The meanings of have and the semantics/pragmatics interface

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Chapter 16
The Meanings of *have* and the Semantics/Pragmatics Interface*

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Abstract

In this chapter, I analyse the contribution made by *have* to the meanings expressed in sentences with a (central) modal verb followed by a perfect infinitive. Four meanings are discussed: (a) *have* as a marker that locates the possibility or necessity in the past; (b) *have* as a marker that establishes a relation of anteriority between the modal meaning (of possibility or necessity) and the situation referred to, (c) *have* as a marker of counterfactual meaning, (d) *have* as a marker of actualization. In the first part of the chapter an empirical overview is given. Drawing on the discussion in Chap. 2, I then address the question of how the role of the context should be captured, more specifically, whether it is saturation or free pragmatic enrichment that plays a role in bringing about the different meanings of non-finite *have* when it combines with a modal.

Keywords

Non-finite *have* • Modal verbs • Saturation

16.1 Aims

This chapter offers an analysis of the contribution of *have* to the meanings expressed in sentences with a central modal auxiliary of necessity or possibility followed by a perfect infinitive.[1] Even though the meaning of the perfect in sentences with modals has been addressed in previous research (Condoravdi 2002, Laca 2008, Demirdache and Myriam Uribe-Etxebarria 2008, 2014, Xie 2015), there is as yet no detailed description available of the functions of non-finite *have* in English when it combines with a modal verb. The present chapter offers a sketch of the lines along which a thorough analysis could be carried out. The aim is to get a better view on the issues involved in arriving at a finer-grained understanding of the meanings of *have* in this context and to try and offer a basic structure into which the meanings can fit. I will also show in what way the findings are relevant to questions relating to the semantics-pragmatics interface.

The following examples illustrate the range of meanings that have can communicate when combined with *could*:

(1)   They've taken three oil paintings; two off the walls and one which was leaning up against the window sill, er the candlesticks and the vases off the altar, another very beautiful, very simple oak chair with cane seat and back. Have you any idea what sort of people *could have taken* this and when it *could have happened*? (BNC)[2]
      Cp. Have you any idea what sort of people *could take* this and when it *could happen*?

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[1] I follow Van der Auwera and Plungian (1998) in restricting the study to those semantic fields which involve the contrast between possibility and necessity. *Will* and *shall* will therefore not be included in the overview.

[2] The examples are from the British English component of the International Corpus of English (ICE-GB), the British National Corpus (BNC) or from the web (www).

(2) The Opinion provides no theory of illegality or ultra vires with respect to international organisations, but relies on treaty interpretation. Indeed the member States were acting qua members not qua Assembly when they voted on the membership of the Committee. Acting unanimously, the member States *could have* informally *amended* the treaty provisions, but without such unanimity they each remained bound. (BNC)
Cp. The member states *could* informally *amend* the treaty propositions.

(3) Since the second century AD many have identified the author with John the son of Zebedee (…) Others have argued that the writer *could have been* John the Elder of Ephesus. This view depends partly on whether or not the tradition of Papias cited by Eusebius (…) was referring to someone other than the apostle. (www, accessed 30 April 2014) (Dunn, J.D.G. & J.W. Rogerson (eds). 2003. *Eerdmans commentary on the bible*. WmB. Eerdmans Publishing Co.)
Cp. Others have argued that the writer *could be* John the Elder of Ephesus.

(4) Do we ever learn from our past mistakes? How *could* we *have blundered* into Iraq in the same way that we did in Vietnam? What is it about the American character that allows such blunders to occur again and again? (Depraetere 2009: 286)
Cp. How *could* we *blunder* into Iraq in the same way that we did in Vietnam?

In (1), *have* establishes past time meaning: it has to be used in order to locatethe (hypothetical) possibility in the past. When the perfect infinitive is used, thesentence can be paraphrased as follows: *For which kind of people would it have been possible to take this*? If *have* is left out, the (hypothetical) modal situation is locatedin the present, the paraphrase being: *For which kind of people would it be possible to take this*?[3] In other words, the use of *have* results in a shift of the temporal location of the modal situation from present to past. In (2), the function of *have* is that of expressing counterfactual meaning: the possibility (permission) existed in the past but the residue situation did not actualize. In (3), epistemic meaning is communicated and *have* expresses a relation of anteriority between the present possibility (*it is possible*) and the residue (*it was John the Elder of Ephesus*). In the example in (4) *have* does not have any of the functions just listed; its role seems more that of emphasizing the fact that the situation actualized. The alternatives in (1) to (4) without *have* show that a (drastic or subtle) change in meaning is brought about.

The first part of the chapter is an empirical study of the meanings of *have* when it combines with *can*, *may*, *might*, *could*, *must* and *should*: can *have* communicate all four meanings when combined with a modal expressing a specific possibility or necessity meaning or are there any gaps in the paradigm? I will point to ways in which formal features (such as the absence or combination of specific inflectional forms), semantic features (such as situation type), or semantico-pragmatic features (such as presuppositional context) interact in bringing about the range of meanings of *have*. Drawing on the discussion in the chapter by Depraetere and Salkie (this volume), I will then address the question of how the role of the context in establishing the meaning of *have* should be captured, and whether it is saturation or free pragmatic enrichment (Carston 2009), or, in Bach's framework (2007), completion or expansion that is at work in some or all of these cases.[4]

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[3] I will use the label 'modal situation' (M) to refer to the modal meaning of possibility or necessity and I will use 'residue' (R) to refer to the proposition, or, as Huddleston (1984: 168) puts it, to 'what is left of the meaning expressed in an utterance of the clause when the modality is abstracted away.' Others (e.g. Laca 2008) use the term 'prejacent'. M is located in time (past, present, future) and there is either a relation of anteriority, simultaneity or posteriority between M and R.

[4] For a discussion of the different sets of conceptual distinctions, see Depraetere and Salkie, Chap. 1 of this volume.

16.2 Empirical Analysis

This section gives an overview of the meanings that can be established by a modal followed by a perfect infinitive. I will first list the subclasses of (possibility and necessity) meanings expressed by *can*, *may*, *could*, *might*, *must* and *should* followed by a bare infinitive and I will then compare those to the meanings of the modals followed by a perfect infinitive. For each of the verbs, it needs to be determined whether *have* can have each of the functions listed in the introduction. If possible, an explanation will be provided for the gaps in the paradigm.

16.2.1 Modal Meanings Expressed by can*,* may*,* could*,* might*,* must *and* should *+ bare Infinitive/Perfect Infinitive*

The modal verbs *can*, *may*, *could*, *might*, *must* and *should* can communicate epistemic as well as non-epistemic (or root) meaning. Modal meaning is epistemic when it reflects the speaker's judgment about the likelihood that the situation referred to in the sentence is the case. The standard view is that *can* expresses epistemic meaning only in the case of epistemic impossibility (*She can't have been on campus. The building is closed during the summer break*), but occasional examples have been signalled, for instance, of epistemic can in questions (*Can this be true*? (Coates 1995: 153)) and in affirmative declarative contexts (Collins 2009: 98). Root meaning relates to the actualization of situations, to whether or not it is theoretically possible or necessary for a situation to actualize or for the subject referent to actualize a situation. On the root possibility side, five different meanings can be identified (see Depraetere and Reed 2011) and there are three subtypes of root necessity meaning (see Depraetere 2014):

(5) Ability (AB): I *can* write can't I ? ! ! (ICE-GB)

(6) Permission (PER): If you wish to be seated you *may* with My Lord's permission. (ICE-GB)

(7) Opportunity (OP): *Could* you also inform me whether individual members receive the journal or whether they need to be journal subscribers as well? (ICE-GB)

(8) General situation possibility (GSP): Such a questionnaire, sponsored by Brown Jones, *could* be made available through careers services. (ICE-GB)

