An empirical investigation of the allegedly non-normative modal predicate with must, not, and the perfect infinitive of the main verb

Abstract

The present paper offers an empirical study of an English modal predicate with the auxiliary verb must, the negative particle not and the perfect infinitive of the main verb, with the application of corpus methods. English grammars typically do not talk over this structure and hence one may get an impression that it is non-existent. However, the analysis shows that the researched construction has been used in English as a systematized unit for a long time, in both American and British varieties of English, in both speech and writing, and at various levels of formality. The article also presents the ways in which the modal readings of must interact with the negator not and with the perfect aspect in contemporary American English. Moreover, the findings of this study point to a number of already-existing norms which may have contributed to the emergence of the researched modal predicate structure.

Keywords: modality, perfect aspect, perfect infinitive, negation, codified norm, modality-negation-aspect interaction
Beyond doubt, language norms do play a very important role in foreign language learning. In search of the codified rules, people browse through numerous grammar books available on the market. One wants to know the rules that are necessary to construct utterances which will be comprehensible to other users of the language learned. This is one of the rudimentary objectives of learning a foreign language. Additionally, the knowledge of language norms facilitates the comprehension of utterances expressed by others. This will definitely contribute to building the learner’s self-confidence in using the target language because they will see that the language they use is comprehended by others, plus, they themselves can understand what others say.

Notwithstanding the above, the present text does not deal with foreign language learning or teaching. The starting point for the investigation portrayed below was Abraham’s generalization about the interaction of modality, negation and aspect. The scholar advocates a view that the interaction among these three categories leads to epistemic modality (Abraham 2008: 6). In the present author’s analysis, however, aspect is perceived from the grammatical perspective, that is as language forms which function as bearers of the aspectual readings (Comrie 1976/2001, Dahl 1985, Higginbotham 2009).

This paper presents an investigation into the English matrix predicate with the modal verb must, the negator not and the perfect infinitive of the main verb, which, for a reason, may be perceived as non-normative. The text first follows a, so to speak, question and answer format; and eventually, it discusses the results of an empirical study of the matrix predicates with must not and the perfect infinitive. The article begins with an explanation why this modal predicate construction may be perceived as non-normative. Then, the researched corpus is presented. After that, the author discusses five questions which arose when the construction was found in the studied corpus. These concern: the alleged randomness of this construction (as a slip of the tongue or an element of one’s idiolect), types of texts in which it functions, whether it is a contemporary invention, and, eventually, the modal meanings the studied matrix predicate expresses. The final section touches upon the issue of modality-aspect-

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1 I would like to thank the anonymous Reviewers of this paper for the invaluable feedback I received.
negation interaction (see also de Haan 1997, Hacquard 2009, Radden 2007 or Morante, Sporleder 2012).

2. Why non-normative?

As suggested in the introduction, when a learner of a foreign language reaches for a grammar book, they expect it to include the prescriptive information on how to use the target language in order to be comprehensible to others. Therefore, a grammar book should include codified norms, which will elucidate how to apply the language constructions in order to convey a message; and also, what ways of expression one may expect of other speakers of this language to be applied in order to understand their utterances.


Since various grammar books do not mention this structure, a foreign learner of English will not learn the construction in question from them. Nor will they find any information on this construction when they happen to come across it. What is more, since grammar books do not touch upon this construction, such a person may think that a matrix predicate with *must not* and the perfect infinitive is non-existent. More than that, one can also find information that this construction is not used: “we cannot use *must not have* for impossibility” (Vince 2009: 96).

Concluding the above, a learner of English may find the construction of matrix predicates with *must not* and the perfect infinitive non-normative. Despite what prescriptive grammarians say (or do not say) about this matrix predicate, a corpus-based study of modality-aspect interfaces has revealed that such a construction does exist (see e.g. Szymański 2016a, b). In addition to this, there are very few books which mention the existence of this structure (e.g. Huddleston, Pullum 2002; Swan 2002).

