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POLYSEMY IN ENGLISH MODAL VERBS

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Poděkování

Rád bych poděkoval vedoucímu práce Mgr. Petru Kosovi, Ph.D. za všechny konzultace, trpělivost a ochotu, které mi projevil při psaní této práce.

Anotace

Jedním z rysů modálních sloves je, že jsou polysémní. Cílem této bakalářské práce je kvantifikovat tuto polysémii za pomoci mluveného (BASE) a psaného (ukWaC) korpusu. Modální významy vybraných anglických modálních sloves jsou klasifikovány na základě dostupné odborné literatury, zejména pak *Cognitive English Grammar*. Práce také obsahuje prototypické příklady jednotlivých druhů modalit u vybraných modálních sloves.

Klíčová slova: modální slovesa, modalita, polysémie, korpusová analýza

Abstract

One of the features of modal verbs is their polysemous meaning. The goal of this bachelor thesis is to quantify polysemy by means of spoken (BASE) and written (ukWaC) corpus. Modal meanings of the selected English modal verbs are classified based on available sources, mainly on *Cognitive English Grammar*. The thesis also contains prototypical examples of all modal meanings of each selected modal verb.

Key words: modal verbs, modality, polysemy, corpus analysis

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Introduction

In linguistics, modality has been widely classified into various types and subtypes. However, there has not been any research which would be concerned with use of modality in real-life realisations. English modal verbs have the ability to express several different modal meanings. Consequently, it is obvious to describe these verbs as polysemous in a variety of senses. Modal meaning can be expressed not only with modal verbs but also with other modalised expressions. Nonetheless, in this thesis I am going to focus on the modal senses connected with several selected modal verbs – *may*, *might*, *can*, *should*, *ought*, *must*.

At first, it is important to say that there is not general agreement on the unified division of modality and, therefore, the number of subtypes varies. An overview of these sense varieties is made in the first part of the thesis and also the modality itself is described. Modality can be stated via modalised expressions, but these do not belong amongst the modal verbs and therefore this theses mentions them only briefly. Preceding pieces of information are described on the bases of several grammar books. Theoretical knowledge is derived especially from Radden, Dirven (2007) and Huddleston, Pullum (2002). Apart from these books, I decided to work also with Quirk et al. (1985) and Dušková (1988). The latter two grammar books are, as it can be noticed, the oldest and, in addition, their division is not as detailed as in the first two cases. Quirk et al. (1985) explained particular meanings of modal verbs but it is quite a brief description in comparison with the other above mentioned books. On the contrary, Radden, Dirven (2007) and Huddleston, Pullum (2002) use very detailed theory of modality and its various subtypes and this is one of the reasons why I chose it as the main source for the general overview of different senses in English modal verbs.

The second part of the thesis focuses on real-life realisations of various modal senses through selected verbs. For this purpose, the two corpora, ukWaC and the corpus of British Academic Spoken English (BASE) were chosen. I decided to select these particular corpora due to the fact that BASE represents use of spoken language and, on the other hand, ukWaC describes the written form of language. Consequently, meanings of English modals are analysed with respect to both of these levels – spoken and written. The second part of the thesis is concerned with particular samples from corpora,

their analysis and comparison with theoretical knowledge following from the theoretical description.

The main aim of this thesis is to discover the most frequent modal senses in which the selected modal verbs are used and, in addition to that, to determine what type of modality is of the most common use in total. This analysis is enabled via the samples from the two mentioned corpora. After determining the types of modality of particular modal verbs in the samples, the information obtained from grammar books is verified and compared with the results.

1 Modality

At first, it is necessary to define and explain the term “modality”, which is complemented by more detailed description of various subtypes of modality. As Radden and Dirven assume, “modality is concerned with the speaker’s assessment of, or attitude towards, the potentiality of a state of affairs” (2007: 233). Modality, therefore, expresses potentiality (epistemic modality), prohibition, obligation, permission (deontic modality), and the last type, dynamic modality, involves personal properties, abilities, and dispositions.

“The nature of modality may be best understood in contrast to similar non-modal notions” (Radden and Dirven 2007: 234) and, therefore, it is necessary to distinguish two crucial terms – mood and modality. The difference between them can be noticed in the fact that mood is perceived as a grammatical category.

”Mood is the grammaticalisation of modality within the verbal system” (Huddleston and Pullum 2002: 172). This description is connected with the distinction between the three following mood subtypes: indicative, imperative, and subjunctive.

[1]

- a. He is at home.
- b. He must be at home.
- c. Go home.
- d. You must go home.
- e. I insist that you be at home.

The unmodalised sentence as in [1a] states the fact that *he is at home*. There is no emphasis, the speaker feels completely assured about this information, but in [1b], the sentence is already modalised. The speaker comments on the same situation as in the first case. However, this particular knowledge is derived from some shreds of evidence. The speaker states this fact based on e.g. the switched on light, or his shoes on the doormat, or his coat left next to the door. Slightly different situation can be noticed in the example 1e which is formed by means of subjunctive. This is “a specific verb form which usually expresses something that one wishes for, or it can generally refer to a hypothetical situation rather than actual” (Oxford Dictionaries: ‘When to use the Subjunctive’). As it may be noticed from the previous sentence, subjunctive is used to express potentiality (*what would happen if...*). Generally speaking, the subjunctive

structure is frequently present, especially in formal written texts. Nevertheless, the frequency of usage differs in British and American English. In British English, the subjunctive form is vanishing but for the speakers of American English, this verb form is still quite common and frequently used. In most cases, subjunctive can be replaced by the modal verb (*should*). The sentence [1c] is unmodalised and the structure as it is written represents different grammatical category – imperative. Imperative meaning of the sentence in 1c is more direct and carries more strength in the modality sense than the sentence [1d]. Naturally, both sentences express the same meaning. The difference is that in [1d], the speaker holds lesser power upon the listener than the speaker in [1c]. This process is called pragmatic weakening (cf. Huddleston, Pullum 2002: 177). As it can be encountered that the examples in [1], there are shown some possibilities of expressing similar meaning in several different ways. In addition, every sentence comments on the different speaker’s strength of the modal sense which is aimed at the listener.

1.1 Expressing modality without modal verbs

Modality can be expressed by several distinctive means, such as modal verbs, therefore, we should also mention some other ways to express modality in English. To formulate the measure of uncertainty, one can use various strategies: e.g. expressions, such as *I think*, *In my opinion*, and cognition verbs alongside with modal adverbs e.g. *probably*, *possibly*, and *necessarily*. Huddleston and Pullum (2002) divided these modalised expressions into several groups which are described in the table below.

Type of modal expression	Grammar Properties	Examples
Lexical modals	Words which express the same kind of modality as modal verbs but they differ in the word class. Most frequently, these words belong to the categories of adverbs or adjectives but also to one of nouns.	<i>Possible, likely, necessity, permission</i>
Past tense	Past tense is used to	<i>If you stayed home, you</i>

	express remote possibility in conditional clauses.	<i>would meet him.</i>
Clause type	Imperatives, interrogatives.	
Subordination	Modalised meaning which is formed with a subjunctive. Typically, it involves <i>should</i> or <i>bare infinitive</i> .	<i>It is crucial that the baby be quiet.</i>
Parentheticals	This category is connected with subordination; however, the modalised expressions which express uncertainty are positioned in the main clause.	<i>I assume..., I suppose...</i>

Table 1: Modalised expressions (Huddleston and Pullum 2002: 173-174)

1.2 Pragmatic views of modality

Pragmatic strengthening and pragmatic weakening is dealt with in this chapter. It is the situational context which decides if it concerns strengthening or weakening, the example is given below (Cf. Huddleston, Pullum 2002: 174 – 177). Consider two situations:

[2] Imagine you are waiting for an interview and the HR Managers says: You may enter.

[3] Imagine you are at home where your partner says: You must cook one of your specialities.

Imagining these two situations, [2] expresses a higher degree of modal meaning than [3]. In [2] the listener is forced to wait until granting permission while in [3] it is used rather in informal situations and the speaker does not force the listener to do the speciality, but the speaker rather wishes it. As it can be seen, the setting is very important for the context. Even though *may* is not as strong as *must*, the listener has the notion of inferiority while the modal in the next sentence, *must*, is weakened owing to the informality of the situation (Cf. Depraetere 2017: 18-20).

As stated above, the modal expressions differ in strength, however, there are differences in subjectivity and objectivity as well. In the previous paragraph, we indicated that *must* is stronger than *may*. This dissimilarity in modal strength can be applied to all of the modal expressions, not only to modal verbs. *Must* possesses the strongest modality sense among other modal verbs. *Should* holds lesser power than *must*; however, it is at the same time stronger than *may*, *might*, and *can* (Cf. Depraetere 2017, Radden, Dirven 2007).

Another important aspect which should be mentioned here is the subjectivity and objectivity. “The distinction between objective modality and subjective modality is another opposition that is very much in the foreground in discussions of meaning of modal verbs. For instance, *should* has been argued by some to be somewhat more subjective than *ought to*.” (Depraetere 2017: 20) In other words, the subjective and objective modality is derived from the context as well as strengthening or weakening. Mostly, it is the subject that is responsible for the distinction. Explaining it in other words, the modal verbs that are connected with the speaker are subjective. This statement can be supported by another quote: “It is shown that in the case of *ought to*, it is an instance other than the speaker who benefits from the actualisation of the situation, whereas *should* does not reveal a similar orientation towards the addressee or a third party” (Depraetere 2017: 22).

1.3 Types of modality

In the following lines, it is determined which modal verbs express specific kinds of modality and what are their negated forms. Generally, there are several ways for the division of modal verbs into various kinds of modality. Consequently, there is a number of categorizations of these modality subtypes which are naturally connected with different terminology used for their descriptions. The following overview is mainly comprised of Huddleston, Pullum (2002) and Radden, Dirven (2007) as it was stated in the introduction.

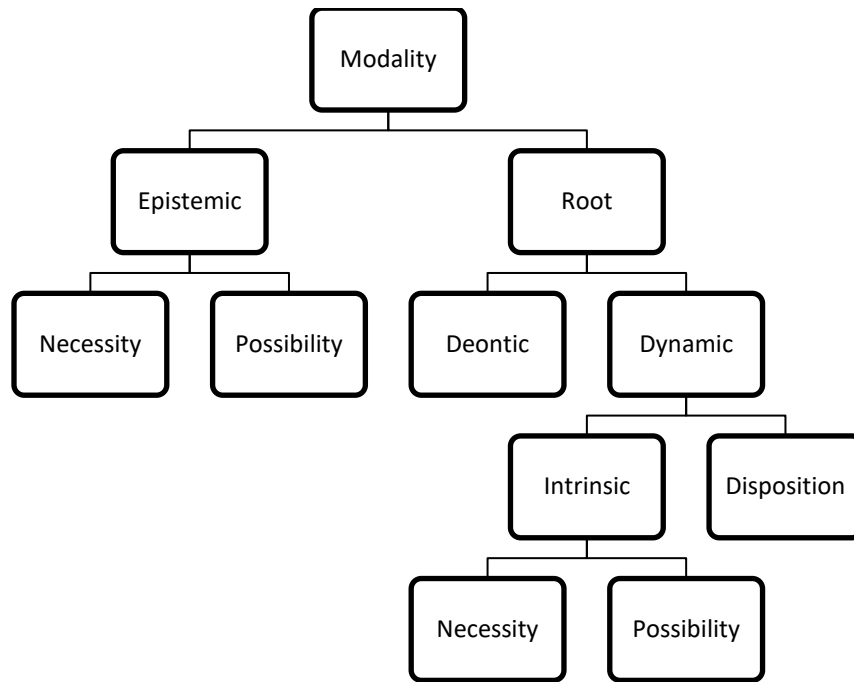


Diagram 01: Levels of modality

The basic division segments the modality into two groups, root modality and epistemic modality. Huddleston and Pullum provide us with a detailed description of root modality. It includes deontic and dynamic modality. In comparison, Radden and Dirven use the terms of intrinsic modality and disposition modality. According to the diagram above, these two kinds of modality are subcategories for dynamic modality. On the other hand, epistemic modality can be recognised as a propositional modality while root modality (deontic and dynamic) can be called event modality.

As it was mentioned before, complications arise alongside the terminology. For example, the term intrinsic modality is used only in the context of dynamic modality in Radden and Dirven. Other grammars use the terms intrinsic and extrinsic as different terms for root modality or epistemic modality. In other words, it may be claimed that epistemic is connected with extrinsic modality while intrinsic modality is basically another term for deontic and dynamic kinds of modality (Cf. Høye 2014, Quirk et al. 1985: 219).

In addition, it is also important to mention the issue of various negated forms of English modals. For example, in the case of *should*, the negated form is easily predictable (*shouldn't*). However, a number of modal verbs use counterparts (consider *must* in epistemic modality and *can't* which is used in negative sentences). The terminology of

the negation of modal verbs is of the same importance as its realization and hence, in the following paragraph, the negated forms of the modality's terms are discussed.

In the process of negation, obligation is transformed into prohibition which is formed by *mustn't*. Similarly, necessity changes into impossibility. The specific change in the latter example does not only reside in the case of terminology but it also lies in the change of the modal: to provide one example for all; consider *must*, commonly used in the meaning of necessity transforms into negated form *cannot*. "Missing evidence does not allow us to make any strong inference and hence excludes the use of *mustn't*." (Radden, Dirven 2007: 262) Apart from that, as another example, we can name negation of permissions which includes negated forms like with *may not* and *can't*.

In the following part of this chapter, the thesis is focused on a detailed description of each of the most important modality subtype and in what senses they are usually used.

1.3.1 Root modality

According to Radden, Dirven, root modality is defined as "a speaker's attitude towards the realisation of desired or expected event" (2007: 246). The subtypes of this modality are similar and their functions are based on the same principle. The emphasis lays on the speaker's posture toward the event. Root modality is comprised out of different kinds of modality, namely deontic and dynamic.

Deontic and Dynamic modality share some similar features; therefore, they can be subcategories of Root modality. "Deontic and Dynamic modality relate directly to the potentiality of the event, signalled by the proposition, but of two different types, both of which may be seen as 'directive' – getting things done" (Facchinetti et al. 2003: 7).

1.3.1.1 Deontic modality

Deontic modality is concerned with demanding obligation and granting permission. According to this quality, they may be also called directives (Cf. Palmer 2001: 71). The directive quality of deontic modal verbs is highlighted also by Radden, Dirven as follows: "It is concerned with the speaker's directive attitude towards an action to be carried out" (2007: 236). In conclusion, it is presumed that deontic modality is more complicated than epistemic modality, as it is shown in the scheme below. However, it can also be claimed that deontic modality is used more frequently than epistemic one.

What is more, we can notice that the use of deontic modality is commonly connected with events (cf. Radden, Dirven 2007: 237-238).

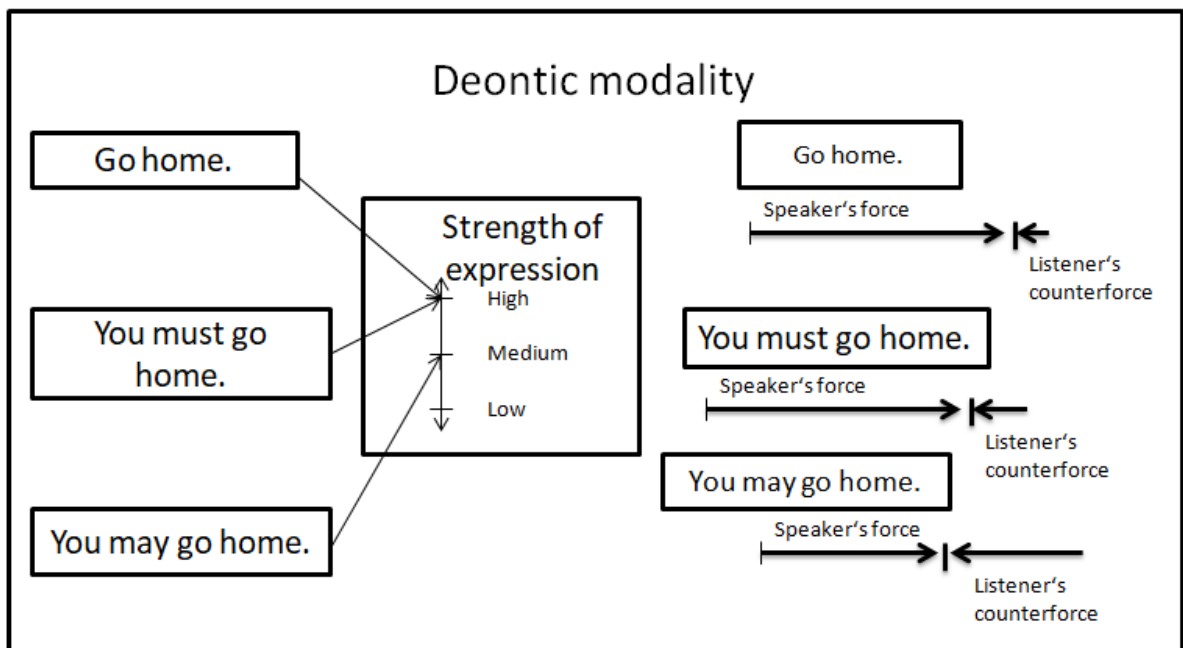


Diagram 02: Deontic modality

To describe the main features of deontic modality, it is necessary to take into consideration the scheme above. As we can notice, *must* is usually used in situations when the speaker imposes obligation onto the listener. On the other hand, *may* does not have the potential to bear the same pragmatic meaning because the speaker does not have such strength over the listener. This weaker strength results in granting permission. “Giving permission implies the power to withhold permission and hence to impose a barrier to actualisation. This is why it would be inappropriate to replace *must* by *may*” (Huddleston, Pullum 2002: 183). Nevertheless in terms of informal usage, *must* can represent a request without any meaning of forcing the listener to do something as described above [2, 3] (Cf. (Huddleston, Pullum 2002: 183).

In order to describe the meaning of deontic modal verbs in detail, we can consider the three sentences mentioned in the scheme above. Each of them expresses the speaker's strength over the listener. The first sentence “Go home” is imperative by its meaning. In comparison to other sentences, this one bears the greatest strength of the speaker thus (there is a high probability) that the command will be fulfilled. The second sentence “You must go home” is also directive. However, the difference can be encountered in the use of modal verb *must* which is concerned with pragmatic weakening. Pragmatic weakening is opposite term to pragmatic strengthening. In this case, the sentence with

must is weaker than the sentence which is formed by imperative. In other words, when a speaker uses modalised word such as *must*, the expressed meaning is weaker than when the modalised expression is not used. The last sentence “You may go home.” is an example of permission. *May* does not possess such strength as *must*, therefore, the listener is able to oppose, yet it is not likely. As it may be noticed in general, all of these sentences deal with the same event, not with a state. In addition, it is obvious that if the speaker’s obligation/permission is carried out, it depends on the strength of the statement or modal expression.

