



Title	English Root Modals Must and Have to : A Cognitive Linguistic Analysis
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Citation	北海道大学. 博士(文学) 甲第9224号
Issue Date	2009-09-25
DOI	10.14943/doctoral.k9224
Doc URL	http://hdl.handle.net/2115/43055
Type	theses (doctoral)
File Information	Ph.D.Thesis(Sanada).pdf



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English Root Modals *Must* and *Have to*: A Cognitive Linguistic Analysis

(英語の根源的法助動詞 *must* と *have to* : 認知言語学的分析)

A Dissertation

Presented to

The Graduate School of Letters

Hokkaido University

In Partial Satisfaction

Of the Requirements for the Degree of

Doctor of Philosophy

In Linguistics

by

Keisuke SANADA

2009

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ACKNOWLEDGEMENTS

It goes without saying that many people fully provided academic, physical, and mental help with the completion of the present thesis.

First and foremost, I would like to express my deepest gratitude to Masuhiro Nomura, my advisor in doctoral course. His undoubtedly wide and deep insight on (especially cognitive and functional) linguistics and its related areas (such as philosophy and logic) always stimulated me. He also put in a really large amount of time and energy on reading and critiquing earlier versions of the present thesis, and always encouraged me to make public my research by giving presentations at academic conferences. I cannot imagine having completed the present thesis without his generous advice, encouragement, and patience.

Next, I must remember to thank Hidemitsu Takahashi, my prior advisor in bachelor and master courses. He interested me in functional and cognitive linguistics and pragmatics, and also taught me how to write a logical and interesting academic thesis. Thanks to his constant help and encouragement, I managed to complete my master's thesis, on which the present thesis is based.

I am also grateful to Shigehiro Kato for his insightful comments on this thesis. His undoubtedly broad insight on linguistics (and especially on pragmatics) gave me a lot of incentive to improve this research in the future.

I was also blessed with the opportunities to attend special lectures of prominent linguists: Ronald W. Langacker (on cognitive grammar),

Keisuke Onoe and Yoshio Nitta (on modality), and Kunihiko Imai (on relevance theory). All of them kindly answered my questions after their lectures, and helped me understand their research areas and phenomena.

My thanks also go to Mariko Goto Higuchi for recommending me to read her insightful doctoral dissertation, sharing the interest in modality, and encouraging me to go ahead with the present study.

Portions of this thesis are based on my published papers and oral presentations done in academic conferences. Chapters 3 through 5 include data and (sometimes largely) revised discussions from papers I presented at The English Literary Society of Japan, Hokkaido Branch, Japanese Cognitive Linguistics Association, English Linguistics Society of Japan, and International Cognitive Linguistics Association. For their valuable comments, criticisms, and questions, I thank Tomoko Endo, Hideto Hamada, Hideo Ishida, Nobuyuki Ishii, Kazuki Iwahashi, Katsunobu Izutsu, Hiroyuki Kageyama, Seizo Kasai, Takehiko Kurihara, Mariko Kurotaki, Mitsuru Maeda, Masanobu Masuda, Yusuke Minami, Kunie Miyaura, Masakatsu Mizuno, Hiroyuki Morikawa, Tetsuharu Moriya, Yuichi Mori, Shunichiro Nagatomo, Akiko Naito, Heizo Nakajima, Hirozo Nakano, Mitsuko Yamashita Nieda, Yoshihiro Nishimitsu, Kimihiro Ohno, Satoshi Oku, Haruhiko Ono, Masaki Sano, Yukito Seta, Ken-ichi Seto, Makoto Shimizu, Hiroaki Tanaka, Seiji Ueno, Hisao Tokizaki, Hirotaka Tomozawa, and Yoshihiro Yamada.

I would also like to express my deep gratitude for the staffs and fellow students in Hokkaido University: Michiko Ezoë, Susumu Hidaka, Mitsuko Narita Izutsu, Ken-ichi Kasai, Hidenori Kitahara, Yayoi

Miyashita, Yuko Mizuno, Lisa Mizushima, Erina Munetomo, Yumiko Okada, Midori Okamura, Masatsugu Ono, Nina Petrishcheva, Mizuho Sakamoto, Megumi Seto, Takashi Sugahara, Haruna Suzuki, Nohara Takeuchi, Shogo Terasaki, Nozomi Torimoto Yasuhiro Tsushima, and Emi Yokomura. They gave me valuable comments for portions of this thesis. In addition, the talk with them, whether on linguistic or non-linguistic issues, always relaxed and encouraged me.

I would also like to thank Shugo Yamazoe, at Sapporo Gakuin University, for his warm and constant encouragement while I was working as a part-time lecturer with him and writing this thesis.

I would like to thank Randy L. Evans, Tim Grose, Mark Holst, Mark Irwin, and Raquel Romine for their judgments and valuable comments on my examples. Among them, I am particularly grateful to Randy L. Evans for helping me to write this thesis by suggesting me stylistic improvements whenever I asked him to. Any remaining errors or confusions are of course mine alone.

Last but not least, I would like to thank my family, relatives, and close friends: especially my parents Shigeru and Machiko Sanada. They allowed me to study as much as I like, and supported me with reassuring warmth even while I was in deep depression during hardest time of completing this thesis.

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The Characterization of the Subclasses of Directive Speech Acts. *JELS* 22: 171-180. 2005.

Toward a Diachronic Study of Root *Must*: a Comparison between Shakespearian English and Present-Day English. *The English Literature in Hokkaido* 50, 79-90. 2005.

A Cognitive Study on Obligative Speech Acts: a Preliminary Survey. *The English Literature in Hokkaido* 51, 27-37. 2006.

Kanrensei-riron to Ninchi Gengogaku: Kongen-teki Yoohoo no *Must* to *Have to* o Megutte (The meaning of Root *Must* and *Have to*: Relevance vs. Cognitive Analysis). *Proceedings of the Sixth Annual Meeting of the Japanese Cognitive Linguistic Association*: 371-380. 2006.

A Note on the Semantic Development of Root *Have to*. *The English Literature in Hokkaido* 52: 1-11. 2007.

Ninshikiteki Yoohoo no *Must* o Fukumu Gimonbun no Bunmyaku ni Tsuite (On the Context of Interrogatives Including Epistemic *Must*). *Proceedings of the Seventh Annual Meeting of the Japanese Cognitive Linguistic Association*: 213-222. 2007.

“Kongenteki Yoohoo no *Must* no Purototaipu Kooka: Hatsuwa Kooi to ICM no Kanten kara” (The Prototype Effect of Root *Must*: from the Standpoint of Speech Act and ICM). *Proceedings of the Ninth Annual Meeting of the Japanese Cognitive Linguistic Association*. 2009.

FIELDS OF STUDY

Major Field: English Linguistics

Studies in Semantics and Pragmatics

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Studies in Cognitive Linguistics

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ABSTRACT OF THE PRESENT THESIS

The present thesis conducts a pragmatic and cognitive linguistic analysis of the semantics and pragmatics of English modal root *must* and English quasi-modal root *have to*. This thesis consists of six chapters.

Chapter 1 poses aims and phenomena to be treated in this thesis, and briefly presents the arguments of this thesis.

Chapter 2 introduces how modality and English (quasi-)modals have been analyzed. More specifically, the following three subjects are discussed: (i) how modality has been defined and characterized, (ii) how the meanings of modality have been classified, and (iii) whether they have been viewed as monosemous or polysemous. Cognitive linguistic framework for the analysis of English (quasi-)modals is also introduced in this chapter: a force dynamic approach applied in Talmy (2000) and Sweetser (1990).

Chapter 3 argues that cognitive, rather than non-cognitive, approaches work better (i) to distinguish between root *must* and root *have to*, and (ii) to propose context in which interrogatives with epistemic *must*, root *must* and epistemic *have to* are properly used. One limitation, however, is revealed with the previous cognitive approaches up to this chapter. More specifically, the approaches fail to fully explain non-prototypical cases of root *must* and root *have to*, and this insufficiency is solved in Chapter 4.

Chapter 4, depending on Searle's (1969, 1979) speech act theory and Lakoff's (1987) Idealized Cognitive Model (ICM), constructs an ICM

of obligation (and three more subclasses of directive speech acts). The meaning of root *must* and that of root *have to* are specified separately, and it is demonstrated that the prototypicality of root *must* and root *have to* are explained through the (varying degree of) deviation from the ICM of obligation.

Chapter 5 conducts a quantitative research of root *must* and root *have to*. With data in my corpus, the two following themes are examined: (i) whether “prototypical” root *must* and root *have to* are in fact observed the most frequently synchronically and diachronically, and (ii) what are actual usage patterns of root *must* and root *have to*, focusing on the notion of imposee, or the target of an obligation.

Chapter 6 concludes the present thesis, and proposes as prospects three problems that should be examined in future research.

Chapter 1

Introduction

1.1. Aims of This Thesis

Modality, as a grammatical category, is expressed in a variety of grammatical ways; it is expressed by modals (e.g. *must* and *will*) and quasi-modals (e.g. *have to* and *be going to*)¹, and by grammatical moods (such as permissive mood and obligative mood). According to Palmer's (2001:22) classification of modality, modality has ten subcategories (speculative, deductive, assumptive, reported, sensory, permissive, obligative, commissive, abilitive, and volitive; for a little more detail of this classification, see section 2.2). Among these subcategories, obligative modality (which is among what this thesis calls "root modality") is expressed by modals such as *must*, quasi-modals such as *have to* and *have got to*, and grammatical moods such as imperative mood.

Among the above expressions of obligative modality, this thesis will focus on English modal *must* and the quasi-modal *have to* with a root sense (henceforth, "root *must*" and "root *have to*," respectively)², and examine the semantics and pragmatics of the two (quasi-)modals. It intends to argue that a comprehensive explanation of the semantics and pragmatics of root *must* and root *have to* requires a cognitive linguistic perspective—in particular, a force dynamic approach to (quasi-)modals (Langacker 1990; Sweetser 1990; Talmy 2000; et al.), Idealized Cognitive Model (henceforth,

ICM: Lakoff 1987), and usage-based model (Langacker 1991).

The thesis presents the following three arguments: (i) an argument for a force dynamic account of English modals, (ii) an argument for an ICM-based account of the prototype effect of root *must* and root *have to*, and (iii) an argument for the significance of usage-based (more specifically, frequency-based) approach for better analysis of the usage of root *must* and root *have to*. These arguments are summarized in the following subsections, along with some examples that will be discussed.

1.1.1. Root *Must* and Root *Have to* as Force Dynamic Conceptualization

Root *must* and root *have to* both express obligation, and have been distinguished from one another in terms of subjectivity (Lyons 1977), as summarized in (1).³

- (1) a. *must* expresses obligation imposed by the speaker.
- b. *have to* expresses external obligation.

[Thomson and Martinet 1986:140]

In the sense that the speaker is involved in the obligation, root *must* has been said to be subjective. On the other hand, root *have to* has been said to be objective because of the lack of the speaker's involvement in the obligation as seen in the meaning of root *must*.

This distinction is illustrated by examples (2) and (3).

- (2) I *must* find her and say I'm sorry. I can't risk losing her.

- (3) a. *My girl *must* be home by midnight – I think it’s idiotic.
b. My girl *has to* be home by midnight – I think it’s idiotic.

[Lakoff 1972b:925. cf. Larkin 1976:392–394]

The speaker in (2) wants to find the girl and apologize to her, so the obligation in (2) can be said to be imposed by the speaker. If *have to* were to be used instead, the speaker’s involvement would be decreased or be difficult to grasp, and *have to* would sound odd. On the other hand, in (3) *have to* is more acceptable than *must*. The speaker is not setting an obligation with his/her own intention (as can be seen by the clause *I think it’s idiotic*). Rather, it is implied that the obligation comes from the entity or from circumstances that are external to the speaker. In this case, *have to* (*has to* in (3)) is more appropriate than *must* (as in (2)).

The difference between root *must* and root *have to* is therefore drawn in terms of who sets an obligation, or the “imposer.” The notion of the imposer is equivalent to the Antagonist in Talmy’s force dynamic framework (Talmy 2000:441).⁴ To be specific, the distinction of the (quasi-)modals in terms of (1) is based on our conceptualization of modals in terms of force dynamics, and this is where cognitive linguistics, which “equates meaning with conceptualization” (Langacker 1987:5), contributes to the analysis of English modals (also see Langacker 1990; 1991; Sweetser 1990; Kashino 2002; Sawada 2006 et al.).

This thesis argues that considering a force dynamic approach to

modals (Sweetser 1990: Chapter 3) is indispensable for a comprehensive analysis of modals, in that the image schema of modals depicted on the basis of force dynamics constitutes a conceptual basis of modals. This thesis also intends to demonstrate that non-cognitive linguistic studies (Westney 1995; Papafragou 2000; inter alia) cannot appropriately distinguish between root *must* and root *have to*.

1.1.2. Prototype View on Root *Must* and Root *Have to*

There are other cases that cannot apply to the previous distinction noted in (1), as shown in (4) and (5).

- (4) [*He* refers to Nakata, *it* to Japan and *you* to Japanese people generically.]

What he did, eventually, was leave. “In Japan, seniority is all important,” Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. “It’s a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn’t feel like this. I felt a freedom from this.” [TIME, April 29–May 6, 2002]

- (5) [The speaker (Tony Blair) is delivering a speech at a university.]

And we know too that not only is it possible for large numbers of school leavers to achieve high standards, but that it is more and more important that they do so. We *have to* match our competitors in believing that in the core subjects of the curriculum all students can

gain a good grounding.

The obligation in (4) seems to arise from external circumstances from the speaker (in this case, Japanese (vertical) society), so that *must* in (4) can be captured in terms of (1b) rather than (1a), that is, objective. The obligation in (5), meanwhile, appears to have been imposed by the speaker (Blair). This interpretation is due to the knowledge that Blair made education a key priority during his tenure as British Prime Minister. Therefore, it is (1a) rather than (1b) that appears to be more appropriate for the interpretation of root *have to* in (5), that is, subjective. If cases that fit (1) are labeled as “prototypical,” then cases such as those shown in (4) and (5) may be labeled “non-prototypical.”

Another use of root *must* expresses “invitation” rather than “obligation,” as illustrated by (6).

(6) I haven’t seen you for years. Hello, there’s Margery – my wife, you know. You *must* come and meet her.

[A. Christie “The Blood-Stained Pavement”]⁵

As will be discussed in Chapter 4, invitation does not involve an adverse benefit (or disadvantage), but rather a clear benefit to the hearer. Root *must* expressing invitation is mentioned considerably less often in the literature than is root *must* expressing obligation. Therefore, the former case, too, may be regarded as “non-prototypical” unlike the latter case.

To the best of my knowledge, only Coates (1983) and Sanada (2004b;

2006b) have attempted to examine the categorization of root *must* closely. In particular, Coates proposed eight features for explaining its category (1983:36); however, she did not clarify how the eight features can validly explain the motivation of the extension from prototypical to the non-prototypical root *must*. This thesis accounts for these prototype effects within the framework of Lakoff's ICM. More specifically, this thesis demonstrates that non-prototypical cases of root *must* and root *have to* are characterized through the (varying degree of) deviation from the ICM for characterizing obligation.

1.1.3. Quantitative Research of Root *Must* and Root *Have to*

Cognitive linguistics, with its usage-based orientation (e.g., Langacker 1987:46), is in harmony with quantitative research dependent on frequency in the use of linguistic expressions (e.g., Hayase and Horita 2005; Bybee 2007). Against this academic background, Chapter 5 conducts a quantitative research of root *must* and root *have to*, with particular focus on the following three topics.

Firstly, it will attempt to make a quantitative corroboration of the ICM-based account presented in Chapter 4. It demonstrates that root *must* and root *have to* are prototypically used under the usage of (1a) and (1b), respectively.

Secondly, it shows that this corroboration is seen not only in Present-Day English (PDE: 1901-) but also in Early Modern English (EModE: 1501-1700) and Late Modern English (LModE: 1701-1900), at least in the case of root *must*, as illustrated in (7) and (8), written in EModE and

LModE, respectively.

- (7) [Rosalind (the speaker) and Orlando (the hearer) love each other. Orlando does not realize that the person with whom he is talking is actually Rosalind, who has disguised herself as a man.]

Nay, you *must* call me Rosalind. [As You Like It: 3.2.422, prose]

- (8) [*I* refers to Robinson, and *he* to Friday, with whom Robinson lived. They have confronted enemies and are determined to fight them.]

“But,” said I, “Friday, we *must* resolve to fight them: can you fight, Friday?” “Me shoot,” says he, “but there come many.”

[D. Defoe, *Robinson Crusoe*]

Thirdly, data is examined in terms of the notion of an “imposee.” The thesis will then demonstrate that an imposee of root *must* and root *have to* is most frequently (i) encoded as a sentence subject, especially, as the first person subject and (ii) agentive (with a cognitive and pragmatic motivation), as illustrated in (9) and (10).

- (9) [S is giving a speech to the public]

We *must* have no violence today, [Forrest Gump film script]

- (10) It is also clear that, given the likely death toll, there will be many citizens of other states who will have died. I *have to* say that I fear significant numbers of them will be British.

[Speech by Tony Blair, September 12, 2001]

Through quantitative research, this paper intends to show that the prototypical usage patterns in terms of our ICM-based account and in terms of an imposee are highly entrenched at least from the period of EModE through to the period of PDE.

1.2. Organization of This Thesis

This thesis is organized as follows. Chapter 2 introduces how modality and English (quasi-)modals have been analyzed. More specifically, the following three subjects are discussed: (i) how modality has been defined and characterized, (ii) how the meanings of modality have been classified, and (iii) whether modality has been viewed as monosemous or polysemous.

Chapter 3 argues that cognitive approaches work better than non-cognitive approaches to explain (i) the distinguishability between root *must* and root *have to* and (ii) the context in which interrogatives including epistemic *must* and epistemic *have to* are appropriately used. It is also noted that cognitive approaches, despite the advantages mentioned, is insufficient because it cannot fully explain what is labeled herein as the “non-prototypical” cases of root *must* and root *have to*.

Chapter 4 attempts to solve the limitation highlighted in the previous chapter, by adopting Searle’s (1969; 1979) speech act theory and Lakoff’s (1987) ICM. An ICM of obligation is then constructed (along with three more subclasses of directive speech acts), the meaning of root *must* and that of root *have to* are specified separately, and it is demonstrated that

the prototypicality of root *must* and root *have to* are explained via the (varying degree of) deviation from the ICM of obligation.

Chapter 5 conducts a quantitative research of root *must* and root *have to*. Firstly, it argues that cases of root *must* and root *have to*, labeled above as “prototypical,” are in fact highly frequently used. Secondly, it is argued that the prototype effect of root *must* is also seen historically in the same way as in PDE. Thirdly, the chapter focuses on an imposee (the target of force of obligation) and identifies prototypical characters of the imposee.

Chapter 6 concludes the thesis, and offers prospects by posing a few remaining problems to be solved in future research.

Notes to Chapter 1

¹ This thesis uses the terms “modal(s)” and “quasi-modal(s),” following Coates (1983) and Quirk et al. (1985:137, 226). This thesis does not treat quasi-modals separately from modals. As Krug (2001:318) notes, “it would not seem helpful to exclude all verbs taking infinitival to complements from auxiliarihood simply because they do not share the syntactic properties of the central modals.” It can also be added that *have to* is included in the category of modality, according to Narrog (2005:188). Also, note that the term “modal(s)” is employed in cognitive linguistic studies on modality (e.g., Langacker 1990), on which the analysis in this thesis is based.

² Similarly, this thesis refers to *must* and *have to* in an epistemic sense “epistemic *must*” and “epistemic *have to*,” respectively. See section 2.2.2 for a root-epistemic distinction in the semantics of modality and for the reason why the distinction is made in this thesis.

³ Emphases (such as italics and underlines) in the examples and quotations throughout this thesis have been added by the present author, unless stated otherwise.

⁴ In addition, the target of the force is equivalent to “Agonist” in Talmy’s framework. His framework will be introduced in section 2.4.1.

⁵ Titles of short stories are noted in quotation marks. For sources of each short story, see Sources for Examples.

Chapter 2

Previous Studies on Modality

It is widely recognized that modality is difficult to treat, as can be seen from the following comments in recent books on modality:

what exactly is “modality” from a linguistic point of view? Indeed, although this term is easy to define in broad terms, it is notoriously difficult to define and categorize precisely. [Gotti et al. 2002:19]

”Modality” ... remains one of the most problematic and controversial notions: there is no consensus on how to define and characterize it, let alone on how to apply definitions in the empirical analysis of data.

[Nuyts 2005:5]

Related to the question of “how to define and characterize modality,” this chapter discusses the following three topics, the first of which is how modality has been defined and characterized. In the definition and characterization of modality, it appears that at least three types of perspectives have been adopted. The second topic is the ways in which the meanings of modality have been classified. The number of different types of modality may vary according to the granularity and scope of the modality research. The third topic is whether modality has been viewed as

monosemous or polysemous, in the case of English modals.

These three topics are discussed in sections 2.1 through 2.3, respectively. Section 2.4 then introduces a cognitive linguistic approach to English modals, which this thesis considers to be the most reliable approach for the analysis of root *must* and root *have to*.

2.1. The Definition of Modality

Modality is broadly defined as being “concerned with the status of the proposition that describes the event” (Palmer 2001:1), but there appear to have been a number of perspectives on “the status of the proposition.” There appear to be three perspectives, all of which are important in the studies of modality: (i) subjectivity, (ii) irrealty,¹ and (iii) non-assertion. These three perspectives are introduced in sections 2.1.1 through 2.1.3.

2.1.1. Subjectivity

Many studies of modality have utilized the notion of subjectivity. This notion has largely been used under Lyons’ (1977; 1995) definition. In their “subjective” attitude, speakers express “either their own beliefs and attitudes or their own will and authority” (1995:330). An “objective” attitude, however, is defined as holding, “in some epistemic or deontic world which is external to whoever utters the sentence on particular occasions of utterance” (ibid.), or “reporting, as neutral observers, the existence of this or that state of affairs” (ibid.).

Lyons argues that the notion of subjectivity “is of great importance ... for the understanding of both epistemic and deontic modality” (Lyons

1977:739). Modality is used by the speaker in order to express “his opinion or attitude towards the proposition that the sentence expresses or the situation that the proposition describes” (Lyons 1977:452).²

Based on Lyons’ comments above, modality has been widely considered to be subjective. However, the term “subjective” has been used in at least three ways, which makes the term difficult to apply to the study of modality.³

Firstly, modality is labeled as subjective while the propositional content of a sentence with modals is labeled as objective (Nakau 1994:20 for English modality, and Masuoka 1991; 2007 and Nitta 1999 for Japanese modality).⁴ For example, in (1) the modality (here, *must*) takes on a subjective part of the sentence, while the remaining propositional content (i.e., Alfred-be-unmarried) takes on an objective part of the sentence.

(1) Alfred *must* be unmarried. [Lyons 1977:797]

Must in (1) can be interpreted as subjective in one interpretation, in that the speaker’s assessment toward the potentiality of the propositional content of (1) is based on his/her own belief. The interpretation in this case is “I (confidently) infer that Alfred is unmarried” (Lyons 1977:791).

However, Lyons (1977:798) gives another interpretation of the meaning in (1), which leads us to the second way of considering the subjectivity of modality. More specifically, although modality is not always subjective, in some cases it is objective (see also Onoe 2001:432–451 and Narrog 2005).⁵ In fact, in the following situation the modal *must* in (1) can

also be interpreted as objective (although Lyons himself admits that it would be more natural to interpret *must* in (1) as subjective). There is a community of 90 people, one of whom is Alfred, and thirty of the 90 people are unmarried. We know the marital status of every member of the community except Alfred, and that 29 people are unmarried while the other 60 people are married. It is natural that in this situation Alfred is unmarried. In other words, Alfred's marital status is determined on the basis of that fact, and thus *must* in (1) is interpreted as objective, like, "In the light of what is known, it is necessarily the case that Alfred is unmarried" (1977:792). For another example of objective modality, consider *can* in (2) below.

(2) John *can* speak Italian. [Palmer 1986:102]

Can in (2) "involves neither the attitude nor the opinion of the speaker, (...) but simply asserts that John has the ability to speak Italian" (ibid.). The modal would thus be regarded as objective rather than subjective in Lyons's sense.

In this way, modality is not always subjective, as illustrated in (1) and (2). Instead, it should be understood that the higher degree of speaker commitment a modality expression reflects, the more subjective it is, while the lower the degree of a speaker's "commitment" (Lyons 1977:734; 1995:254–257) reflected by a modality expression, the more objective it is. For example, take *must* in (1) again. The modal is interpreted as subjective if the speaker's commitment to the potentiality of the propositional content

is based on his/her own beliefs. In this reading, the degree of subjectivity is rather high. On the other hand, the modal is interpreted as objective if the speaker's commitment to the potentiality of the propositional content is based on some known fact related to the propositional content. This reading involves a lower degree of subjectivity than the subjective reading of (1). This distinction is explicitly adopted in Coates (1983), Lyons (1977; 1995), Kashino (2002), and Leech (2004), as well as in this thesis.

Finally, the third distinction is mentioned in Lyons (1977:793)⁶ and Sawada (1993a). According to them, in the majority of cases, deontic (or root) modality is objective while epistemic modality is subjective (see section 2.2 for the root-epistemic distinction). This is because the latter more clearly reflects the speaker's commitment toward a propositional content (of a sentence with a modal) than the former. This distinction is compatible with the historical development of modals, as seen in subjectification by Traugott and Dasher (2002). This distinction will not be focused on, for two reasons. Firstly, this thesis does not plan to discuss the semantic development of English modals from root to epistemic sense. Secondly, and more importantly, this thesis regards both root and epistemic modality as either subjectively or objectively interpretable. Consider (1) again. Lyons provides the four following interpretations on that example (two of which have already been mentioned above): (i) subjective epistemic, "I (confidently) infer that Alfred is unmarried" (Lyons 1977:791), (ii) objective epistemic, "In the light of what is known, it is necessarily the case that Alfred is unmarried" (Lyons 1977:792), (iii) subjective deontic, "I (hereby) oblige Alfred to be unmarried" (Lyons 1977:793), and (iv) objective

deontic, “Alfred is obliged to be unmarried” (Lyons 1977:791).

This section closes by noting that, even though the relationship of subjectivity and modality is not easy to grasp, subjectivity is one of key notions for understanding modality.

2.1.2. Irreality

As illustrated by examples (1) and (2) in the previous section, not all modality expressions are subjective (in Lyons’s sense). This means that a perspective other than “subjectivity” should be used when seeking what is essential in defining and characterizing modality.

This section considers the notion of irreality. Cognitive grammar (Langacker 1990: Chapter 12; 1991: section 6.3; et al.) and Onoe (2001) analyzes modality not as subjective, but rather as situating a propositional content in a realm of irreality (Onoe 2001:442, 467–471). Refer to section 2.4 for more detail on cognitive linguistic studies of modality; the present section will summarize the studies as follows: modality specifies the state of a propositional content as unreal (or not actualized) in relation to the speech event and its participants (i.e., reality).

This perspective comfortably covers examples that are not covered from the standpoint of regarding modality as solely subjective, as in (1) and (2), repeated below.

- (1) Alfred *must* be unmarried. [Lyons 1977:797]
(2) John *can* speak Italian. [Palmer 1986:102]

The speaker in these examples construes their propositional content as unreal. In other words, the speaker does not regard the propositional content of Alfred's unmarried status (or that of John's ability to speak Italian) as a fact. Of course, the notion of unreality comfortably covers subjective modality, as in (3) (we take a subjective reading in 3a and 3b, in the sense that permission and obligation, respectively, emanates from the speaker).

- (3) a. You *can* smoke in here.
b. You *must* take your shoes off when you enter the temple.

[Palmer 2001:75]

The modals in (3) express unreality; the addressee in these examples will smoke in there or take off his/her shoes after being permitted or obliged by the speaker.

However, viewing modality in terms of unreality is not perfect, either, as there are examples that may be difficult to treat in this way of viewing modality. In (4), the propositional content expresses a fact, and in this respect, modals in the examples may have different characteristics than those in (1) and (2), in which the propositional content is not considered as actualized (see section 2.4.3):

- (4) a. It's surprising that John *should* fail the exam.

[Yumoto 2004:175]

- b. He *may* be a university professor, but he sure is dumb.

[Sweetser 1990:70]

For instance, the speaker in (4a) is surprised at the fact that John failed the exam (this use of *should* is called the “evaluative *should*” in Yumoto 2004: Chapter 4; see also Sawada 2006: Chapter 17), while the speaker in (4b) admits that the subject is a university professor but at the same time casts doubt on his quality as a university professor (such use of *may* is referred to as “evaluative *may*” in Yumoto 2004: Chapter 5, and “factual *may*” in Sugiyama 2003).⁷

2.1.3. Non-Assertion

The characteristics of modals in (4) involving the propositional content expressing a fact (as opposed to those in (1) and (2)) may be comprehensively understood from the perspective of viewing modality⁸ involving “non-assertion” (Palmer 2001:3) as its essential characteristic:

Modality is essentially non-assertive and for an assertion the non-modal declarative (*I caught the bus, they came*) is available.

[Palmer 2003:14]

In other words, when a non-assertive attitude is expressed toward a propositional content, modality expressions can be used.

As for “non-assertive,” Palmer (2001:3) presents Lunn’s (1995:430)⁹ three reasons why a proposition may be unworthy of assertion. A proposition that satisfies one of (5a)–(5c) is regarded as non-assertive.

- (5) a. The speaker has doubts about its veracity.
- b. The proposition is unrealized.
- c. The proposition is presupposed.

It is clear that examples (1) to (3), all of which express irreality, satisfy (5b), and in this sense, it can be said that those examples express non-assertion.

The “non-assertion” perspective also helps to understand the characteristic of modals in (4). These examples should be captured as non-assertive, because the proposition of the examples satisfies (5c), as the propositional content has actually occurred in reality.

In this way, the non-assertion perspective for modality can capture its essential characteristics, whether it is subjective or objective or whether it expresses realis or irrealis. However, although Palmer does not explicitly make such an argument, not all non-assertive expressions are modality expressions. If it were the case, the clause *I wonder if (whether)* (as in *I wonder where Bill is now*) should be regarded as non-assertive (because this clause satisfies (5a) above) and hence as a modality expression. However, as far as this thesis could ascertain, there is no modality expression in the sentence *I wonder where Bill is now*, at least in studies of English grammar.

2.2. Semantic Classification of Modality

This section summarizes how the meanings of modality have been classified, with reference to English modals.

Perhaps one of the best-known classifications of the meanings of modality is their classification into root modality and epistemic modality.

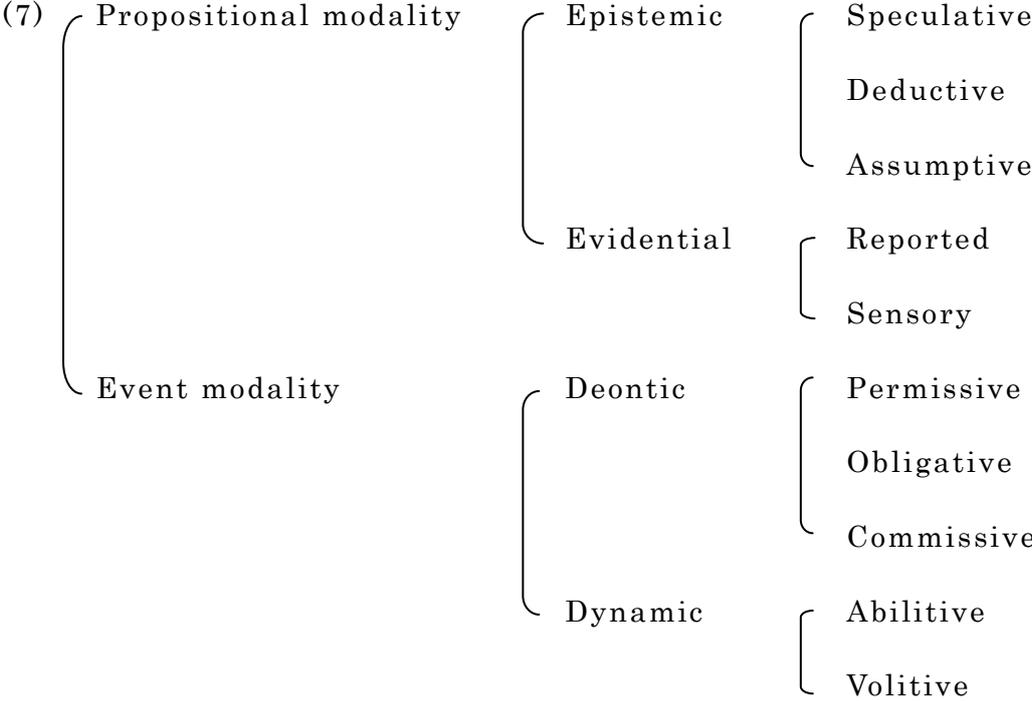
The former denotes “real-world obligation, permission, or ability” (Sweetser 1990:49), while the latter denotes “necessity, probability, or possibility in reasoning” (ibid.). Examples of root and epistemic modality are shown in (6a) and (6b), respectively.

- (6) a. John *must* be home by ten; Mother won’t let him stay out any later.
- b. John *must* be home already; I see his coat.

[ibid.]

Must in (6a) expresses the obligation placed on the hearer by the speaker, while *must* in (6b) expresses the speaker’s confidence that John is home now.

As opposed to the above root-epistemic distinction, perhaps the most detailed classification of modality thus far was made by Palmer (2001), as in (7), based on his thorough cross-linguistic investigation of modality. In studies of modality in English, much attention has been paid to all but evidential modality. This is because, according to Palmer (1990:12), English appears to have almost no expression of evidential modality. In the epistemic category, speculative, deductive and assumptive can be expressed by *can*, *must* and *will*, respectively (Palmer 2001:6). In the deontic category, permissive, obligative and commissive may be expressed by *may/can*, *must*, and *will* (with the first person subject), respectively. Finally, in the dynamic category, abilitive and volitive may be expressed by *can* and *will*, respectively.



[Palmer 2001:22]

In Palmer’s classification, “root” modality corresponds with event modality, and the “root” category can be divided into deontic¹⁰ and dynamic. These two categories, in addition to epistemic modality, are defined as follows: Epistemic modality “is concerned solely with the speaker’s attitude to status of the proposition” (Palmer 2003:7), which is the same as the definition proposed in those studies that take the root-epistemic classification. Next, deontic and dynamic modality “relate directly to the potentiality of the event signaled by the proposition” (ibid.), but they differ in terms of where the control of an event lies with respect to the subject of a sentence. In deontic modality “the event is controlled by circumstances external to the subject of the sentence (more strictly the person or persons identified by the subject)” (ibid.), while the control involved in dynamic

modality is “internal to the subject” (ibid.). Deontic and dynamic usages are illustrated in (8a) and (8b), respectively.

- (8) a. They *can* come in now.
b. They *can* run very fast.

[Palmer 2003:7]

Can in (8a) is deontic in that permission is exerted by circumstances external to the subject of the sentence (in this example, permitted by the speaker). On the other hand, *can* in (8b) is dynamic because the ability to swim very well is internal to the person identified by the subject. Thus, the difference between deontic and dynamic may be easy to understand.

However, linguists do not agree on the definition of dynamic modality. Palmer’s definition differs from that of Huddleston and Pullum (2002), who define dynamic modality as “concerned with properties and dispositions of persons, etc., referred to in the clause, especially by the subject NP” (Huddleston and Pullum 2002:178). In addition, with reference to *must*, they include “circumstantial necessity” in the dynamic modality (Huddleston and Pullum 2002:185) (and Nuyts (2001:25) defines dynamic modality in the same way), while Palmer (2003) does not. Examples of this are shown in (9).

- (9) a. Ed’s a guy who *must* always be poking his nose into other people’s business.
b. Now that she has lost her job she *must* live extremely frugally.

Must in (9a) involves the necessity that has arisen from some internal need, and this modal is dynamic in the sense defined by both Palmer and by Huddleston and Pullum. *Must* in (9a) can therefore be comfortably labeled dynamic. *Must* in (9b), however, involves circumstantial necessity (in this case the circumstance is expressed by the *now that* clause). This case is problematic, because Palmer does not include such circumstantial necessity within his dynamic usage, not even mentioning such a kind of necessity. *Must* in (9b) is dynamic in Huddleston and Pullum's definition but not in Palmer's (2003). According to Palmer's definition, *must* in (9b) should be classified as deontic rather than dynamic, because the necessity in (9b) has arisen from circumstances that are external to the subject. Therefore, the way in which the meaning of *must* in (9b) can be classified differs from one linguist to another.

In dealing with root *must* and root *have to*, this thesis adopts the two-way (i.e., root vs. epistemic) classification rather than the three-way (i.e., deontic vs. dynamic vs. epistemic) classification, and the term "dynamic" is not used throughout this thesis for discussing modality unless necessary. This is because the definition of "dynamic" differs between linguists, as noted above, and the three-way distinction is not required for the discussion in the present thesis (what is called "dynamic" is regarded as a part of the category of "root" modality). Note that it is not being argued that the dynamic category is unnecessary; the category is necessary for explaining *can* expressing a subject's ability and *will* expressing obstinate

insistence.¹¹ Most linguists would agree with including *can*, with the ability meaning, into the dynamic category of *can*.

2.3. Polysemy vs. Monosemy Views

Some linguists argue that modality is monosemous (what Papafragou (1998; 2000) calls the “monosemy view”), while others argue that modality is polysemous (what Papafragou calls the “polysemy view”). This section summarizes these two views, and goes on to argue that the latter view should be adopted.