3. The corpus

The research referred to in the present article was conducted on *The Corpus of Contemporary American English* (Davies 2008–). The corpus (see Biber et al. 1998: 12) is available on the Internet at http://http://corpus.byu.edu/coca/ (accessed in December 2016). This vast collection of language material is composed of authentic texts, both
written and spoken, recorded between the years 1990 and 2015. The texts have been proportionately divided into: spoken, fiction, popular magazines, newspapers, and academic texts. The overall number of words in the corpus exceeds 520 million.9

4. The study

As has already been hinted at, despite the information grammars provide (or do not provide) about the analyzed construction, research on The Corpus of Contemporary American English has revealed that the construction of matrix predicate in which the modal must is negated by not and followed by the perfect infinitive does exist (e.g. Szymański 2016a, b). In addition to this, the author’s previous experience as a learner of English caused the following question to arise:

a) As grammar books do not mention it, is this construction accidental, a slip of the tongue or an element of one’s idiolect?
b) What types of texts feature this construction?
c) Is this a novelty?
d) Is it an Americanism?
e) What modal meanings does the modal predicate with must not + perfect infinitive express?

The above questions will be answered in the subsequent parts of the present paper.

The first impression one may have, assuming the non-normativity, is the accidental use of the discussed construction, which may happen due to a number of reasons, such as a slip of the tongue. Random use may also stem from the fact that such a structure may fall within the scope of a speaker’s idiolect. If those were the case, such constructions might be expected to be rare or used exclusively by particular individuals. However, as for the matrix predicates with must not and the perfect infinitive the situation is somewhat different.

A quantitative query in The Corpus of Contemporary American English provides 146 occurrences of the matrix predicate with must not and the perfect infinitive of the main verb. The distribution of the construction among the text types is shown in Table 1.

As can be seen in Table 1, the studied matrix predicate was found across all the text types which make up the researched corpus. As the distribution shows, this matrix predicate functions not only in informal, but also in formal texts, such as academic journals. The highest frequency has been noted for fictional texts, and subsequently for spoken exchanges. As for the fiction genre, these texts also include transcripts of conversations. When it comes to the dispersal of the structure among magazines, newspapers and academic texts, it exists at an approximate level in all of them.

When it comes to orthography, the excerpted samples include both the full form of must not (144 occurrences), as well as the contracted form of mustn’t (2 occur-

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2 The information about the corpus comes from the corpus website: http://corpus.byu.edu/coca/.
rences). The fully spelled form was found in all the five text types, whereas the con-
ttracted form was found in one spoken and one fictional text. However, it is important
to note that the one found in the fictional text was an informal-style narrative, not a
transcript of a spoken interaction.

Taking the above findings into consideration, one may state that the matrix pred-
cicate with the modal must followed by the negator not and the perfect infinitive of the
main verb is an established and systematized structure, found throughout a number of
genres. Hence, this matrix predicate is definitely not an accidental construction.

Then, one may wonder whether this consciously applied structure is a contempo-
ratory invention, or whether it has been in use for a number of years. For this purpose,
the author consulted The Corpus of Historical American English (Davies 2010–). This
corpus is available online at http://corpus.byu.edu/coha/ (accessed in December 2016)
and contains over 400 million words. It is made up of texts from 1810 to 2009.3

The present author’s historical inquiry focused on the earliest, i.e. 19th-century
texts, available for American English. The referential corpus provides 8 instances of
the matrix predicate with must not and the perfect infinitive in such texts. All of them
were naturally written compositions (as voice recording was enabled only in the 20th
century). Among those texts, one could find: a history coursebook, literary fiction or
an inventor’s guide (which could have been treated as a legal document). The eldest
recorded occurrence of the studied matrix predicate found comes from a text by John
Foster, titled An essay on the importance of considering the subject of religion. Ad-
dressed particularly to men of education, published in 1828.

As a result, one may draw a conclusion that the matrix predicate with the modal
must followed by the negator not and the perfect infinitive of the main verb is un-
questionably not a recent invention. Moreover, it seems to have already been estab-
lished and systematized in the 19th century, as it was found to be used in officially
published writings.

<table>
<thead>
<tr>
<th>Text type</th>
<th>frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>spoken</td>
<td>23</td>
</tr>
<tr>
<td>fiction</td>
<td>85</td>
</tr>
<tr>
<td>popular magazines</td>
<td>14</td>
</tr>
<tr>
<td>newspapers</td>
<td>14</td>
</tr>
<tr>
<td>academic texts</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>146</strong></td>
</tr>
</tbody>
</table>

Table 1. The distribution of the matrix predicate with must not and the perfect infinitive in The Corpus of Contemporary American English.