1.3.1.2 Dynamic modality

Palmer claims that only living creatures possess the ability to do things. Speaking in linguistic terms, the speaker decides what is considered for an ability. He or she also asserts that the ability is not something that is considered to be a common ability for the majority of the society (e.g. walking). Palmer introduces the distinction between various types of ability as follows: “There are distinct forms to indicate two types of ability, one in the sense of ‘knowing how’, the other in the sense of physical ability” (Palmer 2001: 77).

Another statement concerning the specific subtype of ability was claimed by Facchinetti et al. They connected the ability with dynamic modal meaning: “Dynamic ability comes from the subject’s own (internal) ability” (Facchinetti et al. 2003: 7). Speaking further about dynamic modality, Radden and Dirven suggest different division using two categories: disposition and intrinsic. The main difference between them is that disposition modality focuses on ability while intrinsic modality is based on possibility. Radden, Dirven describe intrinsic modality as “referring to a possibility enabled by a speaker’s external source” (2007: 256). It is aimed at future-oriented situations and it is used mainly in generally known situations in which some external but unspecified force is present. Radden and Dirven also suggest that intrinsic modality can be further divided into two subtypes concerning necessity and possibility. Necessity is expressed by *must* and *should*. On the other hand, possibility is formed with *can*. The meaning of intrinsic modality is usually based on general norms and rules. The strength of intrinsic modality is weaker than the one of deontic modality due to the general norm. In addition, Radden and Dirven argue that people feel better when they have to obey general rules or norms which is closely related to frequent usage of intrinsic meaning.

From another point of view, disposition modality is connected with “a thing’s intrinsic disposition which has the potential of being actualised; it included the notions of ‘ability’ or ‘propensity’ and ‘willingness’” (Radden, Dirven 2007: 263). As discussed above, only living entities are able to do things. Abilities for animals are mostly recognised as those that characterize their species; consider birds. The abilities representing their species are flying, jumping, and singing. On the other hand, abilities of human beings are much more various and complex, which are connected with particular activities.

1.3.2 Epistemic

Radden, Dirven describe epistemic modality as the one which “pertains speaker’s assessment of a state of affairs in the realm of potential reality” (Radden, Dirven 2007: 258). It is associated with the knowledge and the assessment is based on shreds (or lack) of evidence: “An epistemic assessment is base on perceptual or intuitive evidence, which the speaker processes on the basis of their knowledge or belief” (Radden, Dirven 2007: 235). It may also be claimed that epistemic modality can be rephrased by the use of phrases “It is possibly the case that” or “It is necessarily the case that”. For instance, consider the following sentence taken from Radden, Dirven (2007: 238):

“John must be home” may be rephrased to “It is necessarily the case that he is home.”

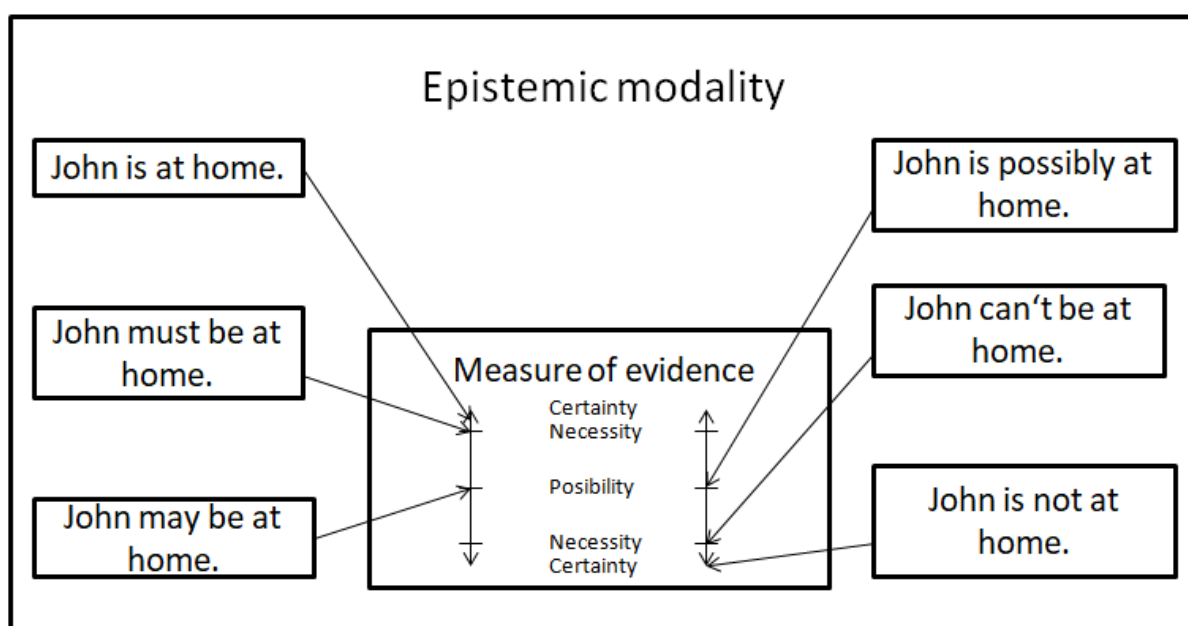


Diagram 03: Epistemic modality

The scheme above denotes the difference between the modalised and the unmodalised sentence in epistemic modality. Modalised sentence is based on several shreds of evidence and, on the grounds of this evidence, the speaker exhibits their measure of certainty. On the contrary, the unmodalised sentence is considered to be a true statement. Closer to the end of the scale, the necessity is expressed while in the middle of the scale, there is a place for formulating possibility. The lower end of the scale covers the negation of the sentence. It represents the opposite meaning of *must*. In this case, the speaker is sure about their negated expression which is also based on evidence. In another sentence, we can encounter from the scheme the usage of the word *possibly* “John is *possibly* at home”. This instance provides us with evidence that we are able to express modality in a lexical way, without the use of modal verb. There is a number of other words or phrases which can be used, for example *necessary*, *I think*, *in my opinion*, etc. The word *necessary* represents the meaning of necessity or a high conviction of the speaker stating the truth. Other expressions such as *I think*, *in my opinion* shows that the speaker is less convinced. Placing it on the scale, the usage of these phrases would belong somewhere between necessity and possibility.

Another modal verb which has the ability to form epistemic modality is *may*. This modal verb refers to possibility in a sense that “it is possible for something to happen”. As it was already announced, epistemic modality includes categories of necessity and possibility. Similar division is used in intrinsic modality.

The distinctions of these two types of modality (epistemic and intrinsic) can be noticed in different modal verbs as it can be seen below. While *can* forms intrinsic possibility, *may* represents epistemic possibility. See the following examples from Radden, Dirven (2007: 256):

[4] You can download PowerPoint from Microsoft.

[5] You may have PowerPoint on your computer.

The main difference is connected with the fact that with *may*, the speaker suggests a possibility that the program is in the computer preinstalled or waiting for activation but they do not know for sure. In other words, they lack certainty and evidence while in the sentence with the verb *can*, the speaker suggests that the listener can do something on their own to have this program in their computer, namely to download and install it.

2 Modality in the form and its meaning

As it was mentioned in previous chapters, different types of modality are connected with a specific use and specific degree of probability. Nonetheless, we should also consider the particular forms through which these modalities are realised. In light of this knowledge, the following paragraphs are characterised these forms and determine their meaning according to a specific subtype of modality. This chapter is mainly based on two grammar books, namely Radden, Dirven (2007) and Huddleston, Pullum (2002).

2.1 Deontic modality

Deontic modality can be formed with the following modal verbs: *must*, *may*, *can*, *should*, *ought*, *shall*, and *will*. Apart from these, there is a number of other verb forms which also have the ability to express this type of modality, such as *have to*, *have got to*, and *need*. However, this thesis does not include them.

At first, it is important to take into account the difference between the modals *may* and *can*. Above all, it concerns the matter of formality in the expression of permission. In other words, *can* tends to be used under informal circumstances. By contrast, *may* is inherently formal. Another important aspect which needs to be mentioned is the fact that *may* is rather personal while *can* is influenced by external circumstances. What is more in American English, frequency of usage of the verb *can* is rising. In case of expressing permission, it was also possible to use verb forms like *might* and *could*, yet this meaning had been already lost. In contemporary English, the forms of *might* and *could* are common to express epistemic modality (Cf. Radden, Dirven 2007).

Another crucial issue concerning the problematic distinction in modality subtypes is connected with the use of *should* and *ought to*. These two modal verbs are commonly interchangeable. The deontic *should* bears meaning of expressing speaker's manners and expediency. (Cf. Radden, Dirven 2007).

Finally, it was already mentioned that deontic modality points out to the future, thus, it is difficult to formulate it in connection with past events. However, even this type of modality is able to express past senses with the usage of the modal verb *must*, in case if it "represents general requirements, conditions, options and etc." (Huddleston, Pullum 2002: 184).

2.2 Epistemic modality

Epistemic modality is based on the speaker's lack of knowledge. The measure of knowledge or evidence usually determines the choice of particular modal verb or another modal expression. As it was also mentioned before, this subtype of modality also concerns necessity and possibility which is naturally connected with the degree of the speaker's certainty.

A sentence which expresses epistemic possibility contains modals like *can* and *may*. *Might* and *could* can be also used for the same purpose; however, they possess weaker strength than their present-tense forms. *May* signifies that the speaker is equally confident and unconfident about the veracity of their statement.

Epistemic modality can be also formed with *must*. This particular form expresses necessity, it prefigures that the speaker is confident about their statement. Nevertheless, it does not bear the meaning of absolute certainty. When the expression would bear the meaning of absolute certainty, there would be no need to use any modalised expression. The usage of *must* includes some restrictions which do not allow its use in the future tense.

Another modal verb with epistemic meaning is *will*, which is commonly associated with the future tense. Nonetheless, it expresses modality with similar strength as *must*, therefore, it can be replaced by it. This verb form bears the meaning of the speaker's assumption and expectation. The fulfilment of the activity is aimed at the future. On the other hand, *will* can also form deontic modality which also focuses on future events, but used in this sense, the speaker makes a request and the receiver is asked to carry out the speaker's bidding.

2.3 Dynamic modality

The previous chapters stated the fact that dynamic modality is concerned with ability and disposition. Moreover, the collision of the terms extrinsic and intrinsic modality had been already discussed. Radden, Dirven divided dynamic modality into two subcategories of intrinsic and disposition modality. Dynamic modality can be formed by all of the modal verbs this thesis is aimed at. Nonetheless, it is only *can* that can form both intrinsic and disposition modality.

The sense of ability is formed by *can*, which can be interchanged with the periphrastic form *be able to*. *Can* in the sense of dynamic modality generally points to the past, it cannot refer to the future unless being changed into *be able to*. *Could* can be used in the past tense as well as in the present tense (cf. Huddleston, Pullum 2002).

Dynamic modality also uses the verb *must*. This can be confused with deontic modality because of the unclear boundary between these two modalities. *Must*, in the case of dynamic meaning, does not express the speaker's force on the listener. It is more connected with a consequence of circumstances and it represents a category of intrinsic modality (cf. Radden, Dirven 2007). This specific subtype of modality can be used in such contexts which, on the speaker's side, includes the phrases as *I must admit*. Negated meaning of *must* is present in the form of negated *can*.

Another aspect which should be discussed in connection with dynamic modality is willingness and refusal. Not surprisingly, this modality tends to be realised by *will*. Negated form of this modal verb is represented by *won't*. Generally speaking, the meaning of *will* is connected with futurity. It is used in a situation in which, "subject-referent is in control. With 1st person subject, moreover, volition tends to trigger a further implicature of commitment" (Huddleston, Pullum 2002: 193).

Furthermore, another sense of irregularity can be encountered within *may* and *might*. These two modal verbs usually signify formal style, especially in academic writing (*It may be claimed, etc.*). They tend to bear the meaning of intrinsic modality in a subcategory of possibility. This can be caused by their lesser strength.

3 Polysemy in modal verbs

It was established that every modal verb can represent different kinds of modality. More information is in the corresponding chapter. In the article, Traugott (1989) argues that polysemy of modals was established in historical development.

History of the English modal verbs can be traced down to the 8th century. Traugott (1989) argues that deontic modality originated much earlier than epistemic modality. However, epistemic meanings of *may* and *can* are, according to Traugott (1989), older than the deontic ones. The position of modal verbs in English sentence was not originally of an auxiliary verb. Especially in Old English period, these verbs bore a full lexical meaning.

The complete epistemic meaning emerged during the 17th century. “1623 Middleton, Spanish Gipsie I, i.16: *thee fruit muste be delicious, the tree being so beautiful.* (ibid)” (Traugott 1989: 42).

The connection between deontic and epistemic meanings was described by Traugott as following: “change of auxiliary verbs and connectives in terms of metaphorical extensions from the sociophysical world to the world of reason and belief” (Traugott 1989: 49). To say it differently, she concludes that the connections are enabled by the speaker mind’s processes.

In her paper, Traugott also blurred the boundaries between the different kinds of modality based only on different interpretations of the sentences. This notion suggests that subjective use of modal verbs is as subjective as the determining process.

3.1 Polysemy

“In many languages, modal markers are polysemous to an extent that they serve as paradigm examples of polysemy, as the modals of English do. Linguistic forms, however, normally don’t start out being polysemous. Rather, in the course of their historical development, new meanings develop and branch off from the original meaning. Polysemy has therefore long been thought of as a product of process meaning change and meaning extension.” (Narrog 2012: 61).

It was established that epistemic and deontic modality are considered to be two distinctive types which can be formed with the usage of the same modal verbs. Radden and Dirven (2007) argue that these types of modality are driven by similar force

dynamics process. The basic principles of the force dynamics are described in the following parts of this chapter.

The origins of the polysemous character of words, even of the lexical ones, consist in shifting the meaning at a metaphorical level. To explain this phenomenon consider Radden and Dirven's example verb *to permit*. The original meaning of this verb expresses deontic modality. However, it is possible to shift it into epistemic modality. *Weather permitting* does not mean that someone permits to weather to do something. Its meaning is connected with someone who guesses what the weather will be like. "The polysemy of present-day modals has been shown to be the result of inferential processes and pragmatic strengthening." (Radden, Dirven 2007: 245). Radden and Dirven (2007) argue that due to the frequency with which modals were used most of their meaning was lost and they became fixed as auxiliary verbs.

For explaining the polysemy in the English modal verbs, it is necessary to establish another two terms. Radden, Dirven use terms, namely compelling and enabling modality. The difference between these two types of modality is that compelling modality works with the terms of necessity and obligation, whereas enabling modality bears the meaning of possibility and permission (cf. Radden, Dirven 2007: 246). The division of modalities is different as it is shown in the previous chapters. From a historical perspective, this is the reason why modal verbs can bear meanings of two different and independent modalities.

In case of verb forms, compelling modality includes modals like *must, should, ought to, need*. "*Must* originally meant '*be permitted*' and then came to mean '*oblige*'." (Radden, Dirven 2007: 247) This change was probably caused by incorrect usage of *must*. As we can notice, when a speaker exhibits force over someone weaker, the permission can be easily confused with an obligation. Again as Radden, Dirven claim: "*Should* and *ought* originally meant '*owe*' in the case of '*be indebted*' and hence, in an extended sense, '*be obliged by duty*'." (Radden, Dirven 2007: 247).

Speaking about forms of enabling modality, it is possible to form it with four modals, namely *can, could, may, might*. In grammar book, it is supposed that "the original meaning was for *may* to be psychically able and for *can* to be mentally able." (Radden, Dirven 2007: 253). Modal *can* possesses meaning of ability but it can also express permission. What is more, *can* may also behave as the epistemic modal.

3.2 Force Dynamics

The following paragraphs show the theory of the polysemy in English modal verbs. In other words, all kinds of modality are related. The meaning of the modal verbs is expressed in similar ways.

There are several different approaches. In this thesis, two of them are described. The first is of Radden, Dirven and the second is of Talmy. “Force dynamics as a theory for explaining modality has been used, sometimes in a modified way, by various linguists to describe different aspects of modal forms in different languages.” (Nuyts, van der Auwera 2016: 517).

Radden, Dirven (2007) describe the force dynamics as it is written below. The speaker who is stronger is called *imposer* and the recipient is called an *agent*. According to Cognitive English grammar (2007), imposer is not present onstage but he forces the agent to carry out something. The agent shows counterforce, but he is endowed with weaker force than the imposer and, therefore, he is obliged to obey. Focusing on granting permission, the speaker allows the agent to do what the agent wants. In other words, the permission giver lifts a potential barrier and, as a consequence, his force vanishes (cf. Radden, Dirven 2007: 243-245).

To explain the principle of force dynamics differently, the model which was originally presented by Leonard Talmy is described. Full description is found in a work of Paul Portner. Both present “a model of force dynamics involving two theoretical entities, the agonist, the thing for which the possibility of movement is relevant, and the antagonist. In the most basic case, the agonist may be associated with a force keeping it in place or a force tending it towards motion. The antagonist exerts a force contrary to that associated with the agonist.” (Portner 2009: 111) In other words, the agonist possesses a bigger strength than the antagonist who is weaker.

When it comes to epistemic modality, Radden and Dirven (2007) state that epistemic and deontic modalities are quite similar to each other. It means that the polysemy is caused by similar forces which participate in both deontic and epistemic kinds of modality. Speaking specifically about epistemic modality, it is based on knowledge, to be specific, on lack of evidence. With the higher number of counterevidence, the uncertainty consequently rises. To put it in Portner’s terminology, there is *the agonist* who has a claim, and *the antagonist* (in the case of epistemic modality, the antagonist is

counterevidence). The antagonist's strength depends on the number of counterevidence which would contradict the speaker's claim.

Permissions and possibilities represent different kinds of modality. To be more specific, possibility is expressed with epistemic modality and permissions are included in deontic modality. In case of permission, the speaker has less strength than with obligation. The speaker possesses a stronger force, but at the same time, they allow the hearer to act.

In fact, the principle of possibility is quite similar. The speaker expresses his assertion but the claim is influenced by the presence of counterevidence. This leads to the situation where the speaker proposes the statement which may or may not be right. The speaker shows their surroundings that they are more or less sure about the truthfulness of their assertion.

On the other hand, necessity and obligation represent the speaker's strength of authority and conviction. With necessity, the speaker's assertion is believed to be true and it is based on evidence. Deontic modality, obligation, invokes the speaker's strong authority and it is expected that the speaker will be obeyed (cf. Radden, Dirven 2007: 243 – 246).

4 Modal verbs

It was already mentioned that modal verbs possess several meanings which express different modality. In this chapter, the scale that represents the strength of modal senses connected with particular modal verb is discussed. Moreover, it should be determined what kinds of modality can be realised by each of the chosen modal verbs.

On the following diagrams, we can encounter representations of the scales comprising the strength degree epistemic and deontic modality. According to these, each chosen modal verb is described and its detailed characteristics.

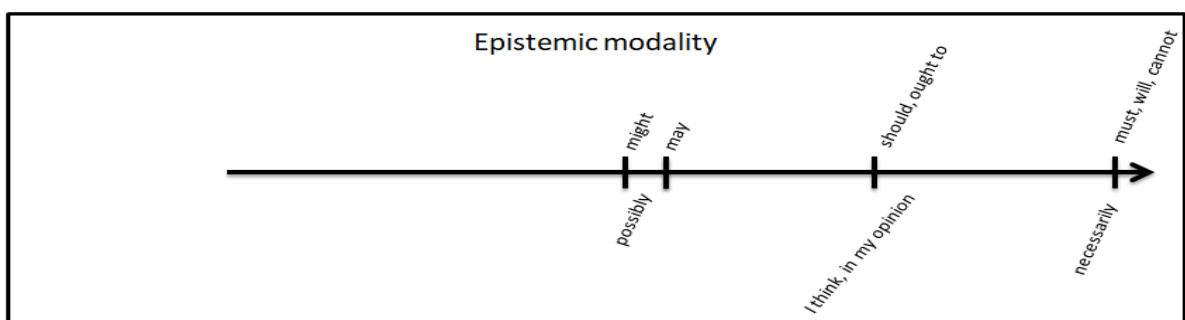


Diagram 04: Strength of epistemic modal verbs

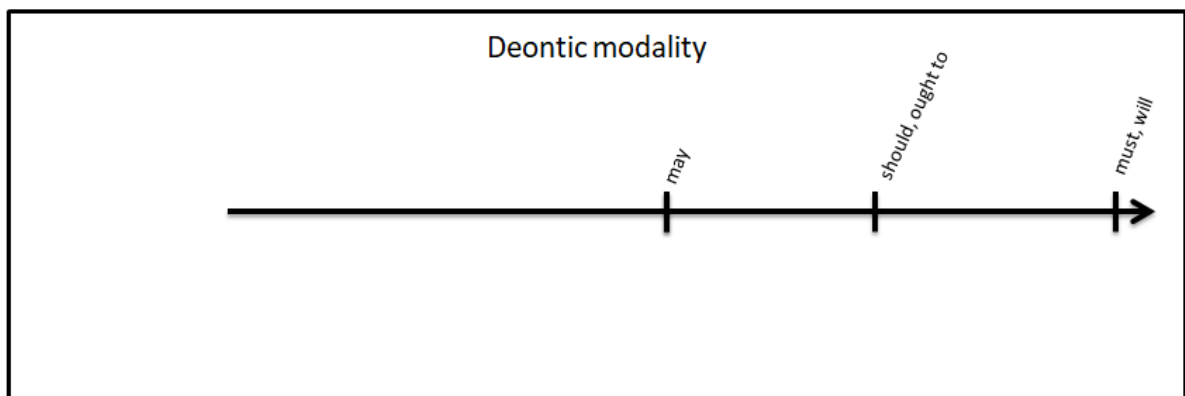


Diagram 05: Strength of deontic modal verbs

4.1 Will

Modal verb *will* can express three types of modality. The first representative which should be introduced is epistemic modality, the second meaning can be classified as intrinsic modality, and the third one is connected with deontic modality.

The meaning representing epistemic modality has similar strength as *must*. It refers to the present situation. Consider the following instance.

That will be the postman.

The *will* in this sentence expresses necessity. The context of the situation may concern the fact that the speaker is waiting at home for a delivery. Then, the bell rang and the speaker uttered the sentence aforesaid. Concerning this context, *will* does not express futurity. It formulates the present situation. As it was written above, *will* can be replaced by *must* without any changes in the meaning of the sentence. Nonetheless, it should be emphasized that these modal verbs do not convey the same meaning. “*Must* conveys the idea of conclusion, and is often used in explanations whereas with *will*, it is more a matter of assumption or expectation, very often with a suggestion of future confirmation.” (Huddleston, Pullum 2002: 189). On the other hand, deontic use of *will* suggests that the speaker’s authority over a listener makes the listener obey and do as he was asked. The last representation of *will* is concerned with dynamic modality. In this sense, it is often used with the 1st and 2nd person, to express more specific intrinsic modality. Huddleston and Pullum suggest that *will*, which is applied in this way, is strongly stressed. Its meaning includes volitions and requests.

See the following example from Huddleston, Pullum (2002, 194):

I will solve this problem.

This sentence represents necessity. It does not speak about the knowledge of a present situation and its development as in the sentence *That will be the postman*. It does not refer to deontic modality either. The speaker does not demand of himself to solve the problem. On the contrary, the speaker expresses necessity and that it is necessarily the case for them to solve the problem.

4.2 Must

This specific modal verb can be categorized into three different kinds of modality, namely into deontic, epistemic, and intrinsic modality.

Must is one of the deontic modal verbs which is used for expressing obligation. The speaker imposes his strength over the listener who is forced to carry out the speaker’s bidding. In comparison to its deontic meaning, intrinsic *must* occurs only exceptionally, often it can be easily confused with deontic sense. Radden, Dirven (2007) classify *must* as an expression for intrinsic modality, in which *must* deals with consequences. It is also important to note that when it is necessary to use negated meaning of *must*, it is natural to use forms *can’t/cannot*. Finally, epistemic *must* can be demonstrated by a reformulation of the sentence with the use of a phrase *it is necessary*. On the basis of

this claim, it is assumed that the speaker is quite sure about the truthfulness of his statement.

4.3 Should / Ought to

Should and *ought to* are two modal verbs which are able to express both epistemic and deontic modality. These modal verbs share similar degree of strength and, in addition, they are both weaker in terms of modality than *must*. On the other hand, their modal senses are stronger than other modal verbs, for instance *may*. Huddleston, Pullum (2002) state that sometimes, in some cases, it is hard to distinguish between epistemic and deontic modality. However, both *should* and *ought to* are used more frequently in deontic sense than in the epistemic one. Concerning these two verb forms, the compelling force of deontic modality is weaker than that of *must*. The listener has, therefore, the strength to oppose the speaker and they do not have to obey. On the other hand, the use of epistemic *should* and *ought to* is weaker in the strength. Another modalised expression with similar strength is *probably* so that the speaker is more self-confident about the truthfulness of their statement than when they would have used *may*. Nevertheless, the speaker expresses their uncertainty by using *ought to*, *should* or *probably*. Their use of these expressions suggests that the speaker is not as certain as with using of *must*; nevertheless, they are more certain than with *may* (cf. Huddleston, Pullum 2002).

4.4 May/Might

May can be classified into three types of modality: deontic, epistemic, and intrinsic. Even though this verb generally bears the meaning of permission in deontic modality, it is considered to have lesser strength than *must* and *should*. At first, epistemic *may* carries the sense of possibility, thus, the speaker's statement can be both, true or false. In other words, the speaker is not convinced. Another way to express a similar strength of modality is by means of phrase *it is possible* or by means of other word formations. Huddleston, Pullum argue that deontic use of *may* is less frequent than that of epistemic modality. In the light of defining dynamic modality of *may*, Radden, Dirven assert: "The original meaning of can is 'be physically able', which is still reflected in the noun *might* and the adjective *mighty*." (Radden, Dirven 2007: 253). *May/might* are also partially connected to formality, occurring especially in academic writing. What is

more, they are used less frequently than *can*. It is common in contemporary language to use more often *can* than *may*.

Might can be generally used for expressing epistemic modality. When used in deontic context, it possesses the meaning of either obligation or permission. A strong sense of possibility is present in this case. Consider the sentence *You might do it*. In other words, the speaker does not oblige or grant permission to the listener. Instead, the speaker expresses the possibility. In other words, the speaker states that it is possible for them to continue or accomplish an action. However, as Radden, Dirven (2007) imply, *might* can be possibly used in the sense of deontic modality to express very polite requests or sarcasm.

4.5 Can

Can has the ability to express three types of modality, namely deontic, epistemic, and, according to Huddleston, Pullum (2002), dynamic. Radden, Dirven (2007) argue that the meaning of *can* includes both, disposition and intrinsic modality.

It is possible to use *be able to* instead of *can*. Strength of *can* is similar to *may* or *might*. Any form of *can* cannot express future tense but past can be expressed by *could* (Cf. Quirk et al. 1985: 223).

Deontic meaning of *can* refers to the external circumstances. The difference between *may* and *can* is the fact that *may* is generally used in the situation in which the speaker extends their authority over the listener. On the contrary, the usage of *can* is connected with the context in which the speaker lacks the influence over the situation. Consider the two following examples of (Radden, Dirven 2007: 257):

[6] You may go.

[7] You can go.

In terms of these examples, both situations may take place at the end of the class. In the first sentence, the speaker might be a teacher, permits the students to leave. Nevertheless, in the second sentence, the teacher might end the lesson simultaneously with a school bell ringing. In other words, some external source in this particular case, the school bell is the reason for the end of the lesson, thus, the signal for the students to leave.

Epistemic use of *can* is usually restricted to be expressed only in questions. On the other hand, *can* is preferred in intrinsic and disposition types of modality. As it was written previously, disposition modality is concerned with the ability to do something. In comparison, intrinsic modality means that it is possible “for the hearer to do something so that a future situation will come about” (Radden, Dirven 2007: 256). In their grammar, Radden, Dirven (2007) also claim that this specific kind of modality is based on an external source which is mostly non-specified but always present. In addition, intrinsic *can* is frequently used in academic writing, especially in phrases e.g. *it can be claimed, it can be concluded/argued, etc.*

The table below shows that modal verbs can form different kinds of modality as it is described in this chapter.

Type of modality	Modal verbs
Epistemic	<i>may, might, can, should, ought to, will, must</i>
Deontic	<i>may, can, should, ought to, will, must</i>
Intrinsic	<i>may, might, can, should, ought to, will, must</i>
Disposition	<i>can</i>

Table 2: Modal verbs and what modality can be formed with them

5 Frequency research of modal verbs

In the following chapters, the research of the most common uses of modal words is performed. On the basis of representative samples, analysis is carried out for all modal meanings for each chosen modal verb (*can, may, might, should, ought to, and must*). In terms of gathering representative material, I decided to work with two corpora: ukWaC and BASE. More detailed characteristics of these corpora and the process of the research are introduced in the subsequent part of the thesis.

5.1 The choice of corpora

In the process of analysing and choosing corpora, I acquainted with a number of possibilities. However, after weighing all the advantages and disadvantages, I eventually decided to work with ukWaC and BASE. There are several reasons which may support this decision.

One of the corpora which was possible to use was BNC. The problem is that its newest edition of this corpus was released in 2007 as the third version. The advantage of BNC is that it is comprised of the written and spoken language, but the accessibility to it is much worse than in case of other corpora (cf. IT Services). Other two corpora could have been chosen, namely Araneum Anglicum Maius and Araneum Anglicum Minus which are comprised of internet pages. They are accessible from the website of the Czech National Corpus. Concerning their advantages, it should be mentioned that the use is meant to be for free, yet the problem is their inadequate representativeness of the sample. It is caused by the fact that after searching for a modal verb in these corpora, some of the results may originate from the same source website for several cases of use. (cf. Aranea: A Family of Comparable Gigaword Web Corpora). To avoid this particular issue, ukWaC was chosen. This corpus is based on the British National Corpus (BNC); nevertheless, ukWaC has some advantages over BNC. UkWaC is the biggest corpus in comparison to the previously mentioned corpora as it contains almost two billion words. All the texts are from the domain .uk. This corpus is also accessible from the website of Czech National Corpus. The main advantage of this corpus is that it is the largest and, at the same time, the newest one (cf. Baroni et al.). However, there is the issue of sample type. UkWaC is considered to be comprised of both areas, the spoken language and written language, but this differentiation cannot be verified. In other words, it is unknown to what extent the spoken language is actually included. To deal with this

complication, it was decided to work with another corpus which is based on academic English. The name of the corpus is British Academic Spoken English (BASE). This corpus was launched in 2005 after six years of gathering materials. The crucial advantage of this corpus is that it comprises only the spoken samples of British English. The corpus is based on 160 lectures and 39 seminars. It is open and accessible for free use from the Sketch Engine's website.

On the website of BASE, it is demanded to incorporate the following lines into the thesis: "The recordings and transcriptions used in this study come from the British Academic Spoken English (BASE) corpus. The corpus was developed at the Universities of Warwick and Reading under the directorship of Hilary Nesi and Paul Thompson. Corpus development was assisted by funding from BALEAP, EURALEX, the British Academy and the Arts and Humanities Research Council." (cf. 'The British Academic Spoken English (BASE) corpus').

5.2 Searching in the corpora

In this chapter, it is discussed the settings of both corpora and the way in which the research was conducted. In addition, the form of the question is described and, finally, it is also natural to mention some problems which occurred during the work with both corpora.

At first, the process of searching and gathering samples should be described. In the corpus query language (CQL), it was inserted: [lemma= "must"]. Then in the filter, another requirement, which was added, was a tag. Each corpus has different tag sets: in BASE, the tag for the modal verbs is VM [tag="VM"]; nonetheless, in ukWaC, the tag for the modal verbs is MD [tag="MD"]. It was decided that twenty words on the left side and twenty on the right side from each modal verb (CQL) would serve as a tool for understanding the context. As a final step, a sample was made. Making samples is currently the part of the corpora but this possibility was not present in corpora two years ago. In the process of tagging, mistakes are possible to occur. For instance, even though the tags for modal verb were involved in the question, there was a case where *may* was found in the use of the noun.

A problematic issue concerning the spoken corpus is the transcription. In this corpus, the sentences are rewritten in exact the form as they were uttered. Consequently, it happens that there are words which repeat. Apart from this fact, it also provides us with

notes on the speaker's voice and as a whole, it makes more difficult to understand the language itself. In addition, it is important to mention that the modal verb *ought to* has a very low frequency. The occurrence of this modal verb was 107.

In the process of searching for results, few steps were taken in both corpora. Firstly, the size of the sample was set. To gather the representative sample, I decided to work with 100 modal realisations. Afterwards, the task was inserted. This process was repeated with each chosen modal verb.

Finally, it is also essential to mention that the work with the corpora was not easy, yet it was much easier than determining the particular kinds of modality. Even though, it is stated that there are boundaries between different types of modality, in most of the cases, these boundaries are rather unclear. This issue caused a number of complications within the process of modality determination. To a certain extent, some clear prototypical expressions occur which are naturally easier to determine. However, these prototypical cases are not frequent in the corpora.

5.3 Frequency of the modal verbs

Both chosen corpora consist of a different number of words. In the text below, the frequency of chosen modal verbs is summarised and which of them occur with the highest frequency in both corpora. Due to the different number of contained words in both corpora, it would be impossible to compare the frequency of the modal verbs from ukWaC with the numbers from BASE, but it is possible to compare the frequencies of all modal verbs in ukWaC between each other and the same can be done for BASE. Another kind of comparison is made via ipm which means "instances per million". This tool is incorporated into all corpora and it is useful when two corpora of different length are compared. The average number of the instances is calculated and the result shows us the frequency of occurrence of the searched form in the ideal corpus whose length is 1,000,000 words.

According to the research, it is the modal verb *can* which reaches the highest frequency in both corpora. In the ukWaC, there are 5,144,405 instances in the whole corpus. In the BASE, the number of instances is 415. Instances per million (ipm) is 2,356.25 in ukWaC, in BASE it is 4,964.64. As a consequence of ipm, it may be perceived that in the corpus BASE, *can* is used more frequently than in ukWaC.

The second modal verb with the highest frequency in ukWaC is *may*; however, in BASE, the overall frequency of *may* is the fourth highest. The second is *might*. Frequency of *may* reaches 2,385,630 instances in ukWaC. On the other hand, *may* in BASE can be counted only 1,056 times. Ipm shows that both corpora are relatively comparable. UkWaC's ipm is computed on 1,059.54 while BASE' is only 843.28. Although the results are not similar, the difference is smaller than with *can*.

The third highest frequency lies with *should* in ukWaC. In this corpus, *should* is present in 2,274,612 cases. In comparison, its frequency in BASE is only 1,140 cases. Ipm of this modal verb shows that the average frequencies are very close to each other and, therefore, we can consider them to be more or less equal. Ipm in ukWaC is much higher with 1,010.23 whereas BASE' ipm was computed at 910,36.

Another researched modal verb is *must*. With its overall frequency 1,197,977, it is placed as the next in the order. While ukWaC shows a relatively high number of frequency, *must* in BASE is found only on 415 occasions. Ipm in ukWaC is 532.06 and in BASE, it is 331.4.

Speaking about *might*, with its 692,837 occurrences, it is next-to-last of the modal verbs in ukWaC, but the number of occurrences (1,358) put it as the modal verb with the second highest overall frequency in BASE. Ipm of *might* is very diverse. UkWaC's ipm is computed at 307.71 whereas BASE' ipm rises up to 1,084.44.

The last of the modal verbs with the least number of instances is *ought to*. This modal verb is least to be found, thus in BASE, there were only 107 instances to be found and in ukWaC, the number was 41,479. Ipm shows that in ukWaC there are only 18,42 instances per million but in BASE it is a little higher with 85,45 instances per million.

These numbers introduce us the fact that even though the corpora are of different length, there are means how to compare them. In addition, the numbers point out that some of the modals are comparable in their instances per million, namely *ought* as it has the lowest difference and *should*.

5.4 Prototypical examples

In the following paragraphs, prototypical examples of the modalities are discussed from both corpora. Every realisation is followed by the commentary which explains the reasoning process.

[8] ... of a mega-tsunami after a huge bolide crashed into the sea just south of New Zealand. Evidence of what might be an impact crater, 13 miles across, has recently been discovered beneath the sea in this area... (ukWaC)

Might in the sentence above is the prototypical example of epistemic modality. Epistemic meaning of *might* means that it is possible that something is true. In other words, it may be the crater but it may be something else. *Might* has a similar strength as *may*, therefore, the meaning is also similar.

[9] ...the drug companies prefer the euphemistic term 'discontinuation syndrome'. What patients call 'addicted', clinicians might call 'psychological dependency'. Semantic differences aside, there are a lot of people who feel wretched when... (ukWaC)

Might in the sentence [9] was determined as intrinsic modality. This particular modal meaning of *might* is connected with the ability to express a lack of knowledge. The text seems to be a part of the medical article thus the language used in the excerpt is formal. This suggests that *might* has a meaning of intrinsic modality, which allows the author to maintain its formality and objectivity.

[10]... need to pass a further test on a motorcycle of at least 35 kW (46.6 bhp). They may practise on bikes over 25 kW (33 bhp) under the same practice conditions for direct access riders. (ukWaC)

Sentence [10] is a prototypical example of the usage of *may* in the meaning of intrinsic modality. *May* in this sense suggests that someone is allowed to do something. Taking the mentioned sentence into account, *they* are allowed to practise on bikes. The meaning of *may* expresses the force of the agonist which is slightly weaker than if the imperative had been used, yet the strength of the modal is present and forces an antagonist to obey the rule. On the basis of the fact that the sentence represents some kind of rule and that it is part of the written corpus ukWaC, it was suggested that the modal expresses intrinsic modality. According to the sentence function comprising permission, the modal verb *may* would express deontic modality. From this example, it is very apparent that the boundary between the kinds of modality is not very explicit, thus it is possible that there is more than one interpretation.

[11] ...eventually they called it a sustainable development strategy for the south-east of England ironically as you may or may not know that strategy then had

went through public consultation and [[voiced pause]] public examination where it... (BASE)

The modal verb *may* in the sentence [11] is determined to represent the meaning of epistemic modality. The whole phrase *may* or *may not* suggests that there is some degree of uncertainty, thus it is without any doubt that *may* possesses the meaning of the epistemic modality.

[12] *...the requirement is that you've already proved it and in an examination typically for example you might be told that you may use in a question any sequent or theorem that you 've already proved mm if you were allowed to introduce any theorem then... (BASE)*

Sentence [12] is a clear example of deontic modality. *May* in this meaning expresses the speaker's permission to do something. In this sentence, the listener is permitted to use a sequent or theorem. The main reason why deontic modality was used may be that, according to the context, the direct contact between two or more people is included. The speaker holds his/her superiority over the listener. In this situation, the superior person may be a teacher and the second person who is weaker, may be a student. This situation makes it possible for a stronger person, e.g. the teacher, to form a sentence in deontic meaning.

[13] *... in teaching and we 're asking you to get this in the practical to have a look at that and the sort of question you can now answer is how would the degrees of freedom change if you moved fertilizer to the subplots if instead of having two... (BASE)*

Sentence [13] was excerpted from the spoken corpus BASE. It is a representation of deontic modality. Modal meanings of *can* are very difficult to determine because *can* may express all of the modalities described in this thesis. In this particular sense, it is determined that *can* represents permission. The context for this situation may be imagined as the exam interaction between an examiner and an examined student. The student is allowed to answer; however, there is some external force which permits it, it is not the teacher, as the Radden and Dirven claim. They use the example of the school bell. The teacher allows students to leave the classroom on the bases of the bell.

[14] *...sat atop an elephant in Thailand, discovered Low-cost goes long haul. Go far for far less: Now you can jet off to Canada and India for less than £ 250 return, Paul Oswell asks if low-cost air travel...* (ukWaC)

Second modal meaning of *can* is disposition modality. This modality is connected with ability. Sentence [14] can be rephrased by using *able to* instead of *can*. Concerning the sentences [13] and [14], there is a possibility in which [13] may be interpreted as the ability. Nonetheless, the same cannot be claimed about the sentence [14], which includes disposition ability. To put it in other words, there is an area where these two modalities overlap and the determination of this modality is mainly based on the context of the situation and point of view.

[15] *...strong A-I strong artificial intelligence one of those claims is that computers put very very briefly that computers can think or that put it slightly less briefly a suitably programmed digital computer may at some time at in the future be...* (BASE)

The third modal meaning of *can* is intrinsic modality. As it was announced in the description of modal in the previous part of this thesis, intrinsic modality is quite similar to deontic modality. The sentence [15] shows some similarities to disposition modality as in previous sentence [14]. The only difference is that in sentence [15] the subject is inanimate and therefore it does not possess any abilities, such as thinking. If they were able to think, the determined modality would be different. It would be namely disposition modality. However, in this sample's context, it was determined to be intrinsic modality due to the fact that the context involves ability, as we already noticed, the subject of this ability is inanimate.

[16] *...creates a language about childhood which is not childhood it revives it but does not feel it again it describes it but it cannot be it and yet that 's the only way it can be it that 's the paradox it 's also the interesting thing here again that Maggie...* (BASE)

The last modal meaning of *can* is epistemic modality. In this particular example, it is in its negated form, which puts it on the end of the scale of modality mentioned in the previous chapters aimed at kinds of modality or the chapter which dealt with modal verbs. The counterpart of *cannot* is *must*. Therefore, it does not express necessity but its sense is connected with impossibility. Both of these modal verbs express similar

strength of certainty. According to these assumptions, sentence [16] expresses speaker's absolute certainty.

[17] ...by the way this *[[voiced pause]]* these *[[voiced pause]]* definitions are in your handout so I think they are yeah they should be in your handout so don't need to scribble them down that's all right okay this is good old Eysenck and Keane our course... (BASE)

Sentence [17] is the first example of the modal meaning of *should*, namely epistemic modality. The modal sense of *should* is stronger than *may* or *can* but, at the same time, weaker than *must*. Epistemic meaning expresses probability. To show it on sentence [17], the speaker firstly uses the phrase *they are* but they correct themselves and use the phrase *they should be*. This fact clearly shows that the speaker expresses his momentary uncertainty by using *should*. Although the speaker suggests that they are not absolutely certain, they both believe that they are true.

[18] ...*should* tr *[[voiced pause]]* try as far as possible to eliminate their own prejudices for claiming that the historian should seek to empathize with people who lived in the past *verstehen* to understand *[[voiced pause]]* what was going on inside... (BASE)

The second kind of modality which can be formed with *should* is intrinsic modality. *Should* in the modal sense which was used in the sentence above is not the case of epistemic nor deontic modality. This particular modal realization comments on what should be the main purpose of historians. To put it differently, a kind of general norm is made which is aimed at the goal of historians. Accordingly, sample number [18] suggests what is the goal of the historians. Due to the fact that the situation describes the general goals of the historians, it was decided that this particular realisation of *should* is intrinsic modality.

[19] ...*futures* and set your strategies to suit them *should* strate strategies *should* be communicated as I mentioned you should look at the risks associated with the external factors and we spent half an hour yesterday looking at external drivers... (BASE)

The last modality which *should* can form is deontic modality. Deontic meaning of *should* is not very direct. It may be claimed that the strength of *should* is actually weaker than *must* but it is at the same time weaker than the strength of *may*. The

mentioned advice does not force anybody to do anything, it is only a recommendation. On the other hand, *must* has a meaning of obligation which is expected to be met with almost absolute certainty. On the contrary, *may* expresses permission which is also most likely to be obeyed. Obeying the advice, which is the meaning of deontic *should*, is essentially a listener's decision.

[20] ... *having contact with and lobbying another government or firms lobbying their own government suggesting that they ought to take certain actions are becoming an increasing feature of international marketing think of one of the current...* (BASE)

The first example of *ought to* has the meaning of deontic modality. This particular modal verb bears similar meaning as *should* and as in number [19], it is a piece of advice. To put it differently, the speaker recommends someone to do something and it is up to the listeners if the advice will be obeyed.

[21] ...*the freedom to rearrange the method by which they present information and thus knowledge to one another. Such rearrangement ought not to be technically difficult so as to act as disincentive to such activity. 4. Group Processing-the...* (ukWaC)

The second meaning of *ought to* is epistemic modality. Radden and Dirven argue that *ought to* tends not to be very frequently used in the meaning of epistemic modality. However, in number [21], the author is convinced about the truthfulness of their information. The writer considers their statement to be probably true but it is a similar case as with epistemic *should*. In other words, the author lacks some information and by using *ought* in its epistemic meaning expresses his little uncertainty.

[22] ...*the circumstances; including, in particular, those matters set out in CPR 44.3(4). An appellate court ought not to interfere with an order made by a judge in the exercise of his discretion unless it is satisfied...* (ukWaC)

The last modal meaning of *ought to* is intrinsic modality. As it can be perceived, the number [22] seems to be part of a legal document which is dealt with in law. This supports the assumption that *ought to* is used in a formal and most likely legal document which suggests that it is not the case of epistemic modality. Intrinsic modality was also chosen due to the fact that the excerpt is probably not a part of the communication between people and it is more likely to be a rule or legal norm.

[23] ...*"safe route". Always use the School Crossing Patrol. If there are no protected places then you must find a place where you can see the traffic and the drivers can see you. This means away from...* (ukWaC)

Another modal verb discussed in this thesis is *must*. In sentence [23], it bears intrinsic meaning, in other words, *must* in this context obliges us what to do. It was already asserted that there is only a blurry difference between deontic and intrinsic modality. If the context of use was different e.g. the sentence was a part of the conversation, there would be no doubt that *must* carries a meaning deontic modality. Nevertheless in this situation, it is more likely that it represents a rule which has to be obeyed. This specific rule was probably aimed at children who had crossed the street.

[24] ...*Americans who were unjustly killed on September 11, 2002. We are today involved in a battle which we must go on waging, being confident and aware that sooner or later it won't be possible for them to...* (ukWaC)

Sentence [24] is determined to be deontic modality. The situation here is connected with an obligation. It does not express any kind of rule, it only forces the reader to continue in the activity. At the same time, the context for [24] is more personal than for [23], whose excerpt originated probably from a legal regulation. This distinction proves that [23] is the example of intrinsic modality and [24] is the example of deontic modality.

[25] ...*in to get this to get into contact with the antigen so there 's something wrong with this story because there must be more to it than that because you 've got a third cell and how does it make contact okay so let 's try to explain what...* (BASE)

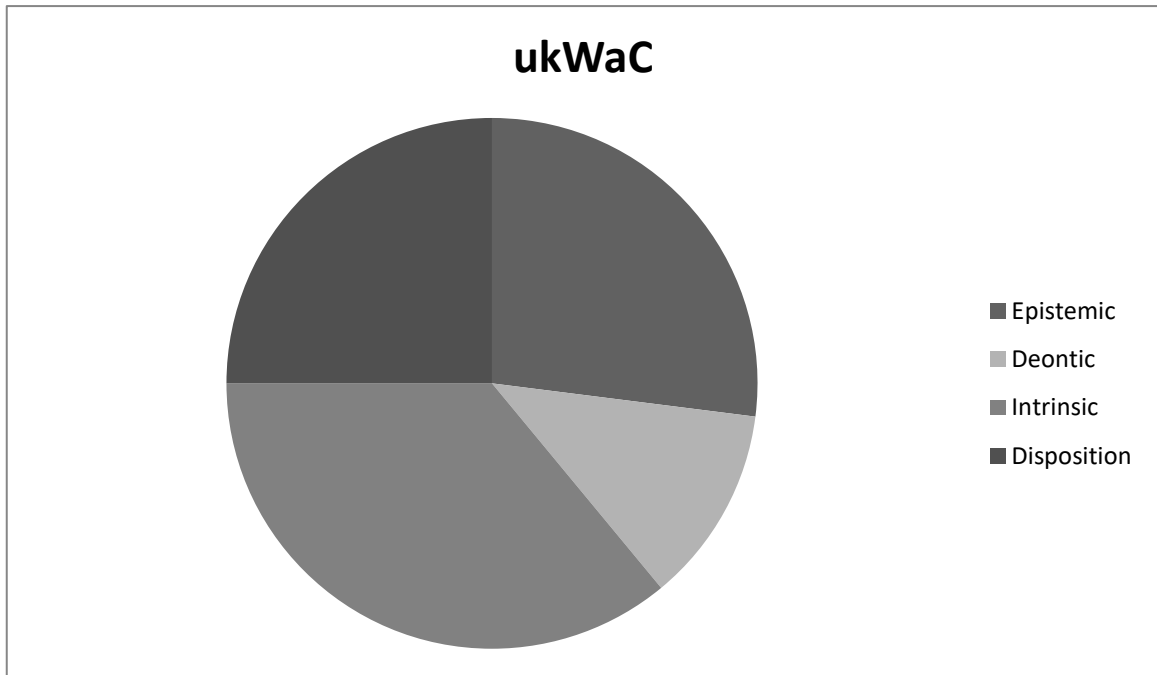
Sentence [25] is an example of the last, yet unmentioned, modality which is most frequently expressed by *must*. Epistemic modality in this excerpt shows that the speaker is almost absolutely certain of his truth. In comparison with other two modalities, namely intrinsic and deontic, it can be noticed that epistemic modality is different from intrinsic and deontic modality mainly for the reason that there is no obligation or any need for obeying general rules, such as law. The speaker supposes that their opinion is true but they do not know what is truly right or wrong. The speaker puts his low uncertainty into the modal verb. If *must* was replaced by *may*, the speaker could have actually said what may cause the problem. In [25], there is some possibility that the speaker is, to some extent, certain about solution of the mentioned issue.

5.5 Can

This chapter focuses on the results of the analysis concerning modal verb *can*.

	Epistemic	Deontic	Intrinsic	Disposition
ukWaC	27	12	36	25

Table 3: Results of *can* in the written corpus ukWaC

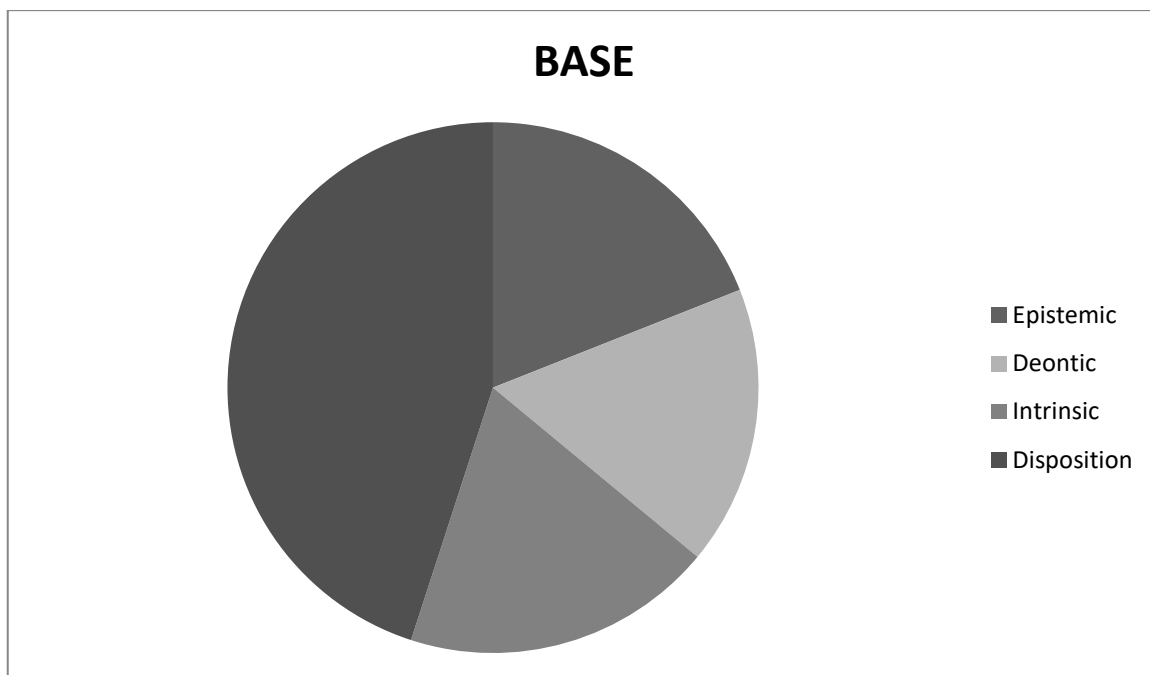


Graph 01: Visualisation of the results from Table 02

The table and the graph above show the results of ukWaC research of *can*. As we can notice, its most frequent modality is intrinsic modality, closely followed by epistemic and disposition modality. Dynamic use of *can* is therefore very frequent. On the other hand, *can* in the meaning of deontic modality is used with less frequency than other types of modality.

	Epistemic	Deontic	Intrinsic	Disposition
BASE	19	17	19	45

Table 4: Results of *can* in the spoken corpus BASE



Graph 02: Visualisation of the results from the Table 03

As it is represented in the diagram above, the most frequent modality of *can* in BASE is dynamic modality, which corresponds with the previous results of *can* in ukWaC. Dynamic modality is, as it was written above, disposition and intrinsic modality. From these two, it is the disposition modality which is most frequent. The rest of the modalities is comparable with/in terms of their overall numbers.

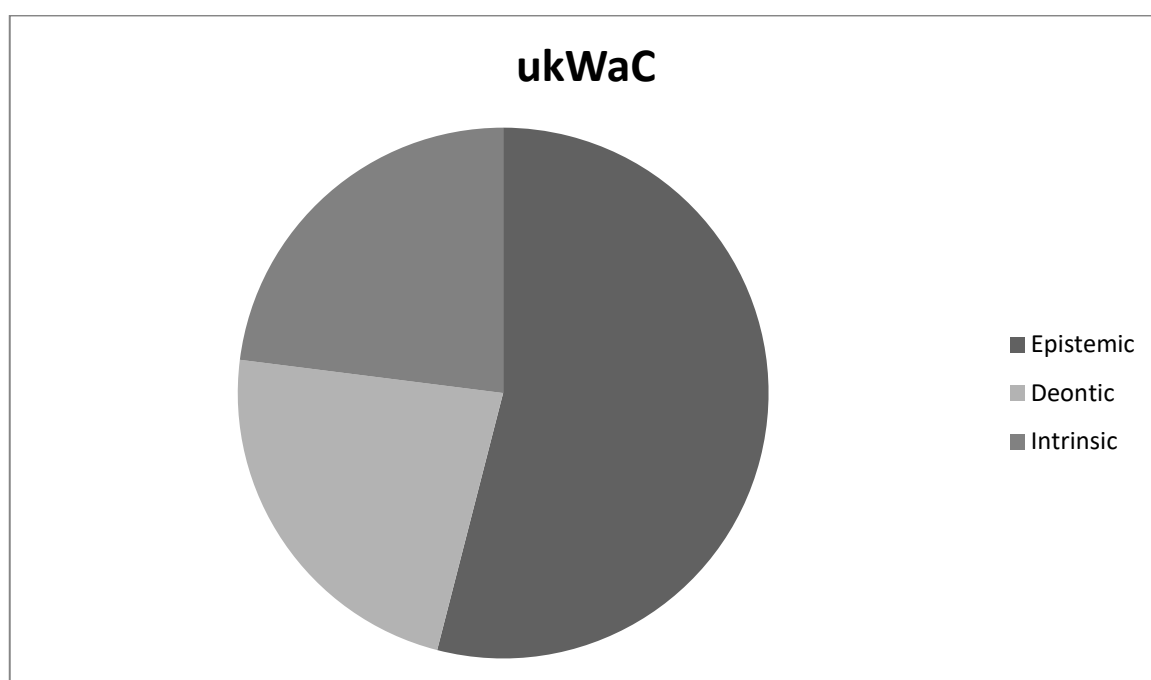
To compare results from both corpora, it is clear that root modality is at a basic level the most frequent one. The differences between the frequencies can be caused by different cores of the corpora. UkWaC consists of texts from different areas, such as religion, science, and informal communication. On the contrary, BASE is based particularly on the academic language. According to the analysis, deontic meaning of *can* is not frequently used. Taking these two diagrams into account, it may be argued that the dynamic meaning is used with the highest frequency in comparison to other modal meanings of *can*. On the other hand, it is deontic modality which is used the least.

5.6 May

In the following lines, the results of the analysis of the modal verb *may* are discussed.

	Epistemic	Deontic	Intrinsic
ukWaC	54	23	23

Table 5: Results of *may* in the written corpus ukWaC

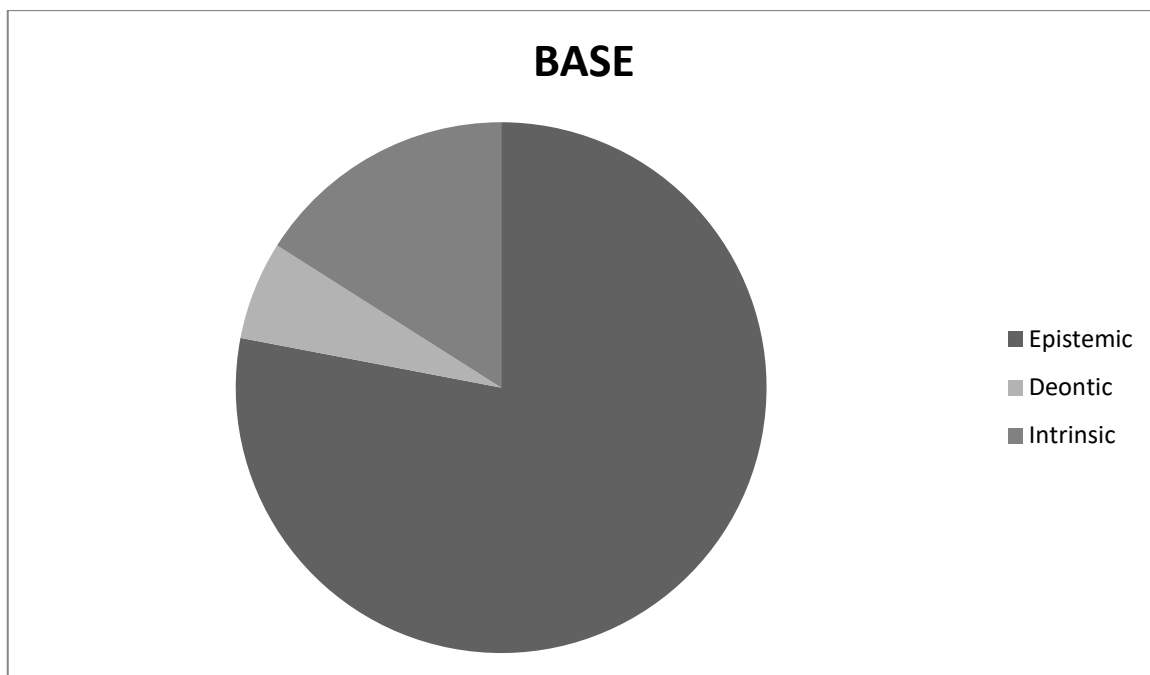


Graph 03: Visualisation of the results from the Table 04

The graph depicts that the majority of modal meanings used with *may* are epistemic, deontic, and intrinsic. The last two types share exactly the same number of occurrences (23). It shows that the superior number of occurrences (54) belongs to the epistemic meaning of this modal verb.

	Epistemic	Deontic	Intrinsic
BASE	78	6	16

Table 6: Results of *may* in the spoken corpus BASE



Graph 04: Visualisation of the results from the Table 05

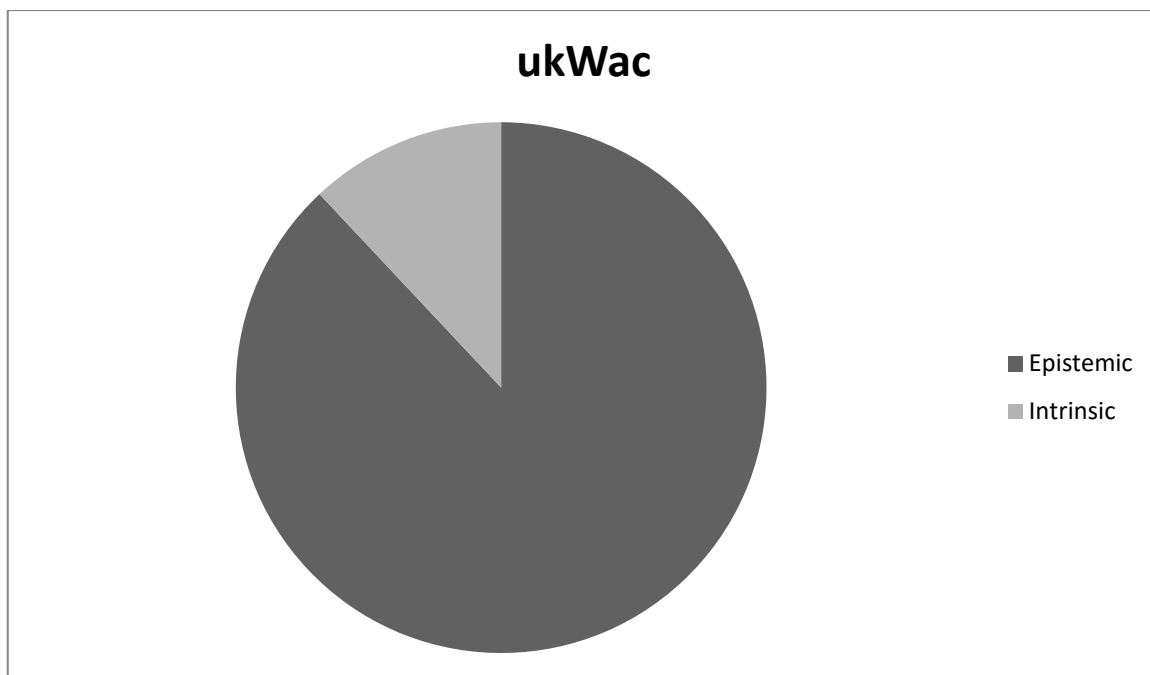
According to the analysis and diagrams above, *may* is most frequently used in the meaning of epistemic modality in the context of BASE. This fact corresponds to the previous graph of ukWaC results which also shows that epistemic modality is the most frequent, yet it less frequent than in BASE. On the other hand, the low frequency of deontic modality represents that it is not used very often. In comparison to deontic, intrinsic modality is used more frequently. This result may be caused by the academic focus of BASE: *may* tends to be used frequently in the academic formal language.

5.7 Might

In the previous chapters, we discussed that *might* can express only two modalities, namely epistemic and intrinsic. The table below shows how many realizations *might* belong to these two categories.

	Epistemic	Intrinsic
ukWac	88	12

Table 7: Results of *might* in the written corpus ukWaC



Graph 05: Visualisation of the results from the Table 06

The table and the graph offer a clear image of what modality is the most frequent in the written corpus ukWaC. Epistemic meaning of *might* is without any doubt the most frequently used. Nonetheless, there are several cases in which *might* is used in the meaning of dynamic modality or, to be more specific, in the meaning of intrinsic modality.

	Epistemic	Deontic	Intrinsic
BASE	77	1	21

Table 8: Results of *might* in the spoken corpus BASE

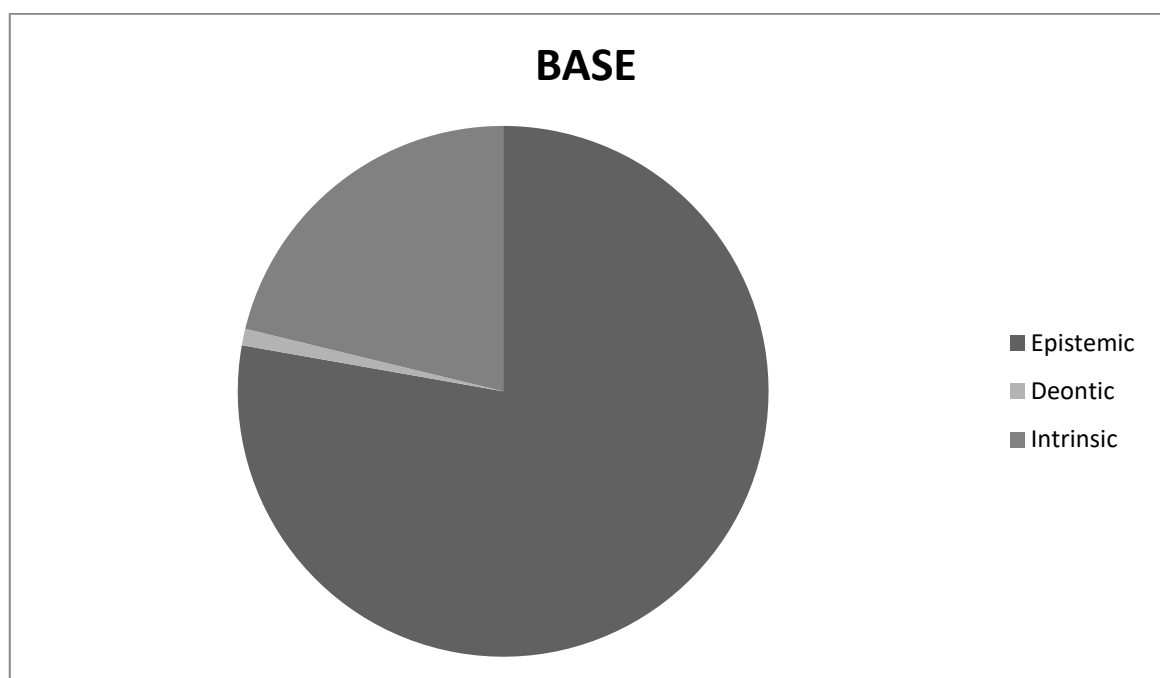
Similar question based on different realizations of *might* was inserted into the spoken corpus BASE. The question was which modality of *might* is the most frequently used in this corpus. The table shows that epistemic modality is again the most frequent. There is also a number of instances of intrinsic modality but, compared to epistemic, it tends to be used less frequently. However, in the spoken corpus, there was the instance where it was determined that *might* bears the meaning of a deontic modality.

Radden and Dirven (2007) argue that *might* lost its deontic meaning and it consequently blended with the meaning of epistemic modality, yet in the following case, the reader can interpret it as permission given by an external force.

[26] ... *had failed because of recurrent F-S-G-S and i asked her one day whether she wanted another transplant and she said oh you might as well i mean i 've got [[voiced pause]] i i 've got seven might as well have eight [[voiced pause]] and...*

Sentence [26] is the case where the deontic modality was determined. The problem with *might* is that, according to the grammar books, it lost its deontic meaning to its epistemic meaning. *Might* in this sentence may express epistemic modality, as Radden, Dirven (2007) and Huddleston, Pullum (2002) suggest it is more likely to be permission. The context for epistemic meaning of *might* would suggest possibility. In other words, it could be interpreted in the way that it is possible for her to have another transplant but she does not have to.

In conclusion, this particular situation would rather mean that she is allowed by the doctor to have another transplant because there is nothing that would endanger her.



Graph 06: Visualisation of the results from the Table 07

Similar information is depicted in the diagram. It provides the overwhelming predominance of epistemic modality over the rest of modalities, such as intrinsic and deontic modality in which *might* occurred only twice.

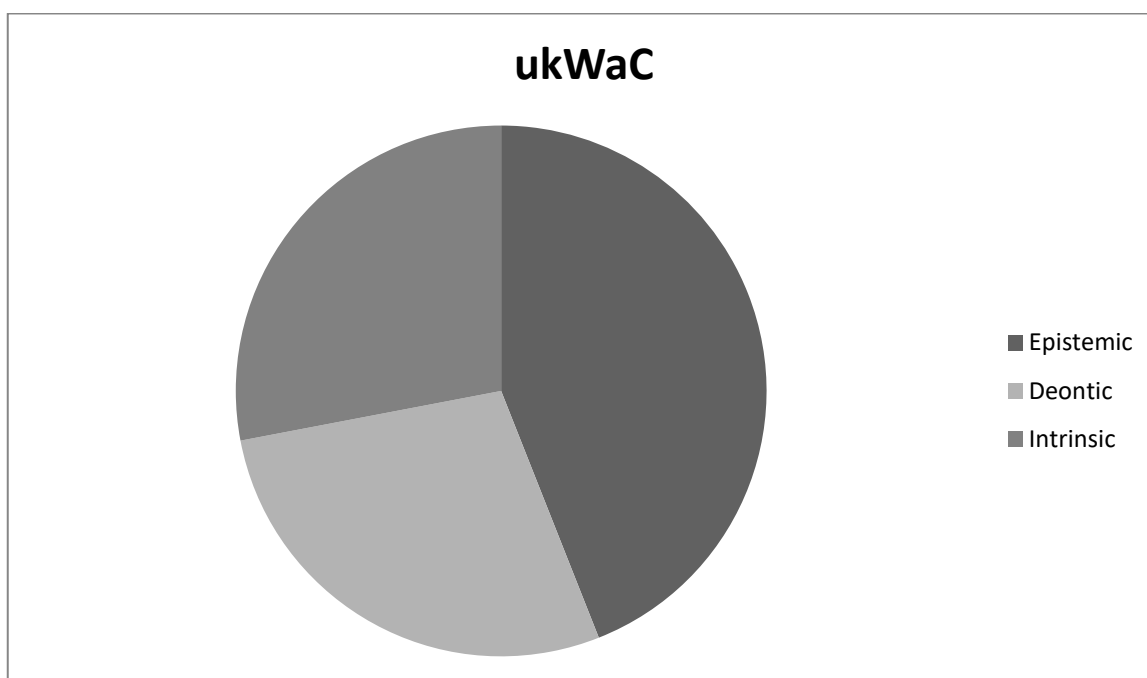
5.8 Should

The following lines show the results of the corpora analysis for *should*.

	Epistemic	Deontic	Intrinsic
ukWaC	44	28	28

Table 9: Results of *should* in the written corpus ukWaC

The table shows that in written corpus ukWaC *should* is used most frequently in its epistemic meaning. The other two modalities, deontic and intrinsic modality, are equally used. From 100 realizations, 28 of them were determined as deontic modality and 28 as intrinsic modality.



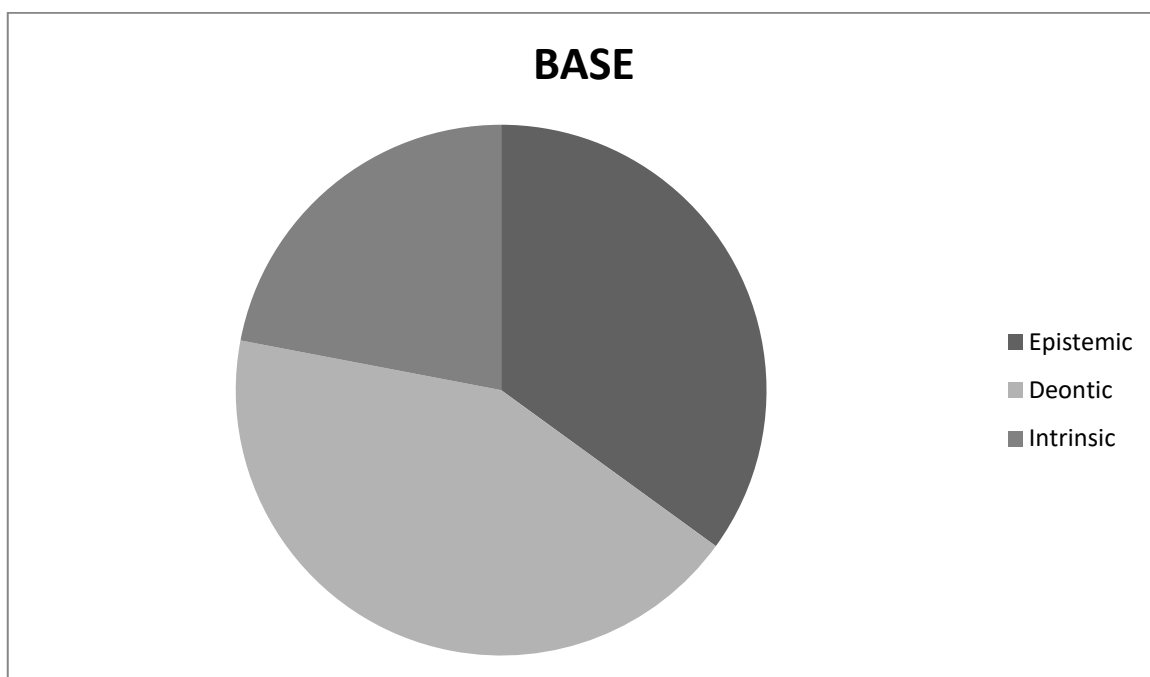
Graph 07: Visualisation of the results from the Table 08

According to the diagram above, epistemic modality is the most frequent realization of *should*. In comparison, deontic and intrinsic modality are represented by the same area in it. However, when it is brought at the basic level, it can be perceived that it is root modality which is used more frequently in case of *should*.

	Epistemic	Deontic	Intrinsic
BASE	35	43	22

Table 10: Results of *should* in the spoken corpus BASE

In the spoken corpus, the results represent that deontic modality tends to be used with the highest frequency. As the table shows, the second in order is epistemic modality, followed by intrinsic modality.



Graph 08: Visualisation of the results from the Table 09

If we compare both diagrams of *should*, it can be noticed that deontic meaning of *should* from BASE shares the same number of realizations as *should* in the epistemic meaning in ukWaC. On the other hand, intrinsic modality is lower in BASE. This can be caused by the fact that intrinsic modality is frequently used to express rules which are mostly expressed in written forms.

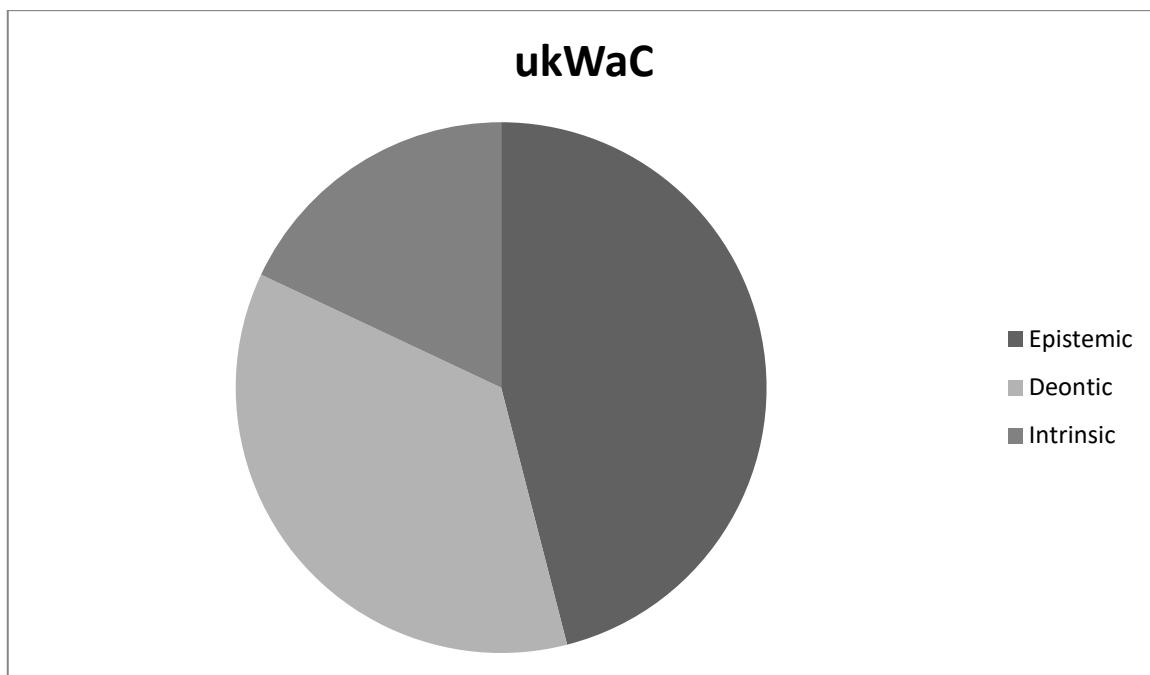
5.9 Ought

In this part of the thesis, results for *ought to* are discussed.