The monosemy view posits one core meaning of a modal, abstract enough to cover all possible kinds of meanings of the modal, and suggests leaving the interpretation of a modal (as root vs. epistemic, or deontic vs. dynamic vs. epistemic) to pragmatics, not semantics. This view is taken in, for example, Groefsema (1995) and Papafragou (1998; 2000). They take the relevance theoretic approach to the semantics and pragmatics of English modals (see section 3.1.1.2 for details and another problem with Papafragou’s framework). For example, the relevance theoretic approach analyzes the meaning of *must* as in (10), which means that the proposition of a *must*-sentence is logically entailed by the set of propositions in all kinds of domain (D):

(10) Must: p is entailed by $D_{\text{unspecified}}$ [Papafragou 2000:43]

One of the aspects of the relevance theoretic approach to English modals is “semantic underdeterminacy.” Papafragou (2000:15) argues that “Many

words encode unitary concepts (i.e., they open up singular conceptual addressees in memory) but may convey a rather different concept after being pragmatically manipulated.” In other words, which domain is involved in the interpretation of a *must*-sentence, for example, is determined pragmatically rather than semantically. In short, the monosemy view makes it possible to capture the meaning of many sentences with modals as abstractly (and hence simply) as possible.

On the other hand, the polysemy view posits several kinds of meanings of modals, leaving the interpretation of senses to semantics rather than to pragmatics. For example, according to Tregidgo (1982:90), *must* and *may* mean “demand” and “permission,” respectively, and if the modals are interpreted as expressing a root sense and an epistemic sense, the two interpretations are made in terms of “cause” and “state,” respectively. Tregidgo’s discussion is sketched in (11):

$$(11) \quad a \text{ } must/may \text{ } b = X \text{ DEMAND/PERMIT } Y - Y \left\{ \begin{array}{l} \text{CAUSE} \\ \text{STATE} \end{array} \right\} - ab$$

[Tregidgo 1982:90; italics in original]

In (11), “ab” refers to a proposition of *must*- and *may*-sentences (see Tregidgo 1982:83). In a deontic (referred to in this thesis as “root”) interpretation, X refers to “the deontic source” (Tregidgo 1982:78). Y refers to “the person(s) on whom the demand is imposed” (ibid.) in the case of *must*, and the person(s) to whom the permission is granted (cf. Tregidgo 1982:84). In epistemic interpretation, X refers to “knowledge, evidence or reason in

general” (Tregidgo 1982:83) and Y to “the person making the proposition ab” (ibid.).

Next, Perkins (1983:37) posits an abstract meaning of *must* and *may* in a more logic-based way than Tregidgo does, as in (12). There, K is a system of knowledge, and C is a set of circumstances under which the system is relevant. X is a variable that may represent the occurrence of e (= an event) under a dynamic or deontic interpretation and the truth of p (= a proposition) under an epistemic interpretation. K, C and X are specified for each modal:

(12) MUST: K (C entails X)

MAY: K (C does not preclude X)

Where: i. K = social laws / rational laws (typically)

 ii. C = deontic source / evidence

 iii. X = the occurrence of e / the truth of p

Note that the root-epistemic classification is reflected in X in (12) as in “the occurrence of e” and in “the truth of p.” Other linguists, such as Sweetser (1990) and Kashino (2002) take a similar view to that of Tregidgo and Perkins. Sweetser’s approach (see section 2.4.2 for details) is based on Talmy’s (2000) force dynamics.

In this way, both Tregidgo and Perkins distinguish deontic (referred to in this thesis as “root”) and epistemic senses according to the value of variables in the semantic structure they proposed (X and Y in Tregidgo, and K, C and X in Perkins). Their approaches can be labeled the “polysemy

view,” and they differ from that of Papafragou, who does not specify the values of domains (D) according to whether a modal is interpreted with a deontic or an epistemic sense.

This thesis adopts the polysemy view for the following two reasons. Firstly, according to Sweetser (1990: Chapter 3), modals with a root sense and those with an epistemic sense are interpreted against different domains: i.e., a sociophysical domain for the former cases and an epistemic domain for the latter. Secondly, it has traditionally been pointed out that there is evidence for the grammatical status of the root-epistemic distinction. For example, root rather than epistemic modals are more likely to occur in interrogatives and *if*-clauses (see Sawada 1993a: Chapter 7), while modals followed by perfective (e.g., *must have done*) are much more likely to be interpreted in an epistemic sense than a root sense.¹²

2.4. Cognitive Linguistic Approaches to English Modals

As Mortelmans (2007:869) notes, many studies on modality within a cognitive linguistic framework have concentrated on the analysis of modals (mainly in English). This section summarizes how English modals have been analyzed in the framework of cognitive linguistics. The present author is of the opinion that the cognitive linguistic approach is the most reliable for analysis of root *must* and root *have to* (as discussed in detail in Chapter 3) and this is why that approach is introduced separately in this section.

Among cognitive linguistic studies, the following three frameworks, at least, have been applied to studies on modals: force dynamic conceptualization (Talmy 2000; Sweetser 1990), metaphorical extension

from root to epistemic sense (Sweetser 1990), and subjectification and grounding (Langacker 1990; 1991; 1998; 2003; inter alia). These frameworks are introduced below.

2.4.1. Force Dynamic Conceptualization in the Semantics of English Modals

Since its introduction by Leonard Talmy, force dynamics has been shown to figure significantly in language structure. Force dynamics is defined as follows: “How entities interact with respect to force. Included here is the exertion of force, resistance to such a force, the overcoming of such a resistance, blockage of the expression of force, removal of such blockage, and the like” (Talmy 2000:409). In other words, our behavior can be conceptualized in terms of force dynamics.

The force dynamic conception involves two kinds of entity or element: the Agonist (the focal force entity) and the Antagonist (the force element that opposes the Agonist) (Talmy 2000:413). For example, consider (13).

- (13) a. The ball kept rolling because of the wind blowing on it.
b. The ball kept rolling despite the stiff grass.

[Talmy 2000:416]

In (13a) and (13b) the ball serves as the Agonist, while the wind in (13a) and the stiff grass in (13b) serve as the Antagonist. (13a) conceptualizes the situation in which the Agonist, which tends toward rest, is kept in motion by the greater power of the Antagonist. The situation conceptualized in (13b), however, is that the Agonist, which tends toward motion, is stronger

than the Antagonist, which resists the Agonist, so the Agonist keeps rolling.

Force dynamics has long been applied to English modals as well (Talmy 2000, Sweetser 1990, Langacker 1990; 1991; 1998; 2003, *inter alia*). Among them, Talmy characterizes English modals as follows: English modals “refer to an Agonist that is sentient and to an interaction that is psychosocial, rather than physical” (Talmy 2000:441), and “must take the Agonist as subject and offer no ready syntactic slot for the expression of the Antagonist, though this element is no less present in the total referent situation” (Talmy 2000:444). Some of Talmy’s examples are listed in (14).

- (14) a. You *may* go to the playground. [Talmy 2000:445]
b. She *should* lock her doors when she goes out. [Talmy 2000:448]
c. The boy *had to* stay in and do his homework (or else get punished). [Talmy 2000:450]

In (14a), the Agonist (here, the hearer) wants to go to the playground, and the Antagonist (here, the speaker) does not discourage the Agonist’s inclination to go to the playground. This is the linguistic expression of “extended letting of motion” (Talmy 2000:420), in which the stronger Antagonist is “steadily disengaged” (Talmy 2000:425) from exerting his/her force on the Agonist, and as a result, the Agonist is able to go to the playground. *Can*, which expresses permission, is analyzed in the same way as introduced above.

Next, *should* in (14b) involves the force dynamic conception according to which the Antagonist (in this case, probably the speaker) exerts pressure

on the Agonist (here, the subject *she*). The Antagonist in this case wants the Agonist to lock her doors, because the Antagonist believes that doing so would benefit the Agonist or others and that she would be a better person if she locked her doors (Talmy 2000:448).

Had to in (14c) is analyzed as follows:¹³ the Antagonist (left unspecified in Talmy's discussion), when this (quasi-)modal is used, exerts pressure on the Agonist (in this case, the boy) with the following pieces of knowledge involved in the use of *have to*: (i) the Agonist does not want to stay in and do his homework, (ii) not staying in and doing his homework has even less desirable consequences for the Agonist, (iii) the Agonist opts to stay in and do his homework, as it would cause the least displeasure of the two options, (and, sometimes, (iv) the Antagonist wants the Agonist to stay in and do homework, and would initiate the unpleasant consequences of the Agonist's refusal to do that) (Talmy 2000:450).

2.4.2. Metaphorical Extension from Root to Epistemic Sense

Based on Talmy's force dynamics, Sweetser (1990) understands *may*, *must*, and *can* as follows: Firstly, she admits that Talmy's understanding of *may* "in terms of a potential but absent barrier" (Sweetser 1990:52). Next, she analyzes *must* as "a compelling force directing the subject towards an act" (ibid.). She prefers this understanding of *must* to how "Talmy would like to view *must* as a barrier restricting one's domain of action to a certain single act" (ibid.).¹⁴ Next, Sweetser understands *can* as "potential force or energy ... and ... the human physical and social modality in terms of which we view potential energy in physics" (Sweetser 1990:53).

With this in mind, Sweetser (1990) proposes a metaphorical extension from root sense to epistemic sense in English modals. The point of her argument is that epistemic usage is metaphorically extended from root usage: more specifically, from sociophysical domain (as in the root sense) to epistemic domain (as in the epistemic sense), with the force dynamic structure of an English modal retained in each domain. Examples are provided in (15) and (16) below.

(15) a. John *may* go.

“John is not barred by (my or some other) authority from going.”

b. John *may* be there.

“I am not barred by my premises from the conclusion that he is there.”

(16) a. You *must* come home by ten. (Mom said so.)

“The direct force (of Mom’s authority) compels you to come home by ten.”

b. You *must* have been home last night.

“The available (direct) evidence compels me to the conclusion that you were home.”

[Sweetser 1990:53]

In the (a) examples, the force of English modals is construed in the sociophysical domain, while in the (b) examples it is construed in the epistemic domain. The same force dynamic structures can be found there in

both the sociophysical and epistemic domains of *may* and *must* (“lack of force” in *may*, and “compelling force” in *must*), and the force is mapped from the sociophysical domain to the epistemic domain (hence metaphorical extension).

Sweetser states that there is historical, sociolinguistic, and psycholinguistic evidence for her analysis via metaphorical extension (1990:50). The root sense of modals precedes their epistemic sense (i) in the history of modals, (ii) in the language use in Antigua Creole and (iii) in the language used by children.¹⁵

The above analysis by Sweetser is called the “motivated polysemy view.”¹⁶ It is criticized by Papafragou (2000), who points out the following two problems with the view. Firstly, Papafragou argues that a metaphorical mapping among modal concepts is “very different from other examples of metaphorical mapping which have been claimed to motivate lexical polysemy” (Papafragou 2000:27). For example, the perception verb *see* has a rather physical meaning (as in (17a)) and a mental meaning (as in (17b)), and the two meanings can be clearly distinguished based on the context.

- (17) a. I cannot *see* any stars tonight.
b. Can you *see* what he is saying?

On the other hand, in the case of modals, “the senses allegedly linked through metaphor are not so distinct” (ibid.), as demonstrated by intermediate examples between root and epistemic interpretation like (18) and (19c). According to Papafragou, *must* in (18) can be interpreted as root

or epistemic in a given situation of utterance, while, in the case of *ought to* in (19c), root and epistemic interpretations may merge.

(18) He *must* understand that we mean business.

(19) a. Newcastle Brown is a jolly good beer.

b. Is it?

c. Well, it *ought to* be at that price.

[Papafragou 2000:24–25]

Secondly, Papafragou argues that the metaphorical extension of modal meanings “is constrained in various ways” (Papafragou 2000:27). As an example, she takes *can* in positive sentences, which “is not normally used epistemically” (ibid.). Probably based on this fact, she argues that the metaphorical extension can sometimes be constrained in the case of *can*, for example. She also seems to think that the extension should be applied to all cases of modals.

I suspect that Papafragou’s two criticisms of Sweetser’s polysemy view do not function well as criticism of her view. Consider the first piece of criticism (illustrated by (18) and (19c)). Just because the semantic interpretation of the modals in (18) and (19c) is ambiguous about whether they express a root sense or an epistemic sense, it does not mean that English modals are monosemous and not polysemous. Differences in domain between modals with a root sense and those with an epistemic sense are retained (i.e., the sociophysical domain in the former sense and the

epistemic domain in the latter). The second piece of criticism is discussed briefly. Sweetser (1990) does not argue that all modals have both epistemic and root senses, and she shows that the direction of metaphorical extension in modals is from the root sense to the epistemic sense. Namely, the lack of an epistemic sense in *can* in positive sentences (as Papafragou notes) does not deny Sweetser's argument on the metaphorical extension of modals.¹⁷ Here, metaphor is regarded as a motivation of the extension of modals. Because motivation enables us to explain the reason for a semantic extension, and it does not aim to predict a future outcome of an extension (Taylor 2006:487), the lack of the extension in some modals does not endanger the value of Sweetser's metaphorical extension approach to modals in English.

In sum, this thesis takes a polysemy view, focusing on such differences in domain between a root sense and an epistemic sense of modals.

2.4.3. Subjectification and Grounding in English Modals

The way in which English modals are conceptualized in terms of force dynamics was introduced in section 2.4.1., and section 2.4.2 introduced metaphorical approach to the polysemy of English modals. This section introduces Langacker (1990; 1991; 1999; 2003; 2008), another group of influential studies on English modals within a cognitive linguistic framework. Langacker analyzed English modals as “grounding predications” and explained how they are developed from originally main verbs through what he calls “subjectification.”¹⁸

Langacker defines subjectification as “a shift from a relatively objective construal of some entity to a more subjective one” (Langacker 1999:297). Note that the definition of his terms “subjective” and “objective” is different from the definition of “subjective” and “objective” adopted in Lyons (1977) and many other studies on modals (e.g., Coates 1983; Kashino 2002; Leech 2004). For example, when we take our glasses off, hold them in front of us and examine them, the glasses are the “object of perception” (Langacker 1990:316). In this case, the glasses are construed “objectively” (and, at the same time, “subjectively,” in the sense noted below). On the other hand, when we wear glasses and examine another object, the glasses are construed just as if they were united with a conceptualizer, rather than as an object of our conceptualization. In this case, the glasses are construed “subjectively,” and thus subjectification occurs.

The notion of subjectification is represented schematically in Figure 2.1 (in the next page). In Figure 2.1 (a), the solid bold arrow represents an objectively construed, namely profiled, relationship. The direction of the arrow from *tr* (trajector: the most salient entity in cognitive grammar) to *lm* (landmark: the second most salient entity) indicates some kind of objective asymmetry that motivates the choice of trajector. The dashed arrows from the conceptualizer (C) represent the conceptualizer’s mental activity, carried out through processing time (represented by the solid arrow labeled T). In Figure 2.1 (b), the bold arrow representing the profiled relationship is depicted in dashed lines to indicate attenuation, involving both the objectively conceived relationship and the trajector’s role in it. Finally, in Figure 2.1 (c), the broken bold arrow disappears, which means the complete

lack of any objective construal for the conceptualizer's mental scanning. Note that the conceptualizer's mental activity (which is subjective) takes place in Figures 2.1 (a) to (c).¹⁹ This shows the characterization of subjectification by Langacker (1998:75) as follows: "An objective relationship fades away, leaving behind a subjective relationship that was originally immanent in it (i.e., inherent in its conceptualization)."

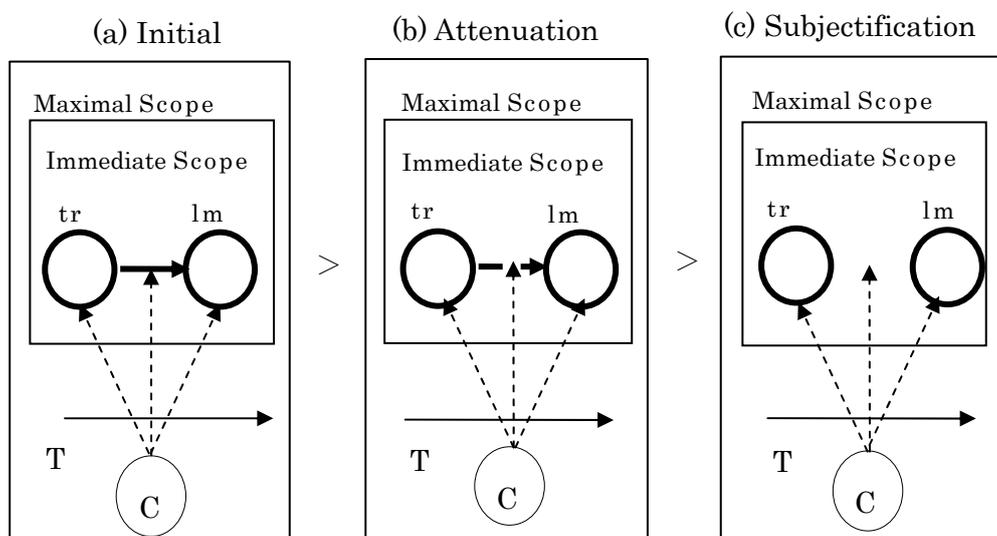


Figure 2.1. Subjectification (Langacker 1999:298, Figure 10.1)

Consider one example of subjectification that is applied to linguistic phenomena. Compare the meaning of *across* in (20a)–(20d).

- (20) a. Vanessa jumped *across* the table. [Langacker 1990:326]
 b. Vanessa is sitting *across* the table from Veronica. [ibid.]
 c. Vanessa is sitting *across* the table from me. [Langacker 1990:328]
 d. Vanessa is sitting *across* the table. [ibid.]

In (20a), there is a physical movement by Vanessa, in which she jumped from one side of the table to the other. The movement is visible, and it is objectively construed (and at the same time, subjectively construed by, for example, the eye movement of the conceptualizer). Thus *across* in (20a) is attributed the value depicted in Figure 2.1 (a). Next, in (20b), no entity is physically moving from one side of the table to the other, and the objective construal disappears. Instead, there is only a mental scanning by the conceptualizer (e.g., by turning his/her eyes on Vanessa from Veronica). In this case, “the profiled relationship is less inclusive and less dynamic” (Langacker 1999:299), hence the attenuation of the movement of the trajector and *across* in (20b) is given the value depicted in Figure 2.1 (b). Next, *across* in (20c) is given the same value as *across* in (20b) (i.e., Figure 2.1 (b)), except that the reference point in (20c) is the conceptualizer (which is objectively construed in (20c))²¹ as opposed to Veronica in (20b). Finally, consider *across* in (20d). In this example, the reference point (which is also a conceptualizer) is construed subjectively, which is why the reference point is not linguistically encoded.²² This is how *across* in (20d) is attributed the value depicted in Figure 2.1 (c).

Next, Langacker (1990:318) uses the term “ground” for “the speech event, its participants, and the immediate circumstances (such as the time and place of utterance).”²³ Bearing in mind this definition of the ground, the term “grounding” is introduced. The term is defined by Langacker (1991) as a semantic function that makes a nominal or a finite clause establish “the location vis-à-vis the ground of the thing or process serving

as the nominal or clausal profile” (1991:549). In other words, the thing is grounded with respect to its definiteness. If one says, “*the* apple,” this means, roughly speaking, that the speaker and the hearer know the existence of the apple in question. If one says, “*an* apple,” the existence of the apple being referred to is not shared by the hearer. Articles in English therefore help to identify the (mental) location of a certain thing with respect to the ground. Articles are regarded as “grounding predications.” As well as articles, the process is grounded with respect to tense and modality. For example, the past tense locates the process at the time prior to the time of utterance (i.e., located with respect to the ground). Thus, tense also serves as a grounding predication.

The reason why modality is a grounding predication is supported by Langacker’s analysis of the development of English modals. Etymologically, English modals were originally main verbs (e.g., *cunnan* and *magan*). They naturally exhibited verb inflections with an agreement in person and number, and tolerated infinitives (these characteristics are, of course, not seen in modals in Present-Day English (PDE)). With these facts in mind, Langacker analyzes the potency (in this case, force of obligation) in that period as emanated from the subject referent and directed to the realization of a future event. This is schematized in Figure 2.2 (equivalent to the state depicted in Figure 2.1 (a)). Therein, the double arrow indicates potency, which is drawn with dashed lines to indicate that the realization of the landmark process is potential rather than actual. The bold lines express a profiled entity. The entities connected by a dotted line are both the same thing: in this case, trajectors. Note that the subject is the most salient part

of the sentence, and therefore serves as the trajector (*tr*).

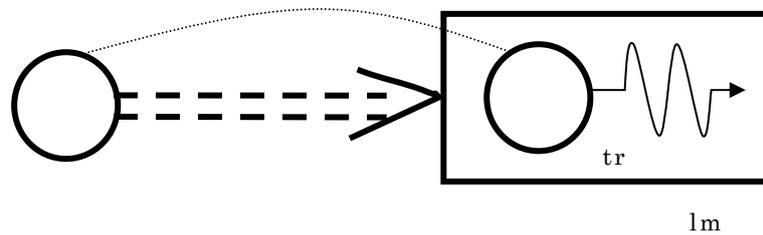


Figure 2.2. (= Langacker 1990:334, Figure 9a)

In the above figure, the potency is profiled, namely construed as salient.²⁴ This is because the construal of the potency by the conceptualizer is less involved (and, what is more, ground is not involved in the figure). Such an objective construal is reflected on the verb inflection of the modals. That is to say, the verb had to be made to agree with its subject in the person and the number of the subject: the source of the potency.

Following the process depicted in Figure 2.2, the first stage of subjectification occurs. One remarkable change is that the ground is involved in the meaning of English modals. In this respect, English modals are more subjectively construed at this stage than in the stage schematized in Figure 2.2. Langacker's investigation suggested that the first subjectification brings about the diffusion of the source of the potency (or, in this thesis, the imposer) from the subject referent to the ground itself or the circumstances related to the ground. According to Langacker, the potency is no longer originated by the "objective participant (the subject)" (1991:270), but rather by an entity "construed more subjectively (the default case being G (ground) itself)" (ibid.). This process is schematized in

Figure 2.3. Note that the source of the potency no longer corresponds to the trajector.

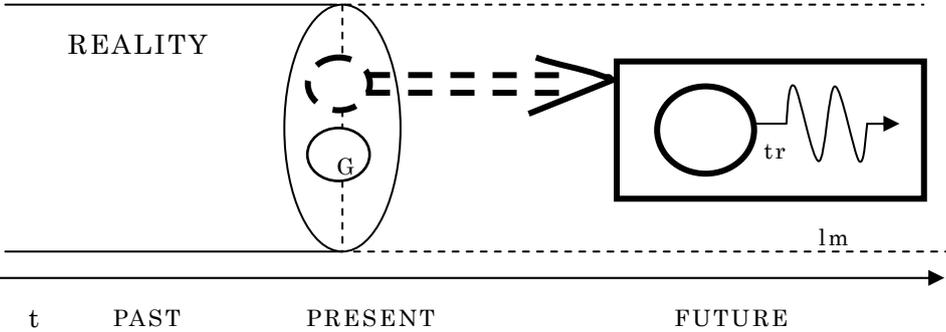


Figure 2.3. (= Langacker 1990:334, Figure 9b)

In Figures 2.3 (above) and 2.4 (below), the speaker conceives a past and present reality, represented by a cylinder. This should be regarded “as “growing” toward the future as reality evolves through time” (Langacker 1990:335). The present, defined by the face of the cylinder, is by definition “where the ground is located” (ibid.). The landmark process of a future event is found in the “reality” cylinder in Figure 2.3; the event is not realized. As Langacker (1991:145) argues, “The presence vs. the absence of a modal indicates whether the speech act participants accept the profiled relationship as a matter of established reality.” In this way, Langacker considers English modals to be expressing a state of affairs that is posited in irreality (“Everything other than (known) reality” (Langacker 1991:243)) in relation to the ground.

Notice in Figure 2.3 that the potency and its source (which resides in the ground) are still profiled, so that the modals schematized in that figure are “main verbs rather than grounding predications” (Langacker

1990:335).²⁵ This is seen in German modals, which tolerate verb inflection, as did the English modals in the stage schematized in Figure 2.2. One more stage of subjectification occurs, and English modals come to be perfectly subjective. The potency and its source then lose their profiled status, and are quite subjectively construed, as depicted in Figure 2.4.

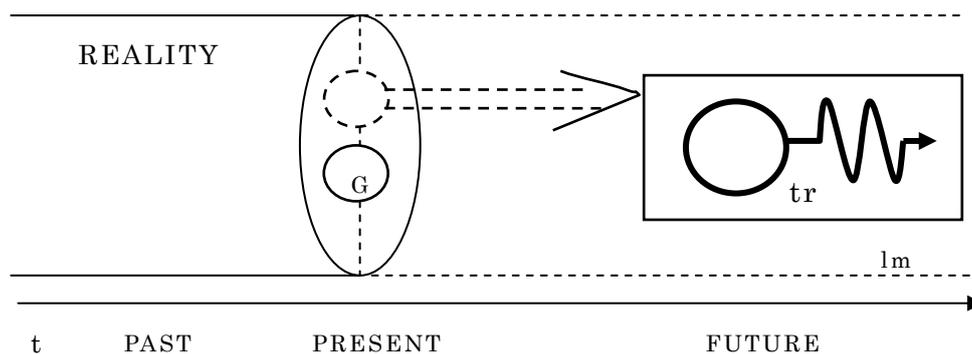


Figure 2.4. (= Langacker 1990:334, Figure 9c)

In this stage, the modals in PDE neither tolerate verb inflection nor have infinite forms such as *to*-infinitives and gerunds. In this final stage of subjectification,²⁶ English modals indicate the location of the designated landmark process (*lm* in Figures 2.2 to 2.4) with respect to the ground. Note in Figure 2.4 that the ground and the potency are no longer profiled, but what is profiled is a landmark process (which constitutes the profiled entity). This is how the items depicted in Figure 2.4 (but not Figure 2.3) are analyzed as grounding predications. Furthermore, notice that modals designate the landmark process as unreal with respect to the ground, i.e., a speech event, which resides in the realm of reality.

Langacker therefore analyzes English modals as grounding predications (through his notion of subjectification, and based on Talmy and

Sweetser’s force-dynamic account²⁷), which expresses a state of affairs that is situated in irreality. It can be said that his analysis successfully presents a comprehensive cognitive linguistic account of English modals as a whole (including the developmental process of English modals). However, Langacker himself admits that he does “not attempt to describe the full range of meanings and uses displayed by each individual modal” (Langacker 1991:269), and he limits his concern “to establishing the basic character of the English modals and sketching one promising approach to their analysis” (ibid.). There appears to be room for further discussion about Langacker’s account with reference to the meanings and uses of individual modals. The following will briefly present and discuss at least two questions on Langacker’s account.

The first question is how Langacker would treat sentences with a modal in which the propositional content is realized. Consider (4) for example, repeated below.

(4) a. It’s surprising that John *should* fail the exam.

[Yumoto 2004:175]

b. He *may* be a university professor, but he sure is dumb.

[Sweetser 1990:70]

The states of affairs expressed in (4) are considered as factual, and therefore not unreal. Nevertheless, *should* in (4a) and *may* in (4b) would be analyzed within Langacker’s framework (although he does not analyze such uses of *should* and *may*) as follows. In Yumoto’s (2004) analysis, *should* in

(4a) (which she refers to as “evaluative *should*”) “expresses a speaker’s previous epistemic judgment about a certain fact” (Yumoto 2004:230). For example, the speaker in (4a) states his/her previously held idea that John would pass the exam (although he actually failed the exam). In Langacker’s framework, the speaker in (4a) might have previously situated the propositional content of (4a) in the realm of irreality, and this might serve as the motivation for using a modal in this example. On the other hand, *may* in (4b) (or what Yumoto refers to as “evaluative *may*”) functions as a marker that expresses a speaker’s idea that the propositional content in evaluative *may* sentences is not a fact for the speaker (Yumoto 2004:277). In other words, although the speaker might know that the propositional content is a fact, they might not want to accept the fact as such. In Langacker’s framework, evaluative *may* would also serve as situating a propositional content in the realm of irreality.²⁸

The second question is how Langacker would treat quasi-modals, such as *have to*, *be going to*, and *be able to*. A clue to this question lies in his analysis of German modals. They, along with English quasi-modals, tolerate verb inflections for tense, person, and number, and for this very reason, German modals are considered in Langacker (1990:335) as main verbs rather than grounding predications (unlike English modals). For this reason, English quasi-modals would presumably not be regarded as grounding predications either. The ground is included in the semantic structure of English quasi-modals, but the potency emanated from the ground is more or less objectively construed, as shown in Figure 2.3 above (which sketches the semantic structure of German modals).

2.5. Summary

This chapter has presented previous studies of modality, of modals, and of cognitive grammatical analysis of modals in general.

Section 2.1 provided an overview of how modality has been defined (in terms of subjectivity, irreality, and non-assertion), and pointed out that the non-assertion perspective for modality can capture its essential characteristics, irrespective of whether it is subjective or objective, or whether it expresses reality or irreality.

Section 2.2 surveyed the ways in which modality is semantically classified, and argued that root-epistemic distinction, rather than deontic-dynamic-epistemic distinction, is sufficient for the analysis of the phenomena treated in this thesis.

Section 2.3 discussed whether modality should be seen as polysemous or monosemous, and then argued that the polysemy view should be adopted in this thesis.

Section 2.4 surveyed the cognitive linguistic approaches to English modals. The points of the approaches are summarized as follows: First of all, English modals are “dedicated to the expression of force-dynamics concepts” (Talmy 2000:451). Secondly, the semantics of English modals are viewed as polysemous. The root sense of modals is metaphorically extended to the epistemic sense (Sweetser 1990: Chapter 3). Thirdly, English modals are what Langacker (1990, 1991) refers to as “grounding predication,” which involves subjectification of the potency emanated from the ground.

This thesis analyzes root *must* and root *have to*, with the main

reference being made to their source of potency. As discussed in the chapters that follow (especially in the next chapter), cognitive linguistic approaches to the (quasi-)modals are more reliable than non-cognitive linguistic approaches. With the above policy in mind, the next chapter discusses the advantages of cognitive linguistic approaches to the analysis of modals over non-cognitive linguistic approaches, in the case of (i) root *must* and root *have to* (which are the main subject of this thesis), and (ii) epistemic *must* and epistemic *have to* embedded in the questions.

Notes to Chapter 2

¹ The term “irreality” is from Langacker (1991). The term is equivalent to what Palmer (2001) calls “irrealis.”

² This quotation is applied by Lyons to describe adverbs that occur in sentence-initial position, such as *possibly* and *fortunately* (1977:451).

³ Of course, not all linguistic expressions that are subjective in this sense are regarded as modality. For example, consider this sentence: *I had my wallet stolen on the train*. It is clear that this sentence implies the speaker’s attitude (in this case, his/her frustration or disappointment at having his/her wallet stolen), but no one would say that this sentence expresses “modality.” Narrog (2005), from a cross-linguistic point of view, argues that the speaker’s attitude “makes it impossible to delimit grammatical form classes that belong to the category [of modality] from those that do not” (Narrog 2005:182). Instead, he places special emphasis on the notion of “factuality” (Narrog 2005:181–185. cf. section 2.1.2 of this chapter) as playing a crucial role in effectively defining the category of modality. See also Verstraete’s (2001) argument that the notion of “subjectivity” is difficult to use in the study of modality.

⁴ However, Yumoto (2004:9–12) argues that the definition by Masuoka and Nitta is somewhat narrow, according to her study on Japanese modality. Japanese modality expresses the speaker’s attitude or opinion concerning not only the propositional content but also how to communicate the propositional content to the addressee. Yumoto also argues that such a classification can also be applied to English modality (see Chapters 3 to 5 of Yumoto, 2004).

⁵ Onoe’s discussion is based on his criticism of the approach to modality by

Masuoka (1991; 2007) and Nitta (1999:18), both of whom basically regard modality as subjective (probably in Lyons's sense). However, Masuoka (2007:6) argues that not all subjective expressions are modality expressions.

⁶ See the following comments by Lyons (1977:793): "Why, then, has it seemed plausible to so many linguists to think of epistemic modality as being more subjective than deontic modality?"

⁷ *May* in (4b) is analyzed by Sweetser (1990) as expressing "speech act modality." She proposes the following interpretation of (4b) in terms of force dynamics: "I *do not bar* from our (joint) conversational world *the statement* that he is a university professor, but ..." (Sweetser 1990:70, original italics). Based on this interpretation, it may be thought that what is non-real in (4b) is not the state of affairs that he is a university professor, but rather somebody's statement that he is a university professor.

⁸ Note that Palmer uses the term "modality" to include not only modals (which are, in turn, parts of what he calls a "modal system") but also "mood," which is a grammatical form of modality reflected in verb inflection. It is also worth noting that Palmer (2001:7–8) treats English modals as expressing irrealis (while treating declarative sentences that contain no modal as expressing realis).

⁹ Lunn's studies are indebted to her analysis of Spanish subjunctives. According to her analysis, Spanish mood systems choose Indicative to express assertion and Subjunctive to express non-assertion (Lunn 1995:430).

¹⁰ Some researchers use the term "deontic" interchangeably with "root."

¹¹ *Can* and *will* in those cases and *must* as in (i) below have been treated commonly as "dynamic" or "subject-oriented" (e.g. Sawada 2006:37).

(i) If you *must* put it like that. [Depraetere and Verhulst 2008:7]

Depraetere and Verhulst (2008:8) argue that *must* in (iii) should not be treated in the same way as *can* expressing one's ability and *will* expressing obstinate insistence. They argue that the source involved in (iii) is "a particular kind of circumstance: the subject referent is a 'patient' submitted to an inner urge" (ibid.). Their argument shows that it is not easy to achieve a consensus about the definition of dynamic use of modals.

¹² However, modals, for example, in interrogatives, can sometimes be interpreted in an epistemic sense (see section 3.2). For this fact, it is argued that the grammatical status supporting the root-epistemic distinction is exhibited prototypically rather than categorically in the actual use of modals.

¹³ Talmy (2000: section 7.4) does not present examples of *have/has to*, but it

seems that his analysis is directed toward the semantics of *have to*, not only of *had to*, as in (14c).

¹⁴ See Talmy's discussion on the semantics of *have to*, exemplified by (14c) above. Readers are also referred to (36j) in Talmy (2000:447), which is a "force-dynamic pattern" (Talmy 2000:415) of *have to*.

¹⁵ Stephany (1993:135,139) implies that "non-epistemic" (i.e. what we call "root") modality predominates over epistemic modality in younger children, and goes on to argue that "deontic modality develops prior to epistemic modality" (1993:135).

¹⁶ The motivated polysemy view is adopted also by other linguists such as Kashino (2002) and Kurotaki (2005). Kurotaki's analysis is unique in arguing that semantic extension occurred from one usage to the other, but that Japanese modality exhibits the extension from epistemic to root usage, unlike cases of English modals. However, because Kurotaki admits that Japanese modality exhibits "hi-tagisei" (being non-polysemous), her argument that the semantics of Japanese modality may develop from epistemic to root appears untenable.

¹⁷ Of course, it should be examined why *can* in positive sentences is not normally used in an epistemic sense.

¹⁸ Note that Langacker's "subjectification" is not the same as that used in Traugott (1989), who, in defining "subjectification" says, "Meanings tend to become increasingly based in the speaker's subjective belief state/attitude toward the proposition" (1989:35).

¹⁹ Numbers (a) through (c) in Figure 2.1 are added by the present author.

²¹ (20c) can express the following situation; Vanessa and the speaker are in the picture, and the speaker is explaining the picture (possibly pointing to the participants in the picture). In this case, the speaker sees himself or herself as if he/she were in his/her sight.

²² (20d) expresses the speaker's view in which Vanessa is sitting opposite the speaker. In this case, the speaker is out of his/her sight.

²³ Sanada (2005b; 2006b) refers to such circumstances as "circumstances in the ground" or "C in G" for short.

²⁴ In Figure 2.2, therefore, the potency is construed rather objectively and saliently, and Figure 2.2 may be equivalent to the stage depicted in Figure 2.1 (a).

²⁵ The potency in Figure 2.3 is partly, but not fully, attenuated, and Figure 2.3 may be equivalent to the stage depicted in Figure 2.1 (b).

²⁶ The potency in Figure 2.4 is fully attenuated and fully subjectively

construed, and it may be said that Figure 2.4 is equivalent to the stage depicted in Figure 2.1 (c).

²⁷ Langacker's account of modals is different from that of Sweetser (1990) in terms of how to treat the way in which force is claimed to figure in the epistemic meanings. This thesis will not examine the difference further, because it is not concerned with epistemic modality. See Langacker (1991:274; 2008:306).

²⁸ Evaluative *should* and evaluative *may* may show that there is room to develop a more detailed analysis to individual modals in a language, although those two modals are not analyzed in this thesis.

Chapter 3

Cognitive vs. Non-Cognitive Linguistic Approaches to *Must* and *Have to*

This chapter applies cognitive linguistic approaches to the semantics and pragmatics of *must* and *have to*. More specifically, it examines (i) the distinguishability between root *must* and root *have to* and (ii) a context in which interrogatives with epistemic *must* and epistemic *have to* are used felicitously. Through the analysis of these topics, this chapter shows the advantages of cognitive linguistic approaches to English modals over non-cognitive linguistic ones. Although epistemic *must* and epistemic *have to* are not the main subjects of this thesis, the analysis of them will be helpful for the presentation of other phenomena that serve as evidence for the cognitive linguistic framework.

The structure of this chapter is as follows. Section 3.1 deals with the distinguishability between root *must* and root *have to*. Section 3.2 applies the cognitive linguistic framework to the analysis of epistemic *must* and epistemic *have to* used in interrogatives. Section 3.3 summarizes the chapter, and presents the remaining problems with previous cognitive linguistic approaches.

3.1. Distinguishability of Root *Must* and Root *Have to*

Section 3.1.1 summarizes two non-cognitive linguistic studies

(Westney 1995 and Papafragou 1998; 2000) and reveals the limitations of each. Solutions to these limitations will be presented in section 3.1.2 with the help of a cognitive linguistic framework.

3.1.1. Non-Cognitive Linguistic Approaches

Westney (1995) and Papafragou (1998; 2000) can be regarded as offering non-cognitive linguistic approaches in the sense that neither depends on the notion of force in the analysis of root *must* and root *have to*.