3 The information about The Corpus of Historical American English comes from the corpus website http://corpus.byu.edu/coha/ (accessed in June 2017).
So far, we have focused on corpora of American English. One may get an impression then that the matrix predicate with *must not* and the perfect infinitive is an Americanism. Especially, after finding support for such an idea in a grammar book. Such may be found, for example, in Swan (2002), who makes a remark about the epistemic readings of the modal auxiliary *must* attributed to American English, and exemplifies this with the following, among other, sentence: *Her alarm clock mustn’t have gone off*, which is put on a par with *Her alarm clock can’t have gone off* (Swan 2002: 342). This entails that the epistemic reading of the analyzed structure is used to express the speaker’s certainty about the non-occurrence of a situation. Furthermore, support for this view may also be found in Tottie (2002), who attributes the epistemic reading of *must not* to American English and regards it as one of the differences between American and British varieties of English.

In order to check whether the studied structure is an Americanism, a query was run in *The British National Corpus*. This collection of texts is also available online, at http://www.natcorp.ox.ac.uk/ or http://corpus.byu.edu/bnc/ (accessed in December 2016). It contains 100 million words from both written and spoken texts.

The results of the query in the corpus of British English dispelled any doubts concerning the exclusively American usage of the matrix predicate with the modal *must* followed by the negator *not* and the perfect infinitive of the main verb. This is so because the British-English corpus provides 30 occurrences of the matrix predicate in question.

The excerpted samples come from both spoken and written communication, from both official and unofficial texts. The modal *must* in these samples expresses mostly circumstantial (19 occurrences, mostly written) and secondarily epistemic (11 occurrences, mostly spoken) readings.

Assuming the above, one may draw a conclusion that the matrix predicate with the modal *must* followed by the negator *not* and the perfect infinitive of the main verb is not an Americanism exclusively because it may be found in British texts as well.

Notwithstanding what has been said about British English above, the main study centers on American English stored in *The Corpus of Contemporary American English*. Therefore, the subsequent sections will focus on the modal interpretations of matrix predicates with the modal *must* followed by the negator *not* and the perfect infinitive of the main verb in American English. The investigation will also concentrate on the interaction of modality, grammatical aspect and negation.

An essential remark that needs to be made is that there is a technical limitation placed on the display of search results in *The Corpus of Contemporary American English*. The corpus software imposes a restriction on the number of occurrences saved as a list of results which cannot be higher than 100. Hence, the study reported below concerns a list of 100 (out of the total 146) occurrences.

### 4.1. Meanings

This section of the present paper deals with the interpretations of the meanings of the researched construction. The matrix predicates with the modal auxiliary *must* fol-
allowed by the negator *not* and the perfect infinitive of the main verb have been found to express two modal meanings (see also Szymański 2016a, b).

For one thing, the studied matrix predicates express the modal reading of prohibition. Consider the following examples:

(1) They can’t get married in the Church of England, the Anglican Church, the official church of the country Prince Charles will one day reign over as king, because as defender of the faith, he must not have divorced. And since he has divorced, can’t get married in the official church of the country he will be king of one day.

(2) As the Souter and Thomas nominations show, such a nominee should have little judicial experience and he must not have ruled on much of anything that could be used against him politically.

Both of the above examples convey the necessity which comes from the current circumstances; hence they exemplify root modal readings (Sweetser 1982, Kratzer 1991). Furthermore, they both communicate the meaning of prohibition (or forbiddance). Therefore, the modal reading expressed refers to what the message senders consider necessary not to have happened. In (1) the subject (here: Prince Charles) is forbidden to remarry in the Anglican Church by the status he holds, which is mentioned in the quotation. A “defender of faith” is expected to follow the rules imposed by the denomination to which he/she belongs. However, these rules do not allow for divorce – according to the 7th Commandment, “Thou shalt not commit adultery”\(^4\). As a result, getting remarried after a divorce is considered a violation of this commandment. Consequently, the expectations stemming from the religious adherence, as well as the expectations related to the held status, impose a forbiddance of divorce on a particular follower or denomination member. Similarly, example (2) expresses what the message sender views necessary given the then current circumstances. This prohibition is ordered by what seems to the sender to be expected from a nominee. Furthermore, the imposed restriction comes from what the message sender has observed considering the circumstances which have led to the discussed situation, that is a case of two previous nominations.

In addition to the above, it is also worth noting that the discussed forbiddance restricts potential events in the past. In (1), the analyzed sentence expresses the necessity that the defender of faith did not divorce before the quoted utterance is expressed. Likewise, in example (2) the writer expresses the necessity that the nominee did not rule on any case which could be used against him in his past career as a lawyer. Both of the bans impose restrictions on the potential past behaviors of the subjects, though they take effect in the present. The pastness of the event is due to the application of the grammatical perfect infinitive of the main verbs.

