is triggered by a syntactic change elsewhere in a language system.

Roberts and Roussou (2003, 207ff) claim that grammaticalization also results in **semantic bleaching** and **phonological reduction**. In their view, semantic bleaching is not a random loss of meaning; for verbs (more precisely modals), it can be the loss of argument structure – that is: descriptive content changes into logical content. In terms of phonological reduction, Roberts and Roussou (2003, 224) maintain that reduction is related to the grammacalization is more radical than reduction based on rapid speech and language economy. They also point out that the grammaticalization can be cyclic – i.e. the element can move further "upwards" in the tree. Such diachronic movement upwards the tree is also connected with the change of category.

To illustrate the possible structure, which would describe such reanalysis, Roberts and Roussou (2003, 232) use the hierarchy of functional heads, as presented by Cinque (1999, 76) – as in the following figure.

Figure 10: Hierarchy of Functional Heads

$Mood_{speech\ act} > Mood_{evaluative} > Mood_{evidential} > \mathbf{Mod_{epistemic}} > \mathbf{T(Past)} >$ $\mathbf{T(Future)} > Mood_{irrealis} > Asp_{habitual} > T(Anterior) > Asp_{perfect} >$ $Aspect_{retrospective} > Asp_{durative} > Asp_{progressive} > Asp_{prospective}/\mathbf{Mod_{root}} > Voice$ $> Asp_{celerative} > Asp_{completive} > Asp_{(semel)repetitive} > Asp_{iterative}$

This model is rather detailed, since it aims to describe grammar systems cross-linguistically. For the purposes of this work, we might simplify it into the following string: **Epistemic > T(Past) > T(Future) > Root**.

Cinque's analysis has some interesting implications. When epistemic modals are merged higher in the tree than T, they cannot have a feature associated with the T node, as Roberts and Roussou (2003, 45) point out. This

can explain the differing structure for some deontic and epistemic modals – see examples (32) for epistemic and deontic *can* used for past reference.

(32)   a. *He couldn't open the door.*　　　deontic/*epistemic
　　　b. *He can't have stolen that.*　　　epistemic/*deontic

On the other hand, Roberts and Roussou (2003, 45) criticise Cinque's model for missing the agreement slot, which is crucial for the analysis of modals. The authors, therefore, propose a slightly different hierarchy, which demonstrates the same logic, using more conservative concepts – more precisely: **T > v > V**.

In their view, whereas lexical verbs fulfill their subcategorization in V, deontic modals are merged only in little v. Epistemic modals, which have no argument structure at all, merge with T, so we can illustrate this as follows:

Figure 11: Grammaticalization of Modals; Based on Roberts and Roussou (2003)

```
T > v > V
epistemic > deontic > lexical
          TP
        /    \
             T′
            /   \
       T          vP
                /    \
            Spec       v′
                      /   \
                   v         VP
                            /   \
                          V        …
     modals          lexical verbs
```
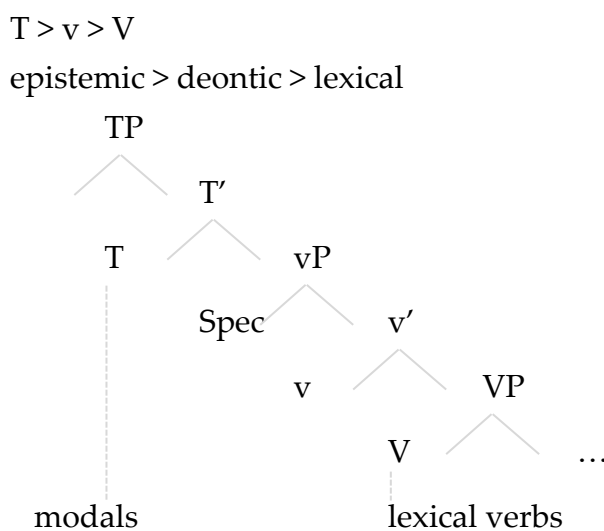
Figure 11 above demonstrates Roberts and Roussou's (2003, 48) explanation why epistemic modals are incompatible with tense and deontic are not. Still, even Roberts and Roussou's structure does not address the issue of agreement. More precisely, it could be expected that deontic modals have agreement morphology, by being generated below T, but the empirical evidence teaches us that they do not carry *-s*, similarly to epistemic elements. Secondly, Roberts and Roussou's model does not treat the issue of operator properties, i.e. it is not clear why both deontic and epistemic modals can invert in questions, can be followed by *n't*, etc. For that reason I will propose a modified model in this

section, which is nonetheless significantly based on Cinque (1999) and Robert and Roussou's (2003) concepts.

6.1.3 *Underlying Structure*

At the beginning of this chapter, in Figure 6 I presented the central hypothesis of my work, repeated here for the reader's convenience as Figure 12.

Figure 12: Process of Grammaticalization with English Modals

polyfunctionality > (loss of agreement) > operator properties

This proposal is based on empirical evidence, which will be discussed in detail in the following chapters. Despite the fact that the aim of this dissertation is to describe the mechanics of a modal change based on an inductive approach related to empirical evidence, and not to propose the theoretical structures in the first place, still I would like to offer at least brief support for my proposal using some theoretical background.

Therefore, in this model, I adopt Cinque's (1999) idea that epistemic modality is higher than root. Whereas root is associated with vP, polyfunctional elements (i.e. epistemic plus deontic) are associated with T node. Furthermore, I reanalysed Cinque's T into three nodes – **T, AgrP and NegP**[41], in the spirit of Pollock's (1989) Split INFL hypothesis. Despite the fact the mutual order of T vs. AgrP has been questioned, for example by Haegeman (1994, 600ff), the empirical evidence shows that grammaticalization is realized exactly in this order. The TP, AgrP, and NegP are followed by vP and VP, exactly as proposed by Robert and Roussou (2003) – see the tree below:

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[41] Despite the fact that I use NegP here to illustrate the position of clausal negation with reference to operator properties, I will not discuss it further in my work, as it is not relevant to the studied material.

Figure 13: Tree Structure Related to Grammaticalization of Modals

```
TP  ←————————————————  +POLYF/OP
  /\
 /  \  AgrP  ←—————————  +AUX
 |    /\
 |   /  \  NegP
 |   |   /\
 |   |  /  \  vP  ←————  +ROOT
 |   |  |   /\
 |   |  |  /  \  V
 |   |  |  |   |
 He must be      reading.
```
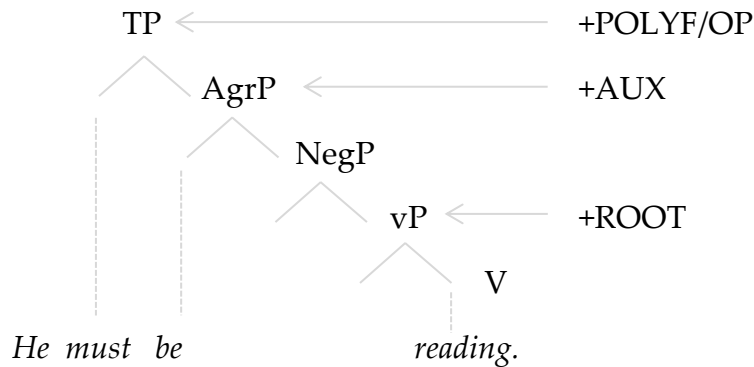
I assume that the **T node** is inherently related to a polyfunctionality feature. It is also this (and only this) node that demonstrates operator (or NICE) properties. Secondly, **AgrP** is a node related to the agreement suffixes –*s* and *-ed*, and it also nests auxiliaries *do, be,* and *have*, which are first merged into the tree here. In this way they receive tense and agreement suffixes, and then move to T to exhibit the NICE properties.

However, when a modal element is generated under Agr node, it does not receive any agreement suffixes, unlike the auxiliaries. This quite possibly is due to the agreement suffixes being +FACTUAL, while of course modal items of either interpretation are –FACTUAL. I already pointed out to this fact in 4.3.1, referring to Wurmbrand (2003, 139ff). When an element generated under this node contains the feature of modality, it does not receive any further agreement suffixes – i.e. modality and agreement are exclusive. The **vP node** is associated with root modality (i.e. with –POLYF elements), whereas VP is reserved for non-modal elements, i.e. lexical verbs, which do not show any modal characteristics.

6.1.4   *Movement within the Syntactic Tree*

I adopt Cinque (1999) and Roberts and Roussou's (2003) proposal that the grammaticalization of modals is diachronically the **upwards reanalysis** in the syntactic tree – as in the following figure.

Figure 14: Grammaticalization of Modals as Upwards Reanalysis
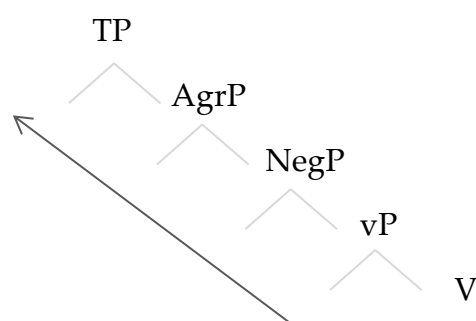
The reanalysis starts either at the vP or V node. At that stage (i.e. when generated in v or V positions), an element does not have an epistemic reading, but it can carry a deontic meaning. As I mentioned in chapter 3 on modality in a cross-linguistic perspective, there are many modal content words such as English *be able*, or Slovak *vládať* 'be capable', which are modal and monofunctional, and thus can be generated right here.

When an element (mostly verbal) appears in a context where its meaning can be interpreted as epistemic, i.e. it is potentially polyfunctional, the semantic changes are initiated, as discussed in 6.1.1. These semantic changes then trigger upwards reanalysis – more precisely, a modal element generates under a higher node. First, the element is related to an AgrP node, however, since it carries modal meanings, it does not receive any agreement morphology – i.e. it will lack the agreement and tense suffixes. In the last stage, it will end up in the upper node T, and acquire operator properties.

I agree with Cinque (1999) and Roberts and Roussou (2003) in that polyfunctionality targets the uppermost node in the tree. However, in their view, the upwards reanalysis is triggered by the structural syntactic change (in case of grammaticalization it was the loss of infinitival suffix *–en* as I briefly mentioned in 5.4) and polyfunctionality (i.e. the semantic change) is its result. In contrast I claim that the structural change is a result of a semantic change. In other words, I disagree with them in whether the semantic change precedes the syntactic change, or the syntax triggers changes in meaning:

Figure 15: The Order of Changes in Grammaticalization

syntactic change	>	*meaning*	Roberts and Roussou (2003)
meaning	>	*syntactic change*	Traugott and Dasher (2003)

Not surprisingly, there are advocates of both approaches – the first perspective is advocated by Roberts and Roussou (2003) and generally by formal approaches to grammaticalization, whereas the second sequence is hypothesized among others by Traugott and Dasher (2003, 283), who state that "even though [grammaticalization] is primarily a morphosyntactic phenomenon, by hypothesis grammaticalization is actuated by semantic changes." Along these lines, Fischer and Rosenbach (2000, 15) state that "it is quite generally believed that grammaticalization is semantically (or pragmatically) driven […]".

With empirical evidence at hand, I subscribe to the second opinion – namely that semantics precedes the morphology and syntax. First, by saying that grammaticalization is independent of its meaning, we could say that **any** element can grammalicalize. More precisely, any element could lose agreement morphology and gain operator properties, which, however, does not reflect the English data. To provide an example; in the following chapters I will argue that exactly such kind of grammaticalization affected structures such as *gonna* or *gotta*, which, as I will show, are polyfunctional. However, no such change is likely to develop with lexical verbs such as *play* or *come,* or even frequently used ones as *start, plan,* or *hope*; i.e. structures **playa, *coma, *starta, *planna,* or **hopa* are not a part of the English language – compare the following examples:

(33) a. *She gotta go now.*
      b. **She planna go out soon.*

Another fact that makes me reject Roberts and Roussou's (2003) proposal *syntactic change > meaning* is their statement that a grammatical change is induced by the change in the system – the example already quoted here is the grammaticalization of modals in EME triggered by the loss of the infinitival marker *-en*. However, grammaticalized elements do appear continuously with no structural change taking place in the language – again refer to the currently rising structures *gotta* and *gonna.*

Therefore, in my work, I adopt slightly modified structures to those presented in Cinque (1999) and Roberts and Roussou's (2003) – Figures 10 and 11 respectively. But based on the empirical evidence I propose that the reanalysis upwards the tree is triggered by the change in semantics, more precisely by the potentiality of the deontic and epistemic meaning (=polyfunctionality).

In the following chapters, I will analyse central modals as well as marginal modals in English to show that their current morphosyntactic properties, as well as all idiosyncrasies related to the marginal modals can be explained based on the proposal I presented in this section.

7   English Marginal Modals – Operator Elements

In chapter 4, I discussed in detail the properties of English central modals. However, besides well-behaved elements, such as *must, can* or *should*, there are also elements that stand in between the group of modals and lexical verbs, both in terms of their semantic and morphosyntactic properties, such as *dare, need, have to, have got to* or *be able.* From the perspective of their modal meanings, some of them are not polyfunctional, such as *dare* or *be able,* as will be shown below. Besides that, all these elements demonstrate an unclear mixture of morphosyntactic properties – elements such as *need* and *dare* demonstrate both lexical and modal verb morphosyntactic patterns, structures such as *be able, have to* or synonymous *have got to* are combinations containing an auxiliary, which replace central modals in contexts where the use of central modals is structurally excluded, i.e. in non-finite contexts **to must > to have to.*

　　　At first sight, this group looks very heterogeneous, with elements being different first from modals and lexical verbs, and second also from each other – consider for example *have to* vs. *have got to.* Therefore, grammar manuals usually present them as an undefined idiosyncratic group, standing on the margin of the language system. Various authors frequently divide these elements into several subcategories, based either on the meaning, morphosyntactic properties, or even different (vague) criteria. The classifications do not overlap in most cases, which only confirms the fact that linguists do not know how to approach this bundle of words. Quirk et al (1985, 136) view the borderline between lexical verbs and modals as a gradient, distinguishing the following subcategories:

Table 17: Modal Elements by Quirk et al (1985)

- marginal modals　　*dare, need, ought to, used to*
- modal idioms　　*had better, would rather/sooner, be to, have got to* etc.
- semi-auxiliaries　　*have to, be about to, be able to, be bound to, be going to, be obliged to, be supposed to* etc.
- catenatives　　*appear to, happen to, seem to, get + -ed* participle, *keep + -ing* participle, etc.

Leech (2004, 72ff), on the other hand, considers *have to,* but not *have got* to (!) a primary auxiliary, together with *must, can,* or *should.* Besides primary auxiliaries, he recognizes the group of semi-modals, including the elements such as *need to, have got to, be to, had better, be permitted to,* etc.

Table 18: Modal Elements by Leech (2004)

- primary auxiliaries   *must, can, should, have to,* etc.
- semi-modals   *need to, have got to, be to, had better, be permitted*

Huddleston and Pullum (2002, 92ff) treat these elements from the perspective of syntactic properties – see Table 19. They regard them as auxiliary verbs, dividing them according to the presence or absence of operator properties into two groups – namely modals and non-modals. Furthermore, they categorize structures such as *had better, would rather,* and *have (got) to* as idioms, and *be to* as quasi-modal. Similarly to the previous classifications, the elements are treated descriptively, however no systematic division is provided.

Table 19: Modal Elements by Huddleston and Pullum (2002)

- modals auxiliaries   *can, may, will, shall, must, ought, need, dare*
- non-modals auxiliaries   *be, have, do, use*
- idioms   *had better, would rather, have (got) to*
- quasi-modal   *be to*

Collins (2009, 15ff) bases his division partially on the division presented by Quirk et al (1985, 136), using the general (and vague) term quasi-modals. Quasi-modals can be divided into the following two groups:

Table 20: Modal Elements by Collins (2009)

- semi-modals   *had better, would rather, be to, have got to*
- lexico-modals[42]   *want, need to, have to, be bound to, be going to,*
                       be about to etc.

Collins (2009, 17), however, admits that "the membership of the set is by no means clearcut, and is difficult to delimit in a principled fashion".

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[42] His semi-modals group should correspond to modal idioms, whereas lexico-modals partially overlap with semi-auxiliaries, as presented by Quirk et al (1985, 136). Whereas Collins (2009) includes *want* in a group of quasi-modals, it is not found in Quirk et al's classification.

As is now obvious, there is no general systematic treatment of these elements. The members of one group may range from single-word expressions, such as *dare*, to multi-word expressions, such as *have got to* or *be about to.* In some cases, it is not even clear why a certain element is included in the classification – see for example Leech's (2004, 72ff) *be permitted to.* In the same manner, phrases such as *be capable of, be allowed to* should also be included, but they are not, and the author does not offer any explanation for that.

As the label 'marginal' may imply, they are presented as being on the edge of the language system. Contrary to this, I believe that exactly these elements can be profitably studied by any scholar dealing with central modals. As will be shown, the properties of these elements are not random at all. On the contrary, formal behaviour of every element is very predictable and systematic, and their analysis can reveal how the modality system works in English.

7.1 Categorial Division of Means Expressing Modality

My proposed division differs significantly from those presented above. I suggest dividing marginal modals into two basic groups:

i. Operator Elements (Group A) contains the elements that **do or can** exhibit NICE properties, i.e. they may be used as operators. Structurally, these elements are situated under the T node; see 6.1.3 – Figure 13.

(34) **Operator Elements**
      a. central modals   *can, could, must, will, would, should*
      b. central modals with gaps   *may, might, shall*[43]
      c. marginal modals   *ought, need, dare, use*

The group A includes central modals, as well as marginal modals *ought, need, dare* and *use.* Whereas central modals are always generated under T node, marginal modals *ought, need, dare,* as presented here, appear either in T or vP, and they show further irregularities.

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[43] Despite the fact that these elements are referred to as central modals, and I treated them as central modals in section 4.2, it needs to be kept in mind that they demonstrate gaps in their semantic and syntactic behaviour. Therefore, they will also be studied here in this chapter.

ii. Non-Operator Elements (Group B) contains members, whose modal meaning is conveyed by other parts of speech, such as prepositions, adjectives, verbs or particles – see below. As a result, the modal parts themselves (the underlined ones) are never located under the T node – see the following division.

(35) **Non-Operator elements**
    a. prepositions   *be <u>about</u>*
    b. adjectives   *had <u>better</u>, be <u>able</u>, be <u>obliged</u>, be <u>willing,</u> be <u>supposed,</u> be <u>bound</u>*
    c. verb   *be <u>going</u>, <u>want</u>*
    d. particle to   *do have <u>to</u>, have got <u>to</u>, be <u>to</u>*

Group B includes elements that consist of an auxiliary and a modal element, which is underlined in (35). At the first sight it may seem unusual to claim that modality can be expressed by a part of speech different from a verb (such as adjective, preposition, or particle *to*). This may be caused by the fact that many European languages typically use verbs to express modal meanings. Moreover, some traditional English grammar manuals also tend to regard *must* or *can* as verbs, however, in section 4.4, we have seen that they do not demonstrate verbal properties at all. Finally, languages cross-linguistically do frequently use various parts of speech to express modal meanings, such as Russian adjective *dolžen*, as discussed in detail in section 3.1.3.

Despite the fact that modal elements can be expressed by various parts of speech, in all cases they are preceded by the same set of auxiliaries – *be* and *have.* In other words, these structures can be structurally analysed as AUX + MODAL. The reason why they are combined with an auxiliary is obvious – the auxiliary enables the MODAL part to be integrated in the predicate, and at the same time, it carries agreement and tense morphology. Therefore, the auxiliary can be perceived as a kind of **integrator** (the term I coined), required by the rules of the English grammar.

In terms of their semantics, the integrating auxiliaries are semantically empty, as they do not contribute to the meaning of the structure in **any** way. This can be illustrated using examples of *have got <u>to</u>, have <u>to</u>* and *be <u>to</u>* below. As mentioned above, the modal element is the particle *to* and auxiliaries *do (have), have got,* and *be* function as integrators. More precisely, in (36a) *have* (in *have to*) is used as a lexical element in vP slot, using *do* in questions and negatives. In

(36b), i.e. structure *have got to*, *have* itself is generated under the Agr node and moves to T.

(36) a. *I* vP[*have **to** leave tomorrow].
      b. *I* AgrP[*have got **to** leave tomorrow].
      c. *I* AgrP[*am **to** leave tomorrow].

Regardless of which auxiliary is used, the meanings of the phrases are synonymous, as they all express deontic necessity – the only difference may be their stylistic value. Therefore, the modal structure is not *have to*, as is usually presented, but the modal meaning is carried only by *to*, i.e. the modal is only *to*. This argument can be supported by the fact that *to* can express modality on its own in relative clauses and indirect questions, as illustrated for example by Bhatt (2006, 14)

(37) a. *A book to be read/A book to read […]*
      b. *Hafdis know who to talk to at the party.*

As is visible from (37a) and (37b), non-finite relative clauses introduced by *to* express modal deontic meaning of necessity, which could be replaced by *have to/should*, i.e. *a book should be read*, and *who he should talk to*, respectively.

7.2 Operator (T) Elements

This section will focus on elements labelled as group A. These elements primarily include three subgroups, as discussed in (34), repeated here for reader's convenience as (38). Each group will be analysed separately.