3.1.1.1. Westney (1995)

Westney (1995) denies the validity of the notion of what he calls “deontic source” (referred to here as an “imposer,” or a source of an obligation as a force; see section 3.1.2.1), arguing that “the concept of deontic source as an identifiable person – or even factor – in deontically modalized utterances, including the option that there is no source, is in practice simply too strong” (1995:61). In other words, he doubts whether the possible deontic source can always be identified, an argument that is illustrated by root *must* in examples (1) and (2).

- (1) B you’ve heard, probably, we’re very often bedevilled more
 by what the candidates, more by difficulties of marking than
 by what we ought to set the candidates, you know
- A yes, that’s a devil, I agree
- B and then, you, you *must* do that, I suppose, with
 standardization. [Westney 1995:60]

- (2) B you could study literature in a foreign language, couldn't
you?
- A yes, I could
- B you feel it, it *must* be English
- A yes [Westney 1995:61]

According to Westney's interpretation, the speaker of the *must*-sentence in (1) is only sympathizing with the addressee (this is made clear by the use of *I suppose*); the speaker is not imposing any obligation on the addressee. Westney then suspects that the deontic source is not apparent. On the other hand, the speaker of the *must*-sentence in (2) is only stating that the language to be studied by the addressee must be English. Neither the speaker (B) nor the addressee (A) in (2) seems to be the imposer.

Also consider (3) below:

- (3) a. I *must* go home now; father told me to be quick.
[Kruisinga 1925:346, quoted by Westney 1995:106]
- b. I *must* go with you, but I don't want to. [Westney 1995:106]
- c. We *must* also sit idly by as Serbia and Croatia slip into economic anarchy, with all the dangers that this implies.
[ibid.]

In each of these examples, Westney notes that "the speaker refers to an externally imposed requirement, without supporting it" (ibid.). He also

notes that in all examples of (3), “*Have to* (...) would be equally possible” (ibid.). According to his analysis, *have to* “focuses on an external, existent obligation that can be perceived or described independently of the speaker” (Westney 1995:151), as illustrated in (4) below:

- (4) a. I then went on to say, well, if you say this is not so, then I *have to* accept that it isn’t so, this is just what I think at the moment, and I kept stressing, you know, I’m not offering you knowledge. [Westney 1995:108]
- b. You *have to* find a good man and build on him, rather than pick a place on the map. [Westney 1995:118]

According to Westney’s interpretation, an external condition for *have to* in (4a) “is provided by the *if* clause, and there is an explicit contrast between what the speaker has to accept and what he thinks” (Westney 1995:109). Westney notes that (4b) also suggests “some circumstantial necessity independent of the speaker” (Westney 1995:118).

Westney is arguing against the validity of the deontic source in distinguishing the root *must* and root *have to*. Instead, he makes a distinction between the meanings of the two (quasi-)modals as in (5a) and (5b), respectively. According to (5), root *must* and root *have to* are different in the generality as markers of obligation.

- (5) a. *Must* makes a maximally unqualified statement as to the requirement.

- b. *Have to* focuses on the obligation/necessity as an independent, existing entity.

[Westney 1995:98]

According to (5a), *must* is “a very general marker of ‘necessity’/‘obligation’” (1995:151). The modal expresses “variously, absolute, unqualified, unconditional, urgent, immediate, irresistible, spontaneous or unique requirements, and the expression of the speaker’s wishes or his sympathy with the subject or the obligation” (ibid.).¹ Having said that, according to (3b), root *have to* focuses on “an external, existent obligation that can be perceived or described independently of the speaker” (ibid.), and “may be both narrower or more specialized in its use than *must*” (1995:97; italics in original).

However, Westney’s distinction, as in (5), is too strong for distinguishing root *must* and root *have to*, at least in the following three points. Firstly, there are examples in which it seems doubtful that the obligation expressed by *must* is “maximally unqualified,” as exemplified in (6).

- (6) a. *My girl *must* be home by midnight – I think it’s idiotic.

[Lakoff 1972b:925]

- b. ?? I *must* get this paper in, but I guess I’ll go to the movies instead.

[Sweetser 1990:54]

If (5a) were valid, *must* could express any kind of obligation (i.e., it is

maximally unqualified) and both (6a) and (6b) would be pragmatically acceptable. In fact, both sound pragmatically odd, so the statements of obligation in (6a) and (6b) should be considered as somehow “qualified.”

Secondly, not only root *have to* but also root *must* can express obligation as an independent or existing entity. Consider (7a) and (7b), below.

(7) a. [From the rules of the Department of State. The Department requires parents to have any children aged between 14 and 17 appear in person for the issuance of a passport.]

Your child *must* appear in person.

b. [*He* refers to Nakata, *it* to Japan and *you* to Japanese people in general.]

What he did, eventually, was leave. “In Japan, seniority is all important,” Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. “It’s a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn’t feel like this. I felt a freedom from this.”

[*TIME*, April 29–May 6, 2002]

Although the obligation in (7) (i.e., in (7a) for a child to appear in person, and in (7b) for people to pay respect to a person above them) can be considered to be an independent, existing entity, it is *must* that is used in

(7a), not *have to*. Note that this example is not a counterexample to (5a), because *must* is “a very general marker of necessity/obligation” (1995:151). However, Westney makes no account of any semantic and pragmatic difference between root *must* and root *have to* when both involve an obligation that can be considered as an independent, existing entity.

Finally, root *have to* can also express an obligation or necessity that cannot be seen as an independent, existing entity. This is illustrated by (8) below.

(8) [The hearer, sheltered by the speaker, has just been found by the Gestapo.]

Get your things together, you *have to* leave! [*The Pianist* film script]

It can be said that the speaker in (8) involves herself in the obligation of the hearer’s leaving, as the speaker hopes for the hearer’s safety. It follows from the above that the obligation expressed by *have to* in (8) is, at least to some degree, dependent on the speaker. Thus, *have to* in (8) is not comfortably captured by Westney’s account (5b) either. In addition, Westney does not account for the difference between *have to* involving the speaker’s commitment as in (8) and root *must*.

To summarize, Westney’s distinction between *must* and *have to* proposed in (5) is not reliable for capturing a precise difference between the two modals.² This point will be dealt with further in Chapter 4.

3.1.1.2. Papafragou (1998; 2000): Relevance Theoretic Approaches

In her relevance theoretic analysis of *must*, Papafragou (1998; 2000) also does not utilize the notion of deontic source. Her analysis is surveyed based on the following, and the limitations of her analysis are then revealed. Before the discussion, the two following points should be noted. Firstly, this thesis does not intend to deny the validity of the relevance theory itself, nor of its view of language. Secondly, *must* is treated in Papafragou's analysis, while *have to* is not. Nevertheless, her framework is worth applying to *have to*, and it is worthwhile discussing whether her framework can make a precise distinction between root *must* and root *have to*.

First of all, Papafragou assumes that the semantic content of modals is represented schematically, as in (9).

(9) R (D, p) [Papafragou 2000:40]

This means that a certain proposition (p) bears a certain logical relation (R: basically, either entailment or compatibility) to the set of propositions in a certain domain (D).

Papafragou (2000:41–42) assumes the following five domains, listed in (10).

- (10) a. The factual domain
b. The regulatory domain
c. The domain of moral beliefs
d. The domain of desirability
e. The domain of metarepresentation

(10a) handles propositions describing an actual world, while (10b) includes more constrained systems of law, regulations, or rules. (10c) is the domain in which propositions are handled as descriptions of states of affairs in ideal or stereotypical worlds, and (10d) handles propositions that describe states of affairs in worlds that are desirable from someone’s point of view. Finally, (10e) handles propositions as abstract representations (i.e., hypothesis), or abstract representations of representations. Note that Papafragou (1998:13) did not try to make an exhaustive list of the domains that may be involved in the semantics and pragmatics of modals. In other words, there may be other domains besides those listed in (10). Furthermore, Papafragou admits that (10b) and (10c) may overlap. Thus, the number of domains that should be proposed is a contentious issue, but this thesis accepts the five kinds of domains presented in (10).

Based on the above framework, Papafragou presents the meaning of *must* as in (11a). In addition, the meanings of *may*, *can*, and *should*, are also presented in (11b)–(11d), respectively, for the purpose of comparing the kinds of R (entailment or compatibility) and showing the restrictions of the kinds of D.

- (11) a. Must: p is entailed by $D_{\text{unspecified}}$
 b. May: p is compatible with $D_{\text{unspecified}}$
 c. Can: p is compatible with D_{factual}
 d. Should: p is entailed by $D_{\text{normative}}$

[Papafragou 2000:43]

$D_{\text{unspecified}}$ in (11a) and (11b) is not explicitly defined in Papafragou's analysis, but it probably means that the kinds of domain are not restricted in the semantics of *must* and *may*. In other words, every domain in (10) can be involved in the semantic and pragmatic interpretation of *must* and *may*. The hearer infers which of the domains is involved in the semantic and pragmatic interpretation of *must* and *may*, in accordance with the principles of relevance (Sperber and Wilson 1995). In this respect, *must* and *may* are semantically underdeterminate.

On the other hand, *can* and *should* semantically determine the kind of domain that is involved in their respective semantic and pragmatic interpretation: the factual domain in *can* and normative domain (probably equal to the regulatory domain) in *should*. In this respect, *can* and *should* are more semantically determinate than *may* and *must*, respectively.

Papafragou's analysis on the semantics of modals is examined here by looking at the semantics of *must*. The examples considered are shown in (12), below.

- (12) a. I *must* lose weight. [Papafragou 2000:60]
 b. The accused *must* remain silent throughout the trial.
 [Papafragou 2000:60]
 c. You *must* be kind to your friends. [Imai 2001:127]
 d. You *must* come and visit us sometime. [Papafragou 2000:61]
 e. Some of the neighbors *must* have seen the burglars.
 [Papafragou 2000:72]

Firstly, consider (12a), assuming that the speaker is Amy, who wants to become attractive and believes that the only way to achieve that is by losing weight. The propositional content (p) involved in (12a) is “Amy loses weight.” In (13) below, the way p is logically entailed by D is shown by applying a syllogism to the interpretation of (12a).

- (13) a. Amy wants to become attractive.
b. Unless she loses weight, Amy will not become attractive.

Therefore, Amy must lose weight.

[Papafragou 2000:60]

In (13), the conclusion (as expressed by (12a)) is logically entailed by the propositions (13a) and (13b). According to Papafragou’s interpretation, the propositional content in (13a) belongs to the domain of Amy’s desire (i.e., (10d)), while the propositional content in (13b) (both the protasis and the apodosis) belongs to the factual domain (i.e., (10a)).

Next, (12b) requires a regulatory domain (i.e., (10b)), and expresses a necessity with respect to, for example, judicial rules. The example therefore expresses the propositional content entailed by the domain of regulatory domain.

Example (12c), according to Imai (2001:128), is interpreted as meaning that it is necessary, according to our shared moral beliefs, that you are kind to your friends. ((12c) is quoted from Imai, because Papafragou does not present an example of *must* that requires the domain of moral

beliefs.)

Example (12d), in the interpretation in which the speaker invites the hearer to come and visit the speakers, requires a domain of the speaker's desire (i.e., (10d)).

Finally, (12e) is an example of epistemic *must*. The example requires the domain of metarepresentation (i.e., (10e)). In Papafragou's framework, (12e) is interpreted as follows. The proposition of (12e) (i.e., some of the neighbors have seen the burglars) is used as a representation of an abstract hypothesis, which is considered to be entailed by the speaker's set of beliefs (Papafragou 2000:70). There, the set of beliefs is conceived of as "representations distinct from reality which may bear a variable degree of correspondence to the actual world" (ibid.). The whole sentence of (12e) then expresses representations of a representation (i.e., metarepresentation). More specifically, the speaker in (12e) believes that the proposition of (12e) is a necessary conclusion drawn with her reasoning "on the basis of incomplete and partly supported evidence which she reconstructs from both general encyclopedic and situation-specific information about burglaries" (Papafragou 2000:72).³

In this way, the pragmatics of *must* can involve every domain of (10a)–(10e) (as exemplified by (12a)–(12e), respectively). The semantics of (10a)–(10e) is represented as follows:

- (14) a. p [I lose weight] is entailed by $D_{\text{factual/desirable}}$
b. p [the accused remain silent throughout the trial] is entailed by $D_{\text{regulatory}}$

- c. $_p$ [you are kinds to friends] is entailed by D_{moral}
- d. $_p$ [you come and visit us sometime] is entailed by $D_{\text{desirable}}$
- e. $[_p$ [Some of the neighbours have seen the burglars]] is entailed by D_{bel} (D_{bel} is the domain consisting of the speaker's beliefs; double brackets indicate metarepresentation)

[Papafragou 2000:72]

Papafragou thereby identifies the value of domains involved in the interpretation of *must* as unspecified.

It was then examined whether Papafragou's framework can readily distinguish the meanings of *must* and *have to*. By recalling the semantics of *must*, as defined in (11a), it is possible to find the two following ways in which Papafragou might distinguish the meaning of *must* and *have to*. These are: (i) which kind of R is involved in the semantics of *have to*, entailment (like *must*) or compatibility, and (ii) whether D in the semantics of *have to* is unspecified (like *must*) or if it is specified in some way.

Firstly, it was considered whether R in the semantics of *have to* is entailment or compatibility. Note that entailment includes compatibility. To be specific, if X entails Y, X is always compatible with Y, but the opposite is not true; just because X is compatible with Y, that does not mean that X always entails Y. Therefore, if R in the semantics of *have to* is entailment, R is always compatibility. On the other hand, if R is compatibility, it is not necessarily entailment.

The following will show that R is entailment in the semantics of *have to*, as it is in the case of *must*. It cannot be maintained that R is

compatibility rather than entailment because the speaker of, for example, (15), could have syllogism (16) in mind when interpreting (15).

(15) [The bus driver (= him) is injured in the bus on which the time bomb is set.]

You *have to* keep him straight, or I think the wound'll tear.

[*Speed* film script]

- (16) a. It is not good to tear the driver's wound.
b. Unless you keep him straight, the driver's wound will be torn more.

Therefore, you have to keep him straight.

R in the semantics of *have to* is, therefore, entailment, as is that of *must*. This means that the kind of R does not help us distinguish the meaning of *must* from that of *have to*.

Secondly, it is considered whether D in the semantics of *have to* is unspecified (as in that of *must*) or in some way restricted. If it is unspecified, *have to* will involve all domains of (10a)–(10e) as *must* does, as illustrated by the examples in (17).

- (17) a. You *have to* keep him straight, or I think the wound'll tear.
(D: 10a) [= (15)]
b. Catholics *have to* go to church on Sundays. (Their religion tells them to.) (D: 10b) [Swan 2005:336]

- c. [Deanie is disgusted at her mother, who cannot let her daughter go.]

Little girls *have to* grow up, Mother. Life sometimes forces them to. (D: 10c) [Splendor in the Grass]

- d. It's like you were my father now and all the nurses were my family, and I *have to* grow up all over again. Mother kept calling me her "baby" and Dad his "little girl" and ... don't they realize I'm *me*? (D: 10d)

[Splendor in the Grass, original italicized *me*]

- e. There *has to* be a reason for his strange behaviour. (D: 10e)

[Kashino 2002:131]

D in (17a) is the factual domain (10a), since at the time of utterance the driver is actually injured. Next, D in (17b) is the regulatory domain (10b) because of the directive that obliges Catholics to attend church every Sunday. Next, (17c) involves the domain of moral beliefs (10c); Deanie is persuading her mother to set her free by the moral belief that even a little girl will grow up. (17d) involves the domain of desirability (10d); the speaker wants to grow up again in the hospital in which she is staying, and she is with her doctor and nurses that she considers to be like her family. Finally, D in (17e) is the domain of metarepresentation (10e), because he may have uttered (17e) based on his hypothesis (abstract representation) on the behavior of the man in question. Thus, all domains of (10a)–(10e) can also be involved in the interpretation of *have to*, so the meaning of *must* and *have to* cannot be distinguished in terms of whether D in the semantics of

have to is unspecified or specified in some way.

Considering that *have to* expresses a more objective sense (in Lyons's sense) than *must* (see section 3.2.1), it can be assumed that the semantics of *have to* involves a domain that is specified to a factual one (i.e., (10a)). If that assumption is accepted, it will have to be explained that the interpretation of *have to* cannot involve any other kind of domain (i.e., the domains of (10b)–(10e) above). However, that explanation is likely to be impossible, because it is possible that the interpretation of *have to* in (17c), for example, involves the domain of moral beliefs for the speaker in (17c).

Papafragou's account, therefore, has no choice but to characterize *must* and *have to* as having the same meaning (i.e., being entailed by $D_{\text{unspecified}}$). Even if her analysis is accepted as it is, it faces another problem in that it fails to capture the following examples.

- (18) a. * My girl *must* be home by midnight – I think it's idiotic.
b. My girl *has to* be home by midnight – I think it's idiotic.

[Lakoff 1972b:925. cf. Larkin 1976:392–394]

- (19) [The speaker is inviting the hearer to have dinner together.]
a. Hey, come to my house, and you *must* have dinner with me.
b. ?? Hey, come to my house, and you *have to* have dinner with me.

If *must* and *have to* had the same semantics, the paraphrase between them would not result in pragmatic unacceptability, as in (18a) and (19b).

Consider the unacceptability of *must* in (18a) in more detail. Within

Papafragou's framework, it may be true that the proposition "my girl is home by midnight" is not logically entailed by the sets of propositions in the domain of the speaker's desire (cf. (10d)) (because such logical entailment would clash with the sentence *I think it's idiotic*), and that this explains the reason why it is unacceptable. However, it seems true that the following interpretation may be made. The proposition is logically entailed by the sets of propositions in a factual domain, if, in one interpretation, the family of the speaker's girl has a family obligation to be home by ten o'clock. In this way, an interpretation can be found that makes the utterance in (18a) relevant, so that *must* in (18a) could be expected to be acceptable. However, it is, in fact, unacceptable, at least compared with the case in which *have to* is used (as in (18b)). Therefore, Papafragou's relevance theoretic framework cannot explain what causes pragmatic unacceptability in at least some cases, such as *must* in (18a).⁴

3.1.2. Cognitive Linguistic Approaches

In section 3.1.1, two non-cognitive linguistic approaches to root *must* and root *have to* were summarized: Westney (1995) and Papafragou (2000). There it was argued that they have a common difficulty in comfortably distinguishing the semantics and pragmatics of the two linguistic forms.

This section argues that the limitations of non-cognitive linguistic approaches (as revealed in section 3.1.1) are partly rectified by adopting the cognitive linguistic approach introduced in section 2.4 (in particular, Talmy's (2000) force dynamics: see section 2.4.1). Section 3.1.2.1 introduces the ways in which the cognitive linguistic approach distinguishes root *must*

and root *have to*, with special reference to the source, kind and strength of force involved in the conceptualization of the two linguistic forms. Section 3.1.2.2 demonstrates how the limitations exhibited in non-cognitive linguistic approaches are rectified in the cognitive linguistic framework. Nevertheless, the cognitive linguistic approach adopted in this section is not without limitations, and these will be noted briefly in section 3.3.

3.1.2.1. The Aspects of Force in Root *Must* and Root *Have to*

Firstly, the source of force involved in root *must* and root *have to* is introduced. Because the notion is treated as essential in the discussion of this thesis, it will be introduced at some length below.

The source of force has been given a variety of names in studies on English modals, including “deontic source” (Lyons 1977:823–831,843; Huddleston and Pullum 2002), “conceptual source” (Traugott and Dasher 2002), “authority” (Coates 1983; Quirk et al. 1985; Leech 2004; Sanada 2004b), and “imposer” (Radden and Dirven 2007 and Sanada 2006b; 2007a). The term “imposer” is used throughout this thesis. Among the above studies, the description given in two prominent reference grammar books, Quirk et al. (1985) and Huddleston and Pullum (2002), are surveyed below.

Firstly, the examples and description in Quirk et al. (1985:225–226) are introduced.

- (20) a. You *must* be back by ten o'clock. ['You are obliged to be back ...'; 'I require you to be back ...']
- b. We *must* all share our skills and knowledge.

[Quirk et al. 1985:225; italics in original]

- (21) a. You *have (got) to* be back by ten o'clock.
b. We *have all got to* share our skills and knowledge.

[Quirk et al. 1985:226; italics in original]

Having compared (20a)–(20b) and (21a)–(21b), Quirk et al. go on to distinguish root *must* and root *have to* as follows: “*must*, unlike *have (got) to*, typically suggests that the speaker is exercising his authority” (1985:225), in the sense that root *must* has “the implication, to a greater or lesser extent, that the speaker is advocating a certain form of behaviour” (ibid.).

Secondly, to be introduced are the examples and description in Huddleston and Pullum (2002). They present examples of “deontic” *must*, noting that “(p)rototypical deontic modality is subjective, with the speaker as the deontic source, the one who imposes the obligation (...). But it can also be objective, most obviously in reports of rules and regulations” (Huddleston and Pullum 2002:183), with the following examples:

- (22) a. You *must* clean up this mess at once.
b. We *must* make an appointment if we want to see the Dean.

[ibid.]

The former is a subjective example of *must*. The latter is an objective example, but they also note that in expressing objective necessity there is a

tendency to use *have (got) to* rather than *must* (ibid.).⁵ However, they note that *have to* “characteristically differ[s] from *must* in being objective rather than subjective: with [i] (i.e., *You have (got) to come in now*: K.S.) I’m likely to be relaying someone else’s instructions but with *You must come in* it’s more likely that I am myself telling you to” (Huddleston and Pullum 2002:206), with an example below.

(23) You *have (got) to* come in now. [Huddleston and Pullum 2002:205]

The consensus among studies on the imposer of root *must* and root *have to* is summarized as follows.

- (24) a. *must* expresses obligation imposed by the speaker.
b. *have to* expresses external obligation.

[Thomson and Martinet 1986:140]

In the sense noted in (24), root *must* has been regarded as “subjective,” while root *have to* has been considered as “objective.” This is shown in Leech’s comment below:

Must (= ‘obligation’) is generally subjective, in that it refers to what the *speaker* thinks it important or essential to do. *Have to*, on the other hand, is more ‘objective’, i.e., the obligation or compulsion tends to come from a source outside the speaker.

[Leech 2004:83; italics in original]

The comments in (22) and (24) above mean, essentially, that root *must* and root *have to* differ in terms of what tends to serve as an imposer. In other words, the imposer tends to be the speaker in root *must* and the source for the speaker in root *have to*.⁶

Next, there is also a distinction between root *must* and root *have to* in terms of the kind of the force exerted by each of the two modals. Discussions by Sweetser (1990) and by Kashino (2002) are examined below.

Firstly, Sweetser (1990) argues that *must* has connotations of “a directly applied and irresistible forces” (1990:54), while *have to* expresses “resistible” (ibid.) force from “extrinsically imposed authority” (1990:53). The above difference is illustrated simply in (25).

(25) I {?? *must* / *have to*} get this paper in, but I guess I’ll go to the movies
instead. [Sweetser 1990:54]

In (25), *have to* is more appropriate than *must*, because the speaker of (25) is canceling his or her will to finish his paper (by considering going to the movies instead). In other words, the speaker is resisting the force that is making him/her finish their paper; the force of *have to* can be said, intuitively, to be weak.

Sweetser herself does not voluntarily discuss what is the respective imposer of root *must* and root *have to*. Rather, her analysis “leaves the identities of imposers ... to pragmatic interpretation” (1990:74). It is true that it is not always easy to distinguish imposers of *must* and *have to*

absolutely and uniquely in all cases (for example, a speaker can be an imposer both of root *must* and of root *have to*). Nevertheless, the difference of the kinds of force in her analysis is compatible with (if not the same as) other studies that consider the notion of an “imposer.” It is difficult to resist the power in the case of *must*, because it is incoherent to resist the power we give to ourselves with our own intentions. If *must* were used in (25), the situation would be that the speaker agrees with the obligation to submit the paper, but such an obligation cannot actually be canceled based on his or her own intention, and therefore *must* sounds odd in (25). On the other hand, in the case of *have to*, the obligation can be canceled (or “resisted” in Sweetser’s words), because it comes not from ourselves but from some external factors or circumstances.

Next, Kashino (2002) considers the subjectivity of root *must* and root *have to* with respect to the different strength in meaning of the two modals. He introduces the following opinion from his native informants: “*Must* sounds rather too strong, too aggressive for me sometimes” (Kashino 2002:127, translated by the present author). Root *must* (as opposed to using root *have to*) seems to mean that the speaker as an imposer lays an obligation directly upon the addressee, unlike *have to*. This may be why root *must* is sometimes considered to have a stronger meaning than root *have to*, at least by the native informant who was asked by Kashino.

In connection to this, consider (26).

(26) I say my daughter {*must, has to*} be home by ten. [Kashino 2002:127]

The point here is that although the speaker's involvement is implied by *I say*, *has to* is also acceptable, as well as *must*. Based on this fact, and with the help of his native informants, Kashino points out that root *have to* can also be used in the case where root *must* is appropriate, in order to make the event appear less serious than it is; namely, root *have to* expresses “understatement” (2002:128). For the purpose of expressing understatement, root *have to* can be used instead of root *must*, and this usage is what Kashino refers to as *goyooronteki na tenyoo* “pragmatic transfer” (2002:129, translated by the present author).⁷

Consider (27) below, in which root *have to* expresses understatement.

(27) [Angelina's husband is Deanie's former boyfriend. Deanie wished to see him, so she visited him.]

ANGELINA: We have a little girl, too, I just fed her. She is
asleep. Would you like to see her?

DEANIE: Well, I *have to* go.

[*Splendor in the Grass*]

Angelina is a romantic rival of Deanie, so Deanie will refuse the invitation to visit Angelina's house. That is, Deanie will leave the house of her own will, and, although *must* might be applicable in (27), *have to* is actually used there. This may be because Deanie wants to refuse Angelina's invitation gently, and thus *have to* in (27) expresses understatement.

However, there is an example in which it is doubtful that root *have to*, instead of root *must*, is used to express understatement. Consider (17d)

again, repeated below. Deanie is in hospital because of her mental derangement. She complains to the doctor, whom she considers to be like a parent, about her parents, who still treat her like a child.

- (17) d. It's like you were my father now and all the nurses were my family, and I *have to* grow up all over again. Mother kept calling me her "baby" and Dad his "little girl" and ... don't they realize I'm *me*?

[*Splendor in the Grass*, original italicized *me*]

She wants to grow up again in the hospital where she is staying, and it is easy to interpret her strong desire to grow up again. For this reason, although *must* might be available as well as (27) above, *have to* is actually used in (17d). This discussion shows that root *have to* in (17d) cannot be said to express understatement, but this question will be left for future research.

3.1.2.2. Advantages of Cognitive Linguistic Approaches

From the discussion of the previous section, root *must* and root *have to* can be summarized as follows:

Root *must* is stronger (and more irresistible) in force than root *have to*, in that the former involves the speaker as an imposer of an obligation, while the latter involves external source as an imposer of an obligation.

This section aims to show the advantages of cognitive linguistic approaches to root *must* and root *have to* over non-cognitive approaches, by overcoming parts of limitations displayed in Westney (1995) and Papafragou (1998, 2000) (see section 3.1.1).

First, recall Westney's and Papafragou's semantic definition of *must*, repeated below.

(5) a. *Must* makes a maximally unqualified statement as to the requirement. [Westney 1995:98]

(11) a. Must: p is entailed by D_{unspecified}. [Papafragou 2000:43]

This implies that *must* can express any kind of obligation. However, this is not the case, as shown in (6), repeated below.

(6) a. * My girl *must* be home by midnight – I think it's idiotic. [Lakoff 1972b:925]

b. ?? I *must* get this paper in, but I guess I'll go to the movies instead. [Sweetser 1990:54]

If (5a) and (11a) were valid, *must* in (6) would be acceptable, whereas *must* here sounds odd. The unacceptability of *must* in (6) is explained by the cognitive linguistic approach, according to which root *must* expresses obligation imposed by the speaker (section 3.1.2.1). That is to say, it is

incoherent for the speaker to resist the obligation that he/she has imposed by himself/herself (and the irresistible force expressed by *must*), by saying that the obligation involved in (6a) is idiotic or implying that he/she will go to the movies in (6b). When *must* in (6a) and (6b) is replaced with *have to*, the resulting sentences (i.e., *My girl has to be home by midnight* and *I have to get this paper in*) are acceptable. Of course, this is due to the cognitive-based comment that root *have to* expresses external obligation. Namely, it is not incoherent to resist the obligation from an external source (in (6a) the obligation may come from the girlfriend's parents, and in (6b) from the regulations of a class in which the speaker participates). In other words, it may be argued that the irresistible force involved in root *have to* can in fact be resisted.

This framework can comfortably capture the acceptability of root *must* in (7a), which has been repeated below.

- (7) a. [From the rules of the Department of State. The Department requires parents to have any children aged between 14 and 17 appear in person for the issuance of a passport.]

Your child *must* appear in person.

Although the obligation seems to be “an independent, existing entity,” *must* is used because the stipulation in (7a) is made by the Department of State (i.e., the Department has the role equivalent to that of a speaker) and the obligation involves the speaker's (i.e., the Department's) authority to have a child to appear in person for the issuance of a passport.

Secondly, recall the argument in section 3.1.1.2 that Papafragou's framework threatens to fail to make a semantic distinction between *must* and *have to*; namely, both *must* and *have to* can have the meaning defined as in (11a) above. Her analysis is clearly untenable, considering examples (18b) and (25) above, repeated below, where *have to* is preferred to *must*.

- (18) a. * My girl *must* be home by midnight – I think it's idiotic.
b. My girl *has to* be home by midnight – I think it's idiotic.

[Lakoff 1972:925. cf. Larkin 1976:392–394]

- (25) I {?? *must* / *have to*} get this paper in, but I guess I'll go to the movies instead. [Sweetser 1990:54]

Have to is preferred to *must* in (18b) and (25), because the obligation involved in both cases comes from a factor that is external to the speaker (otherwise, the speaker could not cast doubt on, or try to resist, the obligation in either case).

Furthermore, the reason can be explained for some cases in which *must* is preferred to *have to*, as in (19), repeated below:

- (19) [The speaker is inviting the hearer to dinner.]
a. Hey, come to my house and you *must* have dinner with me.
b. ?? Hey, come to my house and you *have to* have dinner with me.

Have to is disfavored as in (19b) because root *have to*, with the implication

of an obligation caused by a factor external to the speaker (in other words, with the force coming from some external source), does not fit the speech act of invitation, which should be performed with the speaker's proposal of some action beneficial to the hearer (cf. Leech 1983:109), and thus with the speaker's sincere intentions (which is why root *must* is favored as in (19a)).

It has therefore been shown that in distinguishing root *must* and root *have to*, reference to the nature of force involved in each (quasi-)modal is efficient (specifically, the source, type, and strength of force). Nevertheless, the reference to the nature of force is, admittedly, insufficient for a comprehensive explanation of the uses of root *must* and root *have to*. The remaining problems are presented in section 3.3 in order to clarify what this thesis should solve.

3.2. The Context of Interrogatives Including Epistemic *Must*, Root *Must* and Epistemic *Have to*

Although the main concern of this thesis is root *must* and root *have to*, it is worth mentioning another type of evidence for the effectiveness of the cognitive linguistic approach to English modals. This section presents a further supporting discussion for a cognitive linguistic approach by considering a context of interrogatives, including epistemic *must* and epistemic *have to*. *Must* in interrogatives is said to be likely to be interpreted in a root, rather than an epistemic, sense. For example, consider (28).

- (28) a. *Must* John be at home today? [Araki et al. 1977:353]

b. *Must* John see Mary today?

[Ando 2005:340]

In (28), the speaker is asking the addressee about the existence of John's obligation (to be at home today, for example), not doubting whether the proposition expressed in the proposition of (28a) and (28b) is true.⁸ Araki et al. (1977), Declerck (1991), Papafragou (2000), and Ando (2005) note that, in some cases, epistemic *must* can also appear in interrogatives, but no examples are presented in their studies.

Declerck (1991) and Ando (2005) point out interrogatives in which epistemic *must* can appear. Firstly, Declerck says that people use epistemic *must* "when the question is meant to challenge an (explicit or implicit) affirmative statement with *must*" (Declerck 1991:408), as illustrated in (29).

(29) Well, obviously the girl isn't here, so we'd better look for her on the campus. – *Must* she be on the campus? She could have gone to Pete's digs. [ibid.]

The second person (i.e., the speaker of the sentence with epistemic *must*) knows that the first person believes strongly that the girl is on the campus. Then, the second speaker casts doubt on the opinion of the first, by uttering the interrogative that includes epistemic *must*.

Secondly, Ando notes that interrogatives including epistemic *must* are acceptable "when we question the validity of what an addressee says in a metalinguistic way" (2005:341, translated by the present author),

presenting example (30).

(30) “It must be John.” “*Must* it be John? It could be Mary.” [ibid.]

Declerck and Ando both point out that interrogatives including epistemic *must* are acceptable for casting doubt on what the addressee says. However, as shown later, some interrogatives are acceptable in other situations. After all, both Declerck and Ando deal with such interrogatives only in rare and therefore exceptional cases, and they probably fail to fully account for the context of the interrogatives with epistemic *must* when such interrogatives are regarded as pragmatically acceptable.

The aim of this section is to provide a comprehensive account of the context of interrogatives, including epistemic *must*, from the standpoint of force dynamics (Talmy 2000; Sweetser 1990), specifically by utilizing the notion of imposer (section 3.1.2.1). In addition, it argues that the argument of sections 3.2.2 and 3.2.3 can comfortably capture the context of interrogatives including root *must*, and explain the reason why interrogatives including epistemic *have to* are usually unacceptable.

3.2.1. Papafragou (2000): Relevance Theoretic Approach

As introduced in section 3.1.2, Papafragou (2000) proposes the meaning encoded by *must* as in (11a). The semantics of epistemic *must*, according to Papafragou (2000:72), involves the domain of metarepresentation. Consider (12e) and its semantic representation (14e) again, repeated below.

(12) e. Some of the neighbours *must* have seen the burglars.

(14) e. [_p[Some of the neighbours have seen the burglars]] is
entailed by D_{bel} [Papafragou 2000:72]

The speaker in (12e) is reasoning “on the basis of incomplete and partly supported evidence which she reconstructs from both general encyclopedic and situation-specific information about burglaries” (ibid.). Namely, p in (12e) is logically entailed by the domain of the speaker’s metarepresentation. This is how the meaning of epistemic *must* is pragmatically derived in Papafragou’s framework.

Now, based on (11a), the meaning of interrogatives including *must* (whether root or epistemic) can be interpreted as “to ask whether or not p is entailed by D_{unspecified}” (in particular, by D_{bel} as in (14e)). However, Papafragou (2000: section 3.1.2.3) points out that epistemic *must* is rarely used in interrogatives. In other words, it is rare to ask whether a proposition is entailed by D_{unspecified}, for the following reason:⁹

“it is hard to construct a context in which it would be felicitous for the speaker to ask whether a conclusion is possible or necessary with respect to her own set of beliefs.” [Papafragou 2000:98]

In fact, however, Papafragou does not completely deny the possibility of using epistemic *must* in interrogatives. See the examples in (31).

- (31) a. *Must* the patient have cancer?
b. *Must* John be a liar?

[ibid.]

In (31a) “the speaker is evaluating publicly available, objective evidence for a conclusion” (ibid.). On the other hand, (31b) “involves deliberative interrogatives, in which the speaker addresses a question to herself in an attempt to evaluate the evidence she has for a certain conclusion” (ibid.). These contexts are different from that mentioned in Declerck (1991) and Ando (2005). Nevertheless, Papafragou’s comments above are merely fragmentary and, after all, it seems that she also fails to comprehensively explain the context of interrogatives including epistemic *must*.

This section discusses whether the above comments by Papafragou, Declerck, and Ando can be generalized in the relevance theoretic approach. One way, presumably, is to approach the solution from the meaning of interrogatives in the relevance theoretic approaches (Blakemore 1992, and Sperber and Wilson 1995). Relevance theorists analyze the meaning of interrogatives as in (32).

- (32) “interrogative utterances are interpretations of answers that the speaker would regard as relevant if true.”

[Sperber and Wilson 1995:252]

The meaning is determined by the principles of relevance (Sperber and

Wilson 1995) for whom the answer is regarded as relevant. For example, the answer of ordinary interrogatives (in which the speaker asks the hearer for certain information or the answer to a certain question) is relevant for the speaker. On the other hand, the answer of rhetorical interrogatives such as (33) is relevant to the hearer rather than the speaker (see also Blakemore 1992:115).

(33) Who knows where I'll be next year?

In a rhetorical question, the speaker does not expect an answer (or does not expect the question to be literally interpreted), but rather intends to convey another propositional content implied from the question. In (33), for example, the speaker wants to tell the hearer that no one knows where the speaker will be next year.

Based on the above relevance theoretic analysis of interrogatives, consider the meaning of interrogatives with epistemic *must* that are acceptable as in (29)–(31). The answers to the interrogatives, “She is not on the campus” (as in (29)), “It is not John” (as in (30)), “The patient does not have cancer” (as in (31a)) and “John is not a liar” (as in (31b)), are all relevant to someone.

In this way, when the answer to interrogatives with epistemic *must* is relevant to someone, they can be regarded as acceptable. On the other hand, when the answer to interrogatives with epistemic *must* are not relevant to anyone, they may be unacceptable, as seen by the following comment by Blakemore (1992:115):

“I would not ask the question (...) if I believed the answer was not relevant to me. In other words, in asking the question I am creating expectations about the relevance of its answer.”

In this way, the relevance of the answers to interrogatives with epistemic *must* may be able to effectively account for the acceptability of the interrogatives.

Nevertheless, the relevance theoretic approach (i.e., Papafragou 2000) probably cannot answer, in a principled way, the following problem: What context makes the answer to interrogatives with epistemic *must* relevant? This is because there is no option but to consider the individual context of each interrogative in order to examine whether the answer of the interrogative is relevant. It is argued here that it is an imposer-based account that helps solve the problem, as will be discussed in the next section.