\(^4\) The ordering of The Ten Commandments differs in various religious traditions, which may be misleading. “Thou shalt not commit adultery” is the 7th Commandment in the Protestant Church, whereas in the Catholic Church it is the 6th Commandment. Since the analyzed context concerns the Anglican Church, the Protestant account is referred to in the text.
In addition to the above, one may wish to add that the circumstantial (deontic) interpretation of the researched structure appears only in contexts that refer to forbiddance imposed by the law, which is to be obeyed by the members of the given community. The contexts referred to may, therefore, be considered official. Not surprisingly then, this meaning is expressed only by the fully negated form of *must not*.

Aside from the above, the studied matrix predicates were also found to express the modal meanings of speaker’s certainty. These are exemplified below:

(3) Well — the — but I think — I — I **must not have spoken** all that clearly on that. What I meant about welfare is this.

(4) In the rearview mirror, he saw her turn away, throw the shirt back onto the grass, and head back toward the water. The baby, in his pen on the lawn, reached for her, but she **must not have noticed**. She walked past him and back into Lake Aral.

Both of these examples express the speakers’ conviction which comes from their reasoning based on observable evidence. Therefore, they both belong to the category of epistemic modality (Sweetser 1982, Kratzer 1991). In both cases, the speakers express the modal force of necessity that an event did not occur in the past. This modal reasoning of speakers’ certainty comes from their conclusions, hence it may be referred to as **epistemic necessity** (van der Auwera, Plungian 1998). In (3), the speaker draws a conclusion that it could not have been otherwise (or that it was necessary) that he did not speak clearly on an issue. This reasoning comes from what the speaker heard from their interlocutor about how the latter had comprehended the speaker’s previously-uttered words. Therefore, one may say that the speaker’s modal reasoning comes from deduction. Compared to this, example (4) also conveys the speaker’s opinion about a necessity that a situation did not occur in the past. In the quoted circumstances, the speaker draws a conclusion that the mentioned woman did not take any notice of the baby on the basis of her behavior. Although the baby made an attempt to touch her, she walked past him without performing any action directed towards him. This is why the speaker concludes that it could not have been otherwise that she did not realize the baby’s presence.

Moreover, the same meaning of speaker’s certainty is expressed by the matrix predicates with the contracted negated form **mustn’t**. Consider the following examples:

(5) Then someone told her Mark was still around. He **mustn’t have left** yet for Seattle.

(6) Tony shook his head. He **mustn’t have heard** right in the bus.

It is worth noting that (5) and (6) are the only instances of **must not** contracted to **mustn’t** in the matrix predicates with the perfect infinitive in the studied corpus. Both examples (5) and (6) convey the meaning of speaker’s certainty or conviction that an event did not take place in the past. The modal reasoning comes from deductions made by the speakers on the basis of what they have just heard. Hence, both cases can be...
classified as readings of epistemic modality. Both examples express the modal force of necessity. As for the modal bases, in (5), the modal reasoning is based on the information she received (hearsay). As Mark was seen “still around”, thus it could not have been otherwise than that he had not left for Seattle by that time. Then, in (6), the speaker draws the conclusion on the basis of Tony’s reaction to the situation.

Additionally, as in the case of the previously discussed readings of forbiddance, the meaning of the pastness in examples (3–6) was achieved by the application of the perfect infinitive. Both of the utterances that exemplify speaker’s certainty refer to the pastness of the events.

4.2. Modality-aspect interaction

Having examined the semantics of the matrix predicates with the modal auxiliary must, the negative particle not and the perfect infinitive of the main verb, one may seek to establish certain patterns of interaction. The construction in which the auxiliary have is followed by the past participle of the main verb, known as perfect infinitive, is a grammatical structure that expresses the perfect aspect (Comrie 1976/2001, Dahl 1985, Higginbotham 2009). Therefore, the present study may also make a contribution to the studies on modality-negation-aspect interaction. It should be noted, however, that the perfect aspect is not the same as the perfective aspect, because the former denotes an event which takes place before a point in time, whereas the latter refers to actions viewed as complete units (see e.g. Comrie 1976/2001, Dahl 1985).