(38) **Operator Elements**
      a. central modals   *can, could, must, will, would, should*
      b. central modals with gaps *may, shall, might*
      c. marginal modals   *ought, need, dare, use*

The first group are **central modals** *can, could, should*, etc. From the semantic perspective, they are all polyfunctional, as shown in 4.2. These elements show an absence of agreement, and they generate exclusively in the T position. Hence, they demonstrate all syntactic properties associated with this slot – especially the compatibility with clausal *n't*, as in *can't, shouldn't,* etc. In other words, they

are exemplary members, and therefore, will not be discussed further. Concerning the tree structure, they are in the topmost slot:

Figure 16: Position of Central Modals

TP ⟵——————————————— central modals

AgrP

NegP

vP

VP

can, could
will, would, etc.
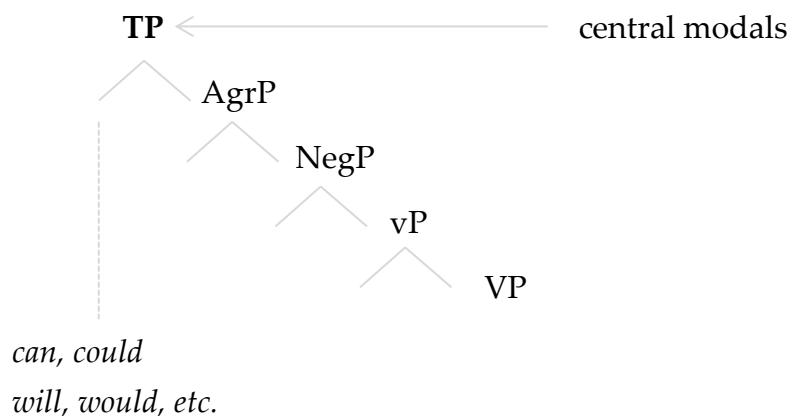
The second group consists of elements which I label as **central modals with gaps** – they include *may, might,* and *shall.* However, unlike the first group, their polyfunctionality is questionable (see for 4.2), and they demonstrate certain gaps in the operator properties, as will be shown just below in 7.3.

The third group includes members, which are traditionally labelled marginal modals, particularly *ought, need, dare,* and *use.* In this chapter, I will analyse their semantic and morphosyntactic properties in detail, and based on the hypothesis presented above in 6, I will explain reasons for their idiosyncratic behaviour.

7.3 Modals *May*, *Might*, and *Shall*

Despite being described as central modals, we can trace some gaps in the behaviour of *may, might,* and *shall*, both in terms of their grammar and semantics. As illustrated in section 4.2, *may* and *might* have weak deontic meanings, whereas *shall* is being deprived of its future (i.e. epistemic) meaning. This development is quite recent.

Leech et al (2009, 89) state that *may* for deontic permission was very frequent in 1960's, but its frequency fell by the 1990's and it was replaced by *can*. On the other hand, Leech at al (2009, 84) point out that the epistemic function of *may* is more frequent in 1990's than in 1960's in British English (!). Despite the fact that *may* is less frequent nowadays than it was in 1960's (as show in Leech at al 2009, 77), it is losing ground predominantly in root modality, not epistemic.

Similarly, *might* for permission is obsolete in contemporary English, and *shall,* which used to be the auxiliary related to the future, lost ground in favour of *will.*

As can be seen, polyfunctionality status of *may, might* and *shall* is weakened and fluctuates based on stylistic priorities of the speakers. The hypothesis proposed in 6.1.3 expects the link between the polyfunctionality and formal properties. Therefore, it is not surprising that it is exactly the semantically fluctuating elements that demonstrate gaps in their syntactic (i.e. operator) properties – such as the incompatibility with *n't*, see the examples below.

(39) a. *?You shan't go there again./You shall not go there.*[44]

   b. *? You mightn't have a clue./You might not have a clue.*

   c. *? It mayn't take so long./ It may not take so long.*

The forms with bound clausal morpheme *n't* are obsolete. Still, they remain compatible with free clausal morpheme *not.* Moreover, with *shall,* question formation is reserved only to certain persons – see the following examples.

(40) a. *Shall I go there?/ ?I shall go there.*

   b. *? Shall you go there?/You shall go there.*

   c. *? Shall she go there?/ She shall go there.*

Despite the fact that the question is obsolete in the 2nd and 3rd person, declarative sentences are acceptable, except in the 1st person. Considering the morphological properties, all elements are used without the agreement morphology – i.e. the forms **shalls, *mays, *mights* are ungrammatical. From the formal perspective, they are also generated under T, exactly as central modals – see below.

---

[44] The negation of *shall* and *might* is discussed in detail for example in Quirk et al (1985, 122).

Figure 17: Position of *Shall*, *Might*, and *May*

```
T
    AgrP
        NegP
            vP
                V

shall, might,
may
marked for [-POLYF]
```
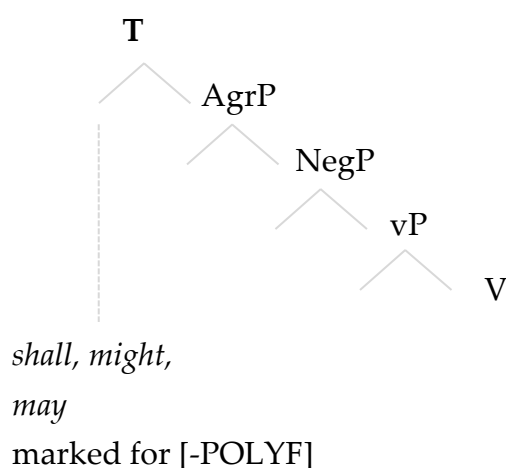
However, unlike central modals, these three elements are marked for not being polyfunctional in present day English, and thus unnatural for this position. In the mental lexicon, they are, as a result, associated with the gaps in the operator behaviour that they demonstrate.[45]

7.4 Marginal Modal *Dare*

Another element which belongs to the category of operator elements is *dare.* It is known for its idiosyncratic behaviour, more precisely, it demonstrates the morphosyntax of a full verb, as well as of a modal. As Quirk et al (1985, 138) and Veselovská (2011, 61) claim, *dare* can enter the following structures, exemplified in (41):

- operator syntax in non-affirmative contexts – see (41a)
- lexical verb, subcategorizing for a bare VP – see (41b)
- lexical verb, subcategorizing for *to-* inf VP – see (41c)

(41) a. *John daren't enter the house alone.*
      b. *John doesn't dare enter the house alone.*
      c. *John doesn't dare to enter the house alone.*

---

[45] The reader may only make guesses about future destiny of *shall*, *may*, and *might*. They may either disappear from the system, or be deprived of all of their properties, and descend to the vP node

Concerning its semantics, it can be argued that *dare* expresses deontic modality; however, it does not have any possible epistemic interpretation. As a result, *dare* is not polyfunctional. The question arises as to why *dare* demonstrates the dual behaviour. I propose the explanation following from the structure in Figure 18.

Figure 18: Position of *Dare*
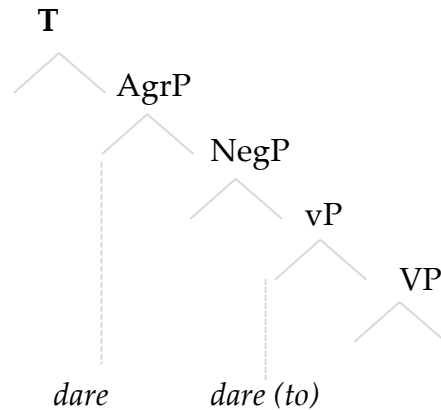
Dare (to) which does not demonstrate operator syntax is located under the vP, i.e. in the position reserved for root modality. However, it can also obviously be generated under AgrP, but only in non-affirmative contexts, i.e. when it is combined with NegP, or in questions where T moves above its specifier. From AgrP, it moves to T, in the same way as auxiliaries do. The reason why *dare* can be generated in AgrP (besides vP), but other lexical verbs can't, is in my opinion related to its diachronic development. More precisely, I attribute it to its preterite-present origin, i.e. to the inherent absence of agreement – see *durran* section 5.2. This property enables *dare* to be generated high in the tree, but not for declarative sentences.

As Warner (1993, 202ff) explains, up to the 16th century, *dare* demonstrated standard preterite-present behaviour. In the course of ME, probably due to its monofunctional character, it develops non-finite forms and in EME it appears with agreement *dareth* (later *dares*). In other words, due to its [-POLYF] characteristics, it develops a regular (i.e. lexical) counterpart. Taeyemans (2004, 109ff) analyses the status of *dare* in present-day English, concluding that modal *dare* is very strong, with lexical *dare to* being supressed. This might be due to the fact that once *dare* can generate higher in the tree, the sentence structure is more economical. She points out that the progression of modal *dare* is puzzling. Since *dare* adopted the lexical properties in EME, we could expect that it will develop in this direction. She adds that the strong

status of a modal variant can be attributed to the existence of frozen structures, such as *I dare say.* However, even if these phrases are not taken into account, modal *dare* is still prominent in British English.[46] Taeyemans (2004, 109ff) claims that there is no indication in which direction *dare* is heading, though it seems that the modal use is growing.

The hypothesis proposed in this study in 6.1.3 can explain this phenomenon. As mentioned above, the reason for the behaviour of *dare* is the clash between the inherent non-existing agreement morphology, and the absence of polyfunctionality. These two elements keep *dare* in both the modal and lexical uses.

7.5 Marginal Modal *Need*

The modal *need,* similarly to *dare,* demonstrates dual behaviour – more precisely, it can function as a modal *need*, as well as with lexical syntax as *need to* – see the following set of examples.

(42) a. *He needn't be in his office.*
       b. *He doesn't need to be in his office.*

In (42a) *need* has a modal syntax, as it is combined with the clausal negation *n't.* Also notice that this use is not compatible with agreement morphology. It must be added that modal use is restricted to non-affirmative contexts, exactly as *dare.* On the other hand, (42b) demonstrates an example of a lexical *need to,* which shows agreement morphology, when used in declarative sentences – i.e. *he needs*.

A semantic analysis of the pair in (42) reveals interesting facts. The modal use *need,* as used in (42a), **can have both deontic and epistemic meaning**, i.e. it is polyfunctional. On the other hand, its lexical counterpart *need to* in (42b), offers only deontic interpretation. This is another proof of the fact that polyfunctionality and grammar are interconnected. For the structural representation of *need*, see the following figure:

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[46] On the other hand, Taeyemans (2004, 111ff) explains that in American English, modal *dare* is very rare.

Figure 19: Position of *Need*

T

AgrP

NegP

vP

VP

need *need to*
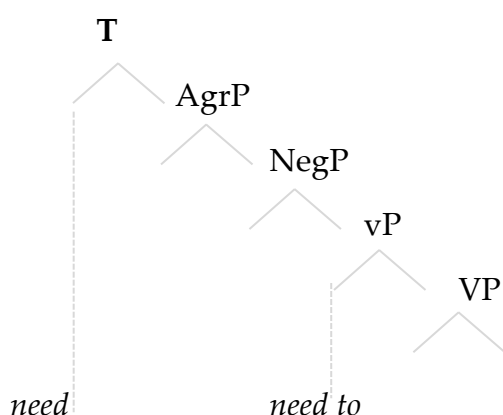
Need functions as a central modal, generated under T (with the exception of affirmative contexts), whereas *need to* is in vP, which is reserved for root modality. The reasons of such a schizophrenic behaviour can be traced in its history. Unlike *dare, need (to)* originated as a regular verb in Old and Middle English. Since the 15th century, it adopts modal characteristics, as pointed out by Warner (1993, 203).[47] In combination with a bare VP, it develops non-agreeing morphology, i.e. *need,* alongside *needs.* Krug (2000, 202ff) claims that in EME, modal use outnumbered the lexical use, but since then, the lexical use is gaining its ground again. The same conclusion is reached by Taeymans (2004, 104ff), who points out that modal *need* is infrequent, and *need to* is strengthening its position.

To summarize its development, *need (to)* originated as a regular verb. In EME, its modal use *need* was frequent, but since then *need to* becomes more frequent. Similarly to *dare, need (to)* seems to be oscillating between a modal and lexical use. This behaviour corresponds with the hypothesis proposed in this study.

7.6 Marginal Modal *Ought*

Concerning its semantics, the polyfunctionality of *ought* is weak. The deontic meaning of *ought*, which is very close to *should*, is well-attested, as shown in (43a). As far as its epistemic reading is concerned, Westney (1995, 163) or Collins (2009, 55) referring to Huddleston and Pullum (2002, 187) state that

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[47] As Loureiro-Porto (2005, 369) states, *need* adopts its epistemic use quite recently, in the 19th century.

there are few examples of epistemic *ought,* giving an example listed here as (43b).

(43) a. *You ought to study hard.*

b. *As they glide past the sixty-year-old mark they're as lively as we imagine twenty-year-olds ought to be.*

Concerning the morphosyntactic properties of this element, similarly to *dare,* *ought* originated as preterite-present verb. Its predecessor was *agan* 'to possess' – more precisely its ME preterite form *aught.* Due to its origin, it has never been compatible with agreement morphology **oughts.* Considering its syntactic behaviour, *ought* clearly demonstrates an operator behaviour, as it appears in questions as well as with clausal negation – as in the examples below.

(44) a. *Ought we to think something else?*
b. *They oughtn't to leave so early.*

The only syntactic difference between central modals and *ought* lies in its subcategorization, more precisely it is compatible with *to-* infinitive. Warner (1993, 204) points out that in ME *ought* was found both with bare as well as the *to-* infinitives. Concerning the present-day status, Quirk et al (1985, 139ff) state that *to-* infinitive is prevalent, though the bare infinitive can appear in non-assertive contexts in colloquial speech – as in (45).

(45) a. *They ought not do that sort of thing.*
b. **We ought give him another chance.*

At the same time, however, Quirk et al (1985, 139) add that *ought* can be marginally used as a full verb with *do* support; as in the following example:

(46) *They didn't ought to do that sort of thing.*

On the one hand, *ought* seems to be syntactically adjusting to central modals, by being compatible with a bare infinitive; on the other hand, there are instances of *ought* as a full lexical verb (46). Thus, *ought (to)* can be generated under T, similarly to central modals. However, since its polyfunctionality is weak, it is marked for [-POLYF] and resulting idiosyncratic properties. The *ought to* counterpart is then generated under vP.

Figure 20: Position of *Ought*

```
        T
        /\
       /  \ AgrP
      /    /\
     /    /  \ NegP
    /    /   /\
   /    /   /  \ vP
  /    /   /   /\
 /    /   /   /  \ VP
 |    |   |   |   /\
 |    |   |   |  /  \
ought (to)   ought to
```
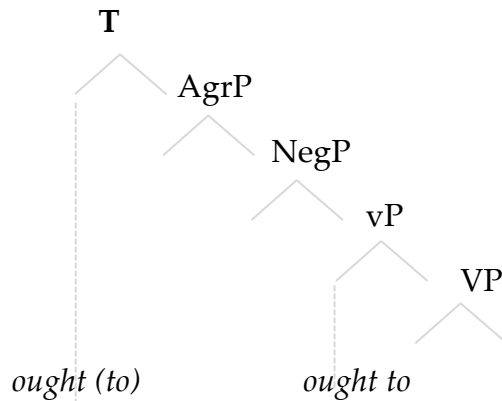
The reason for the two entries is, similarly to *dare*, the clash between two properties – lack of polyfunctionality versus the inherent absence of agreement. More precisely, weak polyfunctionality forces *ought* into vP sphere, whereas inherent non-variant paradigm keeps it in T, exactly as follows from the hypothesis. As for the lexical *ought to* (the one with *do-* support), it will be reserved to non-affirmative contexts, due to the non-existing agreement morphology, i.e. it will never appear in the declarative **oughts*.

7.7 Aspectual Structure *Used*

Quirk et al (1985, 138) list *used* as one of the marginal modals. However, the meaning of *used* is not modal, but rather aspectual, since it expresses habitual meaning in the past. The authors state that *used* exhibits the syntactic properties of an operator and of lexical verb; see the following use.

(47) a. *He usen't to smoke.*
      b. *He didn't use to smoke.*

Quirk et al (1985, 138) claim that whereas the operator structure in (47a) is used in BrE, the lexical verb structure exemplified in (47b) occurs both in AmE and BrE. However, the use of operator *used* in the question is rare even in BrE. Moreover, Huddleston and Pullum (2002, 115) maintain that the operator version is unacceptable for young speakers, and finally, it does not occur in emphatic contexts – see the following example, taken from Huddleston and Pullum (2002, 115).

(48) *He claims neither of us used to reply but we did/*used to.*

Therefore, the question may arise as to why this element demonstrates traces of operator properties, despite not being a modal element. A possible explanation may refer to the level of grammaticalization of aspect – similarly to *have + -en* [48]. In sentences like (47a), perfective *have* and *used* can be generated in AgrP slot. The occurrence of *have* in this position is standard, whereas that of *use* is very marginal. The non-standard position of *used* is, however, in line with Cinque's elaborated structure (1999, 76) in Figure 10, repeated here for reader's convenience as Figure 21. Notice that habitual node **Asp**habitual is relatively high, preceding even the T:

Figure 21: Hierarchy of Functional Heads

Moodspeech act >Moodevaluative > Moodevidential > Modepistemic > T(Past) > T(Future) > Moodirrealis > **Asp**habitual > T(Anterior) > Aspperfect > Aspectretrospective > Aspdurative > Aspprogressive > Aspprospective/Modroot >Voice > Aspcelerative > Aspcompletive > Asp(semel)repetitive > Aspiterative

Since the role of aspect is not a target of this disseration, I will not deal with the lexical entry *used* in more detail here.

7.8 Interim Summary

This chapter aimed to analyse some of the elements which are traditionally labelled as marginal modals, using the structure in 6.1.3. I focused on elements generated under the T node and demonstrated the operator behaviour of *may, might, shall.* Then I focused on marginal modals *dare, need, ought,* and aspectual *used.* Analysing their semantic and morphosyntactic behaviour, I tried to show that there is a link among three properties polyfunctionality > agreement > operator properties. I explained that the morphosyntactic properties demonstrated by these elements are not random, but fully predictable, and they can be explained based on the hypothesis presented in 6.1.3.

The modals generated in T, i.e. *may, might, shall*, are usually not regarded as anomalous modals, however, their closer inspection reveals that they start to

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[48] Perfective *have* and *have* in *had better* are in fact the only functions of *have* which can behave as an operator; other functions of this verb are excluded from operator function – see possessive *have* + NP, modal *have* + *to*-infintive, causative *have* + NP + bare VP, dynamic *have* + NP, and others. The structure *have got,* which can replace possessive and modal *have,* is structurally a perfective aspect.

demonstrate certain gaps in the list of characteristics typical for the operator behaviour. Following my hypothesis, I attribute this to their receding polyfunctionality.

Another modal element analysed here was *dare,* which is notorious for its schizophrenic behaviour; more precisely, it functions both as an operator, as well as a lexical verb, taking bare and *to-* infinitive. My hypothesis explains this behaviour as caused by the clash between the lack of polyfunctionality and the inherent lack of agreement. The counterpart of *dare* is *need,* which demonstrates very similar morphosyntactic behaviour. Also these characteristics, only in the reversed logic can be explained using my hypothesis – the modal is polyfunctional, however, its lexical (i.e. agreeing) origin allows it to remain low in the tree.

Ought is similar to the first group *may, might,* and *shall.* It is a preterite-preterite verb, i.e. it is inherently non-agreeing; still, its polyfunctionality is very weak. Therefore, despite its operator behaviour, it demonstrates some features of monofunctional verbs – subcategorization for *to-* infinitive, and occasional lexical-verb syntax.

The last element discussed here is *used,* which is an aspectual, rather than modal element, and therefore, its sporadic operator behaviour has different reasons. Below is a summarizing table of properties of modal elements I discussed here:

Table 21: Properties of Operator Elements

	Polyfunctional	Inherently non-agreeing	operator	Node
central modals	+	+	+	T
may, might, shall	+ (weak)	+	+ (receding)	T
dare	-	+	+/-	AgrP, vP
need	+	-	+/-	T, vP
ought	+ (weak)	+	+ (marginally -)	T, marginally vP
used	-	-	+ (really weak)	AgrP

As can be observed in Table 21, elements that are not polyfunctional and thus will not fulfil the requirements for the position in T, either demonstrate gaps in the NICE properties, or are generated lower in the tree. On the other hand, *need,* which is polyfunctional, is idiosyncratic due to the fact that it diachronically retains the agreement morpheme. The distribution of central and marginal modals in the clause structure is demonstrated below in Figure 22.

Figure 22: Positions of Operator Elements

T [+POLYF]

AgrP

NegP

vP

central modals

may

might

shall

dare   *dare (to)*

need   *need to*

ought (to)   *ought to*
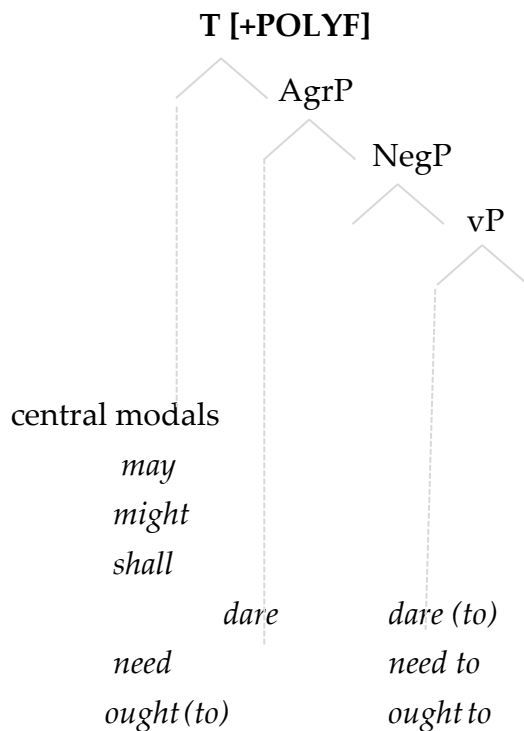
In a present-day formal framework, which uses trees like in Figure 22, all the modal elements can be analysed as **functional categories**. Notice that each of these elements has a very different combination of properties. This can be expected, since functional elements typically demonstrate item-specific properties. No surprise then that *ought,* despite having very similar properties to *might, may*, and *shall*, behaves still slightly differently than both of them. [49]

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[49] With respect to grammatical lexical entries, Emonds (2000, 106) claims that "each item has its own characteristics and in principle unique syntactic behavior". A similar observation, yet from a semantic perspective, is made by Newson (2008, 6), who claims that "for every modal there is at least one other that can be used in a similar sense to it in some circumstances but the two must be interpreted differently in other circumstances."

8 English Marginal Modals – Non-Operator Elements

Whereas the previous part focused on one-word modal expressions, this section will deal with the non-operator elements, i.e. the combinations of AUX + MODAL. Those structures consist of an auxiliary verb *have* or *be*, which integrates the element into the sentence, and the carrier of the modality, which can be in the form of **a preposition, an adjective, a verb** or **a particle**, as in the case of *be <u>about</u>, had <u>better</u>, be <u>going</u>,* and *have <u>to</u>.* First, I will divide these non-operator elements according to their semantic characteristics, i.e. their poly/monofunctionality. The following table analyses the structures, which are regarded by various authors as "marginal" modals; see above for Quirk (1985), Huddleston and Pullum (2002), and Collins (2009).

Table 22: Semantic Status of Non-Operator Elements

Monofunctional	Polyfunctional
be able (deontic)	*had better > **better***
be obliged (deontic)	*be going > **gonna***
be willing (deontic/root)	*have got to, have to, be to > **gotta***
would sooner (not modal)	*want > **wanna***
would rather (not modal)	*be bound*
	be about
	be supposed

First, I will briefly discuss the monofunctional elements in the left-hand column of Table 22 above. The main focus will, however, be on polyfunctional elements, which according to my hypothesis are likely to migrate upwards the syntactic tree (= grammaticalize), due to the potentiality of their polyfunctional semantics.

8.1 Monofunctional Structures

The first structure in question is *be able.* This structure expresses ability, and therefore is regarded as being deontic (or more precisely root). As Collins (2009, 119) and Westney (1995, 207) state, this lexical structure is interchangeable with *can* to a certain degree, but unlike *can*, it cannot be used for epistemic meaning – see the following example.

(49) *It can't/*isn't able to possibly be noon.*

Similarly, the structure *be obliged* is monofunctional, expressing deontic meaning, and to my knowledge, it cannot have epistemic reading in any context.

(50) *It **must/*is obliged to** be already 5 o'clock.*

Concerning the structure *be willing,* this combination of an auxiliary and adjective expresses the element of will, which is root modality. The literature treats *be willing* as carrying the meaning of volition; there is no example of epistemic uses.

(51) *Probably it **will/*is willing to** be warmer soon.*

Structures *would sooner* and *would rather*, which are in some grammar manuals listed as modals, express the meaning of preference, as Quirk et al (1985, 142) claim. However, I am inclined to say that these phrases are not modal at all. Both *sooner* and *rather* express preference, with *would* being a politeness conditional of *will*, but these meanings cannot be considered root modality. Palmer (1990, 167) regards *would rather* as a semi-modal due to the fact that it has got a "specialized" use. By "specialized", he probably means idiomatic, but the degree of idiomaticity is not the definition of modality.

8.2 Polyfunctional Elements

This section will focus on elements that are polyfunctional – referring to the table above, I will discuss *had better, be going, have got to/have to/be to, want*, as well as *be bound, be about, be supposed*. I will analyse the first four structures in detail, as they demonstrate an intermediate degree of grammaticalization – more precisely they form phonetically reduced forms *better, gonna, gotta*[50] and *wanna*. I will demonstrate that their grammaticalization is related to the polyfunctionality of their mother structures.

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[50] In terms of grammaticalization, the forms *hafta* or *hasta* are frequently mentioned – for example Krug (2000, 53), however, I will not deal with these in the dissertation. First, they do not demonstrate such a degree of reduction as *gotta* – thus structures *hafta* and *hasta* may just be phonetic transcription of *have to* and *has to* in rapid speech – I personally can distinguish no other reduction apart from the schwa. A second point, which is much more important, is the absence of agreement – while *hafta* vs. *hasta* carry agreement distinction, *gotta* or *gonna* do not.

As previously mentioned, I assume that these structures follow the pattern AUX + MODAL. The analysis of these elements is given below:

Table 23: Syntactic Analysis of Polyfunctional Elements

AUX in T	MODAL
had	*better*
be	*going*
have got	
(*do*) *have*	*to*
be	
(*do*)	*want*

The auxiliary part of these combinations carries no semantic meaning. However, since the modal element can be of any part of speech (particle *to,* verb *want* or *going,* or adjective *better*), an integrating element (=auxiliary) is needed, so that the modal element could be used as a finite predicate in the sentence – see the following pair.

(52)   a. **I **to** study English./I am to study English.*
       b. **It **going** to rain./It is going to rain.*

However, as the hypothesis presented in this work in 6.1.3 suggests, the modals (or modal parts of complex expressions) are polyfunctional. Thus, we may expect that they will have a tendency to occupy the T node in the tree like in Figure 13, since this position is inherently related to +POLYF feature. More precisely the role of the modal part is to mirror morphologically, as well as syntactically the properties of a central modal. I propose that this occurs in several steps:

Table 24: Grammaticalization of Polyfunctional Elements

	Steps	Examples of *have got to*
0	Formation of non-agreeing forms *better, gonna, gotta, wanna*	*He has* **gotta** *go.*
1	The auxiliary reduction	*He's gotta go.*
2	The auxiliary omission	*He Ø gotta go.*
3	Auxiliary syntax	*He gotta* **not** *go/***Gotta** *he go?*[51]

Referring to Table 24, in **step 0**, the elements form the structures that are inherently non-agreeing *gotta, gonna, wanna* – notice especially the example of *wanna,* which is unlike *want* invariable for person agreement – *wants/*wannas* (!). Syntactically, their auxiliaries *have* or *be* generate under AgrP, and then move to T to demonstrate NICE properties. The reduced structures *gotta, gonna, wanna,* and *better* are in vP.

Step 1 is the reduction of the auxiliary – in other words, the auxiliary cannot be pronounced in the full form anymore.

Step 2 is the auxiliary omission – at this stage, the structure immediately follows the subject, and the following verb is in infinitive – more precisely, the form under discussion paradigmatically replaces a central modal. In the tree, it is generated under AgrP.

In terms of **the last step**, the structure copies the properties of central modals from the syntactic perspective – i.e. it inverts in question, it is followed by a clausal negation *not/n't,* it appears in question tags, etc., i.e. it is generated under T. The process can be summarized as shown in Figure 23.

Figure 23: Grammaticalization

+POLYF >>   -AGREE forms   AUX reduction   AUX omission   OPERATOR syntax

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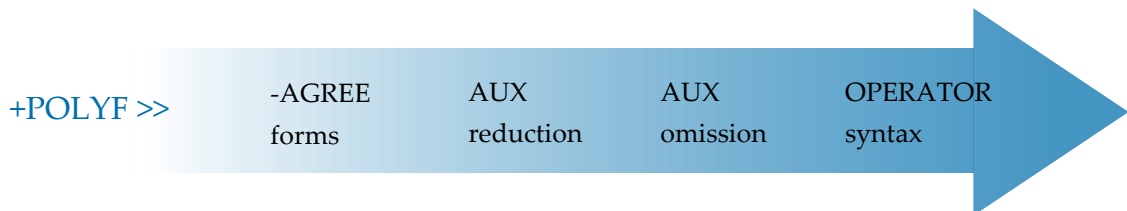
[51] As for *have got to,* the last step is still rare, non-standard; however steps 0-2 are already well-attested.

8.3 Confirming the Structural Changes

In this section, I will demonstrate how far the structures *had better, be going, have got to/have to/be to,* and *want* have progressed on the grammaticalization ladder, i.e. at which step they presently occur. For this purpose, I will be using the following corpora: Corpus of Contemporary American English/COCA, British National Corpus/BNC, Corpus of Historical American English/COHA and Corpus of American Soap Operas/SOAP, using a web application. However, since the grammaticalization of these elements is still in progress, some steps may not yet be reflected in corpora, as corpora databases tend to lag behind the spoken language. Therefore, in isolated cases I will also use a web search engine, which may provide more up-to-date results, or results that are not yet codified.[52]

8.3.1 *Corpus Methodology*

To ascertain the degree of independence of the reduced forms of their auxiliary (steps 0, 1, and 2), the corpus research will be limited to BNC and COCA only. For the sake of simplicity, the search will focus on declarative sentences only. I am fully aware of the fact that (in)dependence of the structure on the auxiliary may be different in various sentence types (declarative vs. negative vs. questions); however, in order to show the basic tendencies in a language change, the analysis of declarative sentences will suffice. The subject will be limited to the third person, more precisely to pronouns *he* and *she.* The examples of research strings follow:

(53) a. *he has got ta [v*]*[53]
       b. *he 's got ta [v*]*

---

[52] Using web search engine here is intentional. Exploring non-standard or not yet codified forms of English grammar may reveal the future development of the grammatical structure; any changes in a language are first regarded as non-standard. The same situation occurred in the past, where non-standard structures were labelled as vulgar, ignorant, inaccurate, barbarous, uneducated, shameful, disgraceful, as Hickey (2012, 7) points out. An example of this was the progressive passive, as *this chapter was being written,* which was avoided until 19th century, as Denison (1998, 150) claims. Despite the fact that passive had been used long before that, there was pressure not to use it in combination with progressive. Because of the fact that the examples of passive progressive were labelled as 'uncouth' English, they entered the common use very reluctantly. And despite the fact that it makes the grammatical system more symmetrical, it long had a label of substandard language.

[53] The symbol [v*] is used in BNC and COCA to search 'all verbs'.

c. *he got ta [v*]*

The same search is performed for the subject *she.* Then, the sentences are individually checked, and the examples that are not related to the studied area, are discarded; e.g. the result *he better understands* […] clearly does not relate to the phrase *had better,* but in this case *better* is the adverbial modifying the verb *understand.* This analysis will be carried out in sections 8.4.2, 8.5.2, and 8.6.2 for *better, gotta* and *gonna*, respectively.

The second part of the data research focuses on isolated structures *gotta, gonna, wanna* and *better* and their ability to function syntactically as central modals, i.e. I will study if they demonstrate operator properties. For this purpose, search strings for negative sentences with *not* and *n't* and questions are used – see below:

(54)   a. *got ta he [v*]*
       b. *he got ta not [v*]/ he got ta n't [v*]*

Similarly to the previous case, the same search is also performed for the subject *she.* All examples are manually checked, as in the previous case. The results of the research will be discussed in 8.4.3, 8.5.3, 8.6.3, and 8.7.2 for *better, gotta, gonna* and *wanna,* respectively. In cases when the search string produces no results, the web search engine is used (for example in 8.5.3 with *gotta*). However, such results are not presented in a chart, since the data gathered from this source may be unreliable. Still, they may provide an interesting insight into possible future development, despite the fact that their grammaticality is questionable from the codified present-day perspective. In some cases, other searches will be carried out, especially in COHA, to focus on interesting points of a particular structure – these are discussed in the relevant sections, such as 8.4.1 and 8.6.2.

The following sections, i.e. 8.4   to 8.7, focus on the semantic, morphological and syntactic analysis of *better, gotta, gonna* and *wanna* in order to study the degree of their grammaticalization as discussed in Table 24 and Figure 23.

8.4 Polyfunctional *Better*

First, I will explore the semantic status of *had better*. Then, I will do the analysis concerning its (in)dependence of the auxiliary *had*. Finally, I will study to what degree the isolated *better* demonstrates operator properties.

8.4.1 *Semantic Status of* Had Better

In terms of the semantics of *had better*, there is a dispute among scholars concerning its polyfunctional status. Clearly, its primary meaning is synonymous to *should*, conveying a deontic advice – as in the following example.

(55) *You **had better** go now.*

Denison and Cort (2010, 374) and Mitchell (2003, 145) argue that *had better* can convey epistemic meaning as well; see examples in (56), taken from Denison and Cort, and Mitchell, respectively.

(56) a. *The annual parade is in September. The weather **had better** be good.*
b. *This **had better** be good, I thought grimly as I crossed the road and walked up the cul-de-sac to the Parsonage.*

Contrary to this, Westney (1995, 183) doubts the polyfunctionality of *had better*. Also, Collins (2009, 19ff) argues that the second example does not convey an epistemic reading, but rather a hope, which is not epistemic.[54] On the other hand, as I claimed above in 2.5, if there is **any** context, where an expression can be interpreted epistemically, which is definitely the case of (56a), such expression must be analysed as polyfunctional.

Concerning the historical development of the meanings of *had better*, Rissanen (1999, 230) states that *had/were* occurred with *better* in Early Modern English. Similarly, Denison and Cort (2010, 354ff) claim that although the structure *had better* has existed since Old English, it grammaticalized as late as in the 18th century. In terms of its epistemic meaning, my research in corpora revealed two examples of *had better*, the meanings of which can be interpreted as epistemic –see below, accompanied by an extended context.

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[54] The sentence *John must be at school right now* can also be used in the context related to 'hope', but its meaning is still epistemic.

(57) a. *That's what I'll do. I'll put on some other disguise! I wonder what it **had*** ***better*** *be.* [COHA:1868:FIC:AfterShadowOther]

b. *When he complained about it his aunt looked worried and said it would just be temporary; and that was all right, he figured it **had better be temporary**, but she had something else on her mind, she went on talking, […]*

[COHA:1940:FIC:DwightCraig]

When analysing the rise of *better* being used without its auxiliary, the first examples can be traced in as early as the beginning of the 19th century – as in (58).

(58) *And I tell him I guess **he better go** straight ahead, and keep […]*

[COHA:1834:FIC: SelectLettersMajor]

In this case, we can observe that *better* being used as an element independent of its auxiliary, emerged quite early, before the examples with the epistemic meaning, as shown in (57).

8.4.2 *Auxiliary Reduction and Omission*

The following table demonstrates to what degree *better* is independent of its auxiliary. As can be seen, *better* shows quite a huge difference between the British and American English – see the following chart, examples and bar chart.[55]

Table 25: AUX Reduction and Omission with *Better*

	BNC		COCA	
s/he had better + V	64	43 %	136	18 %
s/he'd better +V	79	53 %	371	51 %
s/he better +V	6	4 %	223	31 %

The corpus examples follow:

(59) a. *Raina soon grew to realize she **had better** get tested.*

[COCA:1994:MAG:Essence]

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[55] A very detailed diachronic as well as regional analysis of *had better* vs. *'d better* vs. *better* is also provided by Van der Auwera, Nöel and Van Linden (2013, 129ff).

b. *A neighbor ran to tell Marie **she'd better** go to the school.*

[COCA:1992:NEWS:Houston]

c. *LPEZ: Well, **she better** believe it or she will lose the little she's got left.*

[COCA:2011:FIC:AmerTheatre]

The representations of proportion are shown by a bar chart in Figure 24.

Figure 24: AUX Reduction and Omission with *Better*: A Bar Chart
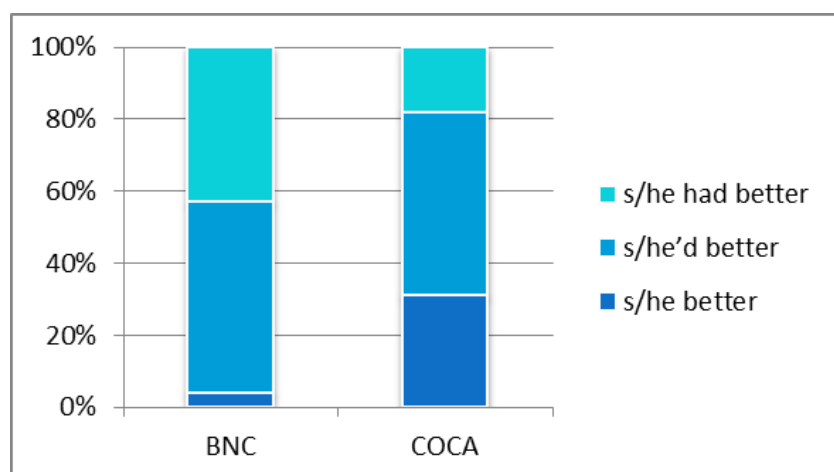
Obviously, in American English *had better* is more grammaticalized than in British English. Also notice that in the COCA the full auxiliary is the least frequent form; the auxiliary omission, on the other hand, appears in one third of the cases, and is thus fairly frequent and accepted. This demonstrates that *better* is grammaticalized to a great extent concerning its relation to an auxiliary.

8.4.3   *Operator Syntax*

Since *better* is independent of *had*, we may expect that its operator properties will be rather well-developed. Concerning questions, however, there are no results for the string 'better s/he + V' in the corpora. Nor have I found any instances of questions with inverted *better* in web forums. As for negation, the reduced negated form *bettern't* does not occur in British or American corpora, despite the fact that Collins (2009, 18) claims that structures as in (60) are existent.

(60)   *We better go, **bettern't** we.*   [not attested in corpora]

The web search, nevertheless, does reveal few examples of *bettern't*, or its spelling variant *betn't*. Although these examples are scarce, they demonstrate that *better* is, at least for some speakers, compatible with a clausal negation *n't*.

(61)   a. *Thanks Irene! We better watch our p's and q's,* **betn't** *we.*

[AbeBooks.com:White House Haunting – Community Forums]

b. *[…] real progress comes only this way, I* **bettern't** *try to write/say too much,you can't tell all you know.*

[Ethiopian News&Opinion – Forum]

Concerning the negation formation with a free morpheme *not*, i.e. 's/he better not + V', such examples are not infrequent in American corpus, see the following sentence.[56]

(62)   *She* **better not** *make any promises she couldn't keep.*

[COCA:1992:FIC:Ploughshares]

In this case, *better* is also clearly in the position of a non-agreeing operator, followed by *not*, since there is no other agreeing verb in the sentence – notice the subject *she*. Therefore, structurally, *better* nests in AgrP.

However, predominantly in COCA, *better* also appears in other syntactic contexts, which are available solely to central modals – such as short answers, elliptical contexts (63a-b) and followed by a perfective infinitive (63c).

(63)   a. *He better take care of that watch.*
         Ms-FREYBERGER: **He better.**   [COCA:1999: SPOK: CBS_SatMorn]
      b. *You will not leave it on the bathroom sink in the men's room someplace, please.*
         Ms-MAPEL: **He better not.**   [COCA:2007: SPOK: NBC_Today]
      c. *If that item is on the test, we* **better have taught** *it.*

[COCA:1990: NEWS: WashPost]

Examples like (63c) appeared six times in the COCA, and 16 times in SOAP (Corpus of American Soap Operas), which means that such occurrences are not

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[56] Such *not* can, however, be analysed as a phrasal negation, related to the following VP, instead of a clausal negation following the central modals.

just idiosyncratic lapses.[57]Another syntactic position where *better* appears is exemplified in (64), where *better* is clause initial.

(64)   a. **Better** *he stay where he is.*   [COCA:2008: FIC: Bk:DarkestPleasure]
       b. **Better** *they be magicians than men*. [COCA:2010: FIC: Analog]

Structurally, these sentences copy the pattern of other modals, most frequently *may*, which can be inverted in the meaning of a wish – as in (65).

(65)   *May he stay where he is!*

Notice that the lexical verbs in (64) do not demonstrate any agreement morphology – *he stay, they be*. Therefore, we must conclude that *better* is in fact a fronted operator, generated under T.

       To sum up, I showed that the structure with *better* is highly grammaticalized. When discussing its semantics, despite the fact that some scholars claim otherwise, I showed that it does appear in epistemic contexts, and therefore, it is polyfunctional. Morphologically, *better* functions as a central modal, i.e. it can be used without its auxiliary *had.* From the syntactic perspective, *better* does not function in question inversion, nor does it freely form negatives *bettern't* yet. However, it is very frequent in combination with free clausal *not,* and it also functions as an operator in other contexts, such as ellipses, short answers, or combinations with perfective infinitive. Considering all these facts, we can state that *better* is becoming a new central modal in English, both morphologically and syntactically. The following figure graphically illustrates the degree of grammaticalization of *better.*

Figure 25: Grammaticalization of *Better*

	-AGREE forms	AUX reduction	AUX omission	**OPERATOR syntax**
+POLYF >>				

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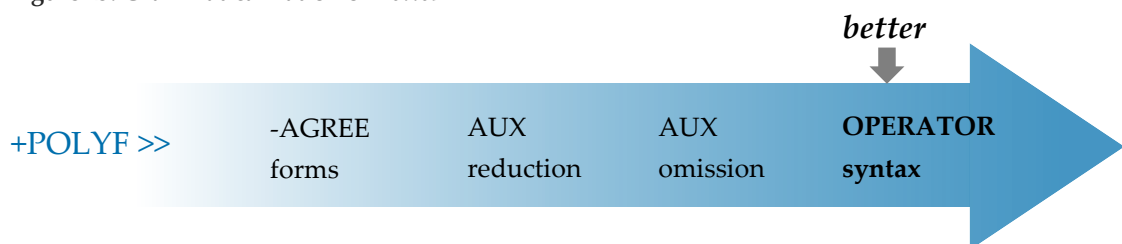
[57] Also, note the difference between the following two sentences **He had better have taught it/?He'd better have taught it.* This set demonstrates that once *better* nears the central modals, it also receives further syntactic properties, reserved only for this group.

8.5 Polyfunctional *Gotta*

Similarly to *had better,* I will first explore the semantic status of *have got to,* which gave rise to *gotta.* Then, I will do the analysis concerning its (in)dependence of the auxiliary *have,* and finally, I will explore its operator properties.

8.5.1 *Semantic Status of* Gotta

In present-day English, *have got to* is clearly polyfunctional – see the following set of examples in (66), showing root (more precisely deontic) and epistemic uses respectively – (66b) is taken from Leech et al. (2009, 109).

(66)   a. *The students* **have got to** *submit their homework in time.*
        b. *This* **has got to** *be some kind of local phenomenon.*

The same conclusion is reached by Collins (2009, 68ff) and Westney (1995, 94ff), though they add that epistemic reading is not as strong as the deontic one. Concerning the historical development of *have got to,* Traugott and Dasher (2003, 149) claim that this structure has existed since the 19th century, having deontic meaning first. In the 20th century, it gained epistemic meaning. The search in COHA, however, shows that first environments where the structure was potentially polyfunctional can be traced much earlier – see the following example.

(67)   *What articles did he purchase, sir. Puf. Pufpace New fine clothes, an extravagant villain; he* **has got to be** *as proud as Lucifer.* [COHA: 1812: FIC:Miser]

This example from 19th century American English is ambiguous from the perspective of a present-day reader – it may express a change, however, it can also be interpreted as having epistemic reading. Even the extended context does not disambiguate the meaning, so it cannot be said with certainty whether it had epistemic interpretation for the recipient in the 19th century. Surely, though, it does not have a deontic meaning. According to COHA, the reduced structure *gotta* starts to appear in the 1910s. If examples such as (67) did carry epistemic meaning, we might claim that the rise of epistemic reading predated the rise of independent *gotta.*

8.5.2 *Auxiliary Reduction and Omission*

Table 26 below shows how *gotta* is (in)dependent of its auxiliary. Similarly with *better*, I studied the number of occurences with a full auxiliary, a reduced auxiliary, and well as with the omitted auxiliary. The results are also visually depicted, using a bar chart in Figure 26.

Table 26: AUX Reduction and Omission with *Gotta*

	BNC		COCA	
s/he has gotta +V	0	0 %	0	0 %
s/he's gotta +V	155	94 %	169	94 %
s/he gotta +V	9	6 %	11	6 %

The examples illustrating cases discussed in Table 26 follow:

(68) a. *He's **gotta** go, Lou.*   [COCA: 1991: FIC:Mov:JFK]
      b. […] *or else **he gotta** stay dead.*   [COCA: 2006: FIC:FantasySciFi]

Figure 26: AUX Reduction and Omission with *Gotta*: A Bar Chart
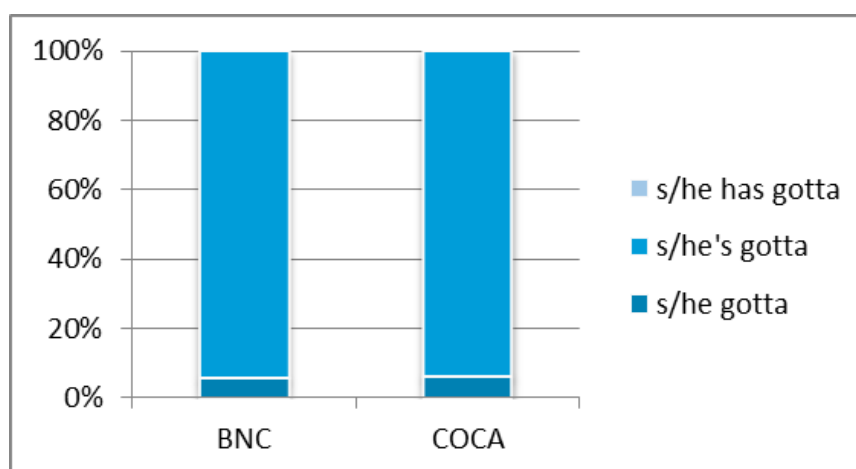
The data from BNC and COCA in Table 26 show that *gotta* is grammaticalized to the extent that it is, in fact, hardly ever pronounced with full auxiliary.[58]

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[58] This does not mean that the full form would be excluded altogether. For example, there are five results for the second person *you have gotta* in BNC and one result in COCA. However, the same persons demonstrate 600 and 250 results for the reduced for *you've gotta* – proportionally this means that the full form appears in less than one percent of cases, and is therefore, very rare.

Both in BrE and AmE, *gotta* can appear in some cases without the auxiliary. This means that it is the only element between a subject and a non-finite verb – see above in (68b). Notice that in this example the lexical verb *stay* has no agreement suffix, despite the 3rd person singular subject. This means that *gotta* is the element replacing agreement – i.e. generated in AgrP in the tree like Figure 13, and as a result, it behaves morphologically as a central modal verb.

When analysing the corpora, we can find another interesting fact – that *gotta* can also appear with auxiliaries other than *have.* To ascertain the tendencies, I analysed results of the following search strings in BNC and COCA.

(69) a. *have n't got ta*
b. *do n't got ta*[59]
c. *ai n't got ta*

I focused on negative sentences, since in those the auxiliary variety is more apparent than in declarative sentences, more precisely we are not likely to find any results for *do gotta* in declaratives. In this search, I selected persons other than third, since as the previous research shows, there are no results for the 3rd person – Table 27 provides results for both corpora, accompanied by examples in (70).

Table 27: Auxiliaries Combined with *Gotta*

	BNC	COCA
have n't got ta	24	1
do n't got ta	0	18
ai n't got ta[60]	20	15

The corpus examples follow below in (70).

(70) a. *I **haven't gotta** say a word.*[COCA: 2001: SPOK:NPR_TalkNation]
b. *You **don't gotta** test me.*   [COCA: 2011: FIC:Bk:WorldsGreatest]

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[59] The occurrence of *do* with *got* is also noticed by Mair (2014, 57ff), which according to his research dates back to the first half of the 20th century. Mair also points out that it is possible to use *do* in question tags, although the main clause contains *have,* as in *You haven't got any money, do you?*

[60] Since *ain't* is invariable for person, I manually excluded sentences with the third person, so that the results are comparable with *do* and *have,* which do reflect the grammatical person.

c. *You **ain't gotta** worry about that, sweetie.*

[COCA: 2006: FIC:Bk:Thug-a-licious]

As can be seen, both in BNC and COCA, we have a variety of auxiliaries preceding *gotta*. Most interestingly, in American English, *have* is the least frequent auxiliary, despite the fact that the structure *gotta* originated from *have got to* (!). This confirms, as mentioned previously in 8.2, that the auxiliary is only an integrating element, which is semantically empty, and therefore can be replaced by any other element with the syntactic properties of an operator.

8.5.3   *Operator Syntax*

The previous section discussed the first three steps (0-2) in structural change process in Table 24, i.e. how *gotta* is dependent on its auxiliaries. In this section I will focus on the next step – more precisely whether *gotta* demonstrates any operator properties, i.e. whether it is generated under T node. Before this can take place, the non-agreeing reduced element must oust the auxiliary from the predicate. If the reduced element is still bound to its auxiliary, it cannot surface in the T slot, and thus cannot demonstrate any syntactic properties typical of central modals. The previous section demonstrated that *gotta* can exist independently, and therefore, we might expect that it can appear inverted in questions, or that it can be negated by *not* or *n't,* etc.

Using the search string 'gotta [p*] [v*]', i.e. *gotta* + pronoun + verb, I found no instances of *gotta* in questions neither in the BNC, nor in the COCA. Concerning negation, and no instances of negated *gotta* were found in the BNC either. In COCA, there are no examples of *gotta* being followed by *n't,* but there are two examples of *not* following *gotta* – like the following example.

(71)   *What you gotta do is, you **gotta not** die.* [COCA:1992:MAG:HarpersMag]

However, it is questionable, whether *not* in this case is an example of a clausal or phrasal negation. I performed a search on websites focusing on the same question. Strings *gotta not* are not rare:

(72)   a. *Sometimes you just **gotta not** worry so much about money and just get xp.*

[IPS Community – Forum]

b. *You **gotta not** care about what people think in general about you*.

[Morning Brew – Article]

The web search also revealed some examples of *gottan't/gottn't* both in the main clauses, as well as in the question tags – as in the following set of examples. [61]

(73) a. *We Gotta Get Out Of This Place,* **Gottan't** *we?*
          [The Partridge Family Bulletin Board: General Chit-Chat – Forum]
      b. *Otherwise I know now why we* **gottn't** *a new patch from Activision.*[62]
          [Thread: Temporary File Database – Forum]

Similarly to *better* as discussed in 8.4.3, despite the fact that these examples are quite scarce, they may indicate the future development of this structure.

To conclude this discussion, we can see that *gotta* is used mostly with reduced auxiliary (step 1 in Table 24), and marginally it can be used in a modal position (step 2 in Table 24), right after the subject. I have also proved that the auxiliary is semantically empty, since in negative sentences, there is a variety of auxiliaries (*don't* or *ain't*) that can replace *have.* Concerning the operator properties, they have not developed yet, though both a corpus and a web search have shown that negatives *gotta not/gottan't* might well be the possible development in the future. The graphical representation of its grammaticalization follows in Figure 27.

Figure 27: Grammaticalization of *Gotta*

gotta

+POLYF >> | -AGREE forms | AUX reduction | **AUX omission** | OPERATOR syntax
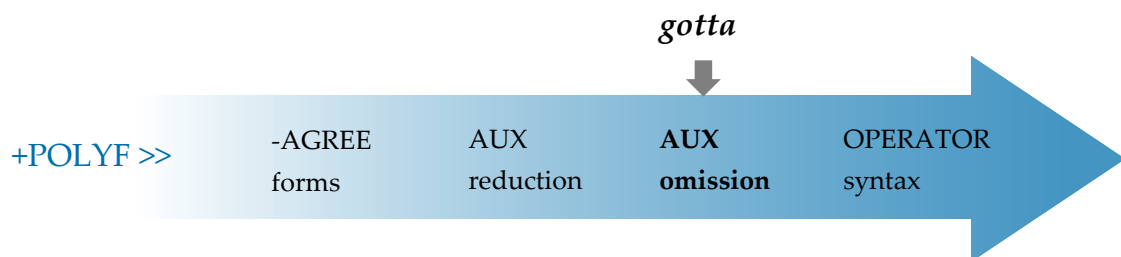
8.6 Polyfunctional *Gonna*

The same analysis as with *better* and *gotta* will be carried out also with *gonna* – first, I will analyse the semantic status of *be going,* then I will study its dependence on auxiliary, and finally I will analyse its ability to appear in operator contexts.

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[61] Krug (2000, 108) or Mair (2014, 74), however, claim that *gottan't* is non-existent.
[62] Interestingly, *gotta* in this sentence does not carry a modal meaning, but expresses possession.

8.6.1 *Semantic Status of* Gonna

The structure *be going*, which gives rise to *gonna* is polyfunctional. Its primary meaning is the future reference – thus epistemic modality, see (74), taken from Collins (2009, 144).

(74) *I think that there's **going to** be incompetence in every profession.*

Collins (2009, 147ff) further adds that *be going* expresses root modality, more precisely a volition or intention. In this use, it can be replaced by 'I refuse to' – as in the following example which he provides.

(75) *I **am not going to** post this until I get prints of my photos to send you all […]*

Further, Collins argues that *be going* can also be purely deontic, providing the example below in (76a). My example of a teacher-student interaction, taken from the BNC, follows in (76b). In this case, *be going* does not express a future plan (see its compatibility with *now*), but rather an order.

(76) a. *You'**re going to** try and be bit earlier.*
b. *You **are going to** decide now, by looking at your graph how you could improve this piece of work […]*   [BNC: 1992: F7R:S_classroom]

Concerning the diachrony of modal meanings of *be going*, Traugott and Dasher (2003, 84) state that the first examples of temporal (not spatial) uses can be traced in the 17th century – see the example (77) below.

(77) *Witwoud: Gad, I have forgot what I **was going to** say to you.*

Despite the fact that Traugott and Dasher claim that the epistemic meaning arose in the 19th century, their example (77) from the 17th century already expresses future reference, hence epistemic meaning. I am not aware of any source that would discuss the historical development of deontic *be going*, however, I have found several sentences, the interpretation of which may be deontic – as in the following texts:

(78) a. *The mouth is not made only for eating, it is made for speaking. Now that you are warmed and stuffed, you beast, take care of yourself. You **are going** to answer my questions. Whence do you come?*
[COHA: 1833: NF:ByOrderKing]

b. *What are you now about in Congress? You are about passing a grant to refund to General Jackson the amount of a certain fine imposed upon him by a judge under the laws of the State of Louisiana.* **You are going to** *refund him the money, with interest; and this* **you are going** *to do because the imposition of the fine was unjust.*

[COHA: 1861: MAG:NorthAmRev]

Referring to the sentences above, we could claim that polyfunctional meaning of *be going* predated formation of *gonna,* as this, according to Traugott and Dasher (2003, 84) appeared at the beginning of the 20th century. This is consistent with my corpus research – the first examples of *gonna* in the COHA appear no earlier than in the 1910's.

8.6.2   *Auxiliary Reduction and Omission*

This section will analyse the dependence of *gonna* with respect to its auxiliary *be.* The results can be seen in the table below, followed by examples in (79).

Table 28: AUX Reduction and Omission with *Gonna*

	BNC		COCA	
s/he has gonna +V	9	1 %	10	1 %
s/he's gonna +V	585	98 %	982	93 %
s/he gonna +V	8	1 %	68	6 %

Similarly to the previous sections, the illustrating examples follow in (79).

(79) a. *Bozo thinks he* **is gonna** *die* […]   [BNC: 1989: H8M:W_fict_prose]
     b. *He's* **gonna** *have a look in the shop he said.* [BNC: 1991:KB6:S_conv]
     c. *Of course* **he gonna** *miss me.*   [COCA: 2010: NEWS:CSMonitor]
     d. *So I'm sure* **he gonna** *get the back and go to the hospital for a minute.*
[COCA: 2005: SPOK: PBS_Tavis]

The graphical representation of results follows in Figure 28.

Figure 28: AUX Reduction and Omission with *Gonna* - A Bar Chart
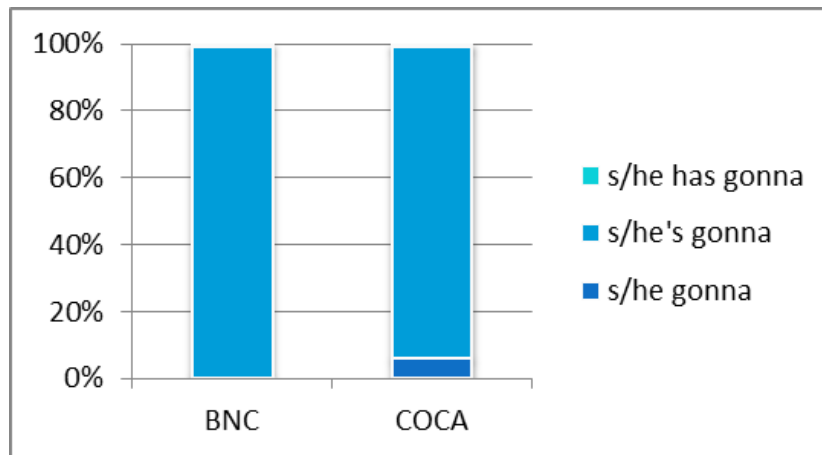
As the results demonstrate, in both corpora the auxiliary pronounced in the full form are marginal – only in 1 % of cases. In by far most cases the auxiliary is reduced into *s/he's gonna.* Concerning the cases with zero auxiliary, this form is still rather rare in British English. On the other hand, COCA demonstrates that such forms are not rare at all. Moreover, concerning the diachronic development, COHA demonstrates the structure *s/he gonna* has been rising since 1930's. Therefore, further rise of the usage can be anticipated.

Regarding the type of auxiliary in negatives that combines with *gonna,* in contrast with *gotta,* it combines with *be,* as expected. However, there is also a significant number of occurrences with *ain't*, which is especially remarkable in American English – as seen in the following table.

Table 29: Auxiliaries Combined with *Gonna*

	BNC	COCA
have n't gon na	1	0
do n't gon na	1	3
ai n't gon na	129	677
[be] n't gon na	158	283

As mentioned before, notice that free-standing *gonna* morphologically functions as a central modal – more precisely, referring back to (79c-d), the verb following *gonna* is non-agreeing, despite the 3rd person singular subject. Therefore, it must be concluded that *gonna* itself expresses AgrP feature.

8.6.3 Operator Syntax

In terms of operator properties, *gonna* is not frequently used without its auxiliary, i.e. it is still not independent. Therefore, its operator syntax cannot be developed to a great extent. As for question formation, there are no examples in the corpora or in web forums that would prove the existence of structures as in (80).

(80) **Gonna he stay here tonight?* [not attested]

Concerning the formation of negation, no result of **gonnan't* was found either in the corpora, or on websites. Concerning the fully pronounced negative particle *not*, there is an isolated example of *gonna not* in COCA:

(81) *So he has to attack. […] But it started with the Obama campaign filled with machismo and aggressiveness saying we're **gonna not** - we're going to make this week not about the economy…* [COCA: 2008: SPOK:ABC_ThisWeek]

In (81), the sentence can be an example of a negation combined with *gonna*, but it can also be analysed as an example of a short answer, which is another typical environment of central modal syntax. In web forums, negated *gonna* appears in several cases – see the following sentences.

(82) a. *Hello pastor, your article talks much of wisdom and inspiration, I **gonna not miss** this again, thanks and more blessings.*
[Beware: The Silent Relationship Killer – Comments]

Notice that in these sentences the auxiliary is dropped, and therefore, the distribution of *gonna* overlaps with that of a central modal. Despite the fact that such examples are not very frequent – they may be even close to idiosyncratic occurrences, they demonstrate that the grammar of some speakers allow such structures, and it may suggest the future developmental tendencies.

To conclude, *gonna* is slightly less grammaticalized than *better* and *gotta*. Furthermore, it does not demonstrate such an auxiliary variety as its companion *gotta*. It does not occur in questions, and the negative *gonnan't* (unlike *gottan't*) is unattested. However, *gonna* sporadically appears in combination with *not* and in short answers, as illustrated by the example above in (81). The degree of grammaticalization of *gonna* regarding the steps discussed in Table 24 is illustrated below in Figure 29.

Figure 29: Grammaticalization of *Gonna*

gonna

| +POLYF >> | -AGREE forms | AUX reduction | **AUX omission** | OPERATOR syntax |
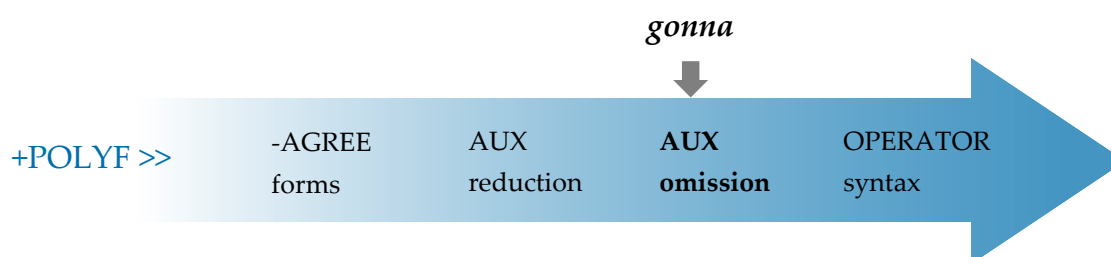
8.7 Polyfunctional *Wanna*

8.7.1   *Semantic Status of* Want

The primary meaning of *want* is to express root modality – more precisely volition. This meaning dates back to the 18th century, according to Krug (2000, 141).[63] Besides this, Krug (2000, 147ff) and Collins (2009, 150ff) argue that *want* has other modal meanings as well, namely deontic and epistemic meanings – the following example of deontic modality is provided by Krug:

(83) *You **want** to take the three o'clock bus in order to catch the plane at 5 p.m.*

He claims that in these cases, the meaning is similar to *ought*. Krug stresses that examples (83) do appear in formal situations (a conversation at a travel agent's), and are thus not reserved to colloquial speech. Deontic *want* can also freely be used in negatives – see (84).

(84) *You don't **want** to put the cement in the car-port.*

Besides deontic meaning, Krug argues that *want* carries epistemic meaning as well. Westney (1995, 32) provides an example of epistemic *want* in (85), pointing out that is related, unlike the deontic one, to colloquial context.

(85) *They **want** to be pretty stupid if they believe everything he says.*

Concerning the historical development of its semantics, Krug points out that it is difficult to investigate the diachronic development of deontic and epistemic

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[63] Krug (2000, 145) claims that the original meaning of *want* was 'lack', which then gave rise to 'necessity', which was followed by volition, i.e. lack > necessity > volition.

want, since such meanings are younger and rather rare. I, nonetheless, found an example of deontic *want,* dating back to 1880's:

(86) *We think in Paris that all is not quite right in the commercial relations of France and the United States; most of the American articles are prohibited with us, and the French products which different rules of exchange would bring to you desert your shores. You **want to** extend your foreign trade.*

<div align="center">[COHA:1878:NEWS:NYT-Reg]</div>

However, the sentence may have a deontic reading for the 21ˢᵗ century speaker, but whether it had the same interpretation more than one hundred years ago is uncertain. Concerning the epistemic meaning, I found no example in COHA dating back to that period.

As for the reduced structure *wanna,* the first instances can be found at the beginning of the 20ᵗʰ century, though the expansion of this use started around 1970's. In this case, it is extremely difficult to analyse which arose first, whether the reduced *wanna* or polyfunctionality, as there is not enough data.

8.7.2 *Operator Syntax*

In the case of *want,* dependence of its auxiliary will not be discussed, since there is no auxiliary functioning in the declarative sentence. The reduced form *wanna* is already non-agreeing and, demonstrates the distribution of a central modal – as in (87). As for the 3ʳᵈ person subjects *he* and *she,* there was only one result in BNC, but eight examples of *wanna* in COCA , as in (87b):

(87) a. *First, I **wanna** say hi to somebody.* [COCA:2012:SPOK: ABC_20/20]
b.*You think she **wanna** see your snotty nosed face?*

<div align="center">[COCA:2000:FIC:LitCavalcade]</div>

Notice that in such sentences, *wanna* does generate under AgrP node, referring back to tree in Figure 13. Also, *wanna* resembles central modals also from the perspective of its subcategorization. Whereas *wants* in (88a) shows morphology and subcategorization of a lexical verb, *wanna* in (88b) is non-agreeing and takes a bare VP.

(88) a. *She **wants** to leave.*
b. *She **wanna** (*to) leave.*

In terms of the syntax of questions, the search string 'wanna [pp*] [v*]' yields no results in the BNC, nor in the COCA. I have not found any results for question inversion in web forums either. For negative sentences, *wannan't* does not occur in the corpora. However, I found a few examples of the reduced negative in web forums – e.g.:

(89) *BUT when you are walking they sometimes stuck AND they **wannan't** follow you, when you jumping from 4-10 blocks.* [Minecraft Forum: Copier – Forum]

Since such examples are quite rare and unsystematic (sometimes *wannan't* is followed by *to*-infinitive), I treat them as accidental, and they should not be regarded as examples of actual usage; however what are currently isolated cases may spread to general usage in the future.

When focusing on the free morpheme *not*, I found one example in COCA, but on web forums, such structures do appear:

(90) *I kinda overate yesterday, and I **wanna not** eat as much today.*
[What should I eat? I'm a fruitarian – Question]

Though it is not certain whether the sentence above is an example of a clausal negation or a phrasal negation, this may again foreshadow the future development of the clausal negation with *wanna.*

To summarize the section about *want*, we could see that morphologically *wanna* is a modal. However, syntactically it still remains a lexical verb, since the examples of question inversion and negation are sporadic and rare. The reason for this may be its yet not fully productive usage as an AgrP – as I have mentioned, the combination of *wanna* in the 3rd person is not widespread, yet existent, as in (87b). The following scheme in Figure 30 illustrates the level of grammaticalization of *wanna* on the scale proposed in Table 24.

Figure 30: Grammaticalization of *Wanna*
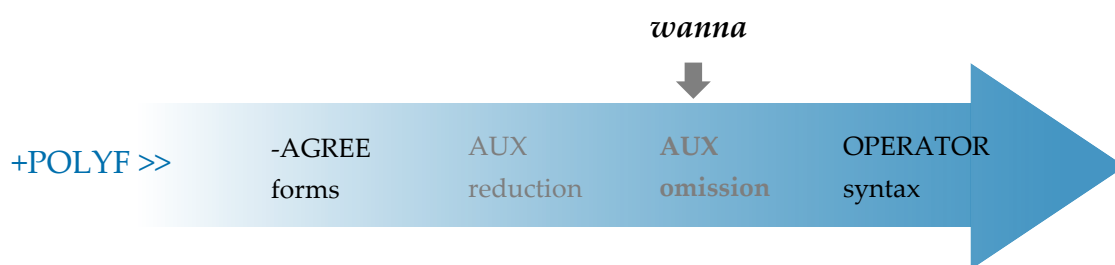
Unlike with other structures *better, gotta* and *gonna, wanna* does not have a mother structure containing an auxiliary, therefore, only steps 0 and 2 (formation of non-agreeing forms and operator syntax, respectively) are relevant.

8.8 Polyfunctional *Be Bound, Be About,* and *Be Supposed*

At the beginning of section 8, I mentioned that besides the polyfunctional elements *have got to, be going, want* and *had better,* there are also other elements that can express deontic and epistemic modalities at the same time – namely *be bound, be about* and *be supposed.* The polyfunctionality of *be bound* is discussed in Collins (2009, 87) – and exemplified below, showing a deontic and epistemic use, respectively.

(91) a. *I'm bound to say there are a whole series of things that one has to consider […]*
 b. *For for the shoppers so that there you know there may not be as many spaces there but if he's going at half past six he's bound to get one.*

Concerning *be about,* Collins (2009, 155) claims that the primary meaning of *be about* is related to futurity – i.e. it is epistemic – as in the following example (92a). Westney (1995, 32) also argues that *be about* has developed a volitional meaning as well, i.e. root modality – see (92b).

(92) a. *Just a moment I think he was about to say something else.*
 b. *I'm not about to lend you any more money.*

The structure *be supposed* be considered as polyfunctional – see Westney (1995, 175ff) and Collins (2009, 80); the examples of deontic (93a) and epistemic uses (93b) below are taken from Westney (1995) and Collins (2009) respectively:

(93) a. *Catholics **are supposed** to go to church on Sundays.*
      b. *That boy, he's **supposed** to be awesome.*

Despite the fact that *be bound, be about* and *be supposed* are polyfunctional, there is no indication for grammaticalization as with *gotta, gonna, wanna* and *better*.[64] The immediate question, which I am not able to answer with certainty, is why. A partial explanation for this may be the fact that these structures are less frequent, and therefore, sufficient time for their grammaticalization has not elapsed yet.[65]

8.9   Interim Summary

In this section I have studied another set of marginal structures – particularly, those that originate as non-operator elements. Polyfunctionality of these structures is expressed by parts of speech other than an auxiliary, and they are combined with a syntactic auxiliary in sentences. Below follows the list of these structures – each is specified for its polyfunctionality, the ability to be generated under the Agr node, possible auxiliary omission, and operator syntax – i.e. its ability to generate under T. The first section includes monofunctional elements, as discussed in 8.1, and the second group summarizes polyfunctional elements, as discussed in 8.2 to 8.8.

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[64] Although Hopper and Traugott (2003, 128) state that *be supposed* is grammaticalized into [spostə], in my view, such reduction is far different from what we can observe with for example *have got to > gotta.* The structure *gotta* is reduced significantly, i.e. unlike [spostə], *gotta* is reduced significantly. Moreover, as far as I know, [spostə] cannot be used without its auxiliary. Therefore, I conclude that [spostə] is just an ordinary reduction appearing in rapid speech, not a structural reduction, which can be observed with other polyfunctional elements. I discussed the issue of phonological reduction in 6.1.2

[65] For the relation between frequency and the degree of grammaticalization, see Hopper and Traugott (2003, 127ff).

Table 30: Modal Elements and their Semantic and Morphosyntactic Properties

Structure	Polyfunctional	Agr node	AUX omission	operator syntax (T)
be <u>able</u>	-	-	-	-
be <u>obliged</u>	-	-	-	-
be <u>willing</u>	-	-	-	-
would <u>sooner</u>	not modal	-	-	-
would <u>rather</u>	not modal	-	-	-
had <u>better</u> => better	+	+	+	+
be <u>going</u> => gonna	+	+	marginal in AmE	-
have got <u>to</u> => gotta, have <u>to</u>, be <u>to</u>	+	+	marginal	marginal with neg
(do) <u>want</u> => wanna	+	+	N/A	marginal with neg
be <u>bound</u>	+	-	-	-
be <u>about</u>	+	-	-	-
be <u>supposed</u>	+	-	-	-

As is visible in the first group, monofunctional elements do not demonstrate any degree of grammaticalization. On the other hand, polyfunctional elements do demonstrate a degree of grammaticalization, with the exception of the last three structures that do not demonstrate any degree of grammaticalization, similar to monofunctional elements. Focusing on *had better, be going, have got to/have to/be to*, and *want*, all these demonstrate grammaticalization to a certain extent. The most grammaticalized is *had better*, whereas *be going* is the least grammaticalized of all. In terms of the tree analysis in Figure 13 which was described in 6.1.3, the position of these elements can be illustrated in Figure 31.

Figure 31: Position of Elements in the Tree Structure

T [+POLYF]
           AgrP
                  NegP
                        vP
                              VP

better   *be able*[66]
       gonna   *be obliged*
       gotta   *be willing*
       wanna

                   be bound
                   be about
                   be supposed
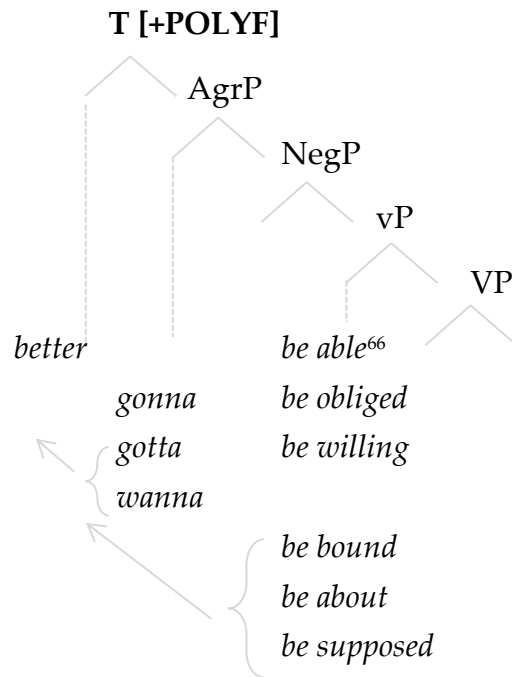
The position of individual lexical entries in Figure 31 above shows that *better* is nearly fully grammaticalized, demonstrating a wide range of operator properties. On the other hand, *gonna* is morphologically modal, but does not appear in operator distribution. The structures *gotta* and *gonna* are generated under Agr, but only marginally, and in the grammar of some speakers they can generate under T in negative sentences. Finally, polyfunctional *be bound, be about* and *be supposed* do not demonstrate any degree of grammaticalization. More precisely, they do not occur without its auxiliary, and therefore, cannot raise to AgrP; however, they can be potentially subject to reanalysis.

At this point, I will also briefly return to the issue of trigger of the grammaticalization, more precisely to the order *meaning > syntactic* change, as discussed in 6.1.4. In that section, I argued that the meaning precedes form, i.e. the structure will first become polyfunctional, and changes in the grammar follow. As for *better*, I could not trace polyfunctional reading before the emerging of independent *better*, and thus could not support the hypothesis. On the other hand, the development of *gotta* and *gonna* followed exactly the order predicted by my hypothesis, i.e. first they had polyfunctional readings, and

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[66] In structures introduced by *be*, i.e. *be able, be obliged, be about*, etc., the auxiliary *be* is generated under the Agr node and raises to T. However, for the sake of simplicity, they are listed in vP together with their modal parts.

only then did their mother structures *have got to* and *be going* transform into the reduced forms *gotta* and *gonna.*

8.10 Structure of English Modals – Summary

In this study, chapters 4 to 8 have been dedicated to modal elements in English. I demonstrated that modal meaning has an impact on the morphology and syntax of modal structures. More precisely, I have argued that polyfunctionality impacts two properties in English – the loss of agreement and the auxiliary syntax, which follows from the underlying order of the Agr and T nodes in the tree. First, I have discussed the properties of central modals in 4, and then concentrated on the characteristics of marginal modals in chapters 7 and 8.

Traditionally, authors use the term 'marginal modal' as a cover term for any element that stands in between the groups of lexical and modal verbs, as discussed at the beginning of chapter 7; this group is often regarded as a heterogeneous collection of irregular elements. Contrary to this view, I showed that these elements can be clearly classified in several subgroups, and I tried to explain the idiosyntactic properties of every single member of this group. Moreover, I have shown that the behaviour of every element is logical and predictable.

Based on the data I demonstrated, I claim that the central modals are polyfunctional, and thus exhibit auxiliary syntax as well as the absence of agreement. Once any central modal loses its polyfunctionality, i.e. it becomes marked, we may well witness gaps in its morphosyntactic features – as has been illustrated with *shall, may* and *might* in 7.3 (see Figure 17). Since the polyfunctionality of these elements is likely to be weakening, we may predict further losses of operator syntax.

Another group of modals is formed by *ought, need* and *dare.* These demonstrate features typical of both modals and of lexical verbs. The reason for that is the clash between the semantics and a form – i.e. they are either polyfunctional, but historically agreeing (*need*), or they are diachronically non-agreeing, but monofunctional (*dare* and *ought*). Due to this fact, they tend to oscillate between the two groups and do not demonstrate any clear developmental tendency; in other words, they seem to be "trapped" in between the lexical and modal verbs.

The last group are modal structures of various (even non-verbal) parts of speech, accompanied by an auxiliary in the predicate. Due to being polyfunctional, some of them have a tendency to adopt the grammar of central modals. This is done by omission of the auxiliary and formation of a non-agreeing form, as we have seen with *better, gonna, wanna,* and *gotta.* Once the reduced structures emerge, they can in principle acquire operator syntax. Some polyfunctional structures do not undergo this development (*be bound,* etc.); the reason for this may be a lower frequency in usage – refer to Table 30.

Despite the fact that this work aims to be predominantly empirical; I tried to explain the possible underlying structure, using a syntactic tree. I have adapted Cinque's (1999) and Roberts and Roussou's (2003) hierarchy of functional heads and adjusted it slightly. See the tree in Figure 13, repeated here as Figure 32 for a reader' convenience.

Figure 32: Tree Structure Related to Grammaticalization of Modals
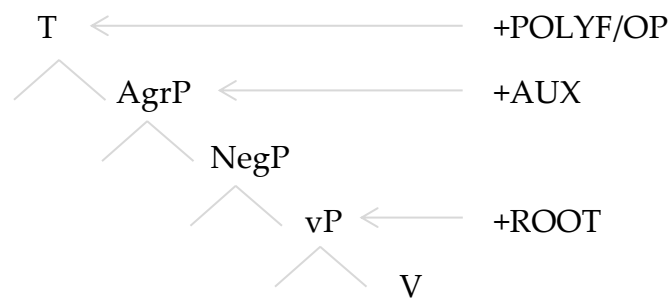
The order of the heads as presented here is based on empirical evidence. To illustrate the position of the English modal elements discussed here, see the summarizing Figure 33 below.

The topmost node in Figure 33 is occupied by central modals, as well as [-POLYF] elements *may, might,* and *shall.* In contrast to central modals, which are [+POLYF], these three elements are marked in the lexicon for [-POLYF], and as a result, they demonstrate gaps in grammatical properties. The T node is also occupied by *need* and *ought.* Furthermore, *better* can currently be generated under the T node, and thus demonstrates a wide range of operator properties. On the other hand, *wanna, gonna* and *gotta* are obviously generated under AgrP, and their merge in T is marginal (only in negatives and only for some speakers). Similarly, *dare* is also generated under AgrP.

Figure 33: Summarizing Tree Structure

```
          T  ←――――――――――――――――――――――  +POLYF/OP


                    AgrP  ←―――――――――――――  +AUX


                            NegP


                                    vP  ←――――  +ROOT


                                            V
```

central modals:	*dare*	*dare (to)*
must, can, etc.		*need to*
	wanna	*ought to*
*may** [-POLYF]	*gotta*	
*might** [-POLYF]	*gonna*	*be able*
*shall** [-POLYF]		*be willing*
		be obliged
need		
ought(to)		*be about*** [+POLYF]
better		*be supposed*** [+POLYF]
		*be bound*** [+POLYF]
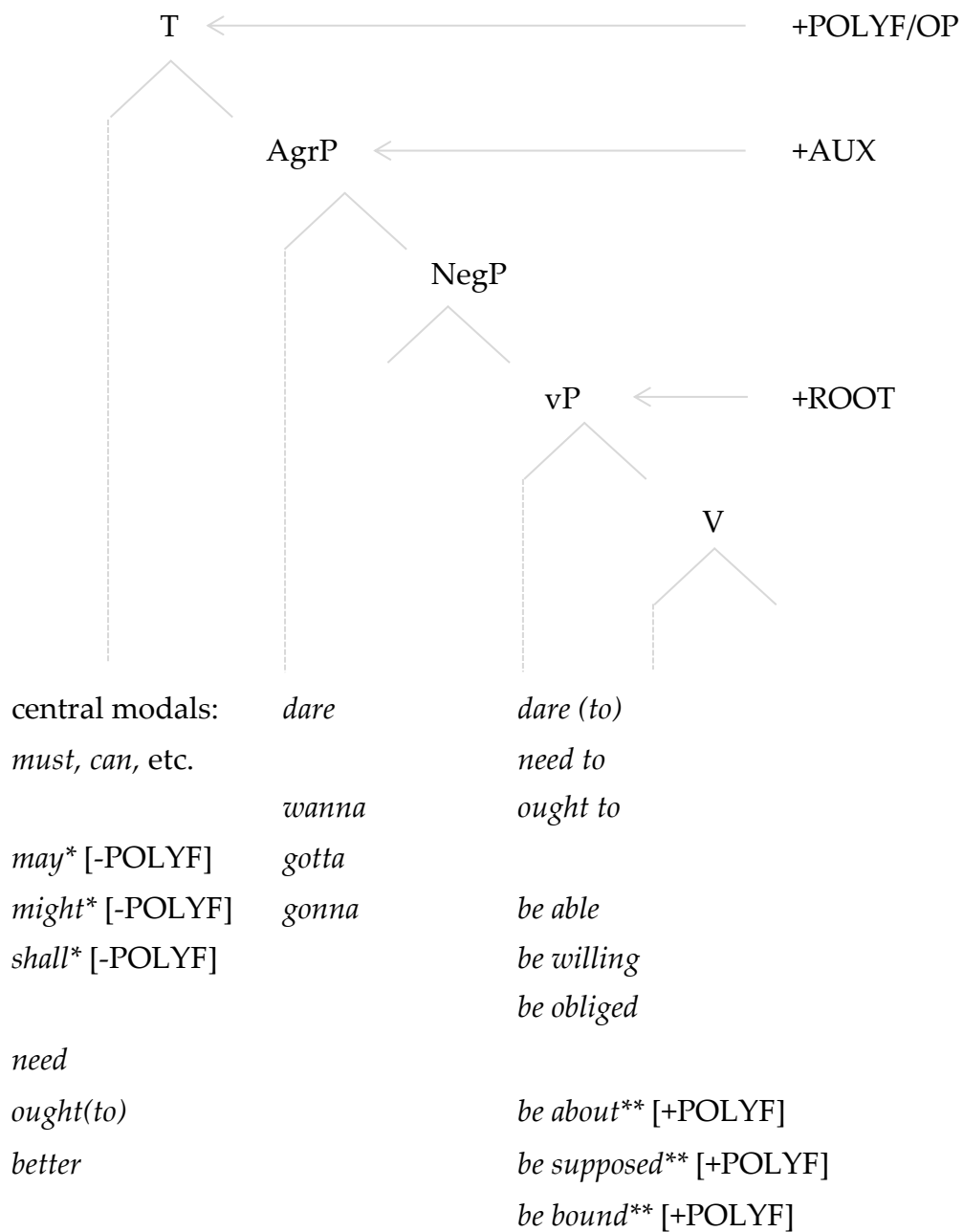
* central modals with gaps, marked for [-POLYF]

** [+POLYF] elements with the potential to reanalyse into T

The main objective of this work is to demonstrate the relation between polyfunctionality and grammar in English. However, as I mentioned in the earlier chapters, polyfunctionality is a universal phenomenon. In some

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languages, polyfunctionality does not have to demonstrate any impact on grammar. However, it is hardly possible that English is the only language influenced in this way. Therefore, in the following section I will explore some other selected languages and make some suggestions as to the possible impact of polyfunctionality on their form.

Polyfunctionality in Other Selected Languages

9 Modals in German

As mentioned already in section 3.2.1, the morphosyntactic properties of modals in Germanic in general, as well as in German itself, substantially differ from the formal properties of the English modals. Therefore, the first part of this section will focus on general morphosyntactic properties of German modals, showing that contrary to English they demonstrate a range of **verbal properties**. In the second part, I will focus on central modals and show how polyfunctionality is related to their grammatical properties. Finally, I will discuss marginal modals in German, and examine their semantic and formal properties.

9.1 Morphosyntax of German Modals

The most obvious morphological property related to German modals is **ablaut** (i.e. the change of a stem vowel) in the present singular paradigm – see the following set of examples of a strong verb *brechen* 'break' and a modal *dürfen* 'can' for the respective persons.

(1) **Strong Verbs** **Modal Verbs**

ich breche	*wir brechen*	*ich darfØ*	*wir dürfen*
du brichst	*ihn brecht*	*du darfst*	*ihr dürft*
er bricht	*sie brechen*	*er darfØ*	*sie dürfen*

As is obvious, whereas strong verbs demonstrate ablaut in the second and the third person, the modals (if they demonstrate any ablaut changes) do so in all persons – namely *ü>a*. The reason for this is diachronic. As mentioned above modals developed from preterite-presents, i.e. their present forms reflect an originally past paradigm – compare the paradigm of *dürfen* 'can' with that of *brechen* 'break' in past tense.

(2) **Strong Verbs: Past**

ich brachØ	*wir brachen*
du brachst	*ihr bracht*
er brachØ	*sie brachen*

Another morphological feature associated with German modals is **zero agreement** suffix in the first and the third person singular. The usual explanation is again diachronic origin of present forms that originated as the preterite paradigm. In other words, 1ˢᵗ and 3ʳᵈ person singular preterite forms of strong verbs lack agreement suffixes, and so do the 1ˢᵗ and 3ʳᵈ person singular present forms of modals; compare the paradigm of *dürfen* and *brechen* in preterite in example (2).

In terms of subcategorization of German modals, they are followed by a bare VP, unlike the majority of lexical verbs, which are combined with a *zu-*infinitive (a counterpart of English *to-* infinitive) – as in the following examples:[67]

(3) a. *Ich   fange   an   zu   studieren.*
        I   start-1sg. PRES   on   to   study-INF
     'I start to study.'

    b. *Ich   muss   *zu   studieren.*
        I   must-1sg.PRES   to   study-INF
     'I must study.'

Besides verbal complementation, German modals can subcategorize for a wide range of phrases – NPs (4a), PPs (4b), or clauses (4c) – as exemplified in the following set.

(4) a. *Ich   kann NP[das Lied]   auswendig.*
        I   can   the song   by heart
      'I know the song by heart.'

    b. *Ich   muss   PP[ins   Stadtzentrum].*
        I   must-1sg.PRES   in.ACC   city centre
      'I must go to the city centre.'

---

[67] The elements that also combine with a bare infinitive in German are verbs related to senses, such as *hören* 'hear', verbs of movement *gehen* 'go', *fahren* 'drive', but also *bleiben* 'stay', or *lassen* 'let'. Thus, modals are not the only verbs with a bare infinitive subcategorization in the language. Notice that the list of lexical verbs followed by bare infinitive is not identical to the list of verbs which are followed by a bare infinitive in English. For more discussion, see Wurmbrandt (2003).

c. *Ich* **möchte**, _{Clause}[*dass* *wir* *Freunde* *sind*].

I   want-1.sg. SBJV   that   we   friends   be-3sg.PRES

'I want to be a friend with you.'

Notice that none of the subcategorization (4a) to (4c) is ever available for present-day English modals – see below in (5).

(5)   a. **I can _{NP}[the song] by heart.*
      b. **I must _{PP}[into the city centre].*
      c. **I will _{Cl}[that we are friends].*

German modals have a list of (mostly syntactic) properties, which they share with lexical verbs. Unlike English modals, the German counterparts occur in non-finite forms, i.e. in infinitives (6a), and past (6b) or present (6c) participles:

(6)   a. *So*   *leben*   **zu**   **müssen**   *ist*   *schrecklich.*

       like this   live-INF   to   must-INF   be-3sg.PRES terrible

       'To have to live like this is terrible.'

      b. *Er*   *hat*   *das*   *nicht*   **gemusst.**

       he   have-3sg.PRES   it   not   must.PP

       'He did not have to do that'

      c. *nicht* *enden*   **wollender**   *Regen*

       not   end-INF   want-PRESP-MASC   rain

       '*a not willing to end rain'

In terms of morphosyntactic properties, German modals can appear, similarly to lexical verbs, in all tense and aspect combinations – the examples show a full verb *müssen* 'must' and the combination with a lexical verb *arbeiten* 'work'.

(7)   a. **Present**

      Er muss.   *Er muss arbeiten.*

      he must-3sg.PRES   he must-3sg.PRES work-INF

      'He must'   'He must work.'[68]

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[68] Note that in English, *must* can be used only in the present paradigm, whereas German *müssen* does form all possible tense and aspect combinations.

b. **Past**

*Er muss**te**.*	*Er muss**te** arbeiten.*
he must-3sg.PAST	he must-3sg.PAST work-INF
'He had to.'	'He had to work.'

c. **Present Perfect**

*Er hat **gemusst***	*Er hat arbeiten müss**en**.*
he has-3sg.PRES must-PP	he has-3sg.PRES work-INF must-INF
'He has had to.'	'He has hat to work'

d. **Past Perfect**

*Er hatte **gemusst**.*	*Er hatte arbeiten müss**en**.*
he has-3sg.PAST must-PP	he has-3sg.PAST work-INF must-INF
'He had had to.'	'He had had to work'

e. **Future**

*Er wird müss**en**.*	*Er wird arbeiten müss**en**.*
he will-3sg.PRES must-INF	he will3sg.PRES work-INF must-INF
'He will have to.'	'He will have to work'

f. **Future Perfect**

Er wird	*Er wird haben*
he will-3sg.PRES	he will-3sg.PRES have-INF
***ge**muss**t** haben.*	*arbeiten müss**en**.*
must-PP have-INF	work-INF must-INF
'He will have had to'	'He will have had to work'

Considering the syntactic distribution of German modals in comparison with lexical verbs, modals appear in same positions as their lexical counterparts. Unlike in English, where modals and verbs have complementary distribution, German modals are inverted in questions (8a), combine with clausal negation (8b), and demonstrate the same word order with topicalized sentence members (8c). Furthermore, modals and lexical verbs occupy identical positions in subordinate clauses, i.e. they are sentence final, as in (8d).

(8) a. **Questions**

Was   ***musst***   *du*   *heute* *machen?*
what   must-2sg.PRES   you   today   do-INF
'What must you do today?'

Was   ***machst***   *du*   *heute?*
what   do-2sg.PRES   you   today
 'What do you do today?'

b. **Clausal Negation**

Er   ***muss***   ***nicht*** *arbeiten.*
he   must-3sg.PRES   not   work
'He must not work.'

Er   ***arbeitet***   ***nicht*** *gern.*
he   work-3sg.PRES   not   with pleasure
 'He doesn't like working.'

c. **Topicalization**

Heute   ***muss***   *er*   *arbeiten.*
today   must-3sg.PRES   he   work-INF
'Today he must work.'

Heute   ***artbeitet***   *er.*
today   work-3sg.PRES   he
 'Today he works'

d. **Subordinate Clause**

Ich   *weiß*   *nicht,* *ob*   *er*
I   know-1sg.PRES   not   if   he
heute   *arbeiten*   ***muss.***
today   work-INF   must-3sg.PRES
'I don't know if he must work today.'

Ich	*weiß*		*nicht, ob*	*er*
I	know-1sg.PRES		not if	he
heute	*arbeitet*.			
today	work-3sg.INF			

'I don't know if he works today.'

As can be seen, German modals do **not** demonstrate radically different properties from those of lexical verbs, and therefore, it can be concluded that they do **not** form a separate part of speech like their English counterparts. The question of categorial status of German modals is discussed in detail by Diewald (1999) and Reis (2001). Diewald (1999, 51ff) claims that there is no syntactic property which would be exclusive for modal elements only. She provides a list of properties, which literature claims to be modal-specific (no imperative forms, no passive voice, bare infinitive, ability to form *Ersatzinfinitiv*, etc.) and demonstrates that these properties can sometimes be found also with the lexical verbs. However, she points out that the epistemic variations of modal elements are much more grammaticalized than deontic modals, and exhibit gaps in the system - for example they obligatorily subcategorize for a VP, they are only finite, etc. Reis (2001, 291 and 299), however, opposes this, saying that gaps with epistemic modals have purely semantic (not syntactic) reasons.

As mentioned previously, English uses mainly the category of modal auxiliaries to express polyfunctionality. In German, obviously, modal verbs do not grammaticalize into auxiliaries, but they remain verbs – similarly as for example in French. One of the possible explanations is the presence of infinitive ending *-en*, as pointed out by Roberts and Roussou (2003) – see 6.1.4. Another explanation for this can be the agreement strength – i.e. the richness of inflectional (=agreement) morphology. Haegeman (1994, 602) points out that languages with a weak agreement, such as English, do not allow V-to-I raising for lexical verbs. On the other hand, languages with a strong AGREE attract all, i.e. also lexical, verbs to T node, as is visible in syntactic behaviour of lexical verbs in German or in French morpheme-for-morpheme translations of the ungrammatical English (9a).[69]

(9)   a. **Comes he tomorrow?*
      b. *Vient-il demain?*

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[69] This principle is also known as the Rich Agreement Hypothesis, as discussed for example by Bobaljik (2002).

c. ***Kommt*** *er morgen?*

As follows from the proposed syntactic tree in 6.1.3, polyfunctionality is higher than V. Modals prior to Early Modern English period were also lexical elements, as discussed in chapter 5. However, after the loss of V-to-I movement, lexical verbs were not able to move to the higher position in the syntactic tree, and therefore, the logical step was to generate them directly in the higher category. This change of status (T instead of V) is captured by the use of distinct categorial label for the English modals (modals vs. verbs). However, in German and other languages, the verb raising is not restricted, and thus there is no need for a modal element to grammaticalize into another syntactic position (i.e. category), since it is able to move to this position when being simply a verb.

9.1.1 *Central vs. Marginal Modals in German*

Although it may seem otherwise, the inspection of various grammar books reveals that, similarly to English, it is not clear exactly which elements should be counted as modals in German. The following table compares various authors and their notion of a modal verb:

Table 31: German Modals, as Presented by Various Grammar Manuals

	Helbig and Busha (2001)	Engel (1996)	Weinrich (2005)	*Duden* (2006)
dürfen	X	X	X	X
können	X	X	X	X
mögen	X	X	X	X
müssen	X	X	X	X
sollen	X	X	X	X
wollen	X	X	X	X
brauchen	?	X	X	?
werden		X		
wissen	?			?
lassen				

As can be seen, six of the modals (*dürfen* 'may', *können* 'can', *mögen* 'may', *müssen* 'must', *sollen* 'should', *wollen* 'want') are mentioned in all approaches.

However, as for other members *brauchen* 'need', *werden* 'become', and *wissen* 'know', the scholars are rather vague concerning their modal status. For example Helbig and Buscha (2001, 44) regard *brauchen* and *wissen* as modification verbs (modifizierende Verben), and add vaguely that they are semantically close to the category of modal verbs. *Duden* (2006) points out that *brauchen* belongs to the modal verbs from the perspective of the meaning, and adds that it is nearing this group also from the perspective of form, especially in subjunctive mood. *Duden* (2006) also suggests *wissen*, as belonging to modal verbs from the formal perspective. Other scholars suggest even further candidates for the group of modals; Diewald (1999, 50) and Girnth (2000, 119) add that sometimes even *lassen* 'let' is counted among modals.

As we can see, there is hardly any agreement in terms of which elements belong to the category of modals. This taxonomic vagueness is probably caused by the lack of formal definition of a term 'modal', and by the vagueness of the semantic concept of 'modality' – see section 3.1.3. Applying the definition used in this work, i.e. claiming that a modal element must be polyfunctional, I can demonstrate that the German modals can be categorized very easily. First, I will discuss the central modals *dürfen*, *können*, *mögen*, *müssen*, *sollen*, *wollen*, as presented in the table above, and then I will focus on the marginal elements *brauchen*, *werden*, *wissen*, and *lassen.*

9.2   Central Modals in German

As I discussed in section 3.1.3, the cross-linguistic definition of a modal I apply in this work is based on its polyfunctionality. Therefore, this section will determine whether central German modals do express both deontic and epistemic meanings. In the literature on modals, polyfunctionality in German has been widely acknowledged, as shown in Diewald (1999, 1), Reis (2001, 287), Abraham (2003, 1), Van der Auwera, Ammann, and Kindt (2005, 256), and Mortelmans, Boye and Van der Auwera (2009, 32).

9.2.1   *Central Modal* Dürfen

As far as *dürfen* is concerned, it is primarily used as a deontic modal, expressing permission (10a), whereas (10b) expresses epistemic possibility, as exemplified by Mortelmans, Boye and Van der Auwera (2009, 33):

(10) a. ***Darf*** *ich heute schwimmen gehen?*
      may-1sg.PRES   I   today swim-INF go-INF
      'May I go swimming today?'

    b. *Sie* ***dürfte/*darf***   *nicht mehr*
      she may-3sg.SBJV.PAST/may-3sg.PRES   not anymore
      ganz nüchtern   *sein.*
      fully sober   be-INF
      'She's probably not completely sober anymore.'

Example (10b) also demonstrates that epistemic *dürfen* is only compatible with a past subjunctive form (in German referred to as Konjunktiv II). This, however, does not prevent this modal from being regarded as polyfunctional, since, as discussed in 2.5, there may be many factors (formal, semantic, cognitive) that impact the accessibility of modal readings.

9.2.2 *Central Modal* Können

The verb *können* is very frequent in both modalities. As Heine (1995, 20) points out, *können* has got two non-epistemic readings, similarly to English *can*. The first is the root possibility/ability (11a), whereas the second (11b) is related to permission. The last example (11c) demonstrates a purely epistemic meaning.

(11) a. *Er* ***kann*** *singen.*
      he can-3sg.PRES   sing-INF
      'He can/is able to sing.'

    b. *Er* ***kann*** *kommen.*
      he can-3sg.PRES come-INF
      'He can/is allowed to come.'

    c. *Er* ***kann*** *sie kennen.*
      he can-3sg.PRES her know-INF
      'He may know her.'

Können is thus a clearly polyfunctional modal element, expressing ability, deontic as well as epistemic meanings.

9.2.3 *Central Modal* Mögen

The verb *mögen* shows a variety of modal meanings and Diewald (1999, 287ff) points out that the various meanings may be related to different morphological forms. In past subjunctive form (Konjunktiv II) *möchte*, it carries the meaning of volition, i.e. the root modal meaning, exemplified in (12).[70]

(12) *Er **möchte** kommen.*
he want-3sg. SBJV.PAST   come-INF
'He would like to come.'

On the other hand, the epistemic modality may be expressed by the present indicative form *mag*, the past tense form *mochte* or the present subjunctive (Konjunktiv I) *möge*, as Diewald (1999, 287) explains – see the following example:

(13) *Die Leute   **mögen**   das   so   empfinden,*
the people   may-3pl.PRES   it   so   fell-INF
richtig ist   es dennoch   nicht.
correct be-3sg.PRES it however   not
'People may (probably) feel it in this way, however it not correct.'

Clearly root meanings (i.e. ability) seem to be rather marginal. The Duden online dictionary states that *mögen* can express ability; however, such use is regional, reserved rather to Swiss German. According to *Duden* (2006, 566ff), the present form of *mögen* can be used with the deontic meaning of permission and obligation – as in the following example.

(14) *Die Zuschauer mögen   nach Ende des   Spiels*
the visitors   may-3pl.PRES   after end   the.GEN   play-GEN
sofort   die   Halle verlassen.
immediately   the   hall   leave-INF
'The visitors must/shall leave the hall immediately after the end of the match.

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[70] Some grammar manuals list *möchten* as a separate verb, due to its different form related to one specific type of modality. I used the same the division of English modals, such as *can-could* in chapter 4.2. However, there I argued that the opposition *can-could* is no longer a temporal one, and moreover, the doublets in English may demonstrate different formal properties – recall *shouldn't* vs. **shan't*. I do not think that this applies to German modals, and therefore, I regard pairs like *muss-musste, soll-sollte* as one modal element.

Clearly, the polyfunctionality of *mögen* lies predominantly in epistemic possibility and root volition, although a pure deontic meaning is not excluded either.

9.2.4 *Central Modal* Müssen

The verb *müssen* appears frequently with both deontic and epistemic interpretations. Heine (1995, 21) demonstrates that both meanings can be interpreted simultaneously – see the following example.

(15) *Er muss   mindestens   1,80m sein.*
       he must.3sg.PRES   at least   1,80m be-INF
       'He must be at least 1.80m tall.'

The deontic reading can be associated with the requirement for the goalkeeper, whereas the epistemic reading is related to logical necessity. *Müssen* is thus polyfunctional, with both meanings being very productive.

9.2.5 *Central Modal* Sollen

The verb *sollen* also demonstrates polyfunctional behaviour. Being a cognate of English *should,* it expresses deontic necessity, as shown in (16a), taken from Diewald (1999, 279). The epistemic meaning is frequently related to expressing indirect evidence, especially in reporting someone else's statements, i.e. evidential modality – see (16b).

(16) a. *Die Bundeszentrale   der   Grünen   soll*
          the federal-headquarters the.GEN   Greens   should.3sg.PRES
          vorerst   in Bonn   bleiben.
          now   in Bonn   remain-INF
          'The headquarters of the Greens should remain in Bonn for now.'
       b. *Er   soll   krank sein.*
          he   should.3sg.PRES   ill   be-INF
          'He should be/is alledgedly ill.'

Thus, *sollen* is polyfunctional; its root meaning is related to deontic necessity and epistemic reading is used for reporting.

9.2.6 *Central Modal* Wollen

The last central modal to be discussed is *wollen.* Its primary meaning is undoubtedly volition, i.e. root modality, as shown in (17).

(17) *Er   will   zu Hause   sein*.
     he   want.3sg.PRES   at home   be-INF
     'He wants to be at home.'

However, Duden (2006, 567) and Helbig and Buscha (2001, 121) state that *wollen* can express clearly deontic meanings related to necessity, especially in passive sentences – as in the following example.

(18) *Dieses Gerät   will   gepflegt   werden.*
     this   machine   must.3sg.PRES   care-PP   PASS.AUX-INF
     'This machine must be taken care of.'

In terms of epistemic modality, *wollen* is, similarly to *sollen*, used as evidential modal (19).

(19) *Er   will   krank   sein.*
     he   must   ill   be-INF
     'He is alledgedly ill.'

Using *will*, the speaker evaluates the probability of the utterance, based on the hearsay. Helbig und Buscha (2001, 120) further state that *wollen* also refers to the future, as exemplified in (20).

(20) *Ich   will   hier   warten,*
     I   will.1sg.PRES   here   wait-INF
     bis   du   zurückkommst.
     until   you   back-come-2sg.PRES
     'I will wait here, until you return.'

They add that unlike *werden*, which is the default future auxiliary, *wollen* incorporates the modal meaning (i.e. intention), when referring to the future. As

obvious, *wollen* is polyfunctional in a way this term is used throughout this work.[71]

9.2.7 *Polyfunctionality and Grammar of Central Modals in German*

In this dissertation, I demonstrated how modal polyfunctionality impacts the morphological and syntactic properties of the modal elements in English. I demonstrated that in English polyfunctionality triggers the loss of agreement, as well as operator properties. Here I will show that a similar situation can be observed with German modals, i.e. German modals are also influenced by their polyfunctional status.

The search for a link between modal polyfunctionality and formal properties in German is not a novel one. Reis (2001, 287ff) discusses in her paper whether polyfunctionality depends on syntactic properties of modals. She concludes that polyfunctionality is related to the property of being 'a strongly coherent' verb; she defines a 'coherent' structure as a unit, where an infinitive builds one unit with the matrix clause. However, what I regard as problematic is the fact that the 'coherence' is also visible with other, non-polyfunctional, verbs such as *sehen* 'see', *hören* 'hear', and *lassen* 'let'

According to the empirical evidence I analysed, it appears that German polyfunctionality is linked to the absence of 1st and 3rd person singular agreement, similarly to English.[72] The absence of agreement is frequently attributed to the preterite-present origin of verbs; however, as I have already argued in the section focusing on English (see 5.2), the diachronic development plays only a partial role. For English, I provided examples of *need* and *dare*, neither of which reflects its origin in form. More precisely, *need* is a regular verb, which can be used without any agreement suffix, whereas *dare* is a preterite-present, but it can demonstrate agreement.

The same phenomenon can be observed in German. As Birkmann (1987, 86) explains, preterite-present **dugan* appears in present-day German as a

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[71] Not all scholars acknowledge the polyfunctionality of *wollen.* Öhlschläger (1989, 167) challenges the existence of a deontic meaning of *wollen,* and he also points to the fact that Angelika Kratzer does not regard *wollen* as a modal verb in any of her works. Clearly though, *wollen* does carry the root modality, as shown in the example above.

[72] Obviously, polyfunctionality cannot be linked to the syntax of operator, since in German, all verbs (lexical as well as modal) demonstrate similar syntactic properties. Another possible candidate is the bare infinitive structure, as opposed to the *zu*-infinitive; however, this is not a property related to polyfunctional elements alone, whereas the absence of agreement is.

regular agreeing verb *taugen* 'be useful'. On the other hand, *wollen* is not of a preterite-present origin, but despite this, it demonstrates the same agreement behaviour as other preterite-present modals – compare the paradigm of *müssen* and *wollen.*

(21) *ich mussØ*   *ich willØ*

       du musst   *du willst*

       er mussØ   *er willØ*

Therefore, I conclude that the absence of agreement is **not** automatically related to the preterite-present origin, but it reflects the presence or absence of modal polyfunctionality of a modal element, similarly to English.

All above mentioned central modals *dürfen, können, mögen, müssen, sollen, wollen* are, as shown, polyfunctional and at the same time demonstrate absence of agreement – see below:

(22) *ich/er darfØ, ich/er kannØ, ich/er magØ, ich/er mussØ, ich/er sollØ, ich/er willØ*

As the examples demonstate, these modals demonstrate absence of agreement in the 1st and 3rd person singular.

9.3   Marginal Modals in German

In the following section, I will explore the semantic status of German marginal modals *brauchen, werden, wissen,* and *lassen* (i.e. of those elements that are labelled as modals in some, but not all, grammar manuals). I will study their polyfunctionality status and agreement patterns to demonstrate the link between their semantics and form.

9.3.1   *Marginal Modal* Brauchen

In Table 31, I demonstrated that *brauchen* 'need' is regarded as a central modal element by Engel (1996) and Weinrich (2005). Other grammar manuals usually treat *brauchen* together with modal verbs, although they are reluctant to call it a modal verb, as for example Helbig and Buscha (2001), who label *brauchen* by a vague term 'modification verb'. In this section, I will argue that it is a marginal modal, heading towards the properties of a central element in the area of semantics, morphology, and syntax.

9.3.1.1 Semantics

In terms of its modal meaning, *brauchen* is primarily used with the deontic meaning. Weinrich (2005, 300) claims that in negative contexts, i.e. *brauchen nicht*, it expresses the lack of necessity – see below.

(23) *Du*   *brauchst*   *das*   *nicht* *zu*   *sagen.*
you   need-2sg.PRES   it   not   to   say-INF
'You don't have to say that.'

Interestingly, *brauchen* does not seem to obligatorily combine with *nicht* to express deontic modality. Weinrich (2005, 301) adds that it can combine with any polarity elements – for example *nur* 'only':

(24) *Sie*   *brauchen*   *nur*   *auf den*   *Knopf*   *zu drücken.*
they   need-INF   only on the.ACC button   to press-INF
'They only have to press the button'

In terms of epistemic meaning, Engel (1996, 472) points out that *brauchen (nicht)* can also be used epistemically, see (25).[73]

(25) *Sie*   *braucht*   *es*   *nicht*
she   need-3sg.PRES   it   not
gewußt   *zu*   *haben.*
know-PP   to   have-INF
'She may not have known that.'

As has been demonstrated, *brauchen* is polyfunctional, and thus must be regarded a modal in German.

9.3.1.2 Morphosyntax

Having shown that *brauchen* is polyfunctional, I want to outline the formal properties of *brauchen*, especially its agreement paradigm. Clearly, *brauchen* is a

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[73] The epistemic usage of *brauchen* has been discussed in several studies on German modals. Although Öhlschläger (1989, 8) points out that *brauchen* is only deontic, other scholars, Diewald (1999, 50) and Ulvestad (1996, 216) claim that *brauchen* is used as an epistemic modal, as well. Moreover, examples such as (25) clearly defend the existence of epistemic reading. Also, the form *brauchen* + perfective infinitive in (25) is the structure typically used for epistemic modality – see for *needn't have done* in English.

weak (i.e. regular) verb, so it demonstrates a standard (non-modal) agreement paradigm – see below.

(26) *ich brauche*   *ich mussØ*
      du brauchst   *du musst*
      er braucht   *er mussØ*

However, as Mortelmans, Boye and Van der Auwera (2009, 30) point out, the non-agreeing present tense form *brauch* can be used in 1st and 3rd person singular. Thus, we then have a paradigm which copies that of central modals – as in (27).

(27) *ich brauchØ*   *ich mussØ*
      du brauchst   *du musst*
      er brauchØ   *er mussØ*

These forms are, however, not yet accepted in standard German, according to the authors. The loss of agreement in the 1st person is not very surprising – the loss of final schwa with *ich* can often be observed with other verbs as well, as the *Duden* (2006, 451) mentions in (28):

(28) *Ich*   *laufØ*   *mal*   *zum*   *Bäcker*.
      I   run.1sg.PRES   once   to-the.DAT   baker
      'I run to the baker.'

What is, however, more interesting is the loss of agreement in the 3rd person singular. As Diewald (1997, 116) stresses, *brauchen* has a zero suffix in *er brauch*, while other verbs whose stem ends in fricative do not allow such omission – e.g. **er koch, *er lach, *er rauch*. Similarly Girnth (2000, 120) points out that the absence of agreement in the 3rd person singular, which is typical for spoken German and north German dialects, cannot be observed with any other verb with the same final consonant in the stem.[74] The opposing arguments can be

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[74] What seems slightly puzzling is the fact that the lexical (non-modal) use of *brauchen* demonstrates the absence of agreement as well. As Girnth (2000,123) explains it was a modal *brauchen,* which lost the agreement structure first. Then, however, its lexically used counterpart began to demonstate the loss as well. Although for Girnth, this is a logical step resulting from progressing grammaticalization of the element, I do not find this systematic, as my hypothesis presumes that lexical *brauchen* should not grammaticalize, in the same way as for example

found in the paper by Maitz and Tronka (2009, 189ff), who claim that the reasons for the loss of –t are not triggered only by morphology or semantics, but the reasons are also phonological. They provide an analysis of verbs that demonstrate the loss of –t in the third person singular: *braucht* (7) *vs. brauch* (75), *raucht* (15) *vs. rauch* (12), *or taucht* (18) *vs. tauch* (18). Thus, in some regional varieties, loss of –t can be acceptable with other verbs as well; however, as can be seen, the absence of agreement with *brauchen* highly outnumbers the regular agreement structure.[75]

To conclude, *brauchen* is clearly polyfunctional, and as I have shown, it loses the agreement exactly as predicted by the hypothesis I present in this dissertation.[76] Although there are some arguments that the reason for the loss of –t may not be purely semantic, the evidence supports the relation between the polyfunctionality and the absence of agreement.

9.3.2 *Central Modal* Werden

Helbig and Buscha (2001, 113ff) and many other scholars do not count *werden* in the group of modal verbs. However, this section will demonstrate that it is in fact a prototypical central modal, having exactly same properties as *müssen, können,* and the like.

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gonna does not appear in locative structure: * *Bill's gonna college after all,* as pointed out by Hopper and Traugott (2003, 1).

[75] Maitz and Tronka furthermore illustrate the loss of –t in words like *nicht, jetzt, Gedacht*; however, these are not verbs, and such results are irrelevant for the analysis at hand. Although there might be other factors that can accelerate the loss of agreement in *brauchen*, the degree of its progression cannot be observed with any other verb.

[76] Besides its non-agreeing paradigm, *brauchen* nears the central modals in other respects as well. As for subcategorization, it can be combined with a bare infinitive. Weinrich (2005, 301) states that *brauchen* can subcategorize for a bare infinitive in spoken/colloquial language – see (i):

(i)	*Du*	*brauchst*	*mir*	*das*	*nicht*
	you	need-2sg.PRES	me-DAT	it.ACC	not
	unbedingt	*(zu)*	*glauben.*		
	neccesarily	(to)	trust-INF		
	'You don't have to trust me in this.'				

Besides that, as Duden (2006, 455) and Mortelmans, Boye and Van der Auwera (2009, 30) point out, past subjunctive (Konjunktiv II) form of *brauchen* can be formed regularly as *brauchte,* as well as the umlauted *bräuchte,* which is analogous with modal verb morphology of *müsste* or *könnte.* Although these properties are not central to my hypothesis, this does show that *brauchen* is a new emerging modal.

9.3.2.1 Semantics

There is a general tendency to overlook its modal meaning, although *werden* is undoubtedly modal. Without any doubt, the primary meaning of *werden* is referring to the future in the same way as English *will* – so in this case we talk about epistemic modality – as in the example below, taken from Helbig and Buscha (2001, 113ff).

(29) *Wir   werden   am Wochenende   verreisen*.
     we   will-3pl.PRES   at-the.DAT weekend   leave-INF
     'We will/are going to leave for a weekend.'

Besides futurity, *werden* also expresses another clearly epistemic use – logical necessity – see below:

(30) *Er   wird   jetzt   zu Hause   sein*.
     he   will.3sg.PRES   now   at home   be-INF
     'He will be at home now.'

Engel (1996, 469), who regards *werden* as a legitimate member of the modal group, points out that it expresses a yet different type of meaning – namely deontic order – see below:

(31) *Du   wirst   nicht   zuhause   bleiben.*
     you   will-2sg.PRES   not   at home   leave-INF
     'You will not stay at home.'

Therefore, we can conclude that not only does *werden* have a modal meaning, but it is even polyfunctional, and it should be regarded as a standard central modal by scholars.

9.3.2.2 Morphosyntax

As Mortelmans, Boye and Van der Auwera (2009, 30) explain, *werden* is not a preterite-present verb. However, the analysis of its agreement paradigm reveals some interesting points. Below I compare the paradigm of *werden*, and a regular verb *werten* 'to rank', since they both contain a similar combination of sounds – namely "r" and an alveolar plosive.

(32) *ich werde*   *ich werte*
      du wirst   *du wertedst*
      *er wird**Ø***   *er wert**et***

Despite the fact that this remains completely unnoticed by German grammar manuals, it seems that unlike *werten*, the verb *werden* demonstrates **no** agreement in the third person singular (!). Even if we analyse the agreement of irregular verbs, they all demonstrate the *–t* agreeing morpheme: *sein > ist, haben > hat, essen > isst, geben > gibt, laden > lädt,* etc., and thus the final *–d* in *wird* is clearly not an agreement suffix, but a root consonant.[77] Therefore, we can conclude that *werden* demonstrates the lack of agreement in the 3ʳᵈ person singular. *Werden* does not demonstrate the gap in the first person; however, the agreement with the subject *ich* does not play such an important role, as discussed above. Besides the morphology, *werden* also resembles the modal verbs in other respect – subcategorization. As shown in (30) and (31), it combines with a bare infinitive.

To conclude, I have shown that *werden* is polyfunctional. At the same time, I have shown that its agreement paradigm (and its subcategorization) is identical with that of central modal verbs as well. Therefore, there is no reason why *werden* should be excluded from the membership in the group of central German modals.

9.3.3 *Marginal Modal* Wissen

None of the grammar manuals I consulted lists *wissen* as a modal verb. However, *wissen* is frequently discussed together with modals, although the authors are usually very vague about what they have in common. I will demonstrate that *wissen* is a prototypical marginal modal.

9.3.3.1 *Semantics*
In terms of its meaning, Mortelmans, Boye and Van der Auwera (2009, 62) state that when used with *zu* + VP, the verb *wissen* expresses root meaning, more precisely, of ability. Helbig and Buscha (2001, 44) provide an example of such use:

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[77] The only verb whose agreement structure seems puzzling to me, is *raten* 'to advise'> *rät,* not *rätet,* as would be expected. The agreement system in German would benefit from a thorough phonological analysis; however, the pair *werden* vs. *werten* clearly shows that the agreement paradigm of *werden* is not a standard one.

(33) *Der Autofahrer weiß*   *sich*   *zu helfen.*
the car-driver can.3sg.PRES   himself   to help-INF
'The driver is able/can help himself.'

Concerning its epistemic meaning, it is not easy to decide whether *wissen* demonstrates polyfunctional behaviour. Mortelmans, Boye and Van der Auwera (2009, 62) state that *wissen* cannot express such type of meanings, and indeed, it is not interchangeable with any other epistemic modal.

(34) *Er*   *will/*weiß*   *wahrscheinlich*
he   will.3sg.PRES/know.3sg.PRES   probably
zu Hause   *sein*.
at home   be-INF
'He will/*know probably be at home.'

Generally, *wissen* is not always combined with a VP – and if it is, it can only be deontic, as shown above.[78] However, *wissen* can be combined with a clause, resulting in 'I know that p' structures – see below.

(35) *Ich*   *weiß,*   *dass* *ich*   *nichts*   *weiß.*
I   know.1sg.PRES   that I   nothing   know.1sg.PRES
'I know that I don't know anything.'

Although according to Williams (2011, 47), the structure 'I know that p' is regarded as epistemic modality, considering the non-verbal subcategorization of *wissen*, I am reluctant to label *wissen* as polyfunctional, and therefore, I am also not convinced that it should be regarded as a modal.

9.3.3.2 *Morphosyntax*
The verb *wissen* is a preterite-present by its origin. Up to the present-day German, it demonstrates paradigmatic resemblance with other modals:

(36) *ich weißØ*   *wir wissen*
     du weißt   *ihr wisst*
     er weißØ   *sie wissen*

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[78] However, the subcategorization for a VP is not a criterion for polyfunctionality.

As seen in (36), *wissen* demonstrates the absence of singular agreement. On the other hand, it does not demonstrate polyfunctionality in a way it would be expected. The verb *wissen* could be similar to English *ought*. Similarly to *ought*, it is of a preterite-present origin, and thus it is inherently non-agreeing. At the same time, however, the polyfunctionality of these two elements is weak (in case of *wissen* there is a question whether it is polyfunctional at all). Such clash of properties (inherent absence of agreement vs. [-POLYF]) may result in marked morphosyntactic behaviour. Moreover, similarly to *ought*, German *wissen* subcategorized for a *zu-* infinitive. In this way, we can regard *wissen* a marginal modal, unlike for example *werden,* which is a central one.

9.3.4 *Monofunctional* Lassen

According to Helbig and Buscha (2001, 166), the verb *lassen* 'let' can have a modal meaning, which can be replaced by *können* 'can' – as in below:

(37) *Das Buch   lässt   sich   gut   verkaufen.*
      the book   let-3sg.PRES   itself well   sell-INF
      'The book can be easily sold.'

To my knowledge, *lassen* does not express epistemic modality, i.e. it is not polyfunctional. From the perspective of its morphology, *lassen* demonstrates a regular strong verb paradigm, both in terms of its ablaut and agreement pattern:

(38) *ich lasse   wir lassen*
      du lässt   ihn lasst
      er lässt   sie lassen

To conclude, *lassen* is a verb with a modal meaning, however, it is not polyfunctional. Therefore, it does not demonstrate any gaps in the agreement pattern, exactly as predicted by the hypothesis.

9.3.5 *Monofunctional Infinitive* Zu

In section 7.1 on English, I argued that non-finite particle *to*, which is used in structures *have (got) to* or *be to,* conveys modal meanings. The same phenomenon can be observed in German, also in combination with the verbs *haben* and *sein*, i.e. 'have' and 'be' respectively. The structures *haben zu* and *sein zu* express deontic modality of necessity or possibility – see below:

(39) a. *Die Gebühren*   *sind*   *sofort*   *zu zahlen.*

the fees   be-3pl.PRES   immediately   to pay-INF

'The fees must be paid immediately.'

    b. *Ich*   *habe*   *mit*   *dir*   *zu reden.*

I   have-1sg.PRES   with   you-DAT   to talk-INF

'I have to talk to you.'

However, as *Duden* (2006, 568) points out, these structures are never epistemic, i.e. not polyfunctional. Therefore, they are not likely to demonstrate any further degree of grammaticalization, unlike their English counterparts, which change from *have (got) to* into *gotta.*

9.3.6   *Summary*

In this section, I aimed to discuss the impact of polyfunctionality on morphological properties of German modals. In the first part, I discussed the properties of German modals in general, demonstrating that German modal elements, unlike their English counterparts, are of verbal category.

In the second part I argued that polyfunctionality is related, similarly to English, to the absence of agreement. I showed that central modals *dürfen, können, mögen, müssen, sollen, wollen* are all polyfunctional, and at the same time they demonstrate the absence of agreement. I stressed that this loss of agreement is not directly related to the diachronic development of modals, since in present-day German, there are elements that do not demonstrate the 3rd person singular agreement suffix, but descend from regular verbs diachronically (*wollen, werden*), and on the other hand, there are verbs of preterite-present origin, which do demonstrate the agreement paradigm (*taugen*).

In the next part of this chapter, I focused on elements that grammar manuals list on the margin of the group of modals – namely *brauchen, werden, wissen*, and *lassen*. As I have shown, *brauchen* and *werden* are both polyfunctional, and at the same time they demonstrate the modal agreement paradigm, and therefore, they are legitimate members of the modal group. More precisely, *brauchen* as a central modal is a recent phenomenon related predominantly to the spoken and dialectal use. On the other hand, *werden* is a central modal par excellence. It is polyfunctional and the loss of agreement is

already well-established despite being a regular verb diachronically, though, surprisingly, hardly any linguists notice this fact. The treatment of *wissen* remains open, since its polyfunctionality is questionable. As I mentioned, it demonstrates the same behavior as English *ought,* most probably due to the same reasons. With *lassen,* I have shown that this verb has a modal meaning, though it is not polyfunctional. As a result, it does not demonstrate any gaps in the agreement structure, either. For the summary of German modal elements, see Table 32.

Table 32: Modal Elements in German and Semantic and Morphological Properties

Structure	Polyfunctional	Non-agreeing	Status
dürfen	+	+	central modal
können	+	+	central modal
mögen	+	+	central modal
müssen	+	+	central modal
sollen	+	+	central modal
wollen	+	+	central modal
brauchen	+	+ (in spoken German)	a new central modal
werden	+	+	central modal
wissen	-	+	marginal modal
lassen	-	-	modal content word
sein/haben + zu	-	N/A	modal content structure

To outline the situation with German modals structurally, I will refer to the same tree as used for English in section 6.1.3, repeated here as Figure 34:

Figure 34: Tree Structure Related to Grammaticalization of Modals

```
TP  ←———————————————————  +OP, [+POLYF]
  ╱╲
 ╱  AgrP  ←———————————  +AUX
   ╱╲
  ╱  NegP
    ╱╲
   ╱  vP  ←———————  +ROOT
     ╱╲
    ╱  VP
```
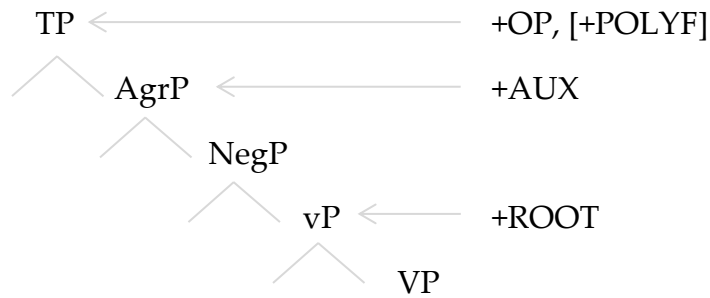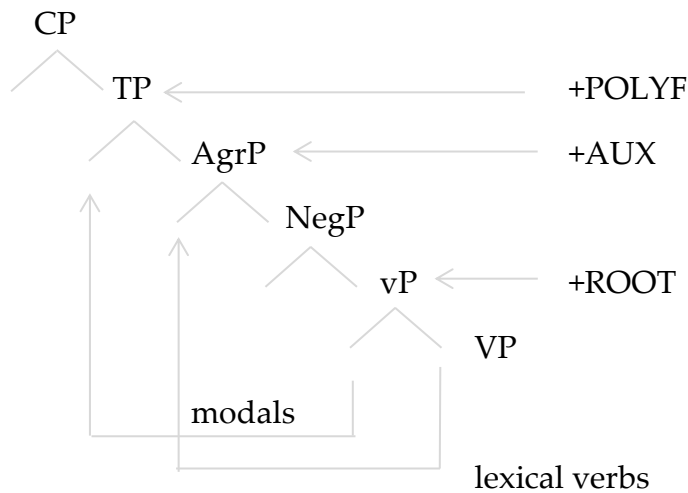
Since the modals in German are of verbal category, we must conclude that they are merged elsewhere than their English counterparts. More precisely, they are merged in vP, similarly to lexical verbs. Since the surface distribution of modal and lexical verbs in a clause will be identical, as discussed in detail in 9.1., it is obvious that they do raise to one of the upper nodes – more precisely to C node in the root clauses, which is above the T node, as discussed in detail for example in Rohrbacher (1999, 29ff). Despite the fact that German modals and lexical verbs are both capable of identical movements in the tree, the question to be answered by theoretical linguistics is why the modals are non-agreeing in the 3rd person, whereas lexical verbs do demonstrate the agreement paradigm. The empirical evidence clearly shows that the absence of agreement is related to the polyfunctionality status of a modal element; however this does not follow directly from the tree I use for English. In other words, this tree model does not in itself fully explain the reality of German grammar.

A possible explanation for this fact may be that lexical verbs/monofunctional elements are merged in VP and vP respectively, and then they raise through AgrP to get the agreement morphology, and then in main clauses into C.[79] For this group, the T node remains invisible, which means that its feature set is [-POLYF]. On the other hand, polyfunctional elements are merged in vP, but in finite contexts, they are forced to move through T, which is associated with [+POLYF] feature. For German modals, AgrP features seem invisible, i.e. the verbs will end up as non-agreeing finite forms directly in C (or in final T in dependent clauses) – the possible tree representation is below.

---

[79] In dependent clauses all verbs are final, i.e. the hierarchy is the same as in English, but not the surface order.

Figure 35: German Tree Structure Related to Grammaticalization of Modals

```
CP
    TP  ←——————————————————  +POLYF
       AgrP  ←————————————  +AUX
          NegP
             vP  ←——————  +ROOT
                VP
       modals
                lexical verbs
```

The structure above suggests that the feature sets of T(P) and Agr(P) are complementary – either one or the other is activated. As for the theoretical representation of this process, the tree structure presented here certainly requires further attention and elaboration; however, since this work aims to be predominantly empirical, I will leave this topic open for future theoretical investigations.

10 Modals in Chinese

The last chapter of this dissertation aims to illustrate how modal elements behave in such a typologically and genetically distant language as Chinese. I will argue that the majority of principles discussed in the previous chapters are universal, and thus applicable to Chinese modals as well. At the beginning of the chapter, I will focus on the identification of the group of modals, showing that the research on modals in Chinese encounters the same obstacles as the studies of English and German modals. Then, I will discuss the formal properties of Chinese modals, and finally, I will analyse the semantics of Chinese modals, illustrating how polyfunctionality may affect their formal properties.

10.1 Identifying Chinese Modals

When discussing English and German modals, I pointed to the fact that there is no finite or consistent list of modals. In other words, scholars do not agree on which elements are modals, and which elements are not. The very same issue, though more disparate, can be observed in studies on Chinese modals.

First, let us consider the list of candidates. The following table compares the lists of modals, as discussed in three sources: Li and Thompson (1989, 182), Po-Ching and Rimmington (2004, 276ff), and Li (2004, 136). As is obvious, there is a group of elements that are regarded as modals by all sources, but there is also a long list of other elements labelled as modals by particular author(s) only. Moreover, the list of modal elements as presented here is not definitive – other authors suggest even further elements, however, to outline the situation, this selection will be sufficient.

Table 33: Chinese Modals, as Presented by Various Grammar Manuals

	Li, C. N. and Thompson	Po-Ching and Rimmington	Li, R.
yinggai 'should'	X	X	X
yingdang 'should'	X	X	X
gai 'should'	X	X	X
keyi 'be able', 'can'	X	X	X
neng 'be able', 'can'	X	X	X
nenggou 'be able'	X	X	X
dei 'must'	X	X	X
hui 'will', 'be able'	X	X	X
gan 'dare'	X	X	
ken 'be willing to'	X	X	
bixu 'must'	X	X	
keneng 'can'		X	X
yao 'must', 'want'		X	X
biyao 'must'	X		
bidei 'must'	X		
ying 'should'			X
ke 'may'			X
xuyao 'need'			X
yuyao 'want'		X	
xiang 'would like'		X	
yuanyi 'be willing'		X	
de 'can'			X
dang 'should'			X

The reason for such a great terminological discrepancy is similar to the inconsistent variety of analyses of modals in English and German – different authors apply different criteria (if any) for membership in the vaguely defined group. Li and Thompson (1989) base their division on syntactic criteria, however, as will be shown below, they are not consistently reliable. Po-Ching

and Rimmington (2004) propose a list based on semantic criteria. So does Li (2004), however, he includes only those elements that express possibility and necessity – refer back to section 2.1. Clearly, such a list is bound to be incomplete, since it excludes some other modal meanings (for example volition, epistemic futurity, etc.).

As many sources suggest, Li and Thompson (1989) among others, modal meanings in Chinese can also be expressed by various parts of speech – verbs, adverbs, and auxiliaries. This is not surprising, since a language may use various parts of speech to express modality (English auxiliary *must,* adjective *possible*, noun *possibility*, etc.) and many authors discuss the phenomenon of modals irrespective of the part of speech of modal expressions. To illustrate this practice using English examples, these authors group together words such as *possibly* and *must* and search for the same syntactic properties. Moreover, in Chinese, part of speech is frequently not apparent due to lack of morphology and many authors do not agree on the category of a given element. For example, the Chinese *keneng* 'can' is regarded as an adverb by Li and Thompson (1989), based on syntactic criteria, while Huang, Li and Li (2009) regard *keneng* as a modal auxiliary, more precisely a functional category, based on yet different syntactic criteria.

10.2 Formal Properties of Chinese Modals

In studies focusing on Chinese modals, there seems to be general agreement that Chinese modals (irrespective of how the authors set the defining criteria) demonstrate certain properties that distinguish them from verbs and adverbs, see for example Li and Thompson (1989, 172ff), Li (2004, 106ff), and Ren (2008, 35ff). Li (2004, 113ff) provides an extensive list of properties suggested by various scholars that are thought to be associated with Chinese modals. These include:

- subcategorization for an obligatory VP complement, (Li and Thompson, 1989; Chao, 1968; Ren, 2008)
- the inability of a modal to front (Li and Thompson, 1989)
- the ability of a modal to combine with another modal, (Chao, 1968)
- missing reduplication of modals (i.e. two identical auxiliaries cannot be next to each other), (Chao, 1968; Ren, 2008)

- the position of a modal between subject and lexical verb, (Li and Thompson, 1989)
- inability to immediately precede aspect particles *-zhe,-guo, -le*, (Li and Thompson, 1989; Chao, 1968; Ren 2008)
- the inability of modals to be nominalized, (Li and Thompson, 1989)
- compatibility of modals with the intensifier *hen* 'very', (Chao, 1968)
- non-existence of modals in imperatives. (Chao, 1968)

The list above is by far not a complete list of properties attributed to modals in Chinese, but it provides the most frequently cited and discussed phenomena. In any case, even when looking at the above extensive number of possible characteristics, which could identify the modals in Chinese, a detailed analysis reveals severe gaps. First, some of the properties may be irrelevant, i.e. they may have other reasons (especially semantic). Second, some properties listed above can also be observed with non-modal elements, and simultaneously, certain central modal elements do not seem to demonstrate them. To provide an example, Li and Thompson (1989, 172ff) state that modals cannot occur before subject, providing the following example.

(40) ***Neng** ta   chang ge.*
      can   s/he sing song
      'She can sing.'

However, many scholars provide counterexamples where modals are clearly fronted. As Huang, Li and Li (2009, 108) exemplify, some modals can appear sentence-initially:

(41) ***Keyi**   ni   qu,   ye   keyi   ta   qu.*
      may   you   go   or   may   s/he   go
      'You may go or he may go.'

In the same vein, Li and Thompson go on to say that modals cannot be modified by intensifiers *hen* 'very' or *geng* 'even more', as in (42).

(42) **Ta   hen   neng   chang ge.*
      s/he   very   can   sing song
      'She can sing even more.'

Contrary to this, Ren (2008, 36), referring to Li (2004, 121), stresses that auxiliaries can be modified by these intensifiers, unlike some lexical verbs – see below, taken from Ross and Ma (2006, 74):

(43)   *Zhongguoren **hen** neng chi ku.*
       'Chinese people can endure a lot of hardship.'[80]

Such obvious contradictions make any systematic analysis difficult, and the lack of data available to us does not allow to develop this discussion futher. In any case, some scholars, for example Hu and Fan (1995), even conclude that Chinese modals do not constitute a separate class. Such views are probably too pessimistic; however, it is obvious that identification of the common syntactic properties of a large group of modal elements in Chinese has not yet produced any results. This may well stem from the fact that the authors are not even close to an agreement on which elements in Chinese should be analysed, what are the expected characteristics of the Chinese 'modal' and what are the relevant diagnostic tests. I will address some of the above in the next section, following the criteria for 'modals' as established in this study.

10.3 Semantics of Chinese Modals

The main property of 'modals' as claimed in the previous chapters is their polyfunctionality. Polyfunctionality is a feature that is also attributed to modal elements in Chinese; see e.g. Van der Auwera, Ammann, and Kindt (2005, 256), and Ren (2011, 302). In the following section, I will analyse the polyfunctionality status of central modals, i.e. of those elements that were mentioned by all authors in Table 33, namely *yinggai* 'should', *yingdang* 'should', *gai* 'should', *keyi* 'be able', 'can', *neng* 'be able', 'can', *nenggou* 'be able', *dei* 'must', *hui* 'will', 'be able'. Furthermore, I will also analyse a few more modal elements – particularly those whose semantic analysis I was able to look up in the grammar manuals, i.e. *keneng* 'can', 'be able', *yao* 'must', *xiang* 'would like', *xuyao* 'need', *yuanyi* 'be willing', *bixu* 'must', *gan* 'dare', and *ken* 'be willing to'.[81]

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[80] Detailed glossing is not available.
[81] For the analysis of possible meanings, I consulted Cui (2013, 1156ff), Po-Ching and Rimmington (2004, 276ff), Ren (2008, 56), Tsai (2015, 275ff) – the examples, unless indicated otherwise, are from those sources as well.

10.3.1 *Polyfunctional Chinese Modals*

According to Po-Ching and Rimmington (2004, 278ff) and Ren (2008, 56), and as the translations suggest, *neng* does express both deontic (44a) and epistemic meanings (44b).

(44) a. **Deontic**

*Wo   **neng** zou   le   ma?*
I   can   go   PERF   Q
'May I leave now?'

b. **Epistemic**

*Zhe   maimai   **neng** zuo.*
this   business can   do
'This business is worth doing/ We can possibly make profits with this business'

Moreover, Po-Ching and Rimmington, and Ren argue that *nenggou,* expresses permission (45a), as well as epistemic meanings (45b):

(45) a. **Root**

*Ni   **neng(gou)**   bu nenggou   ti wo   fanyi*
you   can   not can   for me   translate
yixia   zhei   ju hua.
one occasion   this   sentence words
'Can you translate this sentence for me?'

b. **Epistemic**

*Ta   ji   shi   **nenggou**   huilai?*
s/he   what time   can   come-back
'When can he be back?'

As for *hui*, its primary usage is epistemic modality, in (46a). Tsai (2015, 275ff) further shows that *hui* can have a root reading as well – dynamic ability (46b).

(46) a. **Epistemic**

Waijiaoguan   dagai   hui   lai   zheli.
diplomat   probably   will   come   here
'Diplomats will probably come here.'

b. **Root**

Yiqian waijiaoguan dou hui shuo fayu.
before diplomat all can speak French
'In old times, all diplomats could speak French.'

Yao can also express epistemic meanings of probability 'be about to' (47a). At the same time, it can express root meaning of 'wish' or 'want'(47b).[82]

(47) a. **Epistemic**

Yao xia yu le.
about-to fall rain PERF
'It is about to rain.'

b. **Root**

Jinwan wo yao qu kan dianying.
tonight I would like go see film
'I want to go and see a film tonight.'

The modal *dei* is also apparently polyfunctional. It can express primarily the deontic meaning of need (48a), but according to Ren (2008, 61), it can also convey epistemic meanings (48b):

(48) a. **Deontic**

Ni dei qu kan bing.
you must go see illness
'You must go to see the doctor'

b. **Epistemic**

Ruguo ta zai qi dian zhong chufa,
if s/he at seven o'clock set off
xianzai dei dao le.
now must arrive PERF
'If he sets off at seven, he must be there by now.'

---

[82] Notice that *yao* is not regarded as a modal element by Li and Thompson, as shown in the table in 10.1.

Yinggai express obligation (49a), as Ching and Rimmington (2004, 282) point out. On the other hand, Cui (2013, 1156) claims that *yinggai* is epistemic (49b).

(49) a. **Deontic**

Ni   yinggai   zhichi   ta.
you   ought-to   support   s/he
'You ought to support her.'

b. **Epistemic**

Ni   yinggai   neng   zuo nejian shi.
you   should   can   do something
'You should be able to do that matter.'

Xiang is a modal related to wishing, thus root modality. Moreover, as Ren (2008, 100ff) claims, *xiang* is a default auxiliary for the future – hence it is an epistemic modal as well.

(50) a. **Root/Epistemic**

Jinwan   wo   xiang   qu   kan   dianying.
tonight I   want   go   see   film
'I would like to/am going to go and see a film tonight.'

The last polyfunctional element is *gai.* It apparently expresses deontic modality (51a). However, as Ren (2008, 60) exemplifies, it can also be used epistemically – as in (51b).

(51) a. **Deontic**

Wo   gai   zou   le.
I   should   leave   PERF
'I must be off.'

b. **Epistemic**

Wanger   gai   biye   le.
Wanger   ought-to   graduate   PERF
'Wanger should be graduating right now.'

We thus see that similarly to English and German, Chinese also possesses morphemes that carry modal polyfunctionality, which is a main characteristics

of what I defined as 'modal' in English and German, as well as in any other language – see section 3.1.3.

10.3.2 *Monofunctional Elements*

Besides the polyfunctional elements, Chinese also contains modal content words that express only one type of modality, i.e. they are monofunctional. Interestingly, the only element that has epistemic reading only is *keneng* – see for (52).

(52) **Epistemic**

Ta	*keneng qu*	*Meiguo.*
s/he	may go	America

'She may go to America.'

Besides *keneng*, there are elements that express deontic modality only. These include *keyi*, which expresses deontic modality – more precisely permission (53). Cui (2013, 1156) points out the fact that *keyi* is a root modal, not an epistemic one.

(53) **Deontic**

Ni	*keyi*	*zou*	*le.*
you	may	go	PERF

'You may leave now.'

The meaning of *gan* is similar to English 'dare', which has root modality, as in (54). As far as the literature claims, *gan* does not have any epistemic meaning either – i.e. it is monofunctional.

(54) **Root**

Ni	*gan*	*da*	*ren*	*ma?*
you	dare	hit	person	Q

How dare you hit people?

Xuyao expresses obligation, i.e. is deontic, as in (55). Similarly to the previous modals, the literature does not mention any epistemic uses of this element, and therefore, I will conclude that it is monofunctional as well.

(55) **Deontic**

Zhei   ge   wenti   xuyao zixi   kaolu.
This   CL   problem   must carefully   consider
'This problem has to be carefully considered.'

Also the verb *bixu* is primarily used as a deontic modal of obligation (56).

(56) **Deontic**

Ni   bixu   fucong mingling
you   must   obey   command
'You must obey orders.'

The meanings of *yuanyi* (57a) and *ken* (57b) are 'willingness' or 'wish'; in other words, root modality. They apparently cannot have any epistemic readings.

(57) a. **Root**

Wo   yuanyi   bangzhu   ni.
I   willing-to   help   you
'I am willing to help you.'

b. **Root**

Ta   ken   canjia   ma?
s/he   willing   take-part   Q
'Is she willing to take part?'

The element *yingdang* is related to obligation (58), and Ren (2008, 66) stresses that it expresses only deontic modality.

(58) **Root**

Ni   yingdang   haohao   de   duidai ta.
You   ought-to   well-well   DE   treat s/he
'You ought to treat him well.'

To conclude this section on semantics of Chinese modals, the semantic properties [+POLYF] or [-POLYF] are summarized in the following table.

Table 34: Semantic Status of Chinese Modals

Structure	Polyfunctional
neng	+
nenggou	+
huì	+
děi	+
yào	+
yīnggāi	+
xiăng	+
gai	+
kěnéng	- (only epistemic)
kěyĭ	- (only root)
xūyào	- (only root)
yīngdāng	- (only root)
bìxū	- (only root)
yuànyì	- (only root)
kěn	- (only root)
găn	- (only root)

Comparing Tables 30 and 32 for English and German, respectively, it is obvious that the semantic range of modals in Chinese is very similar in all three languages. All three languages possess polyfunctional morphemes, and at the same time, there are also words that express modal meanings, but are not polyfunctional, e.g. Chinese *keneng* is epistemic, and a number of Chinese modal elements are deontic only, similarly to English *be able* or German *haben* +*zu* 'have to'.

10.4 Polyfuntionality and Grammar of Chinese Modals

In chapters on English and German, I have demonstrated that polyfunctionality has an impact on morphology and syntax of English and German modals. As I will demonstrate using some examples, polyfunctional status could also be relevant for the analysis of Chinese modals. As mentioned for example in (40), repeated here as (59) for reader's convenience, several authors claim that in Chinese modals cannot appear sentence-initially.

(59) *Neng   ta   chang   ge.
      can   s/he   sing   song
     'She can sing.'

However, Huang, Li and Li (2009, 108) contradict this, pointing to *keyi*, which apparently inverts with the subject and appears initially, giving an example in (41), repeated here as (60).

(60) *Keyi   ni   qu,   ye   keyi   ta   qu.*
      may   you   go   or   may   s/he   go
     'You may go or he may go.'

This discrepancy could possibly be explained by lack of polyfunctional status for *keyi*, which is monofunctional. Similarly, Li and Thompson (1989, 180) point out that *keneng* can, similarly to *keyi*, be used sentence-initially.

(61) *Keneng   ta   mingtian   lai.*
      likely   s/he   tomorrow   come
     'It is likely that she will come tomorrow.'

Li and Thompson (1989) explain the non-standard behaviour of *keneng* by assigning it a different part of speech – i.e. they do not consider *keneng* a modal, but an adjectival verb. However, an alternative explanation of the non-prototypical behaviour of *keneng* could also be its monofunctionality.

I performed the fronting test for other monofunctional and polyfunctional elements discussed in the previous section. On the one hand, there were some polyfunctional elements that did allow the fronting (such as *dei*, *yinggai*), and on the other hand, there were monofunctional structures that disallowed it (such as *ken* and *gan*). Obviously, there may be other features that

can influence the syntactic distribution of modals as well (for example the phonetic structure of a word). [83]

Besides this I also performed grammaticality tests focusing on the compatibility of modal elements with the aspectual endings *-gue, -zhe,* and *-le.* Whereas *-guo* and *-zhe* do not demonstrate different patterns with polyfunctional vs. monofunctional elements, suffix *-le* demonstrates slightly different compatibilities with polyfunctional and monofunctional elements – see the following examples.

Table 35: Compatibility of Monofunctional and Polyfunctional Elements with *-Le*

Monofunctional Elements	Polyfunctional Elements
*kenengle	**nengle*
keyile	**nenggoule*
*xuyaole	**deile*
*yingdangle	**yinggaile*
*bixule	**xiangle*
yuanyile	**gaile*
kenle	**huile*
ganle	**yaole*[84]

As can be seen, whereas monofunctional features do in some cases appear with *-le,* polyfunctional features do not tolerate this suffix (with the exception of *hui* and *yao* – see footnote 84). This may mean that polyfunctional elements are grammaticalized in a category T, as in English, i.e. they demonstrate a higher degree of grammaticalization than monofunctional elements.

What I have presented here are only fragments of research, and clearly, the impact of polyfunctionality on Chinese modals needs to be studied in greater detail, and within an explicit theoretical frame of reference. However, it

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[83] I am grateful to my colleague Shufang Lu, who kindly performed the grammaticality tests for me.

[84] The forms *huile* as well as *yaole* are acceptable. However, in such structures, their meaning is non-modal, but they form control structures, as English *I want somebody to do something*.

should be definitely focused on, since as I argued in earlier chapters, polyfunctionality is indeed the defining property of modals cross-linguistically.
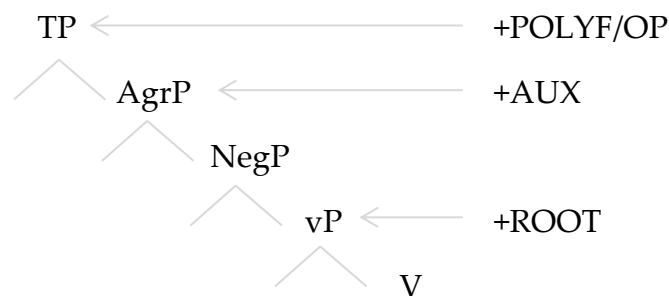
I also propose that interesting and more systematic results may be achieved by analysing the semantic properties (i.e. [+/- POLYF]) of Chinese modals first. Such preliminary semantic analysis will be able to narrow down a long vague list of modal elements in Chinese presented in Table 33 to a well-defined group consisting of up to ten or so members with clearly defined properties which make this group distinct from some other elements in the lexicon. Whether the attested distinction would be enough to claim a categorial specificity of Chinese modals (as has been claimed for English) cannot be forseen without a more detailed analysis. Even though I have not proven that polyfunctionality will actually predict all properties of Chinese modal elements, the research conducted in this way will at least bring new facts to light, and perhaps explain at least some of them.

Conclusion and Further Research

The dissertation aimed to prove that certain languages demonstrate a relation between modal semantics and morphosyntactic behaviour of modal elements. The study focused on English; but it also provided an extensive chapter on German modals and a short section on Chinese. The work departed from the polyfunctionality of modals, which has proven to be the only universal definition of a modal element. More precisely, this dissertation defines **modals as free morphemes that can express root and epistemic modality** at the same time, as discussed in 3.1.3. Unlike other works related to modal elements in English and German, it applied polyfunctionality as a defining feature for the analysis of the morphosyntactic properties of modals.

As for English, I have demonstrated that polyfunctionality impacts two formal properties related to English modals – namely **operator properties** and **the absence of agreement**. These properties follow from the internal structure of the English predicate, as discussed in detail in 6.1.3. - see the tree representing this structure in Figure 36.

Figure 36: Tree Structure Related to Grammaticalization of Modals

```
TP  ←─────────────────────────  +POLYF/OP
  ╱╲   AgrP  ←──────────────────  +AUX
      ╱╲   NegP
          ╱╲   vP  ←──────────  +ROOT
              ╱╲   V
```

The correlations based on empirical evidence are summarized in Table 36.

Table 36: English Modal Elements

Structure	Polyfunctional	-AGREE	operator syntax (T)
central modals: _can_, _must_, _should_, etc.	+	+	+
central modals with gaps: _may, might, shall_	+ (weak)	+	+ (receding)
dare	-	+	+/-
need	+	-	+/-
ought	+ (weak)	+	+
be _able_, be _obliged_, be _willing_	-	-	-
had _better_ => better	+	+	+
be _going_ => gonna	+	+	-
have got _to_ => gotta, have _to_, be _to_	+	+	marginal with neg
(do) _want_ => wanna	+	+	marginal with neg
be _bound_, be _about_, be _supposed_	+	-	-

I have shown that central modals are polyfunctional, and that they do demonstrate both operator properties and the absence of the agreement. On the other hand, central modals _may, might,_ and _shall_ demonstrate weak (receding) polyfunctionality, and as a result they demonstrate certain gaps in operator syntax. The same is true also for _dare, need,_ and _ought_ – more precisely, I analysed the idiosyncratic behaviour of each of these elements, and explained exactly how the presence or absence of polyfunctionality impacts their grammar. I demonstrated that monofunctional elements _be able, be obliged,_ and _be willing_ do not demonstrate any degree of grammaticalization, unlike _had better, have got to, be going_ and _want_ into _better, gotta, gonna,_ and _wanna,_ which I consider to be new modals. More precisely, I explained that the recently gained polyfunctionality of these elements is the trigger of their grammaticalization. Moreover, I analysed the process of grammaticalization of _better, gotta, gonna,_

and *wanna* step-by-step, demonstrating that the absence of agreement is a necessary step for an element to receive the operator properties. Finally, I claimed that polyfunctional *be bound, be about, be supposed* can potentially be grammaticalized.

As for the German part, I applied the same hypothesis to the analysis of formal behaviour of German modals. In particular, I demonstrated that polyfunctionality in German has impact on the absence of agreement – see the summary in Table 37.

Table 37: Modal Elements in German and Semantic and Morphological Properties

Structure	Polyfunctional	Non-agreeing	Status
dürfen	+	+	central modal
können	+	+	central modal
mögen	+	+	central modal
müssen	+	+	central modal
sollen	+	+	central modal
wollen	+	+	central modal
brauchen	+	+ (in spoken German)	a new central modal
werden	+	+	central modal
wissen	-	+	marginal modal
lassen	-	-	modal content word
sein/haben + zu	-	N/A	modal content structure

I demonstrated that central elements in German are polyfunctional, and at the same time, they do not exhibit agreement in the 3rd person singular. For both English and German, I have refuted the traditional view that the absence of agreement with modals is related to their preterite-present origin. I supported my hypothesis using the analysis of the regular verb *brauchen*, which is polyfunctional, and at the same time it has recently gained a non-agreeing version. Furthermore, I demonstrated that *werden* is a central modal, being both polyfunctional and non-agreeing. Finally, I treated *wissen* showing that it is a marginal modal, demonstrating a mix of lexical and modal behaviour. Thus,

using a single hypothesis, I was able to explain a long list of grammatical irregularities of both English and German modals.

It has been shown that besides English and German, Chinese also contains morphemes that are polyfunctional (see Table 38), and it is assumed that polyfunctionality may play a similar role in this language as well. I have shown among other things that monofunctional and polyfunctional elements demonstrate a different degree of compatibility with –*le* suffix. However, to reach more complex conclusions, futher research must be conducted.

Table 38: Semantic Status of Chinese Modals

Monofunctional Elements	Polyfunctional Elements
keneng	*neng*
keyi	*nenggou*
xuyao	*dei*
yingdang	*yinggai*
bixu	*xiang*
yuanyi	*gai*
ken	*yao*
gan	*hui*

It is assumed that polyfunctionality is related to formal properties of modal elements in other languages as well. As pointed out shortly in section 3.2, Hungarian seems to be sensitive to polyfunctionality. However, having shown how polyfunctionality impacts English and German, the analysis of other Germanic languages appears promising.

Modal polyfunctionality is not a universal phenomenon, i.e. not all languages have polyfunctional modal morphemes as discussed in 2.6. Neither do I assume that all polyfunctional languages would reflect the semantic properties of a particular morpheme in their grammar. Still, as I have shown for English and German, considering polyfunctionality in the analysis of modals may bring novel and interesting results. Applying this approach for other languages could thus contribute to a systematic classification of modals, and at the same time, it may answer yet unresolved issues.

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