3.2.2. Cognitive Linguistic Approaches

3.2.2.1. The Context of Interrogatives with Epistemic *Must*

Sweetser’s (1990) force dynamic analysis of epistemic *must* is as follows: “the available (direct) evidence compels me (i.e., the speaker or conceptualizer) to a certain conclusion” (cf. 1990:61). “Evidence” in this case is equivalent to the source of an epistemic force (or what is referred to here as an “imposer”). Through this approach, this section considers examples of interrogatives with epistemic *must*.

Firstly, consider (31) again, in which the speaker doubts the conclusion reached on the basis of his/her own evidence.

- (31) a. *Must* the patient have cancer?
b. *Must* John be a liar?

[Papafragou 2000:98]

These interrogatives are acceptable, because the speaker is not confident of his/her own conclusion. In other words, the force of the evidence is weak. On the other hand, when the force of the evidence is strong, there should be no reason to doubt the conclusion (or resist the force, to use Sweetser's term; see section 3.1.2.1). The strength of the force of a speaker's own evidence is therefore useful for a systematic account of the acceptability of epistemic *must* used in interrogatives.

Papafragou's examples in (31) are those in which the evidence referred to is presented by the speaker. There are also examples of interrogatives in which the evidence is presented by a person other than the speaker. Consider (34a)–(34c), the first two of which have already been presented as (29) and (30), respectively.

- (34) a. Well, obviously the girl isn't here, so we'd better look for her on the campus.
– *Must* she be on the campus? She could have gone to Pete's digs. [= (29)]
b. "It must be John." "*Must* it be John? It could be Mary." [= (30)]

c. “Of course the whole truth will come out.”

“Must it come out?”

“Not a doubt of that. How can it be helped?”

[HTI]

The first speaker in (34a) argues that, on the basis of certain evidence that the speaker has (i.e., that the girl is not in the place of utterance), they had better look for her on the campus. Similarly, the first speaker in (34b) asserts from his/her own evidence that it must be John, and the first speaker in (34c) asserts that the whole truth will come out from his/her own evidence. The evidence presented by the first speaker in (34) is doubted by the second speaker, and this doubt is expressed by interrogatives with epistemic *must*.

It is argued that, in examining the acceptability of epistemic *must* used in interrogatives, the “source” of the force should be considered separately from the “strength” of the force. More specifically, when the force of evidence presented by the speaker (i.e., the force whose source is the speaker) is weak (as illustrated in (31)), the conclusion can be doubted. On the other hand, when the force of such evidence emanates from the speaker and is strong, there is no reason to doubt the conclusion and, therefore, no reason to utter an interrogative with epistemic *must* (in fact, such an interrogative has not yet been found in electronic corpora). However, if evidence is not from the speaker but from a person other than the speaker, it is reasonable to doubt the conclusion, regardless of the strength of the force of the evidence. For instance, the force of the evidence presented by the hearer in (34a) and (34b) is rather strong, and stronger than that in

(34c). The difference of the strength is known because of the difference of the modals used, i.e., *had better* and *must* vs. *will*. Nevertheless, the conclusion in each of (34a)–(34c) can be doubted by the speaker, so that the interrogatives with epistemic *must* in those cases are all acceptable. It is argued, therefore, that not only the strength but also the source of the force is important in analyzing the acceptability of interrogatives with epistemic *must*.¹⁰

The points of this section are summarized here in (35) and (36).

(35) Epistemic *must* cannot appear in interrogatives when the speaker's conclusion is based on his/her own evidence and involves strong force emanated by the evidence.

(36) Epistemic *must* can appear in interrogatives when:

- a. the speaker's conclusion is based on his/her own evidence and involves weak force (as exemplified in (31)) emanated by the evidence, and
- b. the force of the speaker's conclusion is based on the evidence of a person other than the speaker, regardless of the force of the evidence (as exemplified in (34)).

Although interrogatives with epistemic *must* have been treated as exceptional, these phenomena can be systematically accounted for by our cognitive ability of force dynamic conceptualization of epistemic *must*. This section's analysis supports the force dynamic approach to English modals.

3.2.2.2. Further Application: Epistemic *Have to* and Root *Must* in Interrogatives

This section applies the points presented in (35) and (36) to account (i) the reason why epistemic *have to* appears in interrogatives only very rarely, and (ii) the contextual restriction of root *must* used in interrogatives. Firstly, the following comment by Declerck (1991:408) on epistemic *must* used in interrogatives is introduced here.

In questions we usually use *need* or *have to* in the sense of ‘is it logically necessary that ...?’

Namely, *must* is seldom used in the sense of ‘is it logically necessary that ...?’ It can, however, be used “when the question is meant to challenge an (explicit or implicit) affirmative statement with *must*” (ibid.). Because Declerck does not present any examples of epistemic *have to*, his example of epistemic *need* is presented in (37) instead.

(37) I’m not sure about his age. I know he walks with a stick, but *need*
that mean that he is old? [ibid.]

Need in (37) was replaced with *have to*, and native informants were asked the meaning of the resulting sentence (38).

(38) I’m not sure about his age. I know he walks with a stick, but *does* that

have to mean that he is old?

Their answer is that *have to* in (38) can express epistemic sense. However, the informants also said that it is less likely to express epistemic sense than root sense. In fact, epistemic *must* was replaced with *have to* in (29)–(31), and the resultant sentences are listed in (39). Informants were then asked whether *have to* in the resulting sentences can express epistemic sense.

- (39) a. Well, obviously the girl isn't here, so we'd better look for her on the campus. – *Does she have to* be on the campus? She could have gone to Pete's digs. [cf. (29)]
- b. "It must be John." "*Does it have to* be John? It could be Mary." [cf. (30)]
- c. *Does the patient have to* have cancer? [cf. (31a)]
- d. *Does John have to* be a liar? [cf. (31b)]

Their answer is that *have to* in (39) is more likely to express root meaning than epistemic meaning. In fact, as far as this research is concerned, acceptable examples of epistemic *have to* used in interrogatives have not yet been found in discourse (such as in electronic corpora).

Here, the problem arises of why epistemic *have to* is unlikely to appear in interrogatives. According to Kashino (2002:130–141), epistemic *have to* expresses a speaker's judgment on the basis of objective knowledge that exists in a way that is independent of the speaker. In other words, the

objective knowledge serves as the source of the evidence in the case of epistemic *have to*. The force involved in an epistemic *have to*-sentence is judged as being rather strong because there is little room for a speaker's vague (and therefore subjective) opinion or thought. Thus, it can be said that in such cases there is no reason why a conclusion followed by the evidence should be doubted; hence, epistemic *have to* used in interrogatives is usually unacceptable.

Note that, although the evidence involved in (38) exists outside the speaker, as does that in (34a)–(34c), *have to* in (38) is more likely to be interpreted in an epistemic sense than in a root sense, while *must* in (34) can be interpreted in an epistemic sense. The difference between the two cases is that the force is based on the hearer's subjective belief in (34), while it is based on objective evidence that the speaker has in (38). In the former cases, there may be room for the speaker's doubt regarding the validity of the conclusion that the speaker reaches, hence the acceptability of interrogatives with epistemic *must* (in cases like (34)), rather than with epistemic *have to* (like (38)). In this way, force dynamic account enables us to systematically account for the reason why epistemic *have to* is rather unlikely to appear in interrogatives, unlike (Papafragou's) relevance theoretic account, which cannot distinguish the meaning of *must* from that of *have to*, as discussed in section 3.1.1.2.

Next, consider contextual restriction involved in root *must*, used in interrogatives. Araki et al. (1977) and Asakawa and Kamata (1986) note that root *must* can appear freely in interrogatives, but consider (28) again here.

- (28) a. *Must* John be at home today? [Araki et al. 1977:353]
b. *Must* John see Mary today? [Ando 2005:340]

The point here is that the imposer of an obligation is not the speaker but (typically) the hearer (Leech 2004:78). For example, (28a) says, “Do you oblige John to be at home today?” and (28b), “Do you oblige John to see Mary today?” It would be odd in (28) for the speaker to ask himself/herself whether he/she obliges John to be at home. In other words, when the imposer is the speaker, the interrogatives with root *must* are unacceptable (and in fact such data have not yet been found). This point is parallel to (35). However, when the source is the hearer (as in usual interpretation), the speaker will be able to doubt the obligation exerted by the hearer. This is parallel to (36b), and this is the interpretational restriction involved in root *must* used in interrogatives.

From the discussion in this section, it can be said that the force dynamic approach is also effective for the account of contextual restriction involved in root *must* used in interrogatives.

3.3. Summary and Remaining Problems

This chapter has argued that English modals should be analyzed in terms of cognitive linguistics (especially in terms of force dynamics), for the advantages of the cognitive linguistic approach presented in section 2.4. As discussed in sections 3.1.2 and 3.2.2, cognitive linguistic approaches, rather than non-cognitive linguistic approaches, are more effective for

distinguishing the meaning and usage of root *must* and root *have to*, and successfully explain the context of the interrogatives with epistemic *must*.

In spite of the advantages of cognitive linguistic approaches introduced above, the insufficiency with reference to the nature of force of *must* and *have to* is, admittedly, revealed by (7b) and (8) above, repeated below.

- (7) b. [*He* refers to Nakata, *it* to Japan and *you* to Japanese people Generically.]

What he did, eventually, was leave. “In Japan, seniority is all important,” Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. “It’s a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn’t feel like this. I felt a freedom from this.”

[*TIME*, April 29—May 6, 2002]

- (8) [The hearer, sheltered by the speaker, has just been found by the Gestapo.]

Get your things together, you *have to* leave! [*The Pianist* film script]

Must in (7b) seems to express external obligation, as *have to* does. On the other hand, *have to* in (8) seems to express obligation imposed by the speaker, as *must* does.¹¹ Therefore, it still remains open as to how the “peripheral” types of phenomena like (7b) and (8) should be treated.

Next, the strength of the force is unreliable in some cases. For example, if *must* expresses “irresistible force,” as Sweetser points out, then it will not be possible to question the force. However, in some cases *must*-sentences can actually be questioned with a tag question. Consider (40) below (both of which were found through Google).

- (40) a. She grimaced at the voice. “Yes, yes, only I *must* get done the boots, *mustn’t I?*” Taking up the next, she started rubbing the warm, pliable leather with a lump of fat.
- b. [S ironically describes his brother, who wants to be the leader of a nation.]

Despite his special treatment, my brother does attend classes with me. A leader of a nation *must* most certainly have an education, *mustn’t he?*

The tag questions in (40) seem to serve to question the content of *must*-sentences that precede the tag questions. If *must* really expresses irresistible force, there will be no room to question the propositional content of the *must*-sentence.

Next, (17d) is repeated again. It is doubtful that *have to* in (17d) really expresses resistible force, because it seems that the speaker in (17d) expresses their strong wish to grow up all over again.

- (17) d. It’s like you were my father now and all the nurses were my family, and I *have to* grow up all over again.

Thus, examples (7b), (8), (40) and (17d) make it seem that the nature of force of root *must* and root *have to* may not be sufficient (if not unnecessary) for the distinction of the two modals. The next chapter pursues an alternative framework in terms of the above examples.

Before closing this section, it is worth mentioning some cases of root *must* used in some marked constructions: questions, *if*-clauses, and *that*-clauses representing reported speech. *Must* in these constructions can involve a non-speaker imposer, but these cases should be considered in terms of their constructional meanings, unlike the cases of examples (7), (8), (40), and (17) above (the imposer in these cases is identified as a non-speaker, and this interpretation is contextually driven: see Chapter 4).

According to Leech (2004:78), “*must* in questions and *if*-clauses involves the hearer’s authority, instead of that of the speaker”, and *must* in *that*-clauses representing reported speech involve the authority of “the speaker of the reported speech” (2004:111). His examples are shown in (41).

- (41) a. *Must* I answer those questions? [Leech 2004:78]
b. If you *must* smoke, use an ash-tray. [ibid.]
c. Jenkins said you *must* pay before you go. [Leech 2004:112]

Consider briefly the constructional meaning involved in (41). Firstly, questions and *if*-clauses have the following function in common: to suspend any commitment by the speaker to the proposition in its scope (cf. Dancygier 1998:14–24). This is where there is room for the speaker to leave to the

hearer the commitment to the proposition, and thus, the imposer of *must* in questions and *if*-clauses is identified as the hearer. On the other hand, the identification of an imposer as the speaker of the reported speech (Jenkins, in (41c)) may be influenced by the main clauses followed by *that*-clauses representing reported speech. More specifically, the main clause (*Jenkins said*, in (41c)) may work as a space-builder (see Fauconnier 1994), facilitating the identification of an imposer as the speaker of the main clause.

In discussions in the following chapters, data like (41) will not be mentioned unless necessary.¹² Rather, it will focus on data used in declarative sentences.

Notes to Chapter 3

¹ On the irresistible nature of the obligation expressed by root *must*, see also section 3.1.2.1.

² Depraetere and Verhulst (2008) should be mentioned in passing. They quantitatively support Westney's argument against depending on the notion of imposer, and propose that the distinction between root *must* and root *have to* be based on (i) register and (ii) strength. As for the former, "*Have to* typically occurs in spoken English, and *must* predominantly in written English" (2008:24). As for the latter, "*Must* conveys necessity with more insistence than *have to*" (ibid.). The former criterion seems to be successfully validated in a quantitative way (Tables 6–9 in Depraetere and Verhulst 2008:21), while it seems that the latter is not. Depraetere and Verhulst (2008:22) merely introduce the criterion of strength as a generally accepted criterion. In addition, their dependence on insistence may imply that they, like Sweetser (1990), also depend on the notion of force, and in that respect, their approach seems similar to our cognitive linguistic approach.

³ In Sperber and Wilson's (1995:224–231) terms, the representation of a propositional form of a sentence with an epistemic modal is used *interpretively*, in which case "the representation represents another representation with a propositional form which it resembles in content" (Papafragou 2000:68). In contrast, the representation of a propositional

form of a sentence with a root modal is used *descriptively*, where “the representation is used as a truth-conditional description of external circumstances” (Papafragou 2000:68).

⁴ Nagatomo (2009:20–21) points out another limitation of Papafragou’s approach. It is predicted that *must* and *should* can be paraphrased without semantic change if the interpretation of sentences with those modals involves the regulatory domain. This is not the case, however, and the two modals are different in the strength of force, as is validly captured in cognitive linguistic approaches (cf. Sweetser 1990). Consider the following comments by Leech (2004:100–101, original italics):

For example, if someone says *You must buy some new shows*, it is assumed that the purchase will be carried out: the tone of *must* tolerates little argument. But *You should buy some new shoes* is a different matter – the speaker here could well add in an undertone ‘but I don’t know whether you will or not.’

⁵ Huddleston and Pullum (2002:185) also present examples of “dynamic” *must*, with the examples below:

- (i) a. Ed’s a guy who *must* always be poking his nose into other people’s business.
- b. Now that she has lost her job she *must* live extremely frugally.

In their sense, “dynamic” modality expresses the necessity that “arises from some internal need, rather than being imposed by some deontic source” (Huddleston and Pullum 2002:185), as illustrated in (i-a). On the other hand, example (i-b) involves “circumstantial necessity (...), not a matter of obligation imposed by a deontic source, but simply force of circumstance” (ibid.). However, it is not clear whether these dynamic examples above are those that report rules and regulations, like (22b). In other words, the difference is not clear between objective deontic modality, as in (22), and dynamic modality, as in (i).

⁶ Biber et al. (1999:494–495) suggest that *must* is rarer than *have to* in marking personal (or subjective) obligation, because *must* has strong directive force.

⁷ Kashino (2002:142, footnote 3) argues that root *have to* is readily applied to the situation where root *must* is more appropriate, although root *must* is not applied to the situation where root *have to* is more appropriate.

⁸ With interrogation, as Palmer (1990:41) notes, it is never the proposition but only the modality itself that can be questioned.

⁹ The comment “to ask whether a proposition is possible” in Papafragou’s (2000:98) comment is based on the cases in which epistemic *may* is used in interrogatives. Also, note that the present author agrees with Papafragou’s

comment, because we cannot doubt by ourselves what we assume (cf. Onoe 2001:422).

¹⁰ If this is valid, it can be predicted that there are examples in which the speaker doubts the judgment made by a third party (i.e., neither a speaker nor a hearer). Only one example has been found for this thesis in which the source of the evidence may be an entity outside the speaker. See (ii) below (which is an example of written English; the other examples in section 3.2.2.1 may be quoted from dialogues).

- (ii) Mr. Bush cannot embrace Camp David without looking wimpish. At the very least, he will make it plain that Israel must one day let go of most of the West Bank and Gaza. Already, before Thursday's fateful meeting, he had startled Israel by saying bluntly that the occupation must end and that the Palestinians must have their 'political' rights. So must it be an inconclusive, ill-tempered parting between the friends? Not if Camp David can be artfully repackaged. [BNC]

Although the source of evidence that makes us doubt that it is an inconclusive, ill-tempered parting between the friends cannot be specifically determined, it is obvious that the speaker in the underlined question is not doubting his/her own opinion. Namely, the source of the evidence involved in the question is not the speaker himself/herself, but rather an entity outside the speaker and the hearer. This may be an instance of (36b).

¹¹ As Swan (2005:361) notes, "*(H)ave to* can also be used to talk about obligation coming from the speaker (...), in the same way as *must*. This is normal in American English (which uses *must* less often in this sense), and is becoming very common in British English." This is true, as is shown in the quantitative research in section 5.3.

¹² See Sanada (2004b: sections 3.1–3.3) for a little closer discussion of data such as (41).

Chapter 4

An ICM-Based Account of Root *Must* and Root *Have to*: With Special Reference to Directive Speech Acts

Root *must* and root *have to* have long been distinguished as in (1) in terms of Lyons's (1977:452) subjectivity, which is defined as expressing "his opinion or attitude towards the proposition that the sentence expresses or the situation that the proposition describes." More specifically, root *must* has long been regarded as subjective according to (1a), while root *have to* as objective according to (1b).

- (1) a. *must* expresses obligation imposed by the speaker.
b. *have to* expresses external obligation.

[Thomson and Martinet 1986:140]¹

To put (1a) and (1b) differently in terms of the notion of imposer, root *must* involves a speaker imposer, while root *have to* involves as an imposer some factor external to the speaker (such as external circumstances).

The distinction in (1) is illustrated by the examples in (2).

- (2) a. [The speaker is a teacher of the hearer]
You *must* speak clearly, dear. [Harry Potter]
b. It is also clear that given the likely death toll, there will be

many citizens of other states who will have died. I *have to* say that I fear significant numbers of them will be British.

[Tony Blair's speech, September 12, 2001]

The obligation expressed in (2a) is imposed by the speaker, who wants the hearer to speak clearly (probably for the speaker's own benefit), while that in (2b) comes from circumstances that are external from the speaker (in this case, quite a few British citizens may have been killed in the September 11 terrorist acts).

However, this is not always the case, as illustrated in (3) below.

- (3) a. [*He* refers to Hidetoshi Nakata, *it* to Japan and *you* to Japanese people generically]

What he did, eventually, was leave. "In Japan, seniority is all important," Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. "It's a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn't feel like this. I felt a freedom from this."

[*TIME*, April 29–May 6, 2002]

- b [The speaker (Tony Blair) is delivering a speech at a university.]

And we know too that not only is it possible for large numbers of school leavers to achieve high standards, but that it is more and more important that they do so. We *have to* match our

competitors in believing that in the core subjects of the curriculum all students can gain a good grounding.

The obligation in (3a) seems to come from external circumstances from the speaker (in this case, Japanese (vertical) society), so that *must* in (3a) can be captured in terms of not (1a) but rather (1b), that is, objective. On the other hand, the obligation in (3b) seems to be imposed by the speaker (Blair), based on the knowledge that Blair made education a key priority during his time as Prime Minister. Therefore, (1b) appears to be more appropriate than (1a) for the interpretation of root *have to* in (3b), hence it is rather subjective.

Examples (2) and (3) show that root *must* and root *have to* are not categorically subjective and objective, respectively. It would be preferable to argue that root *must* and root *have to* are *prototypically* subjective and objective, respectively, and that the subjectivity of the two (quasi-)modals varies according to the context in which each example of root *must* and of root *have to* is embedded. It is also argued that in terms of subjectivity, root *must* in (2a) and root *have to* in (2b) are prototypical cases, while root *must* in (3a) and root *have to* in (3b) are non-prototypical cases. More specifically, it is argued that root *must* is more likely to be used subjectively (as in (2a)), as opposed to root *have to*, which in turn is more likely to be used objectively (as in (2b)).

The problem that shall be pursued mainly is that of how the prototypicality is accounted for. However, it appears that only Coates (1983) and Sanada (2004a; 2004b; 2006b) have tried to account for the

prototypicality of root *must* (Coates adopts fuzzy-set theory for the account, as introduced in section 4.2.1), but with some problems to be introduced later. In other words, it remains open as to why there are prototypical and non-prototypical cases of root *must* and of root *have to*. The aim of this chapter is to approach the problem from the framework of speech act theory (cf. Searle 1969; 1979) and Lakoff's (1987) Idealized Cognitive Model (henceforth, ICM).

The structure of this chapter is as follows: Section 4.1 introduces cognitive linguistic analysis of categorization and prototype, in which two kinds of prototype analyses (feature-based and ICM-based analyses) are overviewed; the latter of which is used in this chapter to discuss the semantics and pragmatics of root *must* and root *have to*. Section 4.2 overviews previous feature-based studies of root *must*, root *have to*, and the speech act of obligation (which root *must* and root *have to* express): Coates (1983) and Searle (1969, 1979). Sections 4.4 and 4.5 discuss how to motivate the prototype effect of root *must* and of root *have to*, respectively. In those sections, it is argued that the prototype effect of the (quasi-)modals is motivated by the (varying degree of) deviation from the ICM of obligation (to be constructed in section 4.3).

4.1. Categorization and Prototype

This section overviews a cognitive linguistic analysis of categorization and prototype. Firstly, in section 4.1.1, Langacker's cognitive grammatical analysis of categorization is overviewed. Secondly, in section 4.1.2, a prototype analysis based on Lakoff's ICM is overviewed

compared with non-cognitive analysis of prototype (more specifically, a feature-based analysis).

4.1.1. Cognitive Grammar Analysis of Categorization

According to Langacker’s cognitive grammar, a category consists of a prototype, an extension, and a schema. A prototype in a category is an instance which “is naturally more salient, most often thought of, most likely to be chosen as representative of the category” (Langacker 1987:492). An extension is an instance which conflicts with the prototype but “is nonetheless assimilated to the category on the basis of an association or perceived similarity” (Langacker 2008:18). A schema is what is “instantiated by all instances” (Langacker 2008:34). This categorization is depicted as in Figure 4.1 (from Figure 4(a) in Langacker (1987:271)). The dotted arrow shows extension, and the solid one shows instantiation covering both the prototype and non-prototype (for motivations of category extension, see section 4.1.2).

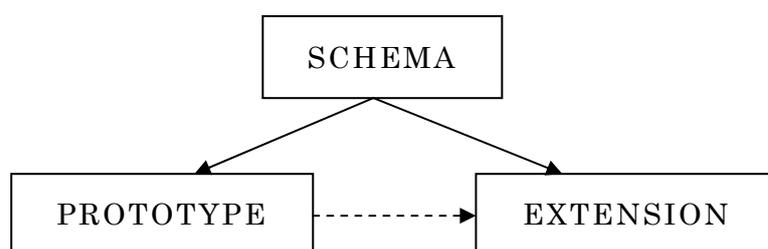


Figure 4.1. The Mechanism of Categorization

In sections 4.4 and 4.5, a schematic meaning of root *must* and that of root *have to* are proposed, and then the semantic network of the two

(quasi-)modals are also proposed in sections 4.4.3 and 4.5.3, respectively.

4.1.2. Prototype Analysis: Feature-Based vs. ICM-Based Analysis

This section surveys two kinds of prototype analyses: (i) feature-based analysis, which is among the classical category views by objectivist semantics, and (ii) ICM-based analysis, which is among the cognitive linguistic views of category. The latter view is argued for over the former in the following sections, with reference to several cases of word meanings.

In a feature-based category view, the meaning of a word can be determined by necessary and sufficient conditions. For example, consider the meaning of the word *bird*. The five features of a bird are as follows: (i) having wings, (ii) flying, (iii) laying an egg, (iv) having a beak, and (v) having a homing instinct. What is at issue in the objectivist analysis of the word *bird* is that all birds have these five features. In other words, if a creature lacks one or more of the features, it is not regarded as a bird. From the feature-based point of view, it follows that the category (of a bird, in this case) is internally homogeneous.

On the other hand, cognitive linguistics allows a category to be internally heterogeneous. This view of the category allows for the prototype and non-prototype of the category. For example, the category of “bird” contains prototypical members, such as a robin, but at the same time there are non-prototypical members of a bird, such as an ostrich and a penguin (both of which do not fly).

Lakoff argues that category structures and prototype effects are

by-products of the organization of our knowledge by means of structures called ICM (Lakoff 1987:68). The ideas regarding ICM come from four sources: Fillmore's (1982) frame semantics, Lakoff and Johnson's (1980) theory of metaphor and metonymy, Langacker's (1987) cognitive grammar, and Fauconnier's (1994) theory of mental spaces. Lakoff states that each ICM is a gestalt and it uses the following kinds of structuring principles: propositional structure (Fillmore 1982), image-schematic structure (Langacker 1987), metaphoric mappings and metonymic mappings (Lakoff and Johnson 1980). Consider the following cases of category extension.

Firstly, there are cases in which category extension is motivated by metaphor and metonymy. The former is illustrated by (4a) and the latter by (4b).

(4) a. I'm feeling *up* today. (cf. He jumped *up*)

[Lakoff and Johnson 1980:15]

b. The *ham sandwich* is waiting for his check.

(cf. This *ham sandwich* is delicious)

[Lakoff and Johnson 1980:35]

Up in (4a) express the subject's (positive) emotional state, not the subject's physical movement; this meaning is the one extended from the above physical meaning. In these semantic change, the conceptual metaphor of "HAPPY IS UP; SAD IS DOWN" (Lakoff and Johnson 1980:15) works. The image-schema of the preposition *in* is mapped from physical domain to mental domain. For another case of metaphorical extension, see Sweetser

(1990), who accounts for the polysemy of modals (root modality and epistemic modality) (section 2.4.2). Next, *ham sandwich* in (4b) refers to a person who has ordered a ham sandwich. What works in the semantic extension shown in (4b) is “OBJECT USED FOR USER” (Lakoff and Johnson 1980:38) metonymy.

The next case considered is one in which the category extension is motivated by the deviation of a member of a category from the knowledge included in the ICM of the category (or what Lakoff (1987:113) refers to as “propositional models”²). That kind of category extension is illustrated by the English words *bachelor* and *lie*, both of which are among the most well known objects of the ICM-based analysis. The ICM-based analysis of the cases shows that category extension is better explained by an ICM-based analysis than by a feature-based analysis.

<*Bachelor*>

In a feature-based analysis, the meaning of the word *bachelor* can be defined as having all of the following three semantic features; [+ Unmarried], [+ Adult], and [+ Male]. This idea implies that if a certain human being is male, adult, and unmarried, he is necessarily a bachelor. Namely, the category of *bachelor* is internally homogeneous in an objectivist category view. However, consider (5).

- (5) a. My uncle is still a bachelor.
b. ? John Paul II was a bachelor.

Although John Paul II is male, adult, and unmarried, (5b) may sound odd to English-speaking people. In addition, if it is supposed that the speaker's uncle in (5a) is a male homosexual, then (5a) may also sound odd.

Now, it happens that simply proposing the semantic features of *bachelor* is not sufficient to capture the meaning of *bachelor* in detail. Rather, as Lakoff (1987) argues, when the meaning of *bachelor* is understood, the following knowledge on marriage should be utilized, which constitutes an ICM (6) with respect to which the word *bachelor* is defined.

- (6) there is a human society with (typically monogamous) marriage, and a typical marriageable age. [Lakoff 1987:70]

According to the ICM (6), (5b) is odd because John Paul II cannot get married due to his religious status. Next, a homosexual man cannot be a bachelor, either, because such a man does not marry a woman, as is usual in a traditional view of marriage. Thus *bachelor* in (5a) (e.g., when “my uncle” is a homosexual man) and *bachelor* in (5b) both have the meaning of [+ Unmarried], [+ Adult], and [+ Male] but do not fit the ICM (6). This fact cannot be captured by a feature-based analysis.

It may be proposed that one more feature, such as [+ Qualified for marriage], should be added to the three original features ([+ Unmarried], [+ Adult], and [+ Male]). This framework may help explain the fact that *bachelor* in (5) is non-prototypical, without the help of the ICM (6). However, this method might to countless proposals of features to the analysis of the meaning of a linguistic form.

<Lie>

Coleman and Kay (1981) define the meaning of English word *lie* in the framework of prototype theory. They argue that when *lie* satisfies all of the features in (7a)–(7c), it is regarded as the most prototypical *lie*, and if it does not satisfy all of them, it is regarded as less prototypical (P: a proposition, S: a speaker, A: an addressee).

- (7) a. P is false. (false in fact)
b. S believes P to be false. (believe false)
c. In uttering P, S intends to deceive A. (intent to deceive)

[Coleman and Kay 1981:28]

On the other hand, Sweetser (1987) argues that the features in (7) should not be separately considered, but that they should be related to each other and be considered as forming a Gestalt. She shows, elegantly, that (7a) is the most important semantic feature for defining the meaning of *lie* (as opposed to Coleman and Kay 1981:35, who argue that (7b) is the most important feature, followed by (7c) and then (7a)). Sweetser also shows that (7b) and (7c) can be derived from (7a) against the ICM of statement and benefit. The model will be summarized as follows. Firstly, the following rules are generally used in communication.

- (8) a. Beliefs are true (are knowledge) [Sweetser 1987:47]
b. Say what you believe; do not say what you do not believe.

(8a) is supported by the following two presuppositions: (i) beliefs have adequate justification, and (ii) adequately justified beliefs are knowledge (and therefore true). (8b) is supported by the three following presuppositions: (i) people try to help (not harm), (ii) knowledge is beneficial, so that (iii) people share knowledge (do not misinform).

When one says what is false (see (7a)) in the above idealized world, the situation will be as follows (cf. Sweetser 1987:48). What one believes to be true really is true (see (7a)). Therefore, when one says what is not true, one does not believe what he said, hence (7b). Note that uttering what is not true (i.e., what one believes to be not true) deviates from (8b), and then deviates from the rule of “people try to help,” hence (7c). This discussion is summarized in (9).

(9) Premise: P is false (7a)

So S did not believe P (7b), since beliefs are true (8a)

Therefore, S intended to misinform (7c), since we know that in order to inform one says only what one believes (8b).

Thus, the features of the word *lie* in (7) are interrelated against the ICM in (8), and should therefore be viewed in the Gestalt view, not in the view of objectivist semantics or a feature-based approach.

An ICM-based analysis such as those illustrated in the cases of the

words *bachelor* and *lie* show that in order to understand the meaning of linguistic expressions precisely, it is necessary to know not only the meaning of the expressions themselves (presented by the componential analysis of a word) but also the social, cultural, and folk knowledge related to the expression (which, of course, cannot be analyzed in the framework of objectivist semantics). In other words, the so-called encyclopedic knowledge of the expression must also be considered. An ICM-based study is one of the ways in which such encyclopedic knowledge is utilized for the understanding of a meaning of linguistic expressions (the semantics dependent on encyclopedic knowledge is called “encyclopedic semantics”: see Langacker 1987: section 4.2).

An ICM-based study also shows that the semantic features of a linguistic expression (*bachelor* and *lie* in this case) do not constitute knowledge of a word, but that there is a reason (or motivation) for such features to be necessary for a comprehensive explanation of the meaning of a word. In the case of *bachelor*, for example, the ICM (6) serves as the basis for the importance of features of [+ Unmarried], [+ Adult], and [+ Male]. This important point cannot be focused on by objectivist semantics, or more specifically, componential analysis.

An ICM-based analysis, meanwhile, accounts for a prototype (of *bachelor* in (5a), for example) of a category. That is, if a person is not only male, adult, and unmarried, but also fits the model (6), he is considered a prototypical bachelor. On the other hand, if a person is male, adult, and unmarried but does not fit the model (6) (such as in the case of John Paul II in (5b)), it may be said that the person deviates from prototypical

bachelorhood.

Sections 4.4 and 4.5 attempt to apply an ICM-based approach to the analysis of the semantics and pragmatics of root *must* and *have to*.

4.2. Previous Feature-Based Approaches

This section has two subsections, which summarize a feature-based approach to (i) the semantics and pragmatics of root *must* (Coates 1983) and (ii) the specification of speech acts (Searle 1969; 1979). The two studies are overviewed in sections 4.2.1 and 4.2.2, respectively.

4.2.1. Coates (1983): the Semantics of Root *Must*

Among many previous studies that have pointed out that a typical imposer of root *must* is the speaker (see (1a) above), it seems that Coates (1983) is the only one that has attempted to explicitly show how the prototypicality of root *must* is formed. Coates argues that root *must* exhibits gradience of subjectivity in terms of fuzzy-set theory. More specifically, the category of root *must* has its “core” (referred to here as “prototype”), the meaning of which is subjective in Lyons’s sense, and its “periphery” (referred to here as “non-prototype”), the meaning of which is objective. The subjectivity is determined on the basis of the six six features³ in (10).⁴

- (10) a. second person subject
b. speaker involvement
c. speaker has authority over subject

- d. verbs agentive
- e. paraphrasable by ‘it is obligatory/absolutely essential that’
- f. animate subject

[Coates 1983:36]

Further explanation is necessary for (10b)–(10d). Firstly, “speaker involvement” in (10b) is used in Coates (1983:32) in relation to Lyons’s (1977) “subjectivity” (for the definition of this term, see section 2.1.1 or the beginning of this chapter).

Next, “authority” in (10c) is not explicitly defined in Coates’ study. The term seems to be used in a rather general (i.e., non-technical) sense, and is adopted in this thesis as the “power to enforce obedience” (Oxford English Dictionary). Coates may limit the sense of the term with reference to a socially vertical relationship (e.g., a boss and his/her subordinate or subordinates). For instance, she states that in the interaction between equals, no speaker’s authority is involved (1983:35–36).

“Agentive,” considered next in (10d), is also not explicitly defined, but as far as Coates’ examples and account are concerned, it seems that the notion is not used in such a special sense. In this chapter, as Lyons (1977:483) said, “An animate entity, X, intentionally and responsibly uses its own force, or energy, to bring about an event or initiate a process.” Moreover, readers are referred to Lakoff and Johnson (1980:70), in which characteristics of prototypical cases of direct causation are listed (these include, “The agent has as a goal some change of state in the patient” and “The change of state is physical”).⁵

The features in (10) make it possible to determine the membership (or prototypicality) of root *must* in the following manner: The more features in (10) that are satisfied by a case of root *must*, the nearer it is to the core (therefore, the more subjective it is, the more likely it is that the speaker is identified as an imposer). Core cases are “paraphrasable as ‘I order you to x’” (Coates 1983:32) and such cases are typical of core cases that Coates (ibid.) refers to as “strong obligation.” This can be illustrated with some of Coates’ “core” examples in (11).

- (11) a. “You *must* play ten times over,” Miss Jarrova would say,
pointing with relentless fingers to a jumble of crotchets and
quavers.
- b. they were told by the Chairman, Mr. Jos. D. Miller, “You *must*
have respect for other people’s property.”

[Coates 1983:34]

According to Coates, in both cases, the subject is second person (thereby satisfying (10a), and of course satisfying (10f)), and the speaker involves himself in laying an obligation (thereby satisfying (10b)), having authority over subject (thereby satisfying (10c)), and may think that the relevant obligation is obligatorily essential (thereby satisfying (10e)). The verb is agentive in (11a) (i.e., *play*) but not in (11b) (i.e., *have*).

On the other hand, the fewer features in (10) that are satisfied by a case of root *must*, the nearer it is to the periphery (hence the more objective, and the less likely it is that the speaker is identified as an imposer). Most

peripheral cases are referred to as “weak obligation” (ibid.), as in (12), where the speaker in (12) “is clearly not giving an order, but stating a law” (Coates 1983:35). In other words, the speaker does not serve as an imposer, and then *must* in (12) deviates from (10b), (10c) and (10e).

(12) If you commit murder, Charlotte, you *must* be punished. [ibid.]

Examples in (13) will be considered as “intermediate.”

- (13) a. All students *must* obtain the consent of the Dean of the faculty concerned before entering for examinations.
- b. Dai had some quite interesting ideas which surprised me rather, I *must* admit.

[Coates 1983:34]

Must in (13a) satisfies (10d)–(10f), but not (10a). Coates does not commit to whether it satisfies the other features, (10b) and (10c), saying, “clearly someone is exerting authority, but it is not clear who, and there is no sense of ‘speaker’s involvement’” (Coates 1983:36). Next, *must* in (13b) satisfies (10d) and (10f), but not (10a), (10b) and (10e). Here, too, Coates does not commit as to whether (10c) is satisfied, saying, “The speaker is actually performing what he is in the act of urging himself to do; that is *I must admit* means *I admit*” (ibid.). In this way, not all of the features in (10) are necessarily satisfied in examples of root *must*, whatever the reason for the intermediacy may be.

Now that Coates' approach has been surveyed, two inadequacies of her approach can be pointed out. Firstly, the features in (10) include at least two different types of features in kind: one of a formal kind, and the other of a more pragmatic kind. The former type contains (10a), (10d) and (10f), while the other contains (10b), (10c) and (10e).

Secondly, and more importantly, Coates does not discuss why the six features in (10) are necessary for an account of prototype effect of root *must*. This question leads to another, that of whether there are any relationships between the features in (10). For example, it can be asked whether there is a necessary or sufficient or prototypical relationship between the features in which one is satisfied whenever another is satisfied. Within Coates' approach, the features in (10) may merely be what Lakoff (1987:115) refers to as unstructured "feature bundles." This inadequacy is equivalent to that found in Coleman and Kay's (1981) approach to the meaning of the English word *lie* (see section 4.1.2).

This thesis suggests that this inadequacy should be solved by Lakoff's (1987) ICM-based approach. More specifically, the inadequacy should be rectified in terms of background knowledge on laying an obligation on somebody in using *must*-sentences. The knowledge is discussed in section 4.3 and applied to the analyses of the semantics and pragmatics of root *must* and root *have to* in section 4.4.

4.2.2. Searle (1969, 1979): Speech Act Theory

Close attention is paid in this chapter to speech act theory, because root *must* and root *have to* can express obligation, which is one of the

subclasses of directive speech acts (henceforth, DSAs; Searle 1979).⁶ This section briefly examines Searle's framework.

Searle (1969; 1979) developed the following four felicity conditions as components of an illocutionary force of speech acts, as listed in (14).

- (14) a. proposition content condition: specifying "restrictions on the content of the proposition"
- b. preparatory condition: concerning "real-world prerequisites to each illocutionary act"
- c. sincerity condition: stating "the requisite beliefs, feelings and intentions of the speaker"
- d. essential condition: concerning the obligation to perform a certain illocutionary act

[Levinson 1983:244]

He treats these conditions as necessary and sufficient conditions for the characterization of felicitously performed speech acts (cf. Searle 1969:22).

Next, in characterizing an illocutionary force, Searle (1979:3) also proposes "directions of fit between words and the world." There are four and only four directions, as in (15):

- (15) a. words-to-world direction of fit
- b. world-to-words direction of fit
- c. double direction of fit
- d. null or empty direction of fit

The point of (15a) is “to make the words match the world” (Searle 1979:3): for example, by representing a state of affairs as actual. Next, the point of (15b) is “to get the world to match the words” (ibid.): for example, by saying *Open the window!* to make the addressee open the door (i.e., to match the world in which a window is closed to the words *Open the window*). Next, the point of (15c) is “both words-to-world and world-to-words” (ibid.). Take, for example, declaratives such as *I declare war*. War starts immediately after the speaker successfully performs the act of declaring a state of war. Finally, the point of (15d) is that the truth of the proposition expressed in, for example, expressives, is presupposed. For example, if one says *What a lovely girl!*, the truth of the propositional content is presupposed, and it is not necessary to try to get the state of affairs to be actual in the world, nor to represent it as actual.

Based on (14) and (15), DSAs are characterized as in (16).

- (16) DSAs
- a. world-to-words
 - b. want
 - c. the hearer does some future action

[Searle 1979:14]

The condition (16a) denotes the direction of fit, (16b) the sincerity condition, and (16c) the propositional content condition of DSAs. The preparatory conditions and the essential conditions are not mentioned in (16), probably

because a preparatory condition differs from subclass to subclass (however, an essential condition can probably be specified, such as the hearer will perform the directed action). As an example of (16), consider (17), which expresses obligation.

(17) Get out of the way, Colin! [*Harry Potter*]

Example (17) meets all of (16a)–(16c). First, the speaker of (17) tries to fit the world to the word he has uttered (thereby satisfying (16a)). Next, the speaker wants the hearer to do it (thereby satisfying (16b)), in order that the speaker can go to his goal. Finally, the hearer will get out of the way after being commanded to do it (thereby satisfying (16c)). Along with obligation, the DSA subclasses also include request, invitation, permission, as Searle presented some DSA verbs like *request*, *invite*, *permit*.

Recall that Searle’s conditions are characterized as necessary and sufficient conditions. This thesis argues that there are at least two inadequacies with this, the first of which is the same as that found in Coates (1983). That is to say, Searle merely presents features in (14) to account for the occasion on which a speech act is performed felicitously, and the features merely look like unstructured “feature bundles.” This inadequacy will be solved in the ICM-based approach, which is developed in sections 4.3 and 4.4.

Secondly, there are cases in which not all of Searle’s necessary and sufficient conditions are met, but which can be said to be felicitously performed. Consider (18).

(18) I permit the incidents of the past to haunt me for just seven days of
each year. [BNC]⁷

This is an example of permission. The speech act may be regarded as one of the subclasses of DSAs, because Searle (1979:14) and Vanderveken (1990:197) regard the verb *permit* as one of the verbs that expresses DSAs. It is worth emphasizing here that a person who gives permission to somebody does not necessarily hope for the realization of what he/she is permitted to do. Note that the speaker of (18), unlike in (17), does not say, at least not explicitly, that he/she wishes the addressee to carry out what the speaker would like. That is, permission need not satisfy (16b). It follows that (18) does not satisfy all the conditions in (16), and that it should not be considered as an example of DSAs by Searle. This is clearly contradictory, however, considering Searle's treatment of the verb *permit*. Instead, intuition suggests that permission should be regarded as a non-prototypical subclass of DSAs, owing to the deviation of permission from (the speaker's) wishes (i.e., deviation from (16b)).

In relation to the second inadequacy, Searle's framework is also criticized by Thomas (1995:98–105), who deals with two DSA subclasses (apologizing and warning), only one of which is presented here. For example, apologizing includes "S expresses regret for a past act A of S" (1995:99, where S stands for "speaker") as its propositional content condition.⁸ However, she casts doubt on that condition, saying: "Does the act have to be a past act? Can you apologize for a present act – *I'm sorry about the noise?*

Or a future act –*I’m sorry but I shall have to report you (...)?*” (1995:100; italics in original). The apologizing in this case, which Searle would not regard as apologizing, is probably a non-prototypical case of apologizing.

Searle’s framework thus seems to fail to capture “non-prototypical” members of DSA subclasses, such as permission. This fact makes us realize the necessity of making a reclassification of DSA members so as to include both non-prototypical and prototypical, members. Needless to say, a necessary-sufficient conditional view, as taken by Searle, is not adopted in this chapter (nor in other chapters).

4.3. The ICM of Directive Speech Acts: With Special Reference to Obligation

This section constructs an ICM of DSAs, based on which an ICM of obligation (and some other DSA subclasses) is constructed.

4.3.1. The Schematic Meaning of DSAs

First of all, the schematic meaning of DSAs is posited (i.e., what is commonly expressed by DSAs). The schema is proposed in (19):

(19) S gets Y to do a future A.

In (19), S stands for a speaker, and serves as an imposer. Y stands for an imposee (for the reason why Y in (19) is not specified as a hearer H, see below). A stands for an action, and the time at which Y does A is specified as “future.” This schema is partly equivalent to (16c) above. However, although Y is prototypically served by H, the value of Y is not specified as H in the

schema (19). This is because of a preference to extend the traditional definition of DSAs (i.e., S gets H to do a future A) in order to cover sentences with root (quasi-)modals (such as root *must*, root *have to*, and root *may*) in which Y is a person other than H. The examples are shown in (20) ((20a) is one of the possible interpretations of (20b)); Y is not so much H as Alfred (i.e., a third party).

- (20) a. I (hereby) oblige Alfred to be unmarried. [Lyons 1977:793]
b. Alfred must be unmarried. [Lyons 1977:791]

The directness in performing DSAs varies from expression to expression. Suppose that I am going to order you to speak clearly because I cannot hear you (due to noise, for example). X is linguistically encoded in (21a) as the subject *I*, but not in (21b). Y and A (performed by Y), i.e., for you to speak clearly, can be linguistically encoded as in (21a) and (21b), but sometimes not as in (21c).

- (21) a. I order you to speak clearly.
b. You must speak clearly.
c. I cannot hear you clearly.

Whether X, Y, and A are linguistically encoded or not should be considered in each linguistic form (such as a *must*-sentence and an imperative). In the case of a *must*-sentence (as in *Y must do A*), X is not encoded linguistically, while Y and A are (at least prototypically) encoded as the subject and the

verb phrase, respectively, of a *must*-sentence.

4.3.2. The ICM of DSAs

This section constructs an ICM of DSAs, and goes on to construct an ICM of some subclasses of DSAs: obligation, invitation, permission and request. Before proposing the ICM of DSAs constructed by the present author, let me briefly introduce the cognitive linguistic analysis on indirect directive speech acts by Pérez Hernández and Ruiz de Mendoza (2002) below.

Pérez Hernández and Ruiz de Mendoza proposes the following ICMs as in (22):

- (22) a. *Cost-benefit*: an assessment of the cost and/or benefit that the action A involves for the speaker and/or the hearer.
- b. *Optionality*: an assessment of the degree of optionality conveyed by a speech act (i.e. the degree to which the speech act restricts the addressee's freedom to decide whether or not to carry out the requested action).
- c. *Power*: an assessment of the power relationship that needs to hold between the speakers in order to be able to perform a speech act.

[Pérez Hernández and Ruiz de Mendoza 2002:264, italics in original]

With the ICMs above and Panther and Thornburg's (1998:759) conversation scenario⁹, some subtypes of DSAs are characterized, among which only the

ICM of orders (or what I have called “obligation”) is introduced in (23) for space limitation (in the following, S, H and A stand for “speaker”, “hearer” and “action”, respectively).

(23) *ICM of Orders*

Panther and Thornburg’s scenario plus:

- (i) A represents a *cost* to H and a benefit to S
- (ii) Low *optionality* (lack of politeness)
- (iii) S is more *powerful* than H

[*ibid.*, italics in original]

The differences between the ICM in (23) and the ICM of DSAs proposed in this chapter are the following four.

Firstly, in (23) S’s want is not mentioned but added in the BEFORE component of Panther and Thornburg’s conversation scenario (Pérez Hernández and Ruiz de Mendoza 2002:265). On the other hand, it is included in my proposed ICMs of scenario, and I believe this treatment (rather than setting it in a separate scenario) will show more directly the importance of considering S’s want.

Secondly, optionality is not explicitly considered in my ICM. It seems the degree of optionality can be followed from the degree of S’s want, the value of cost-benefit, and power relationship. For example, the ICM of order involves low optionality as in (23-ii), but this may be because of the interaction of a high degree of S’s want (see Pérez Hernández and Ruiz de Mendoza 2002:265), a cost to H and a benefit to S, and power relationship in

which S is more powerful than H. More specifically, if S wants to perform an obligation (or order) and to successfully get H (who is less powerful than S) to do A which is a cost to H but which is what S wants, S cannot avoid performing an obligation without (or at least with little) politeness to H.

Thirdly, my proposed ICM does not employ the term “cost” but rather the term “adverse benefit”, for a reason which is shown in footnote 11.

Finally, and more importantly from a methodological point of view, it seems to me that Pérez Hernández and Ruiz de Mendoza (2002) does not consider why the three criteria in their proposed ICMs (as in (22) or (23)) are necessary for characterizing the speech act of order. In my ICM, on the other hand, three criteria are included (as will be shown in (24) below), and the reason why the three are necessary for characterizing DSAs are discussed with the help of the ICM of S’s mental attitude in performing a DSA and the ICM of power relationship between S and Y (both are proposed in (25) and (26), respectively).

In the following, the ICM of DSAs is proposed by the present author, and then close attention is paid to the following three criteria: S’s want, the benefit for S and an imposee (Y), and the power relation between S and Y (the reason why the term “imposee” is used instead of “hearer” or “addressee” in this criterion will be noted later).¹⁰ These three criteria are summarized in advance in (24) below.

- (24) a. Speaker’s want: S’s want or no such want
b. The benefit of S and Y: S&Y’s “benefit +” or “benefit –”
c. Power relation: S>Y or S<Y

(24a) is equivalent to Searle's sincerity condition, while (24b) and (24c) are equivalent to preparatory conditions (see Searle 1979:5–6). These criteria are considered as crucially influencing the force (Talmy 2000) in S's performance of DSAs, and thus are treated here as crucial. The propositional content condition and the essential condition may serve as the schematic meaning of DSAs, although with a little revision (the term "hearer" is replaced with "person," for the reason given for proposing (19)). The former is "a person does some future action" (cf. (16c)), and the latter is "Counts as an attempt to get a person to do an action" (cf. Searle 1969:66).

The first criterion (24a) considers whether S wants the realization of the act (A) that S directs Y to do. If S wants the realization, the variable of this criterion is given the value "S's want." If not, however, no value will be given in this criterion. The latter case not only includes cases in which S does not want A to be realized, but also those in which S is not interested in whether S wants the realization (in other words, it does not matter to S whether Y actually does A). The first criterion should be considered as a matter of degree. For example, request and begging should be distinguished by the different degree of what is referred to here as S's want (Bach and Harnish 1979:48; Pérez Hernández and Ruiz de Mendoza 2002:278–279). However, unless necessary, the degree of S's want will not be mentioned any more in this chapter.

The second criterion (24b) pays attention to whether or not Y's doing A after S performs a DSA is regarded (by S) as involving a benefit to S and/or Y.¹¹ If it can be said that Y's doing A involves a benefit, the three

following factors are considered further within (1b): (i) the target of the benefit (i.e., S and/or Y), (ii) whether one is benefited or is adversely benefited from Y doing or not doing A (“benefit +” in the former case, and “benefit –” in the latter case), and (iii) the reason for such benefit (i.e., by Y doing or not doing A).¹² Among these three factors, the second and third factors may have the following relationship, considering our folk knowledge of the motivation for making Y do A. More specifically, S and/or Y will be benefited by Y doing A, or conversely, S and/or Y will be adversely benefited by Y not doing A. S will expect a certain benefit brought about by S making Y do A and Y actually doing A, but if no such expectation is confirmed, S will not make Y do A. On the other hand, it may be difficult to assume the possibility of S and/or Y benefiting from Y not doing A, because if Y’s non-performance of A benefits S and/or Y, S does not need to make Y do A. Neither is the possibility easy to assume in which S and/or Y will be adversely benefited by Y doing A, because in that case, too, S does not have to make Y do A.

The final criterion (24c) is elaborated as follows: Before performing a DSA, a power relationship between S and Y is evaluated; more specifically, whether S is stronger or weaker than Y (depicted as “S>Y” and “S<Y,” respectively). “Power” here includes not only physical but also non-physical (such as psychological and social) power. For example, the power is physical (e.g., if S actually physically forces Y to do something), psychological (e.g., if S gets Y to do something based on Y’s sympathy for S), or social (e.g., if S makes Y do something by leveraging the social hierarchy between S and Y). Reference to this “force” appears to be, in most cases, made in the

psychological (rather than physical or social, etc.) sense.

When we do something, we usually try to succeed in doing it. For the success of performing a DSA (whether it is an obligation or otherwise), at least the two following notions should be considered: (i) S's mental attitude in order for S to felicitously perform DSAs, and (ii) the proper power relationship between S and Y. An ICM of DSAs will be proposed below depending on the two factors above.

As for S's mental attitude towards felicitously performing a DSA, the ICM (23) on S's mental attitude in performing a DSA is proposed (see also Kuroda 1992:26, on whose comments this ICM (25) is based).

(25) <The ICM of S's mental attitude in performing a DSA>

S wants the realization of an action that benefits S and/or Y.

In performing a DSA, S will get Y to do A that satisfies the ICM (25), and therefore this ICM motivates the importance of considering (24a) and (24b) when S performs a DSA. To put (25) differently, when S knows that A does not meet S's want or does not benefit anybody, S will usually not try to get Y to do A. If we find that S nevertheless tries to get Y to do A, some other reason needs to be sought for that. Note that when S's DSA meets (25), the DSA will involve a high degree of subjectivity (in Lyons's (1977) sense). That is, in that case, the speaker will highly involve himself/herself in performing the DSA.¹³

Next, the proper power relationship between S and Y is considered. The consideration is due to the ICM presented in (26) below.

(26) <The ICM of power relation between S and Y in performing a DSA>

When S performs a DSA, he/she will evaluate the power relationship between S and Y, so as to felicitously perform the DSA.

This ICM motivates the necessity of considering (24c) when S performs a DSA. For example, if S is going to lay an obligation on Y and knows that S is more powerful than Y (i.e., “S>Y”), S assumes that Y is likely to obey an obligation laid by S. In other words, S is unlikely to expect Y to obey the obligation laid by S if S knows that S is less powerful than Y (i.e., “S<Y”). On the other hand, in the case of request, S is less likely to expect Y to accommodate S’s request because S knows that S is less powerful than Y (i.e., “S<Y”). In this sense, the ICM (26), rather than the ICM (25), considers not only the illocutionary act (of DSAs) but also perlocutionary acts (of DSAs).

To be able to expect Y to obey S’s DSA, both (25) and (26) must be considered. This is because, even if S has a mental attitude felicitous for performing obligation, for example (satisfying (25)), S laying the obligation will not be successful if S is less powerful than Y. Note that the criteria in (24) are motivated by the pieces of knowledge (25) and (26), which tells us that the criteria are not merely what Lakoff (1987:115) refers to as “feature bundles,” but rather they constitute cognitively reasonable ICM for characterizing DSAs (of course, including obligation).

Now, the criteria in (24) will be applied to the characterization of some subclasses of DSAs: the ICM of obligation (which is a main concern of

this chapter), invitation (mentioned in section 4.4.2.1 below), permission and request (both of which have been briefly mentioned above) are constructed below.

(27) The ICM of obligation:

- a. S wants the realization of A directed. (S's want)
- b. S knows that unless Y does A, S and/or Y will be adversely benefited. (S/Y's benefit +, S/Y's benefit -)
- c. S knows that S is more powerful than Y. (S>Y)

In the above ICM, (27a) and (27b) contribute to the high degree of subjectivity in the speech act of obligation. This point is important in the analysis of root *must* (see section 4.4). It is also worth noting that (27b) implies the following folk knowledge: S knows that Y will do A because Y wants to avoid an adverse benefit brought about by Y not doing A.

Obligation can be analyzed using a force-dynamic approach by exerting a compelling force directing Y toward an act (cf. Sweetser 1990:52, but this analysis is, strictly speaking, the analysis on root *must* rather than obligation). The force may be physical or social, and the force is exerted toward Y by S, due to S's want and benefit (25) (and more specifically (27a) and (27b)). In this case, what Talmy calls the Antagonist (or S in this thesis' ICM) is more powerful than the Agonist (or Y in this ICM), which is equivalent to (27c) above.

Next, the ICM of invitation is constructed as in (28).

(28) The ICM of invitation:

- a. S wants the realization of A directed. (S's want)
- b. S knows that A benefits both Y and S. (S&Y's benefit +)
- c. S knows that S is more powerful than Y. (S>Y)

(28b) is due to S's intention to have Y do what is beneficial to S, by proposing to Y what it is beneficial also to Y.

One point should be made regarding the difference between obligation and invitation, in relation to the usage of root *must*. The two subclasses of DSA are different in the factor of benefit, as compared in (27b) and (28b). In the former, S and/or Y may be adversely benefited by Y not doing A, unlike the latter. This is illustrated by comparing (29a) and (29b) below. S in the former performs an obligation, while S in the latter performs an invitation.

(29) a. [S (Dobby) tells Y (Harry) not to go to Y's school and to stay where Y is safe (i.e., Y's house), although S knows that Y wants to go to school.]

Harry Potter *must* stay where he is safe. [Harry Potter]

b. I haven't seen you for years. Hello, there's Margery – my wife, you know. You *must* come and meet her.

[A. Christie, "The Blood-Stained Pavement"]

(29a) implies that unless Y goes to school, Y will be in danger at his school (i.e., Y's benefit, in this case). On the other hand, (29b) has no such

implication in the preferred interpretation.¹⁴

An ICM of permission is now constructed in (30).

(30) The ICM of permission:

- a. S does not want the realization of A directed. (–)
- b. S knows that A benefits only Y. (Y's benefit +)
- c. S knows that S is more powerful than Y. (S>Y).

(30a) does not necessarily mean that S wants the action not to be realized, but rather that S is not interested in the realization of the action. (30b) is due to the fact that permission follows Y's request for permitting something.

Permission is analyzed, with the in force-dynamic approach, as “an instance of taking away (...) a potentially present barrier” (Sweetser 1990:51), where the barrier may be physical or social. In giving permission, S may take a barrier away from the way in which Y does A (although S does not necessarily have to do it). This is due to our ICM of want and benefit (23). In the case of permission, S knows that Y wants S not to prevent Y from doing A and that the avoidance of S's prevention is beneficial to Y. S therefore takes away the potential barrier in the course of giving permission. Through this process, S can be regarded as an agent getting Y to do A, although S does not always need to want Y to do A.¹⁵

Finally, the ICM of request is constructed in (31).

(31) The ICM of request:

- a. S wants the realization of A directed. (S's want)
- b. S knows that A benefits only S. (S's benefit +)
- c. S knows that S is less powerful than Y. (S<Y)

(31c) crucially distinguishes request from obligation. In fact, if S is requesting Y to do A but S is more powerful than Y (i.e., the deviation from (31c)), the request sounds more like a command (or what is referred to here as an “obligation”) than a request, as S is intending to do (Kubo 2002:100).

The four ICMs above are summarized in Table 4.1.¹⁶

	(27)	(28)	(30)	(31)
	Obligation	Invitation	Permission	Request
(a) S's want	S's want	S's want	—	S's want
(b) S&Y's benefit	S/Y's benefit + S/Y's benefit -	S&Y's benefit +	Y's benefit +	S's benefit +
(c) Power relation between S and Y	S>Y	S>Y	S>Y	S<Y

Table 4.1. ICMs of four subclasses of DSAs

The prototype effects of root *must* and of root *have to* are then explained, with the help of the ICM of obligation constructed in (27). More specifically, first, the meaning of root *must* and that of root *have to* are specified. Next, it is argued that the non-prototypical cases of root *must* and root *have to* are characterized with reference to the ICM of obligation (27).

In this section, a schematic meaning of DSAs was proposed (section

4.3.1), as was an ICM to elaborate on the character of an imposer (the present section). In the sections that follow, the meaning and usage of root *must* and root *have to* are analyzed using the ICM of DSAs.

4.4. An ICM-Based Account to Root *Must*

This section first specifies the meaning of root *must*, relates the meaning with the ICM of obligation (27), and examines some examples of prototypical root *must* (section 4.4.1). Some examples of non-prototypical root *must* will then be examined (section 4.4.2).

4.4.1. Prototypical Cases

First, the meaning of root *must* is specified as in (32).¹⁷

(32) <The meaning of root *must*>

S exerts force on Y in order to actually get Y to realize A.

The meaning of *must* (32) relates to the ICMs (25) and (26), and the ICM of obligation (27) is discussed here; (25), (26) and (27) are repeated below:

(25) <The ICM of S's mental attitude in performing a DSA>

S wants the realization of an action that benefits S and/or Y.

(26) <The ICM of power relation between S and Y>

When S performs a DSA, he/she will evaluate the power relationship between S and Y, so as to felicitously perform the DSA.

(27) The ICM of obligation:

- a. S wants the realization of A directed. (S's want)
- b. S knows that unless Y does A, S and/or Y will be adversely benefited. (S/Y's benefit +, S/Y's benefit -)
- c. S knows that S is more powerful than Y. (S>Y)

First of all, when S forces Y to do A by uttering a *must*-sentence, S will expect Y to do A as S tells Y to. S can believe that it is more likely that Y will do A in the following two situations: (i) when S wants the realization of A, which benefits S and/or Y (cf. (25)) and (ii) when S makes Y want to do A by implying that S and/or Y is adversely benefited if Y does not do A. From this situation (27a) "S's want" and (27b) "S/Y's benefit +" and "S/Y's benefit -" are followed.¹⁸ Furthermore, S's expectation of Y's actually doing A is materialized (iii) when S knows that Y is less powerful than S (cf. (26)). From this situation, (27c) "S>Y" is followed.

In this way, when root *must* is used against the ICMs (25) and (26), the obligation that we lay on Y fully fits the ICM of obligation (27), and thus root *must* in such use is prototypical.

(33) Prototypical root *must*: having the meaning specified in (30) and fully fitting the ICM of obligation (27).

In a prototypical case, *must* has a performative function (Austin 1962, Searle 1969, 1979. See also Palmer 1986:98–100, describing that an action

is an obligation in order to perform it, not to portray it¹⁹).

Here it can be noted that S's exertion of force on Y to do A, as noted in (32), means that S tries to get Y to do A, and thus S serves as an imposer. This further implies that when S is trying to force Y to do A, S will agree with the action (cf. Palmer 2001:75), as illustrated in (34).

- (34) a. *My girl *must* be home by midnight – I think it's idiotic.
b. My girl *has to* be home by midnight – I think it's idiotic.

[Lakoff 1972b:925. cf. Larkin 1976:392–394]

The unacceptability of *must* in (34) is brought about by the contextual clash between *must* (implying S's agreement to an action obliged for S's girl to be home) and *I think it's idiotic* (implying S's disagreement). The relation between this notion of "S's agreement," and "S's want" (27a) and "S's benefit" (27b) can be noted as follows. If an action that S will get Y to do satisfies (27a) and (27b), the action will usually be agreed to by S. However, the converse is not always the case. As illustrated in section 4.4.2.2, S can agree with an action that may not satisfy S's want nor benefit S.

Some examples of prototypical root *must* are now considered (35).

- (35) a. [The speaker is the hearer's teacher]
You *must* speak clearly, dear. [= (2a)]
b. [The speaker is committing suicide, telling the hearer to assist
S's suicide.]
You *must* help me. Hold it firmly...

[*The Last Samurai* film script]

- c. “I fear it is too deep a case for such simple remedies,” said Holmes. “How long can you stop in London?”

“I *must* go back to-day. I would not leave my wife alone at night for anything. She is very nervous and begged me to come back.”

[C. Doyle. “The Dancing Men”]

- d. [From a speech by George W. Bush, 2003]

Saddam Hussein and his sons *must* leave Iraq within 48 hours.

First, consider examples with the second person subject ((35a) and (35b)). *Musts* in (35a) and (35b) satisfy (32), in that S intends to force Y (in this case, the hearer) to do the action obliged (i.e., to speak clearly in (35a) and to help S in (35b)). Also, *musts* in (35a) and (35b) fully fit the ICM of obligation (27). In (35a), S wants Y to speak clearly, so that S can hear Y better, thereby satisfying (27a). Next, S believes that Y speaking clearly benefits S (which means “S’s benefit +”), and if Y does not do A, Y will be scolded by S (which means “Y’s benefit –”), thereby satisfying (27b). In addition, S, who is Y’s teacher, is stronger (socially, in this case) than Y, thereby satisfying (27c). Next, consider (35b). S wants Y to help S commit suicide (S was defeated in battle, and would rather commit suicide than live), because S himself wants to commit suicide, thereby satisfying (27a). Next, S knows that Y helping S will benefit S because that is what S wants (which means “S’s benefit +”), but if Y does not do A, S will be dissatisfied because S is prevented from committing suicide (which means “S’s benefit –”), thereby satisfying (27b). In addition, S is more powerful than Y

probably psychologically in this case, thereby satisfying (27c).

Next, consider a first person example (35c) and the third person example (35d). *Must* in (35c) and (35d) has the meaning specified in (32), i.e., S is forcing Y to do A. In these cases, too, *must* is also performative, but this treatment may be objected from a traditional speech act theoretic point of view (i.e., Searlian view), because (35c) and (35d) do not have the second person subject. Nevertheless, *must*-sentences with the first and third person subjects, such as (35c) and (35d), are treated here as performative in the sense that the examples are uttered in order to exert force of obligation to Y, trying to get Y to do an action obliged.²⁰ In a *must*-sentence with the first person subject like (35c), the speaker divides himself/herself into two: i.e., the self as an imposer (S), and the self as an imposee (Y) (cf. Talmy's "the divided self" (2000:431–2)). In (35c), S (as an imposer) lays an obligation on himself/herself as Y by uttering (35c), hence it is performative. In a *must*-sentence with the third person subject, such as (35d), however, S will lay an obligation on a third person Y by forcing Y to do an action as if Y were in front of S. In (35d), for example, the speaker (Bush) lays an obligation on Y (Hussein and his sons) by uttering (35d), hence it is performative.

Now it will be shown that *must* in (35c) and (35d) fully fits the ICM of obligation (27). First, S in (35c) wants to go back in order not to leave S's wife alone, thereby satisfying (27a). S knows that S's going back will benefit S as, for example, successfully playing S's role as a husband, but if Y (here, the same person as S) does not go back on the day, Y will make his wife unhappy, which is of course Y's adverse benefit (i.e., "Y's benefit –"),

thereby satisfying (27b). S as an imposer is (maybe psychologically) more powerful than S as an imposee (i.e., as Y), for which *must* in (35c) satisfies (27c). Consider next (35d). S wants Y to leave Iraq probably because of S's political ambition, thereby satisfying (27a). Next, S knows that Y leaving Iraq benefits S, because it may help accomplish S's political ambition, and if Hussein and his sons do not leave Iraq, they may be attacked (i.e., "Y's benefit –"), thereby satisfying (27b). Finally, S is stronger than Y in a political sense, thereby satisfying (27c).

This section illustrated that prototypical root *must*, in examples such as (35), has the meaning specified in (32) and also fully fits the ICM of obligation (27).

4.4.2. Non-Prototypical Cases

This section proposes an explanation of the following two non-prototypical cases in terms of the (varying degree of) deviation from the ICM of obligation (27): what is referred to as "invitation *must*" (section 4.4.2.1) and "objective *must*" (section 4.4.2.2).

4.4.2.1. Invitation *Must*

Firstly, "invitation *must*," as exemplified in (29b), repeated below, will be considered.

- (29) b. I haven't seen you for years. Hello, there's Margery – my wife, you know. You *must* come and meet her.

[A. Christie "The Blood-Stained Pavement"]

Before discussing (29b), the ICM of invitation (28) is repeated below.

(28) The ICM of invitation:

- a. S wants the realization of A directed. (S's want)
- b. S knows that A benefits both Y and S. (S&Y's benefit +)
- c. S knows that S is more powerful than Y. (S>Y)

As mentioned in proposing the ICM of invitation (28), invitation is similar to obligation in the criteria (24a) "S's want" (compare (28a) and (27a)), and (24c) "S>Y" (compare (28c) and (27c)). In contrast, the two subclasses of DSAs are different in the criterion (24b): "S&Y's benefit +" in invitation (28b) as opposed to "S/Y's benefit +" and "S/Y's benefit –" in obligation (27b). In other words, invitation *must* deviates from the ICM of obligation (27) in the content of benefit brought about by Y doing A. Invitation *must*, as in (28b), is shown below to have the meaning of *must* specified in (32) but it partly deviates from the ICM of obligation (27) in one respect (i.e., from (27b)).

Firstly, *must* in (29b) has the meaning specified in (32); S is trying to get Y to have dinner with S (because S wants Y to do it) by uttering (29b). Next, S wants Y to have dinner with S, thereby satisfying (27a) (and (28a)), because S may believe that if Y has dinner with S, S will feel happy. Moreover, S is (probably psychologically) more powerful than Y, thereby satisfying (27c) (and (28c)). However, in invitation as opposed to obligation, S considers the benefit of both Y and S from Y doing A (28b), probably

because S feels that Y will feel happy if Y has dinner with S.²¹ Also, no adverse benefit is directed toward S or Y by Y not doing A in this case; even if Y does not come and meet S's wife, neither S nor Y is likely to be benefited adversely. This is where the deviation from the ICM of obligation (27) appears in (29b); (28b) in the ICM of invitation may be regarded as the deviation from (27b) in the ICM of obligation, with respect to the usage of root *must*.

To sum, invitation *must* is characterized as in (36).

- (36) Invitation *must*: having the meaning specified in (32), and satisfying the ICM of obligation (27) except for (27b) (i.e., "S&Y's benefit +" in invitation).

Before closing the examination of invitation *must*, it is worth noting the following examples.

- (37) a. Mrs. Folliat said: "I will fetch another cup." Poirot raised a faintly protesting hand, but she pushed the protest aside.
"Of course you *must* have some tea."

[A. Christie, *Dead Man's Folly*, cited and underlined by
Ando 2005:287]

- b. Mr. Miggs, next Saturday you *must* come to see my garden and stay to dinner afterward. I won't take no for an answer.

[COCA]

The underlined part in (37) implies that S of the *must*-sentence will not permit Y not to do A, and as Ando (2005:287) notes, invitation *must* may imply S imposing his/her want for Y to do A (Ando calls this implication “Kooi no Oshiuri”). This implication contained in invitation *must* may originate from strong force root *must* has (cf. Sweetser 1990:54 and Nagatomo 2009:86).

4.4.2.2. Objective *Must*

Objective *must* will be considered next, with the examples in (38).

- (38) a. [He refers to Hidetoshi Nakata, *it* to Japan and *you* to Japanese people generically.]
 What he did, eventually, was leave. “In Japan, seniority is all important,” Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. “It’s a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn’t feel like this. I felt a freedom from this.”
 [= (3a)]
- b. [The feast is being held, but S (the principal of the school) is leaving the feast temporarily.]
 I *must* go back to the feast, Minerva, [Harry Potter]
- c. [Both the speaker (Katsumoto) and the hearer (Algren) are samurai. S helped a friend of S’s commit suicide because he was defeated in battle.]

If a samurai is defeated in battle, he *must* take his own life to spare himself the shame of capture.

[*The Last Samurai* film script]

Even in (38a) S (Nakata) is the imposer in the sense that S attempts to get Y (in this case, the subject is referring generically to Japanese people) to constantly pay respect to the person above them by uttering (38a); *must* in this example therefore has the meaning specified in (32). This is because S is Japanese and may agree with Y doing A, whether he likes it or not.

Similarly, *must* in (38b) has the meaning specified in (32), but deviates from the ICM of obligation (27) to some degree. Specifically, S in (38b) tries to get himself to go back to the feast, even though he does not want to do it (thereby deviating from (27a)), nor does he consider it as being beneficial to himself (thereby deviating from (27b)). Rather, going back to the feast (and therefore interrupting the talk between S and the addressees) is probably necessary because S in (38b) is the principal of the school and so S is in the position of participating in a feast, and S agrees with Y doing A (i.e., S going back to the feast). (27c) may be satisfied in (38b) because S as an imposer of an obligation can force S as an imposee to do it because of a necessity to go back to the feast.

Next, S in (38c) tries to get Y (a samurai, in this case) to take his own life, to spare himself the shame of capture, in the (hypothetical) circumstances in which a samurai is defeated in battle. However, S does not particularly want Y to commit suicide (thereby deviating from (27a)), nor does S consider the suicide as being beneficial to S (thereby deviating from

(27b)), but rather considers it obligatory for S's friend to commit suicide because he was defeated in battle, so that S agrees with Y doing A). *Must* in (38c) does not seem to deviate from (27c), since S can force the samurai's way of thinking in being defeated in battle (i.e., a samurai should commit suicide when defeated in battle).

It is argued here that the non-prototypicality of root *must* in (38) in comparison with prototypical *must* as in (37) is explained by the deviation from the ICM of obligation (27). Firstly, S does not particularly want Y to do A. This means that *must* in (38) deviates from (27a). Next, it seems that S does not regard the realization of that action as being beneficial to S/Y; even if Y obeys an obligation laid by S, S will not receive benefit from Y's action. This indicates that *must* in (38) also deviates from (27b). This does not seem to clearly deviate from (27c); otherwise, S in (38a) would not force Y to do something by using *must* (and this sometimes makes Y regard S's utterance as intrusive). The discussion above is summarized in (39).

(39) Objective *must*: having the meaning specified in (32), but deviating from the ICM of obligation (27a) and (27b) (i.e., S's want and S/Y's benefit are not involved).

S of the *must*-sentence like (38) (the case of objective *must*), which deviates from (27a) and (27b), is less involved than S of the *must*-sentences like (35) and (29b) (the case of prototypical *must* and of invitation *must*, respectively). S in (38) still tries to force Y to do something, and in this sense, S still serves as an imposer. However, the force (cf. Talmy 2000) is

not as strong in (38) as it is in (35) and (29b). In this case, S only lays an obligation *by proxy* for somebody or something (e.g., law, and instruction). *Must* in (38) is what Coates (1983) calls “objective” (therefore, this chapter refers to such a case as “objective *must*”). In this case, *must* is not performative as opposed to prototypical *must* (35) and invitation *must* (29b), because S’s exertion of force does not involve S’s want and S/Y’s benefit (which contributes to high degree of subjectivity in laying an obligation).

Before closing section 4.4.2, I would like to argue that cases which deviate from (27a) but satisfy (27b) are anomalous (although such cases, too, are logically possible). The reason is because such cases are impossible considering the ICM proposed in (25) above, repeated below.

(25) <The ICM of S’s mental attitude in performing a DSA>

S wants the realization of an action that benefits S and/or Y.

More specifically, if we know that an action is beneficial to ourselves (thereby satisfying (27b)), we want that action to be realized (thereby satisfying (27a), too).

4.4.3. The Classification of Root *Must*

This section attempts to present a classification of root *must* based on the above three usages of root *must*: prototypical *must*, invitation *must*, and objective *must* (without intending to deny the possibility that there are types of root *must* other than the three types mentioned above).

First, invitation *must* deviates from (27b) compared with prototypical

must, in the sense discussed in section 4.4.2.1. Nevertheless, prototypical *must* and invitation *must* share a rather high degree of subjectivity in the sense of satisfying (27a) in common, so that the two types can be grouped into “subjective *must*.” Next, objective *must* deviates from (27a) and (27b) compared with subjective *must*, in the manner discussed in section 4.4.2.2. Nevertheless, objective *must* and subjective *must* share the meaning specified in (32) and the satisfaction of (27c) in the ICM of obligation, and this constitutes the schema of root *must*, depicted here as *MUST*.

Based on the above discussion, the following classification of root *must* is proposed in Figure 4.2.²²

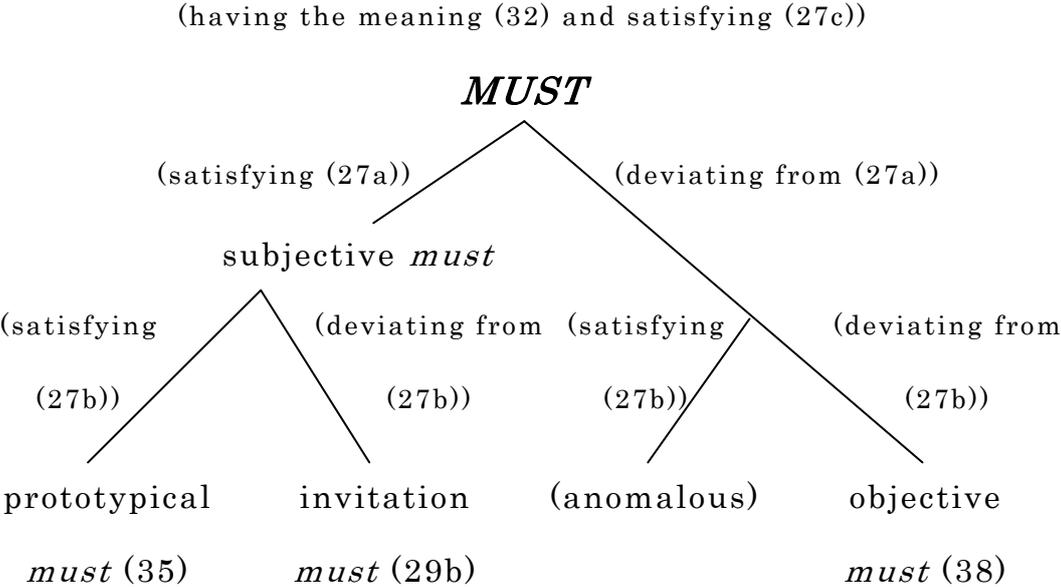


Figure 4.2. The classification of root *must*

The above classification also shows that the degree to which *must* deviates from the ICM reflects the degree of prototypicality of root *must*. For instance, invitation *must* is more prototypical than objective *must*, because the former type of *must* deviates from the ICM of obligation less than the

latter type of *must*.

One piece of empirical evidence is proposed here for distinguishing subjective *must* from objective *must*. These two types of *must* are different in terms of the acceptability of tag questions. Non-performative utterances as in (38a) allow tag questions, unlike performative utterances as in (40b).

- (40) a. I ordered you to speak clearly, don't I?
b. *I order you to speak clearly, don't I?

Consider the following tag questions of *must*-sentences, in which *must* is classified as objective *must*.

- (41) a. She grimaced at the voice. "Yes, yes, only I *must* get done the boots, *mustn't I?*" Taking up the next, she started rubbing the warm, pliable leather with a lump of fat. [Google]
b. [S ironically describes his brother, who wants to be the leader of a nation.]
Despite his special treatment, my brother does attend classes with me. A leader of a nation *must* most certainly have an education, *mustn't he?* [Google]

S in (41a) lays an obligation on herself to get the boots done, but it seems that S does not want to do it (because she had grimaced), so that it is not considered as "S's want" and "S's benefit +" for S to get the boots done (thereby deviating from (27a) and (27b), and thus objective *must*). Similarly,

the obligation for the leader of a nation (referring here to S's brother) seems not to be based on "S's want" or on "S's benefit +," because S utters the *must*-sentence ironically. Thus, *must* in (41b) is objective *must*, and since such a type of *must* is less performative (than prototypical *must* and invitation *must*), it allows tag questions as it is allowed in a performative sentence (40a).

On the other hand, subjective *must* does not allow tag questions, as in (42).²³ (42a) and (42b) are examples of prototypical *must*, while (42c) is an example of invitation *must*.

- (42) a. [The teacher is giving his student an instruction.]
* You *must* speak clearly, mustn't you?
- b. [Suppose that the utterance is from a teacher to students.]
* I *must* ask you not to scream, mustn't I?
- c. [The speaker is inviting the hearer to meet his wife.]
* You *must* come and meet her, mustn't you?

Prototypical *must* and invitation *must* are performative (at least they sound more performative than objective *must*). In fact, no examples in (42) allow tag questions, the same acceptability as (40b) above.

In this way, subjective *must* and objective *must* can be differentiated in terms of the pragmatic acceptability of tag questions (hence, in terms of performativity).

4.4.4. Coates' Features Reconsidered

Having explained the prototypicality of root *must* in the framework of ICM, Coates' features (10a)–(10f), repeated below, can now be related with our framework.

- (10) a. second person subject
- b. speaker involvement
- c. speaker has authority over subject
- d. verbs agentive
- e. paraphrasable by 'it is obligatory/absolutely essential that'
- f. animate subject

[Coates 1983:36]

This section attempts to show that Coates' features can be reasonably explained in the framework of this chapter. Among the six features, (10b), (10c) and (10e) are motivated by the ICM of obligation (27), while the others, (10a), (10d) and (10f), are motivated by the schematic performative nature of DSAs.

First, (10b) and (10e) together determine the degree of subjectivity in performing an obligation. More specifically, if S wants the realization of an action to be done by Y and considers the realization as beneficial to S, (10b) "speaker's commitment" will be satisfied, and then a *must*-sentence in this case is more likely to be paraphrasable by 'it is obligatory/absolutely essential that' (thereby satisfying (10e)). Next, (10c) "speaker's authority" corresponds to (27c), although Coates' notion of "authority" is narrower than this paper's notion of "power," because Coates seems to limit

“authority” to a social sense (see Coates 1983:35–36). For example, in the case where S is socially equal to Y, Coates says that the case does not satisfy (10c). In contrast, this paper argues that the case also satisfies (10c); in that case, S is psychologically (but not socially) more powerful than Y.

Next, the other features (10a), (10d) and (10f) are related to the schematic meaning of DSAs proposed in (19), repeated below.

(19) S gets Y to do a future A.

Now (10a), (10d) and (10f) are considered, in the following order. First, (10a) “the second person subject” is the specific version of Y, or it may be considered that the second person subject is what the subject in DSA’s propositional content condition (16c) is linguistically encoded. Next, (10d) “agentive verb” and (10f) “animate subject” are applied because, by S’s attempt to get Y to do something, S can expect some change of state of affairs. S bringing about a change is more likely to be expressed by agentive verbs than by non-agentive verbs, and is more likely to be brought about by an animate entity (typically, a human) than by an inanimate entity.

In this way, Coates’s six features (10a)–(10f) can be motivated by the ICM-based approach to DSAs. Among them, features (10b), (10c) and (10e) should be motivated by the ICM of obligation (27), and the remaining three, (10a), (10d) and (10f), should be motivated by the schematic meaning of DSAs (19).

Finally, it should be pointed out that Coates’s framework cannot capture invitation *must* as in (29b). This is because she does not seem to be

concerned with the benefit brought about by Y doing A, and as discussed in this section, the notion of benefit plays an important role in distinguishing obligation and invitation (compare (27b) and (28b)).

4.5. An ICM-Based Account of Root *Have to*

This section first specifies the meaning of root *have to*, relates the meaning with the ICM of obligation (27), and examines some examples of prototypical root *have to* (section 4.5.1). It then examines cases of non-prototypical root *have to* (section 4.5.2). It argues that the prototype effect of root *have to* should be explained in the ICM-based framework, as well as the prototype effect of root *must*.

4.5.1. Prototypical Cases

The meaning of root *have to* is specified as in (43).

(43) <The meaning of root *have to*>

S portrays a situation where a factor external to S causes Y to do A.²⁴

Unlike root *must*, root *have to* does not express S's exerting force on Y to get Y to realize A (see section 4.4.1), but rather portrays a situation where a factor external to S causes Y to do A (cf. Coates 1983:56; Brinton 1991:35; Kashino 2002: Chapter 10; Leech 2004:118; et al.). Namely, metaphorically speaking, an imposer of root *have to* is a factor external to S. This usage of root *have to* is what has been traditionally called "objective" (Coates 1983; Quirk et al. 1985; Huddleston and Pullum 2002; Kashino 2002; Leech 2004;

et al.). Palmer (1990:70) notes that root *have to* is never performative, as opposed to root *must*.

Some examples are presented here that reflect the meaning of root *have to* as posed in (43). Firstly, consider the following cases in which either *must* or *have to* is acceptable. In (44) below, root *must* is acceptable but root *have to* is not. S is inviting Y (in this case, the hearer) to have dinner.

- (44) a. Hey, come to my house, and you *must* have dinner with me.
b. ?? Hey, come to my house, and you *have to* have dinner with me.

[Sanada 2006b:375]

In the case of invitation, *must* is more acceptable than *have to*. This is because invitation should be based on S's volition (i.e., subjective attitude) and this volitional situation fits root *must* (which is used to perform an invitation with a high degree of speaker commitment) rather than root *have to* (which is objective). By uttering a *have to*-sentence and portraying a situation in which Y is invited by S to do something (by some factor external to S), such an utterance does not felicitously function as an invitation, because in that situation it is difficult to say that S commits himself/herself to the act of invitation. In fact, data of root *have to* that seem to express invitation have not been found in this research.

Next, consider (45), in which root *have to* rather than root *must*, is acceptable.

- (45) a. ?? I'm sorry to say that you *must* go to work next Sunday.
 b. I'm sorry to say that you *have to* go to work next Sunday.

[Sanada 2006b:375]

In this example, note *I'm sorry to say that*; this expression implies that S does not agree with the obligation expressed in (45). In this case, *must* cannot be used, because it is odd to use root *must* and try to get Y to do A, which S disagrees with. On the other hand, root *have to* is acceptable as in (45b); namely, root *have to* does not need to involve S's agreement with the obligation. We cannot perform an obligation that he/she disagrees with without implying some insincerity, but we can portray a situation in which the hearer is caused to go to work next Sunday even if S himself/herself do not agree with the situation.

Next, another type of case is considered in which root *have to* is acceptable while root *must* is not: cases in which root *have to* expresses habitual meaning. Declerck (1991:383) points out that "(i)f there is a habitual meaning, neither *must* nor *have got to* will be used. Only *have to* is possible." Consider (46).

- (46) a. I *have to* / **must* / **have got to* take these pills every day.
 b. He *has to* report to the probation officer once a week. (**must* / **has got to*)

[Declerck 1991:383]

In relation to (46), this thesis argues that the fact that root *have to* can

express habitual necessity can be captured with the help of the meaning specified in (43). Habitual necessity can be considered as a kind of fact, so that the necessity is considered as if the necessity comes from some outside factor, rather than from the speaker (as in the case of root *must*).²⁵ The obligation expressed in (46) is therefore construed as objective.

Next, an obligation in the past can be mentioned only with *had to*. Consider (47).

- (47) a. She *had to* attract his attention somehow. [Coates 1983:67]
b. We *had to* make a special trip down to Epsom to collect the bloody thing. [Palmer 1990:120]

Root *have to* has the past tense form, because the situation in which a factor external to S caused Y to do A can be portrayed at the time of utterance by using *had to*, as in (47), which can be paraphrased by “it was necessary for” (Coates 1983:66). On the other hand, root *must* has no past tense form, simply because “one cannot (performatively) lay an obligation in the past” (Palmer 1983:212). In other words, getting Y to realize A (therefore, to obey an obligation or other kinds of DSAs)) can be done only at the time of utterance.²⁶

The objective meaning of root *have to* may stem from the etymology of *have to*, that is, by a possessive meaning of *have* (Visser 1963-73:1474-1488), Brinton 1991, Fischer 1994, inter alia). Root *have to* originally expressed that one has (or possesses) something that he/she should do (i.e., expressing obligation), as developed from *have something to*

do (possessive construction) to *have to do something* (the expression of obligation). Then, the possessive meaning of *have* is bleached, and the usage of expressing obligation is entrenched.²⁷ It may be thought that this is how the obligation expressed by *have to* came to (at least, prototypically) express the obligation that someone already has to do something.

Now that the meaning of root *have to* has been specified, the meaning and the ICM of obligation (27), repeated below, is related:

(27) The ICM of obligation:

- a. S wants the realization of A directed. (S's want)
- b. S knows that unless Y does A, S and/or Y will be adversely benefited. (S/Y's benefit +, S/Y's benefit –)
- c. S knows that S is more powerful than Y. (S>Y)

When we portray something, we try to do it as objectively as possible. In the ICM of obligation, the degree of subjectivity is evaluated as high when an obligation satisfies both (27a) “S's want” and (27b) “S/Y's benefit” and “S/Y's benefit –.” In other words, when a situation where a factor external to S causes Y to do A (i.e. an obligation caused by such a factor) does not satisfy either (27a) or (27b), it is easier to consider the obligation as objective and then portray such an obligation. In this way, when root *have to* (which has the meaning specified in (43)) is used against the ICM of obligation (27), the obligation expressed by *have to* is understood to be prototypically objective.

The above discussion is compatible with the following comments by Palmer: “With [...] *have to* the speaker is disassociating himself from the

obligation [...], and, by implication therefore, associating himself with it (i.e. the obligation ---K.S) in using *must*" (Palmer 1986:103), and "the speaker takes no responsibility for the obligation" (Palmer 2001:75). S can "disassociate himself from the obligation" and "take no responsibility for the obligation" when root *have to* is used, because root *have to* serves to portray, rather than perform, an obligation. In contrast, when getting Y to obey an obligation S lays on Y in using root *must*, S associates himself/herself with the obligation and takes some responsibility for the obligation in that S commits himself/herself in the obligation.

Some examples of prototypical root *have to* are considered in (48) below.

- (48) a. [The comment was made just after the September 11, 2001 terrorist attacks.]

It is also clear that given the likely death toll, there will be many citizens of other states who will have died. I *have to* say that I fear significant numbers of them will be British.[= (2b)]

- b. Well, I told you just now that there is a cottage not far from our house. There is just a field between us, but to reach it you *have to* go along the road and then turn down a lane.

[C. Doyle, "The Yellow Face"]

- c. [For the speaker, poverty is valuable, but wealth is not.]

The truly rich live in constant fear of being kidnapped. Or – even worse – of their children being kidnapped. So they *have to* hire bodyguards ... [How to Be Poor]

The actions considered as obligation in (48) are caused by external circumstances: the September 11, 2001 attacks in (48a), the geographical condition in which Y (the hearer, in this case) can reach the cottage in (48b), and the hypothesized circumstances in which the rich and their children are threatened with the danger of being kidnapped in (48c). The obligation in (48) is not performed but rather portrayed by S; i.e., *have to* in (48) has the meaning specified in (43).

Next, it will be shown that S in (48) does not want the realization of the action to be considered as an obligation (thereby deviating from (27a)), nor does S consider the realization beneficial to S or others (thereby deviating from (27b)). The reason is as follows. In (48a) S's comment reflects on the state of affairs which is undesirable to S and others (i.e., September 11, 2001 attacks), so that S does not think of making the comments in (48a) beneficial to S, and does not want to make the comment. Next, in (48b) S is only making a statement about the way Y (or H, in this case) achieves his/her purpose, without especially considering Y's performance of A as beneficial to S and Y. Finally, in (48c) it is obvious for us (including S in (48c)) that being kidnapped will do harm to S and others (hence no benefit will be brought about), so that S does not want to want to hire bodyguards.

The above discussion of prototypical cases of root *have to* is summarized in (49).

(49) Prototypical *have to*: having the meaning specified in (43), and deviating from the ICM of obligation (27a) and (27b) (i.e., S's want

and S/Y's benefit are not involved).

This deviation contributes to the objectivity of the obligation expressed by root *have to*. The objectivity can decrease, and in turn the subjectivity can increase. This is the topic of the next section, but it is preceded by a comparison of prototypical *have to* and objective *must*, both of which deviate from (27a) and (27b) in the ICM of obligation (27). Among the examples of objective *must* is (3a), repeated below.

- (3) a. [*He* refers to Hidetoshi Nakata, *it* to Japan and *you* to Japanese people generically]

What he did, eventually, was leave. "In Japan, seniority is all important," Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. "It's a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn't feel like this. I felt a freedom from this."

[*TIME*, April 29–May 6, 2002]

According to native informant's opinion, *have to*, with which *must* is replaced in (3a), implies that we feel compelled to behave in a certain way in a hierarchical society due to the pressures of the social mores of that society, but that *must* implies a personal sense of obligation brought on by the social pressures of the social rules.²⁹ This may show that *must* and *have to*, where an obligation comes from a factor external to S, retain their

unique meaning as specified in (32) and (43), respectively.

4.5.2. Non-Prototypical Cases

As non-prototypical cases of root *have to*, the following two cases are possible:

- (50) a. Cases of root *have to* that satisfy (27a) but not (27b)
b. Cases of root *have to* that satisfy both (27a) and (27b)

Cases (50a) and (50b) are regarded as non-prototypical in this paper, because the cases exhibit a rather higher degree of subjectivity, in that S of a *have to*-sentence may want the realization of an action considered as an obligation (note that (27a) “S’s want” is satisfied in both (50a) and (50b)). In this section, root *have to* in the cases of (50a) and (50b) is treated as non-prototypical. Note that it is not necessary to think of cases that satisfy (27b) but not (27a), because such cases are impossible if the knowledge in (25) is considered; if we find an action beneficial to ourselves, we usually want the action to be realized.

Examples of non-prototypical root *have to* are presented in (51).³⁰

- (51) a. [S is making a proposal]
The movie is very exciting, so you *have to* see it.
b. [The speaker (Tony Blair) is giving a speech at a university.]
And we know too that not only is it possible for large numbers of school leavers to achieve high standards, but that it is more

and more important that they do so. We *have to* match our competitors in believing that in the core subjects of the curriculum all students can gain a good grounding. [= (3b)]

- c. [The hearer, sheltered by the speaker, has just been found by the Gestapo.]

Get your things together, you *have to* leave!

[*The Pianist* film script]

- d. Someone *has to* find an open store. We don't even have milk here. [*Home Alone* film script]

Firstly, (51a) is the case of (50a), which deviates from (27b) in the sense that no adverse benefit is involved to S or Y. (27a) is satisfied because S is portraying an obligation as S's own proposal (and so this case has the meaning specified in (43)).

Next, in (51b), the obligation comes from external circumstances in which it is more and more important that large numbers of school leavers achieve high standards, and such an obligation that comes from the external circumstances is not performed but rather portrayed by S, so that root *have to* in (51b) has the meaning (43). Next, it is known from background knowledge about S (Tony Blair) that he made education a key priority during his time as Prime Minister. It thus follows that he may want the realization of the action expressed in the *have to*-sentence, and that he may consider it beneficial to himself and others. As for the benefit involved in (51b), if Y does not do A, people in Britain (including S and Y) may be adversely benefited, for example, by having the national power of Britain

weakened. Thus, *have to* in (51b) satisfies (27a) and (27b).

Next, in (51c) the obligation comes from the external circumstances in which Y (or H in this case) is about to be found by the Gestapo. The action considered as an obligation may satisfy (27a), because S, who shelters Y, may want Y to be safe and hence to leave from where S and Y are staying. The obligation also satisfies (27b), because Y leaving will benefit Y and otherwise Y will be adversely benefited by being found and captured by the Gestapo. In this case, S portrays Y's obligation to leave from where S and Y are staying because they were found by the Gestapo (the circumstances are the outside factor from which the obligation comes), so that root *have to* in (51c) has the meaning of (43).

Finally, in (51d) the obligation comes from the external circumstances in which S's house has run out of milk. The obligation that comes from the external circumstances is portrayed, not performed, by S, so that root *have to* in (51d) has the meaning of (43). S may want someone to find an open store for the purpose of buying milk, and it may benefit S (and his family). Furthermore, since S (and his family) has no food, they will be adversely benefited if someone does not find an open store (and buy something to eat). The obligation in (51d) thus satisfies both (27a) and (27b).

In this way, this thesis treats non-prototypical *have to* (as in (51)) as having the meaning of (43) and satisfying (27a), or both (27a) and (27b).

(52) Non-prototypical *have to*: having the meaning specified in (43), but satisfying (27a), or both (27a) and (27b).

In cases of (52), root *have to* expresses rather subjective obligation (so such cases of *have to* are labeled here as “subjective *have to*”). Nevertheless, they are less subjective than (at least) prototypical root *must*, which essentially makes us perform an obligation, not portray it. For instance, the replacement of *have to* with *must* in (51) will change the nuance of the examples; it is more likely that a strong force is involved in laying an obligation with *must*-sentences than with *have to*-sentences, and this force of *must* may make *must*-sentences sound more obtrusive than *have to*-sentences (see also Kashino 2002). Readers are referred to section 3.1.2.1, where Kashino’s (2002:128–129) *goyooronteki na ten’you* “pragmatic transfer” was mentioned as a motivation for using root *have to* in cases where root *must* is appropriate.

According to a native speaker’s opinion, non-prototypical *have to* and prototypical *must*, both of which involve S’s want, retain the (quasi-)modals’ unique meaning as specified in (32) and (43). Replacing *have to* with *must* in (51c), repeated below, a sense of personal responsibility in S is implied.

(51) c. [The hearer, sheltered by the speaker, has just been found by the Gestapo.]

Get your things together, you *have to* leave!

[*The Pianist* film script]

4.5.3. The Classification of Root *Have to*

As shown in sections 4.5.1 and 4.5.2, root *have to* has both its prototypical and non-prototypical cases. Prototypical cases have the meaning specified in (43) above, and deviate from the ICM of obligation (specifically, from (27a) and (27b)). Since the meaning of root *have to* is an obligation caused by an external factor, the meaning is objective according to Lyons's (1977; 1995) definition of objectivity, which is defined as holding, as a matter of fact, "In some epistemic or deontic world which is external to whoever utters the sentence on particular occasions of utterance" (Lyons 1995:330), or "reporting, as neutral observers, the existence of this or that state of affairs" (ibid.). Being objective in usage of root *have to* is brought about by the deviation from (27a) and (27b); these motivate the high degree of subjectivity in performing an obligation (see section 4.4.1). Non-prototypical cases of root *have to*, meanwhile, are more subjective than prototypical cases, in that the former are more likely to express S/Y's benefit (27b) and/or S's want (27a).

As schema extracted from prototypical *have to* and subjective *have to*, *HAVE TO* is placed on top of the two cases of *have to* in this thesis, having the meaning in common specified in (43).

There are two things to note before closing this section. Firstly, it is not intended in this thesis to deny the possibility that there are types of non-prototypical *have to* other than the cases in (51). Secondly, no independent evidence has yet been found to justify the distinction between prototypical and non-prototypical root *have to* (like the tag questions used to support the distinction between prototypical *must* and objective *must*, as presented in (41) and (42) above). These are two issues to be addressed in

future research.

4.6. Another Cognitive Linguistic Approach to Root *Must* and Root *Have to*: Higuchi (2008)

Before closing this chapter, another cognitive linguistic approach to root *must* and root *have to* will be examined: that of Higuchi (2008). She proposes the notions of reality and irreality as key alternatives to subjectivity and objectivity (as this chapter applies) in describing the behaviors of root *must* and root *have to*.

Higuchi's notions of reality and irreality are based on Langacker's (1991:244,277) Basic Epistemic Model. If an event is in reality, the event has "already taken place at the time of the speech event in the speaker's known reality" (Higuchi 2008:231). The known reality is drawn as the solid white cylinder in Figure 4.3. On the other hand, irreality is defined as "everything other than reality" (Higuchi 2008:232), such as counterfactual area. With the above in mind, Higuchi points out that modals (such as *must*) express irreality, while quasi-modals (such as *have to*) express reality. For example, in the case of *You must do it*, its propositional content (or what she refers to as SOA (State-of-Affairs)) [you do it] is in irreality (strictly speaking, in immediate irreality, because of the present tense of *must*). In other words, the SOA itself in *You must do it* is "only in the speaker's thoughts or mind and has not become part of her reality" (Higuchi 2008:260). On the other hand, in the case of *you have to do it*, its propositional content [you-have to-do it] is in "the realm of the speaker's *immediate reality*"³² (Higuchi 2008:259; italics in original). Put more concretely, "The obligation

or necessity denoted by *have to* already exists and is recognized and accepted by the speaker in her reality or real social, mental or physical environment” (Higuchi 2008:259).³³

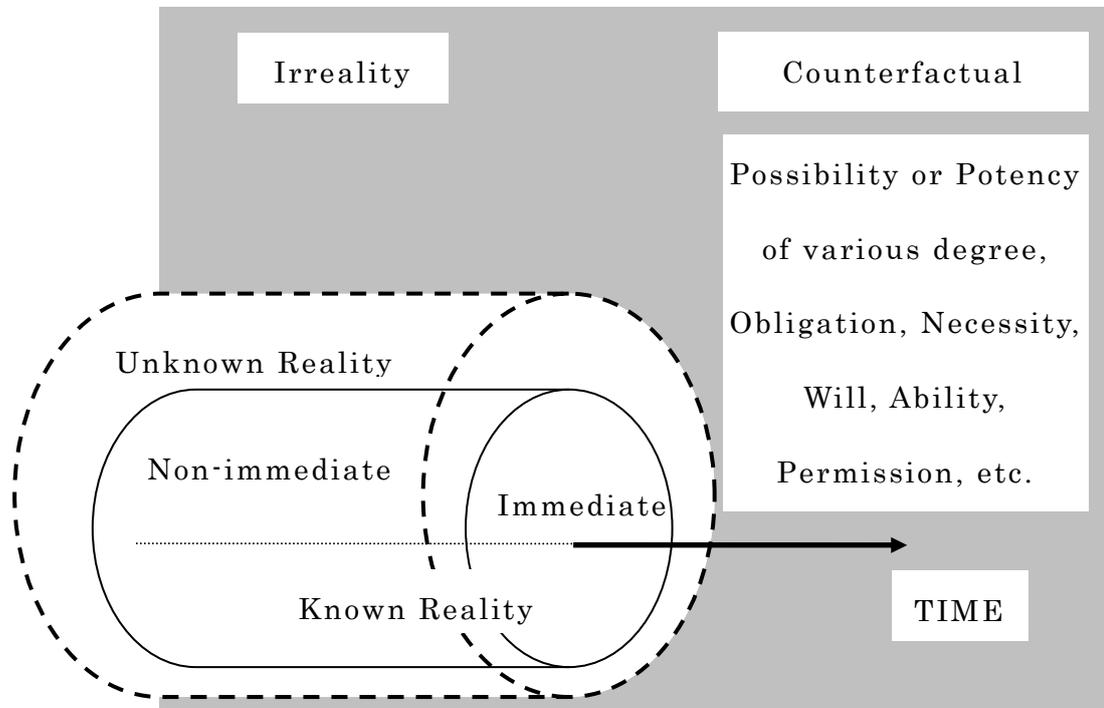


Figure 4.3. Higuchi’s basic image model of the epistemic regions (2008:231)

Although she does not negate the notion of subjectivity and objectivity (personal communication), Higuchi argues for more validity of her notions of reality and irreality. I suspect that her notions have at least the following advantage over subjectivity and objectivity, in the sense that they enable us to comprehensively explain behavioral difference of modals and quasi-modals, as illustrated in (53).

- (53) a. *I ran fast, and *could* catch the bus.
 b. I ran fast, and *was able to* catch the bus.

The modal *could* in (53a), which expresses irreality, is unacceptable, because of the reality context of (53), in which the speaker really ran fast. This is why *was able to*, which expresses reality, is acceptable as in (53b).

One (albeit perhaps minor) question is pointed out here for Higuchi's account, with reference to what this paper has labeled "objective *must*." The examples are in (38), among which only (38a) is repeated below due to space limitations.

- (38) a. [He refers to Hidetoshi Nakata, *it* to Japan and *you* to Japanese people generically.]

What he did, eventually, was leave. "In Japan, seniority is all important," Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. "It's a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn't feel like this. I felt a freedom from this."

[= (3a)]

S in (38a) (i.e., Nakata) lays an obligation on Y (i.e., Japanese people), based on the Japanese vertical social system. It is not clear whether the SOA (you constantly pay respect to the person above you) is in immediate irreality, since the Japanese vertical social system, on which the obligation is based, exists externally to us. Nor can this obligation be captured

categorically in terms of subjectivity and objectivity; in this case, the obligation cannot be described as solely subjective (as already argued in section 4.4.2.2). Rather, such cases should be dealt with in this paper's ICM-based account, in which the deviation of the obligation from the ICM of obligation (27) facilitates a comprehensive treatment of non-prototypical cases as in (38a).

4.7. Summary

This chapter has proposed an ICM-based account of the prototype effect of root *must* and root *have to*, with special reference to the speech act of obligation. The points of this chapter are summarized in (54).

- (54) a. Root *must*, which has the meaning (32), is prototypical when it fully satisfies the ICM of obligation (27). On the other hand, non-prototypical *must* is characterized by the deviation of the ICM of obligation. (27c) is necessarily satisfied, because S lays an obligation on Y (with the varying degree of subjectivity) by uttering *must*-sentences. (Section 4.4)
- b. Root *have to*, which has the meaning (43), is prototypical when it deviates at least from (27a) and (27b). On the other hand, non-prototypical *have to* satisfies either only (27a) or both (27a) and (27b). (27c) can be either satisfied or not, because S's power is not involved in portraying an obligation by uttering *have to*-sentences. (Section 4.5)

This chapter could show the necessity of basing better semantic and pragmatic analysis of root *must* and root *have to* on Searle's speech act theory (although it is criticized in part) and cognitive linguistic framework (in this chapter, Lakoff's 1987 ICM-based framework).

Notes to Chapter 4

¹ See also the following comments by Leech (2004:83): "*Must* (= 'obligation') is generally subjective, in that it refers to what the speaker thinks it is important or essential to do. *Have to*, on the other hand, is more 'objective.' i.e., the obligation or compulsion tends to come from a source outside the speaker" (italics in original).

² Propositional models are called "propositional ICMs" by Pérez Hernandez and Ruiz de Mendoza (2002:261). They also state that propositional ICMs have come to be identified with Fillmore's (1982) frames in cognitive semantic literature.

³ Coates refers to (10) as "parameters" and not "features," but for terminological unification the term "features" is used whenever (10) is referred to. These two terms are used interchangeably in this chapter.

⁴ Coates also sets the following two features. (10g) "paraphrasable by 'it is important that'" and (10h) "inanimate subject." However, these have generally not been mentioned because they are the features that should be satisfied by objective (or non-prototypical) cases of root *must*. In fact, (10h) and (10f) are in a relation of complementary distribution. As for (10e) and (10g), there are cases where neither (10e) nor (10g) is satisfied (e.g., *I must admit*, according to Coates), but it nevertheless seems that there are no cases where both (10e) and (10g) are satisfied.

⁵ Also, it should be noted that she seems to pay attention to the agentivity of a verb itself, not of a verb phrase as a whole. For instance, Coates considers that (12) below satisfies (10d), although the sentence is written in the passive voice (hence it is rather less agentive).

⁶ See also the following characterization by Lyons (1977:746): "Utterances which impose, or propose, some course of action or pattern of behaviour and indicate that it should be carried out."

⁷ Example (18) follows "AEA 1198." The reference of the source of (18) is Tomorrow. Taylor, Elizabeth Russell. London: Peter Owen Publishers, 1991, pp. ??, 1750 s-units, 26,545 words.

⁸ Thomas' rules for apologizing are modeled closely on Searle's (1969:67) rules for thanking.

⁹ Panther and Thornburg's conversational scenario is formulated as follows:

- (i) The BEFORE
The hearer (H) can do the action (A)
The speaker (S) wants H to do A
- (ii) The CORE
S puts H under a (more or less strong) obligation to do A.
The RESULT: H is under an obligation to do A (H must/should/ought to do A).
- (iii) The AFTER
H will do A

With the above scenario, Panther and Thornburg succeed in showing that expressions of indirect speech act stand for a certain speech act (e.g. *Can you close the door?* means an act of request) via a metonymic cognitive operation. In this thesis, the scenario will not be mentioned unless necessary for space limitation.

¹⁰ In the present thesis at least, there is no intention to argue that only these three criteria are necessary and sufficient.

¹¹ The opposing notion of "benefit" is traditionally not "adverse benefit" but rather "cost" (cf. Leech (1983) and Pérez Hernández and Ruiz de Mendoza (2002)). However, this chapter adopts the former notion and avoids the latter for the two following reasons. Firstly, the opposition of "benefit" and "adverse benefit" makes it possible to distinguish between obligation and invitation. More specifically, in obligation S can imply S and/or Y's adverse benefit by Y not doing A, while this implication cannot be brought about in invitation. Secondly, both "benefit" and "cost" can be brought about simultaneously by Y doing A. For example, when the doctor says to his patient, "You must take this medicine", Y (the hearer) doing A (taking the medicine) may be to both Y's benefit and Y's cost, because Y will get better by taking the medicine but unless Y is healthy, Y may not like taking the medicine. Simultaneity of this nature may not occur in the opposition of "benefit" and "adverse benefit." In other words, one action (e.g., Y doing A) cannot bring S and/or Y "benefit" and "adverse benefit" simultaneously.

¹² Instead of positing (24b), it is possible to consider whether to admit the hearer's "freedom to decide whether or not to carry out" the directed action (Pérez Hernández and Ruiz de Mendoza (2002:264)). This criterion works well in distinguishing obligation and invitation, but not, for example, in distinguishing request (the ICM of which consists of "S's want," "S's benefit" and "S<Y") and suggestion (the ICM of which consists of "S's want," "Y's benefit" and "S>Y"), because both request and suggestion admit the hearer's freedom to decide whether to carry out a directed action. The two speech acts should be distinguished by whether it is to S's benefit or H's benefit. In addition, the hearer's freedom of decision cannot be considered in permission. This is because permission is based on the hearer's request for the speaker's permission to let the hearer do something, so no cases of

permission can assume the possibility that the hearer decides not to carry out a permitted action.

¹³ For this point, see also Table 10(8) of Halliday and Matthiessen (2004:620). They note that the sentence “I want John to go” expresses what they call “modulation” (equivalent to what is generally called “deontic modality”) and is subjective.

¹⁴ For a comparison between obligation (or command) and invitation, see also Kubo (2002: Chapter 4), especially his comparison between the Japanese verb *sasou* (to invite) and *meirei-suru* (to order or command). Readers are also referred to Nitta (1999:160), who points out that *meirei* (or what is referred to here as “obligation”) and *susume* (referred to here as “invitation”) may form a continuum with a varying degree of politeness in getting an addressee to do something.

¹⁵ This analysis is indebted to Nishimura (1998: Chapter 4).

¹⁶ As one independent merit of the present ICM-based framework, it is argued here that the comparison of (28), (30) and (31) with (27) implies the condition(s) that a subclass expressed by root *must* tends to have. Firstly, invitation (which root *must* can express) is similar to obligation in (24a) “S’s want” and (24c) “S>Y.” Secondly, permission (which root *must* cannot express) is similar to obligation only in (24c) “S>Y.” Thirdly, request (which root *must* cannot express, either) is similar to obligation in (24a) (i.e., “S’s want”) and (24b) (i.e., “S’s benefit”). This may tell us that subclasses that root *must* can express typically share “S’s want” in the criterion (24a) and “S>Y” in the criterion (24c). This point should be further examined in future research via other expressions of DSAs (e.g., English imperatives). For a preliminary survey of this subject, see Sanada (2005a).

¹⁷ Recall Papafragou (2000), who also proposed the meaning of *must* and explained interpretations of *must*-sentences pragmatically (specifically, with the help of principles of relevance), although her framework has limitations, as discussed in section 3.1.1.2. Moreover, Papafragou does not pay attention to what speech act(s) *must* can express and what the speaker thinks in performing an obligation. However, as is argued in this section, the reference to speech act(s) plays an important role in accounting for the prototype effect of root *must* (and of root *have to*), but it is not referred to in Papafragou (1998; 2000).

¹⁸ See this sentence, created by Paul Westney.

(i) I *must* go with you, but I don’t want to. [Westney 1995:106]

He notices that cases like (i) “seem rare, and are not always accepted as possible” (ibid.).

¹⁹ The verb “portray” is borrowed from Sweetser (2000:316; Table 1), where the verb “perform” is also used.

²⁰ In fact, Palmer (1990:72–74) presents “performative” examples of *must* with the first and third person subject. Also, Yamada (1990:40) mentions that the relation between the speaker and a third party counts in some cases in which deontic modality (which expresses obligation, permission and so on) is involved.

²¹ It has been noted in some previous studies that people should do what is beneficial to somebody. See Leech (1983), Sweetser (1987) and Pérez Hernández and Ruiz de Mendoza (2002:268). Among them, a portion of the ICM of Cost-Benefit by Pérez Hernández and Ruiz de Mendoza is introduced here: “If it is manifest to A that a particular state of affairs is beneficial to B, then A is expected to bring it about” (where A and B are approximately equivalent to what is labeled in this thesis as S and Y, respectively).

²² It is true that Figure 4.2 resembles a taxonomy (cf. Sweetser 1987:49) and thus seems to show that the three types of root *must* are discretely distinguished. However, I would like to avoid making that argument so far, because I cannot deny the possibility of finding examples which seems to be “intermediate” between e.g. prototypical *must* and invitation *must*. It should be left for future research whether the three types of root *must* should be separately distinguished or not.

²³ The acceptability judgments of the tag questions in (40) and (42) are owed to two native informants of English. The examples in (42) are those that have been judged as unacceptable by both of the two informants. Of course, there are also examples for which the acceptability judgment results were different between the two informants. For example, the result of the judgment was varied for the case of prototypical *must* with the third person subject. The reason why some examples of tag questions of *must*-sentences vary is a subject for future research.

²⁴ I would like to use the verb *cause* in (43) instead of *get* (as in (32)), because the former is much easier to be followed by an inanimate subject (in this case, a factor external to S, as an imposer of root *have to*) than the latter when the verb is used in a causative construction.

²⁵ The following example was found on a website, which was found via a Google search (underlined by the present author).

(ii) Doctor says, “You *must* eat 5 to 6 small meals every day. How?”

It seems worthwhile examining in future research whether root *must* is really not used with a habitual meaning as in example (ii) above.

²⁶ Similarly, root *might* (i.e., *may* with the past tense morpheme) cannot be used to perform a permission (probably only in the form of *might have V-ed*). The fact that *might* cannot express permission in the past may well be very similar to the fact that *must* has no past tense form.

²⁷ Visser (1963–73:1474) summarizes the developmental stage of *have* in *have to* as follows: (A) “*have* mainly expresses possession (in its widest

sense),” (B) “*have* expresses duty, obligation, necessity, etc. in addition to possession,” (C) “*have* preponderantly or exclusively expresses duty, obligation, necessity, etc.”

²⁹ Another informant tells me that replacing *must* in (3a) with *have to* suggests enforcement of these expectations rather than simply social obligation.

³⁰ (51a) is constructed by the present author, and judged as acceptable by informants.

³² The realm of the speaker’s immediate reality can also be called “the external world” (Higuchi 2008:259).

³³ Higuchi’s statements that root *have to* expresses reality may remind us of Westney’s argument (note in particular the term “existing entity” therein). See section 3.1.1.1 for his analysis.