In the course of this analysis, the following two patterns of interaction have been observed:

a) DEON must + not + [perfect aspect] → neg MODALITY = FORBIDDANCE [past]EVENT
b) EPIST must + not + [perfect aspect] → neg EVENT[past] = SPEAKER’S CERTAINTY

As far as root (deontic) modality is concerned, the matrix predicates with must not and the perfect aspect yield the negation of modality; that is the lack of permission. This is so because the type of interaction which can be observed here takes place at the level of the modality, which results in the change of the modal meaning: deontic obligation becomes deontic forbiddance. The negator not, which follows the modal must, does not perform its prototypical function of negating, i.e. it does not provide the opposite meaning; yet a new meaning is produced. As a result, instead of the lack of obligation, one achieves the meaning of prohibition. Moreover, the perfect aspect of the main verb generates the pastness of the event.

With reference to epistemic modality, the matrix predicates with must not and the perfect aspect express the negation of the event. In these utterances, the negator not performs its usual function of negating an event (cf. Payne 1985). Furthermore, the perfect aspect of the main verb allows for the expression of the meaning of the pastness of an event. The epistemic reading of the studied structure is the only one mentioned by Huddleston and Pullum (2002), Swan (2002) and Tottie (2002).
4.3. In further search of further norms

Notwithstanding what grammar books and coursebooks say about the matrix predicate with the modal auxiliary *must* followed by the negative particle *not* and the perfect infinitive of the main verb, this analysis has led the present author to a conclusion that it is possible to establish a number of operating norms which may have contributed to the development of this structure.

When it comes to the root meanings of forbiddance, two norms regulating the use of this construction have been identified. First of all, we have identified the semantic norm that concerns the prototypical meaning of matrix predicates with the modal auxiliary *must* and the negator *not* which is used to denote a prohibition. In addition to this, the semantic norm has been set together with another norm concerning event semantics expressed with the perfect infinitive / perfect aspect. This construction denotes an event which took place earlier. Consequently, within the compositional semantics approach, speakers have achieved the meaning of forbiddance of a hypothetical event which is supposed to have taken place earlier than the moment of speaking.

Likewise, the norm concerning the semantics of the event expressed by the perfect infinitive / perfect aspect is applied with the epistemic readings of *must not* and the perfect infinitive of the main verb. Nonetheless, we may specify some further norms concerning the expressions of speaker’s certainty that an event did not occur, one of which is the syntactic-semantic norm relating to the interaction of modality and the perfect aspect. Research has shown that this grammatical structure is used in modal matrix predicates to express the speaker’s deduction or speculation about events which happened before the time of speculation. This interaction entails the expression of epistemic modality. Furthermore, one may also observe here another norm concerning exclusively the semantics of the modal auxiliary *must*. Studies have reported a decrease in the number of expressions of the deontic readings of *must*, i.e. obligation, and, at the same time, an increase in the number of expressions of the epistemic readings of *must*, i.e. certainty (e.g. Millar 2009, Williams 2009, Johansson 2013). This quite a new semantic tendency may also have constituted a springboard for the emergence of the studied matrix predicate with the epistemic meaning.

5. Conclusions

The rudimentary aim of this paper was to demonstrate and investigate the allegedly non-normative construction of matrix predicates with the modal auxiliary *must* followed by the negative particle *not* and the perfect infinitive of the main verb.

The discussed construction is treated as non-normative due to the fact that some grammar books do not mention it at all. Other grammar books go even further and instruct their readers that this construction is not used. However, after a closer examination, one may find a number of norms which either regulate or may have contributed to the emergence of this construction, which is used in both British and American varieties of English in both spoken and written texts and at various levels of formality.
The study has shown that speakers of English do use the matrix predicate with the modal auxiliary *must* followed by the negator *not* and the perfect infinitive of the main verb, despite information provided in various grammar books. They do so in order to express two types of modal meanings. Firstly, the modal meaning of forbiddance of a past event, which belongs to the realm of root modality. Secondly, the analyzed structure is also used to talk about the speaker’s certainty that an event did not take place in the past. In both cases, the pastness of an event is achieved by the application of the grammatical perfect aspect of the main verb. As for negation, with the root meanings, this category affects modality, whereas with the epistemic readings, it is the past event that is negated. Moreover, this structure was already in use in the 19th century, and has been present in the English language until today. It may, therefore, be proposed that this structure should be treated as a systematized grammatical unit and it should therefore be included in grammars and coursebooks.

References

1. Sources:

   
   
   
   
   
   
   
   
   
   
   

2. Critical literature:


