

EPISTEMIC *MUSTN'T* IN ENGLISH

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Abstract

It is a widespread claim in the literature that there does not exist an epistemic use of the modal verb *mustn't* in English. Instead, the form *can't* is said to fill the gap in the system. This paper shows that there is an epistemic use of *mustn't* in Present-day English, investigates the contexts in which it appears and compares the use of epistemic *can't* and *mustn't*.

Keywords: *mustn't*, epistemic, inference, deduction

Resumen

Existe una larga tradición en la bibliografía que afirma que no es posible utilizar el verbo modal *mustn't* con sentido epistémico en inglés. Este hueco en el sistema sería rellenado por la forma *can't*. El propósito de este artículo es mostrar que realmente existe un uso epistémico de *mustn't* en inglés actual, examinar los contextos en que dicha forma aparece y comparar el uso epistémico de *can't* y *mustn't*.

Palabras clave: *mustn't*, epistémico, inferencia, deducción

1. Introduction

One of the modal categories with a longest linguistic tradition is epistemic modality (Nuyts 2006: 6), present in influential works on the topic such as von Wright (1951), Rescher (1968), Lyons (1977), Coates (1983), Perkins (1983) or Palmer (1986)¹.

Although it is possible to find some variation in the definitions offered by these authors, there is general agreement that epistemic modality basically “indicates the degree of commitment by the speaker to what he says” (Palmer 1986: 51). There are different subtypes of epistemic modality, but the one that is dealt with in this paper is ‘inference’,² illustrated by examples like (1-2).

1. You must be kidding.
2. It must have been an awful experience.

A detailed description of the meaning of inference will be given in section 4, as this is not necessary for the purposes of this introduction. As examples (1-2) show, a typical realization of inference in English is the modal verb *must*. However, it is a widespread claim in the literature that the negative version of the verb (*mustn't*) cannot be used to express inference (Palmer 1986: 58, Coates 1983: 238, Perkins 1983: 49). Instead, negative inference is said to be expressed by the verb *can't*, which fills the gap in the system. Only in Palmer (2003: 10) do we find a very brief reference to the fact that some contexts do admit an epistemic use of *mustn't*.

In spite of this, it is not difficult to find examples of epistemic *mustn't* like (3-4), which shows that it is not such a strange phenomenon in Present-day English.

¹ This article has been financed by the Universidad Complutense de Madrid (PR41/06-15038).

² As we will see below, not everyone agrees that inference is a subtype of epistemic modality. For some authors, inference is better classified as an instance of the independent category of ‘evidentiality’.

3. I was going to commit suicide the other day, but I **must** not have been serious because I brought a beach towel. <<http://www.bbc.co.uk/dna/h2g2/A839225>>
4. The boy who took it **mustn't** have been any more than 14 or 15 years old plus it looked like he was with a gang of kids.
<http://www.bbc.co.uk/blogs/fivelivebreakfast/2007/11/have_you_been_a_victim_of_yout.html>

The purpose of this paper is to provide a more detailed description of the conditions of use of epistemic *mustn't*, as well as the relationship between this form and epistemic *can't*.

The paper begins by examining the epistemic meaning both modal verbs express in positive sentences (sections 3 and 4). After that, I will examine their use in negative sentences (section 5 and 6). Finally, section 7 compares the use of *can't* and *mustn't* as realizations of epistemic modality.

2. Methodology and conventions

The analyses presented here are based on the examination of a set of examples containing the expressions *can*, *must*, *can't* and *mustn't*. The examples were obtained from two sources:

The British National Corpus World Edition

The Internet, using the search engine Google.

When an example is shown the source is indicated as follows: if it is from the British National Corpus, the initials BNC are used followed by the text identification; for the Internet examples the URL is provided. When an example contains no source specification, it means that the example is either created or a manipulation of a real example.

3. Epistemic *can*

Epistemic modality is not the most common meaning of the verb *can* in affirmative sentences in Present-day English. It is also close to other modal meanings, from which

it is not always easy to distinguish. Let's examine the characteristics of the epistemic meaning expressed by *can* using examples (5) and (6) as an illustration.

5. The Justices of the Forest were for the most part important men who **can** have devoted a limited amount of time to their Forest duties. (BNC, AE9)
6. Since a sentence was the basis for execution, and the sentence was pronounced *inter partes*, execution too must have been similarly limited. Thus, execution *in rem* **can** have been available only where the person sued was actually in possession of the object. (BNC, B2P)

The meaning of *can* in examples (5-6) can be defined as 'epistemic' because it says something about the speaker's commitment to the content of the sentence. The speaker³ in (5-6) is not presenting the situation as a certain fact⁴, as would be the case in (7-8).

7. The Justices of the Forest were for the most part important men who **devoted** a limited amount of time to their Forest duties.
8. Since a sentence was the basis for execution, and the sentence was pronounced *inter partes*, execution too must have been similarly limited. Thus, execution *in rem* **was** available only where the person sued was actually in possession of the object.

Instead, the use of *can* introduces an element of subjectivity (Nuyts 1992). The speaker has no certitude that the situations really obtained, but s/he presents them as compatible with or suggested by her/his knowledge. We can refer to this as 'epistemic possibility', which must be distinguished from 'epistemic probability'. The crucial difference between the two lies in that epistemic possibility simply presents a proposition as compatible with our knowledge of the world, whereas epistemic probability also includes an estimation of the chances that the proposition be true, as example (9) shows.

9. The fact that the final article is **likely** to have been polished by Sir David English, the editor and long-standing friend of Margaret Thatcher, prompted speculation that the Number 10 knives were out for the Chancellor, and that his days might be numbered. (BNC, A4K)

³ The word 'speaker' is used here to refer generally to the participant in a communicative exchange that produces an utterance, irrespective of the channel (oral or written).

⁴ It is important to bear in mind that presenting a situation as a certain fact carries no implication as to the truth or falsehood of the proposition. In fact, a speaker may be wrong, may be lying or may present as a certain fact something for which s/he has no warrant.

However, the difference between epistemic possibility and epistemic probability is blurred in the language, as the former is normally integrated in the scale of the latter (Bybee-Perkins-Pagliuca 1994: 180, Nuyts 2006: 6). A possible reason for this is that if we present an event as merely possible, the pragmatic implication is that we do not feel confident enough to opt for an expression of high probability. Thus, epistemic possibility is often felt to be a step below high probability. In addition, speakers can modulate some expressions of possibility in order to produce meanings of genuine probability. Thus, we say that an event is *really possible*, *quite possible*, *only possible* or *just about possible*, in spite of the fact that the meaning of the adjective *possible* is, from a logical point view, incompatible with such modulation.⁵

Epistemic possibility must also be distinguished from ‘root possibility’⁶, present in examples like (10).

10. One of the main advantages of video as an aid was that it **could** be used during poor weather.
(BNC, ALC)

The most important difference between root possibility and epistemic possibility is that the former lacks the subjective element present in the latter: epistemic possibility includes the speaker’s commitment to the content of the proposition, whereas root possibility objectively states what is allowed to happen by the structure or conditions of the world. The difference between both modalities is easier to see when they are applied to the past; then their meanings could be rephrased as follows: epistemic possibility states that ‘it is possible that something was the case’, whereas root possibility states that ‘something was possible’. This difference is also reflected in the realization. Epistemic possibility about the past takes the pattern *present modal* + *perfect infinitive*, typical of epistemic verbs, whereas root possibility takes the usual pattern *past modal* + *simple infinitive*. A further difference between root possibility and epistemic possibility

⁵ There is a long grammatical tradition stating that certain adjectives, such as *dead*, *pregnant* or *possible*, are incompatible with gradation due to their meaning. However, language usage runs counter to this statement.

⁶ The term ‘root’ has traditionally been applied more generally to any kind of modality that lacks the subjective component of epistemic modality, not just possibility. See for instance Hoffman (1976), Sweetser (1990) or Coates (1995).

is that the former only presents structural situations (properties of the world) because it involves potentialities, whereas the latter can also involve phenomenal situations, that is, actual events that have taken, are taking or will take place.

As already mentioned, the use of *can* to express epistemic possibility in affirmative sentences is rather limited in Present-day English, as it has been replaced by *may* in most contexts. Nowadays the positive form *can* is virtually restricted to interrogative sentences and declarative sentences that contain negative expressions (*never, nothing*) or pseudo-negative expressions (*few, little, only*), as examples (11-14) illustrate.

11. What **can** have gone wrong? (BNC, CKD)
12. The row was signalled at the beginning of the year, and when the commissioner went public, it **can** have been no surprise, whatever ministers said. (BNC, EFF)
13. If the mark of a reborn evangelical is a devotion to the Epistles of St Paul and in particular to the doctrine of Justification by Faith, then there **can** have been few Christian converts less evangelical than Lewis. (BNC, A7C)
14. There **can** be little doubt that at the time Constantine took control of the Western empire, Christianity **can** have been the religion of only a minority, though perhaps not so tiny a minority as has sometimes been thought. (BNC, ADC)

4. Epistemic *must*

The epistemic use of *must* serves to express a meaning known as ‘inference’ or ‘deduction’, as exemplified in (15).

15. The important point about its location is that Cyprus has no wild cats and this means that the animal **must** have been brought over to the island by the early human settlers. (BNC, BMG)

Inference is used by speakers to indicate that the content of the sentence is exclusively based on indirect evidence. It is important to emphasize that, once more, this is a matter of how the speaker chooses to present the utterance, rather than reality. Inference is a conscious decision by the speaker to present a statement as derived from indirect evidence, not an obligatory realization for deductions. In fact, the speaker in (15) could have opted for a presentation of events as certain facts. Of course s/he would have

obtained the information by deduction all the same, but s/he would not be making it explicit in his/her wording.

In example (15) the fact that cats were brought by early settlers is presented as the most reasonable conclusion we can draw from two pieces of evidence: a) rests of wild cats dating from 6000 BC have been discovered in Cyprus (omitted in the excerpt); and b) Cyprus has never had wild cats. However, it is important to notice that the selection of inference always conveys the idea that the speaker ultimately ignores the truth. This uncertainty varies depending on the robustness of the evidence provided and the force of the argumentation.

Because inference signals that the statement is drawn from indirect evidence, the presence of some kind of evidence in the text is always necessary. Otherwise, the use of *must* would seem to be out of place. This characteristic of inferences has led many authors to consider examples like (15) as a case of ‘evidentiality’. The category of evidentiality (Givón 1982, Chafe and Nichols 1986, Marín Arrese 2004) is a type of modality that involves “the speaker’s indication of the nature (the type and quality) of the evidence invoked for (assuming the existence of) the state of affairs expressed in the utterance” (Nuyts 2001: 27). A matter of debate is whether evidentiality constitutes a subtype of epistemic modality or a completely independent modal category (Anderson 1986, De Haan 1999). The position adopted in this paper is that evidentiality is a subtype of epistemic modality (Palmer 1986), or at least it is closely related to that category (Hengeveld 1988). However, no claim is made here concerning the issue, as the discussion falls out of the scope of this paper.

As for the evidence from which the inference is drawn in this type of sentences, it should be noticed that this is only sometimes verbalized and clearly recoverable from the text, as in (15) and examples (16-18), where the evidence has been underlined.

16. The next customer was a middle-aged man who **must** have been a regular, for he began by saying, “Don’t often see you on this side, miss.” (BNC, AT7)

17. My guardian angel **must** have been working overtime as the hut never actually caught fire (BNC, B3F)

18. Shrinking seas caused widespread epidemics and eutrophication, thus hastening the continuing need to get oxygen from the air. In such situations the survivors in the evolutionary race are invariably the gleaners of oxygen from both water and air. This means they **must** have been capable of crawling onto the land (BNC, C9A)

Sometimes we find examples of epistemic *must* in which the evidence is not apparent, as example (19) shows.

19. I suppose there **must** have been the usual quota of cold, wet and windy days but I can't remember them. (BNC, B3F)

In this example the evidence is not verbalized, but there is obviously one from which the statement is inferred. In (19) the evidence is very probably the speaker's knowledge of the climatic conditions in a certain area, which apparently contradicts his/her recollections.

There are other cases in which the evidence not only seems to be implicit; it is also felt to be too weak to deserve the label of 'inference'. The following examples illustrate this:

20. That creature **must** have been travelling at 60 miles per hour. (BNC, APL)
21. There **must** have been two or three thousand on the river banks and the water. (BNC, AC2)
22. It was a hot day, and I think I **must** have been half asleep when I noticed something very strange. (BNC, AC7)
23. It **must** have been the change in engine tone that woke her a long time later. (BNC, JY8)

It is indeed difficult to classify examples like (20-23) as proper inferences, because they do not seem to involve the intellectual exercise normally associated with deducing a piece of information from some evidence. It is true that in these examples the choice of *must* still conveys the central meanings of inference: a) the speaker ignores the truth, and b) what s/he utters is the most reasonable conclusion that can be drawn from available evidence. The problem is that the available evidence in (20-23) is pretty weak: insecure recollection, sensory or intellectual perception or common sense. For this reason, these examples are perhaps more accurately described as estimations or guesses rather than proper cases of inference or deduction. In spite of this, I think it is

convenient to keep the term ‘inference’ for all these examples, bearing in mind that it has a wider meaning than in ordinary.

This leads us to another interesting characteristic of epistemic *must*: the modal meaning of inference does not contain any indication as to the reliability or robustness of the evidence on which the inference is based. It is clear that the inference in (15) and (18) is more convincing than in (20) or (21), but this is due to the quality of the evidence and the argumentation, not to the selection of *must*. In fact, we have seen that inference is compatible with any kind of deduction or guess – no matter how convincing –, and depending on the intonation and body language, an inference like *he must have gone out* can be interpreted as a very likely explanation or merely as a tentative possibility.

5. Epistemic *can't*

After examining a collection of examples with epistemic *can* appearing in negative environments, I think the best definition for the meaning it expresses is what might be called ‘epistemic impossibility’. This modal meaning is used by the speaker to indicate that s/he judges the situation as impossible, as example (24) shows.

24. I heard there is a theory that all the Earth’s water was brought here by comets. Is this true? Surely the vast oceans **can’t** have been filled by snowballs from outer space. <
<http://www.newscientist.com/article/mg17523606.500-was-all-the-earths-water-brought-here-by-comets.html>>

Once again, it is fundamental to distinguish between epistemic impossibility and the negative version of root possibility. Root impossibility defines what is not allowed by the structure or conditions of the world. Such impossibility can stem from physical limitations, social convention or any other structural factor, as examples (25-26) illustrate. It is this vagueness as to the origin of the impossibility that allows other modal meanings to evolve from epistemic (im-)possibility, such as permission (Bybee-Perkins-Pagliuca 1994: 194), proposal, etc.

25. He realised that they **couldn’t** put the fire out and that something was going to happen. (BNC, EV8)

26. Born in May 1964, Bustin, “grew up with the idea that I **couldn't** be an artist, since, one, I wasn't male, and two, I wasn't mad!” (BNC, C89)

By contrast, epistemic impossibility is not a description of the situations that are not allowed by the organization of the world. It is a subjective claim about the impossibility of a situation for reasons that have more to do with belief or evidence than with the structure of the world, as examples (27-30) show.

27. I'm not sure why Arabs settled in New Hampshire, but it **can't** have been for the weather. It's 40-something degrees outside and raining through gusts of wind, nevermind the snow that'll soon be here. <<http://www.slate.com/?id=2072559>>
28. **Can't** have been that bad if the victim never even bothered to report it
<http://www.yorkpress.co.uk/news/2175528.man_attacked_on_riverside_path/>
29. Our mother's killer **can't** have been her toyboy... she was gay
<<http://www.dailymail.co.uk/news/article-452970/Our-mothers-killer-toyboy--gay.html>>
30. Lebanon blocks **can't** have been transported by ropes, my math proves it!
<<http://www.abovetopsecret.com/forum/thread165890/pg1>>

Epistemic impossibility expresses a rejection which does not derive naturally from the structure of the world, but from the speaker's judgement. Consequently, it is normally accompanied by the piece of evidence or hint (underlined in examples (27-30)) that makes the speaker take that particular position. Using Givón's terminology, we could say that epistemic impossibility produces statements that are “open to challenge by the hearer and thus require – or admit – evidentiary justification” (Givón 1982: 24). If we compare this with root impossibility, we can see that the latter requires no evidence at all, simply because it depicts an objective descriptions of what is not permitted by the conditions of the world. The crucial element of subjectivity included in epistemic impossibility will become more evident if we compare the following examples:

31. Lizards can't run very quickly
32. Lizards can't be quick-runners.

Without further context, example (31) is normally interpreted as conveying root impossibility, and it is more or less equivalent to ‘lizards lack the attributes necessary to

run quickly'. On the other hand, example (32) will normally be interpreted as an expression of epistemic impossibility, and it could be rephrased as 'I don't really think lizards run very quickly' or 'everything points to the fact that lizards do not run very quickly'.

It is surprising that although epistemic impossibility seems to produce stronger claims than inference, this modal meaning holds no systematic relation with the quality of the evidence either. Thus, even though completely ruling out a possibility is a meaning that demands conclusive evidence, this is not always the case, as can be seen in examples (27-30). Only example (30), which includes the word *prove* in the evidence, could be said to make a fully justified use of epistemic impossibility. In the rest of examples, it is debatable whether the evidence provided is enough to dismiss the corresponding propositions as impossible. Rather, it would seem that the choice of *can't* in examples (27-29) is motivated by a wish to show reassurance, to indicate that the evidence seems convincing enough to the speaker to provoke complete disbelief.

A consequence of this use of epistemic impossibility to indicate the speaker's degree of conviction rather than the conclusiveness of the evidence is that we can also find cases in which the only evidence provided by the speaker is so weak that the resulting utterance is better described as a guess or estimation (see section 4). Examples (33-34) illustrate this. It is evident that the use of *can't* in these examples has the purpose of emphasizing the speaker's confidence about his/her guess, as the evidence provided is clearly insufficient to flatly reject a possibility.

33. It **can't** have been easy for Red Hot Chili Peppers to make *Californication*, the group's first album since 1995's generally disappointing *One Hot Minute*.

<<http://www.theonion.com/content/node/11049>>

34. A month ago, there **can't** have been many people saying, "Oh, my life is incomplete without a Bentley-resembling Chrysler, but you know I just can't quite bring myself to get one on account of the lack of soft-feel plastic on the armrests.

<<http://www.topgear.com/drives/F6/AA/roadtests/03/01.html>>

The use of epistemic impossibility to emphasize the speaker's subjectivity is also found with other modal expressions. English speakers, for instance, often say *that's impossible!*

to accentuate their attitude (disbelief, surprise, etc.) towards an event for which they have absolute certainty.

6. Epistemic *mustn't*

Unlike possibility, inference does not produce a different type of modality when combined with negative polarity. Impossibility (either epistemic or root) has a different meaning and different properties in comparison with possibility. However, negative inference is identical to positive inference, the only difference being that the inferred statement has negative polarity. This is reflected in the fact that the sentence *it mustn't be true* is similar in meaning to *it must be untrue*, whereas *it can't be true* is certainly very different from *it can be untrue*.

Although the view that an epistemic use of *mustn't* is not possible in English is rather widespread in the literature, it is not difficult to find examples like (35-37), which contain cases of verbal negation as well as negative quantification of a participant.

35. Maines said that the US ambassador had come backstage after their concert in London, “so he **must** not have been offended”. <<http://www.guardian.co.uk/world/2003/apr/25/arts.usa>>
36. The focal point of the acropolis was the ‘Parthenon’, a huge temple dedicated to the Goddess Athene who was said to protect Athens. She **mustn't** have been doing her job very well because also at this time, a plague was wiping most of Athenian population out and even the leader ‘Pericles’ was only to survive a few more years. <<http://mysite.wanadoo-members.co.uk/prof/Greece.htm>>
37. The final part of the article concentrates on some sort of steps that may have occurred during this evolutionary process. At one stage there **must** have been **no** language and it must have evolved by some method and due to some reasons into it's present form.
<<http://users.ecs.soton.ac.uk/harnad/Hypermail/Thinking.Psychologically96/0070.html>>

In these examples we can see that epistemic *mustn't* conveys exactly the same modal meaning as its positive counterpart and has the same properties, so these will not be repeated here.

7. Contrast between *can't* and *mustn't*

In the previous sections it has become evident that epistemic possibility and negative inference have more in common than epistemic possibility and positive inference. This is due to two factors:

- Since epistemic impossibility produces a subjective judgement about what the speaker deems as impossible, some evidence is normally provided to support this strong view.
- Epistemic impossibility is often used in inappropriate contexts (contexts in which the evidence is not good enough to justify the use of impossibility) with the aim of intensifying the subjective element present in epistemic modality. Thus, an utterance like *that can't be true* often turns out to be very similar to 'I'm pretty sure that is not true', instead of 'What I know allows me to rule out the possibility that that is true'.

A consequence of this is that epistemic *mustn't* and *can't* often appear in very similar contexts, as the following pairs of examples illustrate:

38.

- (a) It **can't** have been easy for Red Hot Chili Peppers to make *Californication*, the group's first album since 1995's generally disappointing *One Hot Minute*.

<<http://www.theonion.com/content/node/11049>>

- (b) Collecting a best-of album for Bronx-born salsa titan Colon **mustn't** have been easy; this album focuses on his years with Fania and includes "La Mora" and "El Diablo."

<<http://www.cduniverse.com/search/xx/music/pid/6740196/a/Very+Best+Of.htm>>

39.

- (a) They **can't** have been older than fifteen but they were all really drunk and knocking hell out of each other. <<http://www.lizzieslife.com/2006/09/index.html>>

- (b) The boy who took it **mustn't** have been any more than 14 or 15 years old plus it looked like he was with a gang of kids.

<http://www.bbc.co.uk/blogs/fivelivebreakfast/2007/11/have_you_been_a_victim_of_yout.html>

However, I think that, in spite of these similarities, different meanings can be observed in epistemic *can't* and *mustn't*, even if we admit that there is a considerable area of overlap. Let's examine how this is reflected in the usage of both expressions.

An important difference between the epistemic impossibility conveyed by *can't* and the inference expressed with *mustn't* is that the latter is always based on indirect evidence, while the former is not.

This difference is evident in example (40), repeated here for convenience.

40. Lebanon blocks **can't** have been transported by ropes, my math proves it!

The evidence provided here (underlined) to support the speaker's opinion does not constitute indirect evidence. Rather, if something is proved through mathematical calculations, we are actually dealing with direct evidence. For this reason, replacing *can't* with *mustn't* in (40) produces an effect of dissonance or even contradiction: inference is simply too tentative for the solid evidence the speaker is presenting.

This dissonance is probably less remarkable if we replace *mustn't* with *can't* in contexts of indirect evidence, even if they are accompanied by highly tentative expressions such as *I guess* or *I suppose*:

41. No second run of prints? I suppose the subject **mustn't** have been as popular at that time. <
<http://forum.casebook.org/showthread.php?p=29109>>
42. I guess, Andrew Milner, you **must** not have been listening - there is no war against Muslims...only terrorists...the majority of which right now are Muslims.

The fact that inference is only based on indirect evidence and consequently fits better in highly tentative contexts is reflected in the collocations of *mustn't*. This verb appears more often than *can't* with expressions such as *I guess* or *I suppose* (41-42), while epistemic impossibility is more often accompanied by an expression such as *I'm sure* (43).

43. I'm sure it **can't** have been THAT bad.
<<http://www.bbc.co.uk/dna/mbouch/F2322276?thread=5380462>>

Finally, when the evidence on which inference or epistemic impossibility is based on consists of nothing more than the speaker's perception or memory, both modal meanings seem to indicate different degrees of confidence towards the guess. If we contrast, for instance, the pairs of examples (38) and (39), one is certainly inclined to say that the speaker sounds more confident in (a) than in (b) in both cases. This is explained by the different modal meanings of *mustn't* and *can't*. *Mustn't* indicates inference, and so example (39b) is better rephrased as 'I guess the boy who took it wasn't any more than 14 or 15 years old'. By contrast, example (39a) could be rephrased as 'I'm pretty sure they weren't older than 15'. This difference in the speaker's confidence towards the content of the utterance emerges from the selection of epistemic impossibility or inference for the same kind of indirect evidence. In both examples (39), the only evidence available is the speaker's recollection of what s/he witnessed. Inference is perhaps the most adequate epistemic modality for this tentative context. However, the selection of epistemic impossibility indicates that the speaker is so much convinced about what s/he witnessed as to completely rule out the possibility that 'they were older than 15'. In other words, by choosing epistemic impossibility and so subjectively qualifying as definitive a piece of evidence which is not, the speaker is in fact emphasizing his/her confidence.

8. Conclusions

Contrary to what we find in the literature, *mustn't* can be used to express epistemic modality in Present-day English. It expresses exactly the same modal meaning as *must*, namely that of inference. The only difference between the two lies in the polarity of the inferred statement: positive or negative.

As for the theory maintaining that *can't* functions as the negative version of epistemic *must*, we have seen that this is not accurate. Epistemic *can't* expresses epistemic impossibility, while *mustn't* conveys negative inference. We have seen that both modalities often appear in very similar contexts, but there are still differences between the two:

Because inference must necessarily be based on indirect evidence, *mustn't* cannot replace *can't* in contexts in which direct evidence is provided.

When the evidence available is indirect, both *can't* and *mustn't* are normally admissible. However, the former emphasizes the speaker's confidence about what s/he is saying, whereas the latter is more tentative.

Received: May 12, 2008

Accepted: October 30, 2008

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