(9) Permissibility (PS): Mustaches and imperials had been absolutely prohibited under the regulations but Secretary Dobbin took a more liberal view and said the beard *might* be worn at the leisure of the individual, but when worn to be clipped short and neatly trimmed. (Depraetere and Reed 2011: 29)

(10) Narrow scope internal necessity (NSIN): I *must* have that dress. (www, accessed 30 April 2014)

(11) Narrow scope external necessity (NSEN): I *must* go back to work now. (ICE-GB)

(12) General situation necessity (GSN): Its high protectionist tariffs *should* be lifted and its business deregulated. (ICE-GB)

While the scope of the modality is narrow in the case of ability, permission, opportunity, narrow scope internal necessity and narrow scope external necessity, it is wide in the case of general situation possibility, permissibility and general situation necessity. Scope is used in the semantic sense here (see Depraetere and Reed 2011: 3–9) and refers to what it is that the modality bears on, a complete proposition (wide) or the VP (narrow). The source is subject-internal if it lies within the referent of the subject NP; it is external in the other cases. The criterion of 'potential barrier' distinguishes (narrow scope) permission and (wide scope) permissibility from the other (narrow scope/wide scope) possibility meanings. This feature hinges on the nature of the source: it singles out the sources that

owe their source status to the fact that they can potentially impose a barrier on actualization.[5] Not all modal verbs can communicate the complete range of meanings. Table 16.1 gives an overview of the meanings expressed by the modal verbs addressed in this chapter when they are followed by a bare infinitive.

modal + bare inf.	AB	PER	OP	GSP	PS	Epistemic
may	-	+	-	+	+	+
can	+	+	+	+	+	+ (see p.268)
might	-	+	+	+	+	+
could	+	+	+	+	+	+
	NSIN		NSEN	GSN		Epistemic
must	+		+	+		+
should	-		+	+		+

Table 16.1 Overview of meanings expressed by may, can, might, could, must and shouldCbare infinitive

The range of meanings expressed by the relevant verbs when followed by a perfect infinitive is only slightly more restricted. Table 16.2 shows that half of the auxiliaries under discussion (*might*, *could*, *should*), when followed by a perfect infinitive, can express the same range of modal meanings as when followed by a bare infinitive.[6]

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[5] Given the aim of the chapter is not possible to address in detail the defining criteria of the modal meanings. See Depraetere and Reed (2011) and Depraetere (2014) for a discussion of the modal taxonomy adopted in this chapter. The tables below summarize the defining features that underlie the meaning distinctions:

	ability	opportunity	permission	general situation possibility	situation permissibility
scope	narrow	narrow	narrow	wide	Wide
source	Internal	external	external	external	external
potential barrier	- potential barrier	- potential barrier	+ potential barrier	- potential barrier	+ potential barrier

Table 16a. Taxonomy of root possibility in Reed and Depraetere (2011: 17)

	narrow scope internal necessity	narrow scope external necessity	general situation necessity
scope	narrow	narrow	wide
source	internal	external	external

Table 16b. Taxonomy of root necessity in Depraetere (2014)

[6] The hypotheses put forward here are based on the analysis of examples from the BNC and ICE-GB, supplemented with queries on the web. Even though most of the gaps can be explained, admittedly, this methodology has its limitations, and therefore the analysis may need to be finetuned if examples of what are now considered gaps were to be found.

modal + perf inf	AB	PER	OP	GSP	PS	Epistemic
may	-	-	-	-	+	+
can	-	-	-	+	-	+
might	-	+	+	+	+	+
could	+	+	+	+	+	+
	NSIN		NSEN	GSN		Epistemic
must	-		+	+		+
should	-		+	+		+

Table 16.2 Overview of meanings expressed by *may*, *can*, *might*, *could*, *must* and *should* + perfect infinitive

There are no examples of an affirmative declarative *can* immediately followed by a perfect infinitive in the 10,000,000-word BNC or in the 1,000,000- word ICE-GB. Most forms occur in near-negative contexts (with adverbs like *only*, *hardly*, *scarcely*, *rarely* being used before the past participle) and they either communicate general situation possibility or epistemic meaning. *May* followed by a bare infinitive can express permission, general situation possibility, permissibility and epistemic possibility, but I did not find any examples of *may* followed by a perfect infinitive that communicate permission or general situation possibility. The addition of *have* to general situation possibility *may* + bare infinitive examples automatically seems to result in an epistemic reading.[7] Finally, I did not identify any examples of narrow scope internal necessity expressed by *must* + perfect infinitive.

The overview in Table 16.2 needs to be qualified taking into account the different uses of *have*: certain meanings only occur in specific contexts, that is, they are only possible with a specific type of *have*. For instance, the function of *have* in examples with *could* + perfect infinitive that communicate ability is never that of expressing anteriority. In other words, there are constraints on the type of *have* that the combined form 'modal + perfect infinitive' can express. Therefore, the next step in the empirical overview is to determine whether, for each of the meanings expressed by the modal, *have* can perform each of the functions illustrated in the examples with *could have* in the introduction. In other words, the question is, for instance, whether 'past *have*' as well as 'anteriority *have*' is compatible with general situation necessity, general situation possibility, ability, etc. Likewise, can *have*, in each of these cases, be used to stress actualisation of the possibility/necessity? Can it express counterfactuality with all of the modal meanings? Are there any differences across modals that express the same meaning (for instance *might* and *could* when the express General situation possibility) in terms of the functions of *have*?

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[7] For instance, the following example has a General situation possibility reading:

(i)   Boating accidents involving open motorboats, personal watercrafts (PWCs) or cabin motorboats are commonly reported cases. Accidents *may happen* due to collisions with fixed objects or moving vessels, capsizing or sinking, fire or explosion, falls or ejection overboard and other circumstances. Often, negligence resulting from operator inattention is the foremost contributing factor in a case of accidents on boats, according to the Boating Accident Report Database (BARD) system. (www) (Depraetere and Reed 2011: 22)

When *have* is added, a General situation possibility reading is no longer available and epistemic meaning is communicated:

(ii) Accidents *may have happened* due to collisions with fixed objects or moving vessels, capsizing or sinking, fire or explosion, falls or ejection overboard and other circumstances.

The following labels will be used to refer to the usage types of *have*:

(a) past *have*: have locates the modality (M) in the past (see (1))
(b) anteriority *have*: *have* locates the residue (R) as anterior to the modal situation (of possibility or necessity) (M) (see (3)) (cf. Fenn 1987: 238)
(c) counterfactual *have*: *have* establishes counterfactual meaning (see (2))
(d) actualization *have*: *have* has the role of emphasizing the actualisation of the residue (see (4))

I analysed data drawn from the BNC and ICE-GB in order to identify, for each of the subtypes of possibility and necessity, the meanings that have can express. The results of the data analysis are summarized in Table 16.3.[8]

have	AB	NSIN	PER	OP	NSEN	GSP	GSN	PS	Epistemic possibility	Epistemic necessity
past	+	-	+	+	+	+	-	+	-	-
anteriority	-	-	-	-	+	+	+	+	+	+
counterf.	+	-	+	+	+	+	+	+	-	-
actualization	+	-	-	+	-[9]	+	-[10]	-	-	-

Table 16.3. Distribution of different types of *have* across modal meanings

As will become clear in the discussion that follows, there are constraints on the modal that is compatible with the specific meaning of *have*. For instance, while *have* in a Narrow scope external necessity context can communicate counterfactual meaning with *should* (*You should at least have tried*!); this reading is not available with *must* (? *You must at least have tried* – epistemic reading only).

16.2.2 Overview
In this section, I will illustrate the findings summarized in Table 16.3. I will discuss the different uses of have when it occurs in the pattern 'modal verb + perfect infinitive', and the way in which their occurrence varies according to the type of modality expressed by the modal verb.

16.2.2.1 Ability and Narrow Scope Internal Necessity
Ability and narrow scope internal necessity (NSIN) are discussed in the same section as the latter constitutes the necessity counterpart of ability. Like ability, NSIN has the features [+narrow scope], [+ subject-internal source] the difference between the two categories being that ability expresses possibility meaning while NSIN expresses necessity.
The observation that it is not possible to express ability with anterior actualization is one that is widespread in the literature (see Michaelis 1998: 278, Depraetere 2012: 1002): it is not possible to attribute to someone the ability to do something at a moment in time that is anterior to the time of the ability. This raises the expectation that no instances can be found of *can* and *could* followed by a perfect infinitive that express ability. However, this line of reasoning presupposes that *have*

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[8] The overview states that no examples can be found of Narrow scope external necessity and General situation necessity with actualisation meaning; as will be pointed out on p. 277 and p. 279, *have* in combination with *should* occurs in actualisation (NSEN and GSN) contexts, but the examples I found all contain so-called putative *should*.
[9] See example (29) for discussion.
[10] See example (40) for discussion.

necessarily and uniquely performs the function of expressing anteriority when the modal communicates ability. As will be clear from (13), (14) and (15), ability meaning can be expressed by *could* + perfect infinitive; in these examples, *have* communicates past time, counterfactual meaning and actualization respectively.

(13) How *could* Julie and Elizabeth *have drowned*, I thought. Julie *could have swum* all the way home from South Africa, she had so much stamina in the water. All I knew at that stage was that the girls had drowned in a sailing accident. (BNC) (ability, *could*, *have* = past)

When *have* is left out, the 'imaginary' situation of Julie being able to swim all the way home from South Africa is no longer located in the past (Julie *could have swum* all the way home from South Africa), but in the present (Julie *could swim* all the way home from South Africa). In the next example, *could* contributes towards establishing counterfactual meaning:

(14) In 1984, Anne got involved again with the Olympics, this time with soccer. She's continued to advocate for women in sports, including co-founding the American Basketball League, the first women's professional basketball league. Today she is president and CEO of the Bay Area Sports Organizing Committee. While her competitive swimming career was shortened, she has few regrets. "I do sometimes think of how fast I *could have swum* if I'd continued to swim," she says. (www, accessed 29 June 2014) (ability, *could*, *have* = counterfactual)

This example calls for a further observation: in (14), it is the ability as such that is represented as counterfactual. Cases like these should be distinguished from those in which the ability is real or actual but in which the actualisation of the ability is represented as counterfactual:

(15) It was for the Roman to decide whether he would speak in Latin or in Greek to a Greek public – that is, with or without interpreter – and Aemilius Paulus could skilfully pass from one language to the other (Liv. 45.8.8; 29.3). Only in the case of Cato may we suspect that he had no alternative to speaking in Latin, though Plutarch is convinced that he *could have spoken* Greek, if he had wanted to (Plut. Cat. 12). (BNC) (ability, *could*, *have* = counterfactual)

In the example in (15), *have* emphasizes the factuality of the ability:

(16) Christian teaching: Jesus was the perfect fulfillment of *Dan 9*: 24–27 and it proves Jesus was the Messiah. Commentary: The alleged fulfillment of *Daniel 9* by "Jesus" is an excellent example of pseudo fulfillment by Christians. But even Christianized Bible translations of *Daniel 9* can't reconcile the problems associated with Jesus being the supposed fulfillment of *Dan 9*. Jewish translations of *Dan 9* do not substantiate the Christian claims about prophecy fulfillment and this commentary focuses on showing that the bombastic Christian assertions about Jesus being the only possible fulfillment of *Dan 9* rely primarily on wishful thinking combined with arrogance. Other fulfillment scenarios, that don't include Jesus, are just as valid as the several versions that Christians came up with. However, it should be noted that there isn't any fulfillment scenario, either Jewish or Christian that can completely reconcile the prophecy. In my opinion, the prophecy was never realized in its entirety nor is it completely clear who the cast of characters is. This commentary is provided to illustrate that, contrary to the claims of zealous Christians, Jesus isn't the only person that *could have fulfilled* it. (AB, *could*, *have* = actualization) (Depraetere 2009: 293)

It was pointed out on p. 270 that there are comparably few examples of can have in the BNC and in ICE-GB. The majority of the examples that I found illustrate general situation possibility (see p. 278); I also found some instances that express epistemic meaning. (see p. 282)

The absence of narrow scope internal necessity in Table 16.3 with *have* expressing anteriority can be explained along the same lines as the absence of modal + anteriority *have* with ability. The necessary actualisation of a situation that is driven by a subject-internal source is incompatible with anterior actualisation of a situation: an urge to bring about a situation cannot relate to a situation that has already been brought about. Unlike in the case of ability though, I have not been able to identify examples of *must* + perfect infinitive in which *have* performs one of the other functions (past *have*, counterfactual *have*, actualization *have*).

16.2.2.2 Permission
In most of the examples that I found of sentences with a modal + perfect infinitive in which permission meaning is communicated, the modal verb *could* is used. Even though *may* and *might* can in principle communicate permission, the use of these verbs with perfect infinitive for permission is restricted; I did not find corpus examples of *may* + perfect infinitive that communicate permission and just a few of *might* + perfect infinitive with permission meaning. This observation ties in with research on the distribution and frequency of modal meanings, where it is pointed out that the latter two verbs are mainly used for epistemic possibility. (See Biber et al. 1999: 491–492, Coates 1983: 146–147, Leech et al. 2009: 84–85).
As in the case of ability, the option whereby *could* + perfect infinitive expresses permission with anterior actualization of the residue situation is not available. Such an interpretation is incompatible with what we know about the world: it is not possible to give permission to someone to do something at a moment in time that is anterior to the time of the permission. (See Lyons 1977: 824, Huddleston 1984: 168) There are no examples of permission meaning combined with actualisation *have*.
Have can be used to locate the modal meaning of (hypothetical) permission in the past, as in the following examples:[11]

(17) Charles Roberts had no criminal record. He had no psychiatric record; he was privately crazy. A "waiting period" between order and acquisition would have made no difference; he'd bought the semi-automatic pistol with which he shot most of those girls in 2004. Under the most stringent provisions of any American state's statutes, Charles Roberts *could have bought* a gun. (www, accessed 29 May 2014) (permission, *could*, *have* = past)

(18) Now Henry II wanted it back. Possession of its castles, Gisors, Neaufles, Dangu and a dozen others, was essential if he was to sleep secure in Rouen. Richard's turn came a few months later. Early in 1159 Henry II travelled south through Poitou and Saintonge until he came to Blaye on the Gironde. There he met Raymond-Berengar IV, Count of Barcelona. Since Raymond-Berengar was married to the queen of Aragon and ruled that kingdom in his wife's name, he *might have taken* the title of king, but refused to do so, saying that it was better to be known as the greatest count rather than the seventh greatest king. Henry and he made a treaty of alliance, agreeing that Richard should be betrothed to one of the Count's daughters and that, when married, they should be granted the duchy of Aquitaine. (BNC) (permission, *might*, *have* = past)

Could + perfect infinitive can also communicate counterfactual permission. The example in (19) is similar to the ability example in (15): permission exists, but it has not actualized (see Declerck 1991: 323); in (20) it is the permission as such that is counterfactual:

(19) The Opinion provides no theory of illegality or ultra vires with respect to international organisations, but relies on treaty interpretation. Indeed the member States were acting qua

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[11] In both (17) and (18) there is reference to a hypothetical situation, but it is located the past when the perfect infinitive is used and in the present (*He could buy a gun, He might take the role of king*) when the present infinitive is used.

members not qua Assembly when they voted on the membership of the Committee. Acting unanimously, the member States *could have* informally *amended* the treaty provisions, but without such unanimity they each remained bound. (BNC) (permission, *could*, *have* = counterfactual)

(20) KNG: What would have been the advantage if you *could have entered* Malaysia? SPi: I believe that it would have been a good exposure for me. (' … if you had been granted authorisation to enter Malaysia?') (Depraetere 2009: 289–290) (permission, *could*, *have* = counterfactual)

16.2.2.3 Opportunity, Narrow Scope External Necessity

Opportunity and Narrow scope external necessity (NSEN) share the feature [narrow scope] with ability and Narrow scope internal necessity but they differ from those modal categories in that the source of the modality is external. *Can*, *could* and *might* + perfect infinitive can express opportunity and *should* and *must* + perfect infinitive can express NSEN. As was the case with permission and ability meaning, *have* cannot communicate anteriority for pragmatic reasons when used with a modal expressing opportunity or NSEN. It can locate the modality in the past, and it can communicate counterfactuality or actualization, but not every modal verb followed by a perfect infinitive can express the three meanings just listed.

As in the case of permission, it is *could* (rather than *might*) that is most commonly used to communicate the root meaning of opportunity, but both forms are found:[12]

(21) In 1967 that is a legitimate question: Could the war have been averted? There was certainly an expectation a war might take place. In 1972 who could have expected that a war was possible on the Egyptian-Israeli front? Who *could have taken* it seriously? And if you don't take it seriously, how could you put any kind of serious diplomatic effort, the sort that Hall was suggesting? (Parker 2001: 75, www, accessed 14 May 2014) (opportunity, *could*, *have* = past)

(22) For me, their own evaluations and this record book tells (sic) more about the progress of the children than any written examination I *might have given* them. (BNC) (opportunity, *might*, *have* = past)[13]

(23) If only Denis Betts *could have picked* that ball up and got it out to Offiah. (ICE-GB) (opportunity, *could*, *have* = counterfactual)

(24) In general, it might be argued that the euphoric expectations of the liberation rebounded against him. As the euphoria had gone along with an irrational faith in the Gaullist saviour, so the deepening disillusionment of 1945, essentially an adjustment to reality, was reflected in a desanctification of the saviour figure. On the other hand, there were steps which de Gaulle *might have taken* in 1944–46 – steps which might have produced a better outcome on the (to him) all-important issue of the constitution and might also have bolstered his popularity. In retrospect, for example, many Gaullists concluded that he should have formed a Gaullist movement of the kind that he formed, too late, in 1947 – a movement that could have channelled popular adulation into usable political support. (BNC) (OP, might, *have* = counterfactual)

(25) And if one accepts my reading, it is not difficult to see how he *could have thought* this. I shall explain how in a moment. (opportunity, could, *have* = actualization)

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[12] I did not find any examples of opportunity meaning with might and actualization have.

[13] The difference in communicative effect between the perfect infinitive and the present infinitive is that in the former case the paraphrase is 'any exam that it would have been possible for me to give them (in the past)' whereas in the latter case it is 'any exam that it would be possible for me to give them (in the present)'. In other words, have locates the (imaginary) modal situation in the past.

Turning to Narrow scope external necessity, in the examples in (26) and (27), with *should* + perfect infinitive and *must* + perfect infinitive, *have* establishes past time reference. As in the case of possibility meanings, the test used to identify the meaning of *have* is to check what effect is brought about by using a present infinitive rather than a perfect infinitive. In both cases below, substitution of a present infinitive for the past infinitive results in the location of the necessity in the present rather than in the past:

(26) In the latter case Grose J. said, at p. 270: 'If the bishop had not exercised his judgment at all, we would have compelled him: but it is objected that he has not exercised it rightly; to this I answer that we have no authority to say how he *should have decided*. Conversely, it has been accepted that the court may inquire as to whether a visitor intends to act outside his jurisdiction and in a proper case to grant a writ or order of prohibition to restrain him (BNC) (NSEN, *should*, *have* = past)[14]

(27) In the final stage, the interrogator cozies up to the subject and provides a way out. This is when the interrogator uses the technique known as 'minimization': telling the suspect he understands why he *must have done* it; that anyone else would understand, too; and that he will feel better if only he would confess. (www, accessed 14 May 2014) (NSEN, *must*, *have* = past)

Must have done in the example in (27) is unusual: the expected form is *had to*, which fills the gap in the paradigm of the auxiliary *must*, which does not have a form that is inflected for past time reference. In this example, however, on a root interpretation, *have* locates the modal situation in the past.[15]
When Narrow scope external necessity is expressed, *should have* is the only verb that can communicate counterfactual meaning; I did not find examples in which *must have* expresses counterfactuality:[16]

(28) "You *should have kept* on your tights," she said. (ICE-GB) (Narrow scope external necessity, *should*, *have* = counterfactual)

There may well be extra-linguistic incompatibility between counterfactuality and strong necessity expressed by *must*. Necessary actualization, strong necessity in the case of *must*, cannot be embedded in a context in which there is reference to a situation that did not materialize. If it is necessary for a situation to be brought about, one cannot at the same time express the idea that the residue is counterfactual.

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[14] Coates (1983: 64) argues that unlike in the case of epistemic modals, where 'the HAVE + EN construction affects the time reference of the main predication, not of the modal predication [M situation]', 'with SHOULD it is the modal predication which is affected. (…) HAVE + EN with SHOULD seems to be a kind of suppletive for the past tense.' She makes this point in connection with counterfactual examples, the modality of which is located in the past. The overview so far has already shown that the functions of *have* are indeed wider than those of expressing past time or counterfactuality.

[15] An alternative interpretation (p.c. Susan Reed) might be in terms of epistemic necessity, whereby it might be the interviewer drawing a conclusion along the lines of 'you must have done it because (there was no alternative)…' so as to make the interviewee more comfortable with confessing.

[16] Susan Reed (p.c.) has brought to my attention the following example, from Bram Stoker's novel (1897) *Dracula*, in which *must have* does express counterfactuality;

(i) "I must have been asleep, for certainly if I had been fully awake I *must have noticed* the approach to such a remarkable place."

Must have noticed here clearly means 'I wouldn't have been able to avoid noticing'.

A further gap is that of actualization *have* with *must*. The absence may also be explained in terms of our knowledge of the world: in the same way as necessary actualization (strong necessity with *must*) is incompatible with counterfactuality, it is likewise incompatible with factuality. Actualization of a necessary situation (actualization *have*) is incompatible with the basic defining feature of strong root necessity, namely that it is necessary for a situation to actualize, which implies that the situation has not been brought about as yet. There is no similar incompatibility with actualization in the case of root possibility because what is communicated is that it is theoretically possible for a certain situation to actualize; possibility is neutral with respect to actualization. In examples like the following in which the actualization of the residue is foregrounded, root *should* illustrates a use that Arigne (2007), inspired by Behre (1950, 1955) calls meditative-polemic *should*:[17]

(29) The fact that they *should have rallied* round him in this crisis proves that there must have been something likeable about the man. (Behre (1955: 68) quoted in Arigne (2007))

In her discussion of examples of this type, which she call quasi-subjunctive *should*, Coates (1995: 68) argues that *should* is either semantically empty or it illustrates merger when the sense of weak obligation is present too. In examples of this type, it is *should* as much as *have* that foregrounds actualization, that is, the very fact that the situation should have occurred. Arigne's description is illuminating: '*should* seems to place the event outside temporal contingencies as it manages to raise it to a higher level of representation. The proposition P is no longer seen as solely referring to a propositional content or an event. It also refers to another kind of entity, a more abstract one, which is the proposition itself as a representation. With such a reflexive use, the proposition as such (i.e. understood as a representation) comes under the scope of *should*. The original idea of fatal necessity is here reinterpreted as a metalinguistic act, which posits the necessity of a proposition, putting that of the actual event in the background.'

16.2.2.4 General Situation Possibility (GSP) and General Situation Necessity (GSN)
General situation possibility and general situation necessity are characterized by the features [wide scope] and [external source]: they are mirror categories in the realm of possibility and necessity. *Might* and *could* followed by a perfect infinitive can express GSP; *should* and *must* + perfect infinitive GSN. With the exception of *might have* expressing actualization meaning, examples have been found for each of the meanings of *have* combined with *might* and *could* expressing GSP.

(30) The number of suitable landing sites that *could have been used* by a pilot to touch down the missing Malaysia Airlines flight could far exceed estimates of 600 quoted in foreign media, Chinese engineering and aviation experts said last night. (www, accessed 16 May 2014) (GSP, could, *have* = past)

(31) In the dark days of 1916, what *might have been called* the 'Battle of Britain' was being fought only partially in the skies over the homeland. While there were several theatres of operation, it was the carnage of the Western Front, in Belgium and France, where the destinies of several Empires were being determined. From the moment it was obvious that the Schlieffen Plan had failed and that Imperial Germany was not to sweep through to Paris in a brief, punitive, conflict, the Great War became one of grinding attrition. (BNC) (GSP, *might*, *have* = past)

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[17] Leech (2009: 117) writes: 'In *I'm surprised that your wife should object*, it is the 'very idea of it' that surprises me; in *I'm surprised that your wife objects*, I am surprised by the objection itself, which I take to be known 'fact'.'

(32) Michael scrutinised the window display in the hope of discovering what had so held the child's attention. Surely it *couldn't have been* the dresses. "surely it wasn't possible for it to have been the dresses" (Coates 1983: 122) (GSP, *could*, *have* = anteriority)

(33) With references to Figs. 2.1 and 2.2 (i) outline how the genes *might have been isolated* from the donor organisms: (www, accessed 30 June 2014) (GSP, *might*, *have* = anteriority)

(34) I think it could be said at any stage that more time and more efforts to find new developments upon the variety of peace plans put forward uh *could have been used*. (ICE-GB) (GSP, *could*, *have* = counterfactual)

(35) It could have gone badly wrong: a larger proportion of our audience (and our peer group) *might have considered* our interpretation strategy as dumbing-down or a demonstration of the museum's curatorial ignorance. Or our visitors *might have become* bored and we could have lost that valued connection before the exhibition ended. But in reality, the exhibition format really worked, both for the participating visitors and for the future shape of Worcester City Art Gallery & Museum. (Depraetere and Reed 2011: 28–29) (GSP, *might*, *have* = counterfactual)

(36) Forget the 'melodrama' label. Just muse about how something so weird and wonderful *could have been written* in the midst of all that nineteenth-century realism. (Comment on *Wuthering Heights*) (Depraetere 2009: 300) (GSP, *could*, *have* = actualization)

The following example illustrates General situation possibility expressed by *can have*, whereby *have* communicates anteriority meaning:

(37) The Fabian Review, a good way to eavesdrop on thoughtful Lefties' ruminations, leads with 'What's Wrong With Being Middle Class?' by Mo Mowlam, MP. This from the party where everyone competed to be holier than thou, with no shoes in their childhood and rickets in their relatives. True the odd Wykehamist could always be a socialist, but now, it seems, you *can* even *have bought* your council house and be a member of the party. (BNC) (GSP, *can*, *have* = anteriority)

There are more gaps in the *have* paradigm with *should/must* when they communicate wide scope external necessity. I did not find examples of have establishing past time reference. In the case of *must*, the reason seems to be that in order to locate the necessity in the past, the morphological past of lexical verb *have to* is used. (but see example (27)) While *should* is a morphologically past form, the function of the past morpheme is no longer to express past time.[18] From that perspective, *have* might be called upon to establish past time reference, but whenever *have* is combined with *should*, the meaning communicated is counterfactuality (in the past). It seems that as in the case of *must*, *had to* is the suppletive form that is used to establish past time reference.

In Depraetere (2012: 1006) I argued that the nature of wide scope root modality necessarily implies that R is simultaneous with M: the residue is intrinsically nested in the possibility or necessity; the time of the potential situation (R) is simultaneous with the time at which the circumstances required for the R to (potentially) actualize obtain. However, this does not exclude cases in which the residue situation is one which itself involves anteriority, as is clear from the general situation possibility examples in (32), (33) and (37) and from the following necessity example:

(38) Evidence of professional development hours based on the number of years certification was dropped or revoked (i.e., 1 year = 10 h of professional development; 2 years = 20 h; 3 or more years = 30 h). Professional development activities *must have been completed* prior to submission of the reinstatement application form and *must have been completed* no more than 3 years prior

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[18] See Lowrey (2012: 12–15) for a discussion on the historical development of the meanings of should.

to submitting the application for reinstatement. (www, accessed 20 June 2014) (GSN, *must*, *have* = anteriority)

There are no examples of General situation necessity expressed by *must* whereby *have* communicates counterfactual meaning. This gap can be explained in similar terms as the absence of counterfactual Narrow scope external necessity with *must*: the idea of necessary actualisation of a situation as expressed by a strong modal is incompatible with counterfactual necessity. *Should* can be used in such context:

(39) I BELIEVE Dr Cox should have been given a long jail sentence. That would have acted as a deterrent (BNC) (GSN, *should*, *have* = counterfactual)

As in the case of Narrow scope external necessity, must is incompatible with actualization *have*. If there is a strong necessity for a situation to actualize, it means that the situation has not been brought about as yet. (*My keys must be in the box. (non-epistemic reading) (* and they are/but they aren't)*) (see Declerck 1991: 378) There is an internal contradiction between this idea and the meaning communicated by actualization *have*, that is, that the situation actualized. When *should* is used, the force of the necessity is not as strong and therefore actualization or not is more an open question. (Cp. *My keys should be in the box. (non-epistemic reading) (and they are/but they are not)*). The examples in which actualization is foregrounded all concern contexts in which a situation happened whereas the general feeling is that it would have been better if it hadn't actualized. The following example illustrates meditative-polemic *should* (see example (29)) and it is *should* that stresses actualization rather than *have*, the principal function of *have* being that of establishing past time reference.

(40) "This was not a witch-hunt, and was never about money. All we ever wanted for Gráinne was the truth and an apology," said Sinéad. "We don't understand why we should have been put through four long years of stress and worry to get to this point." (www, accessed 21 June 2014) (GSN, *should*, *have* = past)

16.2.2.5 Permissibility
Permissibility can be expressed by *may*, *might* and *could* + perfect infinitive. Permissibility is like GSP but it has the additional feature [+ potential barrier]. 'Potential barrier' is a criterion related to the nature of the source: in the case of the modal meanings of permission and permissibility the source has source status because it can potentially impose a barrier. For instance, in (41) the law is the source of the modality and it has that status because it could (potentially) prevent the charge from being brought under a specific section.[19]
I did not find examples of permissibility *may* or *might* with *have* expressing past meaning, I only found instances of *could have* in which *have* establishes past meaning.

(41) The court sees no ground for saying that, for present purposes, it makes the slightest difference whether under the old law the offence would have been false pretences or larceny by a trick. The old and unsatisfactory distinction is not to be unnecessarily perpetuated where the language of the Theft Act 1968 does not so require. There is no magic in the word 'property' in section 1(1) in view of the definition in section 4(1) of the Act. In either case, the fact that a charge *could have been brought* under section 15(1), which covers both, in no way operates to prevent the charge being validly laid as theft under section 1(1) if the prosecution can prove what they must prove, as previously described, under that subsection. This is conceded in respect of an offence which

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[19] See Depraetere and Reed (2011: 13–16) for a more detailed discussion of this distinguishing feature.

would once have been larceny by a trick. It applies equally to what would once have been obtaining by false pretences, if, as is here the case, the requirements of section 1(1) are also satisfied. (BNC) (permissibility *could*, *have* = past)

In the examples in (42) to (44), the function of *have* is to establish reference to an anterior situation. It was argued in Sect. 2.2.2 (p. 274) that anterior *have* is ruled out in the case of permission: it is not possible to give permission to someone to do something in the past. There is no similar restriction on permissibility. As was pointed out in connection with GSP and GSN (p. 279), the semantics of wide scope modal meanings are such that M and R are necessarily simultaneous: the world allowing a situation to be the case and the potential actualization of R necessarily coincide. However, the permissible situation (R) might be the result of a situation that happened before the time of the modality and this is the constellation that we find, for instance, in example (42) (the situation of a candidate having completed their national service in industry is permissible).

(42) Candidates *may have completed* their national service in industry instead of in the armed forces. ("The rules permit them to have done so without their application being affected." (Tregidgo 1982: 86) (permissibility, *may*, *have* = anteriority)

(43) If the Home Secretary is not to be guided by the judges on retribution and deterrence, where else can he look for guidance?' We do not read that passage with its use of 'prima facie' as requiring that the Secretary of State must adopt the judicial view in all cases. What was decided in regard to the applicant Handscomb was that where the first review date predicated an equivalent determinate sentence well in excess of that which *could have been imposed* under established sentencing practice, there was impugnable unreasonableness. We do not think that the decision bears any wider interpretation, and that it does not was also the view of Lloyd L.J. in Reg. v. Secretary of State for the Home Department, Ex parte Benson (No. 2), The Times, 21 November 1988. (BNC) (permissibility, *could*, *have* = anteriority)

(44) Any person who secures a military leave from a Classified position and is honorably discharged from the service, or any person who leaves a position to apply for admission to said armed forces and is rejected by the proper authorities of the United States or the State of Minnesota, shall, unless physically incapacitated, be reinstated without loss of seniority in the position held by the employee or in one to which the employee *might have been* legally transferred prior to the leave. (www, accessed 14 May 2014) (permissibility, *might*, *have* = anteriority)

The examples in (45) (*could have*) and (46) (*might have*) illustrate counterfactual permissibility; no examples of *may* with counterfactual *have* were identified:

(45) Sharon Shoesmith could have been legally fired. – SHARON Shoesmith *could have been fired* without anyone having to pay her a penny in compensation if Haringey Council had simply served her with a written notice terminating her contract. (www, accessed 14 May 2014) (permissibility, *could*, *have* = counterfactual)

(46) The tenure of the remaining 19 officers *might have been extended* but the council refused to do so. (www, accessed 14 May 2014) (permissibility, *might*, *have* = counterfactual)

I did not find examples of permissibility with actualisation *have*.

16.2.2.6 Epistemic Possibility and Epistemic Necessity

The following examples illustrate epistemic possibility ((47) to (50)) and epistemic necessity ((51) and (52)). The epistemic judgment (the M situation) is either located in the present (speech time) or at some implicitly or explicitly evoked past speech or thought time, as in the case of (indirect) reported speech or thought (See Depraetere and Reed (2006: 285), Boogaart 2007).[20] The function of *have* is always that of expressing anteriority when it is used in an epistemic context and never that of establishing a past 'judgment time'.[21,22]

(47) Then that's the problem you *may have come* across. (ICE-GB) (epistemic, *may*, *have*)

(48) Few players *can have tried* so many different defences to 1.e4 as Tony Miles has experimented with in his career. (www, accessed 28 May 2014) (epistemic, *can*, *have*)

(49) Samuel *might have found* accommodation there when he left the Loyers, and he would then have been just down the road while Vincent was wooing Eugenie. (ICE-GB) (epistemic, *might*, *have*)

(50) The conflict *could have* just as well *been* over the seizure and control of Imperial estates, granaries and potteries left vacant after the expulsion of Constantine's officials in 410 A.D. (ICE-GB) (epistemic, *could*, *have*)

(51) At a guess the monkey *must have been* something like 5ft (1.5m) high standing on its hind legs. (ICE-GB) (epistemic, *must*, *have*)

(52) Moreover the Keynesian analysis of the labour market as set out in Chap. 5 *should have made* it fairly clear that Keynes was not denying any of the neoclassical assumptions motivating self-interested households and firms to engage in trade in attempts to achieve Pareto-efficiency. (BNC) (epistemic, *should*, *have*)

In the sections on root meanings, it was pointed out that actualization *have* is incompatible with strong necessity meaning and that cases of actualization *should have* illustrate a special meaning of *should*; actualization *have* only naturally occurs with possibility modals. So it remains to be explained why actualization *have* does not occur with epistemic possibility. It appears that the function of this type of *have* is incompatible with the nature of epistemic meaning; when epistemic possibility is expressed the residue is represented as a past fact and the speaker indicates how likely she/he believes it is that the situation was the case. Root possibility, on the other hand, is concerned with an 'either/or' question (it is possible or not). This notion of 'theoretical possibility' is not at stake in the case of epistemic modality.

Here the possibility of actualization is not questioned at all; we are concerned with a judgment about the likelihood of (factual) situations. Therefore a form communicating that the possibility actualized does not enter the scene; it does not correspond to a potential communicative need in epistemic environments. Nor can the semantics of epistemic meaning be reconciled with the idea of counterfactuality. If the speaker draws a conclusion about the likelihood of a (factual or actualized) situation, she/he cannot, at the same time, judge a situation to be/have been counterfactual.

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[20] In the following example, the context establishes a past time 'thought' vantage point from the perspective of which the likelihood of an anterior situation is assessed:

(i) At the same time I wondered how she was going to manage this, for she *must have put* away four or five glasses of wine by now. (ICE-GB)

[21] See Boogaart (2007) for a discussion of the interpretation of past and perfect forms of epistemic modals in Dutch, a language in which modals have the complete range of morphological forms.

[22] See Michaelis (1998: 208–209) for a discussion of the different types of anteriority relation that the perfect infinitive can express in examples of this type.

16.3 Meaning in Context

16.3.1 Constraints
The empirical overview has shown that certain meanings of have are incompatible with specific modal meanings or specific modals:

(a) COUNTERFACTUALITY is incompatible with strong necessity (NSEN, GSN) as expressed by *must*; it is also incompatible with epistemic meaning

(b) *have* cannot communicate ANTERIORITY when the modal meaning is ability, opportunity, permission, narrow scope internal necessity or narrow scope external necessity. In other words, anteriority *have* is incompatible with narrow scope modal meanings.

(c) ACTUALIZATION *have* is not compatible with root necessity meaning (narrow scope internal necessity, narrow scope external necessity (see (29)), general situation necessity (see (40))) expressed by *must*, with permissibility or with epistemic meaning.

(d) PAST *have* is incompatible with epistemic meaning

In the discussion in Sect. 2, we put forward some hypotheses that may explain the constraints observed.

16.3.2 Facilitating Factors
Having illustrated the different uses of have in combination with the different modal meanings and modal verbs, the next step is to try to determine the contributions made to the different meanings by syntax, semantics and extra-linguistic knowledge. Given the scope of the article, it is not possible to examine this question in great detail. The following are just two of the issues that need to be addressed:

- Situation types have an important role to play in determining the kind of temporal relation (or the temporal perspective in Condoravdi's terminology) that holds between the modal situation and the residue (see Condoravdi 2002, Laca 2008, Demirdache and Myriam Uribe-Etxebarria 2014, Depraetere 2012, Verhulst 2009, 2012): homogenous situations tend to be simultaneous with M, while heterogeneous situations are usually posterior to M.23[23] Adverbial modification can, however, overrule this unmarked pattern (Verhulst 2012: 94, 111).24[24] Moreover, as has been shown by Verhulst (2012: 136–138) the unmarked temporal ordering determined by situation types does not apply when *have* expresses counterfactual meaning; in this case the temporal relation between M and R is determined in context. The impact of situation types is also different when *have* communicates actualization: R is simultaneous with M, irrespective of the situation type. (Depraetere 2009: 301) *Have* being a canonical marker of anteriority, a further question that requires attention is what factors determine whether its role is that of establishing a past time M (anteriority between speech time and M) or that of expressing a temporal relation of anteriority

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[23] The conceptual pair homogeneous-heterogeneous adequately captures the potential effect of the progressive marker, which coerces Accomplishments into homogeneous situations for instance. In such a context, R is either simultaneous with M or posterior to M, as shown in the following examples:

(i) Most of the troops know exactly what they're supposed to be doing. (BNC) (Verhulst 2012: 114) (simultaneity between M and R)

(ii) We waited because the band were supposed to be sound checking at six. (BNC) (Verhulst 2012: 114) (posteriority between M and R)

[24] Verhulst (2012: 97–99) also mentions the case of hedged performatives. In such a context punctual situations (R) can be simultaneous with M, as in:

(i) No that's something we in England, in Britain I *should say*, are not particularly aware of, but a lot of British artists who are very well know on the Continent. (Verhulst 2012: 111).

between M and R and whether situation types have any role to play in distinguishing the two functions of *have*. One of the findings that emerged from the empirical overview is that anterior *have* is incompatible with narrow scope modal meaning. (See p. 283) In other words, observations about the influence of situation types may need to be reassessed in two ways: first, taking into account the impact of the perfect infinitive (as opposed to the present infinitive), and secondly, taking into account the different meanings of *have*.

- Another question is that of determining the context of use of what has been called actualization *have*. In this case non-finite *have* functions to stress actualization; its primary role is not that of communicating temporal information. Depraetere (2009: 310) puts forward the hypothesis that actualization have occurs in presuppositional contexts: in the examples given in Sect. 2 actualization *have* typically occurs in (embedded) WH interrogatives and in cleft constructions. The following example also provides evidence for this observation:

(53) The QE2 is to retire next year and become a big shop in Dubai. For a year or two I watched her grow on the stocks beside the Clyde, but when at last she was launched in September 1967, I was sitting in the chair of a Glasgow dentist having a tooth pulled out. The fact that I *could have made* a dental appointment on such a day still saddens me. (Guardian, 23.6.7 page 22 col 1)[25]

Leaving out *have* changes the meaning from 'the possibility existed for me to make a dental appointment and I actually – believe it or not – made use of it' to 'the possibility existed'. Further empirical research is needed to pin down accurately the meaning effects of actualization *have* and to disentangle related meanings, for instance, the difference between stressing the actualization of the residue (the fact that it was possible at all for the situation to actualize (R actualized)) or stressing the actualization of the modal meaning. (the fact as such that the possibility existed indeed (M actualized)) The empirical overview shows that a unitary compositional approach whereby the meaning of finite and non-finite *have* is that of a marker of anteriority cannot explain the data. First, non-finite *have* is not always a marker of anteriority. Secondly, as has been argued by Michaelis (1998: 207) and Huddleston and Pullum et al. (2002: 146), non-finite (anteriority) *have* has features that distinguish its uses from that of finite (anteriority) *have*. Michaelis also observes that non-finite *have* in modal constructions is distinct from other non-finite perfects (such as the infinitive construction, for instance). (Michaelis 1998: 209)

The identification of the complete set of factors that interact and establishing a hierarchy among them is a task for further research.[26] My main aim has been to show that the different meanings arise in context: the actual function in a specific context can only be determined by taking into account the linguistic and extra-linguistic context in which have occurs. In other words, the contribution of the context impacts on the proposition that is communicated: there is a context dependent semantic layer of meaning. The question I will now consider in more detail is that of determining the nature of the process that is involved in filling in the semantics.

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[25] I am grateful to Liliane Haegeman for pointing out this example to me.

[26] Condoravdi (2002), Laca (2008), Abusch (2012), Thomas (2014) offer insightful discussions about the formal mechanisms that may explain the (constraints on the) available interpretations in sentences with specific modals followed by a perfect infinitive. The analyses are carried out within Kratzer's (1981, 1991) model of modal meaning. Laca's paper is a comparison between French and Spanish, in which a wider range of morphological forms are available than in English. Huddleston (1977) offers an interesting discussion of different types of examples (conditional sentences as well as non-conditional clauses) with 'past tense transportation' triggered by defective verbs (modals). His analysis is mainly focussed on conditional contexts (*If you had tried harder, you could have come*), but he also touches upon the impact of negation on 'fulfillment' of the complement clause in main clauses with modal verbs. (*Ought(n't) you to have told her*?) (1977: 50–52)

16.4 The Meaning of *have* and the Semantics-Pragmatics Interface

Section 3 sheds some light on the constraints and factors that facilitate specific meanings; the next issue that needs to be addressed is that of the status of each of the meanings of non-finite have: is have ambiguous (polysemous) or is it vague? Put differently, are the different meanings semantically differentiated or does nonfinite *have* have a single meaning to which a specific shade of meaning is added in specific contexts?

Diachronic data need to be drawn into the discussion in order to determine how the meanings developed historically and whether they are related.[27] Such an investigation would enable us to answer the question whether all the meanings can be argued to form a network (along the lines of a constructional network with inheritance links as presented in Michaelis 1998, which offers an analysis of (principally finite) *have*) or whether they have developed from different sources and in different contexts. It is not possible, within the context of this chapter, to consider the historical development of the meanings. However, the examples given so far justify the conclusion that the different meanings of non-finite *have* are semantically differentiated and that the context helps to determine what meaning it communicates. As was explained in Chap. 1, there are two concepts that capture the way in which the propositional form is fleshed out: that of saturation and that of free pragmatic enrichment. These are meaning components that were not addressed in Grice's theory of conversation.

		elements of meaning communicated by an utterance					
		contextually derived information					
Grice	Code	reference assignment disambiguation			conventional implicatures	GCI[28]	particularized conversational implicatures
	what is said				what is implicated		
Car-Ston	Code	reference assignment & disam-biguation	saturation	free pragmatic enrichment	conventional implicatures	GCI	particularized conversational implicatures
	what is said – explicature						what is implicated

Table 16.4 Contextual meaning and the semantics/pragmatics interface (Depraetere 2014)

Saturation is an obligatory process that is linguistically mandated (see Carston 2004: 49). There is a linguistic variable that needs to be specified in order for the sentence to communicate a complete (minimally truth-evaluable) proposition. In the following sentence, both the genitive and the comparative are linguistic markers that point to the saturation requirement:

(54) Sue's jacket (the one she bought, she gave me for my birthday, etc.) is cheaper (than what?).

Saturation (or linguistically mandated completion) is obligatory 'since without it there is no propositional form, nothing that can be understood as the explicit content of the utterance' (2004:

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[27] Kytö and Romaine observe that the perfect infinitive 'does not seem to have developed until the Middle English period, and did not occur with great frequency until the fourteenth century.' (Kytö and Romaine 2005: 4) 'In Middle English the expression of irrealis rather than tense becomes the main function of the perfect infinitive because it is usually found in combinations with modal verbs, which are incapable of indicating temporal distinctions.' (2005: 18). One might also want to investigate to what extent and at what point the perfect infinitive compensates the change in the meaning of the morphological marker for past time in modals.

[28] GCI = Generalized conversational implicature

49). Free pragmatic enrichment differs from saturation in two ways: first, there is a minimal (truth-evaluable) proposition that is communicated by the sentence but it does not seem to be the one intended by the speaker. Secondly, the process of free pragmatic enrichment is 'free' in the sense that it is not under linguistic control:

(55) (a) She has a brain. [*a high-functioning brain*] (Carston 2004: 639)
    (b) It's going to take time for these wounds to heal. [*considerable time*] (Carston 2004: 639)
    (c) It's snowing. [*in location X*] (Carston 2004: 639)
    (d) I've had a shower. [*today*] (Carston 2004: 639)

In (55a) and (55b) the literal proposition is one that is truth-evaluable so the process of free pragmatic enrichment is, strictly speaking, not compulsory. Still, the literal proposition is unlikely to be the one intended by the speaker and from that point of view, enrichment is needed, the bracketed information being part of the explicature. The examples in (55c) and (55d) illustrate a second type of 'free enrichment'; here the 'pragmatically supplied constituents of the explicature have no presence in the linguistic form used, so are known as "unarticulated constituents"'. (Carston 2009: 50).

Both the process of saturation and that of free pragmatic enrichment contribute contextual information that is relevant at the semantic level. I would like to put forward the hypothesis that the process involved in the case under discussion, the meaning of *have* in combination with modals, involves saturation. The saturation is lexically driven or lexically restricted (unlike in the cases of saturation in example (54), which are triggered by a formal marker) in the sense that there is a discrete set of meanings associated with *have* when it is used with a modal:[29] which of the senses is communicated ultimately depends on a number of features, the precise nature of which can be made explicit in terms of criteria such as those mentioned in Sects. 2 and 3. Non-finite *have* combined with a modal comes with a template of four different meanings which are determined in context, on the basis of a number of syntactic, semantic and pragmatic features. The process can be characterised as saturation because it concerns the obligatory filling-in of a template in order to arrive at a proposition. I therefore concur with Verhulst (2012), who argues that nonfinite *have* has differentiated semantics: the focus of her discussion is the difference between non-finite counterfactual *have* and non-finite non-counterfactual *have* in sentences with *should*, *ought to* and *be supposed to*. She questions Ziegeler's (2003) and Verstraete's (2005a, b) approach to counterfactuality. They both argue that counterfactuality is an implicature and that the semantics of *have* should be captured in terms of past time reference. Ziegeler explains the counterfactual implicature in terms of the interaction between the first Maxim of Quantity (factual statements are higher on the scale of factuality that modal statements, a modal statement therefore implicates non-factuality), the Maxim of Quality (*have* establishes past time reference and reinforces the truth of the non-factuality (or, put differently, the truth of the factuality of non-actualisation of the past situation)) and adversative or contrastive clauses which are added and which explicitly refer to non-actualisation (*She could have come, but she said she had a lot of work to do* (Ziegeler 2003: 176)).[30] Conventionalization of meaning results in the modal clause becoming a metonymy of counterfactuality, the presence of an adversative or contrastive clause no longer being a necessary requirement to bring about counterfactual meaning. Verstraete likewise explains counterfactuality in non-Pama-Nyungan languages of northern Australia

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[29] As observed in footnote 15 (Chap. 2), one might want to argue whether the perfect marker illustrates lexically restricted saturation, as the perfect is, after all, a grammatical marker. The use of 'lexical restricted saturation' is inspired by the fact that we are talking here about a marker that comes with a restricted range of meanings, one of which is instantiated in context.

[30] Michaelis (1998: 209) likewise makes use of the concept of quantity-based inference to explain counterfactual meaning (her discussion is based on *I could have been a contender*. (Marlon Brando, On the Waterfront)): 'if the speaker in fact was a contender in the past, it would be uninformative for him to assert merely that had the ability to compete in the past'.

in terms of an implicature that arises from the combination of a morphological past combined with *have*: it results from 'a clash between a modal element that encodes potentiality and a tense element that implies certainty'. (2005a, b: 237) While Verhulst agrees that counterfactuality is determined in context, she convincingly shows that counterfactuality does not presuppose past time reference, witness examples like the following:

(56) I have spent the past half hour removing the blog comments of a spammer named Ed. He spams using Chinese characters! It is so irritating! … I *should have been sleeping* now but I have to do something about that person. (BNC) (Verhulst 2012: 129)

(57) This weekend post *should have been posted* only tomorrow, but due to Internet problems that I will have tomorrow, I decided to anticipate the post for today.

These examples show that the function of *have* is not always that of establishing past time reference.[31] Verhulst argues that the perfect has 'dual semantics' (Verhulst 2012: 132): the function of the perfect infinitive in counterfactual sentences with modal verbs is to express negative epistemic stance (see Dancygier and Sweetser 2005: 52), its second meaning being that of expressing anteriority. Verhulst is quite right to point out that *should*, *ought to* and *be supposed to* + perfect infinitive have 'not grammaticalized to express CF meaning, since (…) [these forms] cannot
express CF meaning without contextual support'.[32] (Verhulst 2012: 136) While invited inferences associated with a specific construction may semanticize over time (Traugott-Closs and Dasher 2002: 29), it seems that modal + perfect infinitive has not reached that stage yet, or in any case, it is not the sole meaning that it has come to communicate. In their study of the construction *be/have + like +* infinitive (*We had like to have been killed by thunder and storm*), Kytö and Romaine (2005) also observe that counterfactual meaning is expressed either explicitly or implicitly through the discourse context. Given these observations, it seems inadvisable to argue that counterfactuality is an implicature in sentences with a modal + perfect infinitive. If counterfactual meaning is present, be it established formally, lexically or contextually, it is not possible to cancel it. The fact that a form is ambiguous out of context (*He could have gotten out through the window* (a) interpretation 1 (counterfactuality … *but he didn't. Sadly, he died in the blaze*, (b) interpretation 2 (epistemic): *it's possible that he did, the window is sufficiently large for a person to get through and he would only have had to jump down about 2 metres*) shows that the form is polysemous but it does not prove in itself that one of the meanings is an implicature. For instance, it has not been argued so far that epistemic meaning (interpretation 2) is an implicature of a more basic root meaning, even though it is likewise established in context and even though such an approach would reflect the historical development whereby epistemic meanings develop later than nonepistemic meanings.
Verhulst's analysis is compatible with the approach that I have argued for. *Have* is polysemous (in more ways than envisaged by Verhulst, as the discussion of the four meanings of *have* in this paper have shown) and saturation is the pragmatic concept that captures the input of the context in bringing about the differentiated meanings.

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[31] Laca (2008) likewise argues against an approach whereby counterfactuality is triggered by a past temporal 'perspective'.

[32] An additional telling observation she makes is that *have* is not even required to establish counterfactual meaning:

(i) I have spent the past half hour removing the blog comments of a spammer named Ed. He spams using Chinese characters! It is so irritating! …. I *should be sleeping* now but I have to do something about that person. (BNC)

(ii) We were supposed to *have had/have* a guest speaker at the last AGM but instead had to show the video on its own. (BNC) (Verhulst 2012: 139)

Chapter 1 offers an analysis of the finite perfect in terms of lexically restricted saturation; the observations made here show how it can be expanded to include non-finite *have*. The question of how the meanings are linked and the historical development of the meanings are issues that will be addressed in future research.

16.5 Conclusion

In this chapter, I have examined the meanings of *have* when it combines with a central modal auxiliary expressing necessity or possibility. The meaning of have is not restricted to that of expressing anteriority or that of communicating counterfactuality. Four meanings were distinguished (past *have*, anteriority *have*, counterfactual *have*, actualization *have*) and the empirical overview showed that not every meaning of *have* is compatible with every modal meaning. Moreover, there are differences in compatibility across modals that potentially express the same modal meaning: even if a particular meaning of *have* is found with a modal that expresses a specific meaning, it does not follow that any modal that expresses the same modal meaning is automatically found with the given meaning of *have*. A few constraining and facilitating factors were formulated, but the principal aim of the detailed empirical overview was to show that the specific meaning is contextually determined. Embedding the topic of the meanings of *have* in the semantics/pragmatics interface debate involves determining whether it is saturation rather than free pragmatic enrichment that captures the contextual specification of the semantics. In accordance with the rationale outlined in Chap. 1 of this book, it has been argued that it is lexically-restricted saturation that comes into play: nonfinite *have* is polysemous and it is through the interplay of a number of contextual factors that the specific meaning is brought about. While the argument shows along what lines the meanings of *have* could be approached, it is only the tip of the proverbial iceberg that has been revealed; a more extensive empirical analysis is needed to shed further light on the contribution made by syntax, lexical semantics, sentence semantics and situational knowledge to the meaning template of non-finite *have* when combined with a modal verb.

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