	Epistemic	Deontic	Intrinsic
ukWaC	46	36	18

Table 11: Results of *ought* in the written corpus ukWaC

Firstly, the occurrence of *ought* was researched in the written corpus. It can be seen that *ought* was determined in 46 cases as epistemic meaning. The second most frequent modal meaning is deontic. Finally, *ought* was determined to represent deontic modality in 36 cases. The rest of the sample, 18 cases, belong to the intrinsic modality.



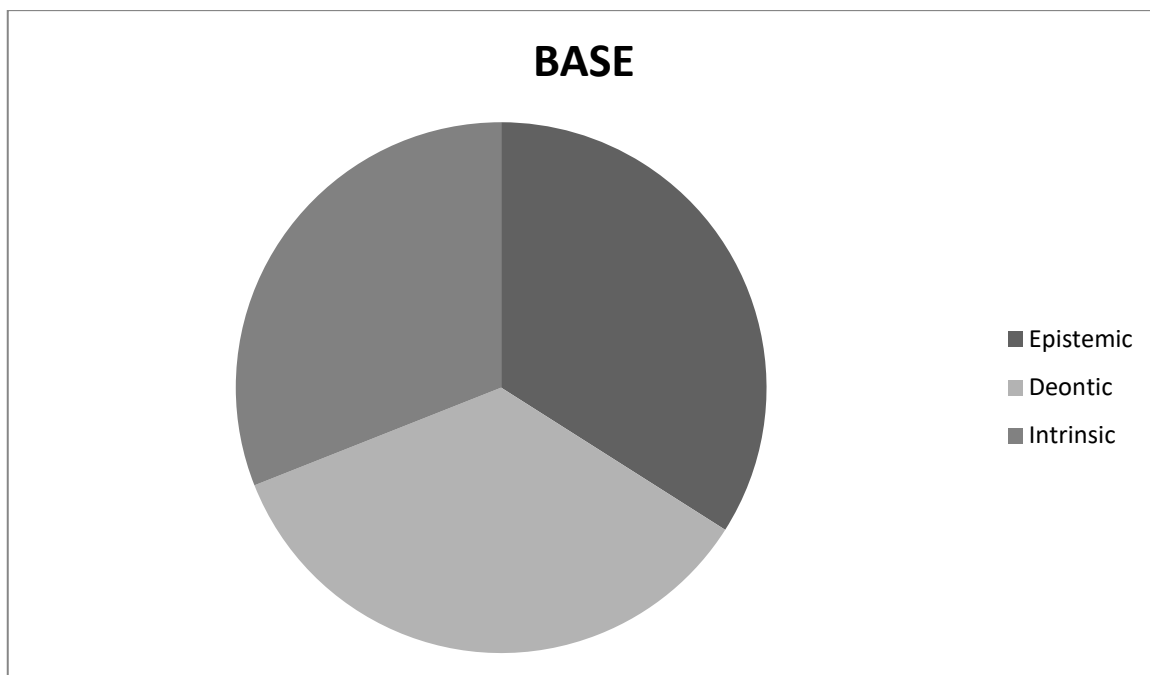
Graph 09: Visualisation of the results from the Table 10

In the spoken corpus, epistemic modality tends to occur most frequently. The modality with the second highest frequency is deontic, and the last one in number of occurrences is intrinsic. The table shows that there is a slight difference between intrinsic and deontic modality. As other graphs and tables show, the root modality is used more than epistemic modality. This finding contradicts Radden and Dirven’s claim in *Cognitive English Grammar*. It is assumed that the modal *ought* should not be used as frequently as the research showed.

	Epistemic	Deontic	Intrinsic
BASE	34	35	31

Table 12: Results of *ought* in the spoken corpus BASE

The result of *ought* in the spoken corpus BASE shows that all three modal meanings are comparable and they differ only in slight detail. Deontic modality with 35 realizations was determined to be used with the highest frequency, the second one is the epistemic meaning with 34 realizations, and the modality of *ought* with the least frequency is intrinsic modality with 31 realizations.



Graph 10: Visualisation of the results from the Table 11

When the results are examined, it can be seen that all of these three modalities have almost the same number of representations. Particularly, the rise of intrinsic modality is evident and while the representation of epistemic modality fell from 46 to 34, the representation of deontic modality decreased only by 1.

Even though Radden and Dirven argue that epistemic meaning of *ought* is used very rarely, the results show that epistemic modality has a high number of occurrences in both corpora. *Ought* is considered to be used preferably in the formal context thus intrinsic and deontic modalities are expected to have superior numbers to epistemic modality. The reason why epistemic modality has such a high number of realizations can be due to the fact that *ought* shares similar meaning as *should*.

5.10 Must

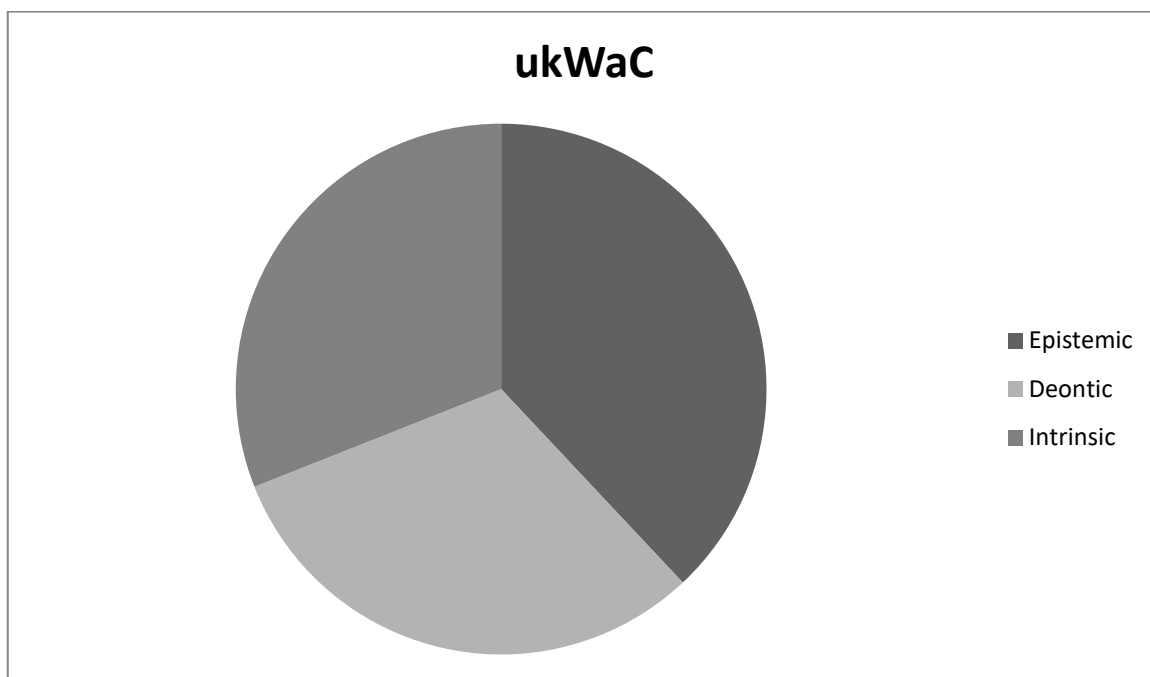
Another modal verb which was analysed is *must*.

	Epistemic	Deontic	Intrinsic
ukWaC	38	31	31

Table 13: Results of *must* in the written corpus ukWaC

Must belongs amongst the most frequently used modal verbs. The table above shows the research results based on the written corpus ukWaC. Out of 100 realizations of *must*, 38 samples were determined to bear epistemic meaning. In comparison, 31 instances of

must were assigned to the deontic modality and the same number (31) was classified as intrinsic modality.



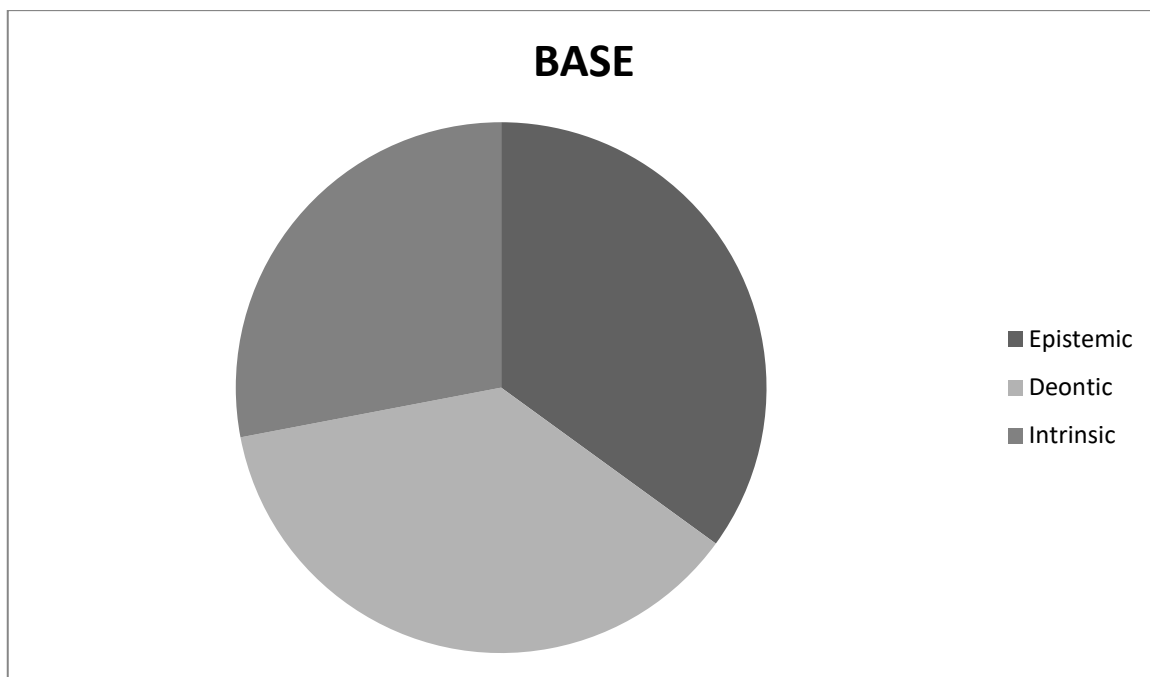
Graph 11: Visualisation of the results from the Table 12

As it can be noticed from the diagram above, epistemic modality indicates a slightly higher number of representations than those of the other two modalities, deontic and intrinsic, whose results are comparable.

	Epistemic	Deontic	Intrinsic
BASE	35	37	28

Table 14: Results of *must* in the spoken corpus BASE

BASE, in other words, the corpus of British Academic Spoken English, was selected as a corpus of spoken English. The table above shows that spoken *must* is mostly used in the meaning of deontic modality; this claim was affirmed by 37 realizations. The modal meaning with the second highest frequency of use was epistemic *must*. This particular meaning was found in 35 cases. The last 28 instances belong to the field of intrinsic modality.



Graph 12: Visualisation of the results from the Table 13

The graph above shows similar information as the previous diagram describing the research of ukWaC. All in all, we can assume that all of these kinds of modality (epistemic, deontic, intrinsic) are comparable in numbers. In ukWaC, it is epistemic modality which has slightly higher numbers than the rest, but in the specific case of BASE, it is intrinsic modality which has slightly lower numbers than the rest. This information indicates that all these modalities (epistemic and intrinsic) are almost equally represented in both corpora.

5.11 Research summary

In this chapter, the complete results of the analysis are interpreted.

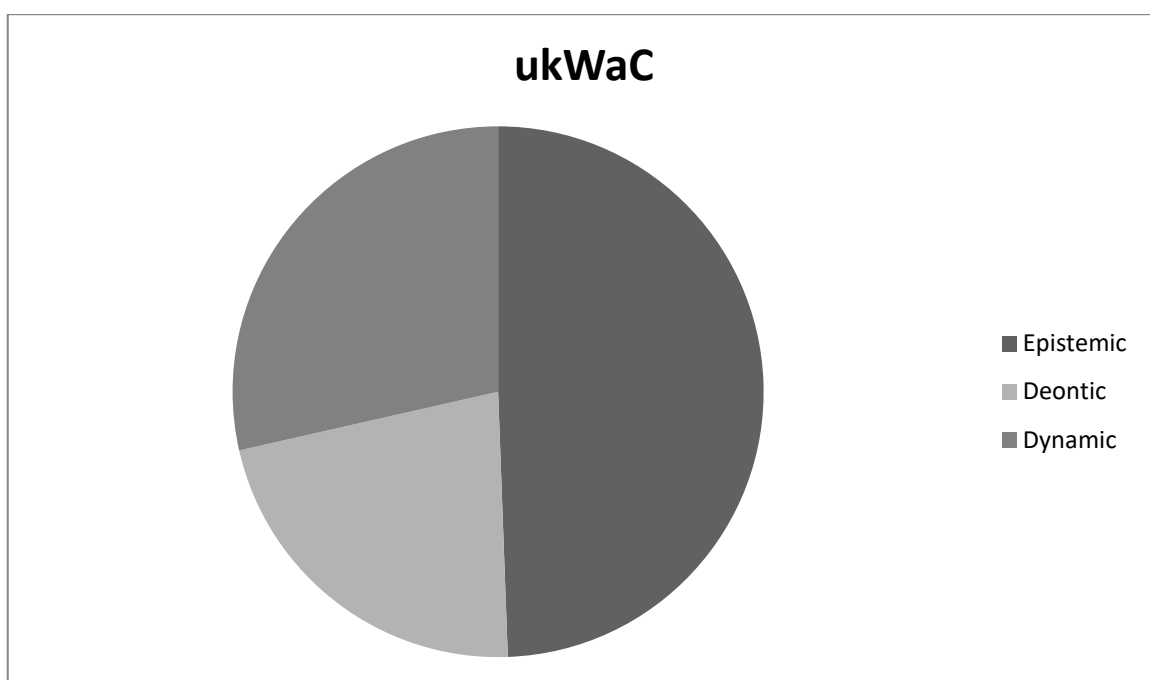
	ukWaC	BASE	Total
Epistemic	296	278	574
Deontic	132	139	271
Dynamic	171	183	354

Table 15: Total results showing the number of realizations belonging to the particular kinds of modality

The table above concludes the complete results of the research. It was arranged according to the distinctive types of modality and the corpora. In other words, the

numbers from previous tables were summed, thus e.g. 296 is the number which represents all of the realisations of the modal verbs which were determined to have the meaning of epistemic modality in the corpus ukWaC. This process was repeated with all of the modalities and also with the second corpus (BASE). After the results from both corpora were compiled, the disposition and intrinsic modality were put into account as dynamic modality. This was done due to the fact that dynamic modality is a basic level which is generally recognised, but only Radden and Dirven (2007) divide dynamic modality into the other two.

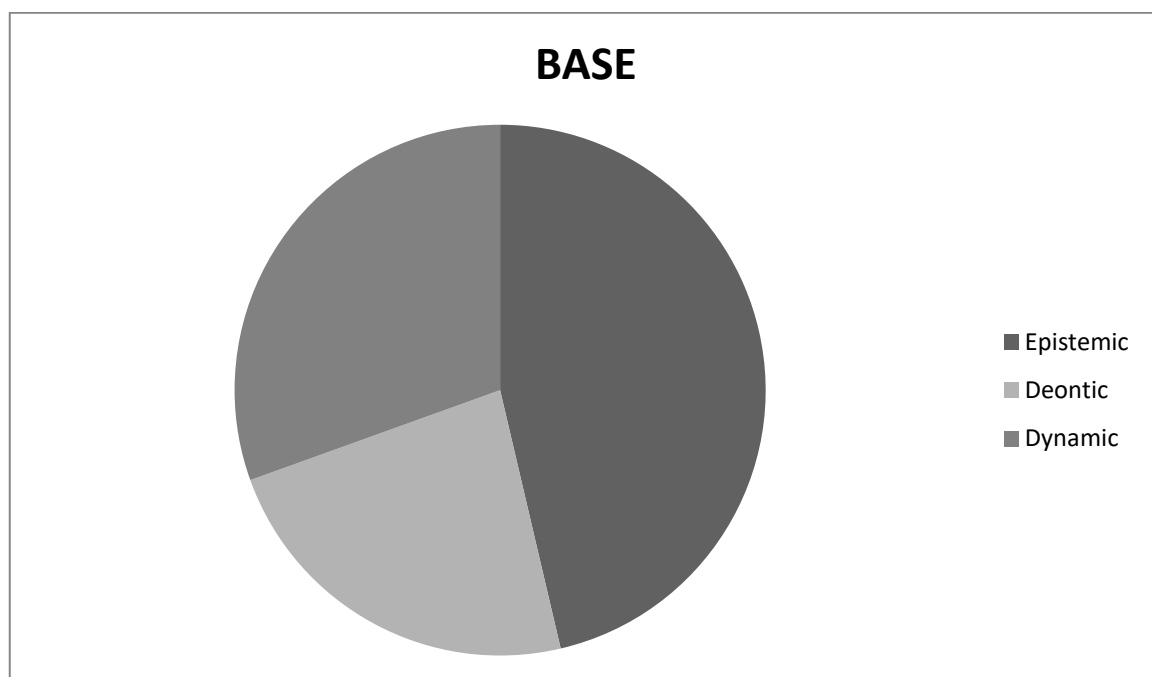
The results show similar numbers from both corpora. It is shown that epistemic modality is superior to other kinds of modality. The low frequency of deontic modality may be caused by the presence of intrinsic. When intrinsic modality is used the listener may also be exposed to a directive force which tends to be obeyed. Intrinsic and deontic modalities share some similar features, thus the process of determining kinds of is difficult.



Graph 13: Graphical visualisations of the results showing how the different kinds of modality are frequent in written corpus ukWaC

The graph above shows the whole numbers of all modal representations in the written corpus ukWaC. One can notice that root modality, in other words, deontic and dynamic modality, occurs with more or less same frequency as epistemic modality. To put it differently, the number of representation is very similar at the basic level (root and

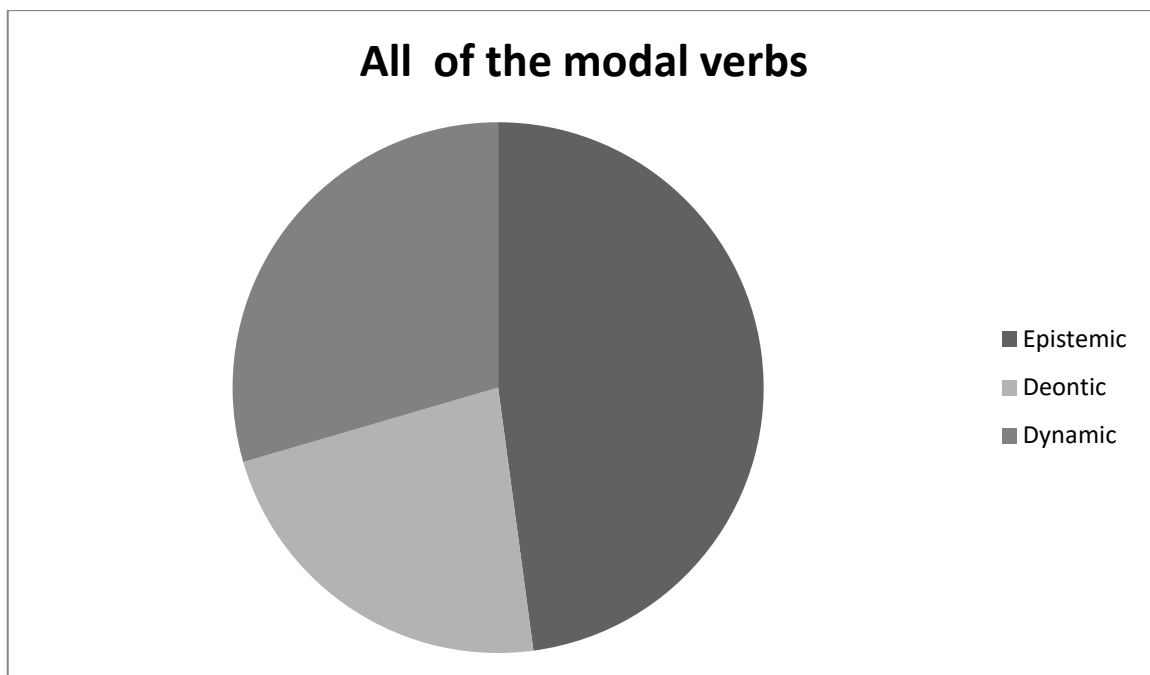
epistemic modality). This could be mainly caused by the fact that the written form tends to be less directive and more descriptive, thus it can be concluded that the realisations of the modal verbs are mostly used in their epistemic meaning.



Graph 14: Graphical visualisations of the results showing how the different kinds of modality are frequent in the spoken corpus BASE

In comparison with the previous graph, this diagram shows the results of all modal representations in the spoken corpus BASE. In this case, it is clear that the frequency of epistemic modality is lower and, at the same time, there are more instances of dynamic modality than in the written corpus. Deontic modality has almost the same numbers as in ukWaC, thus its area in the graph is also comparable.

Epistemic modality dominates the diagram in comparison to other modalities, namely deontic and dynamic, mainly due to the modal verbs *may* and *might*. These two modal verbs possess relatively low strength, thus it can be considered as an explanation for their epistemic use. The results of other modal verbs showed that deontic modality is more frequent than epistemic modality. This suggests that whereas written language is descriptive and therefore more suitable for epistemic modality, spoken language is more direct, which means that speakers impose more their strength.



Graph 15: Overall results depicting how frequent different kinds of modality are in the spoken and written corpora

The last diagram provides the overall results of the research. The absolute majority is represented by epistemic modality as it covers almost half of the area of the graph. The second largest area depicts the frequency of dynamic modality. On the contrary, deontic modality occurs the least.

The reason for the lack of deontic modality can be caused by the fact that there are other ways to enforce the speaker's strength, such as imperative. On that account, it may be assumed that modal verbs are used especially to express epistemic and dynamic modality. In addition, not all of the modal verbs which are dealt with in this thesis can express deontic modality, thus it is obvious that the number of either epistemic or dynamic modality is higher than deontic.

Unclear boundaries of the modalities caused difficulties in the determining process. In other words, the boundary between deontic and intrinsic modality is unclear and the process of determination and the author's reasoning make it subjective.

Conclusion

The thesis deals with the polysemy in English modal verbs. At first, linguistic theory was summarized. The terminology connected with the modality was outlined and different kinds of modality were described. In addition, there is a number of notes concerning the different kinds of modality and various terminology which is used for the description.

The second and crucial part of this thesis is focused on corpora research. For purposes of this particular research, two corpora were chosen, namely ukWaC (representative of written corpus) and BASE (representative of spoken corpus). In each corpus, all of the analysed six modal verbs (*might, may, can, should, ought, must*) were searched and, from the results the samples were made. Firstly, modal verbs were compared with their overall frequency in the chosen corpus. Secondly, ipm number from the written corpus was contrasted with the spoken corpus. Each sample used for the research included one hundred realizations of each modal verb. As the following step, it was determined what kind of modality every realization expressed.

Another part of the thesis is aimed at prototypical examples of the modal verbs and their modal meanings. The number of examples for one modal verb varies according to the number of different modal meanings which each chosen modal verb can possess. Apart from prototypical examples, each of the realizations also includes reasoning why that particular modality was chosen.

The results are described in separate subchapters, a chapter for each modal verb. The numbers were inserted into tables and diagrams for better orientation and clarity. These depictions were compared and described. It is essential to mention that every modal verb has two tables and two graphs in its chapter. One table and one graph represent the numbers from the spoken corpus, whereas the other table and graph represent the results from the written corpus.

As the next step, the numbers of modals for each corpus were totalled. This process enabled us to show what modality was used with the highest frequency in the written or in the spoken corpus. For this purpose, the results were summarized and put into concluding table and diagram. These illustrative depictions concluded all the results of all modal verbs from the ukWaC corpus and similar procedure was done also for spoken corpus with the results from BASE.

The final step of the analysis is comprised of totalled results concerning both BASE and ukWaC. The final conclusion is again portrayed in the concluding table and graph. This procedure allowed us to show what modality is most frequently used in written and spoken language in general, not only for each corpus separately.

The final results demonstrate that there is only a little difference between the spoken corpus BASE and the written corpus ukWaC. This concluding notion is supported by the fact that the majority of the samples pertained to epistemic modality. According to the analysis, the second most frequent modality was dynamic. To be more specific it is intrinsic modality which can be formed by any of the modal verbs mentioned in this thesis. However, it is only *can* which has the ability to form disposition modality, the second subtype of dynamic modality. There were two occasions in which *might* was determined to bear the meaning of deontic modality, which should not happen according to grammars.

The lack of deontic modality might be caused by the fact that the English language offers various means how to express permissions, obligations, and commands, such as the imperative. What is more, the English language provides other means for expressing deontic meaning (via modalised expressions) that would result in omitting modal verbs.

It should be mentioned that the process of determination of modal meanings is subjective to some extent. It is particularly based on the reasoning process of the author. As a consequence, some of the interpretations presented in this thesis might cause disagreements. Nevertheless, both corpora offered several prototypical examples of the modalities, yet the majority of the modal meanings was more difficult to determine. The research conducted in two corpora showed that each modal verb which is part of this thesis shares multiple modal meanings.

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Appendix

Extract from the BASE sample of *can*

1	ahlct009	creates a language about childhood which is not childhood it revives it but does not feel it again it describes it but it	can	not be it and yet that 's the only way it can be it that 's the paradox it 's also the interesting thing here again that Maggie	epistemic
6	ahlct021	[[voiced pause]] it is good for historians to think about what they 're doing and also if they do that we argue that you	can	become better historians and that 's obviously what we 're doing we 're trying to train good historians the best	epistemic
42	lslct039	an operational system or processes yeah that you tend to design in some sort of feedback mechanism i mean auditing	can	just be done presumably just to [[voiced pause]] have advance warning that you 're going to pass an external yeah you	epistemic
58	pslct011	turned up in a different form in the the denominator and here they 're having different effects in the output but can we	can	we see that in another way well we can this this will hopefully make it a little bit clearer the only thing i mean it may be	epistemic
97	sslct030	competitor in the field in all other cases there is there are other criteria of competition [[voiced pause]] it	can	be sort of the ability to take in recent technology that 's what they call learning it can be quite simply the quality of	epistemic

46	pslct002	in teaching and we 're asking you to get this in the in the practical to have a look at that and the sort of question you	can	now answer is how would the degrees of freedom change if you moved fertilizer to the subplots if instead of having two	deontic
56	pslct010	a smaller disc a larger disc onto a smaller disc okay so that would be an illegal move in the Towers of Hanoi problem okay we	ca	n't do that we can only move smaller discs onto larger discs okay so we could solve it in various ways it could be quite	deontic
14	ahlct035	strong A-I strong artificial intelligence one of those claims is that computers put very very briefly that computers	can	think or that put it slightly less briefly a suitably programmed digital computer may at some time at in the future be	intrinsic
28	lslct009	red when reduced and this reaction stops itself by producing carbon dioxide so that like a forest fire or a fairy ring it	can	only go in one direction it ca n't go back on itself or a nerve impulse it 's got to go one way yes now what we 're going to find	intrinsic
82	sslct005	the deathplace we ca n't have that get in there get in there now we should be deciding when these people end their lives we	ca	n't just have this you know saving up your your narcotics for the big bang and and your daughter coming and holding you in	intrinsic
22	lslct002	those will be completely ineffective for certain diseases or in certain settings so the question is always what things	can	you do which will alter disease if you take great care to plant a clean crop but the disease comes from elsewhere then you	disposition

64	pslct026	is possible at all to modify the rules of the game so the doves will survive and it turned out that it is very difficult they	ca	n't survive in direction of the hawks but if you 've got hawks and bullies which act slightly differently with respect to	disposition
81	sslct005	of it to criminalize it and marginalize it as a kind of survival kind of evolutionary survival that we can improve upon we	can	improve upon it with [[voiced pause]] forced contraception for fourteen year olds [[voiced pause]] we can i we 'll	disposition

Extract from the ukWaC sample of *can*

1	http://www.thisistravel.co.uk/sitemap/article/articles-month-01-year-2006.html	sat atop an elephant in Thailand , discovered Low-cost goes long haul Go far for far less : Now you	can	jet off to Canada and India for less than £ 250 return , Paul Oswell asks if low-cost air travel	disposition
53	http://www.eduwight.iow.gov.uk/curriculum/core/english/literacy/keystage3/sel-f-ass.asp	I should put one in my writing . I can write letters clearly and usually correctly . Level 2 I	can	write simply and what I write makes sense . I can make what I write interesting and easy to read	disposition
77	http://www.cfc-net.co.uk/forum/topic.asp?TOPIC_ID=18836&which	player and City chairman John Wardle , manager Stuart Pearce has taken the matter into his own hands. "Manchester City	can	confirm that Ben Thatcher has been suspended from first-team action pending the results of the club 's internal	disposition

	page=2			investigation into	
35	http://www.niftc.co.uk/page.asp?id=32	March 2006 Entries are invited for the 7th Venice International Short Film Festival with a reminder that all foreign productions	can	participate in the International Competition . All types More UK Film Council - Headline Sponsor Of Rima 2006 date posted	deontic
70	http://www.arunet.co.uk/tkboyd/hh6r.htm	spreadsheets . Paradox and Quattro come with WordPerfect Office , and , in the versions I've seen , you	can	install just these . You do n't have to install the wordprocessor , unless you want to . Not all	deontic
18	http://www.ukmortgagesearch.co.uk/fast-non-status-mortgages-offer-t.htm	much effort , they are everywhere that you look on the internet , knowing which UK mortgage calculator to use	can	be a bit of a challenge . A standard UK Mortgage calculator lets you input information about how much combined	epistemic
28	http://www.redking.co.uk/seo/20196.php	in search engines . A number 1 spot in Google pretty much guarantees loads of traffic to a website which	can	then materialize in high revenue for the website owner . Fatherhood has had a big impact on crime writer Michael	epistemic
83	http://www.aimhigher.ac.uk/sites/practitioner/communications/communications_resource_pack/media_rel	the media , they will contact you for further information , or to request an interview . The following tips	can	help you to handle a media enquiry efficiently : · Always respond promptly to requests for further information - journalists	epistemic

	ations/handling_a_media_enquiry.cfm				
96	http://www.paxchristi.org.uk/JustPeace/jp226.htm	knowledge - or such capabilities -for all time . If one state actively pursues the weaponisation of space , we	can	be sure others will follow . " UN Secretary General Kofi Annan said : " Above all , we must	epistemic
32	http://eweb.chemeng.ed.ac.uk/courses/MSO/lab/fortran/simple.html	later) . It is followed by a list of the names to be given to the variables . These	can	be any combination of letters or numbers , but must start with a letter . The names may not include	intrinsic
49	http://www.tynedale.gov.uk/residents/newsviewsdetails.asp?newsid=143	to operate a keyboard . By wearing a baseball hat which has an infrared beam attached , the computer user	can	choose letters from the infrared keyboard with their head movements - so they can operate it hands free ! "	intrinsic
63	http://www.successforall.gov.uk/index.cfm?pg=296	giving new providers the opportunity to enter the system . More information and a pdf copy of the White Paper	can	be found on the Department 's further education website , or from the Department 's press release . The White	intrinsic

Extract from the BASE sample of *may*

7	ahlct015	you know a good student is is knowing how to distinguish between [[voiced pause]] different kinds	may	come across critical texts you may come across so i deliberately do n't say oh this is the one i	epistemic
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		of texts you		recommend this above all so	
12	ahlct0 34	large books by a very famous art critic over many years having pointed out that it 's just straightforwardly false you	ma y	think well goodness me i mean did this man devote his whole life to you know arguing for a theory that 's just so obviously	epistemic
30	lslct02 7	and although there 's a number of causes for that increased P-T-H-R-P can be one of them so you just bear in mind you you	ma y	need to look for this [[voiced pause]] the difference is [[voiced pause]] if you 've got [[voiced pause]]	epistemic
61	sslct00 5	is a battle she could join instead of feeling that she 's got to keep herself a out of all human contact whatsoever and that	ma y	sound excessive but i do know of at least one case of a girl who would n't come out of her room because of the breadth of her	epistemic
73	sslct01 2	eventually they called it a sustainable development strategy for the south-east of England ironically as you may or	ma y	not know that strategy then had went through public consultation and [[voiced pause]] public examination where it	epistemic
50	pslct03 3	the requirement is that you 've already proved it and in an examination typically for example you might be told that you	ma y	use in a question any sequent or theorem that you 've already proved mm if you were allowed to introduce any theorem then	deontic
59	sslct00 5	talking about what we 're actually going through here and just how this ordeal is presented to us as a	ma y	i ask a question sure [[voiced pause]] to the audience would it be all right if i put the camera on	deontic

		privilege okay		the audience if if you	
8	ahlct0 28	secularism the s the formula changes and the king says le roi te touche the king touches you Dieu te gurisse	may	God cure you okay a shift from the indicative to the subjunctive which he says in opens up a space of uncertainty a space of	intrinsic
16	ahlct0 36	is wrong right so any sort of non-moral rela [[voiced pause]] motive can get in at the primary level and the agent	may	act just from that motive all it means i for duty to act as a secondary motive is for them to regulate the sorts of actions	intrinsic
21	lslct00 2	and start looking for funny weather conditions in that you 're going to find them if you look for an eclipse of the moon you	may	find it if you look for [[voiced pause]] somebody who wal a black cat walked in front of me you 'll find it you will be able	intrinsic

Extract from the ukWaC sample of *may*

23	http://www.jobscore.co.uk/privpol.php) concerning your information . As an inactive user , you remain bound by them also. d) Correspondence We	may	keep a record of any correspondence we may receive from you or send to you , for our files .	deontic
47	http://supportweb.cs.bham.ac.uk/docs/postgres/manual/arrays.html	taken as the item value . Quoting array elements . As shown above , when writing an array value you	may	write double quotes around any individual array element . You must do so if the element value would otherwise confuse	deontic

53	http://www.abc-motorcycle-training.co.uk/vehicle_requirements_for_motorcy.htm	need to pass a further test on a motorcycle of at least 35 kW (46.6 bhp) . They	may	practise on bikes over 25 kW (33 bhp) under the same practice conditions for direct access riders .	deontic
24	http://www.scre.ac.uk/personal/pb/projects/neltegem/index.html	a visualisation of who is currently present in the website , and where they are . This kind of visualisation	may	be limited to simply naming the people currently viewing the same page , or showing where the current users can	epistemic
33	http://www.jardin-d-eden.co.uk/acatalog/Support.html	request . (Be sure to complete all the mandatory fields marked with a red " * " otherwise we	may	be unable to process your request or it may be delayed) . Simply Tab between the fields and over-type	epistemic
61	http://www.manifest.co.uk/manifest_i/2004/0411November/041105newscorp.htm	one vote per share , and holders of 20 % or more of the outstanding voting shares of the company	may	cause a special meeting of shareholders to be called . The Murdoch family interests have agreed that , following reincorporation	epistemic
73	http://www.lsbu.ac.uk/water/hofmeister.html	n clusters [298]. Interactive COW (Plugin , ActiveX) and Chime structures are given . Similar clustering	may	occur around PO 4 3- where the surrounding (H 2 O) n cluster has n=15±3 as shown by	epistemic

94	http://www.scambuster419.co.uk/inventorptiii.htm	little Kingslead . I hope that he is not dead yet . If Adekunle gets his act together , we	may	still be able to save him . From : Gilbert Murray To : Vincent Adekunle ; Cc : Wale Williams	epistemic
19	http://compton.parish.hants.gov.uk/magazine/apr99.htm	the removal of the land from Countryside Status . Depending on the results of those consultations , the Parish Council	may	then raise the matter with Hampshire Voluntary Housing Society . Overhanging trees/bushes obstructing pavement - Otterbourne Road . Further inspection	intrinsic
21	http://www.hmsso.gov.uk/legislation/northernireland/nisr/yeargroups/1980-1989/1981/1981oic/no228_000.htm	that he should have free legal aid in preparing for and participating in the diversionary youth conference , the court	may	grant in respect of him a criminal aid certificate . (4) A person in respect of whom a	intrinsic

Extract from the BASE sample of *might*

4	ahlct007	ask how does Chile come into existence at all if these geographical boundaries were so tremendously predominant you	might	think there 's some reason for suggesting that geography alone does n't create a sense of nationalism i mean there are	epistemic
8	ahlct014	Arrest offers a similar criticism except that those	might	suffer along the way [[voiced pause]] but the	epistemic

		who are badly treated are not so much the patients although they		junior medical staff the junior medical staff who are overburdened and	
28	lslct022	about ten of them we we ask why do they want to do medicine what sort of recreaciona recreational activities they	might	be involved with some sort of insight into medicine what 's kind of important [[voiced pause]] ethical issues for the	epistemic
38	lslct040	to come on the left hand side by looking at the black ones but i do n't see how to get the black ones all come together they	might	manage to get somewhere so [[voiced pause]] are you do you mean do you mean these ones or other side so this one looks like	epistemic
56	pslct020	was that these axles were breaking the axles were breaking not so much the wheels they might have had spokes but they	might	have been solid wooden blocked wheels it does n't matter why were the axles breaking well let 's look at this picture but	epistemic
97	sslct037	books we 've got i suppose more things that we can do moving forwards backwards previous pages and things like that and we	might	get lost so those are just sort of summarizing some of the the main differences okay so those that is what people were	epistemic
35	lslct034	had failed because of recurrent F-S-G-S and i asked her one day whether she wanted another transplant and she said oh you	might	as well i mean i 've got [[voiced pause]] i i 've got seven might as well have eight [[voiced pause]] and	deontic
36	lslct034	whether she wanted another transplant and she	might	as well have eight [[voiced pause]] and [[voiced	intrinsic

		said oh you might as well i mean i 've got [[voiced pause]] i i 've got seven		pause]] anyway so the other [[voiced pause]]	
52	pslct017	any literature on recognition and a related issue to that is what determines why individual members	might	want to join unions [[voiced pause]] to the extent that unions are a public good or or a collective good then there 's a	intrinsic
80	sslct017	individual it is true is simply born into a political community or simply born under the authority of the government you	might	say all right i was born [[voiced pause]] [[voiced pause]] [[voiced pause]] in Britain i was	intrinsic