Chapter 5

A Quantitative Analysis of Root *Must* and Root *Have to*

This chapter conducts a quantitative analysis of root *must* and root *have to* for the three following purposes. Firstly, a quantitative corroboration is provided for the ICM (or Lakoff's 1987 Idealized Cognitive Model)-based account of root *must* and root *have to* used in this thesis, by collecting and analyzing data of the (quasi-)modals from discourse in Present-Day English (hereafter, PDE: 1901–). It will be demonstrated that prototypical *must* and prototypical *have to* are in fact more frequently used than their non-prototypical case(s). Secondly, an historical examination is conducted into the distribution of root *must*, with data from spoken discourse in Early Modern English (hereafter, EModE: 1501–1700) and in Late Modern English (hereafter LModE: 1701–1900). It is then argued that the prototype effect of root *must* is also seen historically in the same way as PDE. Thirdly, the kind of imposee that occurs most frequently in root *must* and root *have to* is used, using data from spoken discourse in EModE, LModE and PDE. In so doing, the paper intends to at least partly corroborate the cognitive grammar analysis of the semantic structures of English modals (Langacker 1990; 1991).

The structure of this chapter is as follows. Section 5.1 specifies the kinds of data collected for the examination in this chapter. Section 5.2 briefly shows the significance of quantitative research on linguistic

phenomena, with reference to Langacker’s (1991 et al.) “usage-based model” and Bybee’s (2007) frequency-based approaches to the emergence of some linguistic phenomena. Section 5.3 compares root *must* and root *have to* in PDE based on the ICM of obligation (proposed in section 4.3), and Section 5.4 historically examines the prototype of root *must*, using the data in EModE and LModE. Section 5.5 observes data of root *must* and root *have to* in EModE, LModE and PDE, in terms of an imposee. Section 5.6 summarizes the discussions in this chapter.

5.1. Data

This section posits two presuppositions about the data that is observed and analyzed in this chapter: (i) where the data was collected, and (ii) what kinds of data were collected.

5.1.1. Data Sources

This chapter deals with data of root *must* and of root *have to* collected from spoken discourse of EModE, LModE, and PDE (the sources of texts from which data was collected are listed in Sources for Examples).¹ “Spoken” discourse here refers to (i) conversations from novels, film scripts, and plays and (ii) speeches; these are approximately equivalent to what Biber et al. (1999) label “conversation” and “fiction,” respectively.² The spoken register is focused on here because it is not difficult to identify the characters involved in the discourse and therefore the relationship between S and Y as well.

Examples constructed by the present author, native speakers of

English and the authors of previous studies are also mentioned when necessary, but such examples are not included in the total amount of data that is treated in the quantitative analysis of this chapter.

Data in and after EModE, in particular the period of Shakespearean English, was chosen for the following reason.³ According to the OED, it is around this EModE period that the present spelling of *must* was fixed; prior to the period of Shakespearean English, various forms of *must* were used, such as *most* and *moste*.

5.1.2. Objects of the Data

As objects of the data analyzed in this chapter, *had to* and *have to* following another modal (e.g., *may have to*) were excluded. This is because the past tense in *had to* and another modal followed by *have to* are the characteristics that *must* does not share; *must* has no past tense form, and cannot precede another modal. For example, when talking about an obligation in the past, there is no alternative but to use *had to*, regardless of whether the obligation should be expressed with *must* rather than *had to* from a semantic and pragmatic point of view (see section 4.5.1 for the semantic and pragmatic reasons for why root *must* cannot be used when mentioning a past obligation while root *have to* can be used). Thus, in cases of *have to*, data were collected in the forms of *have to* and *has to*.

Next, the linguistic environment in which root *must* or root *have to* is embedded should also be mentioned. In Leech (2004), root *must* in questions, *if*-clauses, and *that*-clauses representing reported speech are cases in which the imposer of *must* tends to be someone other than a speaker (a hearer in

the first two types of construction, and a speaker of the reported speech in the latter type). The identification of the imposer in these marked constructions is influenced by their constructional meaning (see section 3.3), and this is why such cases should be treated separately from *must* embedded in an unmarked construction: a declarative sentence. Much more data (both for root *must* and for root *have to*) was found in the present author's corpus embedded in declarative sentences than in questions, *if*-clauses, and *that*-clauses representing reported speech.⁴

5.2. The Significance of Quantitative Research

This section briefly surveys the significance of quantitative research, with reference to usage-based model (Langacker 1990; 1991; 1999) and frequency-based research (Hayase and Horita 2005; Bybee 2007). The essence of the usage-based approach is noted by Langacker (1991:494) as follows:

“Substantial importance is given to the actual use of the linguistic system and a speaker's knowledge of this use; the grammar is held responsible for a speaker's knowledge of the full range of linguistic conventions, regardless of whether these conventions can be subsumed under more general statements.”

According to this approach, the general rules of grammar can only arise “as schematizations of overtly occurring expressions” (Langacker 1999:92). In the schematization, the more frequently an instance of the schema is used,

the more it becomes entrenched, and thus the entrenched instance comes into existence independently of a certain higher-level abstract schema into which the instance should be included. Through such a process, a category can be extended.

In relation to this approach, frequency has been regarded as important for examining the emergence and entrenchment of linguistic knowledge or usage (see Tomasello 2003; Hayase and Horita 2005; Bybee 2007). The importance is summarized in the two following comments: one by Tomasello (2003) and the other by Bybee (2007) with respect to language acquisition:

“In general, in usage-based models the token frequency of an expression in the language learner’s experience tends to entrench that expression in terms of the concrete words and morphemes involved – enabling the user to access and fluently use the expression as a whole.” [Tomasello 2003:106]

“Frequency is not just a result of grammaticization, it is also a primary contributor to the process, an active force in instigating the changes that occur in grammaticization.” [Bybee 2007:336]

As an illustration of the effectiveness of the usage-based analysis, the case study of an English modal *can* is summarized following Bybee (2007:339–348). From Old English to Middle English, the meaning of *can* was extended and generalized through its frequent and repetitive use. The

original form of *can* in Old English was *cunnan*, and the word expressed various form of knowing and understanding, but had very limited use with infinitive objects. It took the following three semantic classes of infinitive objects: verbs of mental state or activity, verbs of communication, and verbs describing skills. Among them, the combination of *cunnan* and *ongitan* (which means “to understand”) occurred (Bybee 2007:342), as in (1).

- (1) He ne con ongitan forhwy swylc God geþafað
 He not con understand why such God allows
 “He does not understand why God allows such as that” (950 Alfred’s
 Boeth. xxxix)
- [ibid.]

Note that *cunnan* and *ongitan* are similar in meaning, and perhaps then *cunnan* is beginning to “bleach and grow too weak to stand alone” (ibid.) in contexts such as in (1).

In Middle English, *can* came to frequently include many other types of infinitive objects than just the three types of infinitive objects that used to follow *cunnan* in Old English (although the three are representative also in Middle English). For example, *go* (verbs indicating an overt action), and *teach* (verbs indicating a change of state in another person), can appear as an infinitive object of *can*. In this period, the subject of *can*-sentences is still limited to human subjects or “metonymic expressions for humans, that is, ‘inanimate’ objects such as the eyes, the heart, wit, foolishness, and beauty” (Bybee 2007:346): in (2a) *my wit* is the metonymic expression for

humans. As the grammaticalization proceeded through repetitive use, *can* came to be used even for inanimate subjects, as in (2b).

- (2) a. As ferforth as my wit kan comprehend
“As far as my wit can comprehend” (TC IV 891)
[Bybee 2007:346]
- b. There is great number that fayne would aborde
our ship can holde no more. (Barclay Ship of Fooles 1570)
[Bybee 2007:347]

In this way, the meaning of *can* became generalized and abstract through its repetitive use (i.e., from (1) to (2b) above), which is reflected by the fact that *can* came to take various types of its infinitive objects in this period.

While the usage-based approach therefore seems perfectly adequate as a method of explaining language development, the two following problems with linguistic analyses through the usage-based approach are highlighted by Hayase and Horita (2005). Firstly, in some cases a prototype assumed in the usage-based approach is different from that based on a native speaker’s intuition (Hayase and Horita 2005: section 8.1). Take *make*-causatives in English, for example. Native speakers of English tend to regard the cases in which a person forces another person to do something as prototypical, as in (3a). However, according to Hayase and Horita’s research in the British National Corpus (BNC), there is data of *make*-causatives with inanimate subjects such as (3b) more frequently than a *make*-causative such as (3a).

- (3) a. He made me go.
b. The humiliation made me shudder.

[Hayase and Horita 2005:180]

Secondly, a prototype is said to be acquired early by children, but the prototype is not necessarily what is acquired first (Hayase and Horita 2005: section 8.2). For example, the preposition *to* is polysemous: physical orientation and infinitive marker in English. The former is expected to be acquired earlier, since it is more concrete in meaning. However, it is in fact the latter meaning of *to* that is easily acquired, according to Rice (2003). These two problems can be approached through examining the frequency of use of cases that may exhibit problems such as the above. Hayase and Horita (2005: section 8.3) propose that a corpus-based approach be applied to examine the above two problems.

From the above discussion by Hayase and Horita (2005), it follows that it should be examined how frequently a linguistic item identified as prototypical (e.g., through a native speakers' judgment or through an ICM-based account, as the present thesis does) is actually used. On the one hand, if the prototypical item is found to be frequently used, it may be concluded that the prototypicality of the item is given quantitative support. On the other hand, if the prototypical item is found to be not so frequently used, then the cause of that infrequency, in spite of the prototypical status of the item, should be examined closely.

A frequency-based approach is adopted in this chapter, and section

5.3 examines whether the prototypical cases of root *must* and root *have to*, identified in sections 4.4.1 and 4.5.1, are in fact used more frequently than non-prototypical cases of the two expressions, identified in sections 4.4.2 and 4.5.2. In section 5.4, it is examined whether a prototypical case of root *must* is frequently used (hence whether the prototypical status is quantitatively and historically supported). In section 5.5, the prototypical status of an imposee of root *must* and of root *have to* is examined quantitatively.

5.3. A Quantitative Corroboration of the ICM-Based Account: Root *Must* and Root *Have to* in PDE

In the observation of data in this section, data of root *must* has been classified into “prototypical *must*,” “invitation *must*,” and “objective *must*,” and those of root *have to* have been classified into “prototypical *have to*” and “non-prototypical *have to*.” These classifications are based on the meaning of root *must* (4), that of root *have to*, the ICM of obligation (6) and invitation (7).

(4) <The meaning of root *must*>

S exerts force on Y in order to actually get Y to realize A.

[= (32) in section 4.4.1]

(5) <The meaning of root *have to*>

S portrays a situation where a factor external to S causes Y to do A.

[= (43) in section 4.5.1]

(6) The ICM of obligation:

- a. S wants the realization of A directed. (S's want)
- b. S knows that A benefits S and/or Y, and that unless Y does A, S and/or Y will be adversely benefited.
(S/Y's benefit +, S/Y's benefit -)
- c. S knows that S is more powerful than Y. (S>Y)
[= (27) in section 4.3.2]

(7) The ICM of invitation:

- a. S wants the realization of A directed. (S's want)
- b. S knows that A benefits both Y and S. (S&Y's benefit +)
- c. S knows that S is more powerful than Y. (S>Y)
[= (28) in section 4.3.2]

Based on the above ICMs, the three types of root *must* are defined as follows: (i) prototypical *must* has the meaning specified in (4) and fully fitting the ICM of obligation (6); (ii) invitation *must* has the meaning in (4) and satisfies (6a) and (6c) but deviates from (6b) (but rather (7b)); and (iii) objective *must* has the meaning in (4) and satisfies (6c) but deviates from (6a) and (6b).

On the other hand, the two types of root *have to* are defined as follows: (i) prototypical *have to* has the meaning specified in (5) and deviates from at least (6a) and (6b), and (ii) non-prototypical *have to* has the meaning (5) and satisfies (6b) and/or (6a).

This section deals with data collected from spoken discourse in both British English (henceforth, BE) and American English (henceforth, AE). The data of root *must* and root *have to* are observed in sections 5.3.1 and 5.3.2, respectively. The distribution of the two (quasi-)modals are summarized in section 5.3.3.

5.3.1. Root *Must* in PDE

From spoken discourse in PDE, a total of 217 tokens were collected (112 in BE and 105 in AE). Among them, 185 tokens (85.3%) are classified as “prototypical *must*” (95 in BE and 90 in AE). Portions of the examples are presented in (8) below; (8b) in BE and the others in AE.

- (8) a. [S is giving a speech to the public]
 We *must* have no violence today, [Forrest Gump film script]
- b. [The speaker is a teacher of the hearer.]
 You *must* speak clearly, dear. [Harry Potter]
- c. [From a speech by George Bush, just before the Iraq War, 2003.]
 Saddam Hussein and his sons *must* leave Iraq within 48 hours.

First consider (8a), in which S wants there to be no violence today, so that *must* in (8a) satisfies (6a). Next, if there is in fact no violence, people will find benefit in that situation (and if Y does not do A, Y will suffer from violence), so *must* in (8a) satisfies (6b) too. In addition, S is psychologically (and perhaps, socially) more powerful than Y (in this case, the audience of

S's speech), which is why *must* in (8a) satisfies (6c), too.

Now consider (8b). S wants Y to speak clearly, perhaps so that S can hear Y better, thereby satisfying (6a). Next, S believes that Y speaking clearly benefits S rather than Y (in this case, Y will be adversely benefited unless Y does A), thereby satisfying (6b). In addition, S, who is Y's teacher, is stronger (in this case, socially) than Y, thereby satisfying (6c).

Finally, S in (8c) wants Y (Hussein and his sons) to leave Iraq (thereby satisfying (6a)), and Y leaving Iraq (i.e., Y obeying S's obligation) is beneficial to S (but not to Y) for satisfying his own political ambition, and if Y stays in Iraq, Y will be offended by S (thereby satisfying (6b)). As for the power relation involved in (8c), S is (politically and socially) more powerful than Y, and this is why *must* in (8c) satisfies (6c).

Next, only one token (0.5%) was found of invitation *must*, as in (9), which is the data in BE.

(9) I haven't seen you for years. Hello, there's Margery – my wife, you know. You *must* come and meet her.

[A. Christie "The Blood-Stained Pavement"]

S in (9) wants Y to have dinner with S, thereby satisfying (6a) (and (7a)), because S may believe that if Y has dinner with S, S will feel happy. Moreover, S is (probably psychologically) more powerful than Y, thereby satisfying (6c) (and (7c)). However, in invitation as opposed to obligation, S considers the benefit of both Y and S from the realization of the act directed to Y, probably because S feels that Y will feel happy if Y has dinner with S

(and without any adverse benefit to S and Y, hence no “S/Y benefit –” is involved in (9)). That is, both S and Y benefit from Y coming and meeting S’s wife, hence deviating from (6b) but satisfying (7b) “S&Y’s benefit.”

Finally, 31 tokens (14.3%) were found of objective *must* (among which 16 were in BE and 15 in AE). Examples are presented in (10), where (10a) and (10b) are in AE and (10c) is in BE.

(10) a. [He refers to Hidetoshi Nakata, *it* to Japan and *you* to Japanese people generically.]

What he did, eventually, was leave. “In Japan, seniority is all important,” Nakata said recently in his apartment in Parma, Italy, decorated with Helmut Newton photographs of leather-clad women. “It’s a vertical society. You *must* constantly pay respect to the person above you. From the time I was a boy, I didn’t feel like this. I felt a freedom from this.”

[*TIME*, April 29–May 6, 2002]

b. All able-bodied men *must* leave the city, go across the river and set up a new line of defence, that’s what it said.

[*The Pianist* film script]

c. [S (Poirot) is explaining the hearer’s crime. The following is the situation desirable for the hearer.]

The police *must* see it exactly as it is – so you do not seek help in the mews but ring up the police straightaway.

[A. Christie, “Murder in the Mews”]

S in (10a) does not want nor derive benefit from Y (Japanese people) constantly paying respect to the person above them, because S himself says, “From the time I was a boy, I didn’t feel like this.” This is why *must* in (10a) deviates from (6a) and (6b). Next, S is (psychologically) more powerful than Y, and this power relationship may enable S to lay an obligation on Y.

Similarly, S in (10b) and (10c) does not want nor derive benefit from Y leaving the city (in (10b)) and Y going to the Dordogne or Tuscany (in (10c)), thereby deviating from (6a) and (6b). In (10b) and (10c), S does not lay an obligation on Y by himself/herself, but rather “by proxy” for the government in (10b) and for the hearer in (10c). As for power relationship involved in (10b) and (10c), S is (probably psychologically) more powerful than Y. This is why (6c) is satisfied in both tokens.

The observation in this section revealed that the type of root *must* labeled here as “prototypical *must*” is the most frequently used (both in BE and in AE). This means that the discussion in section 4.4 is quantitatively corroborated, at least through the data in PDE.

5.3.2. Root *Have to* in PDE

From spoken discourse in PDE, a total of 144 tokens were collected, of which 36 were in BE and 108 in AE). Ninety-six tokens (66.7%) are classified as “prototypical *must*” (31 in BE and 65 in AE). Portions of the examples are presented in (11) below; (11a) in BE and the others in AE.

- (11) a. It is also clear that given the likely death toll, there will be many citizens of other states who will have died. I *have to* say

that I fear significant numbers of them will be British.

[Tony Blair's speech, September 12, 2001]

- b. [The hearer is a writer for *TIME* magazine]

That's the new-economy view, anyway, and even some old-economy money managers buy it. "To maximize your long-term returns, you just *have to* step up and buy in a market like this," says Charles Carlson, co-manager of the Strong Dow 30 Value Fund. [*TIME*, April 24, 2000]

- c. [S is talking with his friends about Brockovich (to whom *she* refers).]

... so she drops the entire bag of Doritos in my lap and while I'm driving, she's feeling me up because she *has to* eat all the time, this one, constantly ... [*Erin Brockovich*, film script]

S in (11a) does not want to express the prediction that is undesirable for him, which of course does not benefit him, either. Thus, *have to* in (11a) deviates from (6a) and (6b). Next, S in (11b) (Charles Carlson) is merely portraying an obligation in order to meet the hearer's purpose, and so S's want and benefit are not involved in the obligation expressed in (11b), hence deviating from (6a) and (6b). Finally, S in (11c) thinks that Brockovich petted S maybe because of her intention to eat all the time, namely S's want and benefit are not involved in the obligation in (11c) but Brockovich's want and benefit are. This is why *have to* in (11c) deviates from (6a) and (6b). In this way, the obligation expressed in (11) does not involve S's want nor S's benefit, and in this case, S typically (but not absolutely) merely portrays,

rather than performs, such an obligation, as discussed in section 4.5.1.

On the other hand, 48 tokens (33.3%) of root *have to* in PDE are classified as non-prototypical *have to* (five tokens in BE and 43 in AE). Parts of examples are presented in (12), of which (12a) is in BE, and the others are in AE.

(12) a. [S (Tony Blair) is giving a speech at a university.]

And we know too that not only is it possible for large numbers of school leavers to achieve high standards, but that it is more and more important that they do so. We *have to* match our competitors in believing that in the core subjects of the curriculum all students can gain a good grounding.

b. [The speaker (Chief Mechanic) is directing the hearer (the President, who is temporarily flying Air Force One)]

Okay, you're aerated. To dump the fuel you *have to* close the circuit for the pump. [Air Force One film script]

c. [The hearer, sheltered by the speaker, has just been found by the Gestapo.]

Get your things together, you *have to* leave!

[The Pianist film script]

S in (12a) (Tony Blair) made education a key priority during his time as Prime Minister (one of Blair's famous catchphrases was "Education, education, education"). It follows that S's want and benefit are involved in the obligation of (12a). Next, S in (12b) is directing Y (the hearer) in order

to prevent the hijacked airplane from continuing to fly. This direction is based on S's own responsibility as a mechanic and at the same time on his own want (thereby satisfying (6a)). It is, in turn, considered to be to S's benefit for Y to close the circuit for the pump, since by so doing S can save the lives of the people in Air Force One (thereby satisfying (6b)). Finally, S in (12c) wants Y (the hearer) to leave because it will make Y safe and will relieve S (which is to S's benefit). Thus, *have to* in (12c) satisfies (6a) and (6b).

This section showed that root *have to* in PDE is used prototypically where the obligation comes from a factor external to S, and that the type of root *have to*, identified here as prototypical, is also quantitatively identified as prototypical, at least according to the data in PDE.

5.3.3. Summary and Discussion

This section summarizes and discusses the result of the observation shown in sections 5.3.1 and 5.3.2. Firstly, the result of the observation of root *must* in PDE is summarized in Table 5.1.

Type	Prototypical	Invitation	Objective	(Total)
Number	185 (85.3%)	1 (0.5%)	31 (14.3%)	217 (100%)

Table 5.1. Frequency of use of three types of root *must* in PDE

The table clearly shows that prototypical *must* (exemplified in (8)) is the most frequently used of the three types of root *must*. Namely, in terms of S's role in the act of obligation, S prototypically serves as an imposer, laying an

obligation on Y with S's want and S's benefit for the realization of Y's doing an action obliged to do by S (in this sense, root *must* in PDE is subjective in the sense of Lyons (1977) and Coates (1983)). The result shows that prototypical *must* posed with the ICM of obligation is prototypical from a quantitative perspective as well.⁵

Next, the result of the observation of root *have to* in PDE is summarized in Table 5.2.

Type	Prototypical	Non-prototypical	(Total)
Number	96 (66.7%)	48 (33.3%)	144 (100%)

Table 5.2. Frequency of use of two types of root *have to* in PDE

This table shows that prototypical *have to* (as exemplified in (11)) posed in terms of an ICM of obligation is also quantitatively prototypical (i.e., the more frequently used). Namely, S in *have to*-sentences portrays an obligation, prototypically without S's want and S's benefit for the realization of Y performing an action it is obliged to do by S. In this sense, root *have to* in PDE is prototypically objective (in the sense of Lyons (1977) and Coates (1983)). This study's quantitative research revealed that prototypical *have to*, which was posed in section 4.5.1, is proven to be prototypical from a quantitative perspective as well.

In this way, the previously noticed semantic tendency of root *must* and root *have to* is quantitatively corroborated. That is, root *must* has been described as subjective in that S is highly involved in laying an obligation, while root *have to* has been described as objective in that the obligation

tends to come from a factor external to S (Coates 1983, Quirk et al. 1985, Huddleston and Pullum 2002, Kashino 2002, Leech 2004, inter alia).

5.4. Diachronic Quantitative Research of Root *Must*

This section diachronically observes data of root *must* in EModE, and LModE, and goes on to examine whether the result of this study's observation serves to corroborate its ICM-based classification of root *must*. Before the observations, the way in which the diachronic studies of English modals have gone so far is summarized here.

In previous diachronic studies on English modals, two themes have been mainly dealt with. One is the process of semantic change in which English main verbs such as *cann* and *magan* came to be modals such as *can* and *may*. The other is the process of how the epistemic sense of modals was derived from the root sense.

Among these previous diachronic studies, Ono (1969) studied the historical development of modals such as *must*, *can*, *may*, and *ought*, by examining data collected mainly from texts written in Old English and Middle English. As for *must*, Ono argued two main points. Firstly, *must*, which was originally the past form of a main verb *mōtan*, expressed past predicates, but later, in the 14th century, came to also express present predicates. The meaning of *must* in PDE (i.e., the sense of obligation) was established in the latter half of the 15th century (1969:136). Secondly, *must* originally expressed permission, but it came to express obligation some time between the latter half of the 12th century and the first half of the 13th century (1969:132).⁶ Ono's investigation suggests that the sense of

obligation of *must* had been established no later than the EModE period. This point was supported by Abbott (1966), who described Shakespearean English grammar, and by Visser (1963–73), who gave a historical description of English grammar from Old English to PDE. Of course, in the period of LModE, root *must* had exhibited the sense of obligation (Poutsma 1928).

In addition to Ono and the traditional studies of historical linguistics mentioned above, cognitive and functional linguistics have played a very important role in the historical research of English modals (Traugott 1989, Langacker 1990; 1998; 2003, Sweetser 1990, Hopper and Traugott 1993, Sawada 1993b, Tamura 2000, Nomura 2001, Traugott and Dasher 2002, inter alia). Here, note that all of the above studies deal with more than one sense (i.e., root and epistemic) of more than one English modal. Without wishing to question the importance of these studies, it is argued here that studies focusing on the usage of one modal should also be important in diachronic linguistic research. In relation to the purpose of this thesis, the diachronic problem exists of whether there is a change in the semantics and pragmatics of root *must*, until now after *must* established the sense of obligation (i.e., after EModE). A problem like this must be closely pursued, for example, in terms of actual use in the present time and earlier periods. However, as far as can be ascertained, no such studies (including Visser 1963–73, etc.) are rooted in close observation of actual frequency of use (Bybee 2007).

With the above background in mind, sections 5.4.1 and 5.4.2 observe data of root *must* in EModE and in LModE, respectively. The data dealt with

in this section is collected from spoken discourse only in BE. Section 5.4.3 then summarizes and discusses the results of the observations made in sections 5.4.1 and 5.4.2.

5.4.1. In EModE

There are a total of 278 tokens of root *must* in EModE. Of these, 212 (76.3%) are classified as prototypical *must*, as exemplified in (13).

(13) a. Sebastian:

I will be free from thee. What would'st thou now?

If thou dar'st tempt me further, draw thy sword.

Sir Toby:

What, what? Nay, then I *must* have an ounce or

two of this malapert blood from you. [Draws]

[*Twelfth Night*: 4.1.40–43, prose]

b. [Rosalind (S) and Orlando (the hearer, Y) love each other.

Orlando does not realize that the person with whom he is talking is actually Rosalind, who has disguised herself as a man.]

Rosalind:

Nay, you *must* call me Rosalind. Come sister, will

you go?

[*As You Like It*: 3.2.422–433, prose]

After the hearer picks a fight with S in (13a), S wants to have an ounce or

two of the hearer's blood (thereby satisfying (6a)). Next, if S can really do this, S will feel satisfied (i.e., "S's benefit +"), and if S cannot, S will be more disgusted (i.e., "S's benefit -") (thereby satisfying (6b)). In addition, S as an imposer is (psychologically) more powerful than S as an imposee, thereby satisfying (6c).

Next, consider (13b). S wants Y (the hearer, with whom S is in love) to call her Rosalind, and after this happens, S will feel satisfied (i.e., "S's benefit +"), and if Y does not call S Rosalind, S will be sad about Y not calling S in the way S desires (i.e., "S's benefit -"). This is why *must* in (13b) satisfies (6a) and (6b). In addition, S is (psychologically) more powerful than Y, thereby satisfying (6c).

Next, one token (0.4%) of invitation *must* was found, and it is presented in (14) below.

(14) Benedick:

I have the toothache.

Pedro:

Draw it.

Benedick:

Hang it!

Claudio:

You *must* hang it first and draw it afterwards.

[*Much Ado about Nothing*: 3.2.20–23, prose]

S in (14) invites Y (the hearer) to hang Y's head and then extract Y's bad

tooth (the cause of Y's suffering), as S's answer to Y's utterance *Hang it*.⁷ S hopes that Y's toothache will improve so that S wants Y to hang Y's head (of course, as a joke) and considers it as beneficial to Y and S (in that S will be satisfied if Y recovers from toothache). Thus, *must* in (14) satisfies (6a) and (7b), rather than (6b). S is (psychologically) more powerful than Y, thereby satisfying (6c).

Finally, 65 tokens (23.4%) are classified as objective *must*. Parts of the examples are provided in (15) below.

- (15) a. [Hamlet (S) had already been commanded by the King to go to England.]

Hamlet:

I *must* to England, you know that?

Queen Gertrude:

Alack,

I had forgot. 'Tis so concluded on.

Hamlet:

There's letters seal'd, and my two schoolfellows,

Whom I will trust as I will adders fang'd –

They bear the mandate, they must sweep my way

And marshal me to knavery. Let it work;

[*Hamlet*: 3.4.202–207, verse]

- b. [The Prince of Arragon (the hearer, Y) wants to get married to Portia (S). Portia is making the Prince choose the right casket, and if he does so, he will be able to marry her immediately.]

Portia:

Behold, there stand the caskets noble prince,
If you choose that wherein I am contain'd
Straight shall our nuptial rites be solemniz'd;
But if you fail, without more speech, my lord,
You *must* be gone from hence immediately.

[*The Merchant of Venice*: 2.9.4–8, verse]

S in (15a) does not particularly want to go to England himself, and so S does not consider it as particularly beneficial to go to England. This is because S is aware of being led to mischief by his two schoolfellows by going to England. This is why *must* in (15a) deviates from (6a) and (6b). S lays an obligation on himself by proxy for the King. In addition, S as an imposer is psychologically more powerful than S as an imposer (probably because, although S does not want to go to England, S considers it necessary to obey the King's order), so that *must* in (15a) satisfies (6c).

Next, S in (15b) lays an obligation on Y (the hearer) based on the rule of choosing caskets in order to determine whether Y can get married to S. In other words, the obligation in (15b) is not based on S's desire for Y to go immediately from S, and so S does not benefit from Y going. Thus, *must* in (15b) deviates from (6a) and (6b),⁸ and S lays an obligation on Y by proxy for the rule of choosing caskets. Next, S is more powerful than Y in the sense that S is in a position to tell Y to leave if Y chooses the wrong casket, based on the rule of choosing caskets. This is why *must* in (15b) satisfies (6c).

The above observation shows that the most frequently used type of root *must* in EModE is “prototypical *must*,” as in (13).

5.4.2. In LModE

A total of 89 tokens of root *must* in LModE were collected from spoken discourse, of which 60 (69.4%) are classified as prototypical *must*, as exemplified in (16) below.

- (16) a. [I refers to Robinson, and *he* to Friday, with whom Robinson traveled. They are confronting enemies and are determined to fight against them.]

“But,” said I, “Friday, we *must* resolve to fight them: can you fight, Friday?” “Me shoot,” says he, “but there come many great number.” [D. Defoe, *Robinson Crusoe*]

- b. [S is the Spanish governor and the hearers (Ys) are two honest Englishmen. S is worried that the Ys are about to starve.]

“Hold; you *must* reflect that it will be long ere they can raise corn and cattle of their own, and they must not starve; we must therefore allow them provisions.”

[D. Defoe, *The Further Adventure of Robinson Crusoe*]

- c. [S is being asked to donate money to the poor, but he is so miserly that he does not want to do it.]

I help to support the establishments I have mentioned—they cost enough; and those who are badly off *must* go there.

[C. Dickens, *A Christmas Carol*]

In (16a) S determines to fight against the enemies because S wants to defend himself and Friday (thereby satisfying (6a)), and of course defending them benefits S himself and Friday (i.e., “S’s benefit +”), and if Y does not fight their enemies, S may be injured (i.e., “S/Y’s benefit –”) (thereby satisfying (6b)). Next, S as an imposer is (perhaps psychologically) more powerful than S as an imposee (i.e., as Y), for which *must* in (16a) satisfies (6c).

Next, S in (16b) wants Y to obey S’s obligation (thereby satisfying (6a)), and considers it beneficial to S (i.e., “S’s benefit +”) and if Y does not obey S’s obligation, S thinks that Y may starve (i.e., “Y’s benefit –”) (thereby satisfying (6b)), because S is in the position of governing Y and is socially superior to Y (thereby satisfying (6c)). If Y obeys S’s obligation and reflects what S told Y, the satisfaction will lead to S saving face (this is S’s benefit).

Similarly, S in (16c) is so miserly that S does not want to donate to the poor (Y), but rather wants them to go to the poorhouse (thereby satisfying (6a)). Also, S considers it beneficial for S that Y goes to the poorhouse so that S can avoid donating money to Y (i.e., “S’s benefit +”), and if Y does not do A, S will be annoyed at Y because S does not want to donate money to Y (i.e., “S’s benefit –”) (thereby satisfying (6b)). In addition, S, who is rich, is financially more powerful than Y (thereby satisfying (6c)).

Next, only two tokens (2.2%) can be classified as invitation *must*. Consider (17).

(17) a. [A child (the hearer, Y) is trying to carry a

turkey that is so heavy that he cannot carry it by himself.]

“Why, it’s impossible to carry that to Camden Town,” said Scrooge. “You *must* have a cab.”

[C. Dickens, *A Christmas Carol*]

b. [S and Y (the hearer) are friends. Y visits S’s house.]

It was very sweet of you to come. Now, you *must* have some wine and water, and sit here comfortably and tell us all about it.

[C. Doyle “The Man with the Twisted Lip”]

In (17a), S wants Y to have a cab (thereby satisfying (6a)) because S knows that the cab will help Y carry a turkey more easily (thereby bringing about Y’s benefit, and also S’s benefit in the sense that S is satisfied that Y can lighten Y’s burden). In this sense, *must* in (17a) deviates from (6b) but satisfies (7b). In addition, S is (psychologically and socially) more powerful than Y (thereby satisfying (6c)), because S is an adult while Y is a child. Similarly, S in (17b) wants Y to have some wine and water, etc. (thereby satisfying (6a)), because S knows that if Y does so, Y will feel at ease at S’s house (hence “Y’s benefit +”), and also that S will probably benefit because S will be satisfied to find Y feeling at ease. In this sense, *must* in (17b) deviates from (6b) but satisfies (7b). In addition, S is more powerful than Y here, because S is in the position of inviting Y to S’s house (thereby satisfying (6c)).

Finally, 27 tokens (30.3%) are classified as objective *must*, as exemplified in (18).

(18) a. For example, if my neighbour has a mind to my cow, he has a lawyer to prove that he ought to have my cow from me. I *must* then hire another to defend my right, it being against all rules of law that any man should be allowed to speak for himself.

[J. Swift, *Gulliver's Travels*]

b. "I wish you would explain yourself; I cannot imagine what reason I have to be afraid of any of the company's ships, or Dutch ships. I am no interloper. What can they have to say to me?"—"Well, sir," says he, with a smile, "if you think yourself secure, you *must* take your chance;"

[D. Defoe, *The Further Adventure of Robinson Crusoe*]

c. "Men's courses will foreshadow certain ends, to which, if persevered in, they *must* lead," said Scrooge.

[C. Dickens, *A Christmas Carol*]

S in (18a), Gulliver, must hire a lawyer in order to save his cow from his neighbor, and therefore without such an interruption he does not want to hire a lawyer (thereby deviating from (6a)). Next, S does not want to hire a lawyer (if possible, because hiring a lawyer in circumstances like those in (18a) means the situation is undesirable for S), so S does not consider that hiring a lawyer would be beneficial to S (thereby also deviating from (6b)).⁹ As for the power relationship, S as an imposer of an obligation is psychologically more powerful than S as an imposee (thereby satisfying (6c)).

Next, the second speaker in (18b) (S in this case) really does not want

the first speaker (Y in this case) to do A, or to take Y's chance and fight with enemies (thereby deviating from (6a)) and will not benefit from Y doing A (thereby deviating from (6b)). In this case, S is laying an obligation on Y by proxy for Y (in this case, Y's strong will). Next, S is more powerful than Y (thereby satisfying (6c)).

Finally, consider (18c). The obligation comes not from S's want and benefit (brought about by men (Ys) leading to certain ends mentioned in (18c)), but rather from men's destiny (hence deviating from (6a) and (6b)). S is more powerful than Y in the sense that S is in the position of laying an obligation on Y by proxy for the source of obligation (i.e., men's destiny). Thus, *must* in (18c) satisfies (6c).

The observation so far shows that prototypical *must* is the most frequently used type in LModE, as illustrated in (16).

5.4.3. Summary and Discussion

The result of data observation based on the ICM of obligation (i.e., the classification of three types of root *must* as in section 4.4) is summarized in Table 5.3 (including the distribution result of root *must* in PDE). The table shows that in each of the three periods of English, prototypical *must* is the most frequently used of the three types (on at least more than two-thirds of occasions). That is, the study's ICM-based account of the prototype effect of root *must* is proven to be quantitatively corroborated (except for invitation *must* in this case too).

Type Period	Prototypical		Invitation		Objective		(Total)
EModE	212	76.3%	1	0.4%	65	23.4%	278
LModE	60	67.4%	2	2.2%	27	30.3%	89
PDE	185	85.3%	1	0.5%	31	14.3%	217
(Total)	457	78.1%	4	0.7%	124	21.2%	585

Table 5.3. Frequency of use of three types of root *must* in EModE, LModE, and PDE.

Based on these results, this section argues that the present research partially corroborates the process of the semantic development of English modals. Here, consider subjectification in the sense of Traugott (1989) and Traugott and Dasher (2002). Traugott and Dasher (2002:114) defined “subjective” and “objective” in terms of a cline of subjectivity in deontic (or what we call “root”) modals: from “objective (the source of obligation is universal)” (ibid.) to “subjective (the source of obligation is the speaker)¹⁰ (ibid.). An objective source of obligation is, for example, government regulation (Traugott and Dasher 2002:109), God, law, and so on (see also Sawada (2006:308)).

Traugott and Dasher (2002) propose the following semantic developmental path as in (19).

(19) objective -> subjective.

This is what Traugott (1989) refers to as “subjectification,” defined below.

‘Subjectification’ refers to a pragmatic-semantic process whereby ‘meanings become increasingly based in the speaker’s subjective belief state/attitude toward the proposition’, in other words, towards what the speaker is talking about. [Traugott 1989:35]

In relation to the above definition of subjectification, our “prototypical *must*” is subjective in that its meaning is largely based on S’s desire to realize an imposee’s performance of an action (i.e., satisfying (6a)). On the other hand, our “objective *must*” is more objective than “prototypical *must*,” because the former satisfies neither (6a) nor (6b). In this sense, S’s belief state/attitude is little reflected on the meaning of the former type of *must*.

As far as the observations in sections 5.3.1, 5.4.1 and 5.4.2 are concerned, this paper’s prototypical *must* is more frequently used in EModE, LModE, and PDE, than its objective *must*. From this, it can be said that, since EModE at the latest, the meaning of root *must* has been predominantly subjective rather than objective. This result is not contradictory to the path (19), and this means that the diachronic quantitative research will be partly corroborated (19). If a linguistic form develops semantically from subjective to objective, that will constitute a serious contradiction to (19). This possibility cannot be found in the result of the observations in sections 5.3.1, 5.4.1 and 5.4.2.