Extract from the ukWaC sample of *might*

3	http://www.grangehill.com/actbox.co.uk/closeup/acting.htm	can ; join a local drama club , theatre group etc , take part in the school play . It	might	be a good idea to keep a portfolio - this might include photos , details of productions you 've appeared	epistemic
8	http://www.repeatfanzine.com/interviews/Chomsky.htm	profits . Britain needed the petrodollars for supporting the British economy and it looked as if what happened in Iraq	might	spread to Kuwait . So at that point Britain and the US decided to grant Kuwait nominal autonomy , up	epistemic
9	http://www.projects.ex.ac.uk/trol/grol/gaskell/nands2	leaving her motherless . She was trying to realise that , in order that , when it came ,	might	be ready to comfort her father . The porter opened the door cautiously , not	epistemic

	1.htm	she		nearly wide enough to admit	
12	http://arts.guardian.co.uk/filmandmusic/story/0,1639159,00.html	, " he says . " The outcome is too little direct engagement with the composer of the sort that	might	encourage the work to live on . Every piece I write is for groups who have specifically wanted to work	epistemic
34	http://www.cse.dmu.ac.uk/~mward/gkc/books/Complete_Father_Brown/chapter18.html	close all around the house like a cat , it might have purposes worse even than blackmail . My brother	might	cast me out and curse me for ever , but he was a gentleman , and would defend me on	epistemic
43	http://www.ysbl.york.ac.uk/ccp4bb/2002/msg00706.html	login to this account from another linux box using NIS (not the NIS-server) - if not , you	might	have forgotten to update the actual NIS files (updating only the /etc/passwd file on the NIS server machine)	epistemic
100	http://www.kithraskrystalkave.org.uk/comets.html	of a mega-tsunami after a huge bolide crashed into the sea just south of New Zealand . Evidence of what	might	be an impact crater , 13 miles across , has recently been discovered beneath the sea in this area .	epistemic
51	http://www.socialaudit.org.uk/4200-MIKI.htm	the drug companies prefer the euphemistic term ' discontinuation syndrome ' . What patients call ' addicted ' , clinicians	might	call ' psychological dependency ' . Semantic differences aside , there are a lot of people who feel wretched when	intrinsic
75	http://www.ccruni.gov.uk/	The Portadown Times and interesting	might	speculate that for this period a liberal	intrinsic

	research/csc/rituals3.htm	references to the Orange Order being a religious rather than a political institution . One		post-war society is seen as just as threatening as a united Ireland .	
92	http://www.seop.leeds.ac.uk/entries/qt-consciousness/	may inherit mutual correlations due to the fact that they are jointly caused by the psychophysically neutral level . One	might	say that such correlations are remnants reflecting the lost holism on this level . In this sense , they are	intrinsic

Extract from the BASE sample of *should*

22	lslct002	so it increases like that then a very different one [[voiced pause]] so this is a disease of cocoa in West Africa i	should	have drawn your attention to the time scale on this one which is running over forty days from day one-sixty of the year so	epistemic
31	lslct023	is that an awful lot of time is spent in the area of the doctor exploring the problem which feels to me is kind of how it	should	be okay tell me a bit more about that when did the pain first start those sorts of questions where you 're exploring what	epistemic
58	sslct002	very much to the fore now this guy insists on sitting on the floor basically [[voiced pause]] and his theory is that you	should	be at the same height or lower than your respondents now i just caught him when he was actually handing something out but	epistemic
87	sslct028	by the way this [[voiced pause]] these [[voiced	should	be in your handout so do n't need to scribble	epistemic

		pause]] definitions are in your handout so i think they are yeah they		them down that 's all right okay this is good old Eysenck and Keane our course	
15	ahlct025	should tr [[voiced pause]] try as far as possible to eliminate their own prejudices for claiming that the historian	should	seek to empathize with people who lived in the past verstehen to understand [[voiced pause]] what was going on inside	intrinsic
80	sslct015	's own silly fault but but either way we can see some reason for criminalizing this conduct whether however this conduct	should	be categorized as [[voiced pause]] prostitution and criminal on that ground rather than deception	intrinsic
85	sslct026	you had all these different practices all with different working ideas all with different views on how services	should	be delivered forming a strategy and if we look at back at commissioning deciding from this point of view what 's best to	intrinsic
98	sslct035	futures and set your strategies to suit them should strate strategies should be communicated as i mentioned you	should	look at the risks associated with the external factors and we spent half an hour yesterday looking at external drivers	deontic
21	ahlct038	he 's saying within the sphere of practical reasoning the Kantian model that i 've been sketching is deeply flawed and we	should	move away from it yes he says Kant is dead right it does capture many of our central intuitions which have arisen out of a	deontic
28	lslct019	do with immune responses to cancers patients	should	n't be mentioning names in [[voiced pause]] and	deontic

	were being recruited in but all the testing was going on in 's Hospital in i		this the these tests involved multiple visits up to and you know where	
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Extract from the ukWaC sample of *should*

8	http://www.bugs.bham.ac.uk/forum/topic.asp?TOPI_C_ID=1693&whichpage=2	That changing the number of society seats should not effect Guild Council 's ability to remain quorate . - this	should	not be an element of peoples thinking when making this decision , I would remove it . 10 . That	epistemic
13	http://www.voa.gov.uk/instructions/chapters/council_tax/council_tax_man_s3/e-ct-man-s3-pt4.htm	with . When an agreement form has been signed in accordance with part 3 paragraph 3.21 , the working docket	should	be completed and the casepapers passed for action in accordance with part 3 paragraph 3.23 above . Details of the	epistemic
69	http://www.jtsma.org.uk/daily_care_type_1.html	give a variety of positions including lying flat . Ideally if your baby can lie flat , he or she	should	be able to see out from a side-lying position . You should also choose a pram that allows you an	epistemic
78	http://www.energywatch.org.uk/bst/help_and_advice/contracts/before_you_sign/	are 'industry standards ' , and suppliers are able to agree whatever they want with their customers . Larger businesses	should	find that suppliers are willing to negotiate in order to get their custom . Smaller businesses should at least	epistemic

	index.asp			shop	
93	http://www.fenews.co.uk/newsview.asp?n=839	autumn . The review will be conducted by David Milliband and Jim Fitzpatrick , and a final package of proposals	should	be published by spring 2006 . Given that the creation of the LSC in 2000 was a key New Labour	epistemic
20	http://www.britishwindenergy.co.uk/ref/generating.html	the size of the development , the distance from the nearest connection point , and the connection voltage . You	should	impress on the PES any areas where you may have some flexibility , for example , you may be willing	deontic
30	http://www.ufaw.org.uk/SWAIFundRESEARCH.php	conditions for husbandry and experimentation should be of high standard conducive to good welfare and to minimising stress . Enclosures	should	meet the physiological and behavioural needs of the animals and appropriate enrichment should be provided . The health of the	deontic
44	http://www.grafikwarfare.co.uk/index.php?start_from=85&ucat=&archive=&subaction=&id=&	SNUB and TML from the UK . You can flick through online or download for closer viewing . Think we	should	do a GW spread for the next issue :) 17 Jan 2006 by snub link comments (deontic
16	http://www.diversity.org.uk/equality/news/en/repformjan98.html	community by the community for the community was seen as having many important benefits . The meeting agreed	should	be regular opportunities for individuals and the representatives of groups to be able to feed into	intrinsic

		that there		consultation on planned legislation	
45	http://www.energywatch.org.uk/publications/consultations/?expand_document_id=1320	This first consultation asks whether the current PAF is cost effective , whether more specific BSC objectives applying to suppliers	should	be defined , and also asks for views on the suitable design criteria and functional requirements of a potentially improved	intrinsic
81	http://www.dyfed-powys.police.uk/fraud/CNP_card_not_present.shtml	to ensure that the person making the transaction is the cardholder and has the card in their possession . They	should	obtain the following details : Card account number Cardholder 's name (as it appears on the card) Expiry	intrinsic

Extract from the BASE sample of *ought to*

10	ahlct020	of som someone standing over [[voiced pause]] [[voiced pause]] us and sort of telling us what to do or thinking they	ought	to return to the old regime [[voiced pause]] or whatever just as war has [[voiced pause]] just as the revolution has	epistemic
29	ahlct038	moral situations these sorts of hypotheticals are out of place in a moral situation we say you or possibly i ought or	ought	not to do such and such and not if you want X or Y but rather there 's no reason of that sort you just ought and this there 's no	epistemic
45	lslct015	such as incidence prevalence incident rate ratio things like that and their true or underlying values	ought	to be able to discuss how observed epidemiological quantities depart from true values because of	epistemic

		and you		random variation	
54	pslct001	high proportion of our own animal species threatened by possible extinction so what that says to me is that maybe we	ought	to look at our own backyard and start doing some things in this country as well which we are of course okay so why are	epistemic
71	sslct002	getting into these variable names which i think it it ought to be the next innovation in computing i think is that they	ought	to be able to let variable names go over eight letters and S-P-S-S the next versions i think should work on that because	epistemic
30	ahlct038	being prepared to follow the dictates of morality as so understood being prepared to do what you know you	ought	to do moral virtue or what he calls good will what 's sometimes called [[voiced pause]] conscientiousness that is	deontic
64	pslct018	else should be easy but it 's always that first step where things go wrong you either forget one of the forces you	ought	to put in or you get one of them wrong there are there are too many of them so i hope that you agree that i have got the correct	deontic
93	sslct034	having contact with and lobbying another government or firms lobbying their own government suggesting that they	ought	to take certain actions are becoming an increasing feature of international marketing think of one of the current	deontic
9	ahlct020	European governments but world governments the way in which we think [[voiced pause]] [[voiced	ought	to operate in a fair and just and equal way so for example the freedom of speech the freedom to	intrinsic

		pause]] societies		publish [[voiced pause]]	
42	lslct009	working with this reaction in the early nineteen-seventies and we were both at a meeting together in as it happened it	ought	to go blue and we agreed that this is such a beautiful system that we ought to get it to work for teachers and the important	intrinsic
82	sslct023	people worse off for a very long time so we 've got an awful lot of accumulated past injustice that strictly speaking	ought	to be rectified in our societies and he admits Nozick admits that actually maybe [[voiced pause]] a rough rule of thumb	intrinsic
86	sslct027	were doing it you 'd think the more opportunity other animals had to observe it happening so you 'd think that this graph	ought	to go up more and more steeply whereas in fact it goes up rather slowly and Shettleworth argues that this kind of graph is	intrinsic

Extract from the ukWaC sample of *ought to*

3	http://webjcli.ncl.ac.uk/1998/issue2/jones2.html	the freedom to rearrange the method by which they present information and thus knowledge to one another . Such rearrangement	ought	not to be technically difficult so as to act as disincentive to such activity . 4. Group Processing - the	epistemic
6	http://www.computersalesjob.co.uk/baltimore-guide-	mice ? " " I 've invented a machine , " observed the young man , modestly . " It	ought	to be worth millions--if you 'd care to finance it . " " The idea is baltimore guide restaurant utterly	epistemic

	restaurant.html				
44	http://www.newble.co.uk/writers/Kelly/worship.html	that he remains immoveable as a statue . He is alive unto God , but is responsible morally ; he	ought	to grow but may decline . No doubt he has his " old man , " the only thing to	epistemic
62	http://www.projects.ex.ac.uk/trol/grol/alice/glass02.htm	I declare it 's marked out just like a large chessboard ! ' Alice said at last . ' There	ought	to be some men moving about somewhere — and so there are ! ' She added in a tone of	epistemic
90	http://www.warfactory.co.uk/musings/toysofpeace.php	Eric , with an entire absence of the enthusiasm which his uncle had shown ; " I think perhaps we	ought	to do a little of our holiday task . It 's history this time ; we 've got to learn	epistemic
2	http://www.emotionalintelligence.co.uk/ezone/issue01.html	of the time we don't . (2) They are not prescriptive : we do not suggest that people	ought	to subscribe to these principles . People are entitled to believe whatever they want to believe , and to hold	deontic
50	http://www.mgcars.org.uk/mgcc/sf/990905.htm	so I started to make some enquiries for their replacement . Whilst at Silverstone , it was suggested that I	ought	to uprate to MGB ones . This would probably entail taking the arms off my old ones and transferring them	deontic
80	http://www.broadcaster.org.uk/section2/trans	in Old Testament times for seemingly trivial offences illustrate how much we ought to	ought	to take his demands for obedience . In the Old Testament , the Bible says : Exodus	deontic

	cript/holiness2.htm	respect God and how seriously we		chapter 25 (
41	http://www.hrothgar.co.uk/YAWS/reps/207.htm	the circumstances ; including , in particular , those matters set out in CPR 44.3(4) . An appellate court	ought	not to interfere with an order made by a judge in the exercise of his discretion unless it is satisfied	intrinsic
51	http://www.pkf.co.uk/web/pkf800.nsf/pagesbyID/IDCE7F760BF3D6DFFE80256C4500521769?OpenDocument	is used to maintain its website . Languages If an enterprise provides translations as a convenience to users , it	ought	to state clearly whether or not the translations are as authoritative as the primary source . If not , it	intrinsic
61	http://www.aruncc.org.uk/info/register.php	else to guess . It can be up to 32 characters long and made up of any characters . It	ought	to contain special characters like \$,\$,*,- to make it harder to guess . Password : Please provide your Email	intrinsic

Extract from the BASE sample of *must*

23	lslct006	in to get this to get into contact with the antigen so there 's something wrong with this story because there	must	be more to it than that because you 've got a third cell and how does it make contact okay so let 's try to explain what	epistemic
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37	lslct03 0	the role of two-three-bisphosphoglycerate is there any divers in the room any divers scuba people come on there	must	be one or two you if i give you the choice imaginary choice two-three-bisphosphoglycerate small white powder or air and	epistemic
53	pslct01 1	in this case the exponential minus infinity is must be zero must be zero it sounds good does n't it it sounds good so that	must	be zero and here we 've got [[voiced pause]] time is off to infinity or a big number and this bit is down to to zero so what 's	epistemic
64	pslct03 2	is the same as before correlation is covariance divided by the two standard deviations and that gives us a measure that	must	lie between minus-one and plus-one and just with the product moment correlation coefficient minus-one or plus-one	epistemic
87	sslct01 5	which is approved of or at least tolerated yeah if we 're going to have criminal law relating to prostitution there	must	be some way of defining prostitution that makes it different from the run of ordinary conduct let 's have a quick look at	epistemic
25	lslct01 0	if i want to sit down and read it i can learn from that daybook what you have actually done now this is something that you	must	learn [[voiced pause]] our PhD stdents are obliged to do it even more so [[voiced pause]] post-doctoral research	deontic
35	lslct02 2	well well if he then fixes himself up properly and applies again you know and he s does better fine but i i ca n't i think we	must	not be we must be very careful to guard against being overly sympathetic can we just can we just have one more question i	deontic

69	sslct00 2	to do a kind of sex survey and what this was it w it was fairly innocent although [[voiced pause]] i did say you know this	must	strictly be kept within the group and it it sort of i wo n't go into the details but it it was asking various fairly personal	deontic
2	ahlct0 08	American Civil War eighteen-sixty-one to sixty-five now even if you know next to nothing about American history you	must	be aware that the Civil War was cataclysmic in the national consciousness quite apart from the appalling loss of life a	intrinsic
31	lslct01 9	and as a sort of practical way out in our research ethics committees we say that the the the the child 's consent	must	be sought first and then the parent informed as a matter of courtesy and i 'm not sure about that but that 's the way the	intrinsic
92	sslct01 7	be judge whether his trustee or deputy acts well and according to the trust reposed in him but he who disputes him and	must	by having disputed him still have power to discard him when he fails in his trust so crucially it is the people who decide	intrinsic

Extract from the ukWaC sample of *must*

33	http://www.ratb.org.uk/html/fidel150405.html	Americans who were unjustly killed on September 11 , 2002 . We are today involved in a battle which we	must	go on waging , being confident and aware that sooner or later it wo n't be possible for them to	deontic
65	http://www.simulation	using the optional work sheets) . Participants	must	decide on how much to produce , the	deontic

	s.co.uk/opereval.htm	run a simulated operating unit for twelve months . Each month they		amount of raw materials to purchase and whether to work more than	
96	http://www.sun.rhbnc.ac.uk/~uhap045/316/fractalfaqa.html	It will decode the file and produce another file called imagename.GIF . This is the image file . 4. You	must	use another utility to view these GIF images . It must be capable of displaying color graphic images in GIF	deontic
9	http://www.roadsafetyuk.co.uk/gxc.htm	" safe route " . Always use the School Crossing Patrol . If there are no protected places then you	must	find a place where you can see the traffic and the drivers can see you . This means away from	intrinsic
34	http://www.xansa.co.uk/investors/agm/notes/	appropriate CREST message (a CREST Proxy Instruction) must be properly authenticated in accordance with CRESTCo 's specifications and	must	contain the information required for such instructions , as described in the CREST Manual . The message , regardless of	intrinsic
54	http://www.buryhillfisheries.co.uk/reports.html?ID=137	will be monitoring tackle and methods carefully this season . Our basic rules do not allow sea tackle and everyone	must	have a large landing net and unhooking mat and barbless or semi barbless hooks only please . Our full rules	intrinsic
5	http://www.bec-cave.org.uk/content/view/full/255/33/	is a spring percolation water of high carbon dioxide content . If this is the case , the sink water	must	resurge elsewhere , and the absence of cave development is explained . There was , however , no time to	epistemic

4	http://www.mk-news.co.uk/news/letters/2006/oct/1/letters%20to%20the%20editor%20luton.lpf	supports their actions . Victoria Harvey , Coordinator South Bedfordshire Friends of the Earth , Corbet Ride Leighton Buzzard Letters	must	arrive by noon on Tuesday . Full name and address must be supplied . Details will be withheld only in	epistemic
24	http://www.total-fishing.co.uk/CoarseForum.asp?Action=View&ID=6018C37E004741C8AE1F48C0F3A8D8ED&Page=15	groups disagree with i.d cards it should be compulsive to carry one at all times,if you aint got one you	must	be be illegal imigrant or criminal and should be " secured " untill you can prove you have an id	epistemic
44	http://www.mpa.gov.uk/committees/mpa/2004/040930/08.htm	offender must admit they committed the offence and must not have been previously convicted of an offence . The constable	must	be satisfied that it would not be in the public interest to prosecute the offender . A reprimand may be	epistemic
68	http://www.jobsin.co.uk/Somerset_jobs.htm 1	career potential . Skill areas ; candidates must have time-served experience in a similar role , be IT literate ,	must	be familiar with installation and repair of internal telephony exchanges . Excellent salary on offer , as well as other	epistemic