Generally, what is certified as a prototype (i) reflects the intuition of language users to the greatest degree, (ii) is used most frequently, and (iii) is used historically for a long time (Hayase and Horita 2005:179). The tendency that root *must* is more subjective than root *have to* applies to the

first criterion, because such a tendency has long been noticed in previous studies. This section's quantitative research showed that the above tendency also applies to the second criterion on frequency of use, because prototypical *must* (which is rather subjective) and prototypical *have to* (which is rather objective) are used more frequently than non-prototypical *must* (i.e., invitation *must* and objective *must*) and non-prototypical *have to* (which is rather subjective) in PDE. As for the prototypicality of root *must*, the tendency that root *must* is subjective may apply also to the third criterion on historically frequent use. This is because the research for this study has shown that prototypical *must* (subjective) has been used more frequently than non-prototypical *must*, at least from EModE to PDE.

5.5. Quantitative Research in Terms of an Imposee

This section observes data of root *must* and root *have to* in terms of an imposee of an obligation (i.e., the entity labeled “Y” in Chapter 4). The reason for observing data in terms of an imposee is that an imposee and an imposer are both essential concepts in root modals (in this case, the ones expressing obligation), when analyzing the semantics of modality through Talmy's (2000) force dynamics.

More specifically, the following three points are examined.

- (20) a. Whether an imposee is frequently encoded as a sentence subject of *must*-sentences and *have to*-sentences.
- b. Who or what frequently serves as an imposee of the sentences.
- c. Whether agentive or non-agentive imposees appear more

frequently in *must*-sentences and *have to*-sentences.

(20a) is examined because in *must*-sentences and *have to*-sentences, it can be said, at least intuitively, that the subject referent of those sentences tends to express an imposee of an obligation. For example, in *You must go there* the imposee of an obligation is the hearer (i.e., the subject referent of the example). In addition, it is worth remembering that Coates (1983) seems to consider a subject referent of *must*-sentences as an imposee of an obligation, as in (21a) below. (21b) and (21c) can be added to this, as these serve as other features of Coates paying attention to the notion of a subject.

- (21) a. speaker has authority over *subject* [= (10c) in section 4.2.1]
b. second person *subject* [= (10a) in section 4.2.1]
c. animate *subject* [= (10f) in section 4.2.1]

Secondly, one of Coates' features (21b) attracts attention to (20b). This paper asks, in relation to (21), whether it is the second person subject or other person subject (i.e., the first or the third) that is most frequently found in the subject position of *must*-sentences. If the subject of the discussion is temporarily limited to root *must*, Coates's reference to "second person" in (21b) is compatible with this study's account of root *must* based on the act of laying an obligation, one of DSA subclasses. This is because, in the traditional account of DSAs (e.g., Searle 1969, 1979), it is the hearer (i.e., the second person) that is placed under an obligation to do a future A. The above discussion allows us to argue that the prototype of an imposee of

root *must* is the hearer; however, it is worthwhile discussing whether that prototype reflects the actual use of *must*-sentences.

Finally, the reason for considering (20c) is one of Coates's features (22).

(22) verbs agentive [= (10d) in section 4.2.1]

Strictly speaking, what Coates considers in (22) is the agentivity of the verb of *must*-sentences and *have to*-sentences, and not the agentivity of an imposee of the sentences. Yet, the agentivity of a verb in those sentences corresponds to that of an imposee involved in the sentences. For example, in an utterance such as *You must go*, the verb *go* is agentive, and at the same time the imposee (*you*) is also agentive, both in Lyons' sense: "an animate entity (...) intentionally and responsibly uses its own force, or energy, to bring about an event or to initiate a process" (Lyons 1977:483).¹¹ The agentivity of a verb and that of an imposee (of *must*- and *have to*-sentences) are considered as identical in what follows, and the agentivity of an imposee is focused on, so as to better understand the characteristics of an imposee of *must*-sentences and *have to*-sentences.

One thing should be noted here with respect to how the agentivity of an imposee is treated. More specifically, as for a passive sentence in which a verb itself is agentive, Coates considers it to be satisfying (22), because the verb is still agentive. On the other hand, Lyons (1977) would consider it as non-agentive, because in passive sentences, a sentence subject typically receives force from other entities, rather than using its own force. In the

case of passive sentences of *must* and those of *have to*, this paper follows Lyons, because it is more natural to consider, for example, *You must be scolded*, as non-agentive than as agentive (according to Coates's judgment).

Through the observation of the data in terms of (20a)–(20c), this thesis will also consider whether there is a difference or differences between an imposee of *must*-sentence and an imposee of *have to*-sentences.

5.5.1. Root *Must* in PDE

In PDE, an imposee is prototypically encoded as a sentence subject, because 194 tokens among this study's PDE data from spoken discourse (89.4%) include an imposee in the sentence subject position. Examples are shown in (8), repeated below.

- (8) a. [S is giving a speech to the public]
We *must* have no violence today. [*Forrest Gump* film script]
- b. [The speaker is a teacher of the hearer.]
You *must* speak clearly, dear. [*Harry Potter*]
- c. [From a speech given by George Bush, just before the Iraq War, 2003.]
Saddam Hussein and his sons *must* leave Iraq within 48 hours.

The obligation is placed on those including S in (8a), on the hearer in (8b), and the third party (Hussein and his sons) in (8c).

Among the 194 cases in which an imposee is encoded as a sentence subject, it is the first person subject that appears most frequently in a

sentence subject position. More specifically, the first person imposee appears in 110 cases (56.7%), the second person imposee in 69 cases (35.6%), and the third person imposee in 15 cases (7.7%), as in (8a)–(8c), respectively.

On the other hand, 23 tokens (10.6%) have an imposee that is not encoded as a sentence subject, as exemplified in (23).

(23) a. [From the FAQ of an American travel agency.]

Paper tickets *must* be signed for and *must* be sent to a physical address, which must be the billing address for the credit card.

b. [S is a detective.]

For some reason or other he had not returned. Why? Had he met with an accident? Fallen over the cliffs? A search *must* be made at once. [A. Christie, “The Tuesday Night Club”]

It is impossible for the obligation to be laid on paper tickets in (23a) and on a search in (23b). Rather, the imposees are travelers in (23a) and S himself (who is carrying out his investigation), both of which are not encoded as a sentence subject in (23).

The next stage is to observe whether root *must* in PDE is prototypically agentive or non-agentive. The result is that an imposee in PDE is prototypically agentive; 191 tokens among the total 217 (88.0%) involve an agentive imposee, as exemplified in (24).

- (24) a. But I *must* impress upon both of you the seriousness of what
you have done. [Harry Potter]
- b. You *must* speak clearly, dear. [= (8b)]
- c. Saddam Hussein and his sons *must* leave Iraq within 48
hours. [= (8c)]

The imposee in (24) is agentive in that he/she initiates a process with his/her own force, thereby satisfying Lyons's definition of agentivity.

On the other hand, 26 tokens (12.0%) involve a non-agentive imposee, as shown in (25).

- (25) a. Harry Potter *must* stay where he is safe. [Harry Potter]
- b. Well, well, I *must* not be selfish.
[C. Doyle, "The Norwood Builder"]

The imposee in (25a) is forced by the speaker to stay in a safe place. To stay in one place is generally less agentive than the actions (hence the imposee is also non-agentive in Lyons's sense). Likewise, the imposee in (25b) forces himself to be selfish, and for someone to keep their feelings in one state is less agentive. Therefore, the imposee in (25) does not initiate a process with his/her own force; hence, he/she is a non-agentive imposee.

To sum up, an imposee in the case of root *must* is (i) frequently encoded as a sentence subject (as in (8)), (ii) prototypically the first person subject (as in (8a)), and (iii) prototypically agentive (as in (24)).

5.5.2. Root *Must* in EModE

In this section, data of root *must* in EModE is shown with respect to an imposee. Firstly, the imposee of root *must* in EModE is prototypically encoded as a sentence subject: 253 of 278 tokens (91.0%) are such data. The examples are in (26) below.

(26) a. First Officer:

No, sir, no jot; I know your favour well,

Though now you have no sea-cap on your head.

Take him away, he knows I know him well.

Antonio:

I *must* obey. [To Viola] This comes with seeking you;

[*Twelfth Night*: 3.4.337–340, verse]

b. [Rosalind (the speaker) and Orlando (the hearer) are in love with each other. Orlando has not yet discovered that Rosalind is wearing men's clothes.]

Rosalind:

Nay, you *must* call me Rosalind. Come sister, will

you go? [= (13b)]

c. Morocco:

“Who chooseth me *must* give and hazard all he hath.”

[*The Merchant of Venice*: 2.9.21, verse]

The obligation is imposed on the subject referent of each *must*-sentence in (7): the speaker himself (i.e., the first person), the hearer (i.e., the second

person), and all the people (i.e., the third person), as in (26a)–(26c), respectively.

Among the total of 253 tokens that involve an imposee encoded as a sentence subject, 134 (53.0%) involve a first person imposee, 76 (30.0%) involve a second person imposee, and 43 (17.0%) involve a third person imposee, as in (26a)–(26c), respectively.

On the other hand, 25 tokens (9.0%) were found in which an imposee is not encoded as a sentence subject, as shown in (27) below.

(27) a. Macbeth:

Your spirits shine through you. Within this hour, at
most

I will advise you where to plant yourselves,
Acquaint you with the perfect spy o' the time,
The moment on't; for't *must* be done tonight

[*Macbeth* 3.1.127–130, verse]

b. Benedick:

[Coming forward.] This can be no trick: the conference
was sadly borne; they have the truth of this
from Hero; they seem to pity the lady: it seems
her affections have their full bent. Love me? Why,
it *must* be requited. (...)

[*Much Ado about Nothing*: 2.3.212–216, prose]

In (27a) the imposee literally cannot be *it* (= Macbeth's plot to kill Banquo),

but rather those who kill Banquo. Also in (27b) it (=that she loves the speaker) cannot be an imposee; but rather the “true” imposee is the speaker himself, who will requite the lady’s love.

Next, the high degree of agentivity of an imposee should be shown quantitatively. Among 278 tokens, 215 (77.3%) have an agentive imposee, as in (26) above. The actions that the imposees there are forced to carry out are to obey in (26a), to call the speaker Rosalind in (26b), and to give and hazard all he has in (26); all of which are agentive.

On the other hand, the other 63 tokens (22.7%) involve actions that are rather less agentive (hence the imposee, in his/her semantic role, is also less agentive), as in (28).

(28) a. Hamlet:

They are coming to the play. I *must* be idle.

[*Hamlet* 3.2.90, prose]

b. Viola:

But if she cannot love you, sir?

Duke:

I cannot be so answer’d.

Viola:

’Sooth, but you *must*.

Say that some lady, as perhaps there is,

Hath for your love as great a pang of heart

As you have for Olivia: you cannot love her:

You tell her so. Must she not then be answer’d?

The speaker in (28a) (Hamlet) determines to be idle in the play (in which the speaker is going to play out the circumstances of his father’s death in front of Hamlet’s mother and his uncle). Being idle is rather less agentive, because the act does not “initiate a process” (Lyons 1977:483). On the other hand, the obligation mentioned in the *must*-sentence of (28b) is to “be so answered” (i.e., be answered that the person whom Duke likes cannot love him). The passive event “be so answered” is clearly less agentive, and in turn the imposee is less likely to be agentive, for the same reason as noted above.

To sum up, an imposee in the case of root *must* in EModE frequently is (i) encoded as a sentence subject (as in (26)), (ii) the first person subject (as in (26a)), and (iii) agentive (as in (26)).

5.5.3. Root *Must* in LModE

In LModE, an imposee is prototypically encoded as a subject position of a *must*-sentence. Among the total of 89 tokens, 85 (95.5%) have an imposee that appears in the sentence subject position, as exemplified in (29).

- (29) a. “But,” said I, “Friday, we *must* resolve to fight them: can you fight, Friday?” “Me shoot,” says he, “but there come many great number.” [= (16a)]
- b. “I wish you would explain yourself; I cannot imagine what

reason I have to be afraid of any of the company's ships, or Dutch ships. I am no interloper. What can they have to say to me?"—"Well, sir," says he, with a smile, "if you think yourself secure, you *must* take your chance." [= (18b)]

- c. I help to support the establishments I have mentioned—they cost enough; and those who are badly off *must* go there. [= (16c)]

In (29), the subject referent serves as an imposee of obligation: S and the hearer in (29a), the hearer in (29b), and the third party in (29c).

Among the total 85 tokens that involve an imposee encoded as a sentence subject, 45 (52.9%) involve a first person imposee, 24 (28.2%) involve a second person imposee, and 16 (18.8%) involve a third person imposee, as in (29a)–(29c), respectively.

On the other hand, in four tokens (4.5%) an imposee is not encoded as a sentence subject, as in (30).

- (30) a. [It refers to a cat, about which the King (S) is annoyed]
'Well, it *must* be removed,' said the King very decidedly; and he called the Queen, who was passing at the moment, 'My dear! I wish you would have this cat removed!'
[L. Carroll, *Alice's Adventures in Wonderland*]
- b. If the police are to hush this thing up, there *must* be no more of Hugh Boone. [C. Doyle, "The Man with the Twisted Lip"]

The "true" imposee in (30a) is not the cat but rather somebody who will

remove the cat (because S tells the Queen to remove the cat later, the true but implicit imposee will be the Queen in this case). Similarly, since the subject (at least syntactically) is *there* in (30b), it cannot be that the imposee is manifested in a sentence subject position (but rather the obligation may be laid on those who will behave like Hugh Boone).

Next, it will be shown that an imposee is prototypically agentive or non-agentive. In fact, 72 tokens (80.9%) involve an agentive imposee, as in (16), repeated below.

(16) a. “But,” said I, “Friday, we *must* resolve to fight them: can you fight, Friday?” “Me shoot,” says he, “but there come many great number.” [D. Defoe, *Robinson Crusoe*]

b. “Hold; you *must* reflect that it will be long ere they can raise corn and cattle of their own, and they must not starve; we must therefore allow them provisions.”

[D. Defoe, *The Further Adventure of Robinson Crusoe*]

c. I help to support the establishments I have mentioned—they cost enough; and those who are badly off *must* go there.

[C. Dickens, *A Christmas Carol*]

In each case, the imposee is agentive to the extent that he/she will intentionally perform the action (thereby satisfying Lyons’s definition of agentivity).

The remaining 17 tokens (19.1%), on the other hand, involve a non-agentive imposee, as exemplified in (31).

- (31) a. “I don’t mind going if a lunch is provided,” observed the gentleman with the excrescence on his nose. “But I *must* be fed, if I make one.” [C. Dickens, *A Christmas Carol*]
- b. Seignior Inglese, these fellows *must* be encouraged, or they will ruin us all; for if the Tartars come on they will never stand it.

[D. Defoe, *The Further Adventure of Robinson Crusoe*]

The imposee in (31) is not agentive, but rather patient; the action mentioned there (i.e., to be fed and to be encouraged) does not express initiating a process (Lyons 1977:483). Thus the imposee in (31) is less agentive with regard to its semantic role.

The result of the observation in this section is that an imposee of root *must* in LModE frequently (i) is encoded as a sentence subject as in (29), (ii) has the first person subject as an imposee as in (29a), and (iii) is agentive as in (16).

5.5.4. Root *Have to* in PDE

In this section, data of root *have to* in PDE is observed with respect to an imposee. Note that Coates (1983) does not analyze root *have to* using features in (21). Nevertheless, for the purpose of examining whether there is a difference with respect to an imposee between root *must* and root *have to*, (21) is applied to examine the cases of root *have to* in terms of an imposee.

First, an imposee of root *have to* in PDE is prototypically manifested as a sentence subject. In fact, 136 tokens (94.4%) out of a total of 144 involve an imposee encoded as a sentence subject, as shown in (11), repeated below.

- (11) a. It is also clear that given the likely death toll, there will be many citizens of other states who will have died. I *have to* say that I fear significant numbers of them will be British.

[Tony Blair's speech, September 12, 2001]

- b. [The hearer is a writer for *TIME Magazine*]

That's the new-economy view, anyway, and even some old-economy money managers buy it. "To maximize your long-term returns, you just *have to* step up and buy in a market like this," says Charles Carlson, co-manager of the Strong Dow 30 Value Fund. [*TIME*, April 24, 2000]

- c. [S is talking with his friends about Brockovich (to whom *she* refers).]

...so she drops the entire bag of Doritos in my lap and while I'm driving, she's feeling me up because she *has to* eat all the time, this one, constantly ... [*Erin Brockovich* film script]

Among 136 cases in which an imposee is encoded as a sentence subject, it is the first person imposee that appears in a sentence subject position. The first person imposee appears in 82 cases (60.3%), the second person imposee in 40 cases (29.4%), and the third person imposee in 14 cases (10.3%), as in

(11a)–(11c), respectively.

On the other hand, eight tokens (5.6%) have an imposee that is not manifested in a sentence subject position, as in (32).

- (32) a. No, no, look at the plans. Henry, you can't place that strut laterally, it *has to* be crosswise. LOOK AT THE PLANS!

[*The Lost World: Jurassic Park* film script]

- b. There the matter stands at present, and the questions which *have to* be solved—what Neville St. Clair was doing in the opium den, what happened to him when there, where is he now, and what Hugh Boone had to do with his disappearance—are all as far from a solution as ever.

[C. Doyle, “The Three Students”]

The subject referent in (32a) is the strut, and the one in (32b) is the questions (though preposed as an antecedent of the relative clause). In both cases, the subject referent cannot serve as an imposee, but rather, the “real” imposee is the one who obeys the plan of where to place the strut in (32a), and the one who solve the questions in (32b).

Next, the data is observed in terms of whether an imposee is agentive or non-agentive. The result is that an imposee is prototypically agentive rather than non-agentive. More specifically, the number of cases with an agentive imposee is 124 (86.1%) as exemplified in (12a) and (12b), repeated below.

- (12) a. [S (Tony Blair) is giving a speech at a university.]
 And we know too that not only is it possible for large numbers of school leavers to achieve high standards, but that it is more and more important that they do so. We *have to* match our competitors in believing that in the core subjects of the curriculum all students can gain a good grounding.
- b. [The speaker (Chief Mechanic) is directing the hearer (the President, who is temporarily flying Air Force One)]
 Okay, you're aerated. To dump the fuel you *have to* close the circuit for the pump. [Air Force One film script]

In each of the above cases, an imposee is agentive in the sense that he/she will initiate some action with his/her own force.

On the other hand, 20 tokens (13.9%) have an imposee that is non-agentive, as in (33).

- (33) a. My dear Sam. You cannot always be torn in two. You *have to* be one and whole for many years.
 [Lord of the Rings: The Return of the King film script]
- b. Well, you *have to* be blooded some time.
 [C. Doyle, *The Valley of Fear*]

The verb is stative in (33a) and is in passive voice in (33b). In both cases, it is hard to say that an imposee is bringing about an action or initiating a process, hence it is non-agentive.

This section has shown that an imposee of root *have to* in PDE is frequently (i) encoded as a sentence subject as in (11), (ii) the first person subject as in (11a), and (iii) agentive as in (12).

5.5.5. Summary and Discussion

In this section, the results of the observation up to section 5.5.4 are discussed in terms of (20a)–(20c) above. Firstly, the results are discussed in terms of (20a), repeated below.

- (20) a. Whether an imposee is frequently encoded as a sentence subject of *must*-sentences and *have to*-sentences.

The answer to (20a) is an affirmative one. It has been observed that an imposee is frequently encoded as a sentence subject of *must*-sentences and *have to*-sentences in all periods of EModE, LModE and PDE. The results are summarized in Table 5.4. The result has one cognitive grammatical implication. Recall that in cognitive structures of English modals (Langacker (1990, 1991), and Figure 2.4 in section 2.4.3, repeated below), an imposee is construed as a trajector (i.e., the most salient entity) in a process grounded by modals as grounding predication (for the detail of the grounding predication, see section 2.4.3).

	Subject referent		Non-Subject referent		Total	
EModE <i>must</i>	253	91.0%	25	9.0%	278	100%
LModE <i>must</i>	85	95.5%	4	4.5%	89	100%
PDE <i>must</i>	194	89.4%	23	10.6%	217	100%
PDE <i>have to</i>	136	94.4%	8	5.6%	144	100%

Table 5.4. The distribution of an imposee in terms of whether it is encoded as a subject referent

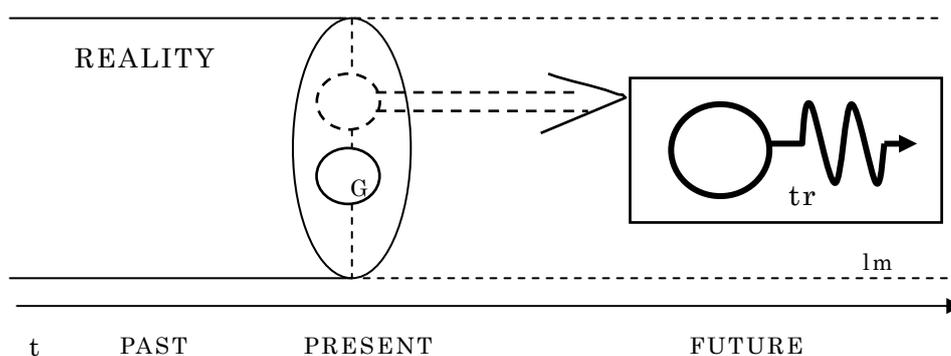


Figure 2.4. (= Langacker 1990:334, Figure 9c)

The result will now be discussed in terms of (20b), repeated below.

(20) b. Who or what frequently serves as an imposee of the sentences

The answer to (20b) is the first person subject; this is the case in all periods of EModE, LModE and PDE. In other words, root *must* and root *have to* tend to be used to express “self obligation” (Leech 2004:78) rather than an obligation to the hearer.¹² The results are summarized in Table 5.5 below.

	First person		Second person		Third person		Total	
EModE <i>must</i>	134	53.0%	76	30.0%	43	17.0%	253	100%
LModE <i>must</i>	45	52.9%	24	28.2%	16	18.8%	85	100%
PDE <i>must</i>	110	56.7%	69	35.6%	15	7.7%	194	100%
PDE <i>have to</i>	82	60.3%	40	29.4%	14	10.3%	136	100%

Table 5.5. The distribution of an imposee in terms of its person

Though some previous studies have observed data of root *must* and root *have to* in terms of an imposee (Quirk et al. 1995, Swan 1995, Westney 1995, inter alia), none of them have examined which person subject is the most frequently used. The observations in sections 5.5.1 through 5.5.3 revealed that the first person subject appears most frequently in *must*- and *have to*-sentences of the three persons of a sentence subject.

This result exhibits an interesting point from the standpoint of the DSA of obligation. Traditionally, it is H (i.e., the second person subject) that is told by S to do A in S's performance of the DSA of obligation, and so the second person subject is expected to be regarded as a prototypical imposee of at least *must*-sentences. That expectation is, however, not confirmed by the observations in this thesis, as it is in fact the first person subject that occurs most frequently in the subject position of *must*-sentences (and of *have to*-sentences). The cause of this discrepancy between the type considered as a prototypical imposee and the type that actually occurs most frequently should be examined, and it is argued here that the discrepancy may be brought about by S's politeness strategy (Leech 1983, and Brown

and Levinson 1987). From a pragmatic point of view, this result may show that in laying an obligation with *must*-sentence or portraying an obligation caused by a factor external to S with *have to*-sentences, S tends to avoid threatening the hearer's negative face (Brown and Levinson 1987; see also Leech 1983:106), in spite of the speech act of obligation itself serving to threaten the hearer's negative face.

Finally, the result is considered in terms of (20c), repeated below.

- (20) c. Whether agentive or non-agentive imposes appear more frequently in *must*-sentences and *have to*-sentences.

The answer to (20c) is that an agentive imposee appears more frequently than a non-agentive one, in cases of root *must* in EModE, LModE and PDE and in cases of root *have to* in PDE. The results are summarized in Table 5.6. This result is natural considering that laying an obligation with *must*-sentence or portraying an obligation caused by a factor external to S with *have to*-sentences involves expressing a state of affairs (or propositional content) that is not realized at the time of utterance (recall the schematic meaning of DSA proposed in (19) in section 4.3.1).¹³ Namely, it is argued that the result shown in Table 5.6 may be motivated by the schematic meaning of DSAs.

	Agentive		Non-Agentive		Total	
EModE <i>must</i>	215	77.3%	63	22.7%	278	100%
LModE <i>must</i>	72	80.9%	17	19.1%	89	100%
PDE <i>must</i>	191	88.0%	26	12.0%	217	100%
PDE <i>have to</i>	124	86.1%	20	13.9%	144	100%

Table 5.6. The distribution of an imposee in terms of its agentivity

5.6. Summary

This chapter conducted quantitative research into the usage of root *must* and root *have to*. The points are summarized as in (34a) and (34b).

- (34) a. What was labeled as “prototypical *must/have to*” in Chapter 4 is found to occur more frequently than non-prototypical types of root *must* and root *have to*. This prototype effect is seen in all periods of EModE through PDE. (Sections 5.3 and 5.4)
- b. An imposee of root *must* and root *have to* is most frequently (i) encoded as a sentence subject, especially, as the first person subject, and (ii) agentive. These results can be motivated cognitively and pragmatically. (Section 5.5)

As the above results have been found in all periods of EModE, LModE and PDE, it can be concluded that the prototypical usage patterns in terms of our ICM-based account (Chapter 4) and in terms of an imposee are highly entrenched, at the latest from the period of EModE through the period of

PDE.

The discussion in this chapter shows the significance of examining whether a discrepancy occurs between a prototype constructed by native speakers' intuition and ICM and its actual frequency of use. This should support the usage-based view of cognitive linguistics on language: i.e., that “substantial importance is given to the actual use of the linguistic system and a speaker's knowledge of this use” (Langacker 1987:494).

Notes to Chapter 5

¹ The original texts of Shakespeare, adopted as texts representative of those written in EModE, are owed to *Sheikusupia Taizen* (The Complete Shakespeare) CD-ROM version, 2003, Tokyo: Shinchosha. The texts are in the Arden edition.

² See also Biber (1986) for a close discussion of textual dimensions between spoken and written texts.

³ Also, EModE is the period when *have to* came into existence according to the Oxford English Dictionary (OED). However, fewer examples of root *have to* were found in EModE and LModE than of root *must*, so root *have to* will not be quantitatively examined in this chapter (for close analysis, see Sanada 2007a). The fact that *have to* was used much less often than root *must* is compatible with the findings of Krug's (2000:79) corpus-based research. He was able to find a maximum of six tokens of *have to* per 10,000 words in ARCHER (A Representative Corpus of Historical English Registers) corpus.

⁴ The difference in grammatical voice is not considered in this chapter, because that difference does not seem to matter in classifying data in terms of this thesis' ICM-based account. Of course, however, it may be worthwhile collecting and analyzing the data of root *must* in passive sentences in relation to the function of passive construction (e.g., Takami (1995).

⁵ Note that invitation *must* is quantitatively less prototypical than objective *must*, although Figure 4.2 showed that invitation *must* is more prototypical than objective *must* in terms of subjectivity (in Lyons's (1977) sense).

⁶ Tagliamonte and D'Arcy (2007) note that by the end of the ME period, the original OE meaning of permission (of *motan* and its preterite form *moste*) had been lost and “*must* was firmly entrenched as a marker of both deontic

and epistemic modality” (Tagliamonte and D’Arcy 2007:50). See also Tamura (2000: section 5).

⁷ Benedick’s utterance *Hang it!* means “No kidding!” but Claudio takes this utterance literally (albeit as a joke, of course), i.e., to kill Y by hanging.

⁸ If there was a context in which S in (15b) hates Y, the obligation would be said to come from S (i.e., the obligation is based on S’s want and S’s benefit), and so *must* in (15b) would be classified as “prototypical *must*.” However, as far as can be ascertained, there is no such context in (15b).

⁹ It may be said that S’s benefit is involved in (18a) (thereby satisfying (6b)). However, recall the following ICM:

“S wants the realization of an action that benefits S and/or Y.”
[= (25) in section 4.3.2]

This ICM is equivalent to “if an action as an obligation benefits S, then S wants the realization of the action.” Note that the ICM is presupposed in this study’s analysis of root *must*, and then the contraposition of the ICM is also the case (i.e., if S does not want the realization of an action, the action as an obligation does not benefit S). Therefore, (18a) is considered not to benefit S; S wants to avoid having to hire a lawyer if possible.

¹⁰ S as a source of obligation usually involves “S’s want” and “S/Y’s benefit +/-,” according to our proposed ICM of S’s mental attitude in performing a DSA: S wants the realization of an action that benefits S and/or Y (= (25) in section 4.3.2).

¹¹ See also Lakoff and Johnson (1980:70), Kuroda (1992), Nishimura (1997:279) and Nishimura (1998).

¹² Another survey (albeit informal) was conducted in COCA (in which the genre is limited to “spoken”), on March 7, 2009. The survey searched for “I must/have to,” “we must/have to,” and “you must/have to,” each followed by a verb, for the purpose of examining whether the first person subject appears more often than the second person subject. The result is: “I must” (2443/14984 tokens), “we must” (1497/14984 tokens), “you must” (1773/14984 tokens), “I have to” (6303/61364 tokens), “we have to” (10193/61364 tokens), and “you have to” (12831/61364 tokens). This shows that the first person subject is more likely to appear in both *must*- and *have to*-sentences than the second person subject. In addition, *have to* is found to be used much more frequently than *must*, which is compatible with the findings of Biber et al. (1999:488–489) on conversational and fictional data in AE.

¹³ The verbs that are most frequently used in *must*- and *have to*-sentences should also have been examined (in the way Takahashi (2007a, 2007b) analyzed imperative verbs in English). As far as the data collected in this study is concerned, however, no less than 122 types of verbs (in 217 tokens in total) are found to be used in the data. There are so many kinds of verbs

(as many as 115 types of verbs are used less than five times) that it can be difficult to objectively determine what verb is most frequently used in *must*- and *have to*-sentences. This is area to be worked on in future research with the help of a large electronic corpus (such as COCA).

Chapter 6

Conclusions and Prospects

This thesis has conducted a pragmatic and cognitive linguistic study of root *must* and root *have to*. It has been largely dependent on the force dynamic conceptualization of modals (Talmy 2000), the speech act theory (Searle 1969; 1979), and the Idealized Cognitive Model (ICM) (Lakoff 1987). The study has observed data both synchronically and diachronically (in the examination of root *must*), and both qualitatively and quantitatively, by compiling the data in an original (albeit somewhat simply constructed) corpus. This chapter presents concluding remarks on the contents of chapters 3 to 5 and goes on to show remaining issues to be addressed by future research as prospects of this thesis.

Chapter 3 argued that cognitive approaches work more effectively than non-cognitive approaches toward a comprehensive distinction of the semantics and pragmatics of root *must* and root *have to*. More specifically, it showed that such a comprehensive distinction should be accomplished with reference to the notions of “force” and “the source of force” (or what has been termed herein as the “imposer”). This is because non-cognitive studies that do not adopt the notions (such as Westney 1995 and Papafragou 2000) fail to effectively distinguish the semantics and pragmatics of root *must* and root *have to* (section 3.1.1). The cognitive studies made it easier to explain not only the distinguishability between root *must* and root *have to* (section

3.1.2) but also the context in which interrogatives with epistemic *must* and epistemic *have to* are felicitously used (section 3.2). However, the analysis up to that section proved to be insufficient in explaining non-prototypical cases of root *must* and root *have to*. This created the need for another apparatus for a more comprehensive distinction of the semantics and pragmatics of the two (quasi-)modals.

The proposal of the apparatus in Chapter 4 was constructed based on Searle's (1969; 1979) speech act theory and Lakoff's (1987) ICM. Firstly, previous studies on the prototype of root *must* (Coates 1983) and on the characterization of directive speech acts (Searle 1979) were criticized for their feature-based orientation. In particular, doubts were cast on the fact that the feature-based orientation fails to explain why features utilized in the studies are necessary, and this is why the features merely seem to be what Lakoff (1987:115) refers to as unstructured "feature bundles." Based on the above criticisms, an ICM of obligation and three more subclasses of directive speech acts were constructed, the meaning of root *must* and that of root *have to* were specified, and it was argued that the prototypicality of root *must* and root *have to* are explained via the (varying degree of) deviation from the ICM of obligation. Root *must* prototypically fully fits the ICM of obligation, but it deviates from the ICM dependent on context, becoming objective in use. In contrast, root *have to* prototypically deviates from the ICM of obligation, but depending on the context, it fits the ICM to a varying degree, becoming subjective.

Chapter 5 conducted a quantitative research of root *must* and root *have to* for three purposes. Firstly, the ICM-based account of root *must* and

root *have to* (presented in Chapter 4) was quantitatively corroborated by collecting data of the (quasi-)modals from spoken discourse in Present-Day English (PDE). It was shown that cases of root *must* and root *have to*, labeled here as “prototypical,” are actually used quite frequently. Secondly, a historical examination as to the distribution of root *must* was conducted, with data from the discourse in Early Modern English (EModE) and in Late Modern English (LModE), and it was then argued that the prototype effect of root *must* is also seen historically in the same way as PDE. Thirdly, root *must* and root *have to* were compared in terms of an imposee, using data from spoken discourse in EModE, LModE, and PDE. It was shown that an imposee of root *must* and root *have to* is most frequently (i) encoded as a sentence subject, especially as the first person subject and (ii) agentive. These results were found in cases of root *must* in all periods of EModE, LModE and PDE, and in cases of root *have to* in PDE. The discussion in chapter 5 showed the significance of examining whether a discrepancy occurs between a prototype constructed by native speakers’ intuition and ICM and its actual frequency of use, and then supported usage-based view of cognitive linguistics on language (Langacker 1987:494).

The present thesis is far from contributing to a fully adequate understanding of English modals themselves, because for all parts of this thesis (except for section 3.2), only the root sense of *must* and *have to* was dealt with. Nevertheless, I believe that what is discussed in the present thesis will provide a springboard for a better understanding of the semantics and pragmatics of English modals from a pragmatic and a cognitive linguistic point of view. I also believe that the present study will

serve to trigger the further examination of modals in terms of subjectivity, which is difficult to grasp. For this point, an examination of the subjectivity of English modals is proposed (taking root *must* and root *have to*) in terms of speech acts expressed by the (quasi-)modals.

Before closing this thesis, I would like to point out three problems that I assume are worth examining in future research.

First, it is worthwhile examining the acquisition of the usage of root *must* and root *have to*. In other words, surveying how children begin to use the (quasi-)modals, with, for example, CHILDES corpus. According to Fletcher (1985:129–130), when his subject, Sophie, was three years old, she used root *must* to express an obligation based on a social convention in one case and based on her own or another person's desire in another case. In addition,, Gerhardt (1991) revealed that children use *have to* to indicate “external compulsion” (1991:542). In the terms of this thesis, the obligation comes from some external factor, and the discussion developed by Fletcher and Gerhardt should be examined with other data.

Secondly, the use of root *must* and root *have to* is worth examining in connection with the meaning of certain marked constructions. Section 3.3 mentioned the usage of root *must* in questions, *if*-clauses, and *that*-clauses representing reported speech (following Leech 2004). A significant amount of data on such usage should be collected and the usage of root *must* in those marked constructions should be further examined.

Thirdly, I would like to examine the semantics and pragmatics of expressions related to root *must* and root *have to*. More specifically, my interest is in at least the following questions:

- (i) What is the difference between English imperatives (Takahashi 2004, *inter alia*) and *you must* constructions (I suspect that the latter counts as an indirect directive speech act as opposed to the former)?
- (ii) Are *may* and *be allowed to*—both of which can express the act of permission (cf. Lakoff 1972a:240)—are explained in the same way as the present study did for root *must* and root *have to*?
- (iii) What are the similarities and differences between root *must*/root *have to* and related expressions in Japanese (such as *neba-narnai* and *sezaru-o-enai*)?

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<Written in Early Modern English (1501-1700) >

Note: All the following plays are owed to *Sheikusupia Taizen* (The Complete Shakespeare) CD-ROM version, 2003, Tokyo: Shinchosha.

Shakespeare, William. *The Taming of the Shrew* (1592), *Romeo and Juliet* (1595), *The Merchant of Venice* (1596-97), *Much Ado about Nothing* (1598), *As You Like It* (1599), *Hamlet* (1600-1), *Twelfth Night* (1601), *Othello* (1604), *Macbeth* (1606), *The Tempest* (1611).

<Written in Late Modern English (1701-1900) >

Note: All the following texts are downloaded from *Project Gutenberg*.

Carroll, Lewis. *Alice's Adventures in Wonderland* (1865), and *Through the Looking-Glass* (1871).

Defoe, Daniel. *Robinson Crusoe* (1719), and *The Further adventure of Robinson Crusoe* (1719).

Dickens, Charles. *A Christmas Carol* (1843).

Doyle, Sir Arthur Conan. in *The Adventures of Sherlock Holmes* (1892, including "The Men with the Twisted Lips"), *The Memoir of Sherlock Holmes* (1894, including "The Yellow Face").

Swift, Jonathan. *A Tale of a Tub* (1704), and *Gulliver's Travel* (1726).

<Written in Present-Day English (1901-) >

Note: The texts by Agatha Christie and Sir Arthur Conan Doyle are downloaded from *Project Gutenberg*.

Christie, Agatha. *The Thirteen Problems* (1932, including “The Tuesday Night Club” and “The Blood-Stained Pavement”), *Murder in the Mews* (1934, including “Murder in the Mews”).

Doyle, Sir Arthur Conan. *The Hound of the Baskervilles* (1902), *The Return of Sherlock Holmes* (1905, including “The Norwood Builder”, “The Dancing Men” and “The Three Students”), *The Valley of Fear* (1915), *His Last Bow* (1917),

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COCA = *The Corpus of Contemporary American English*

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Drew's Script-O-Rama. (URL: <http://www.script-o-rama.com/>)

HTI = *HTI Modern English Collection*.

(URL: <http://www.hti.umich.edu/p/pd-modeng/simple.html>)

Project Gutenberg. (URL: <http://www.gutenberg.